ADVANTAGE CF

CF INDUSTRIES 2016 ANNUAL REPORT

CF Industries is the global leader in transforming natural gas into nitrogen products. Our agricultural customers use our products as fertilizer, while industrial customers use nitrogen to dramatically reduce harmful emissions from manufacturing processes and for other purposes. CF Industries' 3,000 employees operate world-class nitrogen manufacturing complexes in Canada, the United Kingdom and the United States, and distribute plant nutrients from those facilities through a system of terminals, warehouses and transportation equipment located primarily in the American Midwest.

ADVANTAGE

An Essential Nutrient

Nitrogen is a non-discretionary and non-substitutable nutrient. Farmers must apply nitrogen every year or face an immediate reduction in yield, and, likely, profits. As the global population increases, demand for this essential crop nutrient increases as well. As one of the largest producers of nitrogen in the world, and in proximity to some of the world's most productive cropland, CF is well-positioned to meet and benefit from this growing demand.

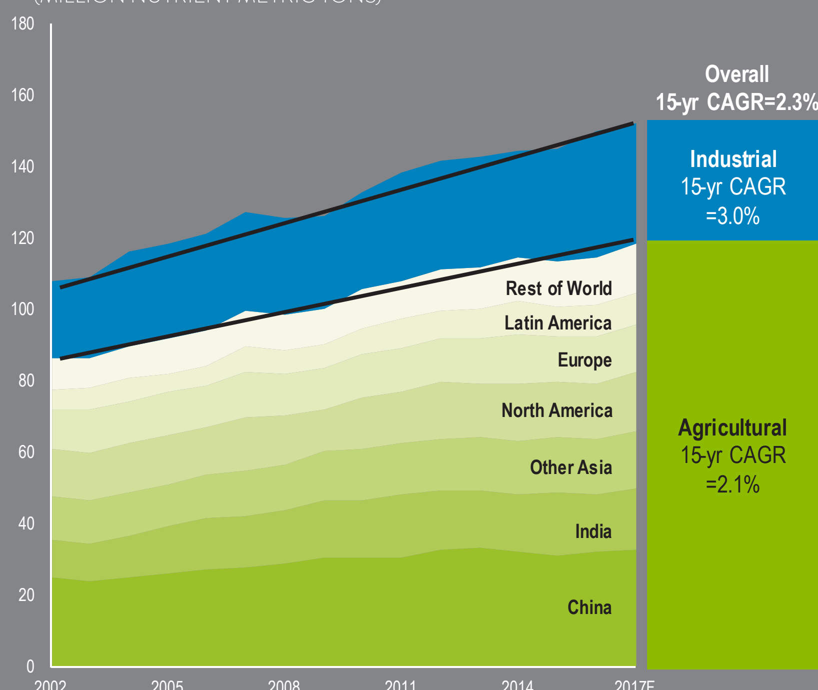
ADVANTAGE

A Pure Play in a Recovering Market

CF focuses primarily on manufacturing and distributing nitrogen. Demand for nitrogen has been growing at approximately two percent per year. After 2017, new nitrogen capacity growth is expected to be below the typical annual demand growth rate, tightening the global supply and demand balance and driving a sustained price recovery beginning in 2018. With our structural and operational advantages, we believe CF and its shareholders are well-positioned to benefit from recovery in the sector.

TOTAL NITROGEN CONSUMPTION 2002-2017 (1)

(MILLION NUTRIENT METRIC TONS)



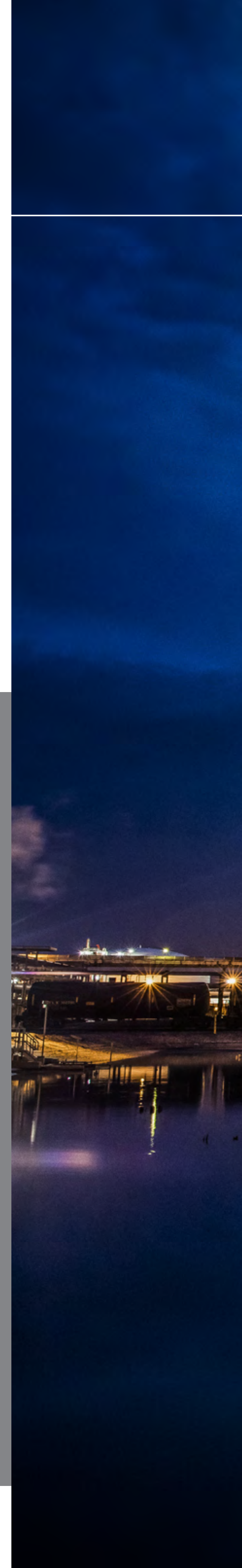
EXPECTED DEMAND GROWTH REQUIRES:

- Additional 3 million nutrient metric tons each year
- Incremental ~3.7 million metric tons of new ammonia capacity annually
  - -Equivalent to ~6.6 million metric tons of incremental urea capacity
  - -Equivalent to 5 world scale ammonia/urea plants
- Investment of $9-14 billion in capital expenditures to meet expected annual demand growth(2)

(1) 2002-2015 actuals, 2016E, 2017F

(2) Assumes capex requirements consistent with recent North American, Middle East and African plants

Sources: Fertecon, IFA, AAPFCO, Fertilizers Europe, ANDA, CF Industries



ADVANTAGE

The Low-Cost Producer

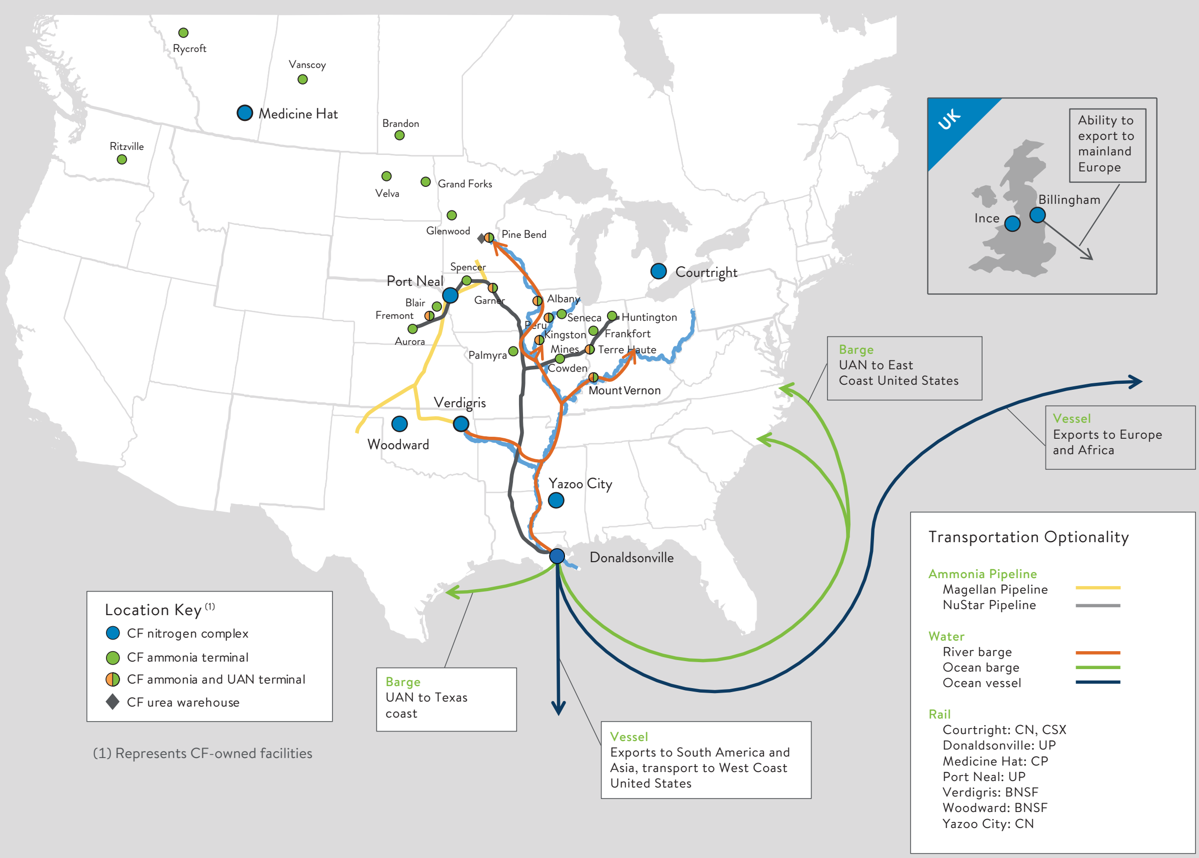
A significant part of the cost to produce nitrogen is attributable to its primary feedstock – either natural gas or coal – for manufacturing. CF only uses natural gas and, in North America where the majority of our production base is located, natural gas is lower-cost and more reliable than in most parts of the world. As a result, our North American assets, which are already among the most efficient in the world, sit on the low end of the global cost curve and enjoy a sustainable and significant cost advantage that helps drive margins that are among the industry's best.

ADVANTAGE

An Integrated Network

Our North American network of manufacturing and distribution assets provides us with exceptional flexibility to meet customer needs. We are able to shift product mix quickly, adjusting the volume of ammonia, urea or urea ammonium nitrate (UAN) based on demand in order to raise the overall margin of the system. Our logistics capabilities – which connect our manufacturing sites to our distribution terminals and our customers by vessel, barge, rail, truck and pipeline – allow us to move products efficiently throughout the world to deliver our products where demand is highest.

BEST NORTH AMERICAN DISTRIBUTION CAPABILITIES WITH A GLOBAL REACH



ADVANTAGE

Import-Dependent North America

North America is dependent on imports to meet its demand for nitrogen, and will continue to be so for the foreseeable future. That means producers in North America have a significant cost advantage on sales within the region due in part to lower transportation costs. With the completion in 2016 of our capacity expansion projects in Donaldsonville, Louisiana, and Port Neal, Iowa, we significantly increased our production capacity, and thus the volume of tons available to benefit from the in-region cost advantage.

ADVANTAGE

Global Reach

The nitrogen market is global. Though CF manufacturing complexes are in import-dependent regions, market and pricing dynamics may determine that the best sales opportunities lie elsewhere – if product can be moved cost-effectively. We can do exactly that, thanks to two deep-water docks at our nitrogen complex in Donaldsonville. From there, we can ship ammonia, urea and UAN through the Gulf of Mexico to South America, Europe, Africa and Asia. In 2016, we exported 1.4 million tons of nitrogen products – a company record.

RIGHT AND BOTTOM LEFT: STRATEGICALLY LOCATED MANUFACTURING AND DISTRIBUTION FACILITIES ON MAJOR RIVERWAYS PROVIDE DIRECT ACCESS TO BOTH THE NORTH AMERICAN CORNBELT AND GLOBAL DESTINATIONS.

BOTTOM RIGHT: OUR UK OPERATIONS TYPICALLY PRODUCE 1.9 MILLION TONS OF NITROGEN PRODUCTS EACH YEAR AND SUPPLY APPROXIMATELY 40 PERCENT OF THE COUNTRY'S FERTILIZER NEEDS.

ADVANTAGE

Doing It Right

Our Do It Right culture is the foundation of our global leadership. Do It Right means we put safety first, operate our facilities to the highest standards, and share knowledge and best practices among teams. We go beyond compliance with legal and regulatory requirements because we believe in doing the right things for the right reasons. Our strong track record of safe, reliable and compliant operations is a source of pride for the company and allows us to take full advantage of market opportunities.

A Pure Play.
A Straightforward Model.
A Clear Upside.

THAT IS THE CF **ADVANTAGE**
IN A RECOVERING NITROGEN MARKET.

Dear Fellow

CF INDUSTRIES SHAREHOLDERS:

2016 UNDERSCORED THE RESILIENCY OF CF INDUSTRIES' BUSINESS MODEL, ASSETS AND TEAM AS WE DELIVERED ON A NUMBER OF STRATEGIC PRIORITIES IN A DIFFICULT COMMERCIAL ENVIRONMENT.

W. Anthony Will
President and
Chief Executive Officer

First and foremost, we continue to operate safely, with a recordable incident rate that remains well below industry averages. In February, we successfully launched our strategic venture with CHS Inc., for which we received $2.8 billion for a minority equity interest in a CF subsidiary. In addition, we began shipping product to CHS pursuant to a supply agreement under which CHS can purchase up to 1.7 million tons of urea and UAN annually on a ratable basis. We fully integrated the plants in the United Kingdom, increasing the sales volume of that business's highest-margin product, ammonium nitrate, by 27 percent. We also increased our company's production capacity during the year by 25 percent on a nutrient ton basis compared to the end of 2015.

We did all this against a backdrop of the most challenging nitrogen industry conditions in over a decade. Global feedstock and ocean freight costs fell as new nitrogen capacity came online, driving prices to unsustainable lows. So, while our sales volume increased by almost 25 percent, our top line fell by nearly 15 percent. Net loss for 2016 was $277 million and adjusted EBITDA[(1)] was $858 million.

Nevertheless, we enter 2017 with a strong and improving liquidity position. We ended 2016 with $1.2 billion in cash on the balance sheet and $750 million in undrawn revolving credit. We also expect to receive more than $800 million in federal and state tax refunds during 2017.

(1) EBITDA is defined as net (loss) earnings attributable to common stockholders plus interest expense (income)-net, income tax (benefit) provision, and depreciation and amortization. See reconciliations of EBITDA and adjusted EBITDA to the most directly comparable GAAP measures on page 24 of this Annual Report.

ADVANTAGE CF

We are in this strong position today, and confident in our ability to deliver value to shareholders over the long-term, because of our unique combination of structural and operational advantages.

Our enduring structural advantages start with CF's access to abundant low-cost North American natural gas. This provides CF with some of the lowest feedstock costs in the industry, and places us firmly on the low end of the global cost curve. We primarily operate in a region that is import-dependent today and for the foreseeable future. Additionally, we supply a product that is not discretionary, not substitutable, and for which global demand consistently grows at about two percent per year.

> "Our strategy – investing in the business to grow cash generation while at the same time reducing the outstanding share count – has had a dramatic positive impact for our shareholders."

We have significant operational advantages as well. We are the largest producer of nitrogen in North America and one of the largest in the world. Within this scale, we have meaningful flexibility to switch production between ammonia, urea and UAN, enabling CF to maximize results based on customer demand. Approximately 3 million tons of owned and leased product storage allow us to hold product for future sales while keeping our manufacturing utilization rates at high levels. Finally, we have the best export capability in North America, able to ship significant volumes globally.

STRATEGY

Through the cycle, these advantages enable superior cash flow generation compared to nearly all other competitors. Indeed, we believe we will likely generate cash flow above and beyond what we have the opportunity to deploy to grow the business. This excess cash flow enables our strategy, which is to drive a steady increase in shareholder participation in our underlying asset base as measured by tons of nitrogen capacity per 1,000 shares.

WE EXECUTE OUR STRATEGY IN TWO WAYS

We first look to reinvest in our business where we can identify opportunities that fit within our strategic fairway. These opportunities must also generate risk-adjusted rates of return well above our cost of capital. Second, in the absence of available opportunities, we expect to distribute excess capital to shareholders. Our bias has been towards share repurchases, as our share price has been below what we believe to be the intrinsic value of the company. Total capital returned through share repurchases and dividends to shareholders since 2012 is more than twice our net strategic investments.

Our strategy – investing in the business to grow cash generation while at the same time reducing the outstanding share count – has had a dramatic positive impact for our shareholders. Since 2010, tons of nitrogen capacity per 1,000 shares have increased nearly 220 percent.

GENERATING CASH FLOW AND DELIVERING VALUE TO SHAREHOLDERS

We believe we are well-positioned to generate significant cash flow and deliver value to shareholders in the years ahead.

We believe that 2016 was likely the low point of the cycle, and that a sustained recovery will take hold beginning in 2018 as industry overcapacity is reduced over the next couple years. Unsustainable low pricing has already led to very predictable closures and curtailments of high-cost production. In China, approximately 9 million metric tons of urea capacity was reportedly closed permanently in 2016. Additionally, more than 12 million metric tons of urea capacity worldwide had significantly reduced operating rates last year.

As high-cost production shuts down, new capacity will come online at a much slower rate than in the past few years. Indeed, beyond 2017 and for the foreseeable future, the rate of new capacity growth will be well below the expected two percent annual growth in demand. These factors should tighten the global supply and demand balance and drive sustained price recovery beginning in 2018. Because we are a pure play nitrogen company, incremental price increases will fall directly to our bottom line.

Beyond industry conditions, CF's cash generation may benefit from tax and regulatory changes in the United States. We are hopeful that legislators and the new administration seize the opportunity to fix the broken U.S. corporate tax code that discourages investment in the United States.

Our cash tax rate is typically close to the 35 percent U.S. statutory rate. We believe a reduction in corporate tax rates, which are among the highest in the industrialized world, will greatly benefit the United States. CF, in particular, would see the global competitive playing field become more level, and the benefit of reducing cash taxes would also translate dollar for dollar into increased cash flow.

A GREAT COMPANY WITH A BRIGHT FUTURE

2016 marked CF Industries' 70th year in business. Longevity like this is not standard in the nitrogen industry. Forty years ago, there were 63 companies producing nitrogen in the United States. CF is the only significant nitrogen producer in business then – and one of just three total – still operating today.

Our resilience over time is not an accident. Our company always has been, and always will be, built for the long-term. Everything we do is possible because of the commitment and operational expertise of the CF team. Their hard work and disciplined execution have resulted in the extraordinary set of advantages that CF enjoys today – advantages that will serve our business and our shareholders well in the recovery ahead.

We look forward to that recovery and rewarding you for your continued support.

W. Anthony Will
President and
Chief Executive Officer

The Production
ADVANTAGE

CAPITALIZING ON SCALE AND EXPERTISE

Sometimes it's the big things that actually make all the difference. Already one of the world's largest producers of nitrogen, we increased our production capacity during 2016 by 25 percent on a nutrient ton basis, strengthening our cash generation capability significantly. Today, no other nitrogen producer in the world can match CF's unique combination of 19 million tons of typical annual production and 3 million tons of leased and owned storage. This scale is a key operational advantage in our global industry and brings other significant benefits as well, including flexibility and knowledge sharing.

25%

INCREASE IN PRODUCTION CAPACITY AS A RESULT OF CAPITAL EXPANSION PROJECTS AT DONALDSONVILLE AND PORT NEAL NITROGEN COMPLEXES.

CF HAS THE LARGEST PRODUCTION BASE AND DISTRIBUTION NETWORK IN NORTH AMERICA WITH SEVEN MANUFACTURING COMPLEXES AND 24 OWNED, PLUS ADDITIONAL LEASED, DISTRIBUTION FACILITIES.

Perspective:
CHRIS BOHN, SENIOR VICE PRESIDENT, MANUFACTURING AND DISTRIBUTION

Q: How are the new plants at Donaldsonville and Port Neal performing to date?

A: All five of the new plants are operating exceptionally well. The new plants continue to operate at production rates well above their stated nameplate capacities. In some cases, we are operating as much as 20 percent above nameplate capacity. To see that level of performance right out of the gate is impressive, and it's due in large part to the expertise of our engineering and operations teams.

Q: What kind of benefits beyond additional production do the new plants bring to CF?

A: The new plants magnify the scale advantages we already had as one of the world's largest nitrogen producers now with 17 ammonia plants across nine sites in our network. The most important of those that I see is the safety, operational and engineering knowledge we share across our facilities. Through our 'Best-Practice' teams we are able to improve safety, efficiency and production across our network by sharing learnings from all our facilities. These teams develop common standards and methodologies for operating our plants across our network and encourage continuous improvement – whether it's through increased production, energy efficiency or procurement.

Q: Is there a competitive advantage CF's manufacturing footprint provides that isn't as well recognized as it should be?

A: Our ability to switch between products seamlessly is an important part of maximizing our cash generation capability. Not only can we convert ammonia into granular urea, UAN, urea liquor or diesel exhaust fluid, but we also can change between these products incredibly quickly – in just a few hours in some locations. This allows us to shift our production to whichever product will provide the best margins at that moment, which is incredibly valuable to us as a commodity producer.

Q. Fertilizer isn't used year-round in North America. How do you prepare for high-demand periods?

A: With 3 million tons of ammonia, UAN and urea owned and leased storage in North America, along with significant transportation flexibility, we can operate our production assets at high utilization rates and store product for sale during high demand periods. With all of our storage located in prime nitrogen-consuming areas, our products are available and well-positioned when the season begins and product demand is greatest.

Q: What is your approach to safety in production?

A: Safety is our license to operate. We take seriously the safety not only of the individuals who work in our plants, but also the communities in which we work. Increased safety leads to greater efficiency and reliability in production. And while that's a competitive advantage at CF, we don't see it as proprietary. We reward safety innovation within our organization, and we share our progress and insights throughout our network and with industry peers.

The Logistics

ADVANTAGE

RAISING THE OVERALL MARGIN OF THE SYSTEM

It’s not enough just to produce nitrogen. Countless variables – farm level economics, weather, perceived price risk, existing inventories and import levels, to name a few – determine when, where and what a customer may purchase. That’s why we’ve developed one of the most sophisticated logistics operations in our industry. The variety and reach of our network give us tremendous agility to meet our customers’ needs, maximize the efficiency of our company and raise the overall margin of the system.

1.4

MILLION TONS

RECORD EXPORTS TO EUROPE, SOUTH AMERICA AND ASIA IN 2016

DONALDSONVILLE’S LOCATION ON THE MISSISSIPPI RIVER PROVIDES DIRECT ACCESS TO THE GULF OF MEXICO AND GLOBAL AGRICULTURAL CUSTOMERS BEYOND.

Perspective:
BERT FROST, SENIOR VICE PRESIDENT, SALES, MARKET DEVELOPMENT AND SUPPLY CHAIN

Q: How does CF set itself apart in the marketplace?

A: We are a commodity producer, but we have developed clear operational advantages that enable us to maximize results. One of the most important is our optionality – our ability to change our product mix and the destination of our products quickly in order to raise the overall margin of the system. With our expanded capacity and ability to ship product economically by truck, rail, barge, vessel or pipeline, we have been able to grow our portfolio of customers in North America and around the world. This gives us more options for where, when and at what price we sell our products.

Q: How does the location of CF's North American operations make a difference?

A: Producers in the Arab Gulf have an abundance of products to sell, but are located in a region where there is little to no demand, so they have to ship it to other regions. Chinese producers have a huge demand in their country, but their capacity is overbuilt, so they have been a significant exporter. South Americans are import-dependent, but have high gas and high logistics costs. In contrast, we have the best demand and supply structure with a diverse customer base. We operate in an import-dependent region and have access to low-cost North American natural gas. We also sit in the cornbelt, in the wheat belt, in the cotton belt, on the river, on the ocean and on the major rail lines.

Q: Within North America, how do CF's logistics capabilities compare to other competitors?

A: No one else has the multiple ways we can distribute product to meet customers' needs precisely when it is needed. We're on all the Class 1 railroads, and have more capacity for river loading than any other producer. We are also one of two companies that have access to both of North America's major ammonia pipelines, which is by far the safest, quickest and cheapest way to ship ammonia. We further leveraged this access by building a reinjection pump at our terminal in Garner, Iowa, which sits at the intersection of the ammonia pipelines. We are now able to instantaneously move ammonia from the pipeline that serves the western cornbelt to the pipeline that serves the eastern cornbelt, allowing us to chase the ammonia application season as the location of demand shifts based on weather and local supply.

Q: What shifts in buying patterns have you noticed over the past year, and how have you responded?

A: North America will be an import-dependent region for the foreseeable future. But with the new capacity that's come online in recent years, customers can get product faster, which in turn means they're not placing orders as far in advance. We understand that logic, but we also don't have to wait for our customers to be ready to buy. With our growing customer base, both on the East and West Coasts of the United States and in other parts of the world, we have many more options for sales than we did just a few years ago. This allows us to run our business efficiently and profitably year-round.

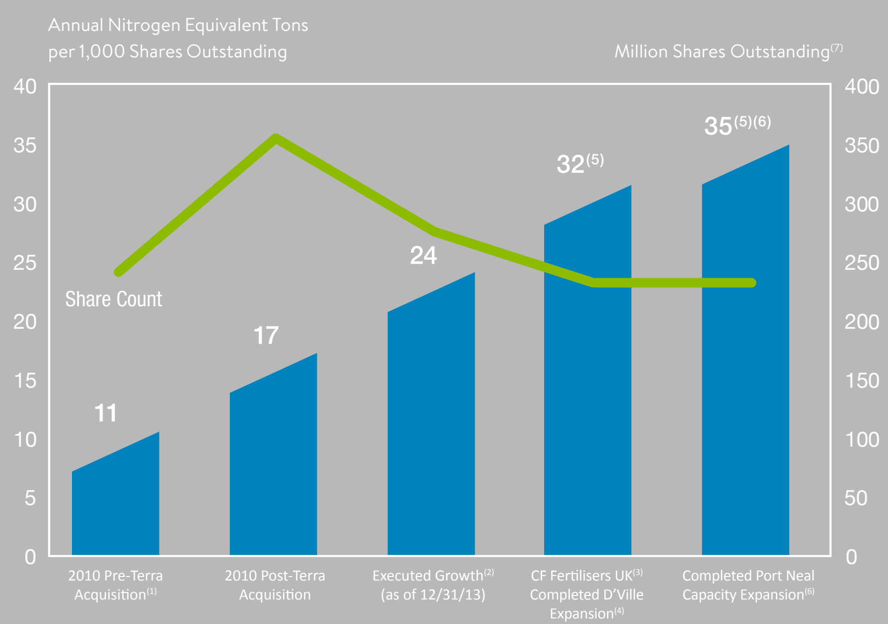
The Capital

ADVANTAGE

INCREASING SHAREHOLDER PARTICIPATION IN THE UNDERLYING BUSINESS

Despite a challenging 2016, CF's prudent approach to managing the balance sheet has ensured our financial strength, and positioned us to benefit as industry conditions improve. Through the cycle, our structural and operational advantages enable superior excess cash generation compared to nearly all competitors. This supports our strategy to drive a steady increase in shareholder participation in our underlying business as measured by tons of nitrogen capacity per 1,000 shares.

CF INDUSTRIES' NITROGEN VOLUMES AND SHARES OUTSTANDING



Production Capacity (nutrient tons in millions)	2.6	6.2	6.7	7.4[5]	8.1[5][6]

RETURNED TO SHAREHOLDERS MORE THAN

2X

OUR NET INVESTMENTS IN LARGE PROJECTS AND ASSETS SINCE 2012

(1) Excludes 34% of Canadian Fertilizers Limited (CFL) that was owned by Viterra. CFL operations were treated as a consolidated variable interest entity in CF Industries Holdings, Inc. financial statements.
(2) Acquisition of all outstanding interests in CFL that closed on April 30, 2013 and ammonia debottleneck projects that were completed from January 2011 through December 2013.
(3) Acquisition of remaining 50% interest in CF Fertilisers UK from Yara.
(4) October 31, 2016 run rate includes completed ammonia, urea, and UAN capacity expansion projects at Donaldsonville, Louisiana.
(5) Production capacity and nitrogen capacity per 1,000 shares adjusted to account for the product tons dedicated to the CHS strategic venture.
(6) Ammonia and urea expansions at Port Neal, Iowa, completed in Q4 2016.
(7) As of December 31, 2016, the company had 233 million shares outstanding.

Perspective:
DENNIS KELLEHER, SENIOR VICE PRESIDENT AND CHIEF FINANCIAL OFFICER

Q: What drives CF's cash generation capability?

A: We have enduring structural advantages – access to low-cost North American natural gas, operating in import-dependent North America and the long-term demand growth for nitrogen – and key operational advantages – scale, product flexibility, significant in-region storage and export optionality – that set us apart from other producers. Through a cycle, these advantages enable superior excess cash generation compared to nearly all competitors. As industry conditions improve, this capability will be amplified. With a significant amount of capacity shutting down in 2016, and new capacity coming on at slower rates than in recent years from 2017 on, we believe that there will be a sustained nitrogen price recovery beginning in 2018. These incremental price increases will fall directly to our bottom line.

Q: What are the priorities for the excess cash the business generates?

A: Our capital allocation philosophy is longstanding and unchanged. Within an investment-grade framework, we like to invest in our strategic fairway, in growth projects that have returns well above our weighted average cost of capital. The projects also have to be clearly cash flow accretive on a per-share basis compared to our base business plans.

In the absence of these opportunities, we consistently return excess cash to investors in a timely fashion. Our bias continues to be toward share repurchases as the share price has been below our view of the intrinsic value of the company.

Q: How would you evaluate the company's success executing its capital allocation strategy?

A: We're proud of our track record on capital allocation. Since 2012, we've returned to shareholders more than twice as much as we have net invested in large projects and assets. Through share repurchases, we have reduced our outstanding share count from 356.5 million following the acquisition of Terra Industries, to 233 million today (on a split-adjusted basis). Not only have we repurchased the 112 million shares issued to fund the Terra purchase, but we also have a lower outstanding share balance than we had prior to the acquisition. Consequently, since 2010, our capital allocation strategy has grown our nitrogen capacity from 11 to 35 nutrient tons per one thousand shares, dramatically increasing our shareholders' participation in the underlying business.

Q. How did CF navigate the difficult industry conditions in 2016?

A: We always focus on managing our balance sheet prudently, and as a result, we ended 2016 with a strong liquidity position. 2016 was a year that saw unsustainably low nitrogen prices. However, at the end of the year we had $1.2 billion in cash on the balance sheet and $750 million in undrawn revolving credit. Our liquidity should improve further during 2017, in part due to the more than $800 million in federal and state tax refunds we expect to receive in the third quarter of this year. The refunds will primarily fund the retirement of $800 million in debt coming due in 2018.

The Relationship

ADVANTAGE

BUILDING LOCAL AND GLOBAL PARTNERSHIPS

As one of the largest nitrogen producers in the world, CF has an important role to play in community, manufacturing and sustainability issues. That's why CF is committed to building positive and productive relationships in the communities where we operate. But our commitment to relationship building doesn't stop there. We also work with policymakers in the countries where we operate to educate them on issues important to our business.

1,600

NEW AND INDIRECT JOBS CREATED

$55,000

AVERAGE STARTING PLANT SALARY

OUR PLANTS PROVIDE PERMANENT, WELL-PAID POSITIONS, WITH ANNUAL SALARIES UP TO $85,000 A YEAR FOR FULL CERTIFICATION, IN THE SMALL TO MEDIUM-SIZED COMMUNITIES IN WHICH WE OPERATE.

Perspective:
ROSEMARY O'BRIEN, VICE PRESIDENT, PUBLIC AFFAIRS

Q: How does CF make its voice heard by policymakers?

A: This is something we work on every single day through our public affairs teams in the United States, Canada and the United Kingdom. We have established strong relationships and open lines of communication with elected and regulatory agency officials. The key is trust. Officials know that when they speak to someone from our office, they get honest and useful information to help them make difficult policy decisions.

Q: What policy issues is CF most focused on currently?

A: We have key issues both at home and abroad. In the United States, our most important issue is corporate tax reform. CF's cash tax rate is typically 35 percent, which is the highest in the industrial world. So we are working to educate lawmakers and their staff about how lowering the corporate tax rate would level the playing field for U.S. companies like CF. Similarly, in Canada and the United Kingdom we are educating agency staff on the consequences of cap and trade regulations aimed at lowering greenhouse gas emissions. CF is constantly looking to reduce emissions at our facilities through enhanced efficiencies and continuous improvements, so we want to make sure that CF can maintain its global competitiveness under these types of new regulatory programs.

Q: What does CF hope to accomplish with the partnership it announced in 2016 with The Nature Conservancy to advance sustainable agriculture practices in Iowa?

A: Improving water quality is an important part of our commitment to a more sustainable future. The Nature Conservancy partnership is a multiyear effort to provide Iowa's farmers with tools to increase the adoption of 4R principles – applying the right fertilizer at the right rate, right time and right place – and other conservation practices. We believe that the program will bring both environmental and economic benefits by minimizing nutrient runoff. We hope the positive influence of this program will ultimately stretch far beyond Iowa.

Q: Are there any lessons to be learned in the current political climate as you look ahead to 2017?

A: President Trump is very focused on the manufacturing sector and has signed several executive orders designed to boost U.S. manufacturing. CF has a great story to tell about the positive effect U.S. manufacturers have in creating new jobs and growing local communities. That is exactly what CF has been doing for years. Port Neal, Iowa, is a perfect example. Our expansion project created thousands of construction jobs and made it one of the fastest-growing cities in the nation. It was not long ago that our industry was largely moving overseas, so it is pretty remarkable to see the impact that our recent multibillion-dollar investments have had on communities like Port Neal and Donaldsonville, Louisiana. These are the kinds of success stories that are compelling to policymakers.

The Leadership
ADVANTAGE

EXECUTING BEST-IN-CLASS GOVERNANCE

CF Industries is committed to sound corporate governance practices that make our Board and management more effective. We believe that building positive relationships with our shareholders is critical to our success, and we regularly communicate with them on a variety of topics, such as our financial performance, corporate governance and related matters.

Perspective:
DOUG BARNARD, SENIOR VICE PRESIDENT, GENERAL COUNSEL AND SECRETARY

Q: How would you describe the Board's philosophy toward corporate governance?

A: Our directors understand that they answer to the shareholders – the owners of our company – and that our shareholders want them to provide independent, thoughtful oversight and regular communication and transparency. Our directors view good corporate governance, together with worker and public safety, environmental stewardship and compliance and ethics, as complementary elements of our longstanding commitment to Do It Right in all of our business dealings.

Q: What do CF investors expect from their Board?

A: Our shareholders are focused on our long-term strategy, its implementation and our progress in achieving it. They want the Board to have an active role in guiding, debating and overseeing strategic choices. Our investors are also focused on our capital allocation priorities, and want the Board and management to strike the right balance between long-term investments and the return of excess cash to shareholders. Our directors are an invaluable part of our decision-making process in these important areas. They challenge our assumptions and actively debate the strategic direction of CF. We're a better company for it.

Q: What is your perspective on Board diversity? How do you select new Board members?

Our directors have a broad range of backgrounds, including current or former CEO experience, service on other public company boards, careers in related industries, international experience and complementary functional backgrounds. Today, women comprise 20 percent of our Board, and three of our directors have joined the Board within the past three years. Another two of our directors joined the Board after our transformative merger with Terra in 2010, our independent Chairman joined the Board in 2007 and four of our directors – including two with directly relevant agricultural experience – have overseen the remarkable growth of our company since its IPO in 2005. Looking ahead, we will continue to focus on bringing together directors with diverse backgrounds, experiences and expertise in order to represent shareholders' interests fully.

Q: Which of the governance enhancements made in recent years are most significant?

A: In recent years, our Board has engaged with shareholders on matters of corporate governance and approved a number of governance-related measures. These include establishing an independent Chairman of the Board; implementing "proxy access"; instituting annual elections for directors; enacting majority voting for directors in uncontested elections; enabling 25 percent of shareholders to call a special meeting; eliminating all supermajority voting requirements; and adopting a policy providing that any rights plan adopted by the Board must be submitted to shareholders for their ratification within one year after adoption or else it will expire. We've also increased transparency by reporting semi-annually on any political contributions we make and publishing an annual Sustainability Report.

BOARD OF DIRECTORS

BOARD OF DIRECTORS

STEPHEN A. FURBACHER
Chairman of the Board,
CF Industries Holdings, Inc.
Retired President and
Chief Operating Officer,
Dynegy Inc.

ROBERT C. ARZBAECHER
Retired Chairman,
President and Chief Executive
Officer, Actuant Corporation

WILLIAM DAVISSON
Retired Chief Executive Officer,
GROWMARK, Inc.

STEPHEN J. HAGGE
Retired President and Chief Executive
Officer, AptarGroup, Inc.

JOHN D. JOHNSON
Retired President and
Chief Executive Officer, CHS Inc.

ROBERT G. KUHBACH
Retired Vice President and Chief
Financial Officer, Dover Corporation

ANNE P. NOONAN
President and Chief Executive Officer
OMNOVA Solutions Inc.

EDWARD A. SCHMITT
Retired Chairman, President and
Chief Executive Officer, Georgia
Gulf Corporation

THERESA E. WAGLER
Executive Vice President and Chief
Financial Officer, Steel Dynamics, Inc.

W. ANTHONY WILL
President and Chief Executive
Officer, CF Industries Holdings, Inc.

SENIOR MANAGEMENT

EXECUTIVE OFFICERS

W. ANTHONY WILL
President and
Chief Executive Officer

DENNIS P. KELLEHER
Senior Vice President
and Chief Financial Officer

DOUGLAS C. BARNARD
Senior Vice President,
General Counsel and Secretary

CHRISTOPHER D. BOHN
Senior Vice President,
Manufacturing and Distribution

BERT A. FROST
Senior Vice President,
Sales, Market Development
and Supply Chain

WENDY S. JABLOW
Senior Vice President,
Human Resources

ADAM L. HALL
Vice President,
Corporate Development

RICHARD A. HOKER
Vice President and
Corporate Controller

Financial Highlights

(in millions, except per share amounts and percentages)

FOR THE YEAR	2016	2015	2014
Net Sales	$ 3,685	$ 4,308	$ 4,743
Gross Margin	$ 840	$ 1,547	$ 1,778
Net (Loss) Earnings Attributable to Common Stockholders	$ (277)	$ 700	$ 1,390
Earnings (Loss) Per Diluted Share	$ (1.19)	$ 2.96	$ 5.42
EBITDA(1)	$ 395	$ 1,666	$ 2,712
Capital Expenditures	$ 2,211	$ 2,469	$ 1,809
AT YEAR-END			
Cash and Cash Equivalents	$ 1,164	$ 286	$ 1,997
Total Assets(2)	$ 15,131	$ 12,683	$ 11,200
Customer Advances	$ 42	$ 162	$ 325
Total Debt(2)	$ 5,778	$ 5,537	$ 4,538
Total Equity	$ 6,492	$ 4,387	$ 4,572
Common Shares Outstanding	233.1	233.1(3)	241.7(4)
SEGMENT INFORMATION			
Nitrogen Product Segments			
Sales Volume (Tons)	17.0	13.7	13.3
Net Sales	$ 3,685	$ 4,308	$ 4,575
Gross Margin	$ 840	$ 1,547	$ 1,768
Gross Margin Percentage	22.8%	35.9%	38.7%
Phosphate Segment			
Sales Volume (Tons)	–	–	0.5
Net Sales	$ –	$ –	$ 168
Gross Margin	$ –	$ –	$ 10
Gross Margin Percentage	–	–	6.0%

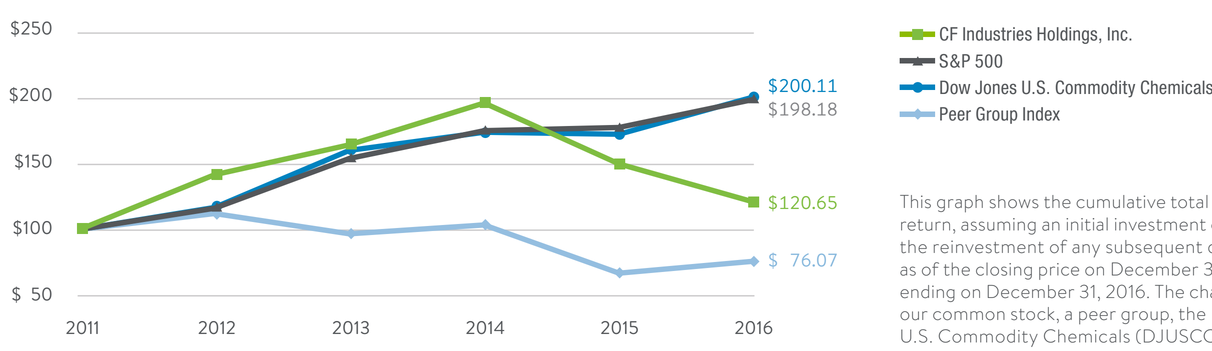
(1) EBITDA is defined as net (loss) earnings attributable to common stockholders plus interest expense (income)-net, income tax (benefit) provision, and depreciation and amortization. See reconciliations of EBITDA and adjusted EBITDA to the most directly comparable GAAP measures on page 24 of this Annual Report.

(2) Total debt and total assets have been retroactively restated for the years ended December 31, 2015 and 2014 to reflect our adoption during fiscal year 2016 of Accounting Standards Update 2015-03, Interest–Imputation of Interest: Simplifying the Presentation of Debt Issuance Costs, which resulted in the reclassification of deferred debt issuance costs from other assets to an offset of long-term debt on our consolidated balance sheets.

(3) Reflects decrease of 8.9 million shares resulting from share repurchases in 2015.

(4) Reflects decrease of 7.7 million shares resulting from share repurchases in 2014.

Comparison of 5-Year Cumulative Total Return



	12/31/11	12/31/12	12/31/13	12/31/14	12/31/15	12/31/16
CF	$100.00	141.33	163.85	195.50	149.48	120.65
S&P 500	$100.00	116.00	153.58	174.60	177.01	198.18
Dow Jones U.S. Commodity Chemicals	$100.00	116.59	159.68	173.36	171.94	200.11
Peer Group	$100.00	112.03	96.73	103.41	67.03	76.07

This graph shows the cumulative total stockholder return, assuming an initial investment of $100 and the reinvestment of any subsequent dividends, as of the closing price on December 31, 2011 and ending on December 31, 2016. The chart tracks our common stock, a peer group, the Dow Jones U.S. Commodity Chemicals (DJUSCC) Index, and the Standard & Poor's 500 Index, of which CF Industries Holdings, Inc. is a component. In constructing our peer group, we have selected Agrium Inc., The Mosaic Company and Potash Corporation of Saskatchewan Inc., all of which are publicly traded manufacturers of agricultural chemical fertilizers with headquarters in North America. We have assumed the initial investment of $100 in the peer group index was allocated among them on the basis of their respective market capitalizations at the beginning of the period.

RECONCILIATION OF NET (LOSS) EARNINGS TO EBITDA

(millions of U.S. dollars)

TWELVE MONTHS ENDED DECEMBER 31	2016	2015	2014
Net (loss) earnings attributable to common stockholders	$ (277)	$ 700	$ 1,390
Interest expense (income) – net	195	131	177
Income tax (benefit) provision[1]	(68)	385	773
Depreciation and amortization	678	480	393
Less: Other adjustments	(133)	(30)	(21)
EBITDA	$ 395	$ 1,666	$ 2,712

RECONCILIATION OF EBITDA TO ADJUSTED EBITDA

(millions of U.S. dollars)

TWELVE MONTHS ENDED DECEMBER 31	2016
EBITDA	$ 395
Start-up costs Donaldsonville ammonia	18
Start-up costs Port Neal ammonia and urea	34
Expansion project expenses	73
Loss on debt extinguishment	167
Private Senior Notes amendment arrangement fees	2
Impairment of equity method investment in PLNL	134
Transaction costs[2]	179
Unrealized net mark-to-market (gain) loss on natural gas derivatives	(260)
Loss on embedded derivative[3]	23
Loss (gain) on foreign currency transactions[4]	93
Total	463
Adjusted EBITDA	$ 858

RECONCILIATION OF NON-GAAP FINANCIAL MEASURES

EBITDA is defined as net (loss) earnings attributable to common stockholders plus interest expense (income)–net, income taxes, and depreciation and amortization. Other adjustments include the elimination of loan fee amortization that is included in both interest and amortization, and the portion of depreciation that is included in noncontrolling interests. We have presented EBITDA because management uses the measure to track performance and believes that it is frequently used by securities analysts, investors and other interested parties in the evaluation of companies in our industry. Adjusted EBITDA is defined as EBITDA adjusted with the selected items included in EBITDA as summarized in the above reconciliation. We have presented adjusted EBITDA because management uses adjusted EBITDA as a supplemental financial measure in the comparison of year-over-year performance.

(1) Includes the tax benefit of $11 million on loss on sale of non-operating equity method investment for the 12 months ended December 31, 2015.

(2) Transaction costs include the $150 million termination fee paid by the company to OCI N.V. in the second quarter of 2016 as a result of the termination of the combination agreement with OCI and costs of various consulting and legal services associated with the company's proposed combination with certain businesses of OCI and the company's strategic venture with CHS.

(3) Represents the loss in 2016 on the embedded derivative included within the terms of the company's strategic venture with CHS.

(4) Loss (gain) on foreign currency transactions primarily relates to the unrealized foreign currency exchange rate impact on intercompany debt that has not been permanently invested.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended December 31, 2016

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

Commission file number 001-32597

CF INDUSTRIES HOLDINGS, INC.
(Exact name of Registrant as specified in its charter)

Delaware	**20-2697511**
(State or other jurisdiction of incorporation or organization)	(I.R.S. Employer Identification No.)
4 Parkway North, Suite 400, Deerfield, Illinois	**60015**
(Address of principal executive offices)	(Zip Code)

Registrant's telephone number, including area code **(847) 405-2400**

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Name of each exchange on which registered
Common Stock, $0.01 par value per share Preferred Stock Purchase Rights	New York Stock Exchange

Securities Registered Pursuant to Section 12(g) of the Act: **None**

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes ☒ No ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes ☐ No ☒

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, or a smaller reporting company. See the definitions of "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer ☒ Accelerated filer ☐ Non-accelerated filer ☐ Smaller reporting company ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes ☐ No ☒

The aggregate market value of the registrant's common stock held by non-affiliates was $5,597,334,751 based on the closing sale price of common stock on June 30, 2016.

233,114,691 shares of the registrant's common stock, $0.01 par value per share, were outstanding as of January 31, 2017.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement for its 2017 annual meeting of stockholders (Proxy Statement) are incorporated herein by reference into Part III of this Annual Report on Form 10-K. The Proxy Statement will be filed with the Securities and Exchange Commission, pursuant to Regulation 14A, not later than 120 days after the end of the 2016 fiscal year, or, if we do not file the Proxy Statement within such 120-day period, we will amend this Annual Report on Form 10-K to include the information required under Part III hereof not later than the end of such 120-day period.

CF INDUSTRIES HOLDINGS, INC.

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PART I

ITEM 1. BUSINESS.

Our Company

All references to "CF Holdings," "the Company," "we," "us," and "our" refer to CF Industries Holdings, Inc. and its subsidiaries, except where the context makes clear that the reference is only to CF Industries Holdings, Inc. itself and not its subsidiaries. All references to "CF Industries" refer to CF Industries, Inc., a 100% owned subsidiary of CF Industries Holdings, Inc. Notes referenced throughout this document refer to consolidated financial statement note disclosures that are found in Item 8. Financial Statements and Supplementary Data—Notes to Consolidated Financial Statements.

We are one of the largest manufacturers and distributors of nitrogen fertilizer and other nitrogen products in the world. Our principal customers are cooperatives, independent fertilizer distributors, farmers and industrial users. Our principal nitrogen fertilizer products are ammonia, granular urea, urea ammonium nitrate solution (UAN) and ammonium nitrate (AN). Our other nitrogen products include diesel exhaust fluid (DEF), urea liquor, nitric acid and aqua ammonia, which are sold primarily to our industrial customers, and compound fertilizer products (NPKs), which are solid granular fertilizer products for which the nutrient content is a combination of nitrogen, phosphorus, and potassium. Our manufacturing and distribution facilities are concentrated in the midwestern United States and other major agricultural areas of the United States, Canada and the United Kingdom. We also export nitrogen fertilizer products from our Donaldsonville, Louisiana and Yazoo City, Mississippi manufacturing facilities, and our United Kingdom manufacturing facilities in Billingham and Ince.

Our principal assets include:

- four U.S. nitrogen fertilizer manufacturing facilities, located in Donaldsonville, Louisiana (the largest nitrogen fertilizer complex in the world); Port Neal, Iowa; Yazoo City, Mississippi; and Woodward, Oklahoma. These facilities are owned by CF Industries Nitrogen, LLC (CFN), in which we own a majority equity interest and CHS Inc. (CHS) owns a minority equity interest. See Note 17—Noncontrolling Interests for additional information on our strategic venture with CHS;
- an approximately 75.3% interest in Terra Nitrogen Company, L.P. (TNCLP), a publicly traded limited partnership of which we are the sole general partner and the majority limited partner and which, through its subsidiary Terra Nitrogen, Limited Partnership (TNLP), operates a nitrogen fertilizer manufacturing facility in Verdigris, Oklahoma;
- two Canadian nitrogen fertilizer manufacturing facilities, located in Medicine Hat, Alberta (the largest nitrogen fertilizer complex in Canada) and Courtright, Ontario;
- two United Kingdom nitrogen manufacturing complexes, located in Ince and Billingham;
- an extensive system of terminals and associated transportation equipment located primarily in the midwestern United States; and
- a 50% interest in Point Lisas Nitrogen Limited (PLNL), an ammonia production joint venture located in the Republic of Trinidad and Tobago that we account for under the equity method.

In 2016, we completed our capacity expansion projects at Donaldsonville, Louisiana and Port Neal, Iowa. These projects, originally announced in 2012, included the construction of new ammonia, urea, and UAN plants at our Donaldsonville, Louisiana complex and new ammonia and urea plants at our Port Neal, Iowa complex. These plants increased our overall production capacity by approximately 25%, improved our product mix flexibility at Donaldsonville, and improved our ability to serve upper-Midwest urea customers from our Port Neal location. In combination, these new facilities are able to produce 2.1 million tons of gross ammonia per year, upgraded products ranging from 2.0 million to 2.7 million tons of granular urea per year and up to 1.8 million tons of UAN 32% solution per year, depending on our choice of product mix. These new facilities will allow us to benefit from the cost advantages of North American natural gas. At our Donaldsonville complex, the ammonia plant was placed in service in October 2016, the UAN plant was placed in service in the first quarter of 2016 and the granular urea plant was placed in service in the fourth quarter of 2015. At our Port Neal, Iowa complex, both the ammonia and granular urea plants were placed in service in the fourth quarter of 2016. The total capital cost of the capacity expansion projects was $5.2 billion. See Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Capacity Expansion Projects and Restricted Cash for additional information related to our capacity expansion projects.

We commenced a strategic venture with CHS on February 1, 2016, at which time CHS purchased a minority equity interest in CFN for $2.8 billion. On February 1, 2016, CHS also began receiving deliveries pursuant to a supply agreement under which CHS has the right to purchase annually from CFN up to approximately 1.1 million tons of granular urea and 580,000 tons of UAN at market prices. As a result of its minority equity interest in CFN, CHS is entitled to semi-annual cash distributions from CFN. We are also entitled to semi-annual cash distributions from CFN. See Note 17—Noncontrolling Interests for additional information on our strategic venture with CHS.

On August 6, 2015, we entered into a definitive agreement (as amended, the Combination Agreement) to combine with the European, North American and global distribution businesses of OCI N.V. (OCI). On May 22, 2016, CF Holdings, OCI and the other parties to the Combination Agreement entered into a termination agreement (the Termination Agreement) under which the parties agreed to terminate the Combination Agreement by mutual written consent. Pursuant to the Termination Agreement, CF Holdings paid OCI a termination fee of $150 million, which is included in transaction costs in our consolidated statement of operations. See Note 4—Acquisitions and Divestitures for additional information.

On July 31, 2015, we acquired the remaining 50% equity interest in CF Fertilisers UK Group Limited (formerly known as GrowHow UK Group Limited) (CF Fertilisers UK) not previously owned by us for total consideration of $570 million, and CF Fertilisers UK became wholly owned by us. This transaction added CF Fertilisers UK's nitrogen manufacturing complexes in Ince, United Kingdom and Billingham, United Kingdom to our consolidated manufacturing capacity.

Prior to March 17, 2014, we also manufactured and distributed phosphate fertilizer products. Our principal phosphate products were diammonium phosphate (DAP) and monoammonium phosphate (MAP). On March 17, 2014, we completed the sale of our phosphate mining and manufacturing business, which was located in Florida, to The Mosaic Company (Mosaic) for approximately $1.4 billion in cash. Our phosphate mining and manufacturing business was reported in our phosphate segment, which reflects the reported results of the phosphate business through March 17, 2014, plus the continuing sales of the phosphate inventory in the distribution network after March 17, 2014. The remaining phosphate inventory was sold in the second quarter of 2014; therefore, the phosphate segment does not have operating results subsequent to that quarter. See Note 4—Acquisitions and Divestitures for additional information.

The ammonia, granular urea, UAN, AN and Other segments are also referred to throughout this document as the "Nitrogen Product Segments." For the years ended December 31, 2016, 2015 and 2014, we sold 17.0 million, 13.7 million and 13.3 million product tons from the Nitrogen Product Segments generating net sales of $3.69 billion, $4.31 billion and $4.57 billion, respectively.

Our principal executive offices are located outside of Chicago, Illinois, at 4 Parkway North, Suite 400, Deerfield, Illinois 60015, and our telephone number is 847-405-2400. Our Internet website address is *www.cfindustries.com.* Information made available on our website does not constitute part of this Annual Report on Form 10-K.

We make available free of charge on or through our Internet website, *www.cfindustries.com*, all of our reports on Forms 10-K, 10-Q and 8-K and all amendments to those reports as soon as reasonably practicable after such material is filed electronically with, or furnished to, the Securities and Exchange Commission (SEC). Copies of our Corporate Governance Guidelines, Code of Corporate Conduct and charters for the Audit Committee, Compensation Committee, and Corporate Governance and Nominating Committee of our Board of Directors (the Board) are also available on our Internet website. We will provide electronic or paper copies of these documents free of charge upon request. The SEC also maintains a website at *www.sec.gov* that contains reports, proxy and information statements and other information regarding issuers that file electronically with the SEC.

Company History

We were founded in 1946 as a fertilizer brokerage operation by a group of regional agricultural cooperatives. During the 1960s, we expanded our distribution capabilities and diversified into fertilizer manufacturing through the acquisition of several existing plants and facilities. During the 1970s and again during the 1990s, we expanded our production and distribution capabilities significantly, spending approximately $1 billion in each of these decades.

We operated as a traditional manufacturing and supply cooperative until 2002, when we adopted a new business model that established financial performance as our principal objective, rather than assured supply to our owners. A critical aspect of the new business model was to establish a more economically driven approach to the marketplace.

In August 2005, we completed our initial public offering (IPO) of common stock, which is listed on the New York Stock Exchange. In connection with the IPO, we consummated a reorganization transaction whereby we ceased to be a cooperative and our pre-IPO owners' equity interests in CF Industries were canceled in exchange for all of the proceeds of the offering and shares of our common stock.

In April 2010, we acquired Terra Industries Inc. (Terra), a leading North American producer and marketer of nitrogen fertilizer products for a purchase price of $4.6 billion, which was paid in cash and shares of our common stock. As a result of the Terra acquisition, we acquired five nitrogen fertilizer manufacturing facilities, our approximately 75.3% interest in TNCLP and certain joint venture interests.

In April 2013, we purchased the remaining noncontrolling interest in Canadian Fertilizers Limited (CFL).

In March 2014, we completed the sale of our phosphate mining and manufacturing business, which was located in Florida, to Mosaic for approximately $1.4 billion in cash.

In July 2015, we acquired the remaining 50% equity interest in CF Fertilisers UK not previously owned by us for total consideration of $570 million, and CF Fertilisers UK became wholly owned by us.

In February 2016, our strategic venture with CHS commenced, at which time CHS purchased a minority equity interest in CFN for $2.8 billion.

In 2016, we completed capacity expansion projects at Donaldsonville, Louisiana and Port Neal, Iowa which increased our production capacity by 25% for a total capital cost of $5.2 billion.

Product Tons and Nutrient Tons

Unless otherwise stated, we measure our production and sales volume in this Annual Report on Form 10-K in product tons, which represents the weight of the product measured in short tons (one short ton is equal to 2,000 pounds). References to UAN product tons assume a 32% nitrogen content basis for production volume.

We also provide certain supplementary volume information measured in nutrient tons. Nutrient tons represent the weight of the product's nitrogen content, which varies by product. Ammonia represents 82% nitrogen content, granular urea represents 46% nitrogen content, UAN represents between 28% and 32% nitrogen content and AN represents between 29% and 35% nitrogen content.

Reportable Segments

Our reportable segments consist of the following segments: ammonia, granular urea, UAN, AN, Other, and phosphate. These segments are differentiated by products. We use gross margin to evaluate segment performance and allocate resources. Total other operating costs and expenses (consisting of selling, general and administrative expenses and other operating—net) and non-operating expenses (interest and income taxes), are centrally managed and are not included in the measurement of segment profitability reviewed by management. See Note 21—Segment Disclosures for additional information.

Nitrogen Product Segments

We are the largest nitrogen fertilizer producer in North America. Our primary nitrogen fertilizer products are ammonia, granular urea, UAN and AN. Our historical sales of nitrogen fertilizer products from our Nitrogen Product Segments are shown in the following table. Net sales do not reflect amounts used internally, such as ammonia, in the manufacture of other products.

	2016		2015		2014	
	Tons	Net Sales	Tons	Net Sales	Tons	Net Sales
	(tons in thousands; dollars in millions)					
Nitrogen Product Segments						
Ammonia	2,874	$ 981	2,995	$ 1,523	2,969	$ 1,576
Granular urea	3,597	831	2,460	788	2,459	915
UAN	6,681	1,196	5,865	1,480	6,092	1,670
AN	2,151	411	1,290	294	958	243
Other[1]	1,654	266	1,108	223	798	171
Total	16,957	$ 3,685	13,718	$ 4,308	13,276	$ 4,575

(1) Other segment products include DEF, urea liquor, nitric acid, aqua ammonia and NPKs.

Gross margin for the Nitrogen Product Segments was $0.84 billion, $1.55 billion and $1.77 billion for the years ended December 31, 2016, 2015 and 2014, respectively.

We own and operate seven nitrogen fertilizer manufacturing facilities in North America, including five nitrogen fertilizer manufacturing facilities in the United States, one in Medicine Hat, Alberta, Canada and one in Courtright, Ontario, Canada. As of December 31, 2016, the combined production capacity of these seven facilities represented approximately 43%, 50%, 48% and 19% of North American ammonia, granular urea, UAN and AN production capacity, respectively. Each of our nitrogen fertilizer manufacturing facilities in North America has on-site storage to provide flexibility to manage the flow of outbound shipments without impacting production.

We also operate two United Kingdom nitrogen manufacturing complexes located in Ince and Billingham that produce ammonia, AN and NPKs and serve primarily the British agricultural and industrial markets.

The following table shows the production capacities as of December 31, 2016 at each of our nitrogen manufacturing facilities:

	Average Annual Capacity(1)					
	Gross Ammonia(2)	Net Ammonia(2)	UAN(3)	Urea(4)	AN(5)	NPKs
	(tons in thousands)					
Donaldsonville, Louisiana(6)	4,335	1,390	3,255	2,835	—	—
Medicine Hat, Alberta	1,230	770	—	810	—	—
Port Neal, Iowa	1,230	110	800	1,400	—	—
Verdigris, Oklahoma(7)(8)	1,210	430	1,955	—	—	—
Woodward, Oklahoma	480	130	810	45	—	—
Yazoo City, Mississippi(8)(9)	570	—	160	50	1,035	—
Courtright, Ontario(8)(10)	500	265	345	160	—	—
Ince, U.K.(11)	380	20	—	—	575	385
Billingham, U.K.(8)(10)	595	310	—	—	625	—
	10,530	3,425	7,325	5,300	2,235	385
Unconsolidated Affiliate						
Point Lisas, Trinidad(12)	360	360	—	—	—	—
Total	10,890	3,785	7,325	5,300	2,235	385

(1) Average annual capacity includes allowance for normal outages and planned maintenance shutdowns.

(2) Gross ammonia capacity includes ammonia used to produce upgraded products. Net ammonia capacity is gross ammonia capacity less ammonia used to produce upgraded products based on the product mix shown in the table.

(3) Measured in tons of UAN containing 32% nitrogen by weight.

(4) Urea is sold as granular urea from the Donaldsonville and Medicine Hat facilities, as urea liquor from the Woodward, Yazoo City and Courtright facilities and as either granular urea or urea liquor from the Port Neal facility. Urea liquor produced at the Yazoo City, Courtright, Woodward and Port Neal facilities can be sold as DEF.

(5) AN includes prilled products (Amtrate and IGAN) and AN solution produced for sale.

(6) The Donaldsonville facility capacities present an estimated production mix. This facility is capable of producing between 2.4 million and 3.3 million tons of granular urea and between 1.2 million and 4.3 million tons of UAN annually.

(7) Represents 100% of the capacity of this facility.

(8) Reduction of UAN or AN production at the Yazoo City, Courtright, Verdigris and Billingham facilities can allow more merchant nitric acid to be made available for sale.

(9) The Yazoo City facility's production capacity depends on product mix. With the facility maximizing the production of AN products, 160,000 tons of UAN can be produced. UAN production can be increased to 450,000 tons by reducing the production of AN to 900,000 tons.

(10) Production of urea products at the Courtright facility can be increased by reducing UAN production.

(11) The Ince facility's production capacity depends on product mix. The facility can increase production of NPKs to 550,000 tons by reducing AN production to 485,000 tons.

(12) Represents our 50% interest in the capacity of PLNL.

The following table summarizes our nitrogen fertilizer production volume for the last three years.

	December 31,		
	2016	2015	2014
	(tons in thousands)		
Ammonia[(1)]	8,307	7,673	7,011
Granular urea	3,368	2,520	2,347
UAN (32%)	6,698	5,888	5,939
AN	1,845	1,283	950

(1) Gross ammonia production, including amounts subsequently upgraded on-site into granular urea, UAN or AN.

Donaldsonville, Louisiana

The Donaldsonville nitrogen fertilizer complex is the world's largest nitrogen fertilizer production facility. It has six ammonia plants, five urea plants, four nitric acid plants and three UAN plants. The complex, which is located on the Mississippi River, includes deep-water docking facilities, access to an ammonia pipeline, and truck and railroad loading capabilities. The complex has on-site storage for 160,000 tons of ammonia, 201,000 tons of UAN (measured on a 32% nitrogen content basis) and 173,000 tons of granular urea.

As part of our capacity expansion projects, the new Donaldsonville urea plant became operational during the fourth quarter of 2015. The new UAN plant was placed in service in the first quarter of 2016, and the new ammonia plant was placed in service in October 2016. For additional details regarding the capacity expansion projects, see Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Capacity Expansion Projects and Restricted Cash.

Medicine Hat, Alberta, Canada

Medicine Hat is the largest nitrogen fertilizer complex in Canada. It has two ammonia plants and one urea plant. The complex has on-site storage for 60,000 tons of ammonia and 60,000 tons of granular urea.

The complex is owned by CFL, which until April 30, 2013, was a variable interest entity which we consolidated in our financial statements. In April 2013, we purchased the remaining noncontrolling interest. CFL continues to be a wholly owned subsidiary.

Port Neal, Iowa

The Port Neal facility is located approximately 12 miles south of Sioux City, Iowa on the Missouri River. The facility consists of two ammonia plants, three urea plants, two nitric acid plants and a UAN plant. The location has on-site storage for 90,000 tons of ammonia, 154,000 tons of granular urea, and 81,000 tons of 32% UAN.

As part of our capacity expansion projects, both the ammonia and urea plants were placed in service in December 2016. For additional details regarding the capacity expansion projects, see Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations—Liquidity and Capital Resources—Capacity Expansion Projects and Restricted Cash.

Verdigris, Oklahoma

The Verdigris facility is located northeast of Tulsa, Oklahoma, near the Verdigris River and is owned by TNLP. It is the second largest UAN production facility in North America. The facility comprises two ammonia plants, two nitric acid plants, two UAN plants and a port terminal. Through our approximately 75.3% interest in TNCLP and its subsidiary, TNLP, we operate the plants and lease the port terminal from the Tulsa-Rogers County Port Authority. The complex has on-site storage for 60,000 tons of ammonia and 100,000 tons of 32% UAN.

Woodward, Oklahoma

The Woodward facility is located in rural northwest Oklahoma and consists of an ammonia plant, two nitric acid plants, two urea plants and two UAN plants. The facility has on-site storage for 36,000 tons of ammonia and 84,000 tons of 32% UAN.

Yazoo City, Mississippi

The Yazoo City facility is located in central Mississippi and includes one ammonia plant, four nitric acid plants, an AN plant, two urea plants, a UAN plant and a dinitrogen tetroxide production and storage facility. The site has on-site storage for 50,000 tons of ammonia, 48,000 tons of 32% UAN and 11,000 tons of AN and related products.

Courtright, Ontario, Canada

The Courtright facility is located south of Sarnia, Ontario near the St. Clair River. The facility consists of an ammonia plant, a UAN plant, a nitric acid plant and a urea plant. The location has on-site storage for 64,000 tons of ammonia, 10,400 tons of granular urea and 16,000 tons of 32% UAN.

Ince, United Kingdom

The Ince facility is located in northwestern England and consists of an ammonia plant, three nitric acid plants, an AN plant and three NPK plants. The location has on-site storage for 11,000 tons of ammonia, 110,000 tons of AN, and 50,000 tons of NPKs.

Billingham, United Kingdom

The Billingham facility, located in the Teesside chemical area in northeastern England, is geographically split among three primary locations: the main site, which contains an ammonia plant, three nitric acid plants and a carbon dioxide plant; the Portrack site, approximately two miles away, which contains an AN fertilizer plant; and the North Tees site, approximately seven miles away, which contains an ammonia storage area. These locations collectively have on-site storage for 40,000 tons of ammonia and 128,000 tons of AN.

Point Lisas, Trinidad

The Point Lisas Nitrogen facility in the Republic of Trinidad and Tobago is owned jointly through a 50/50 venture with Koch Fertilizer LLC. This facility has the capacity to produce 720,000 tons of ammonia annually from natural gas supplied under a contract with the National Gas Company of Trinidad and Tobago (NGC).

Nitrogen Fertilizer Raw Materials

Natural gas is the principal raw material and primary fuel source used in the ammonia production process at our nitrogen fertilizer manufacturing facilities. In 2016, natural gas accounted for approximately 47% of our total production costs for nitrogen fertilizer products. Our nitrogen fertilizer manufacturing facilities have access to abundant, competitively-priced natural gas through a reliable network of pipelines that are connected to major natural gas trading hubs near the facilities. Our facilities utilize the following natural gas hubs: Henry Hub in Louisiana; SONAT in Louisiana; TETCO ELA in Louisiana; ONEOK in Oklahoma; AECO in Alberta; Ventura in Iowa; Demarcation in Kansas; Welcome in Minnesota; Dawn in Ontario; Parkway in Ontario; and the National Balancing Point (NBP) in the United Kingdom.

In 2016, our nitrogen manufacturing facilities consumed, in the aggregate, approximately 295 million MMBtus of natural gas. In 2017, the amount of natural gas consumed by our nitrogen manufacturing facilities will increase as a result of the completion of our capacity expansion projects. We employ a combination of spot and term purchases from a variety of quality suppliers to maintain a reliable, competitively-priced supply of natural gas. We also use certain financial instruments to hedge natural gas prices. See Note 15—Derivative Financial Instruments for additional information about our natural gas hedging activities.

Nitrogen Fertilizer Distribution

The safe, efficient and economical distribution of nitrogen fertilizer products is critical for successful operations. Our nitrogen fertilizer production facilities have access to multiple transportation modes by which we ship fertilizer products to terminals, warehouses and customers. Each of our production facilities has a unique distribution pattern based on its production capacity and location.

Our North American nitrogen production facilities can ship products via truck and rail to customers and our storage facilities in the U.S. and Canada, with access to our leased railcar fleet of approximately 5,700 tank and hopper cars, as well as railcars provided by rail carriers. Our United Kingdom nitrogen production facilities mainly ship products via truck.

The North American waterway system is also used extensively to ship products from our Donaldsonville, Verdigris and Yazoo City facilities. To ship ammonia and UAN, we employ a fleet of ten tow boats and thirty-two river barges, which are primarily leased. We also utilize contract marine services to move urea fertilizer. We can also export nitrogen fertilizer products via seagoing vessels from our Donaldsonville, Yazoo City, Billingham and Ince manufacturing facilities.

Three of our nitrogen production facilities also have access to pipelines for the transportation of ammonia. The Donaldsonville facility is connected to the 2,000-mile long Nustar pipeline through which we have the ability to transport ammonia to more than 20 terminals and shipping points in the midwestern U.S. corn belt. Our Verdigris and Port Neal facilities are connected to the 1,100-mile long Magellan ammonia pipeline that also serves the U.S. Midwest.

Phosphate Segment

The phosphate segment reflects the reported results of the phosphate business through March 17, 2014, plus the continuing sales of the phosphate inventory in the distribution network after March 17, 2014. The remaining phosphate inventory was sold in the second quarter of 2014; therefore, the phosphate segment does not have operating results subsequent to that quarter.

Our historical sales of phosphate fertilizer products are shown in the table below.

	2014	
	Tons	Net Sales
	(tons in thousands; dollars in millions)	
Phosphate Fertilizer Products		
DAP	372	$ 127
MAP	115	41
Total	487	$ 168

Gross margin for the phosphate segment was $10 million for the year ended December 31, 2014.

Storage Facilities and Other Properties

As of December 31, 2016, we owned or leased space at 91 in-market storage terminals and warehouses located in a 23-state region of the United States, Canada and the United Kingdom. Including storage at our production facilities, we have an aggregate storage capacity for approximately 3.7 million tons of fertilizer. Our storage capabilities are summarized in the following table.

	Ammonia		Granular Urea		UAN[(1)]		AN	
	Number of Facilities	Capacity (000 Tons)	Number of Facilities	Capacity (000 Tons)	Number of Facilities	Capacity (000 Tons)	Number of Facilities	Capacity (000 Tons)
Plants	9	571	5	447	6	530	3	249
Terminal and Warehouse Locations								
Owned	22	810	1	200	8	219	—	—
Leased[(2)]	4	130	1	9	55	576	—	—
Total In-Market	26	940	2	209	63	795	—	—
Total Storage Capacity		1,511		656		1,325		249

(1) Capacity is expressed as the equivalent volume of UAN measured on a 32% nitrogen content basis.
(2) Our lease agreements are typically for periods of one to five years.

Customers

The principal customers for our nitrogen fertilizer and other nitrogen products are cooperatives, independent fertilizer distributors, farmers and industrial users. CHS was our largest customer in 2016 and accounted for approximately 12% of our consolidated net sales. Sales are generated by our internal marketing and sales force.

Competition

Our markets are global and intensely competitive, based primarily on delivered price and, to a lesser extent, on customer service and product quality. During the peak demand periods, product availability and delivery time also play a role in the buying decisions of customers.

Our primary North American-based competitors include Agrium Inc., Koch Fertilizer LLC and Potash Corporation of Saskatchewan Inc. Additionally, Iowa Fertilizer Company and Yara BASF are expected to bring new North American nitrogen fertilizer production facilities on line in 2017. There is also significant competition from products sourced from other regions of the world, including some with lower natural gas or other feedstock costs. Because ammonia, urea and UAN are widely-traded fertilizer products and there are limited barriers to entry, we experience competition from foreign-sourced products continuously.

Our primary United Kingdom competition comes from imported products supplied by companies including Yara International, Origin Fertilisers, Bunn Fertiliser Limited (Koch), Ameropa, CHS and Helm. Urea and UAN are not produced in the United Kingdom, but along with AN are widely-traded fertilizer products with limited barriers to entry.

Seasonality

The fertilizer business is seasonal. The degree of seasonality of our business can change significantly from year to year due to conditions in the agricultural industry and other factors. The strongest demand for our products in North America occurs during the spring planting season, with a second period of strong demand following the fall harvest. We and our customers generally build inventories during the low demand periods of the year to ensure timely product availability during the peak sales seasons. Seasonality is greatest for ammonia due to the short application season and the limited ability of our customers and their customers to store significant quantities of this product. The seasonality of fertilizer demand generally results in our sales volumes and net sales being the highest during the spring and our working capital requirements being the highest just prior to the start of the spring planting season. Our quarterly financial results can vary significantly from one year to the next due to weather-related shifts in planting schedules and purchasing patterns.

Financial Information About Foreign and Domestic Sales and Operations

The amount of net sales attributable to our sales to foreign and domestic markets over the last three fiscal years and the carrying value of our foreign and domestic long-lived assets are set forth in Note 21—Segment Disclosures.

Environmental, Health and Safety

We are subject to numerous environmental, health and safety laws and regulations in the United States, Canada, the United Kingdom and the Republic of Trinidad and Tobago, including laws and regulations relating to the generation and handling of hazardous substances and wastes; the cleanup of hazardous substance releases; the discharge of regulated substances to air or water; and the demolition of existing plant sites upon permanent closure. In the United States, these laws include the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act (RCRA), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), the Toxic Substances Control Act (TSCA) and various other federal, state, provincial, local and international statutes. Violations of environmental, health and safety laws can result in substantial penalties, court orders to install pollution-control equipment, civil and criminal sanctions, permit revocations and facility shutdowns. In addition, environmental, health and safety laws and regulations may impose joint and several liability, without regard to fault, for cleanup costs on potentially responsible parties who have released or disposed of hazardous substances into the environment. We may be subject to more stringent enforcement of existing or new environmental, health and safety laws in the future.

Environmental, Health and Safety Expenditures

Our environmental, health and safety capital expenditures in 2016 totaled approximately $29 million. We estimate that we will have approximately $37 million of capital expenditures for environmental, health and safety in 2017. Environmental, health and safety laws and regulations are complex, change frequently and have tended to become more stringent over time. We expect that continued government and public emphasis on environmental issues will result in increased future expenditures for environmental controls at our operations. Such expenditures could have a material adverse effect on our business, financial condition, results of operations and cash flows. Additionally, future environmental, health and safety laws and regulations or reinterpretation of current laws and regulations may require us to make substantial expenditures. Our costs to comply with, or any liabilities under, these laws and regulations could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Clean Air Act—Section 185 Fee

Our Donaldsonville nitrogen complex is located in a five-parish region near Baton Rouge, Louisiana that, as of 2005, was designated as being in "severe" nonattainment with respect to the national ambient air quality standard (NAAQS) for ozone (the 1-hour ozone standard) pursuant to the Federal Clean Air Act (the Act). Section 185 of the Act requires states, in their state implementation plans, to levy a fee (Section 185 fee) on major stationary sources (such as the Donaldsonville complex) located in a severe nonattainment area that did not meet the 1-hour ozone standard by November 30, 2005. See Note 20—Contingencies for additional information on the Section 185 fee.

Clean Air Act Information Request

On February 26, 2009, we received a letter from the Environmental Protection Agency (EPA) under Section 114 of the Act requesting information and copies of records relating to compliance with New Source Review and New Source Performance Standards at our Donaldsonville facility. See Note 20—Contingencies for additional information on the Clean Air Act Information Request.

CERCLA/Remediation Matters

From time to time, we receive notices from governmental agencies or third parties alleging that we are a potentially responsible party at certain cleanup sites under CERCLA or other environmental cleanup laws. In 2011, we received a notice from the Idaho Department of Environmental Quality (IDEQ) that alleged that we were a potentially responsible party for the cleanup of a former phosphate mine we owned in the late 1950s and early 1960s located in Georgetown Canyon, Idaho. The current owner of the property and a former mining contractor received similar notices for the site. We and the current owner are currently conducting a remedial investigation/feasibility study of the site. In 2015, we and several other parties received a notice that the U.S. Department of Interior and other trustees intend to undertake a natural resource damage assessment for a group of former phosphate mines in southeast Idaho, including the former Georgetown Canyon mine. See Note 20—Contingencies for additional information on the CERCLA/Remediation matters.

Regulation of Greenhouse Gases

We are subject to regulations in the United Kingdom, Canada and the United States concerning greenhouse gas (GHG) emissions.

The United Kingdom is a party to the Kyoto Protocol. As a result of agreements reached during a conference in Durban, South Africa in 2011, the Kyoto Protocol will continue in force for a second commitment period, which will expire by 2020. On December 12, 2015, 195 countries adopted by consensus a new international agreement known as the Paris Agreement. The Paris Agreement is intended to provide a framework pursuant to which the parties to the agreement will attempt to hold the increase in global average temperatures to below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels. The Paris Agreement, which has been accepted by the United States and ratified by Canada and the United Kingdom, went into effect in November 2016. The Paris Agreement could result in more aggressive efforts to reduce GHG emissions in the jurisdictions in which we operate.

The United Kingdom has adopted GHG emissions regulations, including regulations to implement the European Union Greenhouse Gas Trading System. Our U.K. manufacturing plants are required to report GHG emissions annually to the United Kingdom Environment Agency pursuant to their site Environmental Permits and Climate Change Agreement, which specify energy efficiency targets. Failure to meet efficiency targets may require these plants to purchase CO_2 emissions allowances. The steam boilers at each of our U.K. sites are also subject to the European Union Emissions Trading Scheme.

Canada withdrew from further participation in the Kyoto Protocol in December 2011, but is a party to the Paris Agreement. In Canada, we are required to conduct an annual review of our operations with respect to compliance with Environment Canada's National Pollutant Release Inventory and Ontario's Mandatory Monitoring and Reporting Regulation and the GHG Reporting Regulation. In October 2016, Canadian Prime Minister Justin Trudeau announced that his government will introduce a plan to put a price on carbon pollution, which plan would serve as a floor for the GHG emissions reduction requirements of the separate Canadian provinces and territories. The announced plan would impose a $10 per ton (Canadian dollars) charge beginning in 2018, rising to $50 per ton by 2022.

Ontario is party to the Western Climate Initiative (WCI), comprising California and several Canadian provinces. On January 1, 2017, Ontario launched its own GHG cap and trade program. Under this program, the Ontario government will set a hard limit on emissions, which will steadily decline annually. Facilities that generate more than 25,000 tonnes of GHG emissions per year will be required to participate in the cap and trade program and will require emissions allowances for every tonne of GHG emitted. In 2018, the government of Ontario intends to link its cap and trade program with WCI. The current cap will mandate that, by 2020, GHG emissions decline by 15% below levels seen in 1990.

In Alberta, the Specified Gas Emitters Regulation (GHG Regulation) was implemented in 2007. This program requires facilities emitting more than 100,000 tons of GHGs per year to reduce emissions by 12% over such facilities' 2007 levels. To meet this requirement, companies can reduce emissions, purchase/use offset credits, or contribute to a technology fund at an annual rate of $15 per ton of CO_2. Currently, our Medicine Hat facility's method of compliance is to make contributions to the technology fund. In June 2016, Alberta promulgated the Climate Leadership Implementation Act, which will impose a wide-ranging carbon tax. The carbon tax will be set at $20 per ton (Canadian dollars) effective January 1, 2017, rise to $30 per ton (Canadian dollars) effective January 1, 2018 and increase with the rate of inflation thereafter. Facilities such as ours that are subject to the existing specified gas emitters regulation will continue to be subject to this regulation in the near term, after which new product and sector-based performance standards (to be developed) will become effective.

The United States is not a party to the Kyoto Protocol, but is a party to the Paris Agreement. However, as a result of the recent presidential election, the United States may decide to withdraw from the Paris Agreement (or the United Nations Framework Convention on Climate Change, which would also result in withdrawal from the Paris Agreement) or, prior to taking such actions, could disregard its commitments under the Paris Agreement. The impact of such actions, if they take place, on the future implementation of the Paris Agreement is uncertain. In the United States, GHG regulation is evolving at state, regional and federal levels, although some of the more significant developments to date, including EPA's Clean Power Plan, do not directly impose obligations on our facilities. The EPA has issued a mandatory GHG reporting rule that required all of our U.S. manufacturing facilities to commence monitoring GHG emissions beginning on January 1, 2010 and report the previous year's emissions annually starting in 2011. In addition, if we seek to modify or expand any of our major facilities and as a result, are required to obtain a Prevention of Significant Deterioration (PSD) construction permit applicable to such facilities, we could be subject to pollution control requirements applicable to GHGs in addition to requirements applicable to conventional air pollutants. Such requirements may result in increased costs or delays in completing such projects. Other than the states' implementation of this permitting requirement, none of the states where our U.S. production facilities are located—Iowa, Louisiana, Mississippi, and Oklahoma—has proposed control regulations limiting GHG emissions.

New Source Performance Standards for Nitric Acid Plants

We operate 14 nitric acid plants in the United States. On August 14, 2012, the EPA issued a final regulation revising air emission standards applicable to newly constructed, reconstructed or modified nitric acid plants. The regulations will apply to these plants if and when we undertake activities or operations that are considered modifications, including physical changes that would allow us to increase our production capacity at these plants. The regulations include certain provisions that could make it difficult for us to meet the limits on emissions of nitrogen oxides (NO_x) notwithstanding pollution controls we may add to our plants, and accordingly, the regulations, could impact our ability to expand production at our existing plants. The EPA regulation did not include a limitation on emissions of nitrous oxide (a greenhouse gas).

Regulatory Permits and Approvals

We hold numerous environmental and other governmental permits and approvals authorizing operations at each of our facilities. A decision by a government agency to deny or delay issuing a new or renewed regulatory material permit or approval, or to revoke or substantially modify an existing material permit or approval, could have a material adverse effect on our ability to continue operations at the affected facility. Any future expansion of our existing operations is also predicated upon securing the necessary environmental or other permits or approvals. More stringent environmental standards may impact our ability to obtain such permits. On December 15, 2016, the EPA re-designated the Greater Baton Rouge Nonattainment Area (BRNA), where our Donaldsonville facility is located, to attainment with the 2008 8-hour ozone standard. However, on October 26, 2015, the EPA published a more stringent national ambient air quality standard for ozone. The State of Louisiana has recommended to the EPA that Baton Rouge be designated as nonattainment with the 2015 ozone standard. Such a classification (in the Baton Rouge area or in other areas where our manufacturing facilities are located) could result in more stringent air pollution emissions limits for our existing operations and would also subject our facilities to more stringent requirements to obtain approvals for plant expansions, or could make it difficult to obtain such approvals. The EPA is supposed to designate areas under the 2015 standard by October 2017.

Employees

As of December 31, 2016, we employed approximately 2,900 full-time and 100 part-time employees.

ITEM 1A. RISK FACTORS.

In addition to the other information contained in this Annual Report on Form 10-K, you should carefully consider the factors discussed below before deciding to invest in any of our securities. These risks and uncertainties could materially and adversely affect our business, financial condition, results of operations and cash flows.

Our business is cyclical, resulting in periods of industry oversupply during which our financial condition, results of operations and cash flows tend to be negatively affected.

Historically, selling prices for our products have fluctuated in response to periodic changes in supply and demand conditions. Demand is affected by planted acreage, crop selection and fertilizer application rates, driven by population growth, changes in dietary habits and non-food usage of crops, such as the production of ethanol and other biofuels, among other things. Supply is affected by available capacity and operating rates, raw material costs and availability, government policies and global trade.

Periods of strong demand, high capacity utilization and increasing operating margins tend to stimulate global investment in production capacity. The construction of new nitrogen fertilizer manufacturing capacity in the industry, plus improvements to increase output from the existing production assets, increase nitrogen supply and affect the supply and demand balance. In recent years, fertilizer producers, including CF Holdings, have built new production facilities or expanded capacity of existing production assets, or announced plans to do so. In the current environment, global nitrogen fertilizer supply has increased faster than global nitrogen fertilizer demand, creating a global nitrogen fertilizer oversupply leading to lower nitrogen fertilizer selling prices. Lower global production costs driven by lower feedstock costs and foreign exchange rate changes, and reduced ocean freight costs, have further contributed to the lower priced environment.

Selling prices reached multi-year lows in 2016. The average selling price for our products in 2016 was $217 per ton compared to $314 per ton in 2015, a decline of 31%.

Additional production capacity is expected to come on line over the next twelve months. We cannot predict the extent to which the current oversupply environment, global or local economic and financial conditions or changes in such conditions, or other factors may cause delays, cancellation or acceleration of other announced and/or ongoing projects.

We expect the lower priced environment to continue until global supply and demand become more balanced through a combination of continued demand growth and supply reductions as producers respond to lower realized margins by taking higher cost production facilities off line.

During periods of industry oversupply, our financial condition, results of operations and cash flows tend to be affected negatively as the price at which we sell our products typically declines, resulting in possible reduced profit margins, write-downs in the value of our inventory and temporary or permanent curtailments of production. Our financial performance, credit ratings and the trading price for our common stock have been negatively impacted by the lower selling prices resulting from the current global oversupply of nitrogen fertilizer. The period of time that these conditions will persist and the degree to which they will impact our business, financial condition, results of operations and cash flows is uncertain.

Our products are global commodities, and we face intense global competition from other fertilizer producers.

We are subject to intense price competition from our competitors. Most fertilizers are global commodities, with little or no product differentiation, and customers make their purchasing decisions principally on the basis of delivered price and to a lesser extent on customer service and product quality.

We compete with many producers, including state-owned and government-subsidized entities. Consolidation in the industry has increased, and future consolidation is expected to further increase, the resources of several of our competitors. For example, in September 2016, our competitors Agrium Inc. and Potash Corporation of Saskatchewan Inc. announced plans to merge. Some of our competitors have greater total resources and are less dependent on earnings from fertilizer sales, which make them less vulnerable to industry downturns and better positioned to pursue new expansion and development opportunities. Furthermore, certain governments as owners of some of our competitors may be willing to accept lower prices and profitability on their products in order to support domestic employment or other political or social goals. Our competitive position could suffer to the extent we are not able to expand our own resources, either through investments in new or existing operations or through acquisitions, joint ventures or partnerships.

China, the world's largest producer and consumer of nitrogen fertilizers, currently has significant capacity surplus and many high-cost plants. As a result, the domestic nitrogen industry in China is operating at low rates. If Chinese government policy, devaluation of the Chinese renminbi or decreases in Chinese producers' underlying costs such as the price of Chinese coal encourage increased production capacity utilization, any resulting export volume could adversely affect the balance between global supply and demand and may put downward pressure on global fertilizer prices, which could materially adversely affect our business, financial condition, results of operations and cash flows.

Our competitors in Russia have significant nitrogen fertilizer export capacity and continue to benefit from non-market pricing of natural gas, which allows them to increase exports at aggressive prices, depending on market conditions. The 2016 revocations of U.S. antidumping measures on solid urea and fertilizer grade ammonium nitrate from Russia could lead to significant increases in imports from that country.

We also face competition from other fertilizer producers in the Middle East, Europe and Latin America, who, depending on market conditions, fluctuating input prices, geographic location and freight economics, may take actions at times with respect to price or selling volumes that adversely affect our business, financial condition, results of operations and cash flows.

A decline in agricultural production or limitations on the use of our products for agricultural purposes could materially adversely affect the demand for our products.

Conditions in U.S., European and other global agriculture areas significantly impact our operating results. Agricultural planted areas and production can be affected by a number of factors, including weather patterns and field conditions, current and projected grain inventories and prices, demand for agricultural products and governmental policies regarding trade in agricultural products. These factors are outside of our control.

Governmental policies, including farm and biofuel subsidies and commodity support programs, as well as the prices of fertilizer products, may also directly or indirectly influence the number of acres planted, the mix of crops planted and the use of fertilizers for particular agricultural applications. Ethanol production in the United States contributes significantly to corn demand, due in part to federal legislation mandating use of renewable fuels. An increase in ethanol production has led to an increase in the amount of corn grown in the United States and to increased fertilizer usage on both corn and other crops that have also benefited from improved farm economics. While the current Renewable Fuel Standard (RFS) encourages continued high levels of corn-based ethanol production, a continuing "food versus fuel" debate and other factors have resulted in calls to eliminate or reduce the renewable fuel mandate, or to eliminate or reduce corn-based ethanol as part of the renewable fuel mandate. This could have an adverse effect on corn-based ethanol production, planted corn acreage and fertilizer demand.

Developments in crop technology, such as nitrogen fixation, the conversion of atmospheric nitrogen into compounds that plants can assimilate, or nitrogen-efficient varieties, could also reduce the use of chemical fertilizers and adversely affect the demand for our products. Widespread adoption of emerging application technologies could disrupt traditional application practices, affecting the volume or types of products used and timing of applications. In addition, from time to time various state legislatures have considered limitations on the use and application of chemical fertilizers due to concerns about the impact of these products on the environment. Any reduction in the demand for chemical fertilizer products, including any limitation on the use and application of chemical fertilizer, could affect the demand for our products, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Our business is dependent on natural gas, the prices of which are subject to volatility.

Natural gas is the principal raw material used to produce nitrogen fertilizers. We use natural gas both as a chemical feedstock and as a fuel to produce ammonia, granular urea, urea ammonium nitrate solution (UAN), ammonium nitrate (AN) and other nitrogen products.

Because most of our nitrogen fertilizer manufacturing facilities are located in the United States and Canada, North American natural gas comprises a significant portion of the total production cost of our products. The price of natural gas in North America has been volatile in recent years. During 2016, the daily closing price at the Henry Hub, the most heavily-traded natural gas pricing point in North America, reached a low of $1.49 per MMBtu on three consecutive days in March 2016 and a high of $3.77 per MMBtu on December 8, 2016. During the three-year period ended December 31, 2016, the daily closing price at the Henry Hub reached a low of $1.49 per MMBtu on three consecutive days in March 2016 and a high of $7.94 per MMBtu on March 5, 2014.

We also have manufacturing facilities located in the United Kingdom. These facilities are subject to fluctuations associated with the price of natural gas in Europe. The major natural gas trading point for the United Kingdom is the National Balancing Point. During 2016, the daily closing price at NBP reached a low of $2.80 per MMBtu on September 1, September 12 and September 14, 2016 and a high of $6.60 per MMBtu on December 30, 2016. During the three-year period ended December 31, 2016, the daily closing price at NBP reached a low of $2.80 per MMBtu on September 1, September 12 and September 14, 2016 and a high of $11.10 per MMBtu on January 8, 2014.

Changes in the supply of and demand for natural gas can lead to periods of volatile natural gas prices. If high prices were to occur during a period of low fertilizer selling prices, it could have a material adverse effect on our business, financial condition, results of operations and cash flows.

The price of natural gas in North America and worldwide has been volatile in recent years and has declined on average due in part to the development of significant natural gas reserves, including shale gas, and the rapid improvement in shale gas extraction techniques, such as hydraulic fracturing and horizontal drilling. Future production of natural gas from shale formations could be reduced by regulatory changes that restrict drilling or hydraulic fracturing or increase its cost or by reduction in oil exploration and development prompted by lower oil prices and resulting in production of less associated gas. Additionally, increased demand for natural gas, particularly in the Gulf Coast Region, due to increased industrial demand and increased natural gas exports could result in increased natural gas prices. If such reduced production or increased demand were to occur, or if other developments adversely impact the supply/demand balance for natural gas in the United States or elsewhere, natural gas prices could rise, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Our operations and those of our joint venture are dependent upon raw materials provided by third parties, and any delay or interruption in the delivery of raw materials may adversely affect our business.

We and our joint venture use natural gas and other raw materials in the manufacture of fertilizers. We purchase the natural gas and other raw materials from third party suppliers. Our natural gas is transported by pipeline to our facilities and those of our joint venture by third party transportation providers or through the use of facilities owned by third parties. Delays or interruptions in the delivery of natural gas or other raw materials may be caused by, among other things, severe weather or natural disasters, unscheduled downtime, labor difficulties, insolvency of our suppliers or their inability to meet existing contractual arrangements, deliberate sabotage and terrorist incidents, or mechanical failures. Our joint venture, Point Lisas Nitrogen Limited, has experienced numerous natural gas curtailments as discussed in the risk factor below titled "We are exposed to risks associated with our joint venture." In addition, the transport of natural gas by pipeline is subject to additional risks, including delays or interruptions caused by capacity constraints, leaks or ruptures. Any delay or interruption in the delivery of natural gas or other raw materials, even for a limited period, could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Our transportation and distribution activities rely on third party providers and are subject to environmental, safety and regulatory oversight. This exposes us to risks and uncertainties beyond our control that may adversely affect our operations and exposes us to additional liability.

We rely on railroad, truck, pipeline, river barge and ocean vessel companies to transport raw materials to our manufacturing facilities, to coordinate and deliver finished products to our distribution system and to ship finished products to our customers. We also lease rail cars in order to ship raw materials and finished products. These transportation operations, equipment and services are subject to various hazards, including adverse operating conditions on the inland waterway system, extreme weather conditions, system failures, work stoppages, delays, accidents such as spills and derailments and other accidents and operating hazards. Additionally, due to the aging infrastructure of certain bridges, roadways, rail lines, river locks, and equipment that our third party service providers utilize, we may experience delays in both the receipt of raw materials or the shipment of finished product while repairs, maintenance or replacement activities are conducted. Also, certain third party service providers, particularly railroads, have experienced periodic service slowdowns due to capacity constraints in their systems which impact the shipping times of our products.

These transportation operations, equipment and services are also subject to environmental, safety, and regulatory oversight. Due to concerns related to accidents, discharges or other releases of hazardous substances, terrorism or the potential use of fertilizers as explosives, governmental entities could implement new regulations affecting the transportation of raw materials or finished products.

If shipping of our products is delayed or we are unable to obtain raw materials as a result of these transportation companies' failure to operate properly, or if new and more stringent regulatory requirements are implemented affecting transportation operations or equipment, or if there are significant increases in the cost of these services or equipment, our revenues and cost of operations could be adversely affected. In addition, increases in our transportation costs, or changes in such costs relative to transportation costs incurred by our competitors, could have a material adverse effect on our business, financial condition, results of operations and cash flows.

In the United States and Canada, the railroad industry continues various efforts to limit the railroads' potential liability stemming from the transportation of Toxic Inhalation Hazard materials, such as the anhydrous ammonia we transport to and from our manufacturing and distribution facilities. For example, various railroads have implemented tariffs that include provisions that purport to shift liability to shippers to the extent that liabilities arise from third parties with insufficient resources. If successful, these initiatives could materially and adversely affect our operating expenses and potentially our ability to transport anhydrous ammonia and increase our liability for releases of our anhydrous ammonia while in the care, custody and control of the railroads, for which our insurance may be insufficient or unavailable. New regulations also could be implemented affecting the equipment used to ship our raw materials or finished products. Increases in transportation costs, or changes in such costs relative to transportation costs incurred by our competitors, and any railroad industry initiatives that may impact our ability to transport our products, could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Our operations and the production and handling of our products involve significant risks and hazards. We are not fully insured against all potential hazards and risks incident to our business. Therefore, our insurance coverage may not adequately cover our losses.

Our operations are subject to hazards inherent in the manufacture, transportation, storage and distribution of chemical products, including ammonia, which is highly toxic and corrosive. These hazards include: explosions; fires; severe weather and natural disasters; train derailments, collisions, vessel groundings and other transportation and maritime incidents; leaks and ruptures involving storage tanks, pipelines and rail cars; spills, discharges and releases of toxic or hazardous substances or gases; deliberate sabotage and terrorist incidents; mechanical failures; unscheduled plant downtime; labor difficulties and other risks. Some of these hazards can cause bodily injury and loss of life, severe damage to or destruction of property and equipment and environmental damage, and may result in suspension of operations and the imposition of civil or criminal penalties and liabilities.

We maintain property, business interruption, casualty and liability insurance policies, but we are not fully insured against all potential hazards and risks incident to our business. If we were to incur significant liability for which we were not fully insured, it could have a material adverse effect on our business, financial condition, results of operations and cash flows. We are subject to various self-retentions, deductibles and limits under these insurance policies. The policies also contain exclusions and conditions that could have a material adverse impact on our ability to receive indemnification thereunder. Our policies are generally renewed annually. As a result of market conditions, our premiums, self-retentions and deductibles for certain insurance policies can increase substantially and, in some instances, certain insurance may become unavailable or available only for reduced amounts of coverage. In addition, significantly increased costs could lead us to decide to reduce, or possibly eliminate, coverage. There can be no assurance that we will be able to buy and maintain insurance with adequate limits and reasonable pricing terms and conditions.

In April 2013, there was a fire and explosion at the West Fertilizer Co. fertilizer storage and distribution facility in West, Texas. According to published reports, 15 people were killed and approximately 200 people were injured in the incident, and the fire and explosion damaged or destroyed a number of homes and buildings around the facility. Various subsidiaries of CF Industries Holdings, Inc. (the CF Entities) have been named as defendants along with other companies in lawsuits filed in 2013, 2014 and 2015 in the District Court of McLennan County, Texas by the City of West, individual residents of the County and other parties seeking recovery for damages allegedly sustained as a result of the explosion. The cases have been consolidated for discovery and pretrial proceedings in the District Court of McLennan County under the caption “In re: West Explosion Cases.” The two-year statute of limitations expired on April 17, 2015. As of that date, over 400 plaintiffs had filed claims, including at least 9 entities, 325 individuals, and 80 insurance companies. Plaintiffs allege various theories of negligence, strict liability, and breach of warranty under Texas law. Although we do not own or operate the facility or directly sell our products to West Fertilizer Co., products that the CF Entities have manufactured and sold to others have been delivered to the facility and may have been stored at the West facility at the time of the incident. The Court granted in part and denied in part the CF Entities’ Motions for Summary Judgment in August 2015. Thirty-four cases have been resolved pursuant to confidential settlements fully funded by insurance. The remaining cases are in various stages of discovery and pre-trial proceedings. The next group of cases was reset for trial beginning on April 3, 2017. We believe we have strong legal and factual defenses and intend to continue defending the CF Entities vigorously in the pending lawsuits. The increased focus on the risks associated with fertilizers as a result of the incident could impact the regulatory environment and requirements applicable to fertilizer manufacturing and storage facilities.

Our substantial indebtedness could adversely affect our cash flow, prevent us from fulfilling our obligations and impair our ability to pursue or achieve other business objectives.

As of December 31, 2016, we had approximately $5.78 billion of total funded indebtedness, consisting primarily of secured and unsecured senior notes with varying maturity dates between 2018 and 2044, or approximately 47% of our total capitalization, and an additional $695 million of senior secured borrowing availability (reflecting no outstanding borrowings and $55 million of outstanding letters of credit) under our senior secured revolving credit agreement (as amended, the Revolving Credit Agreement). Our substantial debt service obligations will have an impact on our earnings and cash flow for so long as the indebtedness is outstanding.

Our substantial indebtedness could, through the operation of the financial and other restrictive covenants to which we are subject under the agreements and instruments governing that indebtedness and otherwise, have important consequences. For example, it could:

- make it more difficult for us to pay or refinance our debts as they become due during adverse economic and industry conditions because any related decrease in revenues could cause us not to have sufficient cash flows from operations to make our scheduled debt payments;
- cause us to be less able to take advantage of significant business opportunities, such as acquisition opportunities, and to react to changes in market or industry conditions;
- cause us to use a portion of our cash flow from operations for debt service, reducing the availability of cash to fund working capital and capital expenditures, and other business activities;
- cause us to be more vulnerable to general adverse economic and industry conditions;
- expose us to the risk of increased interest rates because certain of our borrowings, including borrowings under our Revolving Credit Agreement, could be at variable rates of interest;
- make us more leveraged than some of our competitors, which could place us at a competitive disadvantage;
- restrict our investments in our subsidiaries, which could limit our ability to fund certain of our businesses;
- restrict our ability to dispose of assets or otherwise restrict our use of funds from the disposal of assets;
- restrict our ability to pay dividends on our common stock or utilize excess cash to repurchase shares of our common stock;
- limit our ability to borrow additional monies in the future to fund working capital, capital expenditures and other general corporate purposes; and
- result in a downgrade in the credit rating of our indebtedness which could increase the cost of further borrowings.

We expect to consider options to refinance our outstanding indebtedness from time to time. Our ability to obtain any financing, whether through the issuance of new debt securities or otherwise, and the terms of any such financing are dependent on, among other things, our financial condition, financial market conditions within our industry and generally, credit ratings and numerous other factors, including factors beyond our control. Consequently, in the event that we need to access the credit markets, including to refinance our debt, there can be no assurance that we will be able to obtain financing on acceptable terms or within an acceptable timeframe, if at all. An inability to obtain financing with acceptable terms when needed could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Our Revolving Credit Agreement and the terms of our outstanding indebtedness impose significant operating and financial restrictions on us and our subsidiaries, which may prevent us from capitalizing on business opportunities.

Our Revolving Credit Agreement imposes significant operating and financial restrictions on us. These restrictions include covenants limiting our ability and the ability of our subsidiaries (other than certain excluded subsidiaries) to, among other things:

- incur additional indebtedness or guarantee indebtedness;
- pay dividends on, repurchase or make distributions in respect of their capital stock or make other restricted payments;
- make certain investments or acquisitions;
- sell, transfer or otherwise convey certain assets;
- create liens;
- consolidate, merge, sell or otherwise dispose of all or substantially all of our and our restricted subsidiaries' assets; and
- prepay certain kinds of indebtedness.

In addition, our Revolving Credit Agreement requires us to comply with consolidated interest coverage ratio, total debt to capital ratio, and consolidated secured leverage ratio maintenance covenants.

Certain of these restrictions could be suspended if and for so long as we satisfy certain investment grade corporate rating and consolidated leverage tests. However, we cannot assure you that we will meet these tests or, if we do, that we will be able to maintain compliance with those conditions.

As a result of these restrictions and covenants under our existing indebtedness, including our senior secured notes, we are limited as to how we conduct our business and we may be unable to raise additional debt financing to compete effectively or to take advantage of new business opportunities. The terms of any future indebtedness we may incur could include additional or more restrictive covenants. We cannot assure you that we will be able to maintain compliance with the covenants under the terms of our indebtedness or, if we fail to do so, that we will be able to obtain waivers from the lenders and/or amend such covenants.

We may incur additional indebtedness in the future.

The terms of our existing indebtedness allow us to incur additional debt in the future, including additional secured and unsecured indebtedness. The indentures governing our senior secured notes do not limit incurrence by us of additional unsecured indebtedness, and will permit us to incur additional secured indebtedness subject to certain restrictions. Although our Revolving Credit Agreement contains restrictions on our ability to incur additional secured and unsecured indebtedness, these restrictions are subject to exceptions and qualifications, which allow us to incur additional secured and unsecured indebtedness in limited amounts. If we incur additional indebtedness, the risks that we face as a result of our leverage could intensify. If our financial condition or operating results deteriorate, our relations with our creditors, including the holders of our outstanding debt securities, the lenders under our Revolving Credit Agreement and our suppliers, may be materially and adversely affected.

A breach of the covenants under any of the agreements governing our indebtedness could result in an event of default under such agreements.

Our ability to comply with the covenants in the agreements and instruments governing our indebtedness will depend upon our future performance and various other factors, such as market prices for our fertilizer products, natural gas prices and other business, competitive and regulatory factors, many of which are beyond our control. We may not be able to maintain compliance with all of these covenants. In that event, we would need to seek an amendment to our debt agreements or would need to refinance our indebtedness. There can be no assurance that we can obtain future amendments or waivers of our debt agreements and instruments, or refinance our debt, and, even if we were able to do so, such relief might only last for a limited period, potentially necessitating additional amendments, waivers or refinancings. Any noncompliance by us with the covenants under our debt agreements and instruments could result in an event of default under those debt agreements and instruments. An event of default under an agreement or instrument governing any of our indebtedness may allow our creditors to accelerate the related debt and may result in the acceleration of any other debt to which a cross-acceleration or cross-default provision applies. If our lenders or holders of our debt securities accelerate the repayment of borrowings, we may be forced to liquidate certain assets to repay all or part of our indebtedness, which could materially and adversely impair our business operations. An event of default under our Revolving Credit Agreement would permit the lenders thereunder to terminate all commitments to extend further credit under our Revolving Credit Agreement. Furthermore, our Revolving Credit Agreement and senior secured notes provide for liens on specified collateral to secure our obligations thereunder, and if we were unable to repay amounts due and payable under our Revolving Credit Agreement or the senior secured notes, our Revolving Credit Agreement lenders or holders of the senior secured notes, as applicable, could proceed against the collateral granted to them, which could have a material adverse effect on our business, financial condition and results of operations. In the event our creditors accelerate the repayment of our indebtedness, we cannot assure that we would have sufficient assets to make such repayment.

Potential future downgrades of our credit ratings could adversely affect our access to capital and could otherwise have a material adverse effect on us.

In October 2016, each of the three credit rating agencies reviewed our corporate credit rating as follows. S&P Global Ratings reduced our corporate credit rating to BB+ from BBB- and indicated the outlook was negative; Moody’s Investors Service, Inc. reduced our corporate credit rating to Baa3 from Baa2 and indicated the rating was under further review; and Fitch Ratings, Inc. reduced our corporate credit rating to BB+ from BBB and indicated the outlook was stable. In November 2016 Moody’s Investors Service, Inc. further reduced our corporate credit rating to Ba2 from Baa3 and updated the outlook to stable. These ratings and our current credit condition affect, among other things, our ability to access new capital, especially debt, and negative changes in these ratings may result in more stringent covenants and higher interest rates under the terms of any new debt. Our credit ratings could be downgraded or rating agencies could issue adverse commentaries in the future, which could have a material adverse effect on our business, results of operations, financial condition and liquidity. In particular, a weakening of our financial condition, including a significant increase in our leverage or decrease in our profitability or cash flows, could adversely affect our ability to obtain necessary funds, result in a credit rating downgrade or change in outlook, or otherwise increase our cost of borrowing.

Cyber security risks could result in disruptions in business operations and adverse operating results.

We rely on information technology and computer control systems in many aspects of our business, including internal and external communications, the management of our accounting, financial and supply chain functions and plant operations. Business and supply chain disruptions, plant and utility outages and information technology system and network disruptions due to cyber attacks could seriously harm our operations and materially adversely affect our operating results. Cyber security risks include attacks on information technology and infrastructure by hackers, damage or loss of information due to viruses, the unintended disclosure of confidential information, the misuse or loss of control over computer control systems, and breaches due to employee error. Our exposure to cyber security risks includes exposure through third parties on whose systems we place significant reliance for the conduct of our business. We routinely review and implement security procedures and measures in order to protect our systems and information from being vulnerable to evolving cyber attacks. We believe these measures and procedures are appropriate. However, we may not have the resources or technical sophistication to anticipate, prevent, or recover from rapidly evolving types of cyber attacks. Compromises to our information and control systems could have severe financial and other business implications.

Adverse weather conditions may decrease demand for our fertilizer products, increase the cost of natural gas or materially disrupt our operations.

Weather conditions that delay or disrupt field work during the planting, growing, harvesting or application periods may cause agricultural customers to use different forms of nitrogen fertilizer, which may adversely affect demand for the forms that we sell or may impede farmers from applying our fertilizers until the following application period, resulting in lower demand for our products.

Adverse weather conditions during or following harvest may delay or eliminate opportunities to apply fertilizer in the fall. Weather can also have an adverse effect on crop yields, which could lower the income of growers and impair their ability to purchase fertilizer from our customers. Our quarterly financial results can vary significantly from one year to the next due to weather-related shifts in planting schedules and purchasing patterns.

Weather conditions or, in certain cases, weather forecasts, also can affect the price of natural gas, the principal raw material used to make our nitrogen fertilizer products. Colder than normal winters and warmer than normal summers increase the demand for natural gas for power generation and for residential and industrial use, which can increase the cost and/or decrease the availability of natural gas. In addition, adverse weather events such as very low temperatures leading to well freeze-offs or hurricanes affecting the Gulf of Mexico coastal states can impact the supply of natural gas and cause prices to rise.

Our ability to use our tax net operating losses and certain other tax assets to offset taxable income could be negatively impacted if there is a change in our ownership.

We estimate that we generated a federal tax net operating loss of approximately $2 billion in 2016, arising primarily from accelerated federal tax depreciation and federal bonus depreciation on our capital projects. In addition, we generated significant state income tax loss carryforwards and credit carryforwards as a result of state tax depreciation and loss carryforwards, as well as foreign tax credit carryforwards. We project that we will generate additional federal tax loss carryforwards in 2017 primarily arising from accelerated federal tax depreciation on our capital projects. Our ability to use our tax net operating losses, tax credits and certain other tax assets (the Tax Benefits) to offset taxable income could be substantially limited if we experienced an "ownership change" as defined under Section 382 of the Internal Revenue Code and related Internal Revenue Service (IRS) pronouncements. In general, an ownership change would occur if the Company's "5-percent shareholders," as defined under Section 382, collectively increase their ownership in the Company by more than 50 percentage points during the relevant testing period. Additionally, various states have similar limitations on the use of state net operating losses following an ownership change.

If an ownership change occurs, our ability to use our Tax Benefits to reduce taxable income is generally limited to an annual amount equal to (1) the fair market value of our stock immediately prior to the ownership change multiplied by the long-term tax-exempt interest rate plus (2) built-in gains on certain assets held prior to the ownership change that are recognized during the five-year period following the ownership change.

On September 6, 2016, the Board adopted a tax benefits preservation plan (the Plan) designed to preserve our ability to utilize our Tax Benefits. Although the Plan is intended to reduce the likelihood of an ownership change that could adversely affect us, there is no assurance that the restrictions on transferability in the Plan will prevent all transfers that could result in such an ownership change.

In addition, we intend to file a claim to carry back federal and state tax losses from 2016 to prior income tax years and receive a refund of federal and state taxes paid in those prior years. We currently estimate that the amount of this refund will be approximately $800 million and expect to receive it in the third quarter of 2017. The majority of the refund relates to accelerated depreciation on the Donaldsonville and Port Neal capacity expansion projects and certain 2016 operating losses and other expenditures.

Tax matters, including changes in tax laws or rates, adverse determinations by taxing authorities and imposition of new taxes could adversely affect our results of operations and financial condition.

We are subject to taxes in the United States, where most of our operations are located, and numerous foreign jurisdictions where our subsidiaries are organized. Tax rates in various jurisdictions in which we operate may be subject to significant change. Our future effective tax rate could be affected by changes in our mix of earnings from countries with differing statutory tax rates and tax systems, changes in valuation of deferred tax assets and liabilities or changes in tax laws or their interpretation.

We are also subject to regular reviews, examinations and audits by the IRS and other taxing authorities with respect to taxes inside and outside of the United States. Although we believe our tax estimates are reasonable, if a taxing authority disagrees with the positions we have taken, we could face additional tax liability, including interest and penalties. There can be no assurance that payment of such additional amounts upon final adjudication of any disputes will not have a material impact on our results of operations and financial condition.

We have used the cash we generate outside the United States primarily to fund development of our business in non-U.S. jurisdictions. If the funds generated by our U.S. business are not sufficient to meet our need for cash in the United States, we may need to repatriate a portion of our future international earnings to the United States. Under current U.S. tax laws, those international earnings would be subject to U.S. tax, and the repatriation of those earnings could result in an increase in our worldwide effective tax rate and an increase in our use of cash to pay U.S. income taxes.

We also need to comply with other new, evolving or revised tax laws and regulations. The enactment of, or increases in, tariffs or value added taxes, or other changes in the application of existing taxes, in markets in which we are currently active, or may be active in the future, or on specific products that we sell or with which our products compete, could have an adverse effect on our results of operations and financial condition.

The rules dealing with U.S. federal income taxation are continually under review by Congress, the IRS and the U.S. Department of the Treasury. According to publicly released statements, a top legislative priority of the new Congress and administration may be to enact significant reform of the Internal Revenue Code, including, but not limited to, significant changes to the taxation of business entities and the deductibility of interest expense and capital investment. There is a substantial lack of clarity as to the likelihood, timing and details of any such tax reform and the impact of any potential tax reform on us, and we cannot, at this time, determine whether any such changes will adversely affect us or our taxation.

We may not be successful in the expansion of our business.

We routinely consider possible expansions of our business, both within the United States and elsewhere. Major investments in our business, including as a result of acquisitions, partnerships, joint ventures, business combination transactions or other major investments require significant managerial resources, the diversion of which from our other activities may impair the operation of our business. We may be unable to identify or successfully compete for certain acquisition targets, which may hinder or prevent us from acquiring a target or completing other transactions. The risks of any expansion of our business through investments, acquisitions, partnerships, joint ventures or business combination transactions are increased due to the significant capital and other resources that we may have to commit to any such expansion, which may not be recoverable if the expansion initiative to which they were devoted is ultimately not implemented. As a result of these and other factors, including general economic risk, we may not be able to realize our projected returns from any future acquisitions, partnerships, joint ventures, business combination transactions or other major investments. Among the risks associated with the pursuit and consummation of acquisitions, partnerships, joint ventures or other major investments or business combination transactions are those involving:

- difficulties in integrating the parties' operations, systems, technologies, products and personnel;
- incurrence of significant transaction-related expenses;
- potential integration or restructuring costs;
- potential impairment charges related to the goodwill, intangible assets or other assets to which any such transaction relates, in the event that the economic benefits of such transaction prove to be less than anticipated;
- other unanticipated costs associated with such transactions;
- our ability to achieve operating and financial efficiencies, synergies and cost savings;
- our ability to obtain the desired financial or strategic benefits from any such transaction;

- the parties' ability to retain key business relationships, including relationships with employees, customers, partners and suppliers;
- potential loss of key personnel;
- entry into markets or involvement with products with which we have limited current or prior experience or in which competitors may have stronger positions;
- assumption of contingent liabilities, including litigation;
- exposure to unanticipated liabilities;
- differences in the parties' internal control environments, which may require significant time and resources to resolve in conformity with applicable legal and accounting standards;
- increased scope, geographic diversity and complexity of our operations;
- the tax effects of any such transaction; and
- the potential for costly and time-consuming litigation, including stockholder lawsuits.

International acquisitions, partnerships, joint ventures, business combinations or investments and other international expansions of our business involve additional risks and uncertainties, including, but not limited to:

- the impact of particular economic, tax, currency, political, legal and regulatory risks associated with specific countries;
- challenges caused by distance and by language and cultural differences;
- difficulties and costs of complying with a wide variety of complex laws, treaties and regulations;
- unexpected changes in regulatory environments;
- political and economic instability, including the possibility for civil unrest;
- nationalization of properties by foreign governments;
- tax rates that may exceed those in the United States, and earnings that may be subject to withholding requirements;
- the imposition of tariffs, exchange controls or other restrictions; and
- the impact of currency exchange rate fluctuations.

If we finance acquisitions, partnerships, joint ventures, business combination transactions or other major investments by issuing equity or convertible or other debt securities or loans, our existing stockholders may be diluted or we could face constraints under the terms of, and as a result of the repayment and debt-service obligations under, the additional indebtedness. A business combination transaction between us and another company could result in our stockholders receiving cash or shares of another entity on terms that such stockholders may not consider desirable. Moreover, the regulatory approvals associated with a business combination may result in divestitures or other changes to our business, the effects of which are difficult to predict.

We are subject to numerous environmental, health and safety laws, regulations and permitting requirements, as well as potential environmental liabilities, which may require us to make substantial expenditures.

We are subject to numerous environmental, health and safety laws and regulations in the United States, Canada, the United Kingdom and the Republic of Trinidad and Tobago, including laws and regulations relating to the generation and handling of hazardous substances and wastes; the cleanup of hazardous substance releases; the discharge of regulated substances to air or water; and the demolition of existing plant sites upon permanent closure. In the United States, these laws include the Clean Air Act, the Clean Water Act, the Resource Conservation and Recovery Act, the Comprehensive Environmental Response, Compensation and Liability Act, the Toxic Substances Control Act and various other federal, state, provincial, local and international statutes.

As a fertilizer company working with hazardous substances, our business faces risks of spills, discharges or other releases of those substances into the environment. Certain environmental laws, including CERCLA, impose joint and several liability, without regard to fault, for cleanup costs on persons who have disposed of or released hazardous substances into the environment. Given the nature of our business, we have incurred, are incurring currently, and are likely to incur periodically in the future, liabilities under CERCLA and other environmental cleanup laws at our current facilities or facilities previously owned by us or other acquired businesses, adjacent or nearby third-party facilities or offsite disposal locations. The costs associated with future cleanup activities that we may be required to conduct or finance may be material. Additionally, we may become liable to third parties for damages, including personal injury and property damage, resulting from the disposal or release of hazardous substances into the environment.

Violations of environmental, health and safety laws can result in substantial penalties, court orders to install pollution-control equipment, civil and criminal sanctions, permit revocations and facility shutdowns. Environmental, health and safety laws change regularly and have tended to become more stringent over time. As a result, we have not always been and may not always be in compliance with all environmental, health and safety laws and regulations. We may be subject to more stringent enforcement of existing or new environmental, health and safety laws in the future. Additionally, future environmental, health and safety laws and regulations or reinterpretation of current laws and regulations may require us to make substantial expenditures. We sell, among other products, diesel exhaust fluid, which is subject to EPA emissions standards that may become more stringent in the future. Our costs to comply with, or any liabilities under, these laws and regulations could have a material adverse effect on our business, financial condition, results of operations and cash flows.

From time to time, our production of anhydrous ammonia has resulted in accidental releases that have temporarily disrupted our manufacturing operations and resulted in liability for administrative penalties and claims for personal injury. To date, our costs to resolve these liabilities have not been material. However, we could incur significant costs if our liability coverage is not sufficient to pay for all or a large part of any judgments against us, or if our insurance carrier refuses coverage for these losses.

We hold numerous environmental and other governmental permits and approvals authorizing operations at each of our facilities. Expansion or modification of our operations is predicated upon securing necessary environmental or other permits or approvals. A decision by a government agency to deny or delay issuing a new or renewed regulatory material permit or approval, or to revoke or substantially modify an existing permit or approval, or a determination that we have violated a law or permit as a result of a governmental inspection of our facilities could have a material adverse effect on our ability to continue operations at our facilities and on our business, financial condition, results of operations and cash flows. On October 26, 2015, the EPA published a final regulation lowering the national ambient air quality standard for ozone. Ozone attainment designations are expected by October 2017, and this action is expected to result in additional areas of the country being classified as being in nonattainment with the ozone standard and subject to more stringent permitting requirements, which in turn could make it much more difficult and expensive to obtain permits to construct new facilities or expand our existing operations.

Future regulatory restrictions on greenhouse gas emissions in the jurisdictions in which we operate could materially adversely affect our business, financial condition, results of operations and cash flows.

We are subject to greenhouse gas regulations in the United Kingdom, Canada and the United States. In the United States, our existing facilities currently are only subject to GHG emissions reporting obligations, although our new and modified facilities are likely to be subject to GHG emissions standards included in their air permits. Our facilities in the United Kingdom are subject to regulatory emissions trading systems, which generally require us to hold or obtain emissions allowances to offset GHG emissions from those aspects of our operations that are subject to regulation under this program. Our facility in Alberta, Canada is subject to a provincial regulation requiring reductions in the facility's net emissions intensity, which can be met by facility improvements, the purchase of emissions offsets or performance credits, or contributions to a non-profit climate change fund established by Alberta. In June 2016, Alberta promulgated the Climate Leadership Implementation Act, which will impose a wide-ranging carbon tax. The carbon tax will be set at $20 per ton (Canadian dollars) effective January 1, 2017, rise to $30 per ton (Canadian dollars) effective January 1, 2018 and increase with the rate of inflation thereafter. Facilities such as ours that are subject to the existing specified gas emitters regulation will continue to be subject to this regulation in the near term, after which new product and sector-based performance standards (to be developed) will become effective. Our Courtright, Ontario facility will be subject to Ontario's GHG cap and trade program beginning in January 2017, which regulation was finalized in May 2016. In addition, in October 2016, Canadian Prime Minister Justin Trudeau announced that his government will introduce a plan to put a nationwide price on carbon emissions, which plan would serve as a floor for the GHG emissions reduction requirements of the separate Canadian provinces and territories. The announced plan would impose a $10 per ton (Canadian dollars) charge beginning in 2018, rising to $50 per ton by 2022.

There are substantial uncertainties as to the nature, stringency and timing of any future GHG regulations. On December 12, 2015, 195 countries adopted by consensus a new international agreement known as the Paris Agreement. The Paris Agreement is intended to provide a framework pursuant to which the parties to the agreement will attempt to hold the increase in global average temperatures to below 2 °C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5 °C above pre-industrial levels. The Paris Agreement, which has been accepted by the United States and ratified by Canada and the United Kingdom, went into effect in November 2016. However, as a result of the recent presidential election, the United States may decide to withdraw from the Paris Agreement (or the United Nations Framework Convention on Climate Change, which would also result in withdrawal from the Paris Agreement) or, prior to taking such actions, could disregard its commitments under the Paris Agreement. The impact of such actions, if they take place, on the future implementation of the Paris Agreement is uncertain. If the Paris Agreement remains in effect, it could result in more aggressive efforts to reduce GHG emissions in the jurisdictions in which we operate. More stringent GHG limitations, if they are enacted, are likely to have a significant impact on us, because our production facilities emit GHGs such as carbon dioxide and nitrous oxide and because natural gas, a fossil fuel, is a primary raw material used in our nitrogen production process. Regulation of GHGs may require us to make changes in our operating activities that would increase our operating costs, reduce our efficiency, limit our output, require us to make capital improvements to our facilities, increase our costs for or limit the availability of energy, raw materials or transportation, or otherwise materially adversely affect our business, financial condition, results of operations and cash flows. In addition, to the extent that GHG restrictions are not imposed in countries where our competitors operate or are less stringent than regulations that may be imposed in the United States, Canada or the United Kingdom, our competitors may have cost or other competitive advantages over us.

Our operating results fluctuate due to seasonality. Our inability to predict future seasonal fertilizer demand accurately could result in our having excess inventory, potentially at costs in excess of market value, or product shortages.

The fertilizer business is seasonal. The degree of seasonality of our business can change significantly from year to year due to conditions in the agricultural industry and other factors. The strongest demand for our products in North America occurs during the spring planting season, with a second period of strong demand following the fall harvest. We and our customers generally build inventories during the low demand periods of the year to ensure timely product availability during the peak sales seasons. Seasonality is greatest for ammonia due to the short application season and the limited ability of our customers and their customers to store significant quantities of this product. The seasonality of fertilizer demand generally results in our sales volumes and net sales being the highest during the spring and our working capital requirements being the highest just prior to the start of the spring planting season.

If seasonal demand is less than we expect, we may be left with excess inventory that will have to be stored (in which case our results of operations will be negatively affected by any related increased storage costs) or liquidated (in which case the selling price may be below our production, procurement and storage costs). The risks associated with excess inventory and product shortages are exacerbated by the volatility of natural gas and nitrogen fertilizer prices and the relatively brief periods during which farmers can apply nitrogen fertilizers. If prices for our products rapidly decrease, we may be subject to inventory write-downs, adversely affecting our operating results. If seasonal demand is greater than we expect, we may experience product shortages, and customers of ours may turn to our competitors for products that they would otherwise have purchased from us.

A change in the volume of products that our customers purchase on a forward basis, or the percentage of our sales volume that is sold to our customers on a forward basis, could increase our exposure to fluctuations in our profit margins and materially adversely affect our business, financial condition, results of operations and cash flows.

We offer our customers the opportunity to purchase products from us on a forward basis at prices and delivery dates we propose. Under our forward sales programs, customers generally make an initial cash down payment at the time of order and pay the remaining portion of the contract sales value in advance of the shipment date. Forward sales improve our liquidity due to the cash payments received from customers in advance of shipment of the product and allow us to improve our production scheduling and planning and the utilization of our manufacturing and distribution assets.

Any cash payments received in advance from customers in connection with forward sales are reflected on our consolidated balance sheets as a current liability until the related orders are shipped, which can take up to several months.

We believe the ability to purchase products on a forward basis is most appealing to our customers during periods of generally increasing prices for nitrogen fertilizers. Our customers may be less willing or even unwilling to purchase products on a forward basis during periods of generally decreasing or stable prices or during periods of relatively high fertilizer prices due to the expectation of lower prices in the future or limited capital resources. In periods of rising fertilizer prices, selling our nitrogen fertilizers on a forward basis may result in lower profit margins than if we had not sold fertilizer on a forward basis. Conversely, in periods of declining fertilizer prices, selling our nitrogen fertilizers on a forward basis may result in higher profit margins than if we had not sold fertilizer on a forward basis. In addition, fixing the selling prices of our products, often months in advance of their ultimate delivery to customers, typically causes our reported selling prices and margins to differ from spot market prices and margins available at the time of shipment.

Our business is subject to risks involving derivatives, including the risk that our hedging activities might not prevent losses.

We often utilize natural gas derivatives to hedge our financial exposure to the price volatility of natural gas, the principal raw material used in the production of nitrogen-based fertilizers. We have used fixed-price, physical purchase and sales contracts, futures, financial swaps and option contracts traded in the over-the-counter markets or on exchanges. In order to manage our exposure to changes in foreign currency exchange rates, from time to time, we may use foreign currency derivatives, primarily forward exchange contracts.

Our use of derivatives can result in volatility in reported earnings due to the unrealized mark-to-market adjustments that occur from changes in the value of the derivatives that do not qualify for, or to which we do not apply, hedge accounting. To the extent that our derivative positions lose value, we may be required to post collateral with our counterparties, adversely affecting our liquidity.

Hedging arrangements are imperfect and unhedged risks will always exist. In addition, our hedging activities may themselves give rise to various risks that could adversely affect us. For example, we are exposed to counterparty credit risk when our derivatives are in a net asset position. Additionally, the International Swaps and Derivative Association master netting arrangements for most of our derivative instruments contain credit-risk-related contingent features, such as cross default provisions and credit support requirements. In the event of certain defaults or a credit ratings downgrade, our counterparty may request early termination and net settlement of certain derivative trades or may require us to collateralize derivatives in a net liability position.

The counterparties to our derivatives are multi-national commercial banks, major financial institutions or large energy companies. We monitor the derivative portfolio and credit quality of our counterparties and adjust the level of activity we conduct with individual counterparties as necessary. We also manage the credit risk through the use of multiple counterparties, credit limits, credit monitoring procedures, cash collateral requirements and master netting arrangements. However, our liquidity could be negatively impacted by a counterparty default on settlement of one or more of our derivative financial instruments or by the trigger of any cross default provisions or credit support requirements.

We are reliant on a limited number of key facilities.

Our nitrogen fertilizer operations are concentrated in nine separate nitrogen complexes, the largest of which is the Donaldsonville complex, which represented approximately 40% of our ammonia production capacity as of December 31, 2016, including the Donaldsonville and Port Neal capacity expansion projects, which were completed in 2016. The suspension of operations at any of these complexes could adversely affect our ability to produce our products and fulfill our commitments, and could have a material adverse effect on our business, financial condition, results of operations and cash flows. In addition, our Donaldsonville complex is located in an area of the United States that experiences a relatively high level of hurricane or high wind activity and our other complexes are located in areas that experience severe weather. Such storms, depending on their severity and location, have the potential not only to damage our facilities and disrupt our operations, but also to adversely affect the shipping and distribution of our products and the supply and price of natural gas in the respective regions. Moreover, our facilities may be subject to failure of equipment that may be difficult to replace and could result in operational disruptions.

We are subject to risk associated with our strategic venture with CHS Inc.

We may not realize the full benefits from our strategic venture with CHS that are expected. The realization of the expected benefits of the CHS strategic venture depends on our ability to successfully operate and manage the strategic venture, and on the market prices of the nitrogen fertilizer products that are the subject of our supply agreement with CHS over the life of the agreement, among other factors. Additionally, any challenges related to the CHS strategic venture could harm our relationships with CHS or our other customers.

We are exposed to risks associated with our joint venture.

We have a 50% ownership interest in PLNL, which owns and operates an ammonia production facility in the Republic of Trinidad and Tobago. Our joint venture partner shares a measure of control over the operations of our PLNL joint venture. As a result, our investment in our PLNL joint venture involves risks that are different from the risks involved in owning facilities and operations independently. These risks include the possibility that our PLNL joint venture or our partner: have economic or business interests or goals that are or become inconsistent with our economic or business interests or goals; are in a position to take action contrary to (or have veto rights over) our instructions, requests, policies or objectives; subject our PLNL joint venture to liabilities exceeding those contemplated; take actions that reduce our return on investment; or take actions that harm our reputation or restrict our ability to run our business.

In addition, we may become involved in disputes with our PLNL joint venture partner, which could lead to impasses or situations that could harm the joint venture, which could reduce our revenues or increase our costs.

PLNL's ammonia plant relies on natural gas supplied by the National Gas Company of Trinidad and Tobago Limited pursuant to a gas sales contract (the NGC Contract). The joint venture has experienced curtailments in the supply of natural gas from NGC, which have reduced the ammonia production at PLNL. In 2016, NGC communicated to PLNL that it does not recognize the joint venture's exercise of its option to renew the NGC Contract for an additional five-year term beyond its current termination date in September 2018, and that any NGC commitment to supply gas beyond 2018 will need to be based on new agreements regarding volume and price. PLNL has initiated arbitration proceedings against NGC and asserted claims in connection with NGC's failure to supply the contracted quantities of natural gas, and its refusal to recognize the joint venture's exercise of its option to extend the NGC Contract. PLNL is seeking declaratory and injunctive relief, as well as damages for past and ongoing curtailments. Although the joint venture believes its claims against NGC to be meritorious, it is not possible to predict the outcome of the arbitration. There are significant assumptions in the future operations of the joint venture that are uncertain at this time, including the quantities of gas NGC will make available, the cost of such gas, the estimates that are used to determine the useful lives of fixed assets and the assumptions in the discounted cash flow models utilized for recoverability and impairment testing.

As part of our impairment assessment of our equity method investment in PLNL, we determined the carrying value exceeded the fair value and recognized a $134 million impairment charge in 2016. Previously, in 2015, we recognized an impairment charge of $62 million related to our equity method investment in PLNL. The carrying value of our equity method investment in PLNL at December 31, 2016 is approximately $139 million. Failure to secure a long-term gas supply from NGC on a cost effective basis could adversely affect our ability to produce ammonia at the joint venture and could result in further impairment to the value of the joint venture, such as ceasing operations and writing off the remaining investment in PLNL, which could have a material adverse effect on our results of operations.

Acts of terrorism and regulations to combat terrorism could negatively affect our business.

Like other companies with major industrial facilities, we may be targets of terrorist activities. Many of our plants and facilities store significant quantities of ammonia and other materials that can be dangerous if mishandled. Any damage to infrastructure facilities, such as electric generation, transmission and distribution facilities, or injury to employees, who could be direct targets or indirect casualties of an act of terrorism, may affect our operations. Any disruption of our ability to produce or distribute our products could result in a significant decrease in revenues and significant additional costs to replace, repair or insure our assets, which could have a material adverse effect on our business, financial condition, results of operations and cash flows.

Due to concerns related to terrorism or the potential use of certain fertilizers as explosives, we are subject to various security laws and regulations. In the United States, these security laws include the Maritime Transportation Security Act of 2002 and the Chemical Facilities Anti-Terrorism Standards regulation. In addition, President Obama issued Executive Order 13650 Improving Chemical Facility Safety and Security to improve chemical facility safety in coordination with owners and operators. Governmental entities could implement new or impose more stringent regulations affecting the security of our plants, terminals and warehouses or the transportation and use of fertilizers. These regulations could result in higher operating costs or limitations on the sale of our products and could result in significant unanticipated costs, lower revenues and reduced profit margins. We manufacture and sell certain nitrogen fertilizers that can be used as explosives. It is possible that governmental entities in the United States or elsewhere could impose additional limitations on the use, sale or distribution of nitrogen fertilizers, thereby limiting our ability to manufacture or sell those products, or that illicit use of our products could result in liability for us.

We are subject to risks associated with international operations.

Our international business operations are subject to numerous risks and uncertainties, including difficulties and costs associated with complying with a wide variety of complex laws, treaties and regulations; unexpected changes in regulatory environments; currency fluctuations; tax rates that may exceed those in the United States; earnings that may be subject to withholding requirements; and the imposition of tariffs, exchange controls or other restrictions.

Our principal reporting currency is the U.S. dollar and our business operations and investments outside the United States increase our risk related to fluctuations in foreign currency exchange rates. The main currencies to which we are exposed, besides the U.S. dollar, are the Canadian dollar, the British pound and the euro. These exposures may change over time as business practices evolve and economic conditions change, including, for example, in response to sudden global economic conditions resulting from measures like the referendum in the United Kingdom in June 2016, which resulted in a vote in favor of exiting the European Union (Brexit). We may selectively reduce some foreign currency exchange rate risk by, among other things, requiring contracted purchases of our products to be settled in, or indexed to, the U.S. dollar or a currency freely convertible into U.S. dollars, or hedging through foreign currency derivatives. These efforts, however, may not be effective and could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We are subject to anti-corruption laws and regulations and economic sanctions programs in various jurisdictions, including the U.S. Foreign Corrupt Practices Act of 1977, the United Kingdom Bribery Act of 2010, and economic sanctions programs administered by the United Nations, the European Union and the Office of Foreign Assets Control of the U.S. Department of the Treasury, and regulations set forth under the Comprehensive Iran Accountability Divestment Act. As a result of doing business internationally, we are exposed to a risk of violating anti-corruption laws and sanctions regulations applicable in those countries where we, our partners or agents operate. Violations of anti-corruption and sanctions laws and regulations are punishable by civil penalties, including fines, denial of export privileges, injunctions, asset seizures, debarment from government contracts (and termination of existing contracts) and revocations or restrictions of licenses, as well as criminal fines and imprisonment. The violation of applicable laws by our employees, consultants, agents or partners could subject us to penalties and could have a material adverse effect on our business, financial condition, results of operations and cash flows.

We are subject to antitrust and competition laws in various countries throughout the world. We cannot predict how these laws or their interpretation, administration and enforcement will change over time. Changes in antitrust laws globally, or in their interpretation, administration or enforcement, may limit our existing or future operations and growth.

Deterioration of global market and economic conditions could have a material adverse effect on our business, financial condition, results of operations and cash flows.

A slowdown of, or persistent weakness in, economic activity caused by a deterioration of global market and economic conditions could adversely affect our business in the following ways, among others: conditions in the credit markets could affect the ability of our customers and their customers to obtain sufficient credit to support their operations; the failure of our customers to fulfill their purchase obligations could result in increases in bad debts and impact our working capital; and the failure of certain key suppliers could increase our exposure to disruptions in supply or to financial losses. We also may experience declining demand and falling prices for some of our products due to our customers' reluctance to replenish inventories. Changes in global economic conditions can arise suddenly and the full impact of such changes can be difficult to ascertain, resulting in anxiety among market participants that can persist for protracted periods. For example, concern and uncertainty over the potential impact of Brexit on the global economy has resulted in increased volatility in global financial markets. The overall impact of changes in global economic conditions on us is difficult to predict, and our business could be materially adversely impacted.

In addition, conditions in the international market for nitrogen fertilizers significantly influence our operating results. The international market for fertilizers is influenced by such factors as currency exchange rates, including the relative value of the U.S. dollar and its impact upon the cost of importing of nitrogen fertilizers into the United States, foreign agricultural policies, the existence of, or changes in, import or foreign currency exchange barriers in certain foreign markets and the laws and policies of the markets in which we operate that affect foreign trade and investment.

FORWARD LOOKING STATEMENTS

From time to time, in this Annual Report on Form 10-K as well as in other written reports and oral statements, we make forward-looking statements that are not statements of historical fact and may involve a number of risks and uncertainties. These statements relate to analyses and other information that are based on forecasts of future results and estimates of amounts not yet determinable. These statements may also relate to our prospects, future developments and business strategies. We have used the words "anticipate," "believe," "could," "estimate," "expect," "intend," "may," "plan," "predict," "project," "will" or "would" and similar terms and phrases, including references to assumptions, to identify forward-looking statements in this document. These forward-looking statements are made based on currently available competitive, financial and economic data, our current expectations, estimates, forecasts and projections about the industries and markets in which we operate and management's beliefs and assumptions concerning future events affecting us. These statements are not guarantees of future performance and are subject to risks, uncertainties and factors relating to our operations and business environment, all of which are difficult to predict and many of which are beyond our control. Therefore, our actual results may differ materially from what is expressed in or implied by any forward-looking statements. We want to caution you not to place undue reliance on any forward-looking statements. We do not undertake any responsibility to release publicly any revisions to these forward-looking statements to take into account events or circumstances that occur after the date of this document. Additionally, we do not undertake any responsibility to provide updates regarding the occurrence of any unanticipated events which may cause actual results to differ from those expressed or implied by the forward-looking statements contained in this document.

Important factors that could cause actual results to differ materially from our expectations are disclosed under "Risk Factors" and elsewhere in this Annual Report on Form 10-K. Such factors include, among others:

- the cyclical nature of our business and the agricultural sector;
- the global commodity nature of our fertilizer products, the impact of global supply and demand on our selling prices, and the intense global competition from other fertilizer producers;
- conditions in the U.S. and European agricultural industry;
- the volatility of natural gas prices in North America and Europe;
- difficulties in securing the supply and delivery of raw materials, increases in their costs or delays or interruptions in their delivery;
- reliance on third party providers of transportation services and equipment;
- the significant risks and hazards involved in producing and handling our products against which we may not be fully insured;
- our ability to manage our indebtedness;
- operating and financial restrictions imposed on us by the agreements governing our senior secured indebtedness;
- risks associated with our incurrence of additional indebtedness;
- our ability to maintain compliance with covenants under the agreements governing our indebtedness;
- downgrades of our credit ratings;
- risks associated with cyber security;
- weather conditions;
- risks associated with our ability to utilize our tax net operating losses and other tax assets, including the risk that the use of such tax benefits is limited by an "ownership change;"
- risks associated with changes in tax laws and disagreements with taxing authorities;
- risks associated with expansions of our business, including unanticipated adverse consequences and the significant resources that could be required;
- potential liabilities and expenditures related to environmental, health and safety laws and regulations and permitting requirements;
- future regulatory restrictions and requirements related to greenhouse gas emissions;
- the seasonality of the fertilizer business;
- the impact of changing market conditions on our forward sales programs;
- risks involving derivatives and the effectiveness of our risk measurement and hedging activities;
- our reliance on a limited number of key facilities;
- risks associated with the operation or management of the CHS strategic venture, risks and uncertainties relating to the market prices of the fertilizer products that are the subject of our supply agreement with CHS over the life of the supply agreement, and the risk that any challenges related to the CHS strategic venture will harm our other business relationships;
- risks associated with our PLNL joint venture;
- acts of terrorism and regulations to combat terrorism;
- risks associated with international operations; and
- deterioration of global market and economic conditions.

ITEM 1B. UNRESOLVED STAFF COMMENTS.

None.

ITEM 2. PROPERTIES.

Information regarding our facilities and properties is included in Part I, Item 1. Business—Reportable Segments and Part I, Item 1. Business—Storage Facilities and Other Properties.

ITEM 3. LEGAL PROCEEDINGS.

Litigation

West Fertilizer Co.

On April 17, 2013, there was a fire and explosion at the West Fertilizer Co. fertilizer storage and distribution facility in West, Texas. According to published reports, 15 people were killed and approximately 200 people were injured in the incident, and the fire and explosion damaged or destroyed a number of homes and buildings around the facility. Various subsidiaries of CF Industries Holdings, Inc. (the CF Entities) have been named as defendants along with other companies in lawsuits filed in 2013, 2014 and 2015 in the District Court of McLennan County, Texas by the City of West, individual residents of the County and other parties seeking recovery for damages allegedly sustained as a result of the explosion. The cases have been consolidated for discovery and pretrial proceedings in the District Court of McLennan County under the caption "In re: West Explosion Cases." The two-year statute of limitations expired on April 17, 2015. As of that date, over 400 plaintiffs had filed claims, including at least 9 entities, 325 individuals, and 80 insurance companies. Plaintiffs allege various theories of negligence, strict liability, and breach of warranty under Texas law. Although we do not own or operate the facility or directly sell our products to West Fertilizer Co., products that the CF Entities have manufactured and sold to others have been delivered to the facility and may have been stored at the West facility at the time of the incident.

The Court granted in part and denied in part the CF Entities' Motions for Summary Judgment in August 2015. Thirty-four cases have been resolved pursuant to confidential settlements fully funded by insurance. The remaining cases are in various stages of discovery and pre-trial proceedings. The next group of cases was reset for trial beginning on April 3, 2017. While we believe we have strong legal and factual defenses and intend to continue defending the CF Entities vigorously in the pending lawsuits, including in any appeals that may follow, we have concluded based on continuing developments in the case that some loss is probable for a subset of the outstanding claims. We have made an accrual for this subset of the outstanding claims, which is not material to the Consolidated Financial Statements. Beyond the amounts accrued, the Company cannot provide a range of reasonably possible loss due to the lack of damages discovery for the remaining claims and the uncertain nature of this litigation, including uncertainties around the potential allocation of responsibility by a jury to other defendants or responsible third parties. The recognition of a potential loss in the future in the West Fertilizer Co. litigation could negatively affect our results in the period of recognition. However, based upon currently available information, including available insurance coverage, we do not believe that this litigation will have a material adverse effect on our consolidated financial position, results of operations or cash flows.

Yazoo City Clean Air Act

On February 10, 2016, CFN was orally informed by representatives of the Mississippi Department of Environmental Quality (MDEQ) of MDEQ’s intent to impose a civil penalty of an amount exceeding $100,000 for alleged violations of certain fuel firing rate limits in the Company’s Clean Air Act Title V Permit for the Yazoo City, Mississippi facility. Representatives of the Company attended an administrative conference with MDEQ in early July 2016 to discuss MDEQ’s findings and calculation of the proposed penalty. On September 23, 2016, the Company agreed to a settlement that will require it to pay $95,625 to resolve the alleged violations. The Company expects to finalize the terms of an Agreed Order with MDEQ that will fully and finally resolve the alleged permit limit exceedances at issue in this matter.

Environmental

Florida Environmental Matters

On March 17, 2014, we completed the sale of our phosphate mining and manufacturing business, which was located in Florida, to Mosaic. Pursuant to the terms of the definitive agreement executed in October 2013 among CF Industries Holdings, Inc., CF Industries and Mosaic, Mosaic has assumed the following environmental matters and we have agreed to indemnify Mosaic with respect to losses arising out of the matters below, subject to a maximum indemnification cap and the other terms of the definitive agreement.

Clean Air Act Notice of Violation

We received a Notice of Violation (NOV) from the EPA by letter dated June 16, 2010, alleging that we violated the Prevention of Significant Deterioration Clean Air Act regulations relating to certain projects undertaken at the former Plant City, Florida facility's sulfuric acid plants. This NOV further alleges that the actions that are the basis for the alleged PSD violations also resulted in violations of Title V air operating permit regulations. Finally, the NOV alleges that we failed to comply with certain compliance dates established by hazardous air pollutant regulations for phosphoric acid manufacturing plants and phosphate fertilizer production plants. We had several meetings with the EPA with respect to this matter prior to our sale of the phosphate mining and manufacturing business in March 2014. We do not know at this time if this matter will be settled prior to initiation of formal legal action.

We cannot estimate the potential penalties, fines or other expenditures, if any, that may result from the Clean Air Act NOV and, therefore, we cannot determine if the ultimate outcome of this matter will have a material impact on our consolidated financial position, results of operations or cash flows.

EPCRA/CERCLA Notice of Violation

By letter dated July 6, 2010, the EPA issued a NOV to us alleging violations of Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) in connection with the former Plant City facility. EPCRA requires annual reports to be submitted with respect to the use of certain toxic chemicals. The NOV also included an allegation that we violated Section 304 of EPCRA and Section 103 of CERCLA by failing to file a timely notification relating to the release of hydrogen fluoride above applicable reportable quantities. We do not know at this time if this matter will be settled prior to initiation of formal legal action.

We do not expect that penalties or fines, if any, that may arise out of the EPCRA/CERCLA matter will have a material impact on our consolidated financial position, results of operations or cash flows.

Other

CERCLA/Remediation Matters

For information on pending proceedings relating to environmental remediation matters, see Item 1. Business—Environmental, Health and Safety and Note 20—Contingencies.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II

ITEM 5. MARKET FOR REGISTRANT'S COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES.

Our common stock is traded on the New York Stock Exchange, Inc. (NYSE) under the symbol "CF". Quarterly high and low sales prices, as reported by the NYSE, are provided below:

2016	Sales Prices		Dividends per Share
	High	Low	
First Quarter	$ 40.95	$ 26.10	$ 0.30
Second Quarter	35.84	23.15	0.30
Third Quarter	28.32	20.77	0.30
Fourth Quarter	32.61	22.00	0.30

2015	Sales Prices		Dividends per Share
	High	Low	
First Quarter	$ 62.89	$ 54.60	$ 0.30
Second Quarter	65.69	55.60	0.30
Third Quarter	70.32	43.88	0.30
Fourth Quarter	54.27	39.64	0.30

As of February 16, 2017, there were 779 stockholders of record.

The following table sets forth stock repurchases for each of the three months of the quarter ended December 31, 2016.

Period	Issuer Purchases of Equity Securities			
	Total Number of Shares (or Units) Purchased	Average Price Paid per Share (or Unit)	Cumulative Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	Maximum Number (or Approximate Dollar Value) of Shares (or Units) that May Yet Be Purchased Under the Plans or Programs (in thousands)[1]
October 1, 2016 - October 31, 2016	—	$ —	—	$ 100,000
November 1, 2016 - November 30, 2016	—	—	—	100,000
December 1, 2016 - December 31, 2016[2]	—	—	—	—
Total	—			

(1) Represents the authorized share repurchase program announced on August 6, 2014 that allowed management to repurchase common stock for a total expenditure of up to $1.0 billion through December 31, 2016 (the 2014 Program). See Note 18—Stockholders' Equity for additional information about the 2014 program.

(2) The $100 million of authorized share repurchases remaining under the 2014 Program expired on December 31, 2016.

ITEM 6. SELECTED FINANCIAL DATA.

The following selected historical financial data as of December 31, 2016 and 2015 and for the years ended December 31, 2016, 2015 and 2014 have been derived from our audited consolidated financial statements and related notes included elsewhere in this document. The following selected historical financial data as of December 31, 2014, 2013 and 2012 and for the years ended December 31, 2013 and 2012 have been derived from our consolidated financial statements, which are not included in this document. The selected historical financial data should be read in conjunction with the information contained in Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations and Item 8. Financial Statements and Supplementary Data.

	Year ended December 31,				
	2016	2015[(1)]	2014[(2)]	2013	2012
	(in millions, except per share amounts)				
Statement of Operations Data:					
Net sales	$ 3,685	$ 4,308	$ 4,743	$ 5,475	$ 6,104
Cost of sales	2,845	2,761	2,965	2,955	2,991
Gross margin	840	1,547	1,778	2,520	3,113
Selling, general and administrative expenses	174	170	152	166	152
Transaction costs	179	57	—	—	—
Other operating—net	208	92	53	(16)	49
Total other operating costs and expenses	561	319	205	150	201
Gain on sale of phosphate business	—	—	750	—	—
Equity in (losses) earnings of operating affiliates	(145)	(35)	43	42	47
Operating earnings	134	1,193	2,366	2,412	2,959
Interest expense (income)—net	195	131	177	147	131
Loss on debt extinguishment	167	—	—	—	—
Other non-operating—net	(2)	4	2	55	(1)
(Loss) earnings before income taxes and equity in earnings of non-operating affiliates	(226)	1,058	2,187	2,210	2,829
Income tax (benefit) provision	(68)	396	773	687	964
Equity in earnings of non-operating affiliates—net of taxes	—	72	23	10	58
Net (loss) earnings	(158)	734	1,437	1,533	1,923
Less: Net earnings attributable to noncontrolling interests	119	34	47	68	75
Net (loss) earnings attributable to common stockholders	$ (277)	$ 700	$ 1,390	$ 1,465	$ 1,848
Cash dividends declared per common share	$ 1.20	$ 1.20	$ 1.00	$ 0.44	$ 0.32
Share and per share data:					
Net (loss) earnings per share attributable to common stockholders:					
Basic	$ (1.19)	$ 2.97	$ 5.43	$ 4.97	$ 5.79
Diluted	(1.19)	2.96	5.42	4.95	5.72
Weighted-average common shares outstanding:					
Basic	233.1	235.3	255.9	294.4	319.3
Diluted	233.1	236.1	256.7	296.0	323.3
Other Financial Data:					
Depreciation, depletion and amortization	$ 678	$ 480	$ 393	$ 411	$ 420
Capital expenditures	2,211	2,469	1,809	824	524

	December 31,				
	2016	2015[1]	2014[2]	2013	2012
	(in millions)				
Balance Sheet Data:					
Cash and cash equivalents	$ 1,164	$ 286	$ 1,997	$ 1,711	$ 2,275
Total assets[3]	15,131	12,683	11,200	10,574	10,122
Customer advances	42	162	325	121	381
Total debt[3]	5,778	5,537	4,538	3,054	1,570
Total equity	6,492	4,387	4,572	5,438	6,282

(1) On July 31, 2015, we acquired the remaining 50% equity interest in CF Fertilisers UK not previously owned by us. CF Fertilisers UK is now wholly owned by us. The financial results of CF Fertilisers UK have been consolidated within our financial results since July 31, 2015. Prior to July 31, 2015, our initial 50% equity interest in CF Fertilisers UK was accounted for as an equity method investment and the financial results of this investment were included in equity in earnings of non-operating affiliates—net of taxes. See Note 4—Acquisitions and Divestitures for additional information.

(2) On March 17, 2014, we completed the sale of our phosphate mining and manufacturing business. The selected historical financial data above includes the results of the phosphate business through March 17, 2014, plus the continuing sales of the phosphate inventory in the distribution network after March 17, 2014. The remaining phosphate inventory was sold in the second quarter of 2014. The results of the phosphate mining and manufacturing business are not reported as discontinued operations in our consolidated statements of operations. See Note 4—Acquisitions and Divestitures for additional information.

(3) Total debt and total assets have been retroactively restated for the years ended December 31, 2015, 2014, 2013 and 2012 to reflect our adoption during fiscal year 2016 of Accounting Standards Update 2015-03, Interest—Imputation of Interest: Simplifying the Presentation of Debt Issuance Costs, which resulted in the reclassification of deferred debt issuance costs from other assets to an offset of long-term debt on our consolidated balance sheets. See Note 3—New Accounting Standards and Note 12—Financing Agreements for additional information.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS.

You should read the following discussion and analysis in conjunction with the consolidated financial statements and related notes included in Item 8. Financial Statements and Supplementary Data. All references to "CF Holdings," "we," "us," "our" and "the Company" refer to CF Industries Holdings, Inc. and its subsidiaries, except where the context makes clear that the reference is only to CF Industries Holdings, Inc. itself and not its subsidiaries. All references to "CF Industries" refer to CF Industries, Inc., a 100% owned subsidiary of CF Industries Holdings, Inc. References to tons refer to short-tons. Notes referenced in this discussion and analysis refer to the notes to consolidated financial statements that are found in Item 8. Financial Statements and Supplementary Data—Notes to Consolidated Financial Statements. The following is an outline of the discussion and analysis included herein:

- *Overview of CF Holdings*
  - *Our Company*
  - *Industry Factors and Market Conditions*
  - *Items Affecting Comparability of Results*
  - *Financial Executive Summary*
- *Results of Consolidated Operations*
  - *Year Ended December 31, 2016 Compared to Year Ended December 31, 2015*
  - *Year Ended December 31, 2015 Compared to Year Ended December 31, 2014*
  - *Operating Results by Business Segment*
- *Liquidity and Capital Resources*
- *Off-Balance Sheet Arrangements*
- *Critical Accounting Policies and Estimates*
- *Recent Accounting Pronouncements*

Overview of CF Holdings

Our Company

We are one of the largest manufacturers and distributors of nitrogen fertilizer and other nitrogen products in the world. Our principal customers are cooperatives, independent fertilizer distributors, farmers and industrial users. Our principal nitrogen fertilizer products are ammonia, granular urea, urea ammonium nitrate solution (UAN) and ammonium nitrate (AN). Our other nitrogen products include diesel exhaust fluid (DEF), urea liquor, nitric acid and aqua ammonia, which are sold primarily to our industrial customers, and compound fertilizer products (NPKs), which are solid granular fertilizer products for which the nutrient content is a combination of nitrogen, phosphorus, and potassium. Our manufacturing and distribution facilities are concentrated in the midwestern United States and other major agricultural areas of the United States, Canada and the United Kingdom. We also export nitrogen fertilizer products from our Donaldsonville, Louisiana and Yazoo City, Mississippi manufacturing facilities, and our United Kingdom manufacturing facilities in Billingham and Ince.

Our principal assets include:

- four U.S. nitrogen fertilizer manufacturing facilities, located in Donaldsonville, Louisiana (the largest nitrogen fertilizer complex in the world); Port Neal, Iowa; Yazoo City, Mississippi; and Woodward, Oklahoma. These facilities are owned by CF Industries Nitrogen, LLC (CFN), in which we own a majority equity interest and CHS Inc. (CHS) owns a minority equity interest. See Note 17—Noncontrolling Interests to our consolidated financial statements included in Item 8 of this report for additional information on our strategic venture with CHS;
- an approximately 75.3% interest in Terra Nitrogen Company, L.P. (TNCLP), a publicly traded limited partnership of which we are the sole general partner and the majority limited partner and which, through its subsidiary Terra Nitrogen, Limited Partnership (TNLP), operates a nitrogen fertilizer manufacturing facility in Verdigris, Oklahoma;
- two Canadian nitrogen fertilizer manufacturing facilities, located in Medicine Hat, Alberta (the largest nitrogen fertilizer complex in Canada) and Courtright, Ontario;
- two United Kingdom nitrogen manufacturing complexes, located in Ince and Billingham;

- an extensive system of terminals and associated transportation equipment located primarily in the midwestern United States; and
- a 50% interest in Point Lisas Nitrogen Limited (PLNL), an ammonia production joint venture located in the Republic of Trinidad and Tobago that we account for under the equity method.

Industry Factors and Market Conditions

We operate in a highly competitive, global industry. Our operating results are influenced by a broad range of factors, including those outlined below.

Global Commodities

Our products are globally traded commodities and are subject to price competition. The customers for our products make their purchasing decisions principally on the basis of delivered price and, to a lesser extent, on customer service and product quality. The selling prices of our products fluctuate in response to global market conditions and changes in supply and demand.

Global Supply and Demand Factors

Historically, global fertilizer demand has been driven primarily by population growth, gross domestic product growth, changes in dietary habits and planted acreage, and application rates, among other things. We expect these key variables to continue to have major impacts on long-term fertilizer demand for the foreseeable future. Short-term fertilizer demand depends on global economic conditions, weather patterns, the level of global grain stocks relative to consumption, governmental regulations, including requirements mandating increased use of bio-fuels and farm sector income. Other geopolitical factors like temporary disruptions in fertilizer trade related to government intervention or changes in the buying/selling patterns of key exporting/consuming countries such as China, India, Russia and Brazil, among others, often play a major role in shaping near-term market fundamentals. The economics of nitrogen-based fertilizer manufacturing play a key role in decisions to increase or reduce production capacity. Supply of fertilizers is generally driven by available capacity and operating rates, raw material costs and availability, government policies and global trade. Raw materials are dependent on energy sources such as natural gas or coal; supply costs are affected by the supply of and demand for these commodities.

Over the last decade, strong demand, high capacity utilization and increasing operating margins as a result of higher global nitrogen fertilizer prices stimulated global investment in nitrogen production facilities, which resulted in an increase in global nitrogen fertilizer production capacity. As a result, global nitrogen fertilizer supply increased faster than global nitrogen fertilizer demand, creating the current global oversupply in the market, and leading to lower nitrogen fertilizer selling prices. In addition, lower global production costs, driven by lower feedstock costs and foreign exchange rate changes, and reduced ocean freight costs have further contributed to the lower priced environment.

Global Trade in Fertilizer

In addition to the relationship between global supply and demand, profitability within a particular geographic region is determined by the supply/demand balance within that region. Regional supply and demand can be influenced significantly by factors affecting trade within regions. Some of these factors include the relative cost to produce and deliver product, relative currency values, the availability of credit and governmental trade policies. The development of additional natural gas reserves in North America over the last decade has decreased natural gas costs relative to the rest of the world, making North American nitrogen fertilizer producers more competitive. These lower natural gas costs contributed to announcements of several nitrogen fertilizer capacity expansion projects in North America, including our capacity expansion projects in Donaldsonville, Louisiana and Port Neal, Iowa. Changes in currency values may also alter our cost competitiveness relative to producers in other regions of the world.

Imports account for a significant portion of the nitrogen fertilizer consumed in North America. Producers of nitrogen-based fertilizers located in the Middle East, Ukraine, the Republic of Trinidad and Tobago, Venezuela, North Africa, Russia and China are major exporters to North America.

Farmers' Economics

The demand for fertilizer is affected by the aggregate crop planting decisions and fertilizer application rate decisions of individual farmers. Individual farmers make planting decisions based largely on prospective profitability of a harvest, while the specific varieties and amounts of fertilizer they apply depend on factors like their current liquidity, soil conditions, weather patterns, crop prices and the types of crops planted.

2016 Market Conditions

Our 2016 results were impacted by excess global nitrogen supply and the resulting low nitrogen fertilizer selling prices. The U.S. Gulf is a major global fertilizer pricing point due to the volume of nitrogen fertilizer that trades there. Through most of 2016, nitrogen pricing at the U.S. Gulf declined, often trading below parity with other international pricing points due to excess global nitrogen supply as a result of continued imports from various exporting regions and decreased buyer interest. Seasonal decreases in agricultural demand combined with delayed customer purchasing activity resulted in multi-year lows in nitrogen fertilizer selling prices in the second half of the year. The average selling price for our products in 2016 was $217 per ton compared to $314 per ton in 2015, a decrease of 31%, resulting in a decrease in both net sales and gross margin of approximately $1.38 billion between the periods. The decline in selling prices has impacted each of our reportable segments. In addition, during periods of declining prices, customers tend to delay purchasing fertilizer in anticipation of prices in the future being lower than current prices, which has also negatively impacted our sales volume.

In the fourth quarter of 2016, the following developments impacted the global nitrogen fertilizer market:

- A decline in Chinese nitrogen fertilizer operating rates due to rising production costs and lower global selling prices led to reduced Chinese urea supply availability in China and in international markets.
- Higher global oil prices have resulted in higher effective natural gas prices in Europe and Russia, and this has contributed to increasing nitrogen fertilizer manufacturers' production costs in these regions.
- Customers delayed purchasing into the fourth quarter of 2016, which reduced inventory levels in the supply chain. Increases in demand caused higher pricing as 2016 ended as customers began taking deliveries in anticipation of the 2017 spring application season.

These factors have led to an increase in global nitrogen pricing at the end of 2016. A significant amount of new nitrogen production capacity came on line in 2016, and additional production capacity is expected to come on line in 2017, including a significant increase in production capacity located in North America. The new capacity will further increase supply. We expect nitrogen fertilizer prices to rise going into the 2017 spring application season due to seasonal demand. However, we expect the lower priced environment to continue until global supply and demand become more balanced through a combination of continued demand growth and supply reductions as producers respond to lower realized margins by taking higher cost production facilities off line.

Items Affecting Comparability of Results

During the years ended December 31, 2016, 2015 and 2014, certain significant items impacted our financial results. The following table and related discussion outline these significant items and how they impacted the comparability of our financial results during these periods. For the year ended December 31, 2016, we reported a net loss attributable to common stockholders of $277 million, while in the years ended December 31, 2015 and 2014, we reported net earnings attributable to common stockholders of $700 million and $1.39 billion, respectively. Positive amounts in the table below are costs or expenses incurred, while negative amounts are income recognized in the periods presented.

		2016		2015		2014	
		Pre-Tax	After-Tax	Pre-Tax	After-Tax	Pre-Tax	After-Tax
				(in millions)			
Capacity Expansion Projects:							
Expansion project depreciation	(1)	$ 116	$ 73	$ 13	$ 8	$ —	$ —
Start-up costs - Donaldsonville / Port Neal expansion plants	(1)	52	32	—	—	—	—
Expansion project expenses	(2)	73	46	51	32	31	19
Loss on foreign currency derivatives	(2)	—	—	22	13	38	24
Strategic Venture with CHS:							
Noncontrolling interest	(7)	93	93	—	—	—	—
Loss on embedded derivative liability	(2)	23	14	—	—	—	—
Debt Restructuring:							
Loss on debt extinguishment		167	105	—	—	—	—
Debt and revolver amendment fees	(3)	16	10	—	—	—	—
Private Senior Notes arrangement fees	(4)	2	1	—	—	—	—
CF Fertilisers UK Acquisition:							
Gain on remeasurement of CF Fertilisers UK investment	(5)	—	—	(94)	(94)	—	—
Equity Method Investments:							
Impairment of equity method investment in PLNL	(6)	134	134	62	62	—	—
Loss on sale of equity method investments	(5)	—	—	43	31	—	—
Transaction Costs and Termination of Agreement with OCI:							
Transaction costs		179	96	57	37	—	—
Financing costs related to bridge loan commitment fee	(3)	28	18	6	4	—	—
Other Items:							
Unrealized net mark-to-market (gain) loss on natural gas derivatives	(1)	(260)	(163)	176	111	79	50
Loss (gain) on foreign currency transactions including intercompany loans	(2)	93	93	(8)	—	(15)	(9)
Gain on sale of phosphate business		—	—	—	—	(750)	(463)
Retirement benefit settlement charges	(1)(4)	—	—	—	—	13	8
Total Impact of Significant Items		$ 716	$ 552	$ 328	$ 204	$ (604)	$ (371)

(1) Included in cost of sales in our consolidated statement of operations.
(2) Included in other operating—net in our consolidated statement of operations.
(3) Included in interest expense in our consolidated statement of operations.
(4) Included in selling, general and administrative expenses in our consolidated statement of operations.
(5) Included in equity in earnings of non-operating affiliates in our consolidated statement of operations.
(6) Included in equity in (losses) earnings of operating affiliates in our consolidated statement of operations.
(7) Included in net earnings attributable to noncontrolling interests in our consolidated statement of operations.

	2016	2015	2014
Subtotals of Amounts Above by Line Item in the Consolidated Statements of Operations:		(in millions)	
Cost of sales	$ (92)	$ 189	$ 88
Selling, general and administrative expenses	2	—	4
Transaction costs	179	57	—
Other operating—net	189	65	54
Gain on sale of phosphate business	—	—	(750)
Equity in (losses) earnings of operating affiliates	134	62	—
Interest expense	44	6	—
Loss on debt extinguishment	167	—	—
Equity in earnings of non-operating affiliates—net of taxes	—	(51)	—
Net earnings attributable to noncontrolling interests	93	—	—
Total Impact of Significant Items	$ 716	$ 328	$ (604)

The following describes the significant items that impacted the comparability of our financial results in 2016, 2015 and 2014. Descriptions of items below that refer to amounts in the table above, refer to the pre-tax amounts.

Capacity Expansion Projects

In 2016, we completed capacity expansion projects at Donaldsonville, Louisiana and Port Neal, Iowa. These projects, originally announced in 2012, included the construction of new ammonia, urea, and UAN plants at our Donaldsonville, Louisiana complex and new ammonia and urea plants at our Port Neal, Iowa complex. These plants increased our overall production capacity by approximately 25%, improved our product mix flexibility at Donaldsonville, and improved our ability to serve upper-Midwest urea customers from our Port Neal location. In combination, these new facilities are able to produce 2.1 million tons of gross ammonia per year, upgraded products ranging from 2.0 million to 2.7 million tons of granular urea per year and up to 1.8 million tons of UAN 32% solution per year, depending on our choice of product mix. These new facilities will allow us to benefit from the cost advantages of North American natural gas.

At our Donaldsonville complex, the ammonia plant was placed in service in the fourth quarter of 2016, the UAN plant was placed in service in the first quarter of 2016 and the granular urea plant was placed in service during fourth quarter of 2015. At our Port Neal, Iowa complex, both the ammonia and granular urea plants were placed in service in the fourth quarter of 2016. The total capital cost of the capacity expansion projects was $5.2 billion. Depreciation expense pertaining to each of our capacity expansion plants commenced once the respective plant was placed in service. Total depreciation expense pertaining to our capacity expansion plants recognized in 2016 and 2015 was $116 million and $13 million, respectively.

Start-up costs of $52 million, which primarily relate to the cost of commencing production at the ammonia plants, were incurred in 2016. Expansion project expenses, consisting primarily of administrative costs and other project costs that do not qualify for capitalization, totaled $73 million, $51 million and $31 million in 2016, 2015 and 2014, respectively.

Losses on foreign currency derivatives of $22 million and $38 million in 2015 and 2014, respectively, relate to hedges of European euro denominated equipment purchased as part of the capacity expansion projects.

Strategic Venture with CHS

We commenced a strategic venture with CHS on February 1, 2016, at which time CHS purchased a minority equity interest in CFN for $2.8 billion. CHS also began receiving deliveries pursuant to a supply agreement under which CHS has the right to purchase annually from CFN up to approximately 1.1 million tons of granular urea and 580,000 tons of UAN at market prices. As a result of its minority equity interest in CFN, CHS is entitled to semi-annual cash distributions from CFN. We are also entitled to semi-annual cash distributions from CFN. The amounts of distributions from CFN to us and CHS are based generally on the profitability of CFN and determined based on the volume of granular urea and UAN sold by CFN to us and CHS pursuant to supply agreements, less a formula driven amount based primarily on the cost of natural gas used to produce the granular urea and UAN, and adjusted for the allocation of items such as operational efficiencies and overhead amounts. We began recognizing the noncontrolling interest pertaining to CHS' ownership interest in CFN on February 1, 2016, and during 2016, we recognized $93 million of earnings attributable to the noncontrolling interest in CFN. See Note 17—Noncontrolling Interests to our consolidated financial statements included in Item 8 of this report for additional information regarding our strategic venture with CHS.

Under the terms of our strategic venture with CHS, if our credit rating is reduced below certain levels by two of three specified credit rating agencies, we are required to make a non-refundable yearly payment of $5 million to CHS. During 2016, our credit rating was reduced and we made the first payment to CHS. The payments continue on a yearly basis until the earlier of the date that our credit rating is upgraded to or above certain levels by two of three specified credit rating agencies or February 1, 2026. We recognized this term of the strategic venture as an embedded derivative and recorded a charge of $23 million in 2016 for this item.

Debt Restructuring

Due to the uncertain duration of the prevailing low nitrogen fertilizer selling price environment and in order to provide liquidity and covenant flexibility for the future, in the fourth quarter of 2016, we took certain steps with respect to the Revolving Credit Agreement and our senior notes due 2022, 2025 and 2027 (the Private Senior Notes). On November 21, 2016, we prepaid the $1.0 billion aggregate principal amount of the Private Senior Notes, and paid the related make-whole amount of approximately $170 million. We made the prepayment and make-whole payment using the proceeds from an offering of $1.25 billion aggregate principal amount of senior secured notes comprising $500 million aggregate principal amount of senior secured notes due 2021 and $750 million aggregate principal amount of senior secured notes due 2026 (collectively referred to as the “Senior Secured Notes”). We recognized $167 million of the $170 million cash make-whole payment on the Private Senior Notes as a debt extinguishment charge, with the $3 million remainder being a debt modification cost that will be amortized over the term of the Senior Secured Notes.

In connection with the completion of the offering of the Senior Secured Notes and the prepayment of the Private Senior Notes, certain amendments to the Revolving Credit Agreement became effective. The amendments included, among other things, changes in and additions to the financial and other covenants and a reduction in the size of the facility from $1.5 billion to $750 million.

In conjunction with our debt restructuring, including amendments to the Revolving Credit Agreement, we recognized $18 million of debt issuance and amendment fees in 2016. See further discussion below under "Liquidity and Capital Resources" and Note 12—Financing Agreements to our consolidated financial statements included in Item 8 of this report for additional information.

CF Fertilisers UK Acquisition

On July 31, 2015, we acquired the remaining 50% equity interest in CF Fertilisers UK Group Limited (formerly known as GrowHow UK Group Limited) (CF Fertilisers UK) not previously owned by us for total consideration of $570 million, and CF Fertilisers UK became a wholly owned subsidiary. CF Fertilisers UK Limited (formerly known as GrowHow UK Limited), a wholly owned subsidiary of CF Fertilisers UK, operates two nitrogen manufacturing complexes in the United Kingdom, in the cities of Ince and Billingham. This transaction increased our manufacturing capacity with the acquisition of CF Fertilisers UK’s nitrogen manufacturing complexes. The Ince complex is located in northwestern England and consists of an ammonia plant, three nitric acid plants, an AN plant and three NPK plants. The Billingham complex is located in the Teesside chemical area in northeastern England, and consists of an ammonia plant, three nitric acid plants, a carbon dioxide plant and an AN fertilizer plant. See Note 4—Acquisitions and Divestitures to our consolidated financial statements included in Item 8 of this report for additional information regarding the acquisition.

The financial results of CF Fertilisers UK have been consolidated within our financial results since July 31, 2015. Prior to July 31, 2015, our initial 50% equity interest in CF Fertilisers UK was accounted for as an equity method investment, and the financial results of this investment were included in our consolidated statements of operations in equity in earnings of non-operating affiliates—net of taxes. In the third quarter of 2015, upon the acquisition of the remaining 50% equity interest in CF Fertilisers UK, we recognized a $94 million gain on the remeasurement to fair value of our initial 50% equity investment in CF Fertilisers UK.

Our consolidated segment results for 2016 include the results of CF Fertilisers UK for the full year. Our consolidated segment results for 2015 include five months of CF Fertilisers UK results (from the July 31, 2015 acquisition date to December 31, 2015). As a result, the impact of the acquisition on the comparison of 2016 versus 2015 is the additional seven months of results in 2016 (the seven months ended July 31, 2016). To quantify and provide comparability of the impact of the acquisition on 2016 results as compared to 2015, the following table summarizes the sales volume, net sales, and gross margin of the CF Fertilisers UK business for the seven months ended July 31, 2016:

CF Fertilisers UK Financial Results	CF Holdings Reportable Segments Ammonia	AN	Other	Consolidated
	(dollars in millions)			
Seven months ended July 31, 2016				
Sales volume by product tons (000s)	100	737	468	1,305
Net sales	$ 26	$ 164	$ 79	$ 269
Cost of sales	22	155	74	251
Gross margin	$ 4	$ 9	$ 5	$ 18
Gross margin percentage	15.4%	5.5%	6.3%	6.7%

To quantify and provide comparability of the impact of the acquisition on 2015 results as compared to 2014, the following table summarizes the sales volume, net sales, and gross margin of the CF Fertilisers UK business for the five months ended December 31, 2015:

CF Fertilisers UK Financial Results	CF Holdings Reportable Segments Ammonia	AN	Other	Consolidated
	(dollars in millions)			
Five months ended December 31, 2015				
Sales volume by product tons (000s)	112	436	277	825
Net sales	$ 38	$ 117	$ 53	$ 208
Cost of sales	30	109	46	185
Gross margin	$ 8	$ 8	$ 7	$ 23
Gross margin percentage	20.1%	7.2%	14.0%	11.3%

Equity Method Investments

In 2016 and 2015, our equity in (losses) earnings of operating affiliates includes an impairment charge of our equity method investment in Point Lisas Nitrogen Limited (PLNL). PLNL is our joint venture investment in the Republic of Trinidad and Tobago and operates an ammonia plant that relies on natural gas supplied by the National Gas Company of Trinidad and Tobago Limited (NGC) pursuant to a gas sales contract (the NGC Contract). The joint venture has experienced curtailments in the supply of natural gas from NGC, which have reduced the ammonia production at PLNL. In 2016, NGC communicated to PLNL that it does not recognize the joint venture's exercise of its option to renew the NGC Contract for an additional five-year term beyond its current termination date in September 2018, and that any NGC commitment to supply gas beyond 2018 will need to be based on new agreements regarding volume and price. PLNL has initiated arbitration proceedings against NGC and asserted claims in connection with NGC’s failure to supply the contracted quantities of natural gas, and its refusal to recognize the joint venture’s exercise of its option to extend the NGC Contract. As part of our impairment assessment of our equity method investment in PLNL, we determined the carrying value exceeded the fair value and recognized a $134 million impairment charge in 2016. Previously, in 2015, we recognized an impairment charge of $62 million related to our equity method investment in PLNL. See Note 8—Equity Method Investments to our consolidated financial statements included in Item 8 of this report and "Critical Accounting Policies and Estimates" below, for additional information regarding our equity method investment in PLNL.

During 2015, we recognized a loss of $43 million related to the sale of our 50% investment in Keytrade AG and the sale of our 50% investment in an ammonia storage joint venture in Houston, Texas. See Note 8—Equity Method Investments to our consolidated financial statements included in Item 8 of this report for additional information regarding our equity method investments.

Transaction Costs and Termination of Agreement to Combine with Certain of OCI N.V.’s Businesses

On August 6, 2015, we entered into a definitive agreement (as amended, the Combination Agreement) to combine with the European, North American and global distribution businesses of OCI N.V. (OCI). On May 22, 2016, CF Holdings, OCI and the other parties to the Combination Agreement entered into a termination agreement (the Termination Agreement) under which the parties agreed to terminate the Combination Agreement by mutual written consent. Pursuant to the Termination Agreement, CF Holdings paid OCI a termination fee of $150 million. Under the Termination Agreement, the parties to the Combination Agreement also agreed to release each other from any and all claims, actions, obligations, liabilities, expenses and fees in connection with, arising out of or related to the Combination Agreement and all ancillary agreements contemplated thereby (other than the confidentiality agreement between CF Holdings and OCI) or the transactions contemplated therein or thereby.

In 2016, we incurred $179 million of transaction costs associated with the proposed combination with certain businesses of OCI and our strategic venture with CHS. This includes the $150 million termination fee paid to OCI in the second quarter of 2016, which is described above, and costs for various consulting and legal services. In 2015, we incurred $57 million of transaction costs associated with the proposed combination with certain businesses of OCI, our strategic venture with CHS, and the acquisition of the remaining 50% equity interest in CF Fertilisers UK not previously owned by us.

On September 18, 2015, in connection with our proposed combination with OCI, we entered into a senior unsecured 364-day Bridge Credit Agreement (as amended, the Bridge Credit Agreement). Upon the termination of the Combination Agreement on May 22, 2016, the lenders' commitment under the Bridge Credit Agreement terminated automatically and we recognized $28 million in bridge loan commitment fees. In 2015, we recognized $6 million of fees related to the initiation of the bridge loan.

Other items

Unrealized net mark-to-market (gain) loss on natural gas derivatives - Natural gas is typically the largest and most volatile single component of the manufacturing cost for nitrogen-based products. We manage the risk of changes in natural gas prices through the use of derivative financial instruments. The derivatives that we use for this purpose are primarily natural gas fixed price swaps and natural gas options. We use natural gas derivatives as an economic hedge of natural gas price risk, but without the application of hedge accounting. This can result in volatility in reported earnings due to the unrealized mark-to-market adjustments that occur from changes in the value of the derivatives. In 2016, 2015 and 2014, we recognized unrealized net mark-to-market (gains) losses on natural gas derivatives of $(260) million, $176 million and $79 million, respectively, which is reflected in cost of sales in our consolidated statements of operations.

Loss (gain) on foreign currency transactions including intercompany loans - In 2016 and 2015, we recognized losses (gains) of $93 million and ($8) million, respectively, from the impact of changes in foreign currency exchange rates on primarily British pound and Canadian dollar denominated intercompany loans that are not permanently invested. In 2014, we recognized a $15 million gain from the impact of changes in foreign currency exchange rates on Canadian dollar denominated intercompany loans that were not permanently invested.

Gain on sale of phosphate business - On March 17, 2014, we sold our phosphate mining and manufacturing business to The Mosaic Company (Mosaic) and recognized a pre-tax gain on the sale of the phosphate business of $750 million. Under the terms of the definitive transaction agreement, the accounts receivable and accounts payable pertaining to the phosphate mining and manufacturing business and certain phosphate inventory held in distribution facilities were not sold to Mosaic in the transaction and were settled in the ordinary course.

Upon selling the phosphate business, we began to supply Mosaic with ammonia produced by our PLNL joint venture. The contract to supply ammonia to Mosaic from our PLNL joint venture represents the continuation of a supply practice that previously existed between our former phosphate mining and manufacturing business and other operations of the Company. Prior to March 17, 2014, PLNL sold ammonia to us for use in the phosphate business and the cost was included in our production costs in our phosphate segment. Subsequent to the sale of the phosphate business, we now sell the PLNL-sourced ammonia to Mosaic. The revenue from these sales to Mosaic and the costs to purchase the ammonia from PLNL are now included in our ammonia segment. Our 50% share of the operating results of our PLNL joint venture continues to be included in our equity in earnings of operating affiliates in our consolidated statements of operations. Because of the significance of this continuing supply practice, in accordance with U.S. generally accepted accounting principles (U.S. GAAP), the phosphate mining and manufacturing business is not reported as discontinued operations in our consolidated statements of operations.

Financial Executive Summary

- We reported a net loss attributable to common stockholders of $277 million in 2016, compared to net earnings attributable to common stockholders of $700 million in 2015, or a decline of $977 million.
- Diluted net loss per share attributable to common stockholders was $1.19 per share in 2016 compared to diluted net earnings per share of $2.96 per share in 2015.
- In 2016, we experienced lower net earnings attributable to common stockholders compared to 2015 due primarily to a lower gross margin as a result of lower average selling prices resulting from the excess global supply of nitrogen fertilizer, combined with the impact of several significant items which are discussed above under "Items Affecting Comparability of Results."
- Our total gross margin declined by $707 million, or 46%, to $840 million in 2016 from $1.55 billion in 2015. The impact of the CF Fertilisers UK acquisition increased gross margin by $18 million, or 1%. The remaining decline in our gross margin of $725 million was due primarily to lower average selling prices and higher capacity expansion project related costs, partially offset by the impact of unrealized net mark-to-market gains on natural gas derivatives, increased sales volume, and lower physical natural gas costs and production costs:
    - Average selling prices declined by 31%, which reduced gross margin by $1.38 billion.
    - Unrealized net mark-to-market gains on natural gas derivatives increased gross margin by $436 million as 2016 included a $260 million gain and 2015 included a $176 million loss.
    - Sales volume, primarily granular urea and UAN, increased by 14%, which increased gross margin by $215 million. Sales volume increased due to the completion of our capacity expansion project upgrading facilities at our Donaldsonville, Louisiana complex for granular urea and UAN.
    - Donaldsonville and Port Neal expansion project depreciation reduced gross margin by approximately $103 million. Start-up costs for the Donaldsonville ammonia and Port Neal ammonia and urea plants reduced gross margin by $52 million.
    - Lower physical natural gas costs in 2016 increased gross margin by $108 million as natural gas prices were lower in 2016, particularly in the first half of the year with high storage levels and strong production in North America. Natural gas prices rose towards the end of 2016.
    - Realized net mark-to-market losses on natural gas derivatives decreased gross margin by $62 million as 2016 included a $132 million loss and 2015 included a $70 million loss.
    - Lower production, distribution and freight costs, increased gross margin by approximately $104 million.
- Our income tax (benefit) provision declined by $464 million to a net benefit of $68 million in 2016 from an income tax provision of $396 million for 2015 primarily as a result of the loss recognized in 2016. See Note 10—Income Taxes to our consolidated financial statements included in Item 8 of this report for additional information on our income tax benefit.
- Selling, general and administrative expenses increased $4 million to $174 million in 2016 from $170 million in 2015. The increase was due primarily to the impact of the CF Fertilisers UK acquisition, partly offset by lower costs for corporate initiatives and lower intangible asset amortization expense.
- Transaction costs incurred in 2016 of $179 million are associated primarily with the agreements pertaining to the proposed combination with certain businesses of OCI that was terminated on May 22, 2016 and our strategic venture with CHS. Transaction costs include the $150 million termination fee paid by CF Holdings to OCI in the second quarter of 2016 as a result of the termination of the Combination Agreement and costs for various consulting and legal services.
- Other operating—net increased by $116 million from $92 million in 2015 to $208 million in 2016. The increased expense was due primarily to realized and unrealized losses on foreign currency transactions primarily related to British pound sterling denominated intercompany debt that has not been permanently invested. The increased expense also reflects higher expansion project costs pertaining to our Donaldsonville, Louisiana and Port Neal, Iowa capacity expansion projects that did not qualify for capitalization and the loss of $23 million representing the net fair value adjustments to an embedded derivative related to our strategic venture with CHS. These increases were partly offset by a decrease in realized and unrealized losses on foreign currency derivatives of $22 million.

- Net interest expense increased by $64 million to $195 million in 2016 from $131 million in 2015. The $64 million increase in net interest expense was due primarily to the combination of higher debt levels due to the issuance of $1.0 billion of Private Senior Notes in September 2015 and debt amendment fees and accelerated amortization of debt issuance costs due to restructuring of our debt and the Revolving Credit Agreement in 2016. In 2016, we modified the Revolving Credit Agreement by reducing its size from $2.0 billion to $750 million and modifying certain covenants and other terms. As a result of these changes, we recognized $16 million of debt amendment fees and accelerated amortization of loan fees in interest expense. The increase in interest expense—net in 2016 also includes the amortization of capitalized Bridge Credit Agreement fees of $28 million pertaining to the bridge loan for our proposed combination with certain of the OCI businesses. We also recorded capitalized interest of $166 million in 2016 related primarily to our capacity expansion projects compared to $154 million in 2015.

- In 2016, we prepaid in full the outstanding $1.0 billion aggregate principal amount of our Private Senior Notes and recognized a loss on debt extinguishment of $167 million. The prepayment of $1.18 billion included the payment of a make-whole amount of approximately $170 million and accrued interest. Loss on debt extinguishment of $167 million on our consolidated statement of operations excludes $3 million of the make-whole payment, which was accounted for as a modification and recognized on our consolidated balance sheet as deferred financing fees, a reduction of long-term debt, and is being amortized using the effective interest rate method over the term of the Senior Secured Notes.

- Net cash provided by operating activities in 2016 was $617 million as compared to $1.21 billion in 2015, a decline of $590 million. The decline resulted primarily from lower net earnings during 2016 due to lower average selling prices from excess global nitrogen supply, partially offset by lower amounts of cash used for working capital purposes. Lower working capital levels in accounts receivable and inventory, plus lower amounts paid for income taxes and certain income tax refunds received in 2016, contributed to the reduction in cash used for working capital. Favorable changes in working capital also included a greater proportion of sales was paid in 2016 as compared to the prior year period as we entered 2016 with a lower level of customer advances than in 2015 due to customers' hesitancy to enter into prepaid contracts in a declining fertilizer price environment.

- Net cash used in investing activities was $2.18 billion in 2016 compared to $2.98 billion in 2015. This decrease is due primarily to the 2015 acquisition of the remaining 50% equity interest in CF Fertilisers UK not previously owned by us for a net cash payment of $552 million, which was net of cash acquired of $18 million. This decrease was also attributable in part to a decline in capital expenditures related primarily to the capacity expansion projects in Donaldsonville, Louisiana and Port Neal, Iowa. During 2016, capital expenditures totaled $2.21 billion compared to $2.47 billion in 2015.

- Net cash provided by financing activities was $2.44 billion in 2016 compared to $77 million in 2015. In 2016, CHS purchased a minority equity interest in CFN for $2.8 billion. We distributed $119 million to the noncontrolling interests, including CHS, in 2016, compared to $45 million in 2015. In 2016, we received proceeds of approximately $1.24 billion, net of discounts, from the issuance of the Senior Secured Notes which were used to fund the prepayment of the $1.0 billion of Private Senior Notes and the related make-whole payment of $170 million. No share repurchases were made during 2016 compared to 8.9 million shares repurchased for $556 million in cash in 2015. Dividends paid on common stock were $280 million and $282 million in 2016 and 2015, respectively.

Results of Consolidated Operations

The following table presents our consolidated results of operations and supplemental data:

	Twelve months ended December 31,						
	2016	2015	2014	2016 v. 2015		2015 v. 2014	
	(in millions, except as noted)						
Net sales	$ 3,685	$ 4,308	$ 4,743	$ (623)	(14)%	$ (435)	(9)%
Cost of sales (COS)	2,845	2,761	2,965	84	3 %	(204)	(7)%
Gross margin	840	1,547	1,778	(707)	(46)%	(231)	(13)%
Gross margin percentage	22.8%	35.9%	37.5%	(13.1)%		(1.6)%	
Selling, general and administrative expenses	174	170	152	4	2 %	18	12 %
Transaction costs	179	57	—	122	214 %	57	N/M
Other operating—net	208	92	53	116	126 %	39	74 %
Total other operating costs and expenses	561	319	205	242	76 %	114	56 %
Gain on sale of phosphate business	—	—	750	—	N/M	(750)	(100)%
Equity in (losses) earnings of operating affiliates	(145)	(35)	43	(110)	N/M	(78)	N/M
Operating earnings	134	1,193	2,366	(1,059)	(89)%	(1,173)	(50)%
Interest expense—net	195	131	177	64	49 %	(46)	(26)%
Loss on debt extinguishment	167	—	—	167	N/M	—	N/M
Other non-operating—net	(2)	4	2	(6)	N/M	2	100 %
(Loss) earnings before income taxes and equity in earnings of non-operating affiliates	(226)	1,058	2,187	(1,284)	N/M	(1,129)	(52)%
Income tax (benefit) provision	(68)	396	773	(464)	N/M	(377)	(49)%
Equity in earnings of non-operating affiliates—net of taxes	—	72	23	(72)	(100)%	49	213 %
Net (loss) earnings	(158)	734	1,437	(892)	N/M	(703)	(49)%
Less: Net earnings attributable to noncontrolling interests	119	34	47	85	250 %	(13)	(28)%
Net (loss) earnings attributable to common stockholders	$ (277)	$ 700	$ 1,390	$ (977)	N/M	$ (690)	(50)%
Diluted net earnings (loss) per share attributable to common stockholders	$ (1.19)	$ 2.96	$ 5.42	$ (4.15)	N/M	$ (2.46)	(45)%
Diluted weighted-average common shares outstanding	233.1	236.1	256.7	(3.0)	(1)%	(20.6)	(8)%
Dividends declared per common share	$ 1.20	$ 1.20	$ 1.00	$ —		$ 0.20	
Natural Gas Supplemental Data (per MMBtu)							
Natural gas costs in COS[(1)]	$ 2.61	$ 3.00	$ 4.46	$ (0.39)	(13)%	$ (1.46)	(33)%
Realized derivatives loss (gain) in COS[(2)]	0.46	0.28	(0.24)	0.18	64 %	0.52	N/M
Cost of natural gas in COS	$ 3.07	$ 3.28	$ 4.22	$ (0.21)	(6)%	$ (0.94)	(22)%
Average daily market price of natural gas Henry Hub (Louisiana)	$ 2.48	$ 2.61	$ 4.32	$ (0.13)	(5)%	$ (1.71)	(40)%
Average daily market price of natural gas National Balancing Point (UK)[(3)]	$ 4.66	$ 6.53	$ —	$ (1.87)	(29)%	$ 6.53	N/M
Unrealized net mark-to-market (gain) loss on natural gas derivatives	$ (260)	$ 176	$ 79	$ (436)	N/M	$ 97	123 %
Capital expenditures	$ 2,211	$ 2,469	$ 1,809	$ (258)	(10)%	$ 660	36 %
Sales volume by product tons (000s)	16,957	13,718	13,763	3,239	24 %	(45)	— %
Production volume by product tons (000s):							
Ammonia[(4)]	8,307	7,673	7,011	634	8 %	662	9 %
Granular urea	3,368	2,520	2,347	848	34 %	173	7 %
UAN (32%)	6,698	5,888	5,939	810	14 %	(51)	(1)%
AN	1,845	1,283	950	562	44 %	333	35 %

N/M—Not Meaningful

(1) Includes the cost of natural gas that is included in cost of sales during the period under the first-in, first-out (FIFO) inventory cost method.

(2) Includes realized gains and losses on natural gas derivatives settled during the period. Excludes unrealized mark-to-market gains and losses on natural gas derivatives.
(3) Amount represents average daily market price for the full year 2015 and 2016.
(4) Gross ammonia production, including amounts subsequently upgraded on-site into granular urea, UAN, or AN.

Year Ended December 31, 2016 Compared to Year Ended December 31, 2015

Consolidated Operating Results

Our reportable segments consist of ammonia, granular urea, UAN, AN and Other and include the results of CF Fertilisers UK from July 31, 2015, the date we acquired the remaining 50% equity interest in CF Fertilisers UK.

We reported a net loss attributable to common stockholders of $277 million in 2016, compared to net earnings attributable to common stockholders of $700 million in 2015, a decline of $977 million. We experienced lower net earnings attributable to common stockholders in 2016 compared to 2015 due primarily to a lower gross margin as a result of lower average selling prices resulting from excess global nitrogen supply, combined with a number of significant items that are described above under "Overview of CF Holdings—Items Affecting Comparability of Results."

Our total gross margin declined by $707 million, or 46%, to $840 million in 2016 from $1.55 billion in 2015. The impact of the CF Fertilisers UK acquisition increased gross margin by $18 million, or 1%. The remaining decline in our gross margin of $725 million was due primarily to lower average selling prices and higher capacity expansion project related costs, partially offset by the impact of unrealized net mark-to-market gains on natural gas derivatives, increased sales volume, and lower physical natural gas costs and production costs:

- Average selling prices declined by 31% in 2016 compared to 2015, which reduced gross margin by $1.38 billion.
- Unrealized net mark-to-market gains on natural gas derivatives increased gross margin by $436 million as 2016 included a $260 million gain and 2015 included a $176 million loss.
- Sales volume, primarily granular urea and UAN, increased by 14%, which increased gross margin by $215 million. Sales volume increased due to the completion of our capacity expansion project upgrading facilities at our Donaldsonville, Louisiana complex for granular urea and UAN.
- Donaldsonville and Port Neal expansion project depreciation reduced gross margin by approximately $103 million. Start-up costs for the Donaldsonville ammonia and Port Neal ammonia and urea plants reduced gross margin by $52 million.
- Lower physical natural gas costs in 2016 increased gross margin by $108 million as natural gas prices were lower in 2016, particularly in the first half of the year with high storage levels and strong production in North America. Natural gas prices rose towards the end of 2016.
- Realized net mark-to-market losses on natural gas derivatives decreased gross margin by $62 million as 2016 included a $132 million loss and 2015 included a $70 million loss.
- Lower production, distribution and freight costs increased gross margin by approximately $104 million.

During 2016, primarily as a result of lower net earnings, our income tax (benefit) provision declined by $464 million to a net benefit of $68 million from an income tax provision of $396 million for 2015. See Note 10—Income Taxes to our consolidated financial statements included in Item 8 of this report for additional information on our income tax benefit.

Net Sales

Our net sales are derived primarily from the sale of nitrogen fertilizers and are determined by the quantities of fertilizers we sell and the selling prices we realize. The volumes, mix and selling prices we realize are determined to a great extent by a combination of global and regional supply and demand factors. Net sales also include shipping and handling costs that are billed to our customers. Sales incentives are reported as a reduction in net sales.

Our total net sales decreased $623 million, or 14%, to $3.69 billion in 2016 compared to $4.31 billion in 2015. The impact of the CF Fertilisers UK acquisition increased our net sales by $269 million, or 6%. The remaining decline in our net sales of $892 million, or 21%, was due to a 31% decline in average selling prices partially offset by a 14% increase in sales volume.

Average selling prices, excluding the CF Fertilisers UK acquisition impact, were $218 per ton in 2016 compared to $318 per ton in 2015 due primarily to lower selling prices across all products. Selling prices were negatively impacted by excess global nitrogen supply. Pricing for nitrogen fertilizer products in the U.S. Gulf declined during most of 2016, often trading below parity with other international pricing points, as a result of continued imports from various exporting regions and decreased buyer interest. Seasonal decreases in agricultural demand combined with delayed customer purchasing activity resulted in multi-year lows in nitrogen fertilizer selling prices in the second half of the year.

Our total sales volume increased by 24% from 2015 to 2016. The impact of the CF Fertilisers UK acquisition increased our sales volume by 10%. The remaining increase in our sales volume of 14% was due primarily to greater granular urea and UAN volume available for sale due to our completed capacity expansion projects, partly offset by lower ammonia sales volume due to lower demand in North America during the fall application season. In addition, our ammonia sales volumes were lower in 2016 as we upgraded existing ammonia production as a result of our granular urea and UAN capacity expansion projects coming on line at our Donaldsonville, Louisiana complex.

Cost of Sales

Our cost of sales includes manufacturing costs, purchased product costs, and distribution costs. Manufacturing costs, the most significant element of cost of sales, consist primarily of raw materials, realized and unrealized gains and losses on natural gas derivative instruments, maintenance, direct labor, depreciation and other plant overhead expenses. Purchased product costs primarily include the cost to purchase nitrogen fertilizers to augment or replace production at our facilities. Distribution costs include the cost of freight required to transport finished products from our plants to our distribution facilities and storage costs incurred prior to final shipment to customers.

Our cost of sales increased $84 million, or 3%, from 2015 to 2016. The overall increase in cost of sales is due primarily to the impact of the CF Fertilisers UK acquisition, which increased cost of sales by $251 million, or 9%, as 2016 includes a full year of CF Fertilisers UK results and 2015 includes five months of CF Fertilisers UK results. The remaining decrease in our cost of sales of $167 million, or 6%, was due primarily to the combination of unrealized net mark-to-market gains on natural gas derivatives and lower realized natural gas costs, partly offset by higher capacity expansion project related costs. Cost of sales includes a $260 million unrealized net mark-to-market gain in 2016 as compared to a $176 million unrealized net mark-to-market loss in 2015. Realized natural gas costs, including the impact of lower purchased natural gas costs and realized derivatives, declined 6% from $3.28 per MMBtu in 2015 to $3.07 per MMBtu in 2016 as natural gas prices were lower in 2016, particularly in the first half of the year with high storage levels and strong production in North America, although natural gas prices increased towards the end of 2016.

Capacity expansion project costs, including depreciation expense, which commenced once the respective expansion plant was placed in service, and start-up costs, which primarily relate to the cost of commencing production at the new ammonia plants for our Donaldsonville, Louisiana and Port Neal, Iowa plants totaled $116 million and $52 million in 2016, respectively.

Cost of goods sold per ton declined $34 per ton, or 17%, from $201 in 2015 to $167 in 2016, as a result of the factors noted above.

Selling, General and Administrative Expenses

Our selling, general and administrative expenses consist primarily of corporate office expenses such as salaries and other payroll-related costs for our executive, administrative, legal, financial and marketing functions, as well as certain taxes and insurance and other professional service fees, including those for corporate initiatives.

Selling, general and administrative expenses increased $4 million to $174 million in 2016 from $170 million in 2015. The increase was due primarily to the impact of the CF Fertilisers UK acquisition, partly offset by lower costs for corporate office initiatives and lower intangible asset amortization expense.

Transaction Costs

Transaction costs consist of various consulting and legal services associated with the proposed combination with certain businesses of OCI that was terminated on May 22, 2016, our strategic venture with CHS, which began on February 1, 2016, and our July 31, 2015 acquisition of the remaining 50% equity interest in CF Fertilisers UK not previously owned by us.

In 2016, we incurred $179 million of transaction costs, including the $150 million termination fee paid by CF Holdings to OCI in the second quarter of 2016 as a result of the termination of the Combination Agreement and costs for various consulting and legal services. In 2015, we incurred $57 million of transaction costs associated with the agreements pertaining to the proposed combination with certain businesses of OCI and our strategic venture with CHS.

Other Operating—Net

Other operating—net includes administrative costs associated with our capacity expansion projects and other costs that do not relate directly to our central operations. Costs included in "other costs" can include foreign exchange gains and losses, unrealized gains and losses on foreign currency derivatives, costs associated with our closed facilities, amounts recorded for environmental remediation for other areas of our business, litigation expenses and gains and losses on the disposal of fixed assets.

Other operating—net was $208 million in 2016 compared to $92 million in 2015. The increased expense was due primarily to $93 million of realized and unrealized losses on foreign currency transactions primarily related to British pound sterling denominated intercompany debt that has not been permanently invested. In addition, the increased expense also reflects higher expansion project costs pertaining to our Donaldsonville, Louisiana and Port Neal, Iowa capacity expansion projects that did not qualify for capitalization and the loss of $23 million representing the net fair value adjustments to an embedded derivative related to our strategic venture with CHS. See Note 9—Fair Value Measurements to our consolidated financial statements included in Item 8 of this report for additional information. These increases were partly offset by a decrease in realized and unrealized losses on foreign currency derivatives of $22 million.

Equity in (Losses) Earnings of Operating Affiliates

Equity in (losses) earnings of operating affiliates consists of our 50% ownership interest in PLNL. We include our share of the net earnings from our equity method investment in PLNL as an element of earnings from operations because this investment provides additional production and is integrated with our other supply chain and sales activities. Our share of the net earnings includes the amortization of certain tangible and intangible assets identified as part of the application of purchase accounting at acquisition. In 2016 and 2015, equity in (losses) earnings of operating affiliates also includes impairments of our equity method investment in PLNL.

Equity in (losses) earnings of operating affiliates decreased by $110 million in 2016 as compared to 2015 due primarily to a $134 million impairment of our equity method investment in PLNL that was recognized in the fourth quarter of 2016. In the fourth quarter of 2015, we recognized a $62 million impairment of our equity method investment in PLNL. The remaining decrease was due primarily to lower operating results from PLNL, which included costs of $21 million that were incurred during 2016 related to a planned maintenance activity at the PLNL ammonia plant that resulted in the shutdown of the plant for approximately 45 days and the impact of lower ammonia selling prices in 2016 compared to 2015. For additional information regarding the impairment of our equity method investment in PLNL, see Note 8—Equity Method Investments to our consolidated financial statements included in Item 8 of this report and "Critical Accounting Policies and Estimates," below.

Interest Expense—Net

Our interest expense—net includes the interest expense on our long-term debt, amortization of the related fees required to execute financing agreements and annual fees pursuant to our Revolving Credit Agreement. Capitalized interest relating to the construction of major capital projects reduces interest expense as the interest is capitalized and amortized over the estimated useful lives of the facility along with all other construction costs. Our interest expense—net also includes interest income, which represents amounts earned on our cash, cash equivalents, investments and advances to unconsolidated affiliates.

Net interest expense increased by $64 million to $195 million in 2016 from $131 million in 2015. The $64 million increase in net interest expense was due primarily to the combination of higher debt levels due to the issuance of $1.0 billion of Private Senior Notes in September 2015 and debt amendment fees and accelerated amortization of debt issuance costs due to the restructuring of our debt and the Revolving Credit Agreement in 2016. Due to the uncertain duration of the prevailing low nitrogen fertilizer selling price environment and in order to provide liquidity and covenant flexibility for the future, we modified the Revolving Credit Agreement in 2016 by reducing its size from $2.0 billion to $750 million and modifying certain covenants and other terms. As a result of these changes, we recognized $16 million of debt amendment fees and accelerated amortization of loan fees in interest expense. The increase in interest expense—net in 2016 also includes the amortization of capitalized Bridge Credit Agreement fees of $28 million pertaining to the bridge loan for our proposed combination with certain of the OCI businesses. We also recorded capitalized interest of $166 million in 2016 related primarily to our capacity expansion projects compared to $154 million in 2015.

Loss on Debt Extinguishment

Loss on debt extinguishment of $167 million consists of the make-whole payment, which resulted from our November 21, 2016 prepayment of the $1.0 billion aggregate principal amount of Private Senior Notes. This amount excludes $3 million (of the $170 million make-whole payment), which was accounted for as a modification and recognized on our consolidated balance sheet as deferred financing fees, a reduction of long-term debt, and is being amortized using the effective interest rate method over the term of the Senior Secured Notes.

Income Tax (Benefit) Provision

Our income tax benefit for 2016 was $68 million on a pre-tax loss of $226 million, resulting in an effective tax rate of 30.0%, compared to an income tax provision of $396 million on pre-tax income of $1.06 billion, or an effective tax rate of 37.4%, in the prior year.

State income taxes for 2016 were favorably impacted by investment tax credits of $13 million related to capital assets placed in service at our production facilities in Oklahoma that are indefinitely available to offset income taxes in that jurisdiction in future years. Our effective state income tax rate was also reduced as a result of the changes to our legal entity structure effected in the first quarter of 2016 as part of our strategic venture with CHS. See Note 17—Noncontrolling Interests to our consolidated financial statements included in Item 8 of this report for additional information.

State income taxes for 2016 includes a tax benefit of $46 million, net of federal tax effect, for state net operating loss carryforwards. A valuation allowance of $4 million is recorded for certain loss carryforwards for which we do not expect to realize in the future.

The income tax provision for 2016 includes the tax impact of the U.S. manufacturing profits deductions claimed in prior years that will not be deductible as a result of our intention to carryback the tax net operating loss for the year ended December 31, 2016 to those prior tax years.

Non-deductible capital costs for the tax year ended December 31, 2016 include certain transaction costs capitalized in the prior year that are now deductible as a result of the termination of the proposed combination with certain businesses of OCI. See Note 4—Acquisitions and Divestitures to our consolidated financial statements included in Item 8 of this report for additional information.

Foreign subsidiaries of the Company have incurred capital losses of $109 million that are indefinitely available to offset capital gains in those foreign jurisdictions. As the future realization of these carryforwards is not anticipated, a valuation allowance of $28 million was recorded in 2016.

In the fourth quarters of 2016 and 2015, we determined the carrying value of our equity method investment in PLNL exceeded fair value and recognized an impairment of our equity method investment in PLNL of $134 million and $62 million, respectively, which is included in the equity in earnings of operating affiliates. Our respective income tax provisions do not include a tax benefit for the impairment of our equity method investment as it will not give rise to a tax deduction.

During the third quarter of 2015, we acquired the remaining 50% equity interest in CF Fertilisers UK not previously owned by us and recognized a $94 million gain on the remeasurement to fair value of our initial 50% equity interest in CF Fertilisers UK. The earnings in CF Fertilisers UK have been permanently reinvested. Therefore, the recognition of the $94 million million gain on the remeasurement of the historical equity investment does not include the recognition of tax expense on the gain.

In addition, our effective tax rate is impacted by earnings attributable to noncontrolling interests in CFN and TNCLP, as our consolidated income tax provision does not include a tax provision on the earnings attributable to the noncontrolling interests. Earnings attributable to noncontrolling interests increased in 2016 due to our strategic venture with CHS that commenced on February 1, 2016, at which time CHS purchased a minority equity interest in CFN. See Note 17—Noncontrolling Interests to our consolidated financial statements included in Item 8 of this report for additional information.

See Note 10—Income Taxes to our consolidated financial statements included in Item 8 of this report for additional information.

Equity in Earnings of Non-Operating Affiliates—Net of Taxes

Equity in earnings of non-operating affiliates—net of taxes represents our share of the net earnings of the entities that we account for using the equity method and exclude from operating earnings. Equity in earnings of non-operating affiliates—net of taxes in 2015 included the previously owned 50% equity method earnings of CF Fertilisers UK and also included our share of operating losses experienced at Keytrade. On July 31, 2015, we acquired the remaining 50% equity interest in CF Fertilisers UK not previously owned by us for total consideration of $570 million, and CF Fertilisers UK became wholly owned by us and part of our consolidated financial results. We recorded a $94 million gain on the remeasurement to fair value of our initial 50% equity interest in CF Fertilisers UK in connection with the closing of the acquisition. Equity in earnings of non-operating affiliates—net of taxes on 2015 also included our share of CF Fertilisers UK operating results up to the date of the acquisition. In addition, during the second quarter of 2015, we sold our interests in Keytrade and recorded an after-tax loss of $29 million (pre-tax loss of $40 million).

Net Earnings Attributable to Noncontrolling Interests

Net earnings attributable to noncontrolling interests includes the net earnings attributable to the 24.7% interest of the publicly-held common units of TNCLP. We own approximately 75.3% of TNCLP and outside investors own the remaining 24.7%. Net earnings attributable to noncontrolling interests also includes the net earnings attributable to the CHS minority equity interest in CFN, a subsidiary of CF Holdings, purchased for $2.8 billion on February 1, 2016.

Net earnings attributable to noncontrolling interests increased $85 million in 2016 compared to 2015 due primarily to the earnings attributable to the noncontrolling interest in CFN. This increase is partly offset by lower net earnings attributable to the approximately 24.7% interest of the publicly held common units of TNCLP.

Diluted Net Earnings (Loss) Per Share Attributable to Common Stockholders

Diluted net (loss) earnings per share attributable to common stockholders decreased $4.15 to a loss of $1.19 per share in 2016 from diluted net earnings per share attributable to common stockholders of $2.96 per share in 2015. This decrease is due to lower net earnings.

Year Ended December 31, 2015 Compared to Year Ended December 31, 2014

Consolidated Operating Results

The ammonia, granular urea, UAN, AN and Other segments are referred to in this section of the discussion and analysis as the "Nitrogen Product Segments."

Our total gross margin declined by $231 million, or 13%, to $1.55 billion in 2015 from $1.78 billion in 2014. The impact of the CF Fertilisers UK acquisition increased gross margin by $23 million. The remaining decline in our gross margin of $254 million, or 14%, was due to the $244 million decrease in gross margin in the Nitrogen Product Segments and the $10 million decline in gross margin in the phosphate segment as the phosphate business was sold in the first quarter of 2014. The remaining decrease in Nitrogen Product Segments gross margin, as more fully described below, was due primarily to lower average selling prices, lower sales volume, and the impact of mark-to-market losses on natural gas derivatives, partially offset by lower physical natural gas costs.

- Average selling prices, primarily UAN and granular urea, decreased by 8%, which reduced gross margin by $349 million as international nitrogen fertilizer prices declined due to excess global supply. The combination of falling global production costs, foreign currency devaluation and reduced ocean freight costs allowed many international producers to continue operations and the resulting supply weighed on global prices.
- Sales volume, primarily ammonia, decreased by 3%, which decreased gross margin by $72 million due primarily to a poor fall application season and weaker demand as customers were unable to apply ammonia due to poor weather conditions and customers were hesitant to buy in a declining pricing environment.
- Unrealized net mark-to-market losses on natural gas derivatives decreased gross margin by $97 million as 2015 included a $176 million loss compared to a $79 million loss in 2014.
- Lower physical natural gas costs in 2015, partially offset by the impact of natural gas derivatives that settled in the period, increased gross margin by $230 million compared to 2014. Lower natural gas costs were primarily driven by increased North American natural gas production, as increased well efficiencies increased supply. Warm weather conditions, especially in the fourth quarter of 2015, also contributed to high storage levels and the resulting decline in natural gas prices.

Net earnings attributable to common stockholders was $700 million and $1.39 billion in the years ended December 31, 2015 and 2014, respectively. The results of operations in 2015 and 2014 were impacted by a number of significant items that are described in further detail above under "Overview of CF Holdings—Items Affecting Comparability of Results."

Net Sales

Our total net sales decreased $435 million, or 9%, to $4.31 billion in 2015 compared to $4.74 billion in 2014. The impact of the CF Fertilisers UK acquisition increased our net sales by $208 million. The remaining decline in our net sales of $643 million, or 14%, included a $475 million decrease attributable to the Nitrogen Product Segments and a $168 million decrease due to the sale of the phosphate business in March 2014. The remaining Nitrogen Product Segments net sales decreased due to an 8% decline in average selling prices and a 3% decline in sales volume.

Nitrogen Product Segments average selling prices, excluding the impact of the CF Fertilisers UK acquisition, were $318 per ton in 2015 compared to $345 per ton in 2014 due primarily to lower UAN, granular urea and ammonia selling prices in 2015 as international nitrogen fertilizer prices declined due to excess global supply. The combination of falling global production costs, foreign currency devaluation and reduced ocean freight costs allowed many international producers to continue operations and the resulting supply weighed on global prices. The decline in UAN average selling prices was due primarily to excess global supply. Granular urea exports from China were at a record high in 2015 and Russian exports increased significantly while global capacity additions in 2015 further contributed to the global supply excess and the decline in average selling prices compared to 2014. The decrease in ammonia average selling prices from prior year levels is due primarily to weaker nitrogen fertilizer market conditions compared to the prior year, as a weak fall application season combined with higher producer inventory levels and slowing demand from phosphate fertilizer producers weighed on prices at the end of 2015.

Our total Nitrogen Product Segments sales volume increased by 3%. The impact of the CF Fertilisers UK acquisition increased our sales volume by 6%. The remaining decline in our Nitrogen Product Segments sales volume of 3% was due primarily to lower ammonia and UAN sales volume. Our ammonia sales volume was lower in 2015 partly due to a poor fall application season in North America as a result of poor weather conditions in the Midwest. The season started late and ended early in November due to snow in the Midwest. In addition, our ammonia and UAN sales volume were lower as customers were hesitant to buy in a declining pricing environment.

Cost of Sales

Our total cost of sales decreased $204 million, or 7%, from 2014 to 2015 including the impact of the CF Fertilisers UK acquisition which increased cost of sales by $185 million, or 6%. The remaining decrease in our cost of sales of $389 million, or 13%, was due primarily to lower natural gas costs. The realized natural gas costs, including the impact of lower purchased natural gas costs and realized derivative losses during 2015, decreased 28% compared to 2014. Cost of sales in 2015 also included $176 million of unrealized net mark-to-market losses on natural gas derivatives compared to losses of $79 million in 2014. Lower gas costs were primarily driven by increasing North American natural gas production, as increased well efficiencies increased supply. Warm weather conditions, especially in the fourth quarter, also contributed to the high storage levels and the resulting decline in gas prices. The cost of sales per ton in our Nitrogen Product Segments averaged $200 in 2015, a 5% decrease from the $211 per ton in 2014.

Selling, General and Administrative Expenses

Selling, general and administrative expenses increased $18 million to $170 million in 2015 from $152 million in 2014. The increase was due primarily to the impact of the CF Fertilisers UK acquisition, an increase in corporate project activities, and higher intangible asset amortization expense.

Transaction Costs

In 2015, we incurred $57 million of transaction costs for various consulting and legal services associated primarily with executing the strategic agreements in connection with, and preparing for the proposed combination with certain businesses of OCI, our strategic venture with CHS and our acquisition of the remaining 50% equity interest in CF Fertilisers UK not previously owned by us.

Other Operating—Net

Other operating—net changed by $39 million from $53 million of expense in 2014 to expense of $92 million in 2015. The increased expense was due primarily to higher expansion project costs pertaining to our Donaldsonville, Louisiana and Port Neal, Iowa capacity expansion projects that did not qualify for capitalization. This was partially offset by the decrease in realized and unrealized losses on foreign currency derivatives from $38 million of losses in 2014 to $22 million of losses in 2015.

Equity in (Losses) Earnings of Operating Affiliates

Equity in (losses) earnings of operating affiliates consists of our 50% share of the operating results of PLNL. Equity in (losses) earnings of operating affiliates decreased by $78 million in 2015 as compared to 2014 due primarily to a $62 million impairment of our equity method investment in PLNL that was recognized in the fourth quarter of 2015. The remaining decrease was due primarily to lower operating results from PLNL due to lower average selling prices.

Interest Expense—Net

Interest expense—net was $131 million in 2015 compared to $177 million in 2014. The $46 million decrease in net interest expense was due primarily to higher amounts of capitalized interest related to our capacity expansion projects, partially offset by higher interest expense pertaining to the $1.0 billion and $1.5 billion of senior notes issued in September 2015 and in March 2014, respectively. We recorded capitalized interest of $154 million in 2015 primarily related to our capacity expansion projects compared to $74 million in 2014.

Other Non-Operating—Net

Other non-operating—net was a $4 million expense in 2015 compared to expense of $2 million in 2014.

Income Tax (Benefit) Provision

Our income tax provision for 2015 was $396 million on pre-tax income of $1.06 billion, or an effective tax rate of 37.4%, compared to an income tax provision of $773 million on pre-tax income of $2.19 billion, or an effective tax rate of 35.3% in the prior year. The increase in the effective tax rate in 2015 was due primarily to the impact of certain transactional expenses that are not deductible for tax purposes. The income tax provision in 2014 included $287 million of income tax expense relating to the phosphate business sale, which increased the effective tax rate by 1.5%.

During the third quarter of 2015, we acquired the remaining 50% equity interest in CF Fertilisers UK not previously owned by us and recognized a $94 million gain on the remeasurement to fair value of our initial 50% equity interest in CF Fertilisers UK. The earnings in CF Fertilisers UK have been permanently reinvested. Therefore, the recognition of the $94 million gain on the remeasurement of the historical equity investment does not include the recognition of tax expense on the gain.

In the fourth quarter of 2015, we determined the carrying value of our equity method investment in PLNL exceeded fair value and recognized an impairment of our equity method investment in PLNL of $62 million, which is included in the equity in earnings of operating affiliates in 2015. Our income tax provision does not include a tax benefit for the impairment of our equity method investment as it does not give rise to a tax deduction.

The effective tax rate does not reflect a tax provision on the earnings attributable to noncontrolling interest in TNCLP (a partnership), which is not a taxable entity. See Note 10—Income Taxes to our consolidated financial statements included in Item 8 of this report for additional information on income taxes.

Equity in Earnings of Non-Operating Affiliates—Net of Taxes

Equity in earnings of non-operating affiliates—net of taxes consists of our share of the financial results of unconsolidated joint venture interests in CF Fertilisers UK and Keytrade. During the second quarter of 2015, we sold our interests in Keytrade. On July 31, 2015, we completed the CF Fertilisers UK acquisition for total consideration of $570 million, and CF Fertilisers UK became wholly owned by us and became part of our consolidated financial results.

Equity in earnings of non-operating affiliates—net of taxes increased by $49 million in 2015 compared to 2014 due primarily to the $94 million gain on the remeasurement to fair value of our initial 50% equity interest in CF Fertilisers UK that was recorded in connection with the closing of the transaction. This was partially offset by the combination of operating losses experienced at Keytrade and from the loss on sale of our investments in Keytrade during the second quarter of 2015.

Net Earnings Attributable to Noncontrolling Interest

Net earnings attributable to noncontrolling interest decreased $13 million in 2015 compared to 2014 due primarily to lower net earnings attributable to the approximately 24.7% interest of the publicly-held common units of TNCLP.

Diluted Net Earnings (losses) Per Share Attributable to Common Stockholders

Diluted net earnings per share attributable to common stockholders decreased $2.46, or 45%, to $2.96 per share in 2015 from $5.42 per share in 2014. This decrease is due primarily to the $1.80 per share gain from the sale of the phosphate business in 2014, partially offset by the impact of lower diluted weighted-average shares outstanding in 2015 as compared to 2014 due to the impact of our share repurchase programs. We repurchased 8.9 million shares in 2015 for $527 million, or an average cost of $59 per share. The total shares repurchased during 2015 represented 4% of the shares outstanding as of December 31, 2014.

Operating Results by Business Segment

Our reportable segment structure reflects how our chief operating decision maker (CODM), as defined under U.S. GAAP, assesses the performance of our reportable segments and makes decisions about resource allocation. These segments are differentiated by products. Our management uses gross margin to evaluate segment performance and allocate resources. Total other operating costs and expenses (consisting of selling, general and administrative expenses and other operating—net) and non-operating expenses (interest and income taxes), are centrally managed and are not included in the measurement of segment profitability reviewed by management.

The phosphate segment reflects the reported results of the phosphate business through March 17, 2014, plus the continuing sales of the phosphate inventory in the distribution network after March 17, 2014. The remaining phosphate inventory was sold in the second quarter of 2014 and reportable results ceased.

The following table presents summary operating results by business segment:

	Ammonia	Granular Urea[1]	UAN[1]	AN[1]	Other[1]	Phosphate	Consolidated
	(in millions, except percentages)						
Year ended December 31, 2016							
Net sales	$ 981	$ 831	$ 1,196	$ 411	$ 266	$ —	$ 3,685
Cost of sales	715	584	920	409	217	—	2,845
Gross margin	$ 266	$ 247	$ 276	$ 2	$ 49	$ —	$ 840
Gross margin percentage	27.1%	29.7%	23.1%	0.5%	18.4%	—%	22.8%
Year ended December 31, 2015							
Net sales	$ 1,523	$ 788	$ 1,480	$ 294	$ 223	$ —	$ 4,308
Cost of sales	884	469	955	291	162	—	2,761
Gross margin	$ 639	$ 319	$ 525	$ 3	$ 61	$ —	$ 1,547
Gross margin percentage	42.0%	40.4%	35.5%	1.1%	27.2%	—%	35.9%
Year ended December 31, 2014							
Net sales	$ 1,576	$ 915	$ 1,670	$ 243	$ 171	$ 168	$ 4,743
Cost of sales	983	517	998	189	120	158	2,965
Gross margin	$ 593	$ 398	$ 672	$ 54	$ 51	$ 10	$ 1,778
Gross margin percentage	37.6%	43.5%	40.3%	22.1%	30.0%	6.0%	37.5%

(1) The cost of ammonia that is upgraded into other products is transferred at cost into the upgraded product results.

Ammonia Segment

Our ammonia segment produces anhydrous ammonia (ammonia), which is our most concentrated nitrogen fertilizer as it contains 82% nitrogen. The results of our ammonia segment consist of sales of ammonia to external customers. In addition, ammonia is the "basic" nitrogen product that we upgrade into other nitrogen products such as granular urea, UAN and AN. We produce ammonia at all of our nitrogen manufacturing complexes.

The following table presents summary operating data for our ammonia segment, including the impact of our acquisition of the remaining 50% equity interest in CF Fertilisers UK:

	Twelve months ended December 31,						
	2016	2015	2014	2016 v. 2015		2015 v. 2014	
	(in millions, except as noted)						
Net sales	$ 981	$ 1,523	$ 1,576	$ (542)	(36)%	$ (53)	(3)%
Cost of sales	715	884	983	(169)	(19)%	(99)	(10)%
Gross margin	$ 266	$ 639	$ 593	$ (373)	(58)%	$ 46	8 %
Gross margin percentage	27.1%	42.0%	37.6%	(14.9)%		4.4%	
Sales volume by product tons (000s)	2,874	2,995	2,969	(121)	(4)%	26	1 %
Sales volume by nutrient tons (000s)[(1)]	2,358	2,456	2,434	(98)	(4)%	22	1 %
Average selling price per product ton	$ 341	$ 509	$ 531	$ (168)	(33)%	$ (22)	(4)%
Average selling price per nutrient ton[(1)]	$ 416	$ 620	$ 648	$ (204)	(33)%	$ (28)	(4)%
Gross margin per product ton	$ 93	$ 213	$ 200	$ (120)	(56)%	$ 13	7 %
Gross margin per nutrient ton[(1)]	$ 113	$ 260	$ 244	$ (147)	(57)%	$ 16	7 %
Depreciation and amortization	$ 96	$ 95	$ 69	$ 1	1 %	$ 26	38 %
Unrealized net mark-to-market loss (gain) on natural gas derivatives	$ (85)	$ 40	$ 25	$ (125)	N/M	$ 15	60 %

(1) Ammonia represents 82% nitrogen content. Nutrient tons represent the tons of nitrogen within the product tons.

Year Ended December 31, 2016 Compared to Year Ended December 31, 2015

Net Sales. Total net sales in the ammonia segment decreased by $542 million, or 36%, to $981 million in 2016 from $1.52 billion in 2015 due primarily to a 33% decrease in average selling prices and a 4% decrease in sales volume. These results include the impact of the CF Fertilisers UK acquisition, which increased net sales by $26 million, or 2%. The remaining decrease in our ammonia net sales of $568 million, or 37%, was due primarily to lower average selling prices and sales volume. Selling prices declined due to excess global nitrogen supply. In addition, our selling prices reflect the impact of a higher proportion of export sales, the volumes of which increased as a result of the weak fall application season attributable to the combined impact of weather conditions and low crop prices on our customers' decisions related to applying fertilizer in the fall. Sales volume in 2016 declined due to combination of the weak fall application season and the impact of upgrading additional ammonia production at our Donaldsonville facility into granular urea and UAN as a result of our capacity expansion projects coming on line at our Donaldsonville, Louisiana complex.

Cost of Sales. Cost of sales per ton in our ammonia segment averaged $248 per ton in 2016, including the impact of the CF Fertilisers UK acquisition, which averaged $220 per ton. The remaining cost of sales per ton was $250 in 2016, a 16% decrease from the $296 per ton in 2015. The decrease was due primarily to the impact of unrealized net mark-to-market gains on natural gas derivatives in 2016 compared to losses in 2015 and to the impact of lower realized natural gas costs in 2016. This was partly offset by capacity expansion project start-up costs of $50 million and an increase in expansion project depreciation as a result of the new ammonia plants at our Donaldsonville and Port Neal facilities.

Year Ended December 31, 2015 Compared to Year Ended December 31, 2014

Net Sales. Net sales in the ammonia segment decreased by $53 million, or 3%, to $1.52 billion in 2015 from $1.58 billion in 2014 due primarily to a 4% decrease in average selling prices, partially offset by a 1% increase in sales volume. These results include the impact of the CF Fertilisers UK acquisition completed on July 31, 2015 which increased net sales by $38 million, or 2%. The remaining decrease in our ammonia net sales of $91 million, or 6%, was due to lower average selling prices and lower sales volume compared to 2014. The decrease in average ammonia selling prices from prior year levels was due primarily to weaker nitrogen fertilizer market conditions compared to the prior year as a weak fall application season combined with higher producer inventory levels and slowing demand from phosphate fertilizer producers weighed on prices at the end of 2015. At the end of 2014, the pricing environment was stronger due to a tighter supply after the strong North American 2014 spring season and a higher level of global production outages in 2014. Sales volume was lower in 2015 due to the weak fall application season in North America as a result of poor weather conditions in the Midwest. The fall application season started late and then ended early in November due to snow in the Midwest.

Cost of Sales. Cost of sales per ton in our ammonia segment averaged $296 in 2015, a 11% decrease over the $331 per ton in 2014. The decrease was due primarily to lower realized natural gas costs during 2015 partly offset by increased unrealized net mark-to-market losses on natural gas derivatives in 2015 compared to 2014.

Granular Urea Segment

Our granular urea segment produces granular urea, which contains 46% nitrogen. Produced from ammonia and carbon dioxide, it has the highest nitrogen content of any of our solid nitrogen fertilizers. Granular urea is produced at our Courtright, Ontario; Donaldsonville, Louisiana; Medicine Hat, Alberta; and Port Neal, Iowa nitrogen complexes.

The following table presents summary operating data for our granular urea segment:

	Twelve months ended December 31,													
	2016		2015		2014		2016 v. 2015				2015 v. 2014			
	(in millions, except as noted)													
Net sales	$	831	$	788	$	915	$	43	5 %		$	(127)	(14)%	
Cost of sales		584		469		517		115	25 %			(48)	(9)%	
Gross margin	$	247	$	319	$	398	$	(72)	(23)%		$	(79)	(20)%	
Gross margin percentage		29.7%		40.4%		43.5%		(10.7)%				(3.1)%		
Sales volume by product tons (000s)		3,597		2,460		2,459		1,137	46 %			1	— %	
Sales volume by nutrient tons (000s)[1]		1,654		1,132		1,131		522	46 %			1	— %	
Average selling price per product ton	$	231	$	320	$	372	$	(89)	(28)%		$	(52)	(14)%	
Average selling price per nutrient ton[1]	$	502	$	696	$	809	$	(194)	(28)%		$	(113)	(14)%	
Gross margin per product ton	$	69	$	129	$	162	$	(60)	(47)%		$	(33)	(20)%	
Gross margin per nutrient ton[1]	$	149	$	281	$	352	$	(132)	(47)%		$	(71)	(20)%	
Depreciation and amortization	$	112	$	51	$	37	$	61	120 %		$	14	38 %	
Unrealized net mark-to-market loss (gain) on natural gas derivatives	$	(67)	$	47	$	17	$	(114)	N/M		$	30	176 %	

(1) Granular urea represents 46% nitrogen content. Nutrient tons represent the tons of nitrogen within the product tons.

Year Ended December 31, 2016 Compared to Year Ended December 31, 2015

Net Sales. Net sales in the granular urea segment increased by $43 million, or 5%, in 2016 compared to 2015 due primarily to a 46% increase in sales volume partially offset by a 28% decrease in average selling prices. Sales volume was higher due to increased production available as a result of our expanded urea capacity at our Donaldsonville, Louisiana complex that came on line in November of 2015. Average selling prices decreased to $231 per ton in 2016 compared to $320 per ton in 2015 due primarily to excess global nitrogen supply weighing on global nitrogen fertilizer selling prices.

Cost of Sales. Cost of sales per ton in our granular urea segment averaged $162 in 2016, a 15% decrease from the $191 per ton in 2015. The decrease was due primarily to the impact of unrealized net mark-to-market gains on natural gas derivatives in 2016 compared to losses in 2015. This was partly offset by increased depreciation expense related to our expanded urea production at our Donaldsonville, Louisiana complex and $2 million of start-up costs at our Port Neal, Iowa complex that came on line in December 2016.

Year Ended December 31, 2015 Compared to Year Ended December 31, 2014

Net Sales. Net sales in the granular urea segment decreased by $127 million, or 14%, for 2015 compared to 2014 due primarily to a 14% decrease in average selling prices. Average selling prices decreased to $320 per ton in 2015 compared to $372 per ton in 2014 due primarily to excess global nitrogen supply weighing on global nitrogen fertilizer selling prices. Granular urea exports from China were at a record high in 2015 and Russian exports had increased significantly while global capacity additions in 2015 further contributed to the excess global nitrogen supply. Our sales volume in 2015 was flat compared to the prior year as we offset weaker domestic demand with sales out of our new urea production at our Donaldsonville, Louisiana complex that came on line in November 2015.

Cost of Sales. Cost of sales per ton in our granular urea segment averaged $191 in 2015, a 9% decrease over the $210 per ton in 2014. The decrease was due primarily to lower realized natural gas costs partly offset by the impact of increased unrealized net mark-to-market losses on natural gas derivatives in 2015 compared to 2014.

UAN Segment

Our UAN segment produces urea ammonium nitrate solution (UAN). UAN, a liquid fertilizer product with a nitrogen content that typically ranges from 28% to 32%, is produced by combining urea and ammonium nitrate. UAN is produced at our nitrogen complexes in Courtright, Ontario; Donaldsonville, Louisiana; Port Neal, Iowa; Verdigris, Oklahoma; Woodward, Oklahoma; and Yazoo City, Mississippi.

The following table presents summary operating data for our UAN segment:

	Twelve months ended December 31,						
	2016	2015	2014	2016 v. 2015		2015 v. 2014	
	(in millions, except as noted)						
Net sales	$ 1,196	$ 1,480	$ 1,670	$ (284)	(19)%	$ (190)	(11)%
Cost of sales	920	955	998	(35)	(4)%	(43)	(4)%
Gross margin	$ 276	$ 525	$ 672	$ (249)	(47)%	$ (147)	(22)%
Gross margin percentage	23.1%	35.5%	40.3%	(12.4)%		(4.8)%	
Sales volume by product tons (000s)	6,681	5,865	6,092	816	14 %	(227)	(4)%
Sales volume by nutrient tons (000s)[(1)]	2,109	1,854	1,925	255	14 %	(71)	(4)%
Average selling price per product ton	$ 179	$ 252	$ 274	$ (73)	(29)%	$ (22)	(8)%
Average selling price per nutrient ton[(1)]	$ 567	$ 798	$ 867	$ (231)	(29)%	$ (69)	(8)%
Gross margin per product ton	$ 41	$ 90	$ 110	$ (49)	(54)%	$ (20)	(18)%
Gross margin per nutrient ton[(1)]	$ 131	$ 283	$ 349	$ (152)	(54)%	$ (66)	(19)%
Depreciation and amortization	$ 247	$ 192	$ 179	$ 55	29 %	$ 13	7 %
Unrealized net mark-to-market loss (gain) on natural gas derivatives	$ (81)	$ 73	$ 30	$ (154)	N/M	$ 43	143 %

(1) UAN represents between 28% and 32% of nitrogen content, depending on the concentration specified by the customer. Nutrient tons represent the tons of nitrogen within the product tons.

Year Ended December 31, 2016 Compared to Year Ended December 31, 2015

Net Sales. Net sales in the UAN segment decreased $284 million, or 19%, in 2016 due primarily to a 29% decrease in average selling prices partially offset by a 14% increase in sales volume. Average selling prices decreased to $179 per ton in 2016 compared to $252 in 2015. UAN selling prices were lower due to excess global nitrogen supply weighing on global nitrogen fertilizer selling prices. Increases in UAN exports at lower selling prices also negatively impacted our average selling price. Sales volume was higher due to increased production as a result of expanded UAN capacity at our Donaldsonville, Louisiana complex that came on line in the first quarter of 2016.

Cost of Sales. Cost of sales per ton in our UAN segment averaged $138 in 2016, a 15% decrease from the average of $162 per ton in 2015. The decrease was due primarily to the impact of unrealized net mark-to-market gains on natural gas derivatives in 2016 compared to losses in 2015 and the impact of lower realized natural gas cost in 2016. This was partly offset by increased depreciation expense related to the expanded UAN capacity at our Donaldsonville, Louisiana complex that came on line in the first quarter of 2016.

Year Ended December 31, 2015 Compared to Year Ended December 31, 2014

Net Sales. Net sales in the UAN segment decreased by $190 million, or 11%, due to a 8% decrease in average selling prices and a 4% decrease in sales volume. Average selling prices decreased to $252 per ton in 2015 compared to $274 per ton in 2014. The decline in UAN average selling prices was due to excess global nitrogen supply weighing on global nitrogen fertilizer selling prices. Sales volume was lower as customers delayed purchases in the declining pricing environment.

Cost of Sales. Cost of sales per ton in our UAN segment averaged $162 in 2015, a 1% decrease over the $164 per ton in 2014. The decrease was due primarily to lower realized natural gas costs partly offset by the impact of higher unrealized net mark-to-market losses on natural gas derivatives in 2015 compared to 2014.

AN Segment

Our AN segment produces ammonium nitrate (AN). AN is a nitrogen-based product with a nitrogen content between 29% and 35%. AN is used as nitrogen fertilizer and is also used by industrial customers for commercial explosives and blasting systems. AN is produced at our nitrogen complexes in Yazoo City, Mississippi and Ince and Billingham, United Kingdom.

The following table presents summary operating data for our AN segment, including the impact of our acquisition of the remaining 50% equity interest in CF Fertilisers UK:

	Twelve months ended December 31,							
	2016	2015	2014	2016 v. 2015		2015 v. 2014		
	(in millions, except as noted)							
Net sales	$ 411	$ 294	$ 243	$ 117	40 %	$ 51	21 %
Cost of sales	409	291	189	118	41 %	102	54 %
Gross margin	$ 2	$ 3	$ 54	$ (1)	(33)%	$ (51)	(94)%
Gross margin percentage	0.5%	1.1%	22.1%	(0.6)%		(21.0)%	
Sales volume by product tons (000s)	2,151	1,290	958	861	67 %	332	35 %
Sales volume by nutrient tons (000s)(1)	726	437	329	289	66 %	108	33 %
Average selling price per product ton	$ 191	$ 228	$ 253	$ (37)	(16)%	$ (25)	(10)%
Average selling price per nutrient ton(1)	$ 566	$ 673	$ 738	$ (107)	(16)%	$ (65)	(9)%
Gross margin per product ton	$ 1	$ 2	$ 56	$ (1)	(50)%	$ (54)	(96)%
Gross margin per nutrient ton(1)	$ 3	$ 7	$ 163	$ (4)	(57)%	$ (156)	(96)%
Depreciation and amortization	$ 93	$ 66	$ 47	$ 27	41 %	$ 19	40 %
Unrealized net mark-to-market loss (gain) on natural gas derivatives	$ (10)	$ 16	$ 7	$ (26)	N/M	$ 9	129 %

(1) Nutrient tons represent the tons of nitrogen within the product tons.

Year Ended December 31, 2016 Compared to Year Ended December 31, 2015

Net Sales. Total net sales in our AN segment increased $117 million, or 40%, in 2016 from 2015 due primarily to a 67% increase in sales volume partially offset by a 16% decrease in average selling prices. These results include the impact of the CF Fertilisers UK acquisition, which increased net sales by $164 million, or 56%. The remaining decrease in our AN net sales of $47 million, or 16%, was due primarily to lower average selling prices from excess global nitrogen supply weighing on global nitrogen fertilizer selling prices.

Cost of Sales. Total cost of sales per ton in our AN segment averaged $190 in 2016 including the impact of the CF Fertilisers UK acquisition, which averaged $211 per ton. The remaining cost of sales per ton averaged $180 in 2016, a 20% decrease from 2015 due primarily to unrealized net mark-to-market gains on natural gas derivatives in 2016 compared to losses in 2015 and the impact of lower realized natural gas costs. This decrease also includes the impact of the purchase accounting inventory valuation step-up in 2015 arising out of the CF Fertilisers UK acquisition.

Year Ended December 31, 2015 Compared to Year Ended December 31, 2014

Net Sales. Net sales in our AN segment increased $51 million, or 21%, to $294 million in 2015 from $243 million in 2014 due primarily to a 35% increase in sales volume partially offset by a 10% decrease in average selling prices. This total includes the impact of the CF Fertilisers UK acquisition completed on July 31, 2015, which increased net sales by $117 million, or 48%. The remaining decrease in our AN net sales of $66 million, or 27%, was due primarily to 18% lower average selling prices and 11% lower sales volume as a result of weak North American domestic demand.

Cost of Sales. Total cost of sales per ton in our AN segment averaged $226 in 2015. This total cost of sales per ton includes the impact of the CF Fertilisers UK acquisition, which averaged $249 per ton and includes the revaluation of the CF Fertilisers UK inventory in acquisition accounting of $7 million in the second half of 2015. The remaining cost of sales per ton averaged $213 in 2015, an 8% increase from the average of $197 per ton in 2014, due primarily to the impact of higher unrealized net mark-to-market losses on natural gas derivatives in 2015 compared to 2014.

Other Segment

Our Other segment primarily includes the following products:

- Diesel exhaust fluid (DEF) is an aqueous urea solution typically made with 32.5% high-purity urea and 67.5% deionized water.
- Urea liquor is a liquid product that we sell in concentrations of 40%, 50% and 70% urea as a chemical intermediate.
- Nitric acid is a nitrogen-based product with a nitrogen content of 22.2%.
- Compound fertilizer products (NPKs) are solid granular fertilizer products for which the nutrient content is a combination of nitrogen, phosphorus and potassium.

The following table presents summary operating data for our Other segment, including the impact of our acquisition of the remaining 50% equity interest in CF Fertilisers UK:

	Twelve months ended December 31,						
	2016	2015	2014	2016 v. 2015		2015 v. 2014	
	(in millions, except as noted)						
Net sales	$ 266	$ 223	$ 171	$ 43	19 %	$ 52	30 %
Cost of sales	217	162	120	55	34 %	42	35 %
Gross margin	$ 49	$ 61	$ 51	$ (12)	(20)%	$ 10	20 %
Gross margin percentage	18.4%	27.2%	30.0%	(8.8)%		(2.8)%	
Sales volume by product tons (000s)	1,654	1,108	798	546	49 %	310	39 %
Sales volume by nutrient tons (000s)[(1)]	317	215	155	102	47 %	60	39 %
Average selling price per product ton	$ 161	$ 202	$ 215	$ (41)	(20)%	$ (13)	(6)%
Average selling price per nutrient ton[(1)]	$ 839	$ 1,040	$ 1,106	$ (201)	(19)%	$ (66)	(6)%
Gross margin per product ton	$ 30	$ 55	$ 64	$ (25)	(45)%	$ (9)	(14)%
Gross margin per nutrient ton[(1)]	$ 155	$ 283	$ 332	$ (128)	(45)%	$ (49)	(15)%
Depreciation and amortization	$ 46	$ 35	$ 20	$ 11	31 %	$ 15	75 %
Unrealized net mark-to-market loss (gain) on natural gas derivatives	$ (17)	$ —	$ —	$ (17)	N/M	$ —	— %

(1) Nutrient tons represent the tons of nitrogen within the product tons.

Year Ended December 31, 2016 Compared to Year Ended December 31, 2015

Net Sales. Total net sales in our Other segment increased $43 million, or 19%, in 2016 from 2015 due to a 49% increase in sales volume partially offset by a 20% decrease in average selling prices. These results include the impact of the CF Fertilisers UK acquisition, which increased net sales by $79 million, or 35%. The remaining decrease in our Other segment net sales of $36 million, or 16%, was due primarily to lower average selling prices due to excess global nitrogen supply weighing on global nitrogen fertilizer selling prices.

Cost of Sales. Cost of sales per ton in our Other segment averaged $131 in 2016, including the impact of the CF Fertilisers UK acquisition, which averaged $158 per ton. The remaining cost of sales per ton averaged $121 in 2016, an 18% decrease from the $147 per ton in 2015 due to the unrealized net mark-to-market gains on natural gas derivatives in 2016 and the impact of the purchase accounting inventory valuation step-up in 2015 arising out of the CF Fertilisers UK acquisition.

Year Ended December 31, 2015 Compared to Year Ended December 31, 2014

Net Sales. Total net sales in our Other segment increased $52 million, or 30%, in 2015 from 2014 due to a 39% increase in sales volume. These results include the impact of the CF Fertilisers UK acquisition completed on July 31, 2015, which increased net sales by $53 million, or 31%. The remaining decrease in our Other net sales of $1 million, or 1%, was due primarily to lower average selling prices, primarily urea liquor, due to overall weaker pricing conditions. This decrease was partially offset by an increase in our DEF average selling prices and sales volume as the North American DEF market continued to grow in response to stricter diesel engine emission requirements.

Cost of Sales. Cost of sales per ton in our Other segment averaged $147 in 2015, a 3% decrease from the $151 per ton in 2014 due primarily to lower realized natural gas costs in 2015 compared to 2014.

Phosphate Segment

On March 17, 2014, we sold our phosphate mining and manufacturing business to Mosaic pursuant to the terms of the definitive transaction agreement executed in October 2013, among CF Industries Holdings, Inc., CF Industries and Mosaic. The phosphate segment reflects the reported results of the phosphate business through March 17, 2014, plus the continuing sales of the phosphate inventory in the distribution network after March 17, 2014. The remaining phosphate inventory was sold in the second quarter of 2014 and reportable results ceased.

The following table presents summary operating data for our phosphate segment for the year ended December 31, 2014:

	2014 (in millions, except as noted)
Net sales	$ 168
Cost of sales	158
Gross margin	$ 10
Gross margin percentage	6.0%
Sales volume by product tons (000s)[1]	487
Average selling price per product ton	$ 346
Gross margin per product ton	$ 21
Depreciation, depletion and amortization[2]	$ —

[1] Represents DAP and MAP product sales.
[2] On March 17, 2014, we sold our phosphate mining and manufacturing business. The assets and liabilities sold were classified as held for sale as of December 31, 2013; therefore, no depreciation, depletion or amortization was recorded in 2014 for the related property, plant and equipment.

Liquidity and Capital Resources

Our primary uses of cash are generally for operating costs, working capital, capital expenditures, debt service, investments, taxes, share repurchases and dividends. Our working capital requirements are affected by several factors, including demand for our products, selling prices, raw material costs, freight costs and seasonal factors inherent in the business. Generally, our primary source of cash is cash from operations, which includes cash generated by customer advances. We may also from time to time access the capital markets or engage in borrowings under our credit agreements.

Lower selling prices resulting from excess global nitrogen supply affected our financial performance in 2016. Global nitrogen fertilizer supply increased faster than global nitrogen fertilizer demand, creating the current global oversupply of nitrogen fertilizer and the resulting low nitrogen fertilizer selling prices. See discussion under "Overview of CF Holdings—Industry Factors and Market Conditions—2016 Market Conditions," above, for further information.

In response to the prevailing market circumstances, in July 2016, we entered into an amendment to the Revolving Credit Agreement, and, in September 2016, we entered into an amendment to the note purchase agreement governing the Private Senior Notes (the Note Purchase Agreement). The amendments increased, through the end of 2017, the maximum total leverage ratio permitted under the Revolving Credit Agreement and the Note Purchase Agreement and reduced the size of our revolving credit facility under the Revolving Credit Agreement.

Due to the uncertainty of the duration of the prevailing low price environment and in order to provide liquidity and covenant flexibility for the future, in the fourth quarter of 2016, we took certain additional steps with respect to the Revolving Credit Agreement and the Private Senior Notes. The steps we took included entering into the November 2016 Credit Agreement Amendment described under "—Debt—Revolving Credit Agreement," below, and the prepayment in full of the $1.0 billion principal amount of Private Senior Notes on November 21, 2016. We funded that prepayment and the related make-whole amount of approximately $170 million with the issuance of new long-term secured debt, as described in further detail below under "—Debt—Senior Secured Notes."

In 2016, we completed capacity expansion projects at Donaldsonville, Louisiana and Port Neal, Iowa that were originally announced in 2012. These projects provided us with an increase of approximately 25% in production capacity and had a total capital cost of $5.2 billion. The completion of our capacity expansion projects will reduce what had been a substantial use of liquidity in recent years. See "—Capacity Expansion Projects and Restricted Cash," below, for further information on these projects.

A significant portion of the capital assets that were constructed as part of the capacity expansion projects is expected to qualify for bonus depreciation under the Protecting Americans from Tax Hikes Act of 2015 (the PATH Act). Under the provisions of the PATH Act, eligible capital additions will be subject to 50% bonus depreciation. We intend to file a claim to carry back the 2016 federal tax loss to prior periods and receive a refund of federal taxes paid in those prior years. As of December 31, 2016, we have prepaid income taxes of $841 million, which includes approximately $816 million for the carryback of certain U.S. tax losses from 2016 to prior tax periods. See "—Realization of Current Year Tax Assets Resulting From Bonus Depreciation," below, and Note 10—Income Taxes to our consolidated financial statements included in Item 8 of this report for additional information.

In October 2016 each of the three credit rating agencies reviewed our corporate credit rating as follows. S&P Global Ratings reduced our corporate credit rating to BB+ from BBB- and indicated the outlook was negative; Moody's Investors Service, Inc. reduced our corporate credit rating to Baa3 from Baa2 and indicated the rating was under further review; and Fitch Ratings, Inc. reduced our corporate credit rating to BB+ from BBB and indicated the outlook was stable. In November 2016, Moody's Investors Service, Inc. further reduced our corporate credit rating to Ba2 from Baa3 and updated the outlook to stable.

At December 31, 2016, our balance of cash and cash equivalents was $1.16 billion and we were in compliance with all applicable covenant requirements under the Revolving Credit Agreement and our senior notes.

Cash and Cash Equivalents

We had cash and cash equivalents of $1.16 billion and $286 million as of December 31, 2016 and 2015, respectively. Cash equivalents include highly liquid investments that are readily convertible to known amounts of cash with original maturities of three months or less. Under our short-term investment policy, we may invest our cash balances, either directly or through mutual funds, in several types of investment-grade securities, including notes and bonds issued by governmental entities or corporations. Securities issued by governmental entities include those issued directly by the U.S. and Canadian federal governments; those issued by state, local or other governmental entities; and those guaranteed by entities affiliated with governmental entities.

Capacity Expansion Projects and Restricted Cash

In 2016, we completed our capacity expansion projects at Donaldsonville, Louisiana and Port Neal, Iowa. These projects, originally announced in 2012, included the construction of new ammonia, urea, and UAN plants at our Donaldsonville, Louisiana complex and new ammonia and urea plants at our Port Neal, Iowa complex. These plants increased our overall production capacity by approximately 25%, improved our product mix flexibility at Donaldsonville, and improved our ability to serve upper-Midwest urea customers from our Port Neal location. In combination, these new facilities are able to produce 2.1 million tons of gross ammonia per year, upgraded products ranging from 2.0 million to 2.7 million tons of granular urea per year and up to 1.8 million tons of UAN 32% solution per year, depending on our choice of product mix. These new facilities will allow us to benefit from the cost advantages of North American natural gas. Further details regarding our production capacity and production flexibility are included in Part I, Item 1. Business.

At our Donaldsonville complex, the ammonia plant was placed in service in the fourth quarter of 2016, the UAN plant was placed in service in the first quarter of 2016 and the granular urea plant was placed in service in the fourth quarter of 2015. At our Port Neal, Iowa complex, both the ammonia and granular urea plants were placed in service in the fourth quarter of 2016. Depreciation expense pertaining to each of our capacity expansion plants commenced once the applicable plant was placed in service, and the total depreciation expense pertaining to our capacity expansion plants recognized in 2016 and 2015 was $116 million and $13 million, respectively.

Start-up costs of $52 million, which primarily relate to the cost of commencing production at the ammonia plants, were incurred in 2016. Expansion project expenses, consisting primarily of administrative costs and other project costs that do not qualify for capitalization, totaled $73 million, $51 million and $31 million in 2016, 2015 and 2014, respectively.

The total cash spent on capital expenditures for the capacity expansion projects through December 31, 2016 was $5.1 billion. We estimate that the final payments on the capital component of the capacity expansion projects will occur in early 2017 and will bring the total capital cash spending for the capacity expansion projects to approximately $5.2 billion.

We retained an affiliate of ThyssenKrupp Industrial Solutions (ThyssenKrupp) to provide engineering and procurement services for both capacity expansion projects. Under the terms of the engineering and procurement services contract, we granted ThyssenKrupp a security interest in a restricted cash account and maintain a cash balance in that account equal to the cancellation fees for procurement services and equipment that would arise if we were to cancel the projects. The amount in the account changes over time based on procurement costs. As of December 31, 2016, there was $5 million held in this account. This restricted cash is excluded from our cash and cash equivalents and reported separately on our consolidated balance sheets and statements of cash flows.

Capital Spending

We make capital expenditures to sustain our asset base, increase our capacity, improve plant efficiency and comply with various environmental, health and safety requirements. Capital expenditures totaled $2.21 billion in 2016 compared to $2.47 billion in 2015. The decrease in capital expenditures is primarily the result of the decrease in cash spent on the capacity expansion projects in 2016 compared to 2015.

Projected Capital Spending

New capital expenditures for 2017 are estimated to be in the range of approximately $400 to $450 million for sustaining and other capital expenditures. Actual cash expenditures will also reflect amounts accrued but not paid in 2016. At December 31, 2016, approximately $225 million was accrued related to activities in 2016. Planned capital expenditures are subject to change due to delays in regulatory approvals or permitting, unanticipated increases in cost, changes in scope and completion time, performance of third parties, adverse weather, defects in materials and workmanship, labor or material shortages, transportation constraints, acceleration or delays in the timing of the work and other unforeseen difficulties.

Realization of Current Year Tax Assets Resulting From Bonus Depreciation

The PATH Act permits bonus depreciation on certain eligible capital additions in the year the assets are placed in service. Under the provisions of the PATH Act, eligible capital additions will be subject to 50% bonus depreciation in the year the asset is placed in service. A significant portion of the capital assets constructed as part of the Donaldsonville, Louisiana and Port Neal, Iowa capacity expansion projects is expected to qualify for 50% bonus depreciation. Given the size of the bonus depreciation tax deduction, we estimate that we generated a substantial federal tax loss in 2016. We intend to file a claim to carry back the 2016 federal tax loss to prior income tax years and receive a refund of federal taxes paid in those prior years. We currently estimate that the amount of this refund will be approximately $816 million and expect to receive it in the third quarter of 2017. As of December 31, 2016, we have prepaid income taxes in the amount of $841 million.

Government Policies

The policies or laws of governments around the world can result in the imposition of taxes, duties, tariffs or other restrictions or regulatory requirements on imports and exports of raw materials, finished goods or services from a particular country or region of the world. The policies and laws of governments can also impact the subsidization of natural gas prices, and subsidies or quotas applied to domestic producers, or farmers. Due to the critical role that fertilizers play in food production, the construction and operation of fertilizer plants often are influenced by economic, political and social objectives. Additionally, the import or export of fertilizer can be subject to local taxes imposed by governments which can have the effect of either encouraging or discouraging import and export activity. The impact of changes in governmental policies or laws or the political or social objectives of a country could have a material impact on fertilizer demand, selling prices and therefore could impact our liquidity.

Ethanol Industry and the Renewable Fuel Standard

Corn used to produce ethanol accounts for approximately 37% of total U.S. corn demand. U.S. government policy, as expressed in the Renewable Fuel Standard (RFS), is a major determinant for the ethanol market. The RFS establishes minimum volumes of various types of renewable fuels, including ethanol, that must be included in the United States' supply of fuel for transportation. In addition, the U.S. Congress, at various times, has proposed legislation to either reduce or eliminate the RFS. While past legislation proposing changes to the RFS has not been enacted into law, there can be no assurance that future legislation will not be enacted into law. Other factors that drive the ethanol market include the prices of ethanol, gasoline and corn. Lower gasoline prices may put pressure on ethanol prices that could result in reduced profitability and lower production for the ethanol industry, which could impact the demand for corn and nitrogen fertilizer and therefore could impact our liquidity.

Repatriation of Foreign Earnings and Income Taxes

We have operations in Canada, the United Kingdom and an interest in a joint venture in the Republic of Trinidad and Tobago. The estimated additional U.S. and foreign income taxes due upon repatriation of the earnings of these foreign operations to the U.S. are recognized in our consolidated financial statements as the earnings are recognized, unless the earnings are considered to be permanently reinvested based upon our current plans. However, the cash payment of the income tax liabilities associated with repatriation of earnings from foreign operations occurs at the time of the repatriation. As a result, the recognition of income tax expense related to foreign earnings, as applicable, and the payment of taxes resulting from repatriation of those earnings can occur in different periods. Cash balances held by our joint venture are maintained at sufficient levels to fund local operations as accumulated earnings are repatriated from the joint venture on a periodic basis.

As of December 31, 2016, approximately $127 million of our consolidated cash and cash equivalents balance of $1.16 billion was held primarily by our Canadian and United Kingdom subsidiaries. The cash balance held by the Canadian subsidiaries represents accumulated earnings of our foreign operations that are not considered to be permanently reinvested. We have recognized deferred income taxes on these earnings for the foreign and domestic taxes that would be due upon their repatriation to the United States. As of December 31, 2016, the estimated cash tax cost to repatriate the Canadian and United Kingdom cash balances would be approximately $6 million.

Share Repurchase Programs and Retirements

Our Board of Directors (the Board) has authorized certain programs to repurchase shares of our common stock. Each of these programs has permitted repurchases to be made from time to time in the open market, through privately-negotiated transactions, through block transactions or otherwise. Our management has determined the manner, timing and amount of repurchases based on the evaluation of market conditions, stock price and other factors.

In the third quarter of 2012, the Board authorized a program to repurchase up to $3 billion of the common stock of CF Holdings through December 31, 2016 (the 2012 Program). The repurchases under the 2012 Program were completed in the second quarter of 2014. On August 6, 2014, the Board authorized a program to repurchase up to $1 billion of the common stock of CF Holdings through December 31, 2016 (the 2014 Program). As of December 31, 2015, 15.9 million shares had been repurchased for an aggregate expenditure of $900 million. The remaining $100 million of share repurchase authorization under the 2014 Program expired on December 31, 2016.

The retirement of the repurchased shares of our common stock was recognized as follows:

- In 2014, we retired 38.6 million shares of our common stock that had been repurchased. In our consolidated balance sheet, the retirement of these shares eliminated the recorded treasury stock and reduced retained earnings and paid-in capital by $1.69 billion and $220 million, respectively.

- In 2015, we retired 10.7 million shares of our common stock that had been repurchased. In our consolidated balance sheet, the retirement of these shares eliminated the recorded treasury stock and reduced retained earnings and paid-in capital by $535 million and $62 million, respectively.
- In 2016, we retired 2.4 million shares of our common stock that had been repurchased. In our consolidated balance sheet, the retirement of these shares eliminated the recorded treasury stock and reduced retained earnings and paid-in capital by $136 million and $14 million, respectively.

Debt

Revolving Credit Agreement

We have a senior secured revolving credit agreement (as amended, including by an amendment effective July 29, 2016 (the July 2016 Credit Agreement Amendment) and an amendment entered into on October 31, 2016 and effective November 21, 2016 (the November 2016 Credit Agreement Amendment), the Revolving Credit Agreement) providing for a revolving credit facility of up to $750 million (reflecting a reduction from $1.5 billion as effected by the November 2016 Credit Agreement Amendment) with a maturity of September 18, 2020. The Revolving Credit Agreement includes a letter of credit sub-limit of $125 million. Borrowings under the Revolving Credit Agreement may be used for working capital and general corporate purposes. CF Industries may designate as borrowers one or more wholly owned subsidiaries that are organized in the United States or any state thereof or the District of Columbia.

Borrowings under the Revolving Credit Agreement may be denominated in dollars, Canadian dollars, euro and British pounds, and bear interest at a per annum rate equal to an applicable eurocurrency rate or base rate plus, in either case, a specified margin, and the borrowers are required to pay an undrawn commitment fee on the undrawn portion of the commitments under the Revolving Credit Agreement and customary letter of credit fees. The specified margin and the amount of the commitment fee depend on CF Holdings' credit rating at the time.

The borrowers and guarantors under the Revolving Credit Agreement, which are currently comprised of CF Holdings, CF Industries and CF Holdings' wholly owned subsidiaries CF Industries Enterprises, Inc. (CFE) and CF Industries Sales, LLC (CFS), are referred to together herein as the Loan Parties. CF Holdings and CF Industries guaranteed the obligations of the Loan Parties under the Revolving Credit Agreement prior to the effectiveness of the November 2016 Credit Agreement Amendment, and, upon the effectiveness of the November 2016 Credit Agreement Amendment, CFE and CFS also became guarantors of the obligations of the Loan Parties under the Revolving Credit Agreement. Subject to specified exceptions, the Revolving Credit Agreement requires that each direct or indirect domestic subsidiary of CF Holdings that guarantees debt for borrowed money of any Loan Party in excess of $150 million become a guarantor under the Revolving Credit Agreement. Subject to specified exceptions, the Revolving Credit Agreement requires a grant of a first priority security interest in substantially all of the assets of the Loan Parties, including a pledge by CFS of its equity interests in CF Industries Nitrogen, LLC (CFN) and mortgages over certain material fee-owned domestic real properties, to secure the obligations of the Loan Parties thereunder.

In addition to the obligations under the Revolving Credit Agreement, the Loan Parties also guarantee the obligations under any (i) letter of credit facilities, letter of credit reimbursement agreements, letters of credit, letters of guaranty, surety bonds or similar arrangements in an aggregate amount up to $300 million and (ii) interest rate or other hedging arrangements, in each case between CF Holdings or certain of its subsidiaries, on the one hand, and any person that is a lender or the administrative agent under the Revolving Credit Agreement or an affiliate of such person, on the other hand, that are designated by CF Industries as Secured Bilateral LC Facilities or Secured Swap Agreements (each as defined in the Revolving Credit Agreement), as applicable, pursuant to the terms of the Revolving Credit Agreement (such additional obligations, the Additional Guaranteed Obligations). Obligations under Secured Bilateral LC Facilities in an aggregate amount up to $300 million and obligations under Secured Swap Agreements are secured by the same security interest that secures the obligations under the Revolving Credit Agreement.

The Revolving Credit Agreement contains representations and warranties and affirmative and negative covenants customary for a financing of this type. Prior to the effectiveness of the November 2016 Credit Agreement Amendment, the Revolving Credit Agreement limited the ability of non-guarantor subsidiaries of CF Holdings to incur indebtedness and limited the ability of CF Holdings and its subsidiaries to grant liens, merge or consolidate with other entities and sell, lease or transfer all or substantially all of the assets of CF Holdings and its subsidiaries to another entity, in each case, subject to specified exceptions. The November 2016 Credit Agreement Amendment modified the negative covenants in the Revolving Credit Agreement to limit further the ability of CF Holdings and its subsidiaries to grant liens and add limitations on the ability of CF Holdings and its subsidiaries to incur debt, pay dividends, voluntarily prepay certain debt, make investments and dispose of assets, in each case, subject to specified exceptions (such further and additional limitations, the Additional Negative Covenants).

The financial covenants applicable to CF Holdings and its subsidiaries in the Revolving Credit Agreement (the New Financial Covenants):

(i) restrict the ratio of total secured debt to EBITDA (as defined in the Revolving Credit Agreement) for the period of four consecutive fiscal quarters most recently ended to a maximum of 3.75:1.00,

(ii) require the ratio of EBITDA for the period of four consecutive fiscal quarters most recently ended to consolidated interest expense (as defined in the Revolving Credit Agreement) for the period of four consecutive fiscal quarters most recently ended to be a minimum of 1.20:1.00 for the fiscal quarters ending on or prior to December 31, 2018, and 1.50:1.00 thereafter, and

(iii) require the ratio of total debt to total capitalization as of the last day of any fiscal quarter to be less than or equal to 0.60:1.00.

As of December 31, 2016, we were in compliance with all covenants under the Revolving Credit Agreement.

Under the Revolving Credit Agreement, if on any date certain conditions were met, including (i) an absence of an event of default under the Revolving Credit Agreement, (ii) the receipt of an investment grade corporate rating for CF Holdings from two of three selected ratings agencies and (iii) the ratio of CF Holdings' total net debt to EBITDA for the period of four consecutive fiscal quarters most recently ended being less than 3.75:1.00, CF Industries would be able to, at its option, choose to (w) suspend the Additional Negative Covenants, (x) replace the New Financial Covenants with covenants requiring the ratio of total net debt to EBITDA for the period of four fiscal consecutive quarters most recently ended to be less than or equal to 3.75:1.00 and the ratio of EBITDA for the period of four consecutive fiscal quarters most recently ended to consolidated interest expense for the period of four consecutive fiscal quarters most recently ended to be not less than 2.75:1.00, (y) release the collateral securing the obligations under the Revolving Credit Agreement and (z) release the guarantees supporting, and the collateral securing, the Secured Bilateral LC Facilities and the Secured Swap Agreements. Such a choice by CF Industries would commence a "Covenant Suspension Period" that would expire upon the Company's no longer having an investment grade corporate rating from two of three selected rating agencies. Upon the expiration of a Covenant Suspension Period, the Additional Negative Covenants and the New Financial Covenants would be reinstated, and the Loan Parties party to the Revolving Credit Agreement would be required to guarantee the Additional Guaranteed Obligations and grant a first priority security interest in substantially all of each Loan Party's assets, including a pledge by CFS of its equity interests in CFN and mortgages over certain material fee-owned domestic real properties, subject to certain exceptions, to secure the obligations under the Revolving Credit Agreement, the Secured Bilateral LC Facilities and the Secured Swap Agreements.

The Revolving Credit Agreement contains events of default (with notice requirements and cure periods, as applicable) customary for a financing of this type, including, but not limited to, non-payment of principal, interest or fees; inaccuracy of representations and warranties in any material respect; and failure to comply with specified covenants. Upon the occurrence and during the continuance of an event of default under the Revolving Credit Agreement and after any applicable cure period, subject to specified exceptions, the administrative agent may, and at the request of the requisite lenders is required to, accelerate the loans under the Revolving Credit Agreement or terminate the lenders' commitments under the Revolving Credit Agreement.

As of December 31, 2016, we had excess borrowing capacity under the Revolving Credit Agreement of $695 million (net of outstanding letters of credit of $55 million). There were no borrowings outstanding under the Revolving Credit Agreement as of December 31, 2016 or December 31, 2015. Maximum borrowings outstanding under the Revolving Credit Agreement during the twelve months ended December 31, 2016 were $150 million. The weighted-average annual interest rate of borrowings under the Revolving Credit Agreement during the twelve months ended December 31, 2016 was 1.85%. Maximum borrowings under the Revolving Credit Agreement during the twelve months ended December 31, 2015, were $367 million with a weighted-average annual interest rate of 1.47%.

Senior Notes

Long-term debt presented on our consolidated balance sheets as of December 31, 2016 and December 31, 2015 consisted of the following Public Senior Notes (unsecured), Senior Secured Notes and Private Senior Notes (unsecured):

		December 31, 2016		December 31, 2015	
	Effective Interest Rate	Principal Outstanding	Carrying Amount [1]	Principal Outstanding	Carrying Amount [1]
		(in millions)			
Public Senior Notes:					
6.875% due 2018	7.344%	$ 800	$ 795	$ 800	$ 792
7.125% due 2020	7.529%	800	791	800	788
3.450% due 2023	3.562%	750	745	750	745
5.150% due 2034	5.279%	750	739	750	739
4.950% due 2043	5.031%	750	741	750	741
5.375% due 2044	5.465%	750	741	750	740
Senior Secured Notes:					
3.400% due 2021	3.784%	500	491	—	—
4.500% due 2026	4.760%	750	735	—	—
Private Senior Notes:					
4.490% due 2022	4.664%	—	—	250	248
4.930% due 2025	5.061%	—	—	500	496
5.030% due 2027	5.145%	—	—	250	248
Total long-term debt		$ 5,850	$ 5,778	$ 5,600	$ 5,537

(1) Carrying amount is net of unamortized debt discount and deferred debt issuance costs. Total unamortized debt discount was $12 million and $7 million as of December 31, 2016 and December 31, 2015, respectively, and total deferred debt issuance costs were $60 million and $56 million as of December 31, 2016 and December 31, 2015, respectively.

Public Senior Notes

Under the indentures (including the applicable supplemental indentures) governing the senior notes due 2018, 2020, 2023, 2034, 2043 and 2044 identified in the table above (the Public Senior Notes), each series of Public Senior Notes is guaranteed by CF Holdings. Interest on the Public Senior Notes is payable semiannually, and the Public Senior Notes are redeemable at our option, in whole at any time or in part from time to time, at specified make-whole redemption prices. The indentures governing the Public Senior Notes contain customary events of default (including cross-default triggered by acceleration of, or a principal payment default that is not cured within an applicable grace period under, other debt having a principal amount of $150 million or more) and covenants that limit, among other things, the ability of CF Holdings and its subsidiaries, including CF Industries, to incur liens on certain properties to secure debt.

If a Change of Control occurs together with a Ratings Downgrade (as both terms are defined under the indentures governing the Public Senior Notes), CF Industries would be required to offer to repurchase each series of Public Senior Notes at a price equal to 101% of the principal amount thereof, plus accrued and unpaid interest. In addition, in the event that a subsidiary of CF Holdings, other than CF Industries, becomes a borrower or a guarantor under the Revolving Credit Agreement (or any renewal, replacement or refinancing thereof), such subsidiary would be required to become a guarantor of the Public Senior Notes, provided that such requirement will no longer apply with respect to the Public Senior Notes due 2023, 2034, 2043 and 2044 following the repayment of the Public Senior Notes due 2018 and 2020 or the subsidiaries of ours, other than CF Industries, otherwise becoming no longer subject to such a requirement to guarantee the Public Senior Notes due 2018 and 2020.

On November 21, 2016, in connection with the effectiveness of the November 2016 Credit Agreement Amendment, CFE and CFS became subsidiary guarantors of the Public Senior Notes.

Senior Secured Notes

On November 21, 2016, CF Industries issued $500 million aggregate principal amount of 3.400% senior secured notes due 2021 (the 2021 Notes) and $750 million aggregate principal amount of 4.500% senior secured notes due 2026 (the 2026 Notes, and together with the 2021 Notes, the Senior Secured Notes). The net proceeds, after deducting discounts and offering expenses, from the issuance and sale of the Notes were approximately $1.23 billion. CF Industries used approximately $1.18 billion of the net proceeds for the prepayment (including payment of a make-whole amount of approximately $170 million and accrued interest) in full of the outstanding $1.0 billion aggregate principal amount of the Private Senior Notes. See "—Private Senior Notes," below. The Company intends that the remainder of the net proceeds be used for general corporate purposes.

Interest on the Senior Secured Notes is payable semiannually on December 1 and June 1 beginning on June 1, 2017, and the Senior Secured Notes are redeemable at our option, in whole at any time or in part from time to time, at specified make-whole redemption prices.

Under the terms of the applicable indenture, the Senior Secured Notes of each series are fully and unconditionally guaranteed on a senior secured basis, jointly and severally, by CF Holdings and each current and future domestic subsidiary of CF Holdings (other than CF Industries) that from time to time is a borrower, or guarantees indebtedness, under the Revolving Credit Agreement. The requirement for any subsidiary of CF Holdings to guarantee the Senior Secured Notes of a series will apply only until, and the subsidiary guarantees of the Senior Secured Notes of a series will be automatically released upon, the latest to occur of (a) CF Holdings having an investment grade corporate rating, with a stable or better outlook, from two of three selected ratings agencies and there being no default or event of default under the applicable Indenture, (b) the retirement, discharge or legal or covenant defeasance of, or satisfaction and discharge of the supplemental indenture governing, the Public Senior Notes due 2018 or the subsidiaries of CF Holdings (other than CF Industries) otherwise becoming no longer subject to the requirement, described in the second paragraph under "—Public Senior Notes," above, to guarantee the Public Senior Notes due 2018 and (c) the retirement, discharge or legal or covenant defeasance of, or satisfaction and discharge of the supplemental indenture governing, the Public Senior Notes due 2020 or the subsidiaries of CF Holdings (other than CF Industries) otherwise becoming no longer subject to the requirement, described in the second paragraph under "—Public Senior Notes," above, to guarantee the Public Senior Notes due 2020. In accordance with the applicable indenture, CFE and CFS, in addition to CF Holdings, guaranteed the Senior Secured Notes of each series upon the initial issuance of the Senior Secured Notes.

Subject to certain exceptions, the obligations under each series of Senior Secured Notes and each guarantor's related guarantee are secured by a first priority security interest in substantially all of the assets of CF Industries, CF Holdings and the subsidiary guarantors, including a pledge by CFS of its equity interests in CFN and mortgages over certain material fee-owned domestic real properties (the Collateral). The obligations under the Revolving Credit Agreement, together with certain letter of credit, hedging and similar obligations and future pari passu secured indebtedness, will be secured by the Collateral on a pari passu basis with the Senior Secured Notes. The liens on the Collateral securing the obligations under the Senior Secured Notes of a series and the related guarantees will be automatically released and the covenant under the applicable indenture limiting dispositions of Collateral will no longer apply if on any date after the initial issuance of the Senior Secured Notes CF Holdings has an investment grade corporate rating, with a stable or better outlook, from two of three selected ratings agencies and there is no default or event of default under the applicable indenture.

Under each of the indentures governing the Senior Secured Notes, specified changes of control involving CF Holdings or CF Industries, when accompanied by a ratings downgrade, as defined with respect to the applicable series of Senior Secured Notes, constitute change of control repurchase events. Upon the occurrence of a change of control repurchase event with respect to the 2021 Notes or the 2026 Notes, as applicable, unless CF Industries has exercised its option to redeem such Senior Secured Notes, CF Industries will be required to offer to repurchase them at a price equal to 101% of the principal amount thereof, plus accrued and unpaid interest, if any, to, but not including, the date of repurchase.

The indentures governing the Senior Secured Notes contain covenants that limit, among other things, the ability of CF Holdings and its subsidiaries, including CF Industries, to incur liens on certain assets to secure debt, to engage in sale and leaseback transactions, to sell or transfer Collateral, to merge or consolidate with other entities and to sell, lease or transfer all or substantially all of the assets of CF Holdings and its subsidiaries to another entity. Each of the indentures governing the Senior Secured Notes provides for customary events of default, which include (subject in certain cases to customary grace and cure periods), among others, nonpayment of principal or interest on the applicable Senior Secured Notes; failure to comply with other covenants or agreements under the indenture; certain defaults on other indebtedness; the failure of CF Holdings' or certain subsidiaries' guarantees of the applicable Senior Secured Notes to be enforceable; lack of validity or perfection of any lien securing the obligations under the Senior Secured Notes and the guarantees with respect to Collateral having an aggregate fair market value equal to or greater than a specified amount; and specified events of bankruptcy or insolvency. Under each indenture governing the Senior Secured Notes, in the case of an event of default arising from one of the specified events of bankruptcy or insolvency, the applicable Senior Secured Notes would become due and payable immediately, and, in the case of any other event of default (other than an event of default related to CF Industries' and CF Holdings' reporting obligations), the trustee or the holders of at least 25% in aggregate principal amount of the applicable Senior Secured Notes then outstanding may declare all of such Senior Secured Notes to be due and payable immediately.

Private Senior Notes

The senior notes due 2022, 2025 and 2027 (the Private Senior Notes), issued by CF Industries on September 24, 2015, were governed by the terms of a note purchase agreement (as amended, including by an amendment effective September 7, 2016, the Note Purchase Agreement). The Private Senior Notes were guaranteed by CF Holdings. All obligations under the Note Purchase Agreement were unsecured.

On November 21, 2016, we prepaid in full the outstanding $1.0 billion aggregate principal amount of our Private Senior Notes. The prepayment of $1.18 billion included the payment of a make-whole amount of approximately $170 million and accrued interest. Loss on debt extinguishment of $167 million on our consolidated statement of operations excludes $3 million of the make-whole payment, which was accounted for as a modification and recognized on our consolidated balance sheet as deferred financing fees, a reduction of long-term debt, and is being amortized using the effective interest rate method over the term of the Senior Secured Notes.

Bridge Credit Agreement

On September 18, 2015, in connection with our proposed combination with certain businesses of OCI, CF Holdings and CF Industries entered into a senior unsecured 364-Day Bridge Credit Agreement (as amended, the Bridge Credit Agreement). Upon the termination of the Combination Agreement on May 22, 2016, the lenders' commitments under the Bridge Credit Agreement terminated automatically. There were no borrowings under the Bridge Credit Agreement. See Note 4—Acquisitions and Divestitures and Note 13—Interest Expense to our consolidated financial statements included in Item 8 of this report for additional information.

Forward Sales and Customer Advances

We offer our customers the opportunity to purchase products from us on a forward basis at prices and on delivery dates we propose. Therefore, our reported fertilizer selling prices and margins may differ from market spot prices and margins available at the time of shipment.

Customer advances, which typically represent a portion of the contract's sales value, are received shortly after the contract is executed, with any remaining unpaid amount generally being collected by the time the product is shipped, thereby reducing or eliminating the accounts receivable related to such sales. Any cash payments received in advance from customers in connection with forward sales contracts are reflected on our consolidated balance sheets as a current liability until related orders are shipped and revenue is recognized. As of December 31, 2016 and 2015, we had $42 million and $162 million, respectively, in customer advances on our consolidated balance sheets.

While customer advances are generally a significant source of liquidity, the level of forward sales contracts is affected by many factors including current market conditions and our customers' outlook of future market fundamentals. During periods of declining prices, such as the current environment, customers tend to delay purchasing fertilizer in anticipation that prices in the future will be lower than the current prices. If the level of sales under our forward sales programs were to decrease in the future, our cash received from customer advances would likely decrease and our accounts receivable balances would likely increase. Additionally, borrowing under the Revolving Credit Agreement could become necessary. Due to the volatility inherent in our business and changing customer expectations, we cannot estimate the amount of future forward sales activity.

Under our forward sales programs, a customer may delay delivery of an order due to weather conditions or other factors. These delays generally subject the customer to potential charges for storage or may be grounds for termination of the contract by us. Such a delay in scheduled shipment or termination of a forward sales contract due to a customer's inability or unwillingness to perform may negatively impact our reported sales.

Natural Gas Prices

Natural gas is the principal raw material used to produce nitrogen fertilizers. We use natural gas both as a chemical feedstock and as a fuel to produce ammonia, granular urea, UAN, AN and other nitrogen products. Expenditures on natural gas represent a significant portion of our production costs. For example, natural gas costs, including realized gains and losses, comprised approximately 47% of our total production costs in 2016. As a result, natural gas prices have a significant impact on our operating expenses and can thus affect our liquidity.

Because most of our nitrogen fertilizer manufacturing facilities are located in the United States and Canada, the price of natural gas in North America directly impacts a substantial portion of our operating expenses. Due to increases in natural gas production resulting from the rise in production from shale gas formations, natural gas prices in North America have declined since 2008, but are subject to volatility. During 2016, the daily closing price at the Henry Hub, the most heavily-traded natural gas pricing point in North America, reached a low of $1.49 per MMBtu on three consecutive days in March 2016 and a high of $3.77 per MMBtu on December 8, 2016. During the three-year period ended December 31, 2016, the daily closing price at the Henry Hub reached a low of $1.49 per MMBtu on three consecutive days in March 2016 and a high of $7.94 per MMBtu on March 5, 2014.

We also have manufacturing facilities located in the United Kingdom. These facilities are subject to fluctuations associated with the price of natural gas in Europe. The major natural gas trading point for the United Kingdom is the National Balancing Point (NBP). During 2016, the daily closing price at NBP reached a low of $2.80 per MMBtu on September 1, September 12 and September 14, 2016 and a high of $6.60 per MMBtu on December 30, 2016. During the three-year period ended December 31, 2016, the daily closing price at NBP reached a low of $2.80 per MMBtu on September 1, September 12 and September 14, 2016, and a high of $11.10 per MMBtu on January 8, 2014.

Natural gas costs in our cost of sales, including the impact of realized natural gas derivatives, decreased 6% in 2016 from 2015.

Derivative Financial Instruments

We use derivative financial instruments to reduce our exposure to changes in prices for natural gas that will be purchased in the future. Natural gas is the largest and most volatile component of our manufacturing cost for nitrogen-based fertilizers. We also use derivative financial instruments to reduce our exposure to changes in foreign currency exchange rates. Because we use derivative instruments, volatility in reported quarterly earnings can result from the unrealized mark-to-market adjustments in the value of the derivatives. In 2016, 2015 and 2014, we recognized unrealized net mark-to-market (gains) losses on natural gas derivatives of $(260) million, $176 million and $79 million, respectively, which is reflected in cost of sales in our consolidated statements of operations.

Derivatives expose us to counterparties and the risks associated with their ability to meet the terms of the contracts. For derivatives that are in net asset positions, we are exposed to credit loss from nonperformance by the counterparties. We control our credit risk through the use of multiple counterparties that are multinational commercial banks, other major financial institutions or large energy companies, and, in most cases, the use of International Swaps and Derivatives Association (ISDA) master netting arrangements. The ISDA agreements are master netting arrangements commonly used for over-the-counter (OTC) derivatives that mitigate exposure to counterparty credit risk, in part, by creating contractual rights of netting and setoff, the specifics of which vary from agreement to agreement.

The ISDA master netting arrangements to most of our derivative instruments contain credit-risk-related contingent features such as cross default provisions and credit support thresholds. In the event of certain defaults or a credit ratings downgrade, our counterparty may request early termination and net settlement of certain derivative trades or may require us to collateralize derivatives in a net liability position. The Revolving Credit Agreement, at any time when it is secured, provides a cross collateral feature for those of our derivatives that are with counterparties that are party to, or affiliates of parties to, the Revolving Credit Agreement so that no separate collateral would be required for those counterparties in connection with such derivatives. In the event the Revolving Credit Agreement becomes unsecured, separate collateral could be required in connection with such derivatives.

As of December 31, 2016 and 2015, the aggregate fair value of the derivative instruments with credit-risk-related contingent features in net liability positions was zero and $211 million, respectively, which also approximates the fair value of the maximum amount of additional collateral that would need to be posted or assets needed to settle the obligations if the credit-risk-related contingent features were triggered at the reporting dates. As of December 31, 2016 and 2015, we had open natural gas derivative contracts for 183.0 million MMBtus and 431.5 million MMBtus, respectively. At both December 31, 2016 and 2015, we had no cash collateral on deposit with counterparties for derivative contracts.

As of December 31, 2015, the notional amount of our open foreign currency derivatives was €89 million. None of these open foreign currency derivatives were designated as hedging instruments for accounting purposes. All of these foreign currency derivatives were settled in 2016.

Embedded Derivative Liability

Under the terms of our strategic venture with CHS, if our credit rating is reduced below certain levels by two of three specified credit rating agencies, we are required to make a non-refundable yearly payment of $5 million to CHS. The payment would continue on a yearly basis until the earlier of the date that our credit rating is upgraded to or above certain levels by two of three specified credit rating agencies or February 1, 2026. On February 1, 2016, we recognized this term of the strategic venture as an embedded derivative and its value of $8 million was included in other liabilities on our consolidated balance sheet. See Note 17—Noncontrolling Interests to our consolidated financial statements included in Item 8 of this report for additional information.

During 2016, we recorded adjustments to increase the value of the embedded derivative liability by $23 million to reflect our credit evaluations. The inputs into the fair value measurement include the probability of future upgrades and downgrades of our credit rating based on historical credit rating movements of other public companies and the discount rates to be applied to potential annual payments based on applicable credit spreads of other public companies at different credit rating levels. Based on these inputs, our fair value measurement is classified as Level 2. Additionally, as a result of the reduction in our credit rating in the fourth quarter of 2016, we made a $5 million payment to CHS. The fair value of the embedded derivative liability as of December 31, 2016, is $26 million, which is included in other liabilities and other current liabilities on our consolidated balance sheet. Included in other operating—net in our consolidated statement of operations is a net loss of $23 million.

Defined Benefit Pension Plans

We contributed $23 million to our pension plans in 2016. We expect to contribute approximately $22 million to our pension plans in 2017.

Distributions on Noncontrolling Interest in CFN

In the third quarter of 2016, the CFN Board of Managers approved semi-annual distribution payments in accordance with the Second Amended and Restated Limited Liability Company Agreement of CFN (the CFN LLC Agreement) for the distribution period ended June 30, 2016. In August 2016, CFN distributed a total of $79 million to CHS for the distribution period ended June 30, 2016.

In the first quarter of 2017, the CFN Board of Managers approved semi-annual distribution payments in accordance with the CFN LLC Agreement for the distribution period ended December 31, 2016. On January 31, 2017, CFN distributed $48 million to CHS for the distribution period ended December 31, 2016.

Cash Flows

Operating Activities

Year Ended December 31, 2016 Compared to Year Ended December 31, 2015

Net cash provided by operating activities in 2016 was $617 million as compared to $1.21 billion in 2015, a decline of $590 million. The decline resulted primarily from lower net earnings during 2016 due to lower selling prices from excess global nitrogen supply, partially offset by lower amounts of cash used for working capital purposes. Lower working capital levels in accounts receivable and inventory, plus lower amounts paid for income taxes and certain income tax refunds received in 2016, contributed to the reduction in cash used for working capital. Favorable changes in working capital also included a greater proportion of sales was paid in 2016 as compared to the prior year period as we entered 2016 with a lower level of customer advances than in 2015 due to customers' hesitancy to enter into prepaid contracts in a declining fertilizer price environment.

Year Ended December 31, 2015 Compared to Year Ended December 31, 2014

Net cash provided by operating activities in 2015 was $1.21 billion as compared to $1.42 billion in 2014. The $214 million decrease was primarily due to unfavorable working capital changes as customer advances were lower and inventory levels were higher in 2015 as compared to 2014 levels. Due to the declining pricing environment for nitrogen fertilizers in 2015, customers delayed making forward purchase commitments to purchase fertilizer in 2015, which reduced the amount of customer advances that were received, as compared to 2014 when fertilizer pricing was stronger. A poor fall ammonia application season contributed to higher inventory levels in 2015 as compared to 2014 when inventory levels declined.

Investing Activities

Years Ended December 31, 2016, 2015 and 2014

Net cash used in investing activities was $2.18 billion in 2016 compared to $2.98 billion in 2015. This decrease is due primarily to the 2015 acquisition of the remaining 50% equity interest in CF Fertilisers UK not previously owned by us for a net cash payment of $552 million, which was net of cash acquired of $18 million. This decrease was also attributable in part to a decline in capital expenditures related primarily to the capacity expansion projects in Donaldsonville, Louisiana and Port Neal, Iowa. During 2016, capital expenditures totaled $2.21 billion compared to $2.47 billion in 2015. The $344 million net cash used in investing activities in 2014 included $1.81 billion in capital expenditures and $505 million transferred to a restricted cash account in support of the capacity expansion projects partially offset by cash proceeds of $1.37 billion from the sale of the phosphate business.

Financing Activities

Years Ended December 31, 2016, 2015 and 2014

Net cash provided by financing activities was $2.44 billion in 2016 compared to $77 million in 2015 and net cash used in financing activities of $787 million in 2014. In 2016, CHS purchased a minority equity interest in CFN for $2.8 billion. We distributed $119 million to the noncontrolling interests, including CHS, in 2016, compared to $45 million and $46 million in 2015 and 2014, respectively. The increase in distributions to noncontrolling interests in 2016 compared to 2015 and 2014 was due to the CHS strategic venture, which increased the distributions by $79 million, representing the distributions paid to CHS in the third quarter of 2016 for the distribution period ended June 30, 2016.

In 2016, we received proceeds of approximately $1.24 billion, net of discounts, from the issuance of the Senior Secured Notes which were used to fund the prepayment of the $1.0 billion of Private Senior Notes and the related make-whole payment of $170 million. In both 2015 and 2014, we issued senior notes and received proceeds of approximately $1.0 billion and $1.5 billion, respectively. No share repurchases were made during 2016 compared to cash used for share repurchases in 2015 and 2014 of $556 million and $1.94 billion, respectively.

Contractual Obligations

The following is a summary of our contractual obligations as of December 31, 2016:

	2017	2018	2019	2020	2021	After 2021	Total
				(in millions)			
Contractual Obligations							
Debt							
Long-term debt[1]	$ —	$ 800	$ —	$ 800	$ 500	$ 3,750	$ 5,850
Interest payments on long-term debt[1]	308	278	251	222	191	2,393	3,643
Other Obligations							
Operating leases	89	83	65	51	41	92	421
Equipment purchases and plant improvements [2]	236	3	2	—	—	—	241
Transportation[3]	11	8	7	3	—	—	29
Purchase obligations[4][5]	656	103	44	42	37	114	996
Contributions to pension plans[6]	22	—	—	—	—	—	22
Net operating loss settlement[7]	11	—	—	—	—	—	11
Total[8][9][10]	$ 1,333	$ 1,275	$ 369	$ 1,118	$ 769	$ 6,349	$ 11,213

(1) Based on debt balances before discounts, offering expenses and interest rates as of December 31, 2016.

(2) Includes obligations to finalize the capital component of the Donaldsonville, Louisiana and Port Neal, Iowa capacity expansion projects that were completed in 2016. For further information, see discussion under "Liquidity and Capital Resources—Capacity Expansion Projects and Restricted Cash."

(3) Includes anticipated expenditures under certain contracts to transport finished product to and from our facilities. The majority of these arrangements allow for reductions in usage based on our actual operating rates. Amounts set forth in this table are based on projected normal operating rates and contracted or current spot prices, where applicable, as of December 31, 2016 and actual operating rates and prices may differ.

(4) Includes minimum commitments to purchase and transport natural gas based on prevailing market-based forward prices as of December 31, 2016 excluding reductions for plant maintenance and turnaround activities. Purchase obligations do not include any amounts related to our natural gas derivatives. See Note 15—Derivative Financial Instruments to our consolidated financial statements included in Item 8 of this report for additional information.

(5) Includes a commitment to purchase ammonia from PLNL at market-based prices under an agreement that expires in 2018. The annual commitment based on market prices as of December 31, 2016 is $57 million with a total remaining commitment of $100 million.

(6) Represents the contributions we expect to make to our pension plans during 2017. Our pension funding policy is to contribute amounts sufficient to meet minimum legal funding requirements plus discretionary amounts that we may deem to be appropriate.

(7) Represents the amounts we expect to pay to our pre-IPO owners in conjunction with the amended NOL Agreement and the 2013 settlement with the IRS.

(8) Excludes $162 million of unrecognized tax benefits due to the uncertainty in the timing of potential tax payments.

(9) Excludes $14 million of environmental remediation liabilities due to the uncertainty in the timing of payments.

(10) Excludes $5 million annual payments to CHS related to our embedded derivative through 2026 due to uncertainty of future credit ratings, as this is only applicable if our credit rating stays below certain levels from two of three specified credit rating agencies. See Note 9—Fair Value Measurements or Note 17—Noncontrolling Interests to our consolidated financial statements included in Item 8 of this report for additional information.

Off-Balance Sheet Arrangements

We have operating leases for certain property and equipment under various noncancelable agreements, the most significant of which are rail car leases and barge tow charters for the transportation of fertilizer. The rail car leases currently have minimum terms ranging from one to eleven years and the barge charter commitments range from one to seven years. We also have terminal and warehouse storage agreements for our distribution system, some of which contain minimum throughput requirements. The storage agreements contain minimum terms generally ranging from one to five years and commonly contain automatic annual renewal provisions thereafter unless canceled by either party. See Note 24—Leases to our consolidated financial statements included in Item 8 of this report for additional information concerning leases.

We do not have any other off-balance sheet arrangements that have or are reasonably likely to have a material current or future effect on our financial condition, changes in financial condition, revenues or expenses, results of operations, liquidity, capital expenditures or capital resources.

Critical Accounting Policies and Estimates

Our discussion and analysis of our financial condition, results of operations, liquidity and capital resources is based upon our consolidated financial statements, which have been prepared in accordance with U.S. GAAP. U.S. GAAP requires that we select policies and make estimates and judgments that affect the reported amounts of assets, liabilities, revenues, expenses and related disclosure of contingent assets and liabilities. On an ongoing basis, we evaluate our estimates. We base our estimates on historical experience, technological assessment, opinions of appropriate outside experts, and the most recent information available to us. Actual results may differ from these estimates. Changes in estimates that may have a material impact on our results are discussed in the context of the underlying financial statements to which they relate. The following discussion presents information about our most critical accounting policies and estimates.

Revenue Recognition

We recognize revenue when title and risk of loss are transferred to the customer, which can be at the plant gate, a distribution facility, a supplier location or a customer destination. In some cases, application of this policy requires that we make certain assumptions or estimates regarding a component of revenue, discounts and allowances, rebates, or creditworthiness of some of our customers. We base our estimates on historical experience, and the most recent information available to us, which can change as market conditions change. Amounts related to shipping and handling that are billed to our customers in sales transactions are classified as sales in our consolidated statements of operations. Sales incentives are reported as a reduction in net sales.

Property, Plant and Equipment

Property, plant and equipment are stated at historical cost and depreciation and amortization are computed using either the straight-line method or the units-of-production method over the lives of the assets. The lives used in computing depreciation and amortization expense are based on estimates of the period over which the assets will be of economic benefit to us. Estimated lives are based on historical experience, manufacturers' or engineering estimates, valuation or appraisal estimates and future business plans. We review the depreciable lives assigned to our property, plant and equipment on a periodic basis, and change our estimates to reflect the results of those reviews.

Scheduled inspections, replacements and overhauls of plant machinery and equipment at our continuous process manufacturing facilities during a full plant shutdown are referred to as plant turnarounds. We account for plant turnarounds under the deferral method, as opposed to the direct expense or built-in overhaul methods. Under the deferral method, expenditures related to turnarounds are capitalized in property, plant and equipment when incurred and amortized to production costs on a straight-line basis over the period benefited, which is until the next scheduled turnaround in up to five years. Should the estimated period between turnarounds change, we may be required to amortize the remaining cost of the turnaround over a shorter period, which would lead to higher depreciation and amortization costs. If we used the direct expense method, turnaround costs would be expensed as incurred. Scheduled replacements and overhauls of plant machinery and equipment include the dismantling, repair or replacement and installation of various components including piping, valves, motors, turbines, pumps, compressors, heat exchangers and the replacement of catalyst when a full plant shutdown occurs. Scheduled inspections are also conducted during a full plant shut down including required safety inspections, which entails the disassembly of various components such as steam boilers, pressure vessels and other equipment requiring safety certifications. Capitalized turnaround costs have been applied consistently in the periods presented. Internal employee costs and overhead amounts are not considered turnaround costs and are not capitalized. Turnaround costs are classified as investing activities in the consolidated statements of cash flows in the line entitled, "Additions to property, plant and equipment."

Inventory Valuation

We review our inventory account balances at least quarterly, and more frequently if required by market conditions, to determine whether the carrying amount of inventories exceeds their market value. This review process incorporates current industry and customer-specific trends, current operating plans, historical price activity, and selling prices expected to be realized. If the carrying amount of our inventory exceeds its estimated market value, we immediately adjust our carrying values accordingly. Upon inventory liquidation, if the actual sales prices are less than our most recent estimate of market value, additional losses would be recorded in the period of liquidation.

Asset Retirement Obligations

Asset retirement obligations (AROs) are legal obligations associated with the retirement of long-lived assets that result from the acquisition, construction, development or normal operation of such assets. AROs are initially recognized as incurred when sufficient information exists to estimate fair value. We have AROs at our nitrogen fertilizer manufacturing complexes and at our distribution and storage facilities that are conditional upon cessation of operations. These AROs include certain decommissioning activities as well as the removal and disposal of certain chemicals, waste materials, structures, equipment, vessels, piping and storage tanks. Also included are reclamation of land and the closure of certain effluent ponds. The most recent estimate of the aggregate cost of these AROs expressed in 2016 dollars is $72 million. We have not recorded a liability for these conditional AROs as of December 31, 2016 because we do not believe there is currently a reasonable basis for estimating a date or range of dates of cessation of operations at our nitrogen fertilizer manufacturing facilities or our distribution and storage facilities, which is necessary in order to estimate fair value. In reaching this conclusion, we considered the historical performance of each complex or facility and have taken into account factors such as planned maintenance, asset replacements and upgrades of plant and equipment, which if conducted as in the past, can extend the physical lives of our nitrogen manufacturing facilities and our distribution and storage facilities indefinitely. We also considered the possibility of changes in technology, risk of obsolescence, and availability of raw materials in arriving at our conclusion.

Recoverability of Long-Lived Assets, Goodwill and Investments in Unconsolidated Subsidiaries

We review the carrying values of our property, plant and equipment and other long-lived assets, including our finite-lived intangible assets, goodwill and investments in affiliates including joint ventures in accordance with U.S. GAAP in order to assess recoverability. Factors that we must estimate when performing impairment tests include sales volume, selling prices, raw material costs, operating rates, operating expenses, inflation, discount rates, exchange rates, tax rates and capital spending. Significant judgment is involved in estimating each of these factors, which include inherent uncertainties. The factors we use are consistent with those used in our internal planning process. The recoverability of the values associated with our goodwill, long-lived assets and investments in unconsolidated affiliates is dependent upon future operating performance of the specific businesses to which they are attributed. Certain of the operating assumptions are particularly sensitive to the cyclical nature of the fertilizer business. Adverse changes in demand for our products, increases in supply and the availability and costs of key raw materials could significantly affect the results of our review.

The recoverability and impairment tests of long-lived assets are required only when conditions exist that indicate the carrying value may not be recoverable. For goodwill, impairment tests are required at least annually, or more frequently if events or circumstances indicate that it may be impaired. Our investments in unconsolidated affiliates are reviewed for impairment whenever events or circumstances indicate that the carrying value may not be recoverable. When circumstances indicate that the fair value of our investment in any such affiliate is less than its carrying value, and the reduction in value is other than temporary, the reduction in value is recognized immediately in earnings.

PLNL is our joint venture investment in the Republic of Trinidad and Tobago and operates an ammonia plant that relies on natural gas supplied by the NGC pursuant to the NGC Contract. The joint venture is accounted for under the equity method. The joint venture has experienced curtailments in the supply of natural gas from NGC, which have reduced the ammonia production at PLNL. In 2016, NGC communicated to PLNL that it does not recognize the joint venture's exercise of its option to renew the NGC Contract for an additional five-year term beyond its current termination date in September 2018, and that any NGC commitment to supply gas beyond 2018 will need to be based on new agreements regarding volume and price. PLNL has initiated arbitration proceedings against NGC and asserted claims in connection with NGC's failure to supply the contracted quantities of natural gas, and its refusal to recognize the joint venture's exercise of its option to extend the NGC Contract. PLNL is seeking declaratory and injunctive relief, as well as damages for past and ongoing curtailments. Although the joint venture believes its claims against NGC to be meritorious, it is not possible to predict the outcome of the arbitration. There are significant assumptions in the future operations of the joint venture that are uncertain at this time, including the quantities of gas NGC will make available, the cost of such gas, the estimates that are used to determine the useful lives of fixed assets and the assumptions in the discounted cash flow models utilized for recoverability and impairment testing. As part of our impairment assessment of our equity method investment in PLNL, we determined the carrying value exceeded the fair value and recognized a $134 million impairment charge in 2016. Previously, in 2015, we recognized an impairment charge of $62 million related to our equity method investment in PLNL. The carrying value of our equity method investment in PLNL at December 31, 2016 is approximately $139 million. If NGC does not make sufficient quantities of natural gas available to PLNL at prices that permit profitable operations, PLNL may cease operating its facility and we would write off the remaining investment in PLNL.

We evaluate goodwill for impairment in the fourth quarter at the reporting unit level, which in our case, are the ammonia, granular urea, UAN, AN and Other segments. Our evaluation can begin with a qualitative assessment of the factors that could impact the significant inputs used to estimate fair value. If after performing the qualitative assessment, we determine that it is not more likely than not that the fair value of a reporting unit is less than its carrying amount, including goodwill, then no further testing is performed. However, if it is unclear based on the results of the qualitative test, we perform a quantitative test involving potentially two steps. The first step compares the fair value of a reporting unit with its carrying amount, including goodwill. We use an income-based valuation method, determining the present value of future cash flows, to estimate the fair value of a reporting unit. If the fair value of a reporting unit exceeds its positive carrying amount, goodwill of the reporting unit is considered not impaired, and the second step of the impairment test is unnecessary. The second step of the goodwill impairment test, if needed, compares the implied fair value of the reporting unit goodwill with the carrying amount of that goodwill. We recognize an impairment loss immediately to the extent the carrying value exceeds its implied fair value. We identified no goodwill impairment in our 2016, 2015 or 2014 reviews. As of December 31, 2016 and 2015, the carrying value of our goodwill was $2.35 billion and $2.39 billion, respectively.

Intangible assets identified in connection with our 2010 acquisition of Terra Industries Inc. consist of customer relationships, which are being amortized over a period of 18 years. The intangible assets identified in connection with our 2015 acquisition of CF Fertilisers UK consist of customer relationships and trade names which are being amortized over a remaining period of approximately 20 years. Our intangible assets are presented in other assets on our consolidated balance sheets. See Note 7—Goodwill and Other Intangible Assets to our consolidated financial statements included in Item 8 of this report for additional information regarding our goodwill and other intangible assets.

Income Taxes

We recognize expenses, assets and liabilities for income taxes based on estimates of amounts that ultimately will be determined to be taxable or deductible in tax returns filed in various jurisdictions. U.S. income taxes are provided on that portion of the earnings of foreign subsidiaries that is expected to be remitted to the U.S. and be taxable. The final taxes paid are dependent upon many factors and judgments, including negotiations with taxing authorities in various jurisdictions and resolution of disputes arising from federal, state and international tax audits. The judgments made at any point in time may change from previous conclusions based on the outcome of tax audits, as well as changes to, or further interpretations of, tax laws and regulations. We adjust income tax expense in the period in which these changes occur.

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those differences are projected to be recovered or settled. Realization of deferred tax assets is dependent on our ability to generate sufficient taxable income of an appropriate character in future periods. A valuation allowance is established if it is determined to be more likely than not that a deferred tax asset will not be realized. Significant judgment is applied in evaluating the need for and the magnitude of appropriate valuation allowances against deferred tax assets. Interest and penalties related to unrecognized tax benefits are reported as interest expense and income tax expense, respectively.

A deferred income tax liability is recorded for income taxes that would result from the repatriation of the portion of the investment in our non-U.S. subsidiaries and joint venture that are considered to not be permanently reinvested. No deferred income tax liability is recorded for the remainder of our investment in non-U.S. subsidiaries and joint venture, which we believe to be permanently reinvested.

As a large commercial enterprise with international operations, our income tax expense and our effective tax rate may change from period to period due to many factors. The most significant of these factors are changes in tax legislation, changes in the geographic mix of earnings, the tax characteristics of our income, the ability to realize certain foreign tax credits and net operating losses, and the portion of the income of our foreign subsidiaries and joint venture that is expected to be remitted to the U.S. and be taxable. It is reasonably likely that these items will impact income tax expense, net income and liquidity in future periods.

We operate in a number of countries and as a result have a significant amount of cross border transactions. The taxability of cross border transactions has received an increasing level of scrutiny among regulators in countries across the globe, including the countries in which we operate. The tax rules and regulations within the various countries in which we operate are complex and in many cases there is not symmetry between the rules of the various countries. As a result, there are instances where regulators within the countries involved in a cross border transaction may reach different conclusions regarding the taxability of the transaction in their respective jurisdictions based on the same set of facts and circumstances. We work closely with regulators to reach a common understanding and conclusion regarding the taxability of cross border transactions. However, there are instances where reaching a common understanding is not possible or practical. As of December 31, 2016, we have recorded a reserve for unrecognized tax benefits, including penalties and interest, of $162 million, which is related predominantly to certain potential tax exposures involving cross border transactions. This amount represents our best estimate of the amounts due based on our interpretations of the rules and the facts and circumstances of the transactions. Differences in interpretation of the tax laws, including agreements between governments surrounding our cross border transactions, can result in differences in taxes paid which may be higher or lower than our estimates.

Pension Assets and Liabilities

Pension assets and liabilities are affected by the fair value of plan assets, estimates of the expected return on plan assets, plan design, actuarial estimates and discount rates. Actual changes in the fair value of plan assets and differences between the actual return on plan assets and the expected return on plan assets affect the amount of pension expense ultimately recognized. Key assumptions that affect our projected benefit obligation (PBO) are discount rates and, in addition for our United Kingdom plans, an adjusted retail price index (RPI). Key assumptions affecting pension expense include discount rates, the expected long-term rate of return on assets (EROA) and, in addition for our United Kingdom plans, RPI.

The December 31, 2016 PBO was computed based on a weighted-average discount rate of 4.0% for our North America plans and 2.8% for our United Kingdom plans, which were based on yields for high-quality (AA rated or better) fixed income debt securities that match the timing and amounts of expected benefit payments as of the measurement date of December 31. Declines in comparable bond yields would increase our PBO. The weighted-average discount rate used to calculate pension expense in 2016 was 4.3% for North America plans and 3.8% for United Kingdom plans. Our net benefit obligation, after deduction of plan assets, could increase or decrease depending on the extent to which returns on pension plan assets are lower or higher than the discount rate. The 4.9% weighted-average EROA used to calculate pension expense in 2016 for our North America plans is based on studies of actual rates of return achieved by equity and non-equity investments, both separately and in combination over historical holding periods. The 5.2% weighted-average EROA used to calculate pension expense in 2016 for our United Kingdom plans is based on expected long-term performance of underlying investments, adjusted for investment managers' fees. The 3.3% RPI used to calculate our United Kingdom plan PBO and the 3.1% RPI used to calculate 2016 pension expense is developed using the Bank of England implied retail price inflation curve, which is based on the difference between yields on fixed interest government bonds and index-linked government bonds.

For North America qualified pension plans, our PBO was $759 million as of December 31, 2016, which was $123 million higher than pension plan assets. For our United Kingdom pension plans, our PBO was $559 million as of December 31, 2016 which was $193 million higher than pension plan assets. The tables below estimate the impact of a 50 basis point increase or decrease in the key assumptions on our December 31, 2016 PBO and 2016 pension expense:

	North America Plans			
	Increase/(Decrease) in December 31, 2016 PBO		Increase/(Decrease) in 2016 Pension Expense	
Assumption	**+50 bps**	**-50 bps**	**+50 bps**	**-50 bps**
	(in millions)			
Discount Rate	$ (43)	$ 47	$ (1)	$ 3
EROA	N/A	N/A	(3)	3

	United Kingdom Plans			
	Increase/(Decrease) in December 31, 2016 PBO		Increase/(Decrease) in 2016 Pension Expense	
Assumption	**+50 bps**	**-50 bps**	**+50 bps**	**-50 bps**
	(in millions)			
Discount Rate	$ (45)	$ 50	$ —	$ (1)
EROA	N/A	N/A	(2)	2
RPI	29	(28)	1	(1)

See Note 11—Pension and Other Postretirement Benefits to our consolidated financial statements included in Item 8 of this report for further discussion of our pension plans.

Consolidation

We consolidate all entities that we control by ownership of a majority interest and use the equity method to account for investments in affiliates that we do not consolidate, but for which we have the ability to exercise significant influence over operating and financial policies. Our consolidated net earnings include our share of the net earnings of these companies plus the amortization expense of certain tangible and intangible assets identified as part of purchase accounting. Our judgment regarding the level of influence over our equity method investments includes considering key factors such as ownership interest, representation on the Board, participation in policy decisions and material intercompany transactions. We regularly review for potential changes in the consolidation of variable interest entities.

We eliminate from our consolidated financial results all significant intercompany transactions.

Recent Accounting Pronouncements

See Note 3—New Accounting Standards to our consolidated financial statements included in Item 8 of this report for a discussion of recent accounting pronouncements.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

We are exposed to the impact of changes in commodity prices, interest rates and foreign currency exchange rates.

Commodity Prices

Our net sales, cash flows and estimates of future cash flows related to nitrogen-based fertilizers are sensitive to changes in fertilizer prices as well as changes in the prices of natural gas and other raw materials unless these costs have been fixed or hedged. A $1.00 per MMBtu change in the price of natural gas would change the cost to produce a ton of ammonia, granular urea, UAN (32%) and AN by approximately $32, $22, $14 and $15, respectively.

Natural gas is the largest and most volatile component of the manufacturing cost for nitrogen-based fertilizers. We manage the risk of changes in natural gas prices primarily with the use of derivative financial instruments covering periods through December 2018. The derivative instruments that we use are primarily natural gas fixed price swaps and natural gas options. These derivatives settle using primarily NYMEX futures price indexes, which represent the basis for fair value at any given time. The contracts represent anticipated natural gas needs for future periods and settlements are scheduled to coincide with anticipated natural gas purchases during those future periods.

As of December 31, 2016 and 2015, we had open derivative contracts for 183.0 million MMBtus and 431.5 million MMBtus, respectively. A $1.00 per MMBtu increase in the forward curve prices of natural gas as of December 31, 2016 would result in a favorable change in the fair value of these derivative positions of $169 million, and a $1.00 per MMBtu decrease in the forward curve prices of natural gas would change their fair value unfavorably by $169 million.

From time to time we may purchase nitrogen products on the open market to augment or replace production at our facilities.

Interest Rates

As of December 31, 2016, we had eight series of senior notes totaling $5.85 billion of principal outstanding with maturity dates of May 1, 2018, May 1, 2020, December 1, 2021, June 1, 2023, December 1, 2026, March 15, 2034, June 1, 2043 and March 15, 2044. The senior notes have fixed interest rates. As of December 31, 2016, the carrying value and fair value of our senior notes was approximately $5.78 billion and $5.51 billion, respectively.

Borrowings under the Revolving Credit Agreement bear current market rates of interest and we are subject to interest rate risk on such borrowings. Maximum borrowings during 2016 and 2015 were $150 million and $367 million, respectively. There were no borrowings outstanding as of December 31, 2016 or December 31, 2015.

Upon the termination of the Combination Agreement on May 22, 2016, the lenders' commitments under the Bridge Credit Agreement terminated automatically. There were no borrowings under the Bridge Credit Agreement.

Foreign Currency Exchange Rates

Since the fourth quarter of 2012, we have entered into euro/U.S. dollar derivative hedging transactions related to the euro-denominated construction costs associated with our capacity expansion projects at our Donaldsonville, Louisiana and Port Neal, Iowa facilities. As of December 31, 2015, the notional amount of our open foreign currency forward contracts was €89 million. All of these foreign currency derivatives settled in 2016.

We are directly exposed to changes in the value of the Canadian dollar, the British pound and the Euro. Outside of the transactions mentioned above, we do not maintain any exchange rate derivatives or hedges related to these currencies.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA.

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
CF Industries Holdings, Inc.:

We have audited the accompanying consolidated balance sheets of CF Industries Holdings, Inc. and subsidiaries (the Company) as of December 31, 2016 and 2015, and the related consolidated statements of operations, comprehensive (loss) income, equity, and cash flows for each of the years in the three-year period ended December 31, 2016. These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of CF Industries Holdings, Inc. and subsidiaries as of December 31, 2016 and 2015, and the results of their operations and their cash flows for each of the years in the three-year period ended December 31, 2016, in conformity with U.S. generally accepted accounting principles.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), CF Industries Holdings, Inc.'s internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission, and our report dated February 23, 2017 expressed an unqualified opinion on the effectiveness of the Company's internal control over financial reporting.

(signed) KPMG LLP

Chicago, Illinois
February 23, 2017

CF INDUSTRIES HOLDINGS, INC.

CONSOLIDATED STATEMENTS OF OPERATIONS

	Year ended December 31,		
	2016	2015	2014
	(in millions, except per share amounts)		
Net sales	$ 3,685	$ 4,308	$ 4,743
Cost of sales	2,845	2,761	2,965
Gross margin	840	1,547	1,778
Selling, general and administrative expenses	174	170	152
Transaction costs	179	57	—
Other operating—net	208	92	53
Total other operating costs and expenses	561	319	205
Gain on sale of phosphate business	—	—	750
Equity in (losses) earnings of operating affiliates	(145)	(35)	43
Operating earnings	134	1,193	2,366
Interest expense	200	133	178
Interest income	(5)	(2)	(1)
Loss on debt extinguishment	167	—	—
Other non-operating—net	(2)	4	2
(Loss) earnings before income taxes and equity in earnings of non-operating affiliates	(226)	1,058	2,187
Income tax (benefit) provision	(68)	396	773
Equity in earnings of non-operating affiliates—net of taxes	—	72	23
Net (loss) earnings	(158)	734	1,437
Less: Net earnings attributable to noncontrolling interests	119	34	47
Net (loss) earnings attributable to common stockholders	$ (277)	$ 700	$ 1,390
Net (loss) earnings per share attributable to common stockholders:			
Basic	$ (1.19)	$ 2.97	$ 5.43
Diluted	$ (1.19)	$ 2.96	$ 5.42
Weighted-average common shares outstanding:			
Basic	233.1	235.3	255.9
Diluted	233.1	236.1	256.7

See Accompanying Notes to Consolidated Financial Statements.

CF INDUSTRIES HOLDINGS, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE (LOSS) INCOME

	Year ended December 31,		
	2016	2015	2014
		(in millions)	
Net (loss) earnings	$ (158)	$ 734	$ 1,437
Other comprehensive (loss) income:			
Foreign currency translation adjustment—net of taxes	(74)	(157)	(72)
Unrealized loss on hedging derivatives—net of taxes	—	—	(2)
Defined benefit plans—net of taxes	(74)	67	(43)
	(148)	(90)	(117)
Comprehensive (loss) income	(306)	644	1,320
Less: Comprehensive income attributable to noncontrolling interests	119	34	47
Comprehensive (loss) income attributable to common stockholders	$ (425)	$ 610	$ 1,273

See Accompanying Notes to Consolidated Financial Statements.

CONSOLIDATED BALANCE SHEETS

	December 31, 2016	December 31, 2015
	(in millions, except share and per share amounts)	
Assets		
Current assets:		
Cash and cash equivalents	$ 1,164	$ 286
Restricted cash	5	23
Accounts receivable—net	236	267
Inventories	339	321
Prepaid income taxes	841	185
Other current assets	70	45
Total current assets	2,655	1,127
Property, plant and equipment—net	9,652	8,539
Investments in affiliates	139	298
Goodwill	2,345	2,390
Other assets	340	329
Total assets	$ 15,131	$ 12,683
Liabilities and Equity		
Current liabilities:		
Accounts payable and accrued expenses	$ 638	$ 918
Income taxes payable	1	5
Customer advances	42	162
Other current liabilities	5	130
Total current liabilities	686	1,215
Long-term debt	5,778	5,537
Deferred income taxes	1,630	916
Other liabilities	545	628
Equity:		
Stockholders' equity:		
Preferred stock—$0.01 par value, 50,000,000 shares authorized	—	—
Common stock—$0.01 par value, 500,000,000 shares authorized, 2016—233,141,771 shares issued and 2015—235,493,395 shares issued	2	2
Paid-in capital	1,380	1,378
Retained earnings	2,365	3,058
Treasury stock—at cost, 2016—27,602 shares and 2015—2,411,839 shares	(1)	(153)
Accumulated other comprehensive loss	(398)	(250)
Total stockholders' equity	3,348	4,035
Noncontrolling interests	3,144	352
Total equity	6,492	4,387
Total liabilities and equity	$ 15,131	$ 12,683

See Accompanying Notes to Consolidated Financial Statements.

CONSOLIDATED STATEMENTS OF EQUITY

	Common Stockholders							
	$0.01 Par Value Common Stock	Treasury Stock	Paid-In Capital	Retained Earnings	Accumulated Other Comprehensive Income (Loss)	Total Stockholders' Equity	Noncontrolling Interests	Total Equity
					(in millions)			
Balance as of December 31, 2013	$ 3	$ (202)	$ 1,592	$ 3,726	$ (43)	$ 5,076	$ 362	$ 5,438
Net earnings	—	—	—	1,390	—	1,390	47	1,437
Other comprehensive income:								
Foreign currency translation adjustment—net of taxes	—	—	—	—	(72)	(72)	—	(72)
Unrealized net loss on hedging derivatives—net of taxes	—	—	—	—	(2)	(2)	—	(2)
Defined benefit plans—net of taxes	—	—	—	—	(43)	(43)	—	(43)
Comprehensive income						1,273	47	1,320
Purchases of treasury stock	—	(1,924)	—	—	—	(1,924)	—	(1,924)
Retirement of treasury stock	(1)	1,906	(220)	(1,685)	—	—	—	—
Acquisition of treasury stock under employee stock plans	—	(3)	—	—	—	(3)	—	(3)
Issuance of $0.01 par value common stock under employee stock plans	—	1	17	—	—	18	—	18
Stock-based compensation expense	—	—	17	—	—	17	—	17
Excess tax benefit from stock-based compensation	—	—	8	—	—	8	—	8
Cash dividends ($1.00 per share)	—	—	—	(256)	—	(256)	—	(256)
Distributions declared to noncontrolling interest	—	—	—	—	—	—	(46)	(46)
Balance as of December 31, 2014	$ 2	$ (222)	$ 1,414	$ 3,175	$ (160)	$ 4,209	$ 363	$ 4,572
Net earnings	—	—	—	700	—	700	34	734
Other comprehensive income:								
Foreign currency translation adjustment—net of taxes	—	—	—	—	(157)	(157)	—	(157)
Defined benefit plans—net of taxes	—	—	—	—	67	67	—	67
Comprehensive income						610	34	644
Purchases of treasury stock	—	(527)	—	—	—	(527)	—	(527)
Retirement of treasury stock	—	597	(62)	(535)	—	—	—	—
Acquisition of treasury stock under employee stock plans	—	(2)	—	—	—	(2)	—	(2)
Issuance of $0.01 par value common stock under employee stock plans	—	1	8	—	—	9	—	9
Stock-based compensation expense	—	—	16	—	—	16	—	16
Excess tax benefit from stock-based compensation	—	—	2	—	—	2	—	2
Cash dividends ($1.20 per share)	—	—	—	(282)	—	(282)	—	(282)
Distributions declared to noncontrolling interest	—	—	—	—	—	—	(45)	(45)
Balance as of December 31, 2015	$ 2	$ (153)	$ 1,378	$ 3,058	$ (250)	$ 4,035	$ 352	$ 4,387
Net loss	—	—	—	(277)	—	(277)	119	(158)
Other comprehensive (loss) income:								
Foreign currency translation adjustment—net of taxes	—	—	—	—	(74)	(74)	—	(74)
Defined benefit plans—net of taxes	—	—	—	—	(74)	(74)	—	(74)
Comprehensive (loss) income						(425)	119	(306)
Retirement of treasury stock	—	150	(14)	(136)	—	—	—	—
Acquisition of treasury stock under employee stock plans	—	(1)	—	—	—	(1)	—	(1)
Issuance of $0.01 par value common stock under employee stock plans	—	3	(3)	—	—	—	—	—
Stock-based compensation expense	—	—	19	—	—	19	—	19
Cash dividends ($1.20 per share)	—	—	—	(280)	—	(280)	—	(280)
Issuance of noncontrolling interest in CF Industries Nitrogen, LLC (CFN)	—	—	—	—	—	—	2,792	2,792
Distributions declared to noncontrolling interests	—	—	—	—	—	—	(119)	(119)
Balance as of December 31, 2016	$ 2	$ (1)	$ 1,380	$ 2,365	$ (398)	$ 3,348	$ 3,144	$ 6,492

See Accompanying Notes to Consolidated Financial Statements.

CF INDUSTRIES HOLDINGS, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS

	Year ended December 31,		
	2016	2015	2014
		(in millions)	
Operating Activities:			
Net (loss) earnings	$ (158)	$ 734	$ 1,437
Adjustments to reconcile net (loss) earnings to net cash provided by operating activities:			
Depreciation and amortization	678	480	393
Deferred income taxes	739	78	18
Stock-based compensation expense	19	17	17
Unrealized net (gain) loss on natural gas and foreign currency derivatives	(260)	163	119
Loss on embedded derivative	23	—	—
Gain on remeasurement of CF Fertilisers UK investment	—	(94)	—
Impairment of equity method investment in PLNL	134	62	—
Loss on sale of equity method investments	—	43	—
Loss on debt extinguishment	167	—	—
Gain on sale of phosphate business	—	—	(750)
Loss on disposal of property, plant and equipment	10	21	4
Undistributed loss (earnings) of affiliates—net of taxes	9	(3)	(12)
Changes in:			
Accounts receivable—net	18	(4)	39
Inventories	(7)	(71)	64
Accrued and prepaid income taxes	(676)	(148)	(57)
Accounts payable and accrued expenses	(18)	42	(53)
Customer advances	(120)	(164)	205
Other—net	59	51	(3)
Net cash provided by operating activities	617	1,207	1,421
Investing Activities:			
Additions to property, plant and equipment	(2,211)	(2,469)	(1,809)
Proceeds from sale of property, plant and equipment	14	12	11
Proceeds from sale of equity method investment	—	13	—
Proceeds from sale of phosphate business	—	—	1,372
Purchase of CF Fertilisers UK, net of cash acquired	—	(552)	—
Sales and maturities of short-term and auction rate securities	—	—	5
Deposits to restricted cash funds	—	—	(505)
Withdrawals from restricted cash funds	18	63	573
Other—net	2	(43)	9
Net cash used in investing activities	(2,177)	(2,976)	(344)
Financing Activities:			
Proceeds from long-term borrowings	1,244	1,000	1,494
Payments of long-term borrowings	(1,170)	—	—
Proceeds from short-term borrowings	150	367	—
Payments of short-term borrowings	(150)	(367)	—
Payment to CHS related to credit provision	(5)	—	—
Financing fees	(31)	(47)	(16)
Purchases of treasury stock	—	(556)	(1,935)
Dividends paid on common stock	(280)	(282)	(256)
Issuance of noncontrolling interest in CFN	2,800	—	—
Distributions to noncontrolling interests	(119)	(45)	(46)
Issuances of common stock under employee stock plans	—	8	18
Shares withheld for taxes	—	(1)	(3)
Other—net	—	—	(43)
Net cash provided by (used in) financing activities	2,439	77	(787)
Effect of exchange rate changes on cash and cash equivalents	(1)	(19)	(4)
Increase (decrease) in cash and cash equivalents	878	(1,711)	286
Cash and cash equivalents at beginning of period	286	1,997	1,711
Cash and cash equivalents at end of period	$ 1,164	$ 286	$ 1,997

See Accompanying Notes to Consolidated Financial Statements.

1. Background and Basis of Presentation

We are one of the largest manufacturers and distributors of nitrogen fertilizer and other nitrogen products in the world. Our principal customers are cooperatives, independent fertilizer distributors, farmers and industrial users. Our principal nitrogen fertilizer products are ammonia, granular urea, urea ammonium nitrate solution (UAN) and ammonium nitrate (AN). Our other nitrogen products include diesel exhaust fluid (DEF), urea liquor, nitric acid and aqua ammonia, which are sold primarily to our industrial customers, and compound fertilizer products (NPKs), which are solid granular fertilizer products for which the nutrient content is a combination of nitrogen, phosphorus, and potassium. Our manufacturing and distribution facilities are concentrated in the midwestern United States and other major agricultural areas of the United States, Canada and the United Kingdom. We also export nitrogen fertilizer products from our Donaldsonville, Louisiana and Yazoo City, Mississippi manufacturing facilities, and our United Kingdom manufacturing facilities in Billingham and Ince.

All references to "CF Holdings," "the Company," "we," "us" and "our" refer to CF Industries Holdings, Inc. and its subsidiaries, except where the context makes clear that the reference is only to CF Industries Holdings, Inc. itself and not its subsidiaries. All references to "CF Industries" refer to CF Industries, Inc., a 100% owned subsidiary of CF Industries Holdings, Inc.

Our principal assets include:

- four U.S. nitrogen fertilizer manufacturing facilities located in: Donaldsonville, Louisiana; Port Neal, Iowa; Yazoo City, Mississippi; and Woodward, Oklahoma. These facilities are owned by CF Industries Nitrogen, LLC (CFN), in which we own a majority equity interest and CHS Inc. (CHS) owns a minority equity interest See Note 17—Noncontrolling Interests for additional information on our strategic venture with CHS;
- an approximately 75.3% interest in Terra Nitrogen Company, L.P. (TNCLP), a publicly-traded limited partnership of which we are the sole general partner and the majority limited partner and which, through its subsidiary Terra Nitrogen, Limited Partnership (TNLP), operates a nitrogen fertilizer manufacturing facility in Verdigris, Oklahoma;
- two Canadian nitrogen fertilizer manufacturing facilities, located in Medicine Hat, Alberta and Courtright, Ontario;
- two United Kingdom nitrogen manufacturing complexes, located in Ince and Billingham;
- an extensive system of terminals and associated transportation equipment located primarily in the midwestern United States; and
- a 50% interest in Point Lisas Nitrogen Limited (PLNL), an ammonia production joint venture located in the Republic of Trinidad and Tobago that we account for under the equity method.

Reclassifications and Changes in Presentation

During the third quarter of 2016, we adopted Accounting Standards Update (ASU) No. 2016-09, Compensation-Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting. As a result, we reclassified certain amounts in our consolidated statements of cash flows for the years ended December 31, 2015 and 2014. See Note 3—New Accounting Standards for additional information.

CF Fertilisers UK Acquisition

On July 31, 2015, we acquired the remaining 50% equity interest in CF Fertilisers UK Group Limited (formerly known as GrowHow UK Group Limited) (CF Fertilisers UK) not previously owned by us for total consideration of $570 million, and CF Fertilisers UK became a wholly owned subsidiary. The financial results of CF Fertilisers UK have been consolidated within our financial results since July 31, 2015. Prior to July 31, 2015, our initial 50% equity interest in CF Fertilisers UK was accounted for as an equity method investment, and the financial results of this investment were included in our consolidated statements of operations in equity in earnings of non-operating affiliates—net of taxes. See Note 4—Acquisitions and Divestitures for additional information on the CF Fertilisers UK acquisition.

Phosphate Business Disposition

Prior to March 17, 2014, we also manufactured and distributed phosphate fertilizer products. Our principal phosphate products were diammonium phosphate (DAP) and monoammonium phosphate (MAP). On March 17, 2014, we completed the sale of our phosphate mining and manufacturing business, which was located in Florida, to The Mosaic Company (Mosaic) for approximately $1.4 billion in cash. Upon selling the phosphate business, we began to supply Mosaic with ammonia produced by our PLNL joint venture. The contract to supply ammonia to Mosaic from our PLNL joint venture represents the continuation of a supply practice that previously existed between our former phosphate mining and manufacturing business and other operations of the Company. Because of the significance of this continuing supply practice, in accordance with U.S. GAAP, the phosphate mining and manufacturing business is not reported as discontinued operations in our consolidated statements of operations. See Note 4—Acquisitions and Divestitures for additional information.

2. Summary of Significant Accounting Policies

Consolidation and Noncontrolling Interests

The consolidated financial statements of CF Holdings include the accounts of CF Industries and all majority-owned subsidiaries. All significant intercompany transactions and balances have been eliminated.

TNCLP is a master limited partnership that is consolidated in the financial statements of CF Holdings. TNCLP owns the nitrogen fertilizer manufacturing facility in Verdigris, Oklahoma. We own approximately 75.3% of TNCLP and outside investors own the remaining approximately 24.7%. Partnership interests in TNCLP are traded on the New York Stock Exchange (NYSE). As a result, TNCLP files separate financial reports with the Securities and Exchange Commission (SEC). The outside investors' limited partnership interests in the partnership are included in noncontrolling interests in our consolidated financial statements. This noncontrolling interest represents the noncontrolling unitholders' interest in the partners' capital of TNCLP.

On February 1, 2016, CHS purchased a minority equity interest in CFN. We own a majority equity interest in CFN and consolidate CFN in our financial statements. CHS' minority equity interest in CFN is included in noncontrolling interests in our consolidated financial statements, and represents CHS' interest in the membership interests of CFN.

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses for the periods presented. Significant estimates and assumptions are used for, but are not limited to, net realizable value of inventories, environmental remediation liabilities, environmental and litigation contingencies, the cost of customer incentives, useful lives of property and identifiable intangible assets, the assumptions used in the evaluation of potential impairments of property, investments, identifiable intangible assets and goodwill, income tax and valuation reserves, allowances for doubtful accounts receivable, the measurement of the fair values of investments for which markets are not active, assumptions used in the determination of the funded status and annual expense of defined benefit pension and other postretirement plans, the assumptions used to determine the relative fair values of new reportable segments and the assumptions used in the valuation of stock-based compensation awards granted to employees.

Revenue Recognition

The basic criteria necessary for revenue recognition are: (1) evidence that a sales arrangement exists, (2) delivery of goods has occurred, (3) the seller's price to the buyer is fixed or determinable, and (4) collectability is reasonably assured. We recognize revenue when these criteria have been met and when title and risk of loss transfers to the customer, which can be at the plant gate, a distribution facility, a supplier location or a customer destination. Revenue from forward sales programs is recognized on the same basis as other sales (when title and risk of loss transfers to the customer) regardless of when the customer advances are received.

We offer certain incentives that typically involve rebates if a customer reaches a specified level of purchases. Customer incentives are accrued monthly and reported as a reduction in net sales. This process is intended to report sales at the ultimate net realized price and requires the use of estimates.

Shipping and handling fees billed to customers are reported in revenue. Shipping and handling costs incurred by us are included in cost of sales.

Cash and Cash Equivalents

Cash and cash equivalents include highly liquid investments that are readily convertible to known amounts of cash with original maturities of three months or less. The carrying value of cash and cash equivalents approximates fair value.

Investments

Short-term investments and noncurrent investments are accounted for primarily as available-for-sale securities reported at fair value with changes in fair value reported in other comprehensive income unless fair value is below amortized cost (i.e., the investment is impaired) and the impairment is deemed other-than-temporary, in which case, some or all of the decline in value would be charged to earnings. The carrying values of short-term investments approximate fair values because of the short maturities and the highly liquid nature of these investments.

Restricted Cash

In connection with our capacity expansion projects, we granted a contractor a security interest in a restricted cash account. We maintain a cash balance in that account equal to the cancellation fees for procurement services and equipment that would arise if the projects were canceled. This restricted cash is not included in our cash and cash equivalents and is reported separately on our consolidated balance sheets. Contributions to and withdrawals from the restricted cash account are reported on our consolidated statements of cash flows as investing activities.

Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable are recorded at face amounts less an allowance for doubtful accounts. The allowance is an estimate based on historical collection experience, current economic and market conditions, and a review of the current status of each customer's trade accounts receivable. A receivable is past due if payments have not been received within the agreed-upon invoice terms. Account balances are charged-off against the allowance when management determines that it is probable that the receivable will not be recovered.

Accounts receivable includes trade receivables and non-trade receivables.

Inventories

Inventories are reported at the lower of cost or market with cost determined on a first-in, first-out (FIFO) and average cost basis. Inventory includes the cost of materials, production labor and production overhead. Inventory at warehouses and terminals also includes distribution costs to move inventory to the distribution facilities. Market value is reviewed at least quarterly. Fixed production costs related to idle capacity are not included in the cost of inventory but are charged directly to cost of sales in the period incurred.

Investment in Unconsolidated Affiliate

The equity method of accounting is used for investments in affiliates that we do not consolidate, but over which we have the ability to exercise significant influence. Our equity method investment for which the results are included in operating earnings consists of our 50% ownership interest in PLNL, which operates an ammonia production facility in the Republic of Trinidad and Tobago. Our share of the net earnings from this investment is reported as an element of earnings from operations because PLNL's operations provide additional production and are integrated with our supply chain and sales activities in the ammonia segment. See Note 8—Equity Method Investments for additional information.

Profits resulting from sales or purchases with equity method investees are eliminated until realized by the investee or investor, respectively. Investments in affiliates are reviewed for impairment whenever events or circumstances indicate that the carrying value may not be recoverable. When circumstances indicate that the fair value of an investment in an affiliate is less than its carrying value, and the reduction in value is other than temporary, the reduction in value is recognized immediately in earnings.

Property, Plant and Equipment

Property, plant and equipment are stated at cost. Depreciation and amortization are computed using the straight-line method or the units-of-production (UOP) method and are recorded over the estimated useful life of the property, plant and equipment. Useful lives are as follows:

	Years
Mobile and office equipment	3 to 10
Production facilities and related assets	2 to 30
Land improvements	10 to 30
Buildings	10 to 40

We periodically review the useful lives assigned to our property, plant and equipment, as well as estimated production capacities used to develop UOP depreciation expense, and we change the estimates to reflect the results of those reviews.

Scheduled inspections, replacements and overhauls of plant machinery and equipment at our continuous process manufacturing facilities during a full plant shutdown are referred to as plant turnarounds. Plant turnarounds are accounted for under the deferral method, as opposed to the direct expense or built-in overhaul methods. Under the deferral method, expenditures related to turnarounds are capitalized in property, plant and equipment when incurred and amortized to production costs on a straight-line basis over the period benefited, which is until the next scheduled turnaround in up to five years. If the direct expense method were used, all turnaround costs would be expensed as incurred. Internal employee costs and overhead amounts are not considered turnaround costs and are not capitalized. Turnaround costs are classified as investing activities in the consolidated statements of cash flows. See Note 6—Property, Plant and Equipment—Net for additional information.

Recoverability of Long-Lived Assets

We review property, plant and equipment and other long-lived assets in order to assess recoverability based on expected future undiscounted cash flows whenever events or circumstances indicate that the carrying value may not be recoverable. If the sum of the expected future net cash flows is less than the carrying value, an impairment loss is recognized. The impairment loss is measured as the amount by which the carrying value exceeds the fair value of the asset.

Goodwill and Other Intangible Assets

Goodwill represents the excess of the purchase price of an acquired entity over the amounts assigned to the assets acquired and liabilities assumed. Goodwill is not amortized, but is reviewed for impairment annually or more frequently if certain impairment conditions arise. We perform our annual goodwill impairment review in the fourth quarter of each year at the reporting unit level. Our evaluation can begin with a qualitative assessment of the factors that could impact the significant inputs used to estimate fair value. If after performing the qualitative assessment, we determine that it is not more likely than not that the fair value of a reporting unit is less than its carrying amount, including goodwill, then no further testing is performed. However, if it is unclear based on the results of the qualitative test, we perform a quantitative test involving potentially two steps. The first step compares the fair value of a reporting unit with its carrying amount, including goodwill. We use an income-based valuation method, determining the present value of future cash flows, to estimate the fair value of a reporting unit. If the fair value of a reporting unit exceeds its positive carrying amount, goodwill of the reporting unit is considered not impaired, and the second step of the impairment test is unnecessary. The second step of the goodwill impairment test, if needed, compares the implied fair value of the reporting unit goodwill with the carrying amount of that goodwill. We recognize an impairment loss immediately to the extent the carrying value exceeds its implied fair value.

Our intangible assets are presented in other assets on our consolidated balance sheets. See Note 7—Goodwill and Other Intangible Assets for additional information regarding our goodwill and other intangible assets.

Leases

Leases may be classified as either operating leases or capital leases. Assets acquired under capital leases, if any, would be depreciated on the same basis as property, plant and equipment. For operating leases, rental payments, including rent holidays, leasehold incentives, and scheduled rent increases are expensed on a straight-line basis. Leasehold improvements are amortized over the shorter of the depreciable lives of the corresponding fixed assets or the lease term including any applicable renewals.

Income Taxes

Income taxes are accounted for under the asset and liability method. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those differences are projected to be recovered or settled. Realization of deferred tax assets is dependent on our ability to generate sufficient taxable income of an appropriate character in future periods. A valuation allowance is established if it is determined to be more likely than not that a deferred tax asset will not be realized. Significant judgment is applied in evaluating the need for and magnitude of appropriate valuation allowances against deferred tax assets. Interest and penalties related to unrecognized tax benefits are reported as interest expense and income tax expense, respectively.

A deferred income tax liability is recorded for income taxes that would result from the repatriation of the portion of the investment in the Company's non-U.S. subsidiaries and joint venture that are considered to not be permanently reinvested. No deferred income tax liability is recorded for the remainder of our investment in non-U.S. subsidiaries and joint venture, which we believe to be permanently reinvested.

Derivative Financial Instruments

Natural gas is the principal raw material used to produce nitrogen fertilizers. We manage the risk of changes in natural gas prices primarily through the use of derivative financial instruments. The derivative instruments that we use are primarily fixed price swaps and options traded in the over-the-counter (OTC) markets. The derivatives reference primarily NYMEX futures contract prices, which represent the basis for fair value at any given time. These derivatives are traded in months forward and settlements are scheduled to coincide with anticipated gas purchases during those future periods. In order to manage our exposure to changes in foreign currency exchange rates related to our capacity expansion projects, we used foreign currency derivatives, primarily forward exchange contracts. All of these foreign currency derivatives settled in 2016.

The accounting for the change in the fair value of a derivative instrument depends on whether the instrument has been designated as a hedging instrument and whether the instrument is effective as part of a hedging relationship. Changes in the fair value of derivatives not designated as hedging instruments and the ineffective portion of derivatives designated as cash flow hedges are recorded in the consolidated statements of operations as the changes occur. Changes in the fair value of derivatives designated as cash flow hedging instruments considered effective are recorded in accumulated other comprehensive income (AOCI) as the changes occur, and are reclassified into income or expense as the hedged item is recognized in earnings.

Derivative financial instruments are accounted for at fair value and recognized as current or noncurrent assets and liabilities on our consolidated balance sheets. The fair values of derivative instruments and any related cash collateral are reported on a gross basis rather than on a net basis.

Cash flows related to natural gas derivatives are reported as operating activities. Cash flows related to foreign currency derivatives are reported as investing activities since they hedged future payments for the construction of long-term assets.

We do not use derivatives for trading purposes and are not a party to any leveraged derivatives. See Note 15—Derivative Financial Instruments for additional information.

Customer Advances

Customer advances represent cash received from customers following acceptance of orders under our forward sales programs. Such advances typically represent a significant portion of the contract's sales value and are generally collected by the time the product is shipped, thereby reducing or eliminating accounts receivable from customers upon shipment. Revenue is recognized when title and risk of loss transfers upon shipment or delivery of the product to customers.

Environmental

Environmental expenditures that relate to current operations are expensed or capitalized as appropriate. Expenditures that relate to an existing condition caused by past operations are expensed. Expenditures that increase the capacity or extend the useful life of an asset, improve the safety or efficiency of the operations, or mitigate or prevent future environmental contamination are capitalized. Liabilities are recorded when it is probable that an obligation has been incurred and the costs can be reasonably estimated. Environmental liabilities are not discounted.

Stock-based Compensation

We grant stock-based compensation awards under our equity and incentive plans. The awards that have been granted to date are nonqualified stock options, restricted stock awards, restricted stock units and performance share units. The cost of employee services received in exchange for the awards is measured based on the fair value of the award on the grant date and is recognized as expense on a straight-line basis over the period during which the employee is required to provide the services. See Note 19—Stock-Based Compensation for additional information.

Treasury Stock

We periodically retire treasury shares acquired through repurchases of our common stock and return those shares to the status of authorized but unissued. We account for treasury stock transactions under the cost method. For each reacquisition of common stock, the number of shares and the acquisition price for those shares is added to the treasury stock count and total value. When treasury shares are retired, we allocate the excess of the repurchase price over the par value of shares acquired to both retained earnings and paid-in capital. The portion allocated to paid-in capital is determined by applying the average paid-in capital per share, and the remaining portion is recorded to retained earnings.

Litigation

From time to time, we are subject to ordinary, routine legal proceedings related to the usual conduct of our business. We may also be involved in proceedings regarding public utility and transportation rates, environmental matters, taxes and permits relating to the operations of our various plants and facilities. Accruals for such contingencies are recorded to the extent management concludes their occurrence is probable and the financial impact of an adverse outcome is reasonably estimable. Legal fees are recognized as incurred and are not included in accruals for contingencies. Disclosure for specific legal contingencies is provided if the likelihood of occurrence is at least reasonably possible and the exposure is considered material to the consolidated financial statements. In making determinations of likely outcomes of litigation matters, many factors are considered. These factors include, but are not limited to, past history, scientific and other evidence, and the specifics and status of each matter. If the assessment of various factors changes, the estimates may change. Predicting the outcome of claims and litigation, and estimating related costs and exposure involves substantial uncertainties that could cause actual costs to vary materially from estimates and accruals.

Foreign Currency Translation

We translate the financial statements of our foreign subsidiaries with non-U.S. dollar functional currencies using period-end exchange rates for assets and liabilities and weighted-average exchange rates for each period for revenues and expenses. The resulting translation adjustments are recorded as a separate component of AOCI within stockholders' equity.

Foreign currency-denominated assets and liabilities are remeasured into U.S. dollars at exchange rates existing at the respective balance sheet dates. Gains and losses resulting from these foreign currency transactions are included in other operating—net on our consolidated statements of operations. Gains and losses resulting from intercompany foreign currency transactions that are of a long-term investment nature, if any, are reported in other comprehensive income.

Debt Issuance Costs

Costs associated with the issuance of debt are recorded on the balance sheet as a direct deduction from the carrying amount of the related debt liability. Costs associated with entering into revolving credit facilities are recorded as an asset in noncurrent assets. All debt issuance costs are amortized over the term of the related debt. Debt issuance discounts are netted against the related debt and are amortized over the term of the debt using the effective interest method. See Note 12—Financing Agreements for additional information.

3. New Accounting Standards

Recently Adopted Pronouncements

In March 2016, the Financial Accounting Standards Board (FASB) issued ASU No. 2016-09, Compensation-Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting. This ASU makes a number of changes meant to simplify and improve accounting for share-based payments, including amendments to share-based accounting for income taxes, classifications in the statement of cash flows and share award forfeiture accounting. We elected to early adopt ASU No. 2016-09 in the third quarter of 2016. As a result, we retrospectively recast our consolidated statement of cash flows for the years ended December 31, 2015 and 2014 by reclassifying $2 million and $9 million, respectively, of excess tax benefit previously reported in financing activities to operating activities and $1 million and $3 million, respectively, of cash outflows related to shares withheld for taxes from operating activities to financing activities. We also elected to recognize equity award forfeitures as they occur to determine the amount of compensation cost to be recognized in each period. The update also requires us to recognize excess tax benefits and tax deficiencies in the statement of operations when awards are settled. The adoption of this ASU did not have a material impact on our consolidated financial statements.

In May 2015, the FASB issued ASU No. 2015-07, Fair Value Measurement (Topic 820): Disclosures for Investments in Certain Entities That Calculate Net Asset Value per Share (or Its Equivalent). The amendments in ASU No. 2015-07 remove the requirement to categorize within the fair value hierarchy all investments for which fair value is measured using the net asset value per share practical expedient. The amendments also remove the requirement to make certain disclosures for all investments that are eligible to be measured at fair value using the net asset value per share practical expedient. ASU No. 2015-07 is effective for fiscal years beginning after December 15, 2015 and requires retrospective application. We elected to early adopt this ASU in the fourth quarter of 2015, and, as a result, certain of the investments in our defined benefit pension plans were reflected as reconciling items to the presentation of investments categorized within the fair value hierarchy table. In 2016, the American Institute of Certified Public Accountants issued guidance that clarified characteristics of investments that should continue to be categorized within the fair value hierarchy table. As a result, we recast certain investments that were reported as reconciling items to the December 31, 2015 fair value hierarchy tables. See Note 11—Pension and Other Postretirement Benefits for additional information.

In April 2015, the FASB issued ASU No. 2015-03, Interest—Imputation of Interest (Subtopic 835-30): Simplifying the Presentation of Debt Issuance Costs. This ASU requires that debt issuance costs related to a recognized debt liability be presented in the balance sheet as a direct deduction from the carrying amount of the related debt liability instead of being presented as an asset. The ASU requires retrospective application and represents a change in accounting principle. In August 2015, the FASB issued the related ASU No. 2015-15, Interest—Imputation of Interest (Subtopic 835-30): Presentation and Subsequent Measurement of Debt Issuance Costs Associated with Line-of-Credit Arrangements, which clarifies ASU No. 2015-03 and states that the SEC staff would not object to an entity deferring and presenting debt issuance costs related to a line-of-credit arrangement as an asset and subsequently amortizing the deferred debt issuance costs ratably over the term of the line-of-credit arrangement, regardless of whether there are any outstanding borrowings on the line-of-credit arrangement. We adopted ASU No. 2015-03 and ASU No. 2015-15 retrospectively in the first quarter of 2016, which resulted in the reclassification of deferred debt issuance costs as of December 31, 2015 of $56 million from other assets to an offset of long-term debt on our consolidated balance sheet as of December 31, 2015. Deferred debt issuance costs related to our revolving credit agreement continue to be reflected in other assets. See Note 12—Financing Agreements for additional information.

Recently Issued Pronouncements

In October 2016, the FASB issued ASU 2016-16, Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory, which requires an entity to recognize the income tax consequences of an intra-entity transfer of an asset other than inventory when the transfer occurs. The amendments are effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2017, and should be applied on a modified retrospective basis through a cumulative-effect adjustment directly to retained earnings as of the beginning of the period of adoption. Early adoption is permitted in the first interim period of an annual reporting period for which financial statements have not been issued. We are currently evaluating the impact of this ASU on our consolidated financial statements.

In February 2016, the FASB issued ASU No. 2016-02, Leases (Topic 842), which supersedes the lease accounting requirements in Accounting Standards Codification (ASC) Topic 840, Leases. This ASU will require lessees to recognize the rights and obligations resulting from virtually all leases (other than leases that meet the definition of a short-term lease) on their balance sheets as right-of-use assets with corresponding lease liabilities. Extensive quantitative and qualitative disclosures, including significant judgments made by management, will be required to provide greater insight into the extent of income and expense recognized and expected to be recognized from existing contracts. This ASU is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018, with early adoption permitted, and requires the modified retrospective method of adoption. We are currently evaluating the impact of the adoption of this ASU on our consolidated financial statements. See Note 24—Leases for additional information.

In July 2015, the FASB issued ASU No. 2015-11, Inventory (Topic 330): Simplifying the Measurement of Inventory, effective for annual and interim periods beginning after December 15, 2016. ASU No. 2015-11 changes the inventory measurement principle for entities using the FIFO or average cost methods. For entities utilizing one of these methods, the inventory measurement principle will change from lower of cost or market to the lower of cost and net realizable value. We follow the FIFO or average cost methods and we have evaluated the effect of this ASU and we believe it will not have a material effect on our consolidated financial statements.

In May 2014, the FASB issued ASU No. 2014-09, Revenue from Contracts with Customers (Topic 606), which supersedes the revenue recognition requirements in ASC Topic 605, Revenue Recognition. This ASU is based on the principle that revenue is recognized to depict the transfer of goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. This ASU also requires additional disclosure about the nature, amount, timing, and uncertainty of revenue and cash flows arising from customer contracts, including significant judgments. Additionally, the costs to obtain and fulfill a contract, including assets to be recognized, are to be capitalized and such capitalized costs should be disclosed. In 2016, the FASB issued additional ASUs that enhance the operability of the principal versus agent guidance in ASU No. 2014-09 by clarifying that an entity should consider the nature of each good or service promised to a customer at the individual good or service level, clarify that ASU No. 2014-09 should not be applied to immaterial performance obligations, and enhance the guidance around the treatment of shipping costs incurred to fulfill performance obligations. As modified by ASU No. 2015-14, Deferral of the Effective Date, the effective date of ASU No. 2014-09 is for interim and annual periods beginning after December 15, 2017, with early adoption permitted for interim and annual periods beginning after December 15, 2016. We are analyzing the impact of ASU No. 2014-09 on our revenue contracts by comparing the revenue recognition that would have occurred from applying this ASU to revenue contracts that existed in 2015 and 2016. We are also reviewing our accounting policies and disclosures to determine changes needed to comply with this ASU, as well as identifying changes to our business processes, systems, and controls needed to support adoption of this ASU.

4. Acquisitions and Divestitures

CF Fertilisers UK Acquisition

On July 31, 2015, we acquired the remaining 50% equity interest in CF Fertilisers UK Group Limited (formerly known as GrowHow UK Group Limited) (CF Fertilisers UK) not previously owned by us for total consideration of $570 million, and CF Fertilisers UK became wholly owned by us. The purchase price was funded with cash on hand. The financial results of CF Fertilisers UK have been consolidated within our financial results since July 31, 2015. Prior to July 31, 2015, our initial 50% equity interest in CF Fertilisers UK was accounted for as an equity method investment, and the financial results of this investment were included in our consolidated statements of operations in equity in earnings of non-operating affiliates—net of taxes. During the third quarter of 2015, we recorded a gain of $94 million on the remeasurement to fair value of our initial 50% equity interest in CF Fertilisers UK that is included in equity in earnings of non-operating affiliates—net of taxes. See Note 8—Equity Method Investments for additional information.

The following table summarizes the allocation of the total fair value of CF Fertilisers UK to the assets acquired and liabilities assumed in its acquisition on July 31, 2015. The fair value of the assets acquired and liabilities assumed is based on the estimated net realizable value for inventories, a replacement cost approach for property, plant and equipment and the income approach for intangible assets.

	Original Valuation	Net Adjustments to Fair Value in 2015	December 31, 2015	Net Adjustments to Fair Value in 2016[1]	Final Valuation
			(in millions)		
Fair value of consideration transferred	$ 570	$ —	$ 570	$ —	$ 570
Fair value of 50% of equity interest already held by the Company	570	—	570	—	570
Total fair value	$ 1,140	$ —	$ 1,140	$ —	$ 1,140
Assets acquired and liabilities assumed					
Current assets	$ 165	$ 1	$ 166	$ —	$ 166
Property, plant and equipment	898	—	898	—	898
Goodwill	328	(8)	320	4	324
Other assets	140	(1)	139	—	139
Total assets acquired	1,531	(8)	1,523	4	1,527
Current liabilities	74	1	75	—	75
Deferred income taxes	129	(9)	120	4	124
Other liabilities	188	—	188	—	188
Total liabilities assumed	391	(8)	383	4	387
Total net assets acquired	$ 1,140	$ —	$ 1,140	$ —	$ 1,140

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(1) In July 2016, final adjustments were made to the fair value of the assets acquired and liabilities assumed, which resulted in a corresponding $4 million increase to goodwill.

Current assets acquired included cash of $19 million, accounts receivable of $73 million and inventory of $67 million. The acquired property, plant and equipment will be depreciated over a period consistent with our existing fixed assets depreciation policy.

The acquisition resulted in the recognition of $324 million of goodwill, which is not deductible for income tax purposes. Other assets acquired included intangible assets of $132 million consisting of customer relationships and trade names, which are being amortized over a weighted-average life of approximately 20 years. See Note 7—Goodwill and Other Intangible Assets for additional information related to goodwill and the acquired intangibles.

Termination of Agreement to Combine with Certain of OCI N.V.'s Businesses

On August 6, 2015, we entered into a definitive agreement (as amended, the Combination Agreement) to combine with the European, North American and global distribution businesses of OCI N.V. (OCI). On May 22, 2016, CF Holdings, OCI and the other parties to the Combination Agreement entered into a termination agreement (the Termination Agreement) under which the parties agreed to terminate the Combination Agreement by mutual written consent. Pursuant to the Termination Agreement, CF Holdings paid OCI a termination fee of $150 million, which is included in transaction costs in our consolidated statement of operations. Under the Termination Agreement, the parties to the Combination Agreement also agreed to release each other from any and all claims, actions, obligations, liabilities, expenses and fees in connection with, arising out of or related to the Combination Agreement and all ancillary agreements contemplated thereby (other than the confidentiality agreement between CF Holdings and OCI) or the transactions contemplated therein or thereby. See Note 12—Financing Agreements—Bridge Credit Agreement for additional information.

Sale of Equity Method Investments

During the second quarter of 2015, we sold our 50% ownership interest in an ammonia storage joint venture in Houston, Texas and our 50% ownership interest in KEYTRADE AG (Keytrade). See Note 8—Equity Method Investments for additional information.

Phosphate Disposition

On March 17, 2014, we sold our phosphate mining and manufacturing business to Mosaic pursuant to the terms of the definitive transaction agreement executed in October 2013, among CF Industries Holdings, Inc., CF Industries and Mosaic, for approximately $1.4 billion in cash. We recognized pre-tax and after-tax gains on the transaction of $750 million and $463 million, respectively. Under the terms of the definitive transaction agreement, the accounts receivable and accounts payable pertaining to the phosphate mining and manufacturing business and certain phosphate inventory held in distribution facilities were not sold to Mosaic in the transaction and were settled in the ordinary course.

Upon selling the phosphate business, we began to supply Mosaic with ammonia produced by our PLNL joint venture. The contract to supply ammonia to Mosaic from our PLNL joint venture represents the continuation of a supply practice that previously existed between our former phosphate mining and manufacturing business and other operations of the Company. Prior to March 17, 2014, PLNL sold ammonia to us for use in the phosphate business and the cost was included in our production costs in our phosphate segment. Subsequent to the sale of the phosphate business, we now sell the PLNL-sourced ammonia to Mosaic. The revenue from these sales to Mosaic and the costs to purchase the ammonia from PLNL are now included in our ammonia segment. Our 50% share of the operating results of our PLNL joint venture continues to be included in equity in earnings of operating affiliates in our consolidated statements of operations. Because of the significance of this continuing supply practice, in accordance with U.S. GAAP, the phosphate mining and manufacturing business is not reported as discontinued operations in our consolidated statements of operations.

The phosphate segment reflects the reported results of the phosphate business through March 17, 2014, plus the continuing sales of the phosphate inventory in the distribution network after March 17, 2014. The remaining phosphate inventory was sold in the second quarter of 2014; therefore, the phosphate segment does not have operating results subsequent to that quarter.

5. Net Earnings Per Share

Net earnings per share were computed as follows:

	Year ended December 31,		
	2016	2015	2014
	(in millions, except per share amounts)		
Net (loss) earnings attributable to common stockholders	$ (277)	$ 700	$ 1,390
Basic earnings per common share:			
Weighted-average common shares outstanding	233.1	235.3	255.9
Net (loss) earnings attributable to common stockholders	$ (1.19)	$ 2.97	$ 5.43
Diluted earnings per common share:			
Weighted-average common shares outstanding	233.1	235.3	255.9
Dilutive common shares—stock options	—	0.8	0.8
Diluted weighted-average shares outstanding	233.1	236.1	256.7
Net (loss) earnings attributable to common stockholders	$ (1.19)	$ 2.96	$ 5.42

In the computation of diluted earnings per common share, potentially dilutive stock options are excluded if the effect of their inclusion is anti-dilutive. Shares for anti-dilutive stock options not included in the computation of diluted earnings per common share were 4.9 million, 1.6 million and 0.7 million for the years ended December 31, 2016, 2015 and 2014, respectively.

6. Property, Plant and Equipment—Net

Property, plant and equipment—net consists of the following:

	December 31,	
	2016	2015
	(in millions)	
Land	$ 69	$ 68
Machinery and equipment	11,664	7,348
Buildings and improvements	878	271
Construction in progress[(1)]	280	3,626
	12,891	11,313
Less: Accumulated depreciation and amortization	3,239	2,774
	$ 9,652	$ 8,539

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(1) As of December 31, 2016 and 2015, we had property, plant and equipment that was accrued but unpaid of approximately $225 million and $543 million, respectively. These amounts included accruals related to our capacity expansion projects of $185 million and $471 million as of December 31, 2016 and 2015, respectively.

Depreciation and amortization related to property, plant and equipment was $607 million, $444 million and $361 million in 2016, 2015 and 2014, respectively.

Plant turnarounds—Scheduled inspections, replacements and overhauls of plant machinery and equipment at our continuous process manufacturing facilities during a full plant shutdown are referred to as plant turnarounds. The expenditures related to turnarounds are capitalized in property, plant and equipment when incurred. The following is a summary of capitalized plant turnaround costs:

	Year ended December 31,		
	2016	2015	2014
	(in millions)		
Net capitalized turnaround costs at beginning of the year	$ 220	$ 153	$ 120
Additions	74	135	88
Depreciation	(89)	(65)	(54)
Effect of exchange rate changes	1	(3)	(1)
Net capitalized turnaround costs at end of the year	$ 206	$ 220	$ 153

Scheduled replacements and overhauls of plant machinery and equipment include the dismantling, repair or replacement and installation of various components including piping, valves, motors, turbines, pumps, compressors, heat exchangers and the replacement of catalysts when a full plant shutdown occurs. Scheduled inspections are also conducted during full plant shutdowns, including required safety inspections which entail the disassembly of various components such as steam boilers, pressure vessels and other equipment requiring safety certifications. Internal employee costs and overhead amounts are not considered turnaround costs and are not capitalized.

7. Goodwill and Other Intangible Assets

The following table shows the carrying amount of goodwill by reportable segment as of December 31, 2016 and 2015:

	Ammonia	Granular Urea	UAN	AN	Other	Total
			(in millions)			
Balance as of December 31, 2015	$ 587	$ 828	$ 576	$ 324	$ 75	$ 2,390
CF Fertilisers UK[(1)]	—	—	—	3	1	4
Effect of exchange rate changes	(2)	—	—	(41)	(6)	(49)
Balance as of December 31, 2016	$ 585	$ 828	$ 576	$ 286	$ 70	$ 2,345

(1) In July 2016, final adjustments were made to the fair value of the assets acquired and liabilities assumed in the acquisition of the remaining 50% equity interest in CF Fertilisers UK not previously owned by us, which resulted in a corresponding $4 million increase to goodwill. See Note 4—Acquisitions and Divestitures for additional information.

All of our identifiable intangible assets have definite lives and are presented in other assets on our consolidated balance sheets at gross carrying amount, net of accumulated amortization, as follows:

	December 31, 2016			December 31, 2015		
	Gross Carrying Amount	Accumulated Amortization	Net	Gross Carrying Amount	Accumulated Amortization	Net
			(in millions)			
Intangible assets:						
Customer relationships	$ 125	$ (24)	$ 101	$ 140	$ (18)	$ 122
TerraCair brand	10	(10)	—	10	(10)	—
Trade names	29	(2)	27	35	(1)	34
Total intangible assets	$ 164	$ (36)	$ 128	$ 185	$ (29)	$ 156

Amortization expense of our identifiable intangibles was $7 million, $10 million and $4 million for the years ended December 31, 2016, 2015 and 2014, respectively. In early 2015, management approved a plan to discontinue the use of the TerraCair brand in the sale of DEF. Based on the discontinuation of the use of this brand, the related intangible assets were fully amortized during the first quarter of 2015.

Total estimated amortization expense for each of the five succeeding fiscal years is as follows:

	Estimated Amortization Expense
	(in millions)
2017	$ 9
2018	9
2019	9
2020	9
2021	9

8. Equity Method Investments

Operating Equity Method Investment

As of December 31, 2016 and December 31, 2015, we have a 50% ownership interest in PLNL, which operates an ammonia production facility in the Republic of Trinidad and Tobago. We include our share of the net earnings from this equity method investment as an element of earnings from operations because PLNL provides additional production to our operations and is integrated with our other supply chain and sales activities in the ammonia segment.

The total carrying value of our equity method investment in PLNL as of December 31, 2016 was $70 million more than our share of PLNL's book value. The excess is attributable to the purchase accounting impact of our acquisition of our equity method investment in PLNL and primarily reflects the revaluation of property, plant and equipment and the value of an exclusive natural gas contract. The increased basis for property, plant and equipment and the gas contract are being amortized over a remaining period of approximately 16 years and 1 year, respectively. Our equity in earnings of PLNL is different from our ownership interest in income reported by PLNL due to amortization of these basis differences.

Equity in loss of operating affiliates in 2016 and 2015 includes an impairment of our equity method investment in PLNL of $134 million and $62 million, respectively. In the fourth quarters of 2016 and 2015, we determined the carrying value of our equity method investment in PLNL exceeded fair value. This was due primarily to natural gas curtailments from the government controlled gas supplier and projected higher Trinidad gas prices.

We have transactions in the normal course of business with PLNL reflecting our obligation to purchase 50% of the ammonia produced by PLNL at current market prices. Our ammonia purchases from PLNL totaled $62 million, $121 million and $141 million in 2016, 2015 and 2014, respectively.

Non-Operating Equity Method Investments

We no longer have non-operating equity method investments as a result of the sale of our 50% ownership interest in Keytrade during the second quarter of 2015 and our July 31, 2015 acquisition of the remaining 50% equity interest in CF Fertilisers UK not previously owned by us. See Note 4—Acquisitions and Divestitures for additional information.

Equity in earnings of non-operating affiliates—net of taxes for the year ended December 31, 2015 of $72 million includes our after-tax gain of $94 million on remeasurement to fair value of our initial 50% equity interest in CF Fertilisers UK, the after-tax loss of $29 million on the sale of our interests in Keytrade, and our equity in earnings (losses) of Keytrade, through the date of sale, and of CF Fertilisers UK, through the acquisition date.

9. Fair Value Measurements

Our cash and cash equivalents and other investments consist of the following:

	December 31, 2016			
	Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
	(in millions)			
Cash	$ 89	$ —	$ —	$ 89
Cash equivalents:				
U.S. and Canadian government obligations	1,075	—	—	1,075
Total cash and cash equivalents	$ 1,164	$ —	$ —	$ 1,164
Restricted cash	5	—	—	5
Nonqualified employee benefit trusts	18	1	—	19

	December 31, 2015			
	Cost Basis	Unrealized Gains	Unrealized Losses	Fair Value
	(in millions)			
Cash	$ 71	$ —	$ —	$ 71
Cash equivalents:				
U.S. and Canadian government obligations	190	—	—	190
Other debt securities	25	—	—	25
Total cash and cash equivalents	$ 286	$ —	$ —	$ 286
Restricted cash	23	—	—	23
Nonqualified employee benefit trusts	17	2	—	19

Under our short-term investment policy, we may invest our cash balances, either directly or through mutual funds, in several types of investment-grade securities, including notes and bonds issued by governmental entities or corporations. Securities issued by governmental entities include those issued directly by the Federal government; those issued by state, local or other governmental entities; and those guaranteed by entities affiliated with governmental entities.

Assets and Liabilities Measured at Fair Value on a Recurring Basis

The following tables present assets and liabilities included in our consolidated balance sheets as of December 31, 2016 and 2015 that are recognized at fair value on a recurring basis, and indicate the fair value hierarchy utilized to determine such fair value:

	December 31, 2016			
	Total Fair Value	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in millions)			
Cash equivalents	$ 1,075	$ 1,075	$ —	$ —
Restricted cash	5	5	—	—
Derivative assets	56	—	56	—
Nonqualified employee benefit trusts	19	19	—	—
Derivative liabilities	(6)	—	(6)	—
Embedded derivative liability	(26)	—	(26)	—

	December 31, 2015			
	Total Fair Value	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in millions)			
Cash equivalents	$ 215	$ 215	$ —	$ —
Restricted cash	23	23	—	—
Nonqualified employee benefit trusts	19	19	—	—
Derivative liabilities	(211)	—	(211)	—

Cash Equivalents

As of December 31, 2016 and 2015, our cash equivalents consisted primarily of U.S. and Canadian government obligations and money market mutual funds that invest in U.S. government obligations and other investment-grade securities.

Restricted Cash

We maintain a cash account for which the use of the funds is restricted. The restricted cash account was put in place to satisfy certain requirements included in our engineering and procurement services contract for our capacity expansion projects. Under the terms of this contract, we were required to grant an affiliate of ThyssenKrupp Industrial Solutions a security interest in a restricted cash account and maintain a cash balance in that account equal to the cancellation fees for procurement services and equipment that would arise if we were to cancel the projects.

Derivative Instruments

The derivative instruments that we use are primarily natural gas fixed price swaps, natural gas options and foreign currency forward contracts traded in the over-the-counter (OTC) markets with multi-national commercial banks, other major financial institutions or large energy companies. The natural gas derivative contracts represent anticipated natural gas needs for future periods and settlements are scheduled to coincide with anticipated natural gas purchases during those future periods. The foreign currency derivative contracts held were for the exchange of a specified notional amount of currencies at specified future dates coinciding with anticipated foreign currency cash outflows associated with our Donaldsonville, Louisiana and Port Neal, Iowa capacity expansion projects. All of our foreign currency derivatives settled in 2016. The natural gas derivative contracts settle using primarily NYMEX futures prices. To determine the fair value of these instruments, we use quoted market prices from NYMEX and standard pricing models with inputs derived from or corroborated by observable market data such as forward curves supplied by an industry-recognized independent third party. The foreign currency derivatives are valued based on quoted market prices supplied by an industry-recognized independent third party. See Note 15—Derivative Financial Instruments for additional information.

Embedded Derivative Liability

Under the terms of our strategic venture with CHS, if our credit rating is reduced below certain levels by two of three specified credit rating agencies, we are required to make a non-refundable yearly payment of $5 million to CHS. The payment would continue on a yearly basis until the earlier of the date that our credit rating is upgraded to or above certain levels by two of the three specified credit rating agencies or February 1, 2026. On February 1, 2016, we recognized this term of the strategic venture as an embedded derivative and its value of $8 million was included in other liabilities on our consolidated balance sheet. See Note 17—Noncontrolling Interests for additional information.

During 2016, we recorded adjustments to increase the value of the embedded derivative liability by $23 million to reflect our credit evaluations. The inputs into the fair value measurement include the probability of future upgrades and downgrades of our credit rating based on historical credit rating movements of other public companies and the discount rates to be applied to potential annual payments based on applicable credit spreads of other public companies at different credit rating levels. Based on these inputs, our fair value measurement is classified as Level 2. Additionally, as a result of the reduction in our credit rating in the fourth quarter of 2016, we made a $5 million payment to CHS. The embedded derivative liability of $26 million as of December 31, 2016, is included in other liabilities and other current liabilities on our consolidated balance sheet. Included in other operating—net in our consolidated statement of operations is a net loss of $23 million.

Nonqualified Employee Benefit Trusts

We maintain trusts associated with certain nonqualified supplemental pension plans. The investments are accounted for as available-for-sale securities. The fair values of the trust assets are based on daily quoted prices in an active market, which represents the net asset values of the shares held in the trusts. These trusts are included on our consolidated balance sheets in other assets.

Financial Instruments

The carrying amounts and estimated fair value of our financial instruments are as follows:

	December 31,			
	2016		2015	
	Carrying Amount	Fair Value	Carrying Amount	Fair Value
	(in millions)			
Long-term debt	$ 5,778	$ 5,506	$ 5,537	$ 5,456

The fair value of our long-term debt was based on either quoted prices for identical or similar liabilities in markets that are not active or valuation models in which all significant inputs and value drivers are observable and, as a result, they are classified as Level 2 inputs.

The carrying amounts of cash and cash equivalents, as well as instruments included in other current assets and other current liabilities that meet the definition of financial instruments, approximate fair values because of their short-term maturities.

Assets and Liabilities Measured at Fair Value on a Nonrecurring Basis

We also have assets and liabilities that may be measured at fair value on a nonrecurring basis; that is, the assets and liabilities are not measured at fair value on an ongoing basis, but are subject to fair value adjustments in certain circumstances, such as when there is evidence of impairment, allocation of purchase price in an acquisition or when a new liability is being established that requires fair value measurement. These include long-lived assets, goodwill and other intangible assets and investments in unconsolidated subsidiaries which may be written down to fair value as a result of impairment. The fair value measurements related to each of these rely primarily on Company-specific inputs and the Company's assumptions about the use of the assets. Since certain of the Company's assumptions would involve inputs that are not observable, these fair values would reside within Level 3 of the fair value hierarchy.

We review the carrying value of our goodwill, definite lived intangible assets, and investments in unconsolidated subsidiaries to assess recoverability as part of our annual impairment review in the fourth quarter of each year. As part of the assessment process when performing impairment tests, we estimate many factors including future sales volume, selling prices, raw materials costs, operating rates, operating expenses, inflation, discount rates, exchange rates, tax rates and capital spending. The assumptions we make are material estimates that are used in the impairment testing.

Our equity method investment in the Republic of Trinidad and Tobago, PLNL, operates an ammonia plant that relies on natural gas supplied by the National Gas Company of Trinidad and Tobago Limited (NGC) pursuant to a gas sales contract (the NGC Contract). See Note 8—Equity Method Investments for additional information. PLNL has experienced curtailments in the supply of natural gas from NGC, which have reduced the ammonia production at PLNL. In 2016, NGC communicated to PLNL that it does not recognize PLNL's exercise of its option to renew the NGC Contract for an additional five-year term beyond its current termination date in September 2018, and that any NGC commitment to supply gas beyond 2018 will need to be based on new agreements regarding volume and price. PLNL has initiated arbitration proceedings against NGC and asserted claims in connection with NGC's failure to supply the contracted quantities of natural gas, and its refusal to recognize PLNL's exercise of its option to extend the NGC Contract. PLNL is seeking declaratory and injunctive relief, as well as damages for past and ongoing curtailments. Although PLNL believes its claims against NGC to be meritorious, it is not possible to predict the outcome of the arbitration. There are significant assumptions in the future operations of the joint venture that are uncertain at this time, including the quantities of gas NGC will make available, the cost of such gas, the estimates that are used to determine the useful lives of fixed assets and the assumptions in the discounted cash flow models utilized for recoverability and impairment testing. As part of our impairment assessment of our equity method investment in PLNL, we determined the carrying value exceeded the fair value and recognized a $134 million impairment charge in 2016. Previously, in 2015, we recognized an impairment charge of $62 million related to our equity method investment in PLNL. The carrying value of our equity method investment in PLNL at December 31, 2016 is approximately $139 million. If NGC does not make sufficient quantities of natural gas available to PLNL at prices that permit profitable operations, PLNL may cease operating its facility and we would write off the remaining investment in PLNL.

10. Income Taxes

The components of (loss) earnings before income taxes and equity in earnings of non-operating affiliates are as follows:

	Year ended December 31,		
	2016	2015	2014
		(in millions)	
Domestic	$ (43)	$ 1,031	$ 2,073
Non-U.S.	(183)	27	114
	$ (226)	$ 1,058	$ 2,187

The components of the income tax (benefit) provision are as follows:

	Year ended December 31,		
	2016	2015	2014
		(in millions)	
Current			
Federal	$ (795)	$ 258	$ 645
Foreign	11	20	30
State	(23)	39	79
	(807)	317	754
Deferred			
Federal	761	76	12
Foreign	(1)	(13)	(8)
State	(21)	16	15
	739	79	19
Income tax (benefit) provision	$ (68)	$ 396	$ 773

Differences in the expected income tax (benefit) provision based on statutory rates applied to (loss) earnings before income taxes and the income tax (benefit) provision reflected in the consolidated statements of operations are summarized below:

	Year ended December 31,		
	2016	2015	2014
	(in millions, except percentages)		
(Loss) earnings before income taxes and equity in earnings of non-operating affiliates	$ (226)	$ 1,058	$ 2,187
Expected tax (benefit) provision at U.S. statutory rate of 35%	(79)	370	765
State income taxes, net of federal	(33)	32	62
Net earnings attributable to noncontrolling interests	(42)	(12)	(16)
U.S. manufacturing profits deduction	39	(17)	(28)
Foreign tax rate differential	30	(17)	(40)
U.S. tax on foreign earnings	(10)	—	9
Depletion	—	—	(1)
Valuation allowance	50	16	18
Non-deductible capital costs	(17)	18	—
Other	(6)	6	4
Income tax (benefit) provision	$ (68)	$ 396	$ 773
Effective tax rate	30.0%	37.4%	35.3%

State income taxes for the year ended December 31, 2016 were impacted by investment tax credits of $13 million, net of federal tax effect, related to capital assets placed in service at our production facilities in Oklahoma that are indefinitely available to offset income taxes in that jurisdiction in future years. Our effective state income tax rate was also reduced as a result of the changes to our legal entity structure effected in the first quarter of 2016 as part of our strategic venture with CHS. See Note 17—Noncontrolling Interests for additional information.

State income taxes for the year ended December 31, 2016 includes a tax benefit of $46 million, net of federal tax effect, for state net operating loss carryforwards. A valuation allowance of $4 million is recorded for certain loss carryforwards for which we do not expect to realize a future refund.

The income tax provision for the tax year ended December 31, 2016 includes the tax impact of the U.S. manufacturing profits deductions claimed in prior years that will not be deductible as a result of our intention to carryback the tax net operating loss for the year ended December 31, 2016.

Non-deductible capital costs for the tax year ended December 31, 2016 include certain transaction costs capitalized in the prior year that are now deductible as a result of the termination of the proposed combination with certain businesses of OCI. See Note 4—Acquisitions and Divestitures for additional information.

The foreign tax rate differential is impacted by the inclusion of equity earnings from our equity method investment in PLNL, a foreign operating affiliate, which are included in pre-tax earnings on an after-tax basis and the tax effect of net operating losses of a foreign subsidiary of the Company for which a valuation allowance has been recorded. We determined the carrying value of our equity method investment in PLNL exceeded fair value and recognized an impairment of our equity method investment in PLNL of $134 million in the fourth quarter of 2016 and $62 million in the fourth quarter of 2015. The impairments are included in equity in earnings of operating affiliates. Our income tax provisions do not include a tax benefit for the impairment of our equity method investment as the impairment does not give rise to a tax deduction. See Note 8—Equity Method Investments for additional information.

Foreign subsidiaries of the Company have incurred capital losses of $109 million that are indefinitely available to offset capital gains in the applicable foreign jurisdictions. As the future realization of these carryforwards is not anticipated, a valuation allowance of $28 million was recorded in the year ended December 31, 2016.

The foreign tax rate differential includes a $5 million deferred tax benefit for an enacted tax rate change.

Deferred tax assets and deferred tax liabilities are as follows:

	December 31, 2016	December 31, 2015
	(in millions)	
Deferred tax assets:		
Net operating loss and capital loss carryforwards, principally in foreign jurisdictions	$ 187	$ 100
Retirement and other employee benefits	121	95
Unrealized loss on hedging derivatives	9	68
Intangible asset	34	60
Federal tax settlement	—	14
Other	140	111
	491	448
Valuation allowance	(159)	(109)
	332	339
Deferred tax liabilities:		
Depreciation and amortization	(1,909)	(1,209)
Foreign earnings	(28)	(28)
Unrealized gain on hedging derivatives	(19)	(3)
Other	(6)	(15)
	(1,962)	(1,255)
Net deferred tax liability	$ (1,630)	$ (916)

For presentation purposes, the deferred tax assets and liabilities set forth in the table above as of December 31, 2016 and 2015 include the deferred tax assets and liabilities of CF Industries Nitrogen, LLC. Since February 1, 2016, CF Industries Nitrogen, LLC has been taxable as a partnership for federal income tax purposes.

A foreign subsidiary of the Company has net operating loss carryforwards of $379 million that are indefinitely available in the foreign jurisdiction. As the future realization of these carryforwards is not anticipated, a valuation allowance of $111 million has been recorded. Of this amount, $17 million and $15 million were recorded as valuation allowances in the years ended December 31, 2016 and 2015, respectively.

We consider the earnings of certain of our Canadian operating subsidiaries to not be permanently reinvested and we recognize a deferred tax liability for the future repatriation of these earnings, as they are earned. As of December 31, 2016, we have recorded a deferred income tax liability of approximately $27 million, which reflects the additional U.S. and foreign income taxes that would be due upon the repatriation of the accumulated earnings of our non-U.S. subsidiaries that are considered to not be permanently reinvested. As of December 31, 2016, we have approximately $830 million of permanently reinvested earnings related to investment in other non-U.S. subsidiaries and a joint venture, for which a deferred tax liability has not been recognized. It is not practicable to estimate the amount of such taxes.

We file federal, provincial, state and local income tax returns principally in the United States, Canada and the United Kingdom, as well as in certain other foreign jurisdictions. In general, filed tax returns remain subject to examination by United States tax jurisdictions for years 1999 and thereafter, by Canadian tax jurisdictions for years 2006 and thereafter, and by United Kingdom tax jurisdictions for years 2014 and thereafter.

A reconciliation of the beginning and ending amount of unrecognized tax benefits is as follows:

	December 31, 2016	December 31, 2015
	(in millions)	
Unrecognized tax benefits:		
Beginning balance	$ 155	$ 136
Additions for tax positions taken during the current year	—	2
Additions for tax positions taken during prior years	2	18
Reductions related to lapsed statutes of limitations	(7)	(1)
Reductions related to settlements with tax jurisdictions	(16)	—
Ending balance	$ 134	$ 155

Unrecognized tax benefits decreased by $21 million and increased by $19 million for the years ended December 31, 2016 and 2015, respectively. Our effective tax rate would be affected by $91 million if these unrecognized tax benefits were to be recognized in the future.

Interest expense and penalties of $4 million, $4 million, and $4 million were recorded for the years ended December 31, 2016, 2015 and 2014, respectively. Amounts recognized in our consolidated balance sheets for accrued interest and penalties related to income taxes of $28 million and $28 million are included in other liabilities as of December 31, 2016 and 2015, respectively.

On December 18, 2015, the Protecting Americans from Tax Hikes Act of 2015 (PATH Act) was signed into law and applies to tax years 2015 through 2019. One of the provisions of the PATH Act permits companies to deduct 50% of their capital expenditures for federal income tax purposes in the year qualifying assets were placed into service. We recorded a federal tax receivable of approximately $816 million for the year ended December 31, 2016 as a result of our intention to carryback the tax net operating loss that is principally the result of this tax law change. The tax receivable is expected to result in a tax refund and is included in prepaid income taxes on our consolidated balance sheet as of December 31, 2016. This receivable is primarily associated with completion of the new capacity expansion projects that were placed into service at our Donaldsonville, Louisiana and Port Neal, Iowa complexes during November and December of 2016.

During the third quarter of 2015, we acquired the remaining 50% equity interest in CF Fertilisers UK not previously owned by us and recognized a $94 million gain on the remeasurement to fair value of our initial 50% equity interest in CF Fertilisers UK. The earnings in CF Fertilisers UK have been permanently reinvested. Therefore, the recognition of the $94 million gain on the remeasurement of the historical equity investment does not include the recognition of tax expense on the gain. See Note 8—Equity Method Investments for additional information.

We recorded an income tax benefit of $12 million during the second quarter of 2015 for the pre-tax losses on the sale of equity method investments. The tax benefit related to the loss on the sale of our interests in Keytrade is included in equity in earnings of non-operating affiliates—net of taxes in our consolidated statements of operations. See Note 8—Equity Method Investments for additional information.

11. Pension and Other Postretirement Benefits

We maintain five funded pension plans—three in North America (one U.S. plan and two Canadian plans) and two in the United Kingdom (CF Fertilisers UK plans acquired by us as a result of our July 31, 2015 acquisition of the remaining 50% equity interest in CF Fertilisers UK not previously owned by us). One of our Canadian plans is closed to new employees and the two United Kingdom plans are closed to new employees and future accruals. We also provide group medical insurance benefits to certain retirees in North America. The specific medical benefits provided to retirees vary by group and location.

Our plan assets, benefit obligations, funded status and amounts recognized on the consolidated balance sheets for our North America and United Kingdom plans as of the December 31 measurement date are as follows:

	Pension Plans				Retiree Medical Plans	
	North America		United Kingdom		North America	
	December 31,		December 31,		December 31,	
	2016	2015	2016	2015	2016	2015
	(in millions)					
Change in plan assets						
Fair value of plan assets as of January 1	$ 627	$ 665	$ 414	$ —	$ —	$ —
Acquisition of CF Fertilisers UK plans	—	—	—	442	—	—
Return on plan assets	39	3	21	(4)	—	—
Employer contributions	4	19	19	9	4	4
Plan participant contributions	—	—	—	—	1	1
Benefit payments	(38)	(38)	(19)	(8)	(5)	(5)
Foreign currency translation	4	(22)	(69)	(25)	—	—
Fair value of plan assets as of December 31	636	627	366	414	—	—
Change in benefit obligation						
Benefit obligation as of January 1	(736)	(788)	(563)	—	(56)	(63)
Acquisition of CF Fertilisers UK plans	—	—	—	(618)	—	—
Service cost	(14)	(14)	—	—	—	—
Interest cost	(31)	(30)	(19)	(9)	(2)	(2)
Benefit payments	38	38	19	8	5	5
Foreign currency translation	(3)	21	99	34	—	1
Plan participant contributions	—	—	—	—	(1)	(1)
Change in assumptions and other	(13)	37	(95)	22	2	4
Benefit obligation as of December 31	(759)	(736)	(559)	(563)	(52)	(56)
Funded status as of year end	$ (123)	$ (109)	$ (193)	$ (149)	$ (52)	$ (56)

In the table above, the line titled "change in assumptions and other" for our pension plans primarily reflects the impact of changes in discount rates and the adoption of new mortality assumptions.

Amounts recognized on the consolidated balance sheets consist of the following:

	Pension Plans				Retiree Medical Plans	
	North America		United Kingdom		North America	
	December 31,		December 31,		December 31,	
	2016	2015	2016	2015	2016	2015
	(in millions)					
Other assets	$ 7	$ 9	$ —	$ —	$ —	$ —
Accrued expenses	—	—	—	—	(5)	(5)
Other liabilities	(130)	(118)	(193)	(149)	(47)	(51)
	$ (123)	$ (109)	$ (193)	$ (149)	$ (52)	$ (56)

Pre-tax amounts recognized in accumulated other comprehensive loss consist of the following:

	Pension Plans				Retiree Medical Plans	
	North America		United Kingdom		North America	
	December 31,		December 31,		December 31,	
	2016	2015	2016	2015	2016	2015
	(in millions)					
Prior service cost (benefit)	$ 1	$ 1	$ —	$ —	$ (4)	$ (4)
Net actuarial loss (gain)	91	88	80	(8)	7	8
	$ 92	$ 89	$ 80	$ (8)	$ 3	$ 4

Net periodic benefit cost (income) and other amounts recognized in accumulated other comprehensive loss for the years ended December 31 included the following:

	Pension Plans					Retiree Medical Plans		
	North America			United Kingdom		North America		
	2016	2015	2014	2016	2015	2016	2015	2014
	(in millions)							
Service cost	$ 14	$ 14	$ 13	$ —	$ —	$ —	$ —	$ —
Interest cost	31	30	35	19	9	2	2	3
Expected return on plan assets	(30)	(28)	(36)	(20)	(9)	—	—	—
Settlement charge	—	—	10	—	—	—	—	—
Curtailment loss	—	—	—	—	—	—	—	2
Amortization of prior service cost (benefit)	—	—	—	—	—	(1)	(1)	(1)
Amortization of actuarial loss (gain)	1	6	2	—	—	(1)	1	—
Net periodic benefit cost (income)	16	22	24	(1)	—	—	2	4
Net actuarial (gain) loss	4	(11)	78	94	(8)	(2)	(4)	4
Prior service cost	—	—	—	—	—	—	—	(7)
Curtailment effects	—	—	(14)	—	—	—	—	—
Settlement effects	—	—	(10)	—	—	—	—	—
Amortization of prior service benefit	—	—	—	—	—	1	1	1
Amortization of actuarial loss	(1)	(6)	(2)	—	—	—	(1)	(1)
Total recognized in accumulated other comprehensive loss	3	(17)	52	94	(8)	(1)	(4)	(3)
Total recognized in net periodic benefit cost (income) and accumulated other comprehensive loss	$ 19	$ 5	$ 76	$ 93	$ (8)	$ (1)	$ (2)	$ 1

In March 2014, as a result of a reduction in plan participants due to the sale of our phosphate business, we recognized:

- a curtailment gain for our U.S. pension plan, which resulted in a reduction of $14 million in our pension benefit obligation (PBO) and a corresponding increase in other comprehensive income;
- a decrease of $7 million in our U.S. retiree medical benefit obligation due to a plan amendment, with a corresponding increase in other comprehensive income (included in "prior service cost" in the table above); and
- a $2 million curtailment loss related to terminated vested participants in our U.S. retiree medical plan.

In August 2014, we communicated to certain terminated vested participants in our U.S. pension plan an option to receive a lump sum payment for their accrued benefits. For participants who elected this option, benefit payments of $91 million were made in December 2014 and we incurred a settlement charge of approximately $10 million, with a corresponding reduction in accumulated other comprehensive loss. Of the $10 million settlement charge, $9 million was reported in cost of sales and $1 million was reported in selling, general and administrative expenses on our consolidated statement of operations for the year ended December 31, 2014.

Amounts that will be amortized from accumulated other comprehensive loss into net periodic benefit cost in 2017 are as follows:

	Pension Plans		Retiree Medical Plans
	North America	United Kingdom	North America
		(in millions)	
Prior service cost (benefit)	$ —	$ —	$ (1)
Net actuarial loss (gain)	1	1	(1)

The accumulated benefit obligation (ABO) in aggregate for the defined benefit pension plans in North America was approximately $712 million and $688 million as of December 31, 2016 and December 31, 2015, respectively. The ABO in aggregate for the defined benefit pension plans in the United Kingdom was approximately $559 million and $563 million as of December 31, 2016 and December 31, 2015.

The following table presents aggregated information for those individual defined benefit pension plans with an ABO in excess of plan assets as of December 31:

	North America		United Kingdom	
	2016	2015	2016	2015
		(in millions)		
Accumulated benefit obligation	$ (599)	$ (586)	$ (559)	$ (563)
Fair value of plan assets	508	506	366	414

The following table presents aggregated information for those individual defined benefit pension plans with a PBO in excess of plan assets as of December 31:

	North America		United Kingdom	
	2016	2015	2016	2015
		(in millions)		
Projected benefit obligation	$ (699)	$ (679)	$ (559)	$ (563)
Fair value of plan assets	568	561	366	414

Our pension funding policy in North America is to contribute amounts sufficient to meet minimum legal funding requirements plus discretionary amounts that we may deem to be appropriate. Actual contributions may vary from estimated amounts depending on changes in assumptions, actual returns on plan assets, changes in regulatory requirements and funding decisions.

In accordance with United Kingdom pension legislation, our United Kingdom pension funding policy is to contribute amounts sufficient to meet the funding level target agreed between the employer and the trustees of the United Kingdom plans. Actual contributions are usually agreed with the plan trustees in connection with each triennial valuation and may vary following each such review depending on changes in assumptions, actual returns on plan assets, changes in regulatory requirements and funding decisions.

Our consolidated pension funding contributions for 2017 are estimated to be approximately $4 million for the North America plans and $18 million for the United Kingdom plans.

The expected future benefit payments for our pension and retiree medical plans are as follows:

	Pension Plans		Retiree Medical Plans
	North America	United Kingdom	North America
		(in millions)	
2017	$ 42	$ 18	$ 5
2018	43	18	5
2019	45	19	4
2020	46	19	4
2021	47	20	4
2022-2026	246	107	15

The following assumptions were used in determining the benefit obligations and expense:

	Pension Plans					Retiree Medical Plans		
	North America			United Kingdom		North America		
	2016	2015	2014	2016	2015	2016	2015	2014
Weighted-average discount rate—obligation	4.0%	4.3%	4.0%	2.8%	3.8%	3.8%	3.9%	3.6%
Weighted-average discount rate—expense	4.3%	4.0%	4.8%	3.8%	3.7%	3.9%	3.6%	4.2%
Weighted-average rate of increase in future compensation	4.3%	4.3%	4.3%	n/a	n/a	n/a	n/a	n/a
Weighted-average expected long-term rate of return on assets—expense	4.9%	4.8%	5.5%	5.2%	5.4%	n/a	n/a	n/a
Weighted-average retail price index—obligation	n/a	n/a	n/a	3.3%	3.1%	n/a	n/a	n/a
Weighted-average retail price index—expense	n/a	n/a	n/a	3.1%	3.1%	n/a	n/a	n/a

The discount rates for all plans are developed by plan using spot rates derived from a yield curve of high quality (AA rated or better) fixed income debt securities as of the year-end measurement date to calculate discounted cash flows (the projected benefit obligation) and solving for a single equivalent discount rate that produces the same projected benefit obligation. In determining our benefit obligation, we use the actuarial present value of the vested benefits to which each eligible employee is currently entitled, based on the employee's expected date of separation or retirement.

For our North America plans, the expected long-term rate of return on assets is based on analysis of historical rates of return achieved by equity and non-equity investments and current market characteristics, adjusted for estimated plan expenses and weighted by target asset allocation percentages. As of January 1, 2017, our weighted-average expected long-term rate of return on assets is 4.2%.

For our United Kingdom plans, the expected long-term rate of return on assets is based on the expected long-term performance of the underlying investments, adjusted for investment managers' fees. As of January 1, 2017, our weighted-average expected long-term rate of return on assets is 4.6%.

The retail price index for the United Kingdom plans is developed using the Bank of England implied retail price inflation curve, which is based on the difference between yields on fixed interest government bonds and index-linked government bonds.

For the measurement of the benefit obligation at December 31, 2016 for our primary (U.S.) retiree medical benefit plans, the assumed health care cost trend rates, for pre-65 retirees, start with a 7.0% increase in 2017, followed by a gradual decline in increases to 4.5% for 2024 and thereafter. For post-65 retirees, the assumed health care cost trend rates start with a 8.5% increase in 2017, followed by a gradual decline in increases to 4.5% for 2024 and thereafter. For the measurement of the benefit obligation at December 31, 2015 for our primary (U.S.) retiree medical benefit plans, the assumed health care cost trend rates, for pre-65 retirees, start with a 7.25% increase in 2016, followed by a gradual decline in increases to 4.5% for 2024 and thereafter. For post-65 retirees, the assumed health care cost trend rates start with a 9.0% increase in 2016, followed by a gradual decline in increases to 4.5% for 2024 and thereafter.

A one-percentage point change in the assumed health care cost trend rate of our primary (U.S.) retiree medical benefit plans as of December 31, 2016 would have the following effects on our retiree medical benefit plans:

	One-Percentage-Point	
	Increase	Decrease
	(in millions)	
Effect on total service and interest cost for 2016	$ —	$ —
Effect on benefit obligation as of December 31, 2016	6	(5)

The objectives of the investment policies governing the pension plans are to administer the assets of the plans for the benefit of the participants in compliance with all laws and regulations, and to establish an asset mix that provides for diversification and considers the risk of various different asset classes with the purpose of generating favorable investment returns. The investment policies consider circumstances such as participant demographics, time horizon to retirement and liquidity needs, and provide guidelines for asset allocation, planning horizon, general portfolio issues and investment manager evaluation criteria. The investment strategies for the plans, including target asset allocations and investment vehicles, are subject to change within the guidelines of the policies.

The target asset allocation for our U.S. pension plan is 80% non-equity and 20% equity, which has been determined based on analysis of actual historical rates of return and plan needs and circumstances. The equity investments are tailored to exceed the growth of the benefit obligation and are a combination of U.S. and non-U.S. total stock market index mutual funds. The non-equity investments consist primarily of investments in debt securities and money market instruments that are selected based on investment quality and duration to mitigate volatility of the funded status and annual required contributions. The non-equity investments have a duration profile that is similar to the benefit obligation in order to mitigate the impact of interest rate changes on the funded status. This investment strategy is achieved through the use of mutual funds and individual securities.

The target asset allocation for the CF Canadian plan is 60% non-equity and 40% equity, and for the Terra Canadian plan is 75% non-equity and 25% equity. The equity investments are passively managed portfolios that diversify assets across multiple securities, economic sectors and countries. The non-equity investments are high quality passively managed portfolios that diversify assets across economic sectors, countries and maturity spectrums. This investment strategy is achieved through the use of mutual funds.

The pension assets in the United Kingdom plans are each administered by a Board of Trustees consisting of employer nominated trustees, member nominated trustees and an independent trustee. Trustees may be appointed or removed by CF Fertilisers UK, provided CF Fertilisers UK fulfills its obligation to have at least one third of the Board of Trustees as member nominated. It is the responsibility of the trustees to ensure prudent management and investment of the assets in the plans. The trustees meet on a quarterly basis to review and discuss fund performance and other administrative matters.

The trustees' investment objectives are to hold assets that will achieve returns in excess of expected returns used in the valuation of each plan's liability without exposing the plans to unacceptable risk. This is accomplished through the asset allocation strategy of each plan. For both plans, if the asset allocation moves more than plus or minus 5% from the benchmark allocation, the trustees may decide to amend the asset allocation. At a minimum, the trustees review the investment strategy at every triennial actuarial valuation to ensure that the strategy remains consistent with its funding principles. The trustees may review the strategy more frequently if opportunities arise to reduce risk within the investments without jeopardizing the funding position.

Assets of the United Kingdom plans are invested in externally managed pooled funds. The target asset allocation for the United Kingdom Terra plan is 55% actively managed target return funds, 30% actively and passively managed bond and gilt funds and 15% actively managed property funds. The target asset allocation for the United Kingdom Kemira plan is 50% actively managed target return funds, 45% actively and passively managed bond and gilt funds and 5% in an actively managed property fund. The target return funds diversify assets across multiple asset classes (which may include, among others, traditional equities and bonds) and may use derivatives. The bond and gilt funds generally invest in fixed income debt securities including government bonds, gilts, high yield and emerging market bonds, and investment grade corporate bonds and may use derivatives. The property funds are invested predominately in freehold and leasehold property.

The fair values of our pension plan assets as of December 31, 2016 and 2015, by major asset class, are as follows:

	North America			
	December 31, 2016			
	Total Fair Value	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in millions)			
Cash and cash equivalents[1]	$ 39	$ 6	$ 33	$ —
Equity mutual funds				
Index equity[2]	112	112	—	—
Pooled equity[3]	41	—	41	—
Fixed income				
U.S. Treasury bonds and notes[4]	14	14	—	—
Pooled mutual funds[5]	86	—	86	—
Corporate bonds and notes[6]	329	—	329	—
Government and agency securities[7]	15	—	15	—
Other[8]	1	—	1	—
Total assets at fair value by fair value levels	$ 637	$ 132	$ 505	$ —
Accruals and payables—net	(1)			
Total assets	$ 636			

	United Kingdom			
	December 31, 2016			
	Total Fair Value	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in millions)			
Cash	$ 3	$ 3	$ —	$ —
Pooled target return funds[9]	185	—	185	—
Fixed income				—
Pooled UK government index-linked securities[10]	28	—	28	—
Pooled global fixed income funds[11]	114	—	114	—
Total assets at fair value by fair value levels	$ 330	$ 3	$ 327	$ —
Assets measured at NAV as a practical expedient				
Pooled property funds[12]	36			
Total assets measured at NAV as a practical expedient	36			
Total assets at fair value	366			
Accruals and payables—net	—			
Total assets	$ 366			

	North America			
	December 31, 2015			
	Total Fair Value	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in millions)			
Cash and cash equivalents[1]	$ 32	$ 32	$ —	$ —
Equity mutual funds				
Index equity[2]	103	103	—	—
Pooled equity[3]	39	—	39	—
Fixed income				
U.S. Treasury bonds and notes[4]	11	11	—	—
Pooled mutual funds[5]	82	—	82	—
Corporate bonds and notes[6]	338	—	338	—
Government and agency securities[7]	21	—	21	—
Other[8]	2	—	2	—
Total assets at fair value by fair value levels	$ 628	$ 146	$ 482	$ —
Accruals and payables—net	(1)			
Total assets	$ 627			

	United Kingdom			
	December 31, 2015			
	Total Fair Value	Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
	(in millions)			
Cash	$ 3	$ 3	$ —	$ —
Pooled target return funds[9]	216	—	216	—
Fixed income				
Pooled UK government index-linked securities[10]	26	—	26	—
Pooled global fixed income funds[11]	127	—	127	—
Total assets at fair value by fair value levels	$ 372	$ 3	$ 369	$ —
Assets measured at NAV as a practical expedient				
Pooled property funds[12]	42			
Total assets measured at NAV as a practical expedient	42			
Total assets at fair value	414			
Accruals and payables—net	—			
Total assets	$ 414			

(1) Cash and cash equivalents are primarily repurchase agreements, short-term money market funds, and short-term federal home loan discount notes.

(2) The index equity funds are mutual funds that utilize a passively managed investment approach designed to track specific equity indices. They are valued at quoted market prices in an active market, which represent the net asset values of the shares held by the plan.

(3) The equity pooled mutual funds consist of pooled funds that invest in common stock and other equity securities that are traded on U.S., Canadian, and foreign markets.

(4) U.S. Treasury bonds and notes are valued based on quoted market prices in an active market.

(5) The fixed income pooled mutual funds invest in investment-grade corporate debt, various governmental debt obligations, and mortgage-backed securities with varying maturities.

(6) Corporate bonds and notes, including private placement securities, are valued by institutional bond pricing services, which gather information from market sources and integrate credit information, observed market movements and sector news into their pricing applications and models.

(7) Government and agency securities consist of municipal bonds that are valued by institutional bond pricing services, which gather information on current trading activity, market movements, trends, and specific data on specialty issues.

(8) Other includes primarily mortgage-backed and asset-backed securities, which are valued by institutional pricing services, which gather information from market sources and integrate credit information, observed market movements and sector news into their pricing applications and models.

(9) Pooled target return funds invest in a broad array of asset classes and a range of diversifiers including the use of derivatives. The funds are valued at net asset value (NAV) as determined by the fund managers based on the value of the underlying net assets of the fund.

(10) Pooled United Kingdom government index-linked funds invest primarily in United Kingdom government index-linked gilt securities. The funds are valued at NAV as determined by the fund managers based on the value of the underlying net assets of the fund.

(11) Pooled global fixed income funds invest primarily in government bonds, investment grade corporate bonds, high yield and emerging market bonds and can make use of derivatives. The funds are valued at NAV as determined by the fund managers based on the value of the underlying net assets of the fund.

(12) Pooled property funds invest primarily in freehold and leasehold property in the United Kingdom. The funds are valued using NAV as a practical expedient. NAV is determined by the fund managers based on the value of the underlying net assets of the fund.

We have defined contribution plans covering substantially all employees in North America and the United Kingdom. In North America, depending on the specific provisions of each plan, qualified employees receive company contributions based on a percentage of base salary, matching of employee contributions up to specified limits, or a combination of both. Qualified employees in the United Kingdom receive company contributions based on a percentage of base salary that are greater than employee contributions up to specified limits. In 2016, 2015 and 2014, we recognized expense related to company contributions to the defined contribution plans of $16 million, $14 million, and $12 million, respectively.

In addition to our qualified defined benefit pension plans, we also maintain certain nonqualified supplemental pension plans for highly compensated employees as defined under federal law. The amounts recognized in accrued expenses and other liabilities in our consolidated balance sheets for these plans were $3 million and $17 million as of December 31, 2016 and $3 million and $19 million as of December 31, 2015, respectively. We recognized expense for these plans of $3 million, $2 million and $5 million in 2016, 2015 and 2014, respectively. The expense recognized in 2016 and 2014 includes settlement charges of $1 million and $3 million, respectively.

12. Financing Agreements

Revolving Credit Agreement

We have a senior secured revolving credit agreement (as amended, including by an amendment effective July 29, 2016 (the July 2016 Credit Agreement Amendment) and an amendment entered into on October 31, 2016 and effective November 21, 2016 (the November 2016 Credit Agreement Amendment), the Revolving Credit Agreement) providing for a revolving credit facility of up to $750 million (reflecting a reduction from $1.5 billion as effected by the November 2016 Credit Agreement Amendment) with a maturity of September 18, 2020. The Revolving Credit Agreement includes a letter of credit sub-limit of $125 million. Borrowings under the Revolving Credit Agreement may be used for working capital and general corporate purposes. CF Industries may designate as borrowers one or more wholly owned subsidiaries that are organized in the United States or any state thereof or the District of Columbia.

Borrowings under the Revolving Credit Agreement may be denominated in dollars, Canadian dollars, euros and British pounds, and bear interest at a per annum rate equal to an applicable eurocurrency rate or base rate plus, in either case, a specified margin, and the borrowers are required to pay an undrawn commitment fee on the undrawn portion of the commitments under the Revolving Credit Agreement and customary letter of credit fees. The specified margin and the amount of the commitment fee depend on CF Holdings' credit rating at the time.

The borrowers and guarantors under the Revolving Credit Agreement, which are currently comprised of CF Holdings, CF Industries and CF Holdings' wholly owned subsidiaries CF Industries Enterprises, Inc. (CFE) and CF Industries Sales, LLC (CFS), are referred to together herein as the Loan Parties. CF Holdings and CF Industries guaranteed the obligations of the Loan Parties under the Revolving Credit Agreement prior to the effectiveness of the November 2016 Credit Agreement Amendment, and, upon the effectiveness of the November 2016 Credit Agreement Amendment, CFE and CFS also became guarantors of the obligations of the Loan Parties under the Revolving Credit Agreement. Subject to specified exceptions, the Revolving Credit Agreement requires that each direct or indirect domestic subsidiary of CF Holdings that guarantees debt for borrowed money of any Loan Party in excess of $150 million become a guarantor under the Revolving Credit Agreement. Subject to specified exceptions, the Revolving Credit Agreement requires a grant of a first priority security interest in substantially all of the assets of the Loan Parties, including a pledge by CFS of its equity interests in CF Industries Nitrogen, LLC (CFN) and mortgages over certain material fee-owned domestic real properties, to secure the obligations of the Loan Parties thereunder.

In addition to the obligations under the Revolving Credit Agreement, the Loan Parties also guarantee the obligations under any (i) letter of credit facilities, letter of credit reimbursement agreements, letters of credit, letters of guaranty, surety bonds or similar arrangements in an aggregate amount up to $300 million and (ii) interest rate or other hedging arrangements, in each case between CF Holdings or certain of its subsidiaries, on the one hand, and any person that is a lender or the administrative agent under the Revolving Credit Agreement or an affiliate of such person, on the other hand, that are designated by CF Industries as Secured Bilateral LC Facilities or Secured Swap Agreements (each as defined in the Revolving Credit Agreement), as applicable, pursuant to the terms of the Revolving Credit Agreement (such additional obligations, the Additional Guaranteed Obligations). Obligations under Secured Bilateral LC Facilities in an aggregate amount up to $300 million and obligations under Secured Swap Agreements are secured by the same security interest that secures the obligations under the Revolving Credit Agreement.

The Revolving Credit Agreement contains representations and warranties and affirmative and negative covenants customary for a financing of this type. Prior to the effectiveness of the November 2016 Credit Agreement Amendment, the Revolving Credit Agreement limited the ability of non-guarantor subsidiaries of CF Holdings to incur indebtedness and limited the ability of CF Holdings and its subsidiaries to grant liens, merge or consolidate with other entities and sell, lease or transfer all or substantially all of the assets of CF Holdings and its subsidiaries to another entity, in each case, subject to specified exceptions. The November 2016 Credit Agreement Amendment modified the negative covenants in the Revolving Credit Agreement to limit further the ability of CF Holdings and its subsidiaries to grant liens and add limitations on the ability of CF Holdings and its subsidiaries to incur debt, pay dividends, voluntarily prepay certain debt, make investments and dispose of assets, in each case, subject to specified exceptions (such further and additional limitations, the Additional Negative Covenants).

The financial covenants applicable to CF Holdings and its subsidiaries in the Revolving Credit Agreement (the New Financial Covenants):

(i) restrict the ratio of total secured debt to EBITDA (as defined in the Revolving Credit Agreement) for the period of four consecutive fiscal quarters most recently ended to a maximum of 3.75:1.00,

(ii) require the ratio of EBITDA for the period of four consecutive fiscal quarters most recently ended to consolidated interest expense (as defined in the Revolving Credit Agreement) for the period of four consecutive fiscal quarters most recently ended to be a minimum of 1.20:1.00 for the fiscal quarters ending on or prior to December 31, 2018, and 1.50:1.00 thereafter, and

(iii) require the ratio of total debt to total capitalization as of the last day of any fiscal quarter to be less than or equal to 0.60:1.00.

As of December 31, 2016, we were in compliance with all covenants under the Revolving Credit Agreement.

Under the Revolving Credit Agreement, if on any date certain conditions were met, including (i) an absence of an event of default under the Revolving Credit Agreement, (ii) the receipt of an investment grade corporate rating for CF Holdings from two of three selected ratings agencies and (iii) the ratio of CF Holdings' total net debt to EBITDA for the period of four consecutive fiscal quarters most recently ended being less than 3.75:1.00, CF Industries would be able to, at its option, choose to (w) suspend the Additional Negative Covenants, (x) replace the New Financial Covenants with covenants requiring the ratio of total net debt to EBITDA for the period of four fiscal consecutive quarters most recently ended to be less than or equal to 3.75:1.00 and the ratio of EBITDA for the period of four consecutive fiscal quarters most recently ended to consolidated interest expense for the period of four consecutive fiscal quarters most recently ended to be not less than 2.75:1.00, (y) release the collateral securing the obligations under the Revolving Credit Agreement and (z) release the guarantees supporting, and the collateral securing, the Secured Bilateral LC Facilities and the Secured Swap Agreements. Such a choice by CF Industries would commence a "Covenant Suspension Period" that would expire upon the Company's no longer having an investment grade corporate rating from two of three selected rating agencies. Upon the expiration of a Covenant Suspension Period, the Additional Negative Covenants and the New Financial Covenants would be reinstated, and the Loan Parties party to the Revolving Credit Agreement would be required to guarantee the Additional Guaranteed Obligations and grant a first priority security interest in substantially all of each Loan Party's assets, including a pledge by CFS of its equity interests in CFN and mortgages over certain material fee-owned domestic real properties, subject to certain exceptions, to secure the obligations under the Revolving Credit Agreement, the Secured Bilateral LC Facilities and the Secured Swap Agreements.

The Revolving Credit Agreement contains events of default (with notice requirements and cure periods, as applicable) customary for a financing of this type, including, but not limited to, non-payment of principal, interest or fees; inaccuracy of representations and warranties in any material respect; and failure to comply with specified covenants. Upon the occurrence and during the continuance of an event of default under the Revolving Credit Agreement and after any applicable cure period, subject to specified exceptions, the administrative agent may, and at the request of the requisite lenders is required to, accelerate the loans under the Revolving Credit Agreement or terminate the lenders' commitments under the Revolving Credit Agreement.

As of December 31, 2016, we had excess borrowing capacity under the Revolving Credit Agreement of $695 million (net of outstanding letters of credit of $55 million). There were no borrowings outstanding under the Revolving Credit Agreement as of December 31, 2016 or December 31, 2015. Maximum borrowings outstanding under the Revolving Credit Agreement during the twelve months ended December 31, 2016 were $150 million. The weighted-average annual interest rate of borrowings under the Revolving Credit Agreement during the twelve months ended December 31, 2016 was 1.85%. Maximum borrowings under the Revolving Credit Agreement during the twelve months ended December 31, 2015, were $367 million with a weighted-average annual interest rate of 1.47%.

Senior Notes

Long-term debt presented on our consolidated balance sheets as of December 31, 2016 and December 31, 2015 consisted of the following Public Senior Notes (unsecured), Senior Secured Notes and Private Senior Notes (unsecured):

	Effective Interest Rate	December 31, 2016		December 31, 2015	
		Principal	Carrying Amount [(1)]	Principal	Carrying Amount [(1)]
		(in millions)			
Public Senior Notes:					
6.875% due 2018	7.344%	$ 800	$ 795	$ 800	$ 792
7.125% due 2020	7.529%	800	791	800	788
3.450% due 2023	3.562%	750	745	750	745
5.150% due 2034	5.279%	750	739	750	739
4.950% due 2043	5.031%	750	741	750	741
5.375% due 2044	5.465%	750	741	750	740
Senior Secured Notes:					
3.400% due 2021	3.784%	500	491	—	—
4.500% due 2026	4.760%	750	735	—	—
Private Senior Notes:					
4.490% due 2022	4.664%	—	—	250	248
4.930% due 2025	5.061%	—	—	500	496
5.030% due 2027	5.145%	—	—	250	248
Total long-term debt		$ 5,850	$ 5,778	$ 5,600	$ 5,537

(1) Carrying amount is net of unamortized debt discount and deferred debt issuance costs. Total unamortized debt discount was $12 million and $7 million as of December 31, 2016 and December 31, 2015, respectively, and total deferred debt issuance costs were $60 million and $56 million as of December 31, 2016 and December 31, 2015, respectively.

Public Senior Notes

Under the indentures (including the applicable supplemental indentures) governing the senior notes due 2018, 2020, 2023, 2034, 2043 and 2044 identified in the table above (the Public Senior Notes), each series of Public Senior Notes is guaranteed by CF Holdings. Interest on the Public Senior Notes is payable semiannually, and the Public Senior Notes are redeemable at our option, in whole at any time or in part from time to time, at specified make-whole redemption prices. The indentures governing the Public Senior Notes contain customary events of default (including cross-default triggered by acceleration of, or a principal payment default that is not cured within an applicable grace period under, other debt having a principal amount of $150 million or more) and covenants that limit, among other things, the ability of CF Holdings and its subsidiaries, including CF Industries, to incur liens on certain properties to secure debt.

If a Change of Control occurs together with a Ratings Downgrade (as both terms are defined under the indentures governing the Public Senior Notes), CF Industries would be required to offer to repurchase each series of Public Senior Notes at a price equal to 101% of the principal amount thereof, plus accrued and unpaid interest. In addition, in the event that a subsidiary of CF Holdings, other than CF Industries, becomes a borrower or a guarantor under the Revolving Credit Agreement (or any renewal, replacement or refinancing thereof), such subsidiary would be required to become a guarantor of the Public Senior Notes, provided that such requirement will no longer apply with respect to the Public Senior Notes due 2023, 2034, 2043 and 2044 following the repayment of the Public Senior Notes due 2018 and 2020 or the subsidiaries of ours, other than CF Industries, otherwise becoming no longer subject to such a requirement to guarantee the Public Senior Notes due 2018 and 2020.

On November 21, 2016, in connection with the effectiveness of the November 2016 Credit Agreement Amendment, CFE and CFS became subsidiary guarantors of the Public Senior Notes.

Senior Secured Notes

On November 21, 2016, CF Industries issued $500 million aggregate principal amount of 3.400% senior secured notes due 2021 (the 2021 Notes) and $750 million aggregate principal amount of 4.500% senior secured notes due 2026 (the 2026 Notes, and together with the 2021 Notes, the Senior Secured Notes). The net proceeds, after deducting discounts and offering expenses, from the issuance and sale of the Notes were approximately $1.23 billion. CF Industries used approximately $1.18 billion of the net proceeds for the prepayment (including payment of a make-whole amount of approximately $170 million and accrued interest) in full of the outstanding $1.0 billion aggregate principal amount of the Private Senior Notes. See "—Private Senior Notes," below. The Company intends that the remainder of the net proceeds be used for general corporate purposes.

Interest on the Senior Secured Notes is payable semiannually on December 1 and June 1 beginning on June 1, 2017, and the Senior Secured Notes are redeemable at our option, in whole at any time or in part from time to time, at specified make-whole redemption prices.

Under the terms of the applicable indenture, the Senior Secured Notes of each series are fully and unconditionally guaranteed on a senior secured basis, jointly and severally, by CF Holdings and each current and future domestic subsidiary of CF Holdings (other than CF Industries) that from time to time is a borrower, or guarantees indebtedness, under the Revolving Credit Agreement. The requirement for any subsidiary of CF Holdings to guarantee the Senior Secured Notes of a series will apply only until, and the subsidiary guarantees of the Senior Secured Notes of a series will be automatically released upon, the latest to occur of (a) CF Holdings having an investment grade corporate rating, with a stable or better outlook, from two of three selected ratings agencies and there being no default or event of default under the applicable Indenture, (b) the retirement, discharge or legal or covenant defeasance of, or satisfaction and discharge of the supplemental indenture governing, the Public Senior Notes due 2018 or the subsidiaries of CF Holdings (other than CF Industries) otherwise becoming no longer subject to the requirement, described in the second paragraph under "—Public Senior Notes," above, to guarantee the Public Senior Notes due 2018 and (c) the retirement, discharge or legal or covenant defeasance of, or satisfaction and discharge of the supplemental indenture governing, the Public Senior Notes due 2020 or the subsidiaries of CF Holdings (other than CF Industries) otherwise becoming no longer subject to the requirement, described in the second paragraph under "—Public Senior Notes," above, to guarantee the Public Senior Notes due 2020. In accordance with the applicable indenture, CFE and CFS, in addition to CF Holdings, guaranteed the Senior Secured Notes of each series upon the initial issuance of the Senior Secured Notes.

Subject to certain exceptions, the obligations under each series of Senior Secured Notes and each guarantor's related guarantee are secured by a first priority security interest in substantially all of the assets of CF Industries, CF Holdings and the subsidiary guarantors, including a pledge by CFS of its equity interests in CFN and mortgages over certain material fee-owned domestic real properties (the Collateral). The obligations under the Revolving Credit Agreement, together with certain letter of credit, hedging and similar obligations and future pari passu secured indebtedness, will be secured by the Collateral on a pari passu basis with the Senior Secured Notes. The liens on the Collateral securing the obligations under the Senior Secured Notes of a series and the related guarantees will be automatically released and the covenant under the applicable indenture limiting dispositions of Collateral will no longer apply if on any date after the initial issuance of the Senior Secured Notes CF Holdings has an investment grade corporate rating, with a stable or better outlook, from two of three selected ratings agencies and there is no default or event of default under the applicable indenture.

Under each of the indentures governing the Senior Secured Notes, specified changes of control involving CF Holdings or CF Industries, when accompanied by a ratings downgrade, as defined with respect to the applicable series of Senior Secured Notes, constitute change of control repurchase events. Upon the occurrence of a change of control repurchase event with respect to the 2021 Notes or the 2026 Notes, as applicable, unless CF Industries has exercised its option to redeem such Senior Secured Notes, CF Industries will be required to offer to repurchase them at a price equal to 101% of the principal amount thereof, plus accrued and unpaid interest, if any, to, but not including, the date of repurchase.

The indentures governing the Senior Secured Notes contain covenants that limit, among other things, the ability of CF Holdings and its subsidiaries, including CF Industries, to incur liens on certain assets to secure debt, to engage in sale and leaseback transactions, to sell or transfer Collateral, to merge or consolidate with other entities and to sell, lease or transfer all or substantially all of the assets of CF Holdings and its subsidiaries to another entity. Each of the indentures governing the Senior Secured Notes provides for customary events of default, which include (subject in certain cases to customary grace and cure periods), among others, nonpayment of principal or interest on the applicable Senior Secured Notes; failure to comply with other covenants or agreements under the indenture; certain defaults on other indebtedness; the failure of CF Holdings' or certain subsidiaries' guarantees of the applicable Senior Secured Notes to be enforceable; lack of validity or perfection of any lien securing the obligations under the Senior Secured Notes and the guarantees with respect to Collateral having an aggregate fair market value equal to or greater than a specified amount; and specified events of bankruptcy or insolvency. Under each indenture governing the Senior Secured Notes, in the case of an event of default arising from one of the specified events of bankruptcy or insolvency, the applicable Senior Secured Notes would become due and payable immediately, and, in the case of any other event of default (other than an event of default related to CF Industries' and CF Holdings' reporting obligations), the trustee or the holders of at least 25% in aggregate principal amount of the applicable Senior Secured Notes then outstanding may declare all of such Senior Secured Notes to be due and payable immediately.

Private Senior Notes

The senior notes due 2022, 2025 and 2027 (the Private Senior Notes), issued by CF Industries on September 24, 2015, were governed by the terms of a note purchase agreement (as amended, including by an amendment effective September 7, 2016, the Note Purchase Agreement). The Private Senior Notes were guaranteed by CF Holdings. All obligations under the Note Purchase Agreement were unsecured.

On November 21, 2016, we prepaid in full the outstanding $1.0 billion aggregate principal amount of our Private Senior Notes. The prepayment of $1.18 billion included the payment of a make-whole amount of approximately $170 million and accrued interest. Loss on debt extinguishment of $167 million on our consolidated statement of operations excludes $3 million of the make-whole payment, which was accounted for as a modification and recognized on our consolidated balance sheet as deferred financing fees, a reduction of long-term debt, and is being amortized using the effective interest rate method over the term of the Senior Secured Notes.

Bridge Credit Agreement

On September 18, 2015, in connection with our proposed combination with certain businesses of OCI (see Note 4—Acquisitions and Divestitures for additional information), CF Holdings and CF Industries entered into a senior unsecured 364-Day Bridge Credit Agreement (as amended, the Bridge Credit Agreement). Upon the termination of the Combination Agreement on May 22, 2016, the lenders' commitments under the Bridge Credit Agreement terminated automatically. There were no borrowings under the Bridge Credit Agreement. See Note 13—Interest Expense for additional information.

13. Interest Expense

Details of interest expense are as follows:

	Year ended December 31,		
	2016	2015	2014
		(in millions)	
Interest on borrowings[1]	$ 303	$ 267	$ 238
Fees on financing agreements[1][2][3]	59	17	11
Interest on tax liabilities	4	3	3
Interest capitalized	(166)	(154)	(74)
Interest expense	$ 200	$ 133	$ 178

(1) See Note 12—Financing Agreements for additional information.

(2) Fees on financing agreements for the year ended December 31, 2016 includes $28 million of fees related to the termination of the tranche B commitment under the bridge credit agreement as a result of the termination of the Combination Agreement. Fees on financing agreements for the year ended December 31, 2015 includes $6 million of accelerated amortization of deferred fees related to the termination in September 2015 of the tranche A commitment under the bridge credit agreement. See Note 4—Acquisitions and Divestitures additional information.

(3) Fees on financing agreements for the year ended December 31, 2016 includes $9 million of accelerated amortization of deferred fees related to the payment of the Private Senior Notes in November 2016, $2 million of accelerated amortization of deferred fees related to the July 2016 Credit Agreement Amendment, which reduced the Revolving Credit Facility to $1.5 billion from $2.0 billion, and $4 million of accelerated amortization of deferred fees related to the November 2016 Credit Agreement Amendment, which reduced the Revolving Credit Facility to $750 million from $1.5 billion. See Note 12—Financing Agreements for additional information.

14. Other Operating—Net

Details of other operating—net are as follows:

	Year ended December 31,		
	2016	2015	2014
		(in millions)	
Loss on disposal of property, plant and equipment—net	$ 10	$ 21	$ 4
Expansion project costs[1]	73	51	30
Loss on foreign currency derivatives[2]	—	22	38
Loss (gain) on foreign currency transactions[3]	93	(8)	(15)
Loss on embedded derivative[4]	23	—	—
Closed facilities costs	—	—	1
Other	9	6	(5)
Other operating—net	$ 208	$ 92	$ 53

(1) Expansion project costs that did not qualify for capitalization include amounts related to administrative and consulting services for our capacity expansion projects in Port Neal, Iowa and Donaldsonville, Louisiana.

(2) See Note 15—Derivative Financial Instruments for additional information.

(3) Loss (gain) on foreign currency transactions primarily relates to the unrealized foreign currency exchange rate impact on intercompany debt that has not been permanently invested.

(4) The loss on embedded derivative consists of unrealized and realized losses related to a provision of our strategic venture with CHS. See Note 9—Fair Value Measurements for additional information.

15. Derivative Financial Instruments

We use derivative financial instruments to reduce our exposure to changes in commodity prices and foreign currency exchange rates.

Commodity Price Risk Management

Natural gas is the largest and most volatile component of the manufacturing cost for nitrogen-based products. We manage the risk of changes in natural gas prices primarily through the use of derivative financial instruments. The derivatives that we use for this purpose are primarily natural gas fixed price swaps and natural gas options traded in the OTC markets. These natural gas derivatives settle using primarily a NYMEX futures price index, which represents the basis for fair value at any given time. We enter into natural gas derivative contracts with respect to natural gas to be consumed by us in the future, and settlements of those derivative contracts are scheduled to coincide with our anticipated purchases of natural gas used to manufacture nitrogen products during those future periods. We use natural gas derivatives as an economic hedge of natural gas price risk, but without the application of hedge accounting. As a result, changes in fair value of these contracts are recognized in earnings. As of December 31, 2016, we have natural gas derivative contracts covering periods through the end of 2018.

As of December 31, 2016 and 2015, we had open natural gas derivative contracts for 183.0 million MMBtus and 431.5 million MMBtus, respectively. For the year ended December 31, 2016, we used derivatives to cover approximately 84% of our natural gas consumption.

Foreign Currency Exchange Rates

A portion of the costs for our capacity expansion projects at our Donaldsonville, Louisiana complex and Port Neal, Iowa complex were euro-denominated. In order to manage our exposure to changes in the euro to U.S. dollar currency exchange rates, we hedged our projected euro-denominated payments through the end of 2016 using foreign currency forward contracts.

As of December 31, 2015, the notional amount of our open foreign currency derivatives was €89 million. None of these open foreign currency derivatives were designated as hedging instruments for accounting purposes. All of these foreign currency derivatives settled in 2016.

As of December 31, 2016, accumulated other comprehensive loss (AOCL) includes $7 million of pre-tax gains related to the foreign currency derivatives that were originally designated as cash flow hedges. The hedges were de-designated as of December 31, 2013. The remaining balance in AOCL is being reclassified into income over the depreciable lives of the property, plant and equipment associated with the capacity expansion projects. The amounts reclassified into income from AOCL during the years ended December 31, 2016, 2015 and 2014 were zero, zero and $3 million, respectively, and are included in other operating—net in our consolidated statements of operations. We expect that the amounts to be reclassified within the next twelve months will be insignificant.

During the years ended December 31, 2016, 2015, and 2014, none of our derivatives were designated as hedges and no gain or loss was recognized in income or AOCL related to derivatives designated as cash flow hedges except for the amounts recognized in income, which were reclassified from AOCL, as discussed above.

The effect of derivatives in our consolidated statements of operations is shown in the table below:

	Gain (loss) in income			
		Year ended December 31,		
	Location	2016	2015	2014
			(in millions)	
Natural gas derivatives	Cost of sales	$ 260	$ (176)	$ (79)
Foreign exchange contracts	Other operating—net	—	22	(44)
Unrealized gains (losses) recognized in income		260	(154)	(123)
Realized (losses) gains		(133)	(114)	64
Net derivative gains (losses)		$ 127	$ (268)	$ (59)

The fair values of derivatives on our consolidated balance sheets are shown below. As of December 31, 2016 and 2015, none of our derivative instruments were designated as hedging instruments. See Note 9—Fair Value Measurements for additional information on derivative fair values.

	Asset Derivatives			Liability Derivatives		
	Balance Sheet Location	December 31, 2016	December 31, 2015	Balance Sheet Location	December 31, 2016	December 31, 2015
		(in millions)			(in millions)	
Natural gas derivatives	Other current assets	$ 52	$ —	Other current liabilities	$ —	$ (130)
Natural gas derivatives	Other assets	4	—	Other liabilities	(6)	(81)
Total derivatives		$ 56	$ —		$ (6)	$ (211)

The counterparties to our derivative contracts are multinational commercial banks, major financial institutions and large energy companies. Our derivatives are executed with several counterparties, generally under International Swaps and Derivatives Association (ISDA) agreements. The ISDA agreements are master netting arrangements commonly used for OTC derivatives that mitigate exposure to counterparty credit risk, in part, by creating contractual rights of netting and setoff, the specifics of which vary from agreement to agreement. These rights are described further below:

- Settlement netting generally allows us and our counterparties to net, into a single net payable or receivable, ordinary settlement obligations arising between us under the ISDA agreement on the same day, in the same currency, for the same types of derivative instruments, and through the same pairing of offices.
- Close-out netting rights are provided in the event of a default or other termination event (as defined in the ISDA agreements), including bankruptcy. Depending on the cause of early termination, the non-defaulting party may elect to terminate all or some transactions outstanding under the ISDA agreement. The values of all terminated transactions and certain other payments under the ISDA agreement are netted, resulting in a single net close-out amount payable to or by the non-defaulting party. Termination values may be determined using a mark-to-market approach or based on a party's good faith estimate of its loss. If the final net close-out amount is payable by the non-defaulting party, that party's obligation to make the payment may be conditioned on factors such as the termination of all derivative transactions between the parties or payment in full of all of the defaulting party's obligations to the non-defaulting party, in each case regardless of whether arising under the ISDA agreement or otherwise.
- Setoff rights are provided by certain of our ISDA agreements and generally allow a non-defaulting party to elect to set off, against the final net close-out payment, other matured and contingent amounts payable between us and our counterparties under the ISDA agreement or otherwise. Typically, these setoff rights arise upon the early termination of all transactions outstanding under an ISDA agreement following a default or specified termination event.

Most of our ISDA agreements contain credit-risk-related contingent features such as cross default provisions and credit support thresholds. In the event of certain defaults or a credit ratings downgrade, our counterparty may request early termination and net settlement of certain derivative trades or may require us to collateralize derivatives in a net liability position. The Revolving Credit Agreement, at any time when it is secured, provides a cross collateral feature for those of our derivatives that are with counterparties that are party to, or affiliates of parties to, the Revolving Credit Agreement so that no separate collateral would be required for those counterparties in connection with such derivatives. In the event the Revolving Credit Agreement becomes unsecured, separate collateral could be required in connection with such derivatives. As of December 31, 2016 and 2015, the aggregate fair value of the derivative instruments with credit-risk-related contingent features in net liability positions was zero and $211 million, respectively, which also approximates the fair value of the maximum amount of additional collateral that would need to be posted or assets needed to settle the obligations if the credit-risk-related contingent features were triggered at the reporting dates. As of December 31, 2016 and 2015, we had no cash collateral on deposit with counterparties for derivative contracts. The credit support documents executed in connection with certain of our ISDA agreements generally provide us and our counterparties the right to set off collateral against amounts owing under the ISDA agreements upon the occurrence of a default or a specified termination event.

The following table presents amounts relevant to offsetting of our derivative assets and liabilities as of December 31, 2016 and 2015:

	Amounts presented in consolidated balance sheets[1]	Gross amounts not offset in consolidated balance sheets		Net amount
		Financial instruments	Cash collateral received (pledged)	
	(in millions)			
December 31, 2016				
Total derivative assets	$ 56	$ 6	$ —	$ 50
Total derivative liabilities	6	6	—	—
Net derivative assets	$ 50	$ —	$ —	$ 50
December 31, 2015				
Total derivative assets	$ —	$ —	$ —	$ —
Total derivative liabilities	211	—	—	211
Net derivative liabilities	$ (211)	$ —	$ —	$ (211)

(1) We report the fair values of our derivative assets and liabilities on a gross basis on our consolidated balance sheets. As a result, the gross amounts recognized and net amounts presented herein are the same.

We do not believe the contractually allowed netting, close-out netting or setoff of amounts owed to, or due from, the counterparties to our ISDA agreements would have a material effect on our financial position.

16. Supplemental Balance Sheet Data

Accounts Receivable—Net

Accounts receivable—net consist of the following:

	December 31, 2016	December 31, 2015
	(in millions)	
Trade	$ 227	$ 210
Other	9	57
Accounts receivable—net	$ 236	$ 267

Trade accounts receivable is net of an allowance for doubtful accounts of $3 million as of December 31, 2016 and 2015.

Inventories

Inventories consist of the following:

	December 31, 2016	December 31, 2015
	(in millions)	
Finished goods	$ 279	$ 286
Raw materials, spare parts and supplies	60	35
Total inventories	$ 339	$ 321

Accounts Payable and Accrued Expenses

Accounts payable and accrued expenses consist of the following:

	December 31,	
	2016	2015
	(in millions)	
Accounts payable	$ 81	$ 97
Capacity expansion project costs	185	416
Accrued natural gas costs	111	70
Payroll and employee-related costs	46	49
Accrued interest	53	60
Other	162	226
Accounts payable and accrued expenses	$ 638	$ 918

Capacity expansion project costs include the capital expenditures invested in the capacity expansion projects.

Payroll and employee-related costs include accrued salaries and wages, vacation, incentive plans and payroll taxes.

Accrued interest includes interest payable on our outstanding senior notes. See Note 12—Financing Agreements and Note 13—Interest Expense for additional information.

Other includes accrued utilities, property taxes, sales incentives and other credits, accrued litigation settlement costs, accrued transaction costs, maintenance and professional services.

Other Current Liabilities

As of December 31, 2016, other current liabilities of $5 million consists of the current portion of the unrealized loss on the embedded derivative liability related to our strategic venture with CHS. See Note 9—Fair Value Measurements and Note 17—Noncontrolling Interests for additional information.

As of December 31, 2015, other current liabilities consists of unrealized losses on natural gas and foreign currency derivatives amounting to $130 million. See Note 15—Derivative Financial Instruments for additional information.

Other Liabilities

Other liabilities consist of the following:

	December 31,	
	2016	2015
	(in millions)	
Benefit plans and deferred compensation	$ 393	$ 343
Tax-related liabilities	103	118
Unrealized losses on derivatives	6	81
Unrealized loss on embedded derivative	21	—
Capacity expansion project costs	—	55
Environmental and related costs	8	7
Other	14	24
Other liabilities	$ 545	$ 628

Benefit plans and deferred compensation include liabilities for pensions, retiree medical benefits, and the noncurrent portion of incentive plans. See Note 11—Pension and Other Postretirement Benefits for additional information.

As of December 31, 2015, capacity expansion project costs consisted of amounts due to contractors that would be paid upon completion of the project in accordance with the related contract terms. The capacity expansion projects were completed in 2016; therefore, amounts accrued as of December 31, 2016 are included in accounts payable and accrued expenses.

17. Noncontrolling Interests

A reconciliation of the beginning and ending balances of noncontrolling interests and distributions payable to the noncontrolling interests on our consolidated balance sheets is provided below.

	Year ended December 31,				
	2016			2015	2014
	CFN	TNCLP	Total	TNCLP	TNCLP
	(in millions)				
Noncontrolling interests:					
Beginning balance	$ —	$ 352	$ 352	$ 363	$ 362
Issuance of noncontrolling interest in CFN	2,792	—	2,792	—	—
Earnings attributable to noncontrolling interests	93	26	119	34	47
Declaration of distributions payable	(79)	(40)	(119)	(45)	(46)
Ending balance	$ 2,806	$ 338	$ 3,144	$ 352	$ 363
Distributions payable to noncontrolling interests:					
Beginning balance	$ —	$ —	$ —	$ —	$ —
Declaration of distributions payable	79	40	119	45	46
Distributions to noncontrolling interests	(79)	(40)	(119)	(45)	(46)
Ending balance	$ —	$ —	$ —	$ —	$ —

CF Industries Nitrogen, LLC (CFN)

We commenced a strategic venture with CHS on February 1, 2016, at which time CHS purchased a minority equity interest in CFN for $2.8 billion. For financial reporting purposes, the assets, liabilities and earnings of the strategic venture are consolidated into our financial statements. CHS' interest in the strategic venture is recorded in noncontrolling interests in our consolidated financial statements. On February 1, 2016, CHS also began receiving deliveries pursuant to a supply agreement under which CHS has the right to purchase annually from CFN up to approximately 1.1 million tons of granular urea and 580,000 tons of UAN at market prices. As a result of its minority equity interest in CFN, CHS is entitled to semi-annual cash distributions from CFN. We are also entitled to semi-annual cash distributions from CFN. The amounts of distributions from CFN to us and CHS are based generally on the profitability of CFN and determined based on the volume of granular urea and UAN sold by CFN to us and CHS pursuant to supply agreements, less a formula driven amount based primarily on the cost of natural gas used to produce the granular urea and UAN, and adjusted for the allocation of items such as operational efficiencies and overhead amounts.

Additionally, under the terms of the strategic venture, if our credit rating is reduced below certain levels by two of three specified credit rating agencies, we are required to make a non-refundable yearly payment of $5 million to CHS. The payment would continue on a yearly basis until the earlier of the date that our credit rating is upgraded to or above certain levels by two of the three specified credit rating agencies or February 1, 2026. On February 1, 2016, we recognized this term of the strategic venture as an embedded derivative and its value of $8 million was included in other liabilities on our consolidated balance sheet. During 2016, we recorded adjustments of $23 million to the value of the embedded derivative liability to reflect our credit evaluations. In the fourth quarter of 2016, as a result of the reduction in our credit rating, we made a $5 million payment to CHS. See Note 9—Fair Value Measurements for additional information.

In the first quarter of 2017, the CFN Board of Managers approved semi-annual distribution payments for the distribution period ended December 31, 2016 in accordance with the Second Amended and Restated Limited Liability Company Agreement of CFN. On January 31, 2017, CFN distributed $48 million to CHS for the distribution period ended December 31, 2016.

Terra Nitrogen Company, L.P. (TNCLP)

TNCLP is a master limited partnership (MLP) that owns a nitrogen fertilizer manufacturing facility in Verdigris, Oklahoma. We own approximately 75.3% of TNCLP through general and limited partnership interests. Outside investors own the remaining approximately 24.7% of the limited partnership. For financial reporting purposes, the assets, liabilities and earnings of the partnership are consolidated into our financial statements. The outside investors' limited partnership interests in the partnership are recorded in noncontrolling interests in our consolidated financial statements. The noncontrolling interest represents the noncontrolling unitholders' interest in the earnings and equity of TNCLP. Affiliates of CF Industries are required to purchase all of TNCLP's fertilizer products at market prices as defined in the Amendment to the General and Administrative Services and Product Offtake Agreement, dated September 28, 2010.

TNCLP makes cash distributions to the general and limited partners based on formulas defined within its First Amended and Restated Agreement of Limited Partnership (as amended, the TNCLP Agreement of Limited Partnership). Cash available for distribution (Available Cash) is defined in the TNCLP Agreement of Limited Partnership generally as all cash receipts less all cash disbursements, less certain reserves (including reserves for future operating and capital needs) established as the general partner determines in its reasonable discretion to be necessary or appropriate. Changes in working capital affect Available Cash, as increases in the amount of cash invested in working capital items (such as increases in inventory and decreases in accounts payable) reduce Available Cash, while declines in the amount of cash invested in working capital items increase Available Cash. Cash distributions to the limited partners and general partner vary depending on the extent to which the cumulative distributions exceed certain target threshold levels set forth in the TNCLP Agreement of Limited Partnership.

In each quarter of 2016, 2015 and 2014, the minimum quarterly distributions requirements under the TNCLP Agreement of Limited Partnership were satisfied, which entitled Terra Nitrogen GP Inc. (TNGP), the general partner of TNCLP and an indirect wholly owned subsidiary of CF Holdings, to receive incentive distributions on its general partner interests (in addition to minimum quarterly distributions). TNGP has assigned its right to receive such incentive distributions to an affiliate of TNGP that is also an indirect wholly owned subsidiary of CF Holdings. The earnings attributed to our general partner interest in excess of the threshold levels for the years ended December 31, 2016, 2015 and 2014 were $65 million, $116 million and $139 million, respectively.

As of December 31, 2016, TNGP and its affiliates owned approximately 75.1% of TNCLP's outstanding common units and all of TNCLP's Class B common units. When not more than 25% of TNCLP's issued and outstanding common units are held by persons other than TNGP and its affiliates (collectively, non-affiliated persons), TNCLP, at TNGP's sole discretion, may call, or assign to TNGP or its affiliates, TNCLP's right to acquire all such outstanding common units held by non-affiliated persons. If TNGP elects to acquire all outstanding common units, TNCLP is required to give at least 30 but not more than 60 days' notice of TNCLP's decision to purchase the outstanding common units. The purchase price per unit will be the greater of (1) the average of the previous 20 trading days' closing prices as of the date five days before the purchase is announced or (2) the highest price paid by TNGP or any of its affiliates for any unit within the 90 days preceding the date the purchase is announced.

Internal Revenue Service Regulation Impacting Master Limited Partnerships

Currently, no federal income taxes are paid by TNCLP due to its MLP status. Partnerships are generally not subject to federal income tax, although publicly-traded partnerships (such as TNCLP) are treated as corporations for federal income tax purposes (and therefore are subject to federal income tax), unless at least 90% of the partnership's gross income is "qualifying income" as defined in Section 7704 of the Internal Revenue Code of 1986, as amended (the Code), and the partnership is not required to register as an investment company under the Investment Company Act of 1940. Any change in the tax treatment of income from fertilizer-related activities as qualifying income could cause TNCLP to be treated as a corporation for federal income tax purposes. If TNCLP were taxed as a corporation, under current law, due to its current ownership interest, CF Industries would qualify for a partial dividends received deduction on the dividends received from TNCLP. Therefore, we would not expect a change in the tax treatment of TNCLP to have a material impact on the consolidated financial condition or results of operations of CF Holdings.

On January 19, 2017, the Internal Revenue Service (IRS) issued final regulations on the types of income and activities that constitute or generate qualifying income of a MLP. For calendar year MLPs, the effective date of the regulations is January 1, 2018. The regulations have the effect of limiting the types of income and activities that qualify under the MLP rules, subject to certain transition provisions. The regulations define the activities that generate qualifying income from certain processing or refining and transportation activities with respect to any mineral or natural resource (including fertilizer) as activities that generate qualifying income, but the regulations reserve on specifics regarding fertilizer-related activities. We continue to monitor these IRS regulatory activities.

18. Stockholders' Equity

Common Stock

Our Board of Directors (the Board) has authorized certain programs to repurchase shares of our common stock. Each of these programs has permitted repurchases to be made from time to time in the open market, through privately-negotiated transactions, through block transactions or otherwise. Our management has determined the manner, timing and amount of repurchases under these programs based on the evaluation of market conditions, stock price and other factors.

In the third quarter of 2012, the Board authorized a program to repurchase up to $3 billion of the common stock of CF Holdings through December 31, 2016 (the 2012 Program). The repurchases under the 2012 Program were completed in the second quarter of 2014. On August 6, 2014, the Board authorized a program to repurchase up to $1 billion of the common stock of CF Holdings through December 31, 2016 (the 2014 Program).

The following table summarizes the share repurchases under the 2014 Program and the 2012 Program.

	2014 Program		2012 Program	
	Shares	Amounts	Shares	Amounts
	(in millions)			
Shares repurchased in 2013	—	$ —	36.7	$ 1,449
Shares repurchased in 2014:				
First quarter	—	$ —	16.0	$ 794
Second quarter	—	—	15.4	757
Third quarter	—	—	—	—
Fourth quarter	7.0	373	—	—
Total shares repurchased in 2014	7.0	373	31.4	1,551
Shares repurchased as of December 31, 2014	7.0	$ 373	68.1	$ 3,000
Shares repurchased in 2015:				
First quarter	4.1	$ 237		
Second quarter	4.5	268		
Third quarter	0.3	22		
Fourth quarter	—	—		
Total shares repurchased in 2015	8.9	527		
Shares repurchased as of December 31, 2015	15.9	$ 900		

In 2016, no shares were repurchased under the 2014 Program. The 2014 Program expired on December 31, 2016 with the $100 million of repurchase authorization remaining. As of December 31, 2016 and 2015, the amount of shares repurchased that was accrued but unpaid was zero.

During 2016 and 2015, we retired 2.4 million shares and 10.7 million shares of repurchased stock, respectively. The retired shares were returned to the status of authorized but unissued shares. As part of the retirements, we reduced our treasury stock, paid-in capital, and retained earnings balances for 2016 by $150 million, $14 million, and $136 million, respectively, and for 2015 by $597 million, $62 million, and $535 million, respectively. As of December 31, 2016 and 2015, we held in treasury approximately 28 thousand shares and 2.4 million shares of repurchased stock, respectively.

Changes in common shares outstanding are as follows:

	Year ended December 31,		
	2016	2015	2014
Beginning balance	233,081,556	241,673,050	279,240,970
Exercise of stock options	17,600	274,705	942,560
Issuance of restricted stock(1)	44,941	40,673	20,875
Forfeitures of restricted stock	(10,000)	—	(65,680)
Purchase of treasury shares(2)	(19,928)	(8,906,872)	(38,465,675)
Ending balance	233,114,169	233,081,556	241,673,050

(1) Includes shares issued from treasury.
(2) Includes shares withheld to pay employee tax obligations upon the vesting of restricted stock.

Preferred Stock

CF Holdings is authorized to issue 50 million shares of $0.01 par value preferred stock. Our Second Amended and Restated Certificate of Incorporation, as amended, authorizes the Board, without any further stockholder action or approval, to issue these shares in one or more classes or series, and (except in the case of our Series A Junior Participating Preferred Stock, 500,000 shares of which are authorized and the terms of which were specified in the original certificate of incorporation of CF Holdings) to fix the rights, preferences and privileges of the shares of each wholly unissued class or series and any of its qualifications, limitations or restrictions. In connection with the Plan (as defined below), 500,000 shares of preferred stock have been designated as Series B Junior Participating Preferred Stock. The Series A Junior Participating Preferred Stock had been established in CF Holdings' original certificate of incorporation in connection with our former stockholder rights plan that expired in 2015. No shares of preferred stock have been issued.

Tax Benefits Preservation Plan

On September 6, 2016, CF Holdings entered into a Tax Benefits Preservation Plan (the Plan) with Computershare Trust Company, N.A., as rights agent. The Plan is intended to help protect our tax net operating losses and certain other tax assets (the Tax Benefits) by deterring any person from becoming a "5-percent shareholder" (as defined in Section 382 of the Internal Revenue Code of 1986, as amended) (a 5% Shareholder).

Under the Plan, each share of common stock has attached to it one right. Each right entitles the holder to purchase one one-thousandth of a share of our preferred stock designated as Series B Junior Participating Preferred Stock at a purchase price of $100, subject to adjustment. Rights will only be exercisable under the limited circumstances specified in the Plan when there has been a distribution of the rights and such rights are no longer redeemable by CF Holdings. A distribution of the rights would occur upon the earlier of (i) 10 business days following a public announcement that a person or group of affiliated or associated persons has become a 5% Shareholder (subject to certain exceptions described in the Plan) and (ii) 10 business days (or such later date as the Board shall determine) following the commencement of a tender offer or exchange offer that would result in a person or group of affiliated or associated persons becoming a 5% Shareholder (subject to certain exceptions described in the Plan).

The rights will expire at the earliest of (i) 5:00 P.M. (New York City time) on September 5, 2017, or such later date and time (but not later than 5:00 P.M. (New York City time) on September 5, 2019) as may be determined by the Board and approved by the stockholders of CF Holdings by a vote of the majority of the votes cast by the holders of shares entitled to vote thereon at a meeting of the stockholders of CF Holdings prior to 5:00 P.M. (New York City time) on September 5, 2017, (ii) the time at which the rights are redeemed or exchanged as provided in the Plan, (iii) the time at which the Board determines that the Plan is no longer necessary or desirable for the preservation of Tax Benefits, and (iv) the close of business on the first day of a taxable year of CF Holdings to which the Board determines that no Tax Benefits may be carried forward.

In the event that a person or group of affiliated or associated persons becomes a 5% Shareholder (subject to certain exceptions described in the Plan), each holder of a right, other than such person, any member of such group or related person, all of whose rights will be null and void, will thereafter have the right to receive, upon exercise, common stock having a value equal to two times the exercise price of the right.

If we are involved in certain merger or other business combination transactions, each right will entitle its holder to receive, after exercise, a number of shares of the acquiring or surviving company's common stock having a value equal to two times the exercise price of the right.

The description and terms of the rights are set forth in the Plan.

Accumulated Other Comprehensive (Loss) Income

Changes to accumulated other comprehensive (loss) income (AOCI) and the impact on other comprehensive loss are as follows:

	Foreign Currency Translation Adjustment	Unrealized Gain (Loss) on Securities	Unrealized Gain (Loss) on Derivatives	Defined Benefit Plans	Accumulated Other Comprehensive (Loss) Income
			(in millions)		
Balance as of December 31, 2013	$ 31	$ 1	$ 7	$ (82)	$ (43)
Reclassification to earnings	—	—	(3)	33	30
Loss arising during the period	—	—	—	(106)	(106)
Effect of exchange rate changes and deferred taxes	(72)	—	1	30	(41)
Balance as of December 31, 2014	(41)	1	5	(125)	(160)
Reclassification to earnings	—	1	—	6	7
Impact of CF Fertilisers UK acquisition	9	—	—	38	47
Gain arising during the period	—	—	—	24	24
Effect of exchange rate changes and deferred taxes	(166)	(1)	—	(1)	(168)
Balance as of December 31, 2015	(198)	1	5	(58)	(250)
Unrealized loss	—	(1)	—	—	(1)
Reclassification to earnings	—	1	—	1	2
Loss arising during the period	—	—	—	(97)	(97)
Effect of exchange rate changes and deferred taxes	(74)	—	—	22	(52)
Balance as of December 31, 2016	$ (272)	$ 1	$ 5	$ (132)	$ (398)

Reclassifications out of AOCI to the consolidated statements of operations for the years ended December 31, 2016, 2015 and 2014 were as follows:

	Year ended December 31,		
	2016	2015	2014
		(in millions)	
Foreign Currency Translation Adjustment			
CF Fertilisers UK equity method investment remeasurement[1]	$ —	$ 9	$ —
Total before tax	—	9	—
Tax effect	—	—	—
Net of tax	$ —	$ 9	$ —
Unrealized Gain (Loss) on Securities			
Available-for-sale securities[2]	$ 1	$ 1	$ —
Total before tax	1	1	—
Tax effect	—	(1)	—
Net of tax	$ 1	$ —	$ —
Unrealized Gain (Loss) on Derivatives			
Reclassification of de-designated hedges[3]	$ —	$ —	$ (3)
Total before tax	—	—	(3)
Tax effect	—	—	1
Net of tax	$ —	$ —	$ (2)
Defined Benefit Plans			
CF Fertilisers UK equity method investment remeasurement[1]	$ —	$ 38	$ —
Amortization of prior service cost (benefit)[4]	(1)	(1)	—
Amortization of net loss[4]	2	7	33
Total before tax	1	44	33
Tax effect	—	(2)	(12)
Net of tax	$ 1	$ 42	$ 21
Total reclassifications for the period	$ 2	$ 51	$ 19

(1) Represents the amount that was reclassified from AOCI into equity in earnings of non-operating affiliates—net of taxes as a result of the remeasurement to fair value of our initial 50% equity interest in CF Fertilisers UK.

(2) Represents the balance that was reclassified into interest income.

(3) Represents the portion of de-designated cash flow hedges that were reclassified into income as a result of the discontinuance of certain cash flow hedges.

(4) These components are included in the computation of net periodic pension cost and were reclassified from AOCI into cost of sales and selling, general and administrative expenses.

19. Stock-Based Compensation

2014 Equity and Incentive Plan

On May 14, 2014, our shareholders approved the CF Industries Holdings, Inc. 2014 Equity and Incentive Plan (the 2014 Equity and Incentive Plan) which replaced the CF Industries Holdings, Inc. 2009 Equity and Incentive Plan. Under the 2014 Equity and Incentive Plan, we may grant incentive stock options, nonqualified stock options, stock appreciation rights, restricted stock, restricted stock units, performance awards (payable in cash or stock) and other stock-based awards to our officers, employees, consultants and independent contractors (including non-employee directors). The purpose of the 2014 Equity and Incentive Plan is to provide an incentive for our employees, officers, consultants and non-employee directors that is aligned with the interests of our stockholders.

Share Reserve and Individual Award Limits

The maximum number of shares reserved for the grant of awards under the 2014 Equity and Incentive Plan is the sum of (i) 13.9 million and (ii) the number of shares subject to outstanding awards under our predecessor plans to the extent such awards terminate or expire without delivery of shares. For purposes of determining the number of shares of stock available for grant under the 2014 Equity and Incentive Plan, each option or stock appreciation right is counted against the reserve as one share. Each share of stock granted, other than an option or a stock appreciation right, is counted against the reserve as 1.61 shares. If any outstanding award expires or is settled in cash, any unissued shares subject to the award are again available for grant under the 2014 Equity and Incentive Plan. Shares tendered in payment of the exercise price of an option and shares withheld by the Company or otherwise received by the Company to satisfy tax withholding obligations are not available for future grant under the 2014 Equity and Incentive Plan. As of December 31, 2016, we had 11.7 million shares available for future awards under the 2014 Equity and Incentive Plan. The 2014 Equity and Incentive Plan provides that no more than 5.0 million underlying shares may be granted to a participant in any one calendar year.

Stock Options

Under the 2014 Equity and Incentive Plan and our predecessor plans, we granted to plan participants nonqualified stock options to purchase shares of our common stock. The exercise price of these options is equal to the market price of our common stock on the date of grant. The contractual life of each option is ten years and generally one-third of the options vest on each of the first three anniversaries of the date of grant.

The fair value of each stock option award is estimated using the Black-Scholes option valuation model. Key assumptions used and resulting grant date fair values are shown in the following table.

	2016	2015	2014
Weighted-average assumptions:			
Expected volatility	39%	31%	33%
Expected term of stock options	4.3 Years	4.3 Years	4.3 Years
Risk-free interest rate	1.2%	1.5%	1.3%
Expected dividend yield	3.3%	1.9%	1.6%
Weighted-average grant date fair value	$8.97	$13.99	$12.77

The expected volatility of our stock options is based on the combination of the historical volatility of our common stock and implied volatilities of exchange traded options on our common stock. The expected term of options is estimated based on our historical exercise experience, post-vesting employment termination behavior and the contractual term. The risk-free interest rate is based on the U.S. Treasury Strip yield curve in effect at the time of grant for the expected term of the options.

A summary of stock option activity during the year ended December 31, 2016 is presented below:

	Shares	Weighted-Average Exercise Price
Outstanding as of December 31, 2015	3,654,318	$ 41.79
Granted	1,415,920	36.14
Exercised	(17,600)	9.09
Forfeited	(93,446)	44.22
Expired	(53,920)	45.78
Outstanding as of December 31, 2016	4,905,272	40.18
Exercisable as of December 31, 2016	2,765,940	37.25

Selected amounts pertaining to stock option exercises are as follows:

	2016	2015	2014
		(in millions)	
Cash received from stock option exercises	$ —	$ 8	$ 18
Actual tax benefit realized from stock option exercises	$ —	$ 2	$ 10
Pre-tax intrinsic value of stock options exercised	$ —	$ 8	$ 31

The following table summarizes information about stock options outstanding and exercisable as of December 31, 2016:

	Options Outstanding				Options Exercisable			
Range of Exercise Prices	Shares	Weighted-Average Remaining Contractual Term (years)	Weighted-Average Exercise Price	Aggregate Intrinsic Value[(1)] (in millions)	Shares	Weighted-Average Remaining Contractual Term (years)	Weighted-Average Exercise Price	Aggregate Intrinsic Value[(1)] (in millions)
$ 8.83 - $20.00	570,080	2.9	$ 14.75	$ 9	570,080	2.9	$ 14.75	$ 9
$20.01 - $62.25	4,335,192	7.5	43.53	1	2,195,860	6.2	43.09	1
	4,905,272	6.9	40.18	$ 10	2,765,940	5.6	37.25	$ 10

(1) The aggregate intrinsic value represents the total pre-tax intrinsic value, based on our closing stock price of $31.48 as of December 31, 2016, which would have been received by the option holders had all option holders exercised their options as of that date.

Restricted Stock Awards, Restricted Stock Units and Performance Share Units

The fair value of a restricted stock award (RSA) or an award of restricted stock units (RSU) is equal to the number of shares subject to the award multiplied by the closing market price of our common stock on the date of grant. We estimated the fair value of each performance share unit (PSU) on the date of grant using a Monte Carlo simulation. Awards granted to key employees generally vest three years from the date of grant. The vesting of PSUs is also subject to the attainment of applicable performance goals during the performance period. The RSAs awarded to non-management members of the Board vest the earlier of one year from the date of the grant or the date of the next annual stockholder meeting. During the vesting period, the holders of the RSAs are entitled to dividends and voting rights. During the vesting period, the holders of the RSUs are paid dividend equivalents in cash to the extent we pay cash dividends. PSUs accrue dividend equivalents to the extent we pay cash dividends on our common stock during the performance and vesting period. Upon vesting of the PSUs, holders are paid the accrued dividend equivalents based on the shares of common stock, if any, delivered in settlement of PSUs. Holders of RSUs and PSUs are not entitled to voting rights unless and until the awards have vested.

A summary of restricted stock activity during the year ended December 31, 2016 is presented below:

	Restricted Stock Awards		Restricted Stock Units		Performance Share Units	
	Shares	Weighted-Average Grant-Date Fair Value	Shares	Weighted-Average Grant-Date Fair Value	Shares	Weighted-Average Grant-Date Fair Value
Outstanding as of December 31, 2015	84,918	$ 51.34	74,523	$ 55.87	47,940	$ 83.74
Granted	41,645	27.85	92,050	36.00	60,030	40.62
Restrictions lapsed (vested)	(74,918)	43.79	(3,296)	53.51	—	—
Forfeited	(10,000)	38.02	(4,554)	56.71	(1,255)	84.15
Outstanding as of December 31, 2016	41,645	27.85	158,723	44.38	106,715	59.48

The 2016, 2015 and 2014 weighted-average grant date fair value for RSAs was $27.85, $61.54, and $49.76, for RSUs was $36.00, $61.60, and $51.16, and for PSUs was $40.62, $91.13, and $77.65, respectively.

Selected amounts pertaining to restricted stock awards that vested are as follows:

	Year ended December 31,		
	2016	2015	2014
		(in millions)	
Actual tax benefit realized from restricted stock vested	$ 1	$ 1	$ 3
Fair value of restricted stock vested	$ 2	$ 5	$ 9

Compensation Cost

Compensation cost is recorded primarily in selling, general and administrative expenses. The following table summarizes stock-based compensation costs and related income tax benefits.

	Year ended December 31,		
	2016	2015	2014[(1)]
		(in millions)	
Stock-based compensation expense	$ 19	$ 17	$ 17
Income tax benefit	(7)	(6)	(6)
Stock-based compensation expense, net of income taxes	$ 12	$ 11	$ 11

(1) Includes incremental compensation expense of $2 million related to the modification of 299,950 stock options and 80,495 RSAs.

As of December 31, 2016, pre-tax unrecognized compensation cost was $12 million for stock options, which will be recognized over a weighted-average period of 1.8 years, $4 million for RSAs and RSUs, which will be recognized over a weighted-average period of 1.7 years, and $3 million for PSUs, which will be recognized over a weighted-average period of 1.8 years.

Excess tax benefits realized from the vesting of restricted stock or stock option exercises are recognized as an income tax benefit in our consolidated statements of operations and are required to be reported as an operating cash inflow rather than a reduction of taxes paid. The excess tax benefits in 2016, 2015 and 2014 were zero, $2 million, and $9 million, respectively.

20. Contingencies

Litigation

West Fertilizer Co.

On April 17, 2013, there was a fire and explosion at the West Fertilizer Co. fertilizer storage and distribution facility in West, Texas. According to published reports, 15 people were killed and approximately 200 people were injured in the incident, and the fire and explosion damaged or destroyed a number of homes and buildings around the facility. Various subsidiaries of CF Industries Holdings, Inc. (the CF Entities) have been named as defendants along with other companies in lawsuits filed in 2013, 2014 and 2015 in the District Court of McLennan County, Texas by the City of West, individual residents of the County and other parties seeking recovery for damages allegedly sustained as a result of the explosion. The cases have been consolidated for discovery and pretrial proceedings in the District Court of McLennan County under the caption "In re: West Explosion Cases." The two-year statute of limitations expired on April 17, 2015. As of that date, over 400 plaintiffs had filed claims, including at least 9 entities, 325 individuals, and 80 insurance companies. Plaintiffs allege various theories of negligence, strict liability, and breach of warranty under Texas law. Although we do not own or operate the facility or directly sell our products to West Fertilizer Co., products that the CF Entities have manufactured and sold to others have been delivered to the facility and may have been stored at the West facility at the time of the incident.

The Court granted in part and denied in part the CF Entities' Motions for Summary Judgment in August 2015. Thirty-four cases have been resolved pursuant to confidential settlements fully funded by insurance. The remaining cases are in various stages of discovery and pre-trial proceedings. The next group of cases was reset for trial beginning on April 3, 2017. While we believe we have strong legal and factual defenses and intend to continue defending the CF Entities vigorously in the pending lawsuits, including in any appeals that may follow, we have concluded based on continuing developments in the case that some loss is probable for a subset of the outstanding claims. We have made an accrual for this subset of the outstanding claims, which is not material to the Consolidated Financial Statements. Beyond the amounts accrued, the Company cannot provide a range of reasonably possible loss due to the lack of damages discovery for the remaining claims and the uncertain nature of this litigation, including uncertainties around the potential allocation of responsibility by a jury to other defendants or responsible third parties. The recognition of a potential loss in the future in the West Fertilizer Co. litigation could negatively affect our results in the period of recognition. However, based upon currently available information, including available insurance coverage, we do not believe that this litigation will have a material adverse effect on our consolidated financial position, results of operations or cash flows.

Other Litigation

From time to time, we are subject to ordinary, routine legal proceedings related to the usual conduct of our business, including proceedings regarding public utility and transportation rates, environmental matters, taxes and permits relating to the operations of our various plants and facilities. Based on the information available as of the date of this filing, we believe that the ultimate outcome of these routine matters will not have a material adverse effect on our consolidated financial position, results of operations or cash flows.

Environmental

Louisiana Environmental Matters

Clean Air Act—Section 185 Fee

Our Donaldsonville nitrogen complex is located in a five-parish region near Baton Rouge, Louisiana that, as of 2005, was designated as being in "severe" nonattainment with respect to the national ambient air quality standard (NAAQS) for ozone (the 1-hour ozone standard) pursuant to the Federal Clean Air Act (the Act). Section 185 of the Act requires states, in their state implementation plans, to levy a fee (Section 185 fee) on major stationary sources (such as the Donaldsonville complex) located in a severe nonattainment area that did not meet the 1-hour ozone standard by November 30, 2005. The fee was to be assessed for each calendar year (beginning in 2006) until the area achieved compliance with the ozone NAAQS.

Prior to the imposition of Section 185 fees, the Environmental Protection Agency (EPA) adopted a new ozone standard (the 8-hour ozone standard) and rescinded the 1-hour ozone standard. The Baton Rouge area was designated as a "moderate" nonattainment area with respect to the 8-hour ozone standard. However, because Section 185 fees had never been assessed prior to the rescission of the 1-hour ozone standard (rescinded prior to the November 30, 2005 ozone attainment deadline), the EPA concluded in a 2004 rulemaking implementing the 8-hour ozone standard that the Act did not require states to assess Section 185 fees. As a result, Section 185 fees were not assessed against us and other companies located in the Baton Rouge area.

In 2006, the federal D.C. Circuit Court of Appeals rejected the EPA's position and held that Section 185 fees were controls that must be maintained and fees should have been assessed under the Act. In January 2008, the U.S. Supreme Court declined to accept the case for review, making the appellate court's decision final.

In July 2011, the EPA approved a revision to Louisiana's air pollution program that eliminated the requirement for Baton Rouge area companies to pay Section 185 fees, based on Baton Rouge's ultimate attainment of the 1-hour standard through permanent and enforceable emissions reductions. The EPA's approval of the Louisiana air program revision became effective on August 8, 2011. However, a recent decision by the federal D.C. Circuit Court of Appeals struck down a similar, but perhaps distinguishable, EPA guidance document regarding alternatives to Section 185 fees. At this time, the viability of EPA's approval of Louisiana's elimination of Section 185 fees is uncertain. Regardless of the approach ultimately adopted by the EPA, we expect that it is likely to be challenged by the environmental community, the states, and/or affected industries. Therefore, the costs associated with compliance with the Act cannot be determined at this time, and we cannot reasonably estimate the impact on our consolidated financial position, results of operations or cash flows.

Since 2011, the area has seen significant reductions in ozone levels, attributable to federal and state regulations and community involvement. On December 15, 2016, the EPA re-designated the Greater Baton Rouge Nonattainment Area to attainment with the 2008 8-hour ozone standard. However, on October 26, 2015, the EPA published a more stringent national ambient air quality standard for ozone. The State of Louisiana has recommended to the EPA that Baton Rouge be designated as nonattainment with the 2015 ozone standard. The EPA is supposed to designate areas under the 2015 standard by October 2017.

Clean Air Act Information Request

On February 26, 2009, we received a letter from the EPA under Section 114 of the Act requesting information and copies of records relating to compliance with New Source Review and New Source Performance Standards at our Donaldsonville facility. We have completed the submittal of all requested information. There has been no further contact from the EPA regarding this matter.

Florida Environmental Matters

On March 17, 2014, we completed the sale of our phosphate mining and manufacturing business, which was located in Florida, to Mosaic. See Note 4—Acquisitions and Divestitures for additional information. Pursuant to the terms of the definitive agreement executed in October 2013, Mosaic has assumed the following environmental matters and we have agreed to indemnify Mosaic with respect to losses arising out of the matters below, subject to a maximum indemnification cap and the other terms of the definitive agreement.

Clean Air Act Notice of Violation

We received a Notice of Violation (NOV) from the EPA by letter dated June 16, 2010, alleging that we violated the Prevention of Significant Deterioration (PSD) Clean Air Act regulations relating to certain projects undertaken at the former Plant City, Florida facility's sulfuric acid plants. This NOV further alleges that the actions that are the basis for the alleged PSD violations also resulted in violations of Title V air operating permit regulations. Finally, the NOV alleges that we failed to comply with certain compliance dates established by hazardous air pollutant regulations for phosphoric acid manufacturing plants and phosphate fertilizer production plants. We had several meetings with the EPA with respect to this matter prior to our sale of the phosphate mining and manufacturing business in March 2014. We do not know at this time if this matter will be settled prior to initiation of formal legal action.

We cannot estimate the potential penalties, fines or other expenditures, if any, that may result from the Clean Air Act NOV and, therefore, we cannot determine if the ultimate outcome of this matter will have a material impact on our consolidated financial position, results of operations or cash flows.

EPCRA/CERCLA Notice of Violation

By letter dated July 6, 2010, the EPA issued a NOV to us alleging violations of Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) in connection with the former Plant City facility. EPCRA requires annual reports to be submitted with respect to the use of certain toxic chemicals. The NOV also included an allegation that we violated Section 304 of EPCRA and Section 103 of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) by failing to file a timely notification relating to the release of hydrogen fluoride above applicable reportable quantities. We do not know at this time if this matter will be settled prior to initiation of formal legal action.

We do not expect that penalties or fines, if any, that may arise out of the EPCRA/CERCLA matter will have a material impact on our consolidated financial position, results of operations or cash flows.

Other

CERCLA/Remediation Matters

From time to time, we receive notices from governmental agencies or third parties alleging that we are a potentially responsible party at certain cleanup sites under CERCLA or other environmental cleanup laws. In 2011, we received a notice from the Idaho Department of Environmental Quality (IDEQ) that alleged that we were a potentially responsible party for the cleanup of a former phosphate mine site we owned in the late 1950s and early 1960s located in Georgetown Canyon, Idaho. The current owner of the property and a former mining contractor received similar notices for the site. In 2014, we and the current property owner entered into a Consent Order with IDEQ and the U.S. Forest Service to conduct a remedial investigation and feasibility study of the site. In 2015, we and several other parties received a notice that the U.S. Department of the Interior and other trustees intend to undertake a natural resource damage assessment for a group of former phosphate mines in southeast Idaho, including the former Georgetown Canyon mine. We are not able to estimate at this time our potential liability, if any, with respect to the cleanup of the site or a possible claim for natural resource damages. However, based on currently available information, we do not expect the remedial or financial obligations to which we may be subject involving this or other cleanup sites will have a material adverse effect on our consolidated financial position, results of operations or cash flows.

21. Segment Disclosures

On July 31, 2015, we acquired the remaining 50% equity interest in CF Fertilisers UK not previously owned by us. See Note 4—Acquisitions and Divestitures and Note 8—Equity Method Investments for additional information. CF Fertilisers UK has nitrogen manufacturing complexes located in Ince, United Kingdom, and Billingham, United Kingdom. The Ince complex produces ammonia, AN and NPKs while the Billingham complex produces ammonia and AN. Our reportable segment structure reflects how our chief operating decision maker (CODM), as defined under U.S. GAAP, assesses the performance of our operating segments and makes decisions about resource allocation. In the third quarter of 2015, we changed our reportable segment structure to separate AN from our Other segment as our AN products increased in significance as a result of the CF Fertilisers UK acquisition. Our reportable segments now consist of ammonia, granular urea, UAN, AN, Other, and phosphate. These segments are differentiated by products. Historical financial results have been restated to reflect the new reportable segment structure on a comparable basis.

We sold our phosphate mining and manufacturing business on March 17, 2014. See Note 4—Acquisitions and Divestitures for additional information. The phosphate segment reflects the reported results of the phosphate business through March 17, 2014, plus the continuing sales of the phosphate inventory in the distribution network after March 17, 2014. The remaining phosphate inventory was sold in the second quarter of 2014 and reportable results ceased.

Upon selling the phosphate business, we began to supply Mosaic with ammonia produced by our PLNL joint venture. The contract to supply ammonia to Mosaic from our PLNL joint venture represents the continuation of a supply practice that previously existed between our former phosphate mining and manufacturing business and other operations of the Company. Prior to March 17, 2014, PLNL sold ammonia to us for use in the phosphate business and the cost was included in our production costs in our phosphate segment. Subsequent to the sale of the phosphate business, we now sell the PLNL-sourced ammonia to Mosaic. The revenue from these sales to Mosaic and costs to purchase the ammonia from PLNL are now included in our ammonia segment. Our 50% share of the operating results of our PLNL joint venture continues to be included in our equity in earnings of operating affiliates in our consolidated statements of operations. Because of the significance of this continuing supply practice, in accordance with U.S. GAAP, the phosphate mining and manufacturing business is not reported as discontinued operations in our consolidated statements of operations.

Our management uses gross margin to evaluate segment performance and allocate resources. Total other operating costs and expenses (consisting of selling, general and administrative expenses and other operating—net) and non-operating expenses (interest and income taxes) are centrally managed and are not included in the measurement of segment profitability reviewed by management.

Our assets, with the exception of goodwill, are not monitored by or reported to our CODM by segment; therefore, we do not present total assets by segment. Goodwill by segment is presented in Note 7—Goodwill and Other Intangible Assets.

Segment data for sales, cost of sales and gross margin for 2016, 2015 and 2014 are presented in the tables below.

	Ammonia	Granular Urea[1]	UAN[1]	AN[1]	Other[1]	Phosphate	Consolidated
				(in millions)			
Year ended December 31, 2016							
Net sales	$ 981	$ 831	$ 1,196	$ 411	$ 266	$ —	$ 3,685
Cost of sales	715	584	920	409	217	—	2,845
Gross margin	$ 266	$ 247	$ 276	$ 2	$ 49	$ —	840
Total other operating costs and expenses							561
Equity in losses of operating affiliates							(145)
Operating earnings							$ 134
Year ended December 31, 2015							
Net sales	$ 1,523	$ 788	$ 1,480	$ 294	$ 223	$ —	$ 4,308
Cost of sales	884	469	955	291	162	—	2,761
Gross margin	$ 639	$ 319	$ 525	$ 3	$ 61	$ —	1,547
Total other operating costs and expenses							319
Equity in losses of operating affiliates							(35)
Operating earnings							$ 1,193
Year ended December 31, 2014							
Net sales	$ 1,576	$ 915	$ 1,670	$ 243	$ 171	$ 168	$ 4,743
Cost of sales	983	517	998	189	120	158	2,965
Gross margin	$ 593	$ 398	$ 672	$ 54	$ 51	$ 10	1,778
Total other operating costs and expenses							205
Gain on sale of phosphate business							750
Equity in earnings of operating affiliates							43
Operating earnings							$ 2,366

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(1) The cost of ammonia that is upgraded into other products is transferred at cost into the upgraded product results.

	Ammonia	Granular Urea	UAN	AN	Other	Phosphate[1]	Corporate	Consolidated
				(in millions)				
Depreciation and amortization								
Year ended December 31, 2016	$ 96	$ 112	$ 247	$ 93	$ 46	$ —	$ 84	$ 678
Year ended December 31, 2015	$ 95	$ 51	$ 192	$ 66	$ 35	$ —	$ 41	$ 480
Year ended December 31, 2014	$ 69	$ 37	$ 179	$ 47	$ 20	$ —	$ 41	$ 393

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(1) The assets and liabilities of our phosphate business were classified as held for sale as of December 31, 2013; therefore, no depreciation, depletion or amortization was recorded in 2014 for the related property, plant and equipment.

Enterprise-wide data by geographic region is as follows:

	Year ended December 31,		
	2016	2015	2014
	(in millions)		
Sales by geographic region (based on destination of shipments):			
United States	$ 2,728	$ 3,485	$ 3,994
Foreign:			
Canada	349	490	544
United Kingdom	394	153	—
Other foreign	214	180	205
Total foreign	957	823	749
Consolidated	$ 3,685	$ 4,308	$ 4,743

	December 31,		
	2016	2015	2014
	(in millions)		
Property, plant and equipment—net by geographic region:			
United States	$ 8,444	$ 7,202	$ 4,987
Foreign:			
Canada	523	497	539
United Kingdom	685	840	—
Total foreign	1,208	1,337	539
Consolidated	$ 9,652	$ 8,539	$ 5,526

Our principal customers are cooperatives, independent fertilizer distributors and industrial users. In 2016, CHS accounted for approximately 12% of our consolidated net sales. See Note 17—Noncontrolling Interests for additional information. None of our customers accounted for more than ten percent of our consolidated sales in 2015 or 2014.

22. Supplemental Cash Flow Information

The following provides additional information relating to cash flow activities:

	Year ended December 31,		
	2016	2015	2014
	(in millions)		
Cash paid during the year for			
Interest—net of interest capitalized	$ 144	$ 100	$ 141
Income taxes—net of refunds	(110)	435	781
Supplemental disclosure of noncash investing and financing activities:			
Change in capitalized expenditures in accounts payable and accrued expenses	(263)	258	72
Change in capitalized expenditures in other liabilities	(55)	6	(22)
Change in noncontrolling interests in other liabilities	8	—	—
Change in accrued share repurchases	—	(29)	(11)

23. Asset Retirement Obligations

Asset retirement obligations (AROs) are legal obligations associated with the retirement of long-lived assets that result from the acquisition, construction, development or normal operation of such assets. AROs are initially recognized as incurred when sufficient information exists to estimate fair value. We have AROs at our nitrogen fertilizer manufacturing complexes and at our distribution and storage facilities that are conditional upon cessation of operations. These AROs include certain decommissioning activities as well as the removal and disposal of certain chemicals, waste materials, structures, equipment, vessels, piping and storage tanks. Also included are reclamation of land and the closure of certain effluent ponds. The most recent estimate of the aggregate cost of these AROs expressed in 2016 dollars is $72 million. We have not recorded a liability for these conditional AROs as of December 31, 2016 because we do not believe there is currently a reasonable basis for estimating a date or range of dates of cessation of operations at our nitrogen fertilizer manufacturing facilities or our distribution and storage facilities, which is necessary in order to estimate fair value. In reaching this conclusion, we considered the historical performance of each complex or facility and have taken into account factors such as planned maintenance, asset replacements and upgrades of plant and equipment, which if conducted as in the past, can extend the physical lives of our nitrogen manufacturing facilities and our distribution and storage facilities indefinitely. We also considered the possibility of changes in technology, risk of obsolescence, and availability of raw materials in arriving at our conclusion.

24. Leases

We have operating leases for certain property and equipment under various noncancelable agreements, the most significant of which are rail car leases and barge tow charters for the distribution of fertilizer. The rail car leases currently have minimum terms ranging from one to eleven years and the barge charter commitments range from approximately one to seven years. We also have terminal and warehouse storage agreements for our distribution system, some of which contain minimum throughput requirements. The storage agreements contain minimum terms generally ranging from one to five years and commonly contain automatic annual renewal provisions thereafter unless canceled by either party.

Future minimum payments under noncancelable operating leases with initial or remaining noncancelable lease terms in excess of one year as of December 31, 2016 are shown below.

	Operating Lease Payments
	(in millions)
2017	$ 89
2018	83
2019	65
2020	51
2021	41
Thereafter	92
	$ 421

Total rent expense for cancelable and noncancelable operating leases was $111 million for 2016, $100 million for 2015 and $93 million for 2014.

25. Quarterly Data—Unaudited

The following tables present the unaudited quarterly results of operations for the eight quarters ended December 31, 2016. This quarterly information has been prepared on the same basis as the consolidated financial statements and, in the opinion of management, reflects all adjustments necessary for the fair representation of the information for the periods presented. This data should be read in conjunction with the audited consolidated financial statements and related disclosures. Operating results for any quarter apply to that quarter only and are not necessarily indicative of results for any future period.

	Three months ended,				
	March 31	June 30	September 30	December 31	Full Year
	(in millions, except per share amounts)				
2016					
Net sales	$ 1,004	$ 1,134	$ 680	$ 867	$ 3,685
Gross margin	217	527	2	94	840
Unrealized (losses) gains on natural gas derivatives[1]	(21)	211	(21)	91	260
Net earnings (loss) attributable to common stockholders[2]	26	47	(30)	(320)	(277)
Net earnings (loss) per share attributable to common stockholders[2]					
Basic[3]	0.11	0.20	(0.13)	(1.38)	(1.19)
Diluted[3]	0.11	0.20	(0.13)	(1.38)	(1.19)
2015					
Net sales	$ 954	$ 1,311	$ 928	$ 1,115	$ 4,308
Gross margin	416	686	165	280	1,547
Unrealized gains (losses) on natural gas derivatives[1]	28	19	(126)	(97)	(176)
Net earnings attributable to common stockholders[4]	231	352	90	27	700
Net earnings per share attributable to common stockholders[4]					
Basic[3]	0.96	1.50	0.39	0.11	2.97
Diluted[3]	0.96	1.49	0.39	0.11	2.96

(1) Amounts represent pre-tax unrealized gains (losses) on natural gas derivatives, which are included in gross margin. See Note 15—Derivative Financial Instruments for additional information.

(2) For the three months ended September 30, 2016, net loss attributable to common stockholders includes an after-tax loss of $14 million (pre-tax loss of $22 million) resulting from recognizing the value of an embedded derivative liability to reflect our credit evaluation that is included in other operating—net, and net loss per share attributable to common stockholders, basic and diluted, include the per share impact of $0.06. See Note 9—Fair Value Measurements and Note 17—Noncontrolling Interests for additional information.

For the three months ended December 31, 2016, net loss attributable to common stockholders includes an after-tax impairment charge of $134 million on our equity method investment in PLNL that is included in equity in (loss) earnings of operating affiliates, and net loss per share attributable to common stockholders, basic and diluted, include the per share impact of $0.57. See Note 8—Equity Method Investments and Note 9—Fair Value Measurements for additional information.

(3) The sum of the four quarters is not necessarily the same as the total for the year.

(4) For the three months ended June 30, 2015, net earnings attributable to common stockholders includes an after-tax loss of $29 million (pre-tax loss of $40 million) resulting from the sale of our interests in Keytrade that is included in equity in earnings of operating affiliates, and net earnings per share attributable to common stockholders, basic and diluted, include the per share impact of $0.12. See Note 4—Acquisitions and Divestitures and Note 8—Equity Method Investments for additional information.

For the three months ended September 30, 2015, net earnings attributable to common stockholders includes an after-tax gain of $94 million on the remeasurement to fair value of our initial 50% equity interest in CF Fertilisers UK that is included in equity in earnings of non-operating affiliates—net of taxes, and net earnings per share attributable to common stockholders, basic and diluted, include the per share impact of $0.40. See Note 4—Acquisitions and Divestitures and Note 8—Equity Method Investments for additional information.

For the three months ended December 31, 2015, net earnings attributable to common stockholders includes an after-tax impairment charge of $62 million on our equity method investment in PLNL that is included in equity in earnings of operating affiliates, and net earnings per share attributable to common stockholders, basic and diluted, include the per share impact of $0.26. See Note 8—Equity Method Investments and Note 9—Fair Value Measurements for additional information.

26. Condensed Consolidating Financial Statements

The following condensed consolidating financial information is presented in accordance with SEC Regulation S-X Rule 3-10, *Financial statements of guarantors and issuers of guaranteed securities registered or being registered*, and relates to (i) the senior notes due 2018, 2020, 2023, 2034, 2043 and 2044 (described in Note 12—Financing Agreements and referred to in this report as the Public Senior Notes) issued by CF Industries, Inc. (CF Industries), a 100% owned subsidiary of CF Industries Holdings, Inc. (Parent), and guarantees of the Public Senior Notes by Parent and by CFE and CFS (the Subsidiary Guarantors), which are 100% owned subsidiaries of Parent, and (ii) debt securities of CF Industries (Other Debt Securities), and guarantees thereof by Parent and the Subsidiary Guarantors, that may be offered and sold from time to time under registration statements that may be filed by Parent, CF Industries and the Subsidiary Guarantors with the SEC.

In the event that a subsidiary of Parent, other than CF Industries, becomes a borrower or a guarantor under the Revolving Credit Agreement (or any renewal, replacement or refinancing thereof), such subsidiary would be required to become a guarantor of the Public Senior Notes, provided that such requirement will no longer apply with respect to the Public Senior Notes due 2023, 2034, 2043 and 2044 following the repayment of the Public Senior Notes due 2018 and 2020 or the subsidiaries of Parent, other than CF Industries, otherwise becoming no longer subject to such a requirement to guarantee the Public Senior Notes due 2018 and 2020. CFE and CFS became guarantors of the Public Senior Notes as a result of this requirement on November 21, 2016.

All of the guarantees of the Public Senior Notes are, and we have assumed for purposes of this presentation of condensed consolidating financial information that the guarantees of any Other Debt Securities would be, full and unconditional (as such term is defined in SEC Regulation S-X Rule 3-10(h)) and joint and several. The guarantee of a Subsidiary Guarantor will be automatically released with respect to a series of the Public Senior Notes (1) upon the release, discharge or termination of such Subsidiary Guarantor’s guarantee of the Revolving Credit Agreement (or any renewal, replacement or refinancing thereof), (2) upon legal defeasance with respect to the Public Senior Notes of such series or satisfaction and discharge of the indenture with respect to such series of Public Senior Notes or (3) in the case of the Public Senior Notes due 2023, 2034, 2043 and 2044, upon the later to occur of (a) the discharge, termination or release of, or the release of such Subsidiary Guarantor from its obligations under, such Subsidiary Guarantor’s guarantee of the Public Senior Notes due 2018, including, without limitation, any such discharge, termination or release as a result of retirement, discharge or legal or covenant defeasance of, or satisfaction and discharge of the supplemental indenture governing, the Public Senior Notes due 2018, and (b) the discharge, termination or release of, or the release of such Subsidiary Guarantor from its obligations under, such Subsidiary Guarantor’s guarantee of the Public Senior Notes due 2020, including, without limitation, any such discharge, termination or release as a result of retirement, discharge or legal or covenant defeasance of, or satisfaction and discharge of the supplemental indenture governing, the Public Senior Notes due 2020.

For purposes of the presentation of condensed consolidating financial information, the subsidiaries of Parent other than CF Industries, CFE and CFS are referred to as the Non-Guarantors.

Presented below are condensed consolidating statements of operations and statements of cash flows for Parent, CF Industries, the Subsidiary Guarantors and the Non-Guarantors for the years ended December 31, 2016, 2015 and 2014 and condensed consolidating balance sheets for Parent, CF Industries, the Subsidiary Guarantors and the Non-Guarantors as of December 31, 2016 and 2015. Prior years have been restated to reflect the Subsidiary Guarantors separately. The condensed consolidating financial information presented below is not necessarily indicative of the financial position, results of operations, comprehensive (loss) income or cash flows of Parent, CF Industries, the Subsidiary Guarantors or the Non-Guarantors on a stand-alone basis.

In these condensed consolidating financial statements, investments in subsidiaries are presented under the equity method, in which our investments are recorded at cost and adjusted for our ownership share of a subsidiary's cumulative results of operations, distributions and other equity changes, and the eliminating entries reflect primarily intercompany transactions such as sales, accounts receivable and accounts payable and the elimination of equity investments and earnings of subsidiaries. The tax provision in the presentation of condensed consolidating financial information has been computed based on the applicable statutory tax rate for the legal entity. Two of our consolidated entities have made elections to be taxed as partnerships for U.S. federal income tax purposes and are included in the non-guarantor column. Due to the partnership tax treatment, these subsidiaries do not record taxes on their financial statements. The tax provision pertaining to the income of these partnerships, plus applicable deferred tax balances are reflected on the financial statements of the parent company owner that is included in the subsidiary guarantors column in the following financial information. Liabilities related to benefit plan obligations are reflected on the legal entity that funds the obligation, while the benefit plan expense is included on the legal entity to which the employee provides services.

Condensed Consolidating Statement of Operations

	Year ended December 31, 2016					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net sales	$ —	$ 362	$ 2,932	$ 2,939	$ (2,548)	$ 3,685
Cost of sales	—	207	2,806	2,380	(2,548)	2,845
Gross margin	—	155	126	559	—	840
Selling, general and administrative expenses	4	9	105	56	—	174
Transaction costs	(46)	—	223	2	—	179
Other operating—net	—	7	30	171	—	208
Total other operating costs and expenses	(42)	16	358	229	—	561
Equity in loss of operating affiliates	—	—	—	(145)	—	(145)
Operating earnings (losses)	42	139	(232)	185	—	134
Interest expense	—	347	85	(155)	(77)	200
Interest income	—	(49)	(8)	(25)	77	(5)
Loss on debt extinguishment	—	167	—	—	—	167
Net loss (earnings) of wholly owned subsidiaries	304	92	(315)	—	(81)	—
Other non-operating—net	—	—	—	(2)	—	(2)
(Loss) earnings before income taxes and equity in losses of non-operating affiliates	(262)	(418)	6	367	81	(226)
Income tax provision (benefit)	15	(114)	18	13	—	(68)
Net (loss) earnings	(277)	(304)	(12)	354	81	(158)
Less: Net earnings attributable to noncontrolling interests	—	—	—	119	—	119
Net (loss) earnings attributable to common stockholders	$ (277)	$ (304)	$ (12)	$ 235	$ 81	$ (277)

Condensed Consolidating Statement of Comprehensive (Loss) Income

	Year ended December 31, 2016					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net (loss) earnings	$ (277)	$ (304)	$ (12)	$ 354	$ 81	$ (158)
Other comprehensive loss	(148)	(148)	(68)	(134)	350	(148)
Comprehensive (loss) income	(425)	(452)	(80)	220	431	(306)
Less: Comprehensive income attributable to noncontrolling interests	—	—	—	119	—	119
Comprehensive (losses) income attributable to common stockholders	$ (425)	$ (452)	$ (80)	$ 101	$ 431	$ (425)

Condensed Consolidating Statement of Operations

	Year ended December 31, 2015					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net sales	$ —	$ 462	$ 4,101	$ 2,464	$ (2,719)	$ 4,308
Cost of sales	—	361	3,186	1,933	(2,719)	2,761
Gross margin	—	101	915	531	—	1,547
Selling, general and administrative expenses	4	8	120	38	—	170
Transaction costs	46	—	7	4	—	57
Other operating—net	—	(8)	29	71	—	92
Total other operating costs and expenses	50	—	156	113	—	319
Equity in earnings of operating affiliates	—	—	—	(35)	—	(35)
Operating (loss) earnings	(50)	101	759	383	—	1,193
Interest expense	—	285	14	(70)	(96)	133
Interest income	—	(69)	(25)	(4)	96	(2)
Net earnings of wholly owned subsidiaries	(731)	(802)	(403)	—	1,936	—
Other non-operating—net	—	—	5	(1)	—	4
Earnings before income taxes and equity in earnings of non-operating affiliates	681	687	1,168	458	(1,936)	1,058
Income tax (benefit) provision	(19)	(44)	385	74	—	396
Equity in earnings of non-operating affiliates—net of taxes	—	—	10	62	—	72
Net earnings	700	731	793	446	(1,936)	734
Less: Net earnings attributable to noncontrolling interest	—	—	—	34	—	34
Net earnings attributable to common stockholders	$ 700	$ 731	$ 793	$ 412	$ (1,936)	$ 700

Condensed Consolidating Statement of Comprehensive Income

	Year ended December 31, 2015					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net earnings	$ 700	$ 731	$ 793	$ 446	$ (1,936)	$ 734
Other comprehensive loss	(90)	(90)	(98)	(96)	284	(90)
Comprehensive income	610	641	695	350	(1,652)	644
Less: Comprehensive income attributable to noncontrolling interest	—	—	—	34	—	34
Comprehensive income attributable to common stockholders	$ 610	$ 641	$ 695	$ 316	$ (1,652)	$ 610

Condensed Consolidating Statement of Operations

	Year ended December 31, 2014					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net sales	$ —	$ 712	$ 4,780	$ 2,673	$ (3,422)	$ 4,743
Cost of sales	—	528	3,776	2,083	(3,422)	2,965
Gross margin	—	184	1,004	590	—	1,778
Selling, general and administrative expenses	3	13	103	33	—	152
Other operating—net	—	(5)	26	32	—	53
Total other operating costs and expenses	3	8	129	65	—	205
Gain on sale of phosphate business	—	764	(14)	—	—	750
Equity in earnings of operating affiliates	—	—	—	43	—	43
Operating (losses) earnings	(3)	940	861	568	—	2,366
Interest expense	—	247	1	(70)	—	178
Interest income	—	—	—	(1)	—	(1)
Net earnings of wholly owned subsidiaries	(1,392)	(969)	(579)	—	2,940	—
Other non-operating—net	—	—	2	—	—	2
Earnings before income taxes and equity in earnings of non-operating affiliates	1,389	1,662	1,437	639	(2,940)	2,187
Income tax (benefit) provision	(1)	270	515	(11)	—	773
Equity in earnings of non-operating affiliates—net of taxes	—	—	—	23	—	23
Net earnings	1,390	1,392	922	673	(2,940)	1,437
Less: Net earnings attributable to noncontrolling interest	—	—	—	47	—	47
Net earnings attributable to common stockholders	$ 1,390	$ 1,392	$ 922	$ 626	$ (2,940)	$ 1,390

Condensed Consolidating Statement of Comprehensive Income

	Year ended December 31, 2014					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Net earnings	$ 1,390	$ 1,392	$ 922	$ 673	$ (2,940)	$ 1,437
Other comprehensive loss	(117)	(117)	(98)	(110)	325	(117)
Comprehensive income	1,273	1,275	824	563	(2,615)	1,320
Less: Comprehensive income attributable to noncontrolling interest	—	—	—	47	—	47
Comprehensive income attributable to common stockholders	$ 1,273	$ 1,275	$ 824	$ 516	$ (2,615)	$ 1,273

Condensed Consolidating Balance Sheet

	December 31, 2016					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations and Reclassifications	Consolidated
	(in millions)					
Assets						
Current assets:						
Cash and cash equivalents	$ —	$ 36	$ 878	$ 250	$ —	$ 1,164
Restricted cash	—	—	—	5	—	5
Accounts and notes receivable—net	20	1,259	1,418	495	(2,956)	236
Inventories	—		164	175	—	339
Prepaid income taxes	—	—	839	2	—	841
Other current assets	—	—	59	11	—	70
Total current assets	20	1,295	3,358	938	(2,956)	2,655
Property, plant and equipment—net	—	—	131	9,521	—	9,652
Investments in affiliates	3,711	9,370	6,019	139	(19,100)	139
Due from affiliates	571	—	—	—	(571)	—
Goodwill	—	—	2,064	281	—	2,345
Other assets	—	85	101	385	(231)	340
Total assets	$ 4,302	$ 10,750	$ 11,673	$ 11,264	$ (22,858)	$ 15,131
Liabilities and Equity						
Current liabilities:						
Accounts and notes payable and accrued expenses	$ 954	$ 418	$ 1,505	$ 717	$ (2,956)	$ 638
Income taxes payable	—	—	—	1	—	1
Customer advances	—	—	42	—	—	42
Other current liabilities	—	—	5	—	—	5
Total current liabilities	954	418	1,552	718	(2,956)	686
Long-term debt	—	5,903	39	67	(231)	5,778
Deferred income taxes	—	90	1,374	166	—	1,630
Due to affiliates	—	571	—	—	(571)	—
Other liabilities	—	59	270	216	—	545
Equity:						
Stockholders' equity:						
Preferred stock	—	—	—	—	—	—
Common stock	2	—	—	4,383	(4,383)	2
Paid-in capital	1,380	(13)	9,045	2,246	(11,278)	1,380
Retained earnings	2,365	4,120	(329)	668	(4,459)	2,365
Treasury stock	(1)	—	—	—	—	(1)
Accumulated other comprehensive loss	(398)	(398)	(271)	(351)	1,020	(398)
Total stockholders' equity	3,348	3,709	8,445	6,946	(19,100)	3,348
Noncontrolling interests	—	—	(7)	3,151	—	3,144
Total equity	3,348	3,709	8,438	10,097	(19,100)	6,492
Total liabilities and equity	$ 4,302	$ 10,750	$ 11,673	$ 11,264	$ (22,858)	$ 15,131

Condensed Consolidating Balance Sheet

	December 31, 2015					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations and Reclassifications	Consolidated
	(in millions)					
Assets						
Current assets:						
Cash and cash equivalents	$ 1	$ —	$ 121	$ 164	$ —	$ 286
Restricted cash	—	—	—	23	—	23
Accounts and notes receivable—net	1	2,992	2,674	782	(6,182)	267
Inventories	—	—	153	168	—	321
Prepaid income taxes	—	—	181	4	—	185
Other current assets	—	24	15	6	—	45
Total current assets	2	3,016	3,144	1,147	(6,182)	1,127
Property, plant and equipment—net	—	—	133	8,406	—	8,539
Investments in affiliates	4,303	8,148	5,718	298	(18,169)	298
Due from affiliates	571	—	—	1,643	(2,214)	—
Goodwill	—	—	2,064	326	—	2,390
Other assets	—	19	73	237	—	329
Total assets	$ 4,876	$ 11,183	$ 11,132	$ 12,057	$ (26,565)	$ 12,683
Liabilities and Equity						
Current liabilities:						
Accounts and notes payable and accrued expenses	$ 841	$ 648	$ 1,139	$ 4,472	$ (6,182)	$ 918
Income taxes payable	—	—	1	4	—	5
Customer advances	—	—	162	—	—	162
Other current liabilities	—	—	114	16	—	130
Total current liabilities	841	648	1,416	4,492	(6,182)	1,215
Long-term debt	—	5,537	—	—	—	5,537
Deferred income taxes	—	52	672	192	—	916
Due to affiliates	—	573	1,641	—	(2,214)	—
Other liabilities	—	71	311	246	—	628
Equity:						
Stockholders' equity:						
Preferred stock	—	—	—	16	(16)	—
Common stock	2	—	—	5	(5)	2
Paid-in capital	1,378	(13)	7,474	5,741	(13,202)	1,378
Retained earnings	3,058	4,565	(179)	1,230	(5,616)	3,058
Treasury stock	(153)	—	—	—	—	(153)
Accumulated other comprehensive loss	(250)	(250)	(203)	(217)	670	(250)
Total stockholders' equity	4,035	4,302	7,092	6,775	(18,169)	4,035
Noncontrolling interest	—	—	—	352	—	352
Total equity	4,035	4,302	7,092	7,127	(18,169)	4,387
Total liabilities and equity	$ 4,876	$ 11,183	$ 11,132	$ 12,057	$ (26,565)	$ 12,683

Condensed Consolidating Statement of Cash Flows

	Year ended December 31, 2016					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Operating Activities:						
Net (loss) earnings	$ (277)	$ (304)	$ (12)	$ 354	$ 81	$ (158)
Adjustments to reconcile net (loss) earnings to net cash provided by (used in) operating activities:						
Depreciation and amortization	—	21	55	602	—	678
Deferred income taxes	—	—	740	(1)	—	739
Stock-based compensation expense	18	—	—	1	—	19
Unrealized net gain on natural gas and foreign currency derivatives	—	—	(225)	(35)	—	(260)
Loss on embedded derivative	—	—	23	—	—	23
Impairment of equity method investment in PLNL	—	—	—	134	—	134
Loss on debt extinguishment	—	167	—	—	—	167
Loss on disposal of property, plant and equipment	—	—	2	8	—	10
Undistributed earnings of affiliates—net	304	92	(315)	9	(81)	9
Changes in:						
Intercompany AR/AP—net	(4)	(10)	308	(294)	—	—
Accounts receivable—net	—	44	(11)	(15)	—	18
Inventories	—	—	(8)	1	—	(7)
Accrued and prepaid income taxes	—	—	(682)	6	—	(676)
Accounts and notes payable and accrued expenses	(8)	(63)	(12)	65	—	(18)
Customer advances	—	—	(120)	—	—	(120)
Other—net	—	(6)	(17)	82	—	59
Net cash provided by (used in) operating activities	33	(59)	(274)	917	—	617
Investing Activities:						
Additions to property, plant and equipment	—	—	(25)	(2,186)	—	(2,211)
Proceeds from sale of property, plant and equipment	—	—	4	10	—	14
Withdrawals from restricted cash funds	—	—	—	18	—	18
Investments in unconsolidated affiliates	—	(44)	(649)	—	693	—
Other—net	—	6	—	(4)	—	2
Net cash used in investing activities	—	(38)	(670)	(2,162)	693	(2,177)
Financing Activities:						
Long-term debt—net	—	125	—	(125)	—	—
Proceeds from long-term borrowings	—	1,244	—	—	—	1,244
Payments of long-term borrowings	—	(1,170)	—	—	—	(1,170)
Short-term debt—net	106	(40)	(371)	305	—	—
Proceeds from short-term borrowings	—	150	—	—	—	150
Payments of short-term borrowings	—	(150)	—	—	—	(150)
Payment to CHS related to credit provision	—	—	(5)	—	—	(5)
Financing fees	—	(31)	—	—	—	(31)
Dividends paid on common stock	(280)	(140)	(140)	(222)	502	(280)
Issuance of noncontrolling interest in CFN	—	—	—	2,800	—	2,800
Distributions to noncontrolling interests	—	—	—	(119)	—	(119)
Distribution received for CHS strategic venture	—	—	2,000	(2,000)	—	—
Dividends to/from affiliates	140	145	217	—	(502)	—
Other—net	—	—	—	693	(693)	—
Net cash (used in) provided by financing activities	(34)	133	1,701	1,332	(693)	2,439
Effect of exchange rate changes on cash and cash equivalents	—	—	—	(1)	—	(1)
(Decrease) increase in cash and cash equivalents	(1)	36	757	86	—	878
Cash and cash equivalents at beginning of period	1	—	121	164	—	286
Cash and cash equivalents at end of period	$ —	$ 36	$ 878	$ 250	$ —	$ 1,164

Condensed Consolidating Statement of Cash Flows

	Year ended December 31, 2015					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Operating Activities:						
Net earnings	$ 700	$ 731	$ 793	$ 446	$ (1,936)	$ 734
Adjustments to reconcile net earnings to net cash (used in) provided by operating activities:						
Depreciation and amortization	—	14	19	447	—	480
Deferred income taxes	—	17	75	(14)	—	78
Stock-based compensation expense	16	—	—	1	—	17
Unrealized net loss on natural gas and foreign currency derivatives	—	—	139	24	—	163
Gain on remeasurement of CF Fertilisers UK investment	—	—	—	(94)	—	(94)
Impairment of equity method investment in PLNL	—	—	—	62	—	62
Loss on sale of equity method investments	—	—	—	43	—	43
Loss on disposal of property, plant and equipment	—	—	—	21	—	21
Undistributed earnings of affiliates—net	(732)	(802)	(402)	(3)	1,936	(3)
Due to/from affiliates—net	2	1	(135)	132	—	—
Changes in:						
Intercompany AR/AP—net	(1)	(104)	96	9	—	—
Accounts receivable—net	—	(45)	50	(9)	—	(4)
Inventories	—	—	(38)	(33)	—	(71)
Accrued and prepaid income taxes	2	(11)	(105)	(34)	—	(148)
Accounts and notes payable and accrued expenses	9	61	14	(42)	—	42
Customer advances	—	—	(164)	—	—	(164)
Other—net	—	31	54	(34)	—	51
Net cash (used in) provided by operating activities	(4)	(107)	396	922	—	1,207
Investing Activities:						
Additions to property, plant and equipment	—	—	(26)	(2,443)	—	(2,469)
Proceeds from sale of property, plant and equipment	—	—	—	12	—	12
Proceeds from sale of equity method investment	—	—	—	13	—	13
Purchase of CF Fertilisers UK, net of cash acquired	—	—	—	(552)	—	(552)
Withdrawals from restricted cash funds	—	—	—	63	—	63
Other—net	—	(82)	(44)	1	82	(43)
Net cash used in investing activities	—	(82)	(70)	(2,906)	82	(2,976)
Financing Activities:						
Proceeds from long-term borrowings	—	1,000	—	—	—	1,000
Short-term debt—net	554	(870)	(1,431)	1,747	—	—
Financing fees	—	(47)	—	—	—	(47)
Purchases of treasury stock	(556)	—	—	—	—	(556)
Dividends paid on common stock	(282)	(282)	(282)	(268)	832	(282)
Distributions to noncontrolling interest	—	—	—	(45)	—	(45)
Issuances of common stock under employee stock plans	8	—	—	—	—	8
Shares withheld for taxes	(1)	—	—	—	—	(1)
Dividends to/from affiliates	282	282	268	—	(832)	—
Other—net	—	—	—	82	(82)	—
Net cash provided by (used in) financing activities	5	83	(1,445)	1,516	(82)	77
Effect of exchange rate changes on cash and cash equivalents	—	—	—	(19)	—	(19)
Increase (decrease) in cash and cash equivalents	1	(106)	(1,119)	(487)	—	(1,711)
Cash and cash equivalents at beginning of period	—	106	1,240	651	—	1,997
Cash and cash equivalents at end of period	$ 1	$ —	$ 121	$ 164	$ —	$ 286

Condensed Consolidating Statement of Cash Flows

	Year ended December 31, 2014					
	Parent	CF Industries	Subsidiary Guarantors	Non-Guarantors	Eliminations	Consolidated
	(in millions)					
Operating Activities:						
Net earnings	$ 1,390	$ 1,392	$ 922	$ 673	$ (2,940)	$ 1,437
Adjustments to reconcile net earnings to net cash provided by (used in) operating activities:						
Depreciation, depletion and amortization	—	7	16	370	—	393
Deferred income taxes	—	136	(69)	(49)	—	18
Stock-based compensation expense	17	—	—	—	—	17
Unrealized loss on derivatives	—	—	103	16	—	119
Gain on sale of phosphate business	—	(764)	14	—	—	(750)
Loss on disposal of property, plant and equipment	—	—	—	4	—	4
Undistributed (earnings) loss of affiliates—net	(1,392)	(969)	(579)	(12)	2,940	(12)
Due to / from affiliates—net	9	1	(15)	5	—	—
Changes in:						
Intercompany AR/AP—net	—	14	(143)	129	—	—
Accounts receivable—net	—	1	(48)	86	—	39
Inventories	—	4	64	(4)	—	64
Accrued and prepaid income taxes	(1)	(18)	(64)	26	—	(57)
Accounts and notes payable and accrued expenses	—	77	(59)	(71)	—	(53)
Customer advances	—	—	205	—	—	205
Other—net	—	5	17	(25)	—	(3)
Net cash provided by (used in) operating activities	23	(114)	364	1,148	—	1,421
Investing Activities:						
Additions to property, plant and equipment	—	(18)	(24)	(1,767)	—	(1,809)
Proceeds from sale of property, plant and equipment	—	—	—	11	—	11
Proceeds from sale of phosphate business	—	911	—	461	—	1,372
Deposits to restricted cash funds	—	—	—	(505)	—	(505)
Withdrawals from restricted cash funds	—	—	—	573	—	573
Sales and maturities of short-term and auction rate securities	—	5	—	—	—	5
Other—net	—	—	5	4	—	9
Net cash provided by (used in) investing activities	—	898	(19)	(1,223)	—	(344)
Financing Activities:						
Proceeds from long-term borrowings	—	1,494	—	—	—	1,494
Short-term debt—net	1,897	(2,176)	(395)	674	—	—
Financing fees	—	(16)	—	—	—	(16)
Dividends paid on common stock	(256)	(256)	(256)	(295)	807	(256)
Dividends to/from affiliates	256	256	295	—	(807)	—
Distributions to/from noncontrolling interest	—	—	—	(46)	—	(46)
Purchases of treasury stock	(1,935)	—	—	—	—	(1,935)
Shares withheld for taxes	(3)	—	—	—	—	(3)
Issuances of common stock under employee stock plans	18	—	—	—	—	18
Other—net	—	(1)	(27)	(15)	—	(43)
Net cash (used in) provided by financing activities	(23)	(699)	(383)	318	—	(787)
Effect of exchange rate changes on cash and cash equivalents	—	—	—	(4)	—	(4)
Increase (decrease) in cash and cash equivalents	—	85	(38)	239	—	286
Cash and cash equivalents at beginning of period	—	21	1,278	412	—	1,711
Cash and cash equivalents at end of period	$ —	$ 106	$ 1,240	$ 651	$ —	$ 1,997

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE.

None.

ITEM 9A. CONTROLS AND PROCEDURES.

(a) *Disclosure Controls and Procedures.* The Company's management, with the participation of the Company's principal executive officer and principal financial officer, has evaluated the effectiveness of the Company's disclosure controls and procedures (as such term is defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the Exchange Act)) as of the end of the period covered by this report. Based on such evaluation, the Company's principal executive officer and principal financial officer have concluded that, as of the end of such period, the Company's disclosure controls and procedures are effective in (i) ensuring that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and (ii) ensuring that information required to be disclosed by the Company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the Company's management, including the Company's principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

(b) *Management's Report on Internal Control over Financial Reporting.*

Management's Report on Internal Control over Financial Reporting

The Company's management is responsible for establishing and maintaining adequate internal control over financial reporting, as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act, for the Company. Under the supervision and with the participation of our senior management, including our principal executive officer and principal financial officer, we assessed the effectiveness of our internal control over financial reporting as of December 31, 2016, using the criteria set forth in the *Internal Control—Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission in 2013. Based on this assessment, management has concluded that our internal control over financial reporting is effective as of December 31, 2016. KPMG LLP, the independent registered public accounting firm that audited the Company's consolidated financial statements, has issued an attestation report on the Company's internal control over financial reporting as of December 31, 2016, which appears on the following page.

(c) *Changes in Internal Control over Financial Reporting.* There have not been any changes in the Company's internal control over financial reporting (as such term is defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the quarter ended December 31, 2016 that have materially affected, or are reasonably likely to materially affect, the Company's internal control over financial reporting.

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
CF Industries Holdings, Inc.:

We have audited CF Industries Holdings, Inc.'s (the Company) internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). The Company's management is responsible for maintaining effective internal control over financial reporting and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control Over Financial Reporting. Our responsibility is to express an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (3) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

In our opinion, CF Industries Holdings, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control—Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States), the consolidated balance sheets of CF Industries Holdings, Inc. and subsidiaries as of December 31, 2016 and 2015, and the related consolidated statements of operations, comprehensive (loss) income, equity, and cash flows for each of the years in the three-year period ended December 31, 2016, and our report dated February 23, 2017 expressed an unqualified opinion on those consolidated financial statements.

(signed) KPMG LLP

Chicago, Illinois
February 23, 2017

ITEM 9B. OTHER INFORMATION.

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE.

Information appearing in the Proxy Statement under the headings "Director Nominees"; "Executive Officers"; "Corporate Governance—Committees of the Board—Audit Committee"; and "Common Stock Ownership—Section 16(a) Beneficial Ownership Reporting Compliance" is incorporated herein by reference.

We have adopted a Code of Corporate Conduct that applies to our employees, directors and officers, including our principal executive officer, principal financial officer and principal accounting officer. The Code of Corporate Conduct is posted on our Internet website, www.cfindustries.com. We will provide an electronic or paper copy of this document free of charge upon request. We intend to disclose on our Internet website any amendment to any provision of the Code of Corporate Conduct that relates to any element of the definition of “code of ethics” enumerated in Item 406(b) of Regulation S-K under the Exchange Act and any waiver from any such provision granted to our principal executive officer, principal financial officer, principal accounting officer or controller or persons performing similar functions.

ITEM 11. EXECUTIVE COMPENSATION.

Robert C. Arzbaecher, Stephen A. Furbacher, Stephen J. Hagge, John D. Johnson, Anne P. Noonan, Edward A. Schmitt and Theresa E. Wagler currently serve as the members of the Compensation Committee of the Board.

Information appearing under the following headings of the Proxy Statement is incorporated herein by reference: "Compensation Discussion and Analysis," "Compensation and Benefits Risk Analysis," "Compensation Committee Report," "Executive Compensation" and "Director Compensation."

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS.

Information appearing under the following headings of the Proxy Statement is incorporated herein by reference: "Common Stock Ownership—Common Stock Ownership of Certain Beneficial Owners" and "Common Stock Ownership—Common Stock Ownership of Directors and Management."

We currently issue stock-based compensation under the 2014 Equity and Incentive Plan. Under the 2014 Equity and Incentive Plan, we may grant incentive stock options, nonqualified stock options, stock appreciation rights, restricted stock, restricted stock units, performance awards (payable in cash or stock) and other stock or cash-based awards.

Equity Compensation Plan Information as of December 31, 2016

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in the first column)
Equity compensation plans approved by security holders	4,723,387	$ 41.06	11,699,635
Equity compensation plans not approved by security holders	181,885	$ 17.57	—
Total	4,905,272	$ 40.18	11,699,635

See Note 19—Stock-Based Compensation for additional information on the 2014 Equity and Incentive Plan.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS, AND DIRECTOR INDEPENDENCE.

Information appearing in the Proxy Statement under the headings "Corporate Governance—Director Independence" and "Policy Regarding Related Person Transactions" is incorporated herein by reference.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES.

Information appearing in the Proxy Statement under the headings "Audit and Non-audit Fees" and "Pre-approval of Audit and Non-audit Services" is incorporated herein by reference.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES.

(a) Documents filed as part of this report:

(1) All financial statements:

The following financial statements are included in Part II, Item 8. Financial Statements and Supplementary Data.

Financial statement schedules are omitted because they are not applicable or the required information is included in the consolidated financial statements or notes thereto.

(2) Exhibits

A list of exhibits filed with this Annual Report on Form 10-K (or incorporated by reference to exhibits previously filed or furnished) is provided in the Exhibit Index on page 151 of this report.

ITEM 16. FORM 10-K SUMMARY.

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

CF INDUSTRIES HOLDINGS, INC.

Date: February 23, 2017

By: /s/ W. ANTHONY WILL

W. Anthony Will
President and Chief Executive Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title(s)	Date
/s/ W. ANTHONY WILL W. Anthony Will	President and Chief Executive Officer, Director (Principal Executive Officer)	February 23, 2017
/s/ DENNIS P. KELLEHER Dennis P. Kelleher	Senior Vice President and Chief Financial Officer (Principal Financial Officer)	February 23, 2017
/s/ RICHARD A. HOKER Richard A. Hoker	Vice President and Corporate Controller (Principal Accounting Officer)	February 23, 2017
/s/ STEPHEN A. FURBACHER Stephen A. Furbacher	Chairman of the Board	February 23, 2017
/s/ ROBERT C. ARZBAECHER Robert C. Arzbaecher	Director	February 23, 2017
/s/ WILLIAM DAVISSON William Davisson	Director	February 23, 2017
/s/ STEPHEN J. HAGGE Stephen J. Hagge	Director	February 23, 2017
/s/ JOHN D. JOHNSON John D. Johnson	Director	February 23, 2017
/s/ ROBERT G. KUHBACH Robert G. Kuhbach	Director	February 23, 2017
/s/ ANNE P. NOONAN Anne P. Noonan	Director	February 23, 2017
/s/ EDWARD A SCHMITT Edward A. Schmitt	Director	February 23, 2017
/s/ THERESA E. WAGLER Theresa E. Wagler	Director	February 23, 2017

CF INDUSTRIES HOLDINGS, INC.

EXHIBIT INDEX

EXHIBIT NO.	DESCRIPTION
2.1	Agreement and Plan of Merger, dated as of July 21, 2005, by and among CF Industries Holdings, Inc., CF Merger Corp. and CF Industries, Inc. (incorporated by reference to Exhibit 2.1 to Amendment No. 3 to CF Industries Holdings, Inc.'s Registration Statement on Form S-1 filed with the SEC on July 26, 2005, File No. 333-124949)
2.2	Agreement and Plan of Merger, dated as of March 12, 2010, by and among CF Industries Holdings, Inc., Composite Merger Corporation and Terra Industries Inc. (incorporated by reference to Exhibit 2.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on March 12, 2010, File No. 001-32597)
2.3	Purchase and Sale Agreement, dated August 2, 2012, between CF Industries Holdings, Inc. and Glencore International plc (incorporated by reference to Exhibit 2.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on August 6, 2012, File No. 001-32597)
2.4	Asset Purchase Agreement, dated October 28, 2013, among CF Industries Holdings, Inc., CF Industries, Inc. and The Mosaic Company (incorporated by reference to Exhibit 2.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on November 1, 2013, File No. 001-32597)
2.5	Combination Agreement, dated August 6, 2015, by and among CF Industries Holdings, Inc., Darwin Holdings Limited, Beagle Merger Company LLC and OCI N.V. (incorporated by reference to Exhibit 2.1 to CF Industries Holdings, Inc.’s Current Report on Form 8-K filed with the SEC on August 12, 2015, File No. 001-32597)
2.6	Amendment No. 1 to the Combination Agreement, dated November 6, 2015, by and among CF Industries Holdings, Inc., Darwin Holdings Limited, Beagle Merger Company LLC and OCI N.V. (incorporated by reference to Exhibit 2.2 to CF B.V.’s Registration Statement on Form S-4 filed with the SEC on November 6, 2015, File No. 333-207847)
2.7	Second Amendment to the Combination Agreement, dated December 20, 2015, by and among CF Industries Holdings, Inc., Darwin Holdings Limited, Beagle Merger Company LLC, OCI N.V., CF B.V. and Finch Merger Company LLC (incorporated by reference to Exhibit 2.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on December 23, 2015, File No. 001-32597)
2.8	Termination Agreement, dated as of May 22, 2016, by and among CF Industries Holdings, Inc., OCI N.V. and certain other parties named therein (incorporated by reference to Exhibit 10.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on May 23, 2016, File No. 001-32597)
2.9	Second Amended and Restated Limited Liability Company Agreement of CF Industries Nitrogen, LLC, dated as of December 18, 2015, by and between CF Industries Sales, LLC and CHS Inc. (incorporated by reference to Exhibit 2.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on December 21, 2015, File No. 001-32597)*
3.1	Second Amended and Restated Certificate of Incorporation, as amended (incorporated by reference to Exhibit 3.2 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on September 7, 2016, File No. 001-32597)
3.2	Fourth Amended and Restated Bylaws of CF Industries Holdings, Inc., effective October 14, 2015 (incorporated by reference to Exhibit 3.1 to CF Industries Holdings, Inc.’s Current Report on Form 8-K filed with the SEC on October 16, 2015, File No. 001-32597)
4.1	Specimen common stock certificate (incorporated by reference to Exhibit 4.2 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on September 7, 2016, File No. 001-32597)
4.2	Tax Benefits Preservation Plan, dated as of September 6, 2016, between CF Industries Holdings, Inc. and Computershare Trust Company, N.A. (incorporated by reference to Exhibit 3.1 to CF Industries Holdings, Inc.’s Current Report on Form 8-K filed with the SEC on September 7, 2016, File No. 001-32597)
4.3	Indenture, dated as of April 23, 2010, among CF Industries, Inc., CF Industries Holdings, Inc. and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.1 to CF Industries Holding, Inc.'s Current Report on Form 8-K filed with the SEC on April 27, 2010, File No. 001-32597)
4.4	First Supplemental Indenture, dated as of April 23, 2010, among CF Industries, Inc., CF Industries Holdings, Inc. and the other guarantors named therein and Wells Fargo Bank, National Association, as trustee, relating to CF Industries, Inc.'s 6.875% Senior Notes due 2018 (includes form of note) (the "2018 Notes Supplement") (incorporated by reference to Exhibit 4.2 to CF Industries Holding, Inc.'s Current Report on Form 8-K filed with the SEC on April 27, 2010, File No. 001-32597)

EXHIBIT NO.	DESCRIPTION
4.5	First Supplement, dated as of November 21, 2016, relating to the 2018 Notes Supplement
4.6	Second Supplemental Indenture, dated as of April 23, 2010, among CF Industries, Inc., CF Industries Holdings, Inc. and the other guarantors named therein and Wells Fargo Bank, National Association, as trustee, relating to CF Industries, Inc.'s 7.125% Senior Notes due 2020 (includes form of note) (the "2020 Notes Supplement") (incorporated by reference to Exhibit 4.3 to CF Industries Holding, Inc.'s Current Report on Form 8-K filed with the SEC on April 27, 2010, File No. 001-32597)
4.7	First Supplement, dated as of November 21, 2016, relating to the 2020 Notes Supplement
4.8	Indenture, dated as of May 23, 2013, among CF Industries, Inc., CF Industries Holdings, Inc. and Wells Fargo Bank, National Association, as trustee (incorporated by reference to Exhibit 4.1 to CF Industries Holding, Inc.'s Current Report on Form 8-K filed with the SEC on May 23, 2013, File No. 001-32597)
4.9	First Supplemental Indenture, dated as of May 23, 2013, among CF Industries, Inc., CF Industries Holdings, Inc. and Wells Fargo Bank, National Association, as trustee, relating to CF Industries, Inc.'s 3.450% Senior Notes due 2023 (includes form of note) (the "2023 Notes Supplement") (incorporated by reference to Exhibit 4.2 to CF Industries Holding, Inc.'s Current Report on Form 8-K filed with the SEC on May 23, 2013, File No. 001-32597)
4.10	First Supplement, dated as of November 21, 2016, relating to the 2023 Notes Supplement
4.11	Second Supplemental Indenture, dated as of May 23, 2013, among CF Industries, Inc., CF Industries Holdings, Inc. and Wells Fargo Bank, National Association, as trustee, relating to CF Industries, Inc.'s 4.950% Senior Notes due 2043 (includes form of note) (the "2043 Notes Supplement") (incorporated by reference to Exhibit 4.3 to CF Industries Holding, Inc.'s Current Report on Form 8-K filed with the SEC on May 23, 2013, File No. 001-32597)
4.12	First Supplement, dated as of November 21, 2016, relating to the 2043 Notes Supplement
4.13	Third Supplemental Indenture, dated as of March 11, 2014, among CF Industries, Inc., CF Industries Holdings, Inc. and Wells Fargo Bank, National Association, as trustee, relating to CF Industries, Inc.'s 5.150% Senior Notes due 2034 (includes form of note) (the "2034 Notes Supplement") (incorporated by reference to Exhibit 4.2 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on March 11, 2014, File No. 001-32597)
4.14	First Supplement, dated as of November 21, 2016, relating to the 2034 Notes Supplement
4.15	Fourth Supplemental Indenture, dated as of March 11, 2014, among CF Industries, Inc., CF Industries Holdings, Inc. and Wells Fargo Bank, National Association, as trustee, relating to CF Industries, Inc.'s 5.375% Senior Notes due 2044 (includes form of note) (the “2044 Notes Supplement”) (incorporated by reference to Exhibit 4.3 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on March 11, 2014, File No. 001-32597)
4.16	First Supplement, dated as of November 21, 2016, relating to the 2044 Notes Supplement
4.17	Indenture, dated as of November 21, 2016, among CF Industries Holdings, Inc., CF Industries, Inc., the Subsidiary Guarantors (as defined therein) party thereto and Wells Fargo Bank, National Association, as trustee and collateral agent, relating to CF Industries, Inc.’s 3.400% Senior Secured Notes due 2021 (includes form of note) (incorporated by reference to Exhibit 4.1 to CF Industries Holdings, Inc.’s Current Report on Form 8-K filed with the SEC on November 22, 2016, File No. 001-32597)
4.18	Indenture, dated as of November 21, 2016, among CF Industries Holdings, Inc., CF Industries, Inc., the Subsidiary Guarantors (as defined therein) party thereto and Wells Fargo Bank, National Association, as trustee and collateral agent, relating to CF Industries, Inc.’s 4.500% Senior Secured Notes due 2026 (includes form of note) (incorporated by reference to Exhibit 4.2 to CF Industries Holdings, Inc.’s Current Report on Form 8-K filed with the SEC on November 22, 2016, File No. 001-32597)
4.19	Pledge and Security Agreement, dated as of November 21, 2016, among CF Industries Holdings, Inc., CF Industries, Inc., the other Guarantors (as defined therein) party thereto and Wells Fargo Bank, National Association, as collateral agent under the indenture relating to CF Industries, Inc.’s 3.400% Senior Secured Notes due 2021 (incorporated by reference to Exhibit 4.3 to CF Industries Holdings, Inc.’s Current Report on Form 8-K filed with the SEC on November 22, 2016, File No. 001-32597)

EXHIBIT NO.	DESCRIPTION
4.20	Pledge and Security Agreement, dated as of November 21, 2016, among CF Industries Holdings, Inc., CF Industries, Inc., the Subsidiary Guarantors (as defined therein) party thereto and Wells Fargo Bank, National Association, as collateral agent under the indenture relating to CF Industries, Inc.'s 4.500% Senior Secured Notes due 2026 (incorporated by reference to Exhibit 4.4 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on November 22, 2016, File No. 001-32597)
4.21	First Lien/First Lien Intercreditor Agreement, dated as of November 21, 2016, among Morgan Stanley Senior Funding, Inc., as authorized representative of the Credit Agreement Secured Parties, Wells Fargo Bank, National Association, as collateral agent in connection with CF Industries, Inc.'s 3.400% Senior Secured Notes due 2021 and 4.500% Senior Secured Notes due 2026 and each additional Authorized Representative from time to time party thereto for the Other First-Priority Secured Parties of the Series with respect to which it is acting in such capacity (incorporated by reference to Exhibit 4.5 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on November 22, 2016, File No. 001-32597)
4.22	Note Purchase Agreement, dated September 24, 2015, among CF Industries Holdings, Inc., CF Industries, Inc. and the Purchasers party thereto (incorporated by reference to Exhibit 4.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on September 30, 2015, File No. 001-32597)
4.23	First Amendment, dated as of December 20, 2015, to the Note Purchase Agreement dated September 24, 2015, among CF Industries Holdings, Inc., CF Industries, Inc. and the noteholders party thereto (incorporated by reference to Exhibit 4.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on December 21, 2015, File No. 001-32597)
4.24	Second Amendment, dated as of September 7, 2016, to the Note Purchase Agreement, dated as of September 24, 2015, among CF Industries Holdings, Inc., CF Industries, Inc. and the noteholders party thereto (incorporated by reference to Exhibit 4.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on September 9, 2016, File No. 001-32597)
10.1	Change in Control Severance Agreement, effective as of April 29, 2005, and amended and restated as of July 24, 2007, by and among CF Industries, Inc., CF Industries Holdings, Inc. and Douglas C. Barnard (incorporated by reference to Exhibit 10.3 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on November 5, 2007, File No. 001-32597)**
10.2	Change in Control Severance Agreement, effective as of September 1, 2009, amended as of October 20, 2010, and amended further and restated as of February 17, 2014, by and between CF Industries Holdings, Inc. and Christopher D. Bohn (incorporated by reference to Exhibit 10.3 to CF Industries Holdings, Inc.'s Annual Report on Form 10-K filed with the SEC on February 27, 2014, File No. 001-32597)**
10.3	Change in Control Severance Agreement, effective as of November 21, 2008, by and between CF Industries Holdings, Inc. and Bert A. Frost (incorporated by reference to Exhibit 10.11 to CF Industries Holdings, Inc.'s Annual Report on Form 10-K filed with the SEC on February 26, 2009, File No. 001-32597)**
10.4	Change in Control Severance Agreement, effective as of November 19, 2007 and amended and restated as of March 6, 2009, by and between CF Industries Holdings, Inc. and Richard A. Hoker (incorporated by reference to Exhibit (e)(9) to CF Industries Holdings, Inc.'s Solicitation/Recommendation Statement on Schedule 14D-9 filed with the SEC on March 23, 2009, File No. 005-80934)**
10.5	Change in Control Severance Agreement, effective as of August 22, 2011, amended as of April 27, 2012, and amended further and restated as of February 17, 2014, by and between CF Industries Holdings, Inc. and Dennis P. Kelleher (incorporated by reference to Exhibit 99.2 to CF Industries Holding, Inc.'s Current Report on Form 8-K filed with the SEC on February 20, 2014, File No. 001-32597**
10.6	Change in Control Severance Agreement, effective as of August 1, 2007 and amended and restated as of March 6, 2009, by and between CF Industries Holdings, Inc. and Wendy S. Jablow Spertus (incorporated by reference to Exhibit (e)(8) to CF Industries Holdings, Inc.'s Solicitation/Recommendation Statement on Schedule 14D-9 filed with the SEC on March 23, 2009, File No. 005-80934)**
10.7	Change in Control Severance Agreement, effective as of April 29, 2005 and amended and restated as of July 24, 2007, by and among CF Industries, Inc., CF Industries Holdings, Inc. and Philipp P. Koch (incorporated by reference to Exhibit 10.5 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on November 5, 2007, File No. 001-32597)**
10.8	Change in Control Severance Agreement, effective as of April 24, 2007, amended as of July 24, 2007, and amended further and restated as of February 17, 2014, by and between CF Industries Holdings, Inc. and W. Anthony Will (incorporated by reference to Exhibit 99.1 to CF Industries Holding, Inc.'s Current Report on Form 8-K filed with the SEC on February 20, 2014, File No. 001-32597)**

EXHIBIT NO.	DESCRIPTION
10.9	Change in Control Severance Agreement, effective as of July 25, 2013, by and between CF Industries Holdings, Inc. and Adam L. Hall (incorporated by reference to Exhibit 10.10 to CF Industries Holdings, Inc.'s Annual Report on Form 10-K filed with the SEC on February 27, 2014, File No. 001-32597)**
10.10	Form of Amendment to Change in Control Severance Agreement (incorporated by reference to Exhibit 10.3 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on December 24, 2015, File No. 001-32597)**
10.11	Form of Indemnification Agreement with Officers and Directors (incorporated by reference to Exhibit 10.10 to Amendment No. 2 to CF Industries Holdings, Inc.'s Registration Statement on Form S-1 filed with the SEC on July 20, 2005, File No. 333-124949)**
10.12	CF Industries Holdings, Inc. 2005 Equity and Incentive Plan, amended as of December 13, 2007 (incorporated by reference to Exhibit 10.15 to CF Industries Holdings, Inc.'s Annual Report on Form 10-K filed with the SEC on February 27, 2008, File No. 001-32597)**
10.13	CF Industries Holdings, Inc. 2009 Equity and Incentive Plan (incorporated by reference to Appendix A to CF Industries Holdings, Inc.'s Definitive Proxy Statement on Schedule 14A filed with the SEC on March 16, 2009, File No. 001-32597)**
10.14	Amendment, dated as of July 21, 2016, to the CF Industries Holdings, Inc. 2009 Equity and Incentive Plan (incorporated by reference to Exhibit 10.3 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on August 4, 2016, File No. 001-32597)**
10.15	CF Industries Holdings, Inc. 2014 Equity and Incentive Plan (incorporated by reference to Appendix C to CF Industries Holdings, Inc.'s Definitive Proxy Statement on Schedule 14A filed with the SEC on April 3, 2014, File No. 001-32597)**
10.16	Amendment, dated as of July 21, 2016, to the CF Industries Holdings, Inc. 2014 Equity and Incentive Plan (incorporated by reference to Exhibit 10.4 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on August 4, 2016, File No. 001-32597)**
10.17	CF Industries Holdings, Inc. Supplemental Benefit and Deferral Plan (incorporated by reference to Exhibit 10.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on October 20, 2014, File No. 001-32597)**
10.18	Form of Non-Qualified Stock Option Award Agreement (incorporated by reference to Exhibit 10.12 to Amendment No. 3 to CF Industries Holdings, Inc.'s Registration Statement on Form S-1 filed with the SEC on July 26, 2005, File No. 333-124949)**
10.19	Form of Non-Qualified Stock Option Award Agreement (incorporated by reference to Exhibit 10.19 to CF Industries Holdings, Inc.'s Annual Report on Form 10-K filed with the SEC on February 27, 2008, File No. 001-32597)**
10.20	Form of Non-Qualified Stock Option Award Agreement (incorporated by reference to Exhibit 10.6 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on August 3, 2009, File No. 001-32597)**
10.21	Form of Non-Qualified Stock Option Award Agreement (incorporated by reference to Exhibit 10.17 to CF Industries Holdings, Inc.'s Annual Report on Form 10-K filed with the SEC on February 27, 2014, File No. 001-32597)**
10.22	Form of Non-Qualified Stock Option Award Agreement (incorporated by reference to Exhibit 10.2 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on November 6, 2014, File No. 001-32597)**
10.23	Form of Non-Qualified Stock Option Award Agreement (incorporated by reference to Exhibit 10.2 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on May 7, 2015, File No. 001-32597)**
10.24	Form of Amendment to Non-Qualified Stock Option Award Agreements (incorporated by reference to Exhibit 10.5 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on May 7, 2015, File No. 001-32597)**
10.25	Form of Non-Qualified Stock Option Award Agreement (incorporated by reference to Exhibit 10.23 to CF Industries Holdings, Inc.'s Annual Report on Form 10-K filed with the SEC on February 25, 2016, File No. 001-32597)**

EXHIBIT NO.	DESCRIPTION
10.26	Form of Non-Qualified Stock Option Award Agreement (incorporated by reference to Exhibit 10.6 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on August 4, 2016, File No. 001-32597)**
10.27	Form of Restricted Stock Award Agreement (incorporated by reference to Exhibit 10.7 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on August 3, 2009, File No. 001-32597)**
10.28	Form of Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.19 to CF Industries Holdings, Inc.'s Annual Report on Form 10-K filed with the SEC on February 27, 2014, File No. 001-32597)**
10.29	Form of Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.1 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on November 6, 2014, File No. 001-32597)**
10.30	Form of Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.3 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on May 7, 2015, File No. 001-32597)**
10.31	Form of Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.28 to CF Industries Holdings, Inc.'s Annual Report on Form 10-K filed with the SEC on February 25, 2016, File No. 001-32597)**
10.32	Form of Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.7 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on August 4, 2016, File No. 001-32597)**
10.33	Form of Performance Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.20 to CF Industries Holdings, Inc.'s Annual Report on Form 10-K filed with the SEC on February 27, 2014, File No. 001-32597)**
10.34	Form of Performance Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.3 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on November 6, 2014, File No. 001-32597)**
10.35	Form of Performance Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.4 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on May 7, 2015, File No. 001-32597)**
10.36	Form of Performance Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.1 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on August 6, 2015, File No. 001-32597)**
10.37	Form of Performance Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.33 to CF Industries Holdings, Inc.'s Annual Report on Form 10-K filed with the SEC on February 25, 2016, File No. 001-32597)**
10.38	Form of Performance Restricted Stock Unit Award Agreement (incorporated by reference to Exhibit 10.8 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on August 4, 2016, File No. 001-32597)**
10.39	Form of Non-Employee Director Restricted Stock Award Agreement (incorporated by reference to Exhibit 10.3 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on August 7, 2014, File No. 001-32597)**
10.40	Form of Equity Award Amendment Letter Agreement, dated as of July 21, 2016 (incorporated by reference to Exhibit 10.5 to CF Industries Holdings, Inc.'s Quarterly Report on Form 10-Q filed with the SEC on August 4, 2016, File No. 001-32597)**
10.41	Letter Agreement between Philipp P. Koch and CF Industries Holdings, Inc. (incorporated by reference to Exhibit 10.2 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on December 24, 2015, File No. 001-32597)**
10.42	Commitment Letter, dated August 6, 2015, by and among Morgan Stanley Senior Funding, Inc., Goldman Sachs Bank USA and CF Industries Holdings, Inc. (incorporated by reference to Exhibit 10.1 to CF Industries Holdings, Inc.’s Current Report on Form 8-K filed with the SEC on August 12, 2015, File No. 001-32597)

EXHIBIT NO.	DESCRIPTION
10.43	Third Amended and Restated Revolving Credit Agreement, dated as of September 18, 2015, among CF Industries Holdings, Inc., the borrowers from time to time party thereto, the lenders from time to time party thereto, Morgan Stanley Senior Funding, Inc., as administrative agent, and Morgan Stanley Bank, N.A., Goldman Sachs Bank USA, Bank of Montreal, Royal Bank of Canada, The Bank of Tokyo-Mitsubishi UFJ, Ltd. and Wells Fargo Bank, National Association, as issuing banks (incorporated by reference to Exhibit 10.2 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on September 23, 2015, File No. 001-32597)
10.44	Amendment No. 1, dated as of December 20, 2015, to the Third Amended and Restated Revolving Credit Agreement among CF Industries Holdings, Inc., CF Industries, Inc., the lenders party thereto, the issuing banks party thereto and Morgan Stanley Senior Funding, Inc., as administrative agent (incorporated by reference to Exhibit 10.2 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on December 21, 2015, File No. 001-32597)
10.45	Amendment No. 2, dated as of July 29, 2016, to the Third Amended and Restated Revolving Credit Agreement among CF Industries Holdings, Inc., CF Industries, Inc., the lenders party thereto, the issuing banks party thereto and Morgan Stanley Senior Funding, Inc., as Administrative Agent (incorporated by reference to Exhibit 10.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on August 4, 2016, File No. 001-32597)
10.46	Amendment No. 3, dated as of October 31, 2016, to the Third Amended and Restated Revolving Credit Agreement among CF Industries Holdings, Inc., CF Industries, Inc., Morgan Stanley Senior Funding, Inc., as administrative agent under the Existing Revolving Credit Agreement (as defined therein), the issuing banks under the Existing Revolving Credit Agreement signatory thereto, and the lenders under the Existing Revolving Credit Agreement signatory thereto (incorporated by reference to Exhibit 10.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on November 3, 2016, File No. 001-32597)
10.47	Pledge and Security Agreement, dated as of November 21, 2016, among CF Industries Holdings, Inc., CF Industries, Inc., the Subsidiary Guarantors (as defined therein) party thereto and Morgan Stanley Senior Funding, Inc., as administrative agent (incorporated by reference to Exhibit 10.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on November 22, 2016, File No. 001-32597)
10.48	364-Day Bridge Credit Agreement, dated as of September 18, 2015, among CF Industries Holdings, Inc., the borrowers from time to time party thereto, the lenders from time to time party thereto, and Morgan Stanley Senior Funding, Inc., as administrative agent (incorporated by reference to Exhibit 10.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on September 23, 2015, File No. 001-32597)
10.49	Amendment No. 1, dated as of December 20, 2015, to the 364-Day Bridge Credit Agreement among CF Industries Holdings, Inc., CF Industries, Inc., the lenders party thereto and Morgan Stanley Senior Funding, Inc., as administrative agent (incorporated by reference to Exhibit 10.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on December 21, 2015, File No. 001-32597)
10.50	Amended and Restated Nitrogen Fertilizer Purchase Agreement, dated December 18, 2015, by and between CF Industries Nitrogen, LLC and CHS Inc. (incorporated by reference to Exhibit 10.1 to CF Industries Holdings, Inc.'s Current Report on Form 8-K filed with the SEC on December 18, 2015, File No. 001-32597)*
12	Ratio of earnings to fixed charges
21	Subsidiaries of the registrant
23	Consent of KPMG LLP, independent registered public accounting firm
31.1	Certification of Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
31.2	Certification of Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002
32.1	Certification of Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
32.2	Certification of Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002
101	The following financial information from CF Industries Holdings, Inc.'s Annual Report on Form 10-K for the fiscal year ended December 31, 2016, formatted in XBRL (eXtensible Business Reporting Language): (1) Consolidated Statements of Operations, (2) Consolidated Statements of Comprehensive (Loss) Income, (3) Consolidated Balance Sheets, (4) Consolidated Statements of Equity, (5) Consolidated Statements of Cash Flows and (6) the Notes to Consolidated Financial Statements

* Portions omitted pursuant to an order granting confidential treatment under Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

** Management contract or compensatory plan or arrangement required to be filed (and/or incorporated by reference) as an exhibit to this Annual Report on Form 10-K pursuant to Item 15(a)(3) of Form 10-K.

CORPORATE HEADQUARTERS

CF Industries Holdings, Inc.
4 Parkway North, Suite 400
Deerfield, Illinois 60015-2590
Telephone 847.405.2400

INDEPENDENT AUDITORS

KPMG LLP
Chicago, Illinois 60601

CORPORATE GOVERNANCE

Information on CF Industries Holdings, Inc.'s corporate governance, including its board of directors, management, board committees, code of corporate conduct and corporate governance guidelines, can be found on the investor relations section of the company's website at cfindustries.com.

DIVIDEND POLICY

CF Industries Holdings, Inc. pays quarterly cash dividends on its common stock at a rate of $0.30 per share. The declaration and payment of dividends to holders of common stock is at the discretion of the board of directors and will depend on many factors, including general economic and business conditions, strategic plans, financial results and condition, legal requirements and other factors as the board of directors deems relevant. The company currently does not offer a dividend reinvestment plan.

FORWARD-LOOKING STATEMENTS

All statements in this publication, other than those relating to historical facts, are "forward-looking statements" within the meaning of federal securities laws. The company's safe harbor statement, describing those statements and detailing certain risks and uncertainties involved in those statements, is found in the enclosed annual report on Form 10-K. It is also found in the company's filings, financial news releases and presentations.

INVESTOR INFORMATION

A copy of this annual report, as well as company news releases, SEC filings and other materials of interest to stockholders, can be found on the investor relations section of the company's website at cfindustries.com.

QUARTERLY CONFERENCE CALLS, INVESTOR CONFERENCES AND INVESTOR EMAIL UPDATES

CF Industries Holdings, Inc. conducts quarterly conference calls and updates to discuss the company's performance and prospects. The company's executives also regularly appear at major investor conferences in the U.S. and internationally. These generally are accessible via the company's website at cfindustries.com. At the site, investors also may sign up to receive e-mail alerts to news, upcoming events and corporate filings.

REQUEST FOR ANNUAL REPORT ON FORM 10-K

Investors may download a copy from the company's website at cfindustries.com. Stockholders also may, upon request to investor relations at the corporate headquarters address shown on this page, receive a hard copy of the company's complete audited financial statements free of charge.

STOCK LISTING AND PERFORMANCE

Shares of CF Industries Holdings, Inc.'s common stock trade on the New York Stock Exchange (NYSE) under the symbol "CF." The price data shown is for NYSE trading.

2016	CLOSE	HIGH	LOW
Q1	$31.34	$40.95	$26.10
Q2	$24.10	$35.84	$23.15
Q3	$24.35	$28.32	$20.77
Q4	$31.48	$32.61	$22.00

STOCKHOLDER QUESTIONS

Stockholders with questions about the company, its operations and performance should contact investor relations at the corporate headquarters address or phone number. Stockholders with questions about their CF Industries stockholder accounts should contact the company's transfer agent and registrar as follows:

Correspondence:
Computershare
P.O. Box 30170
College Station, TX 77842-3170

Overnight correspondence:
Computershare
211 Quality Circle, Suite 210
College Station, TX 77845

Shareholder website:
www.computershare.com/investor

Shareholder online inquiries:
https://www-us.computershare.com/investor/contact

Telephone inquiries:
866.298.4984 – U.S.
201.680.6578 – Outside U.S.

CF Industries Holdings, Inc.
4 Parkway North, Suite 400
Deerfield, Illinois 60015–2590
cfindustries.com