DUKE ENERGY OHIO EXHIBIT _____

BEFORE
THE PUBLIC UTILITIES COMMISSION OF OHIO

In the Matter of the Application of Duke Energy Ohio, Inc., for an Increase in Electric Distribution Rates.	))	Case No. 17-32-EL-AIR
In the Matter of the Application of Duke Energy Ohio, Inc., for Tariff Approval.	))	Case No. 17-33-EL-ATA
In the Matter of the Application of Duke Energy Ohio, Inc., for Approval to Change Accounting Methods.	))	Case No. 17-34-EL-AAM
In the Matter of the Application of Duke Energy Ohio, Inc., for Approval to Modify Rider PSR.	))	Case No. 17-872-EL-RDR
In the Matter of the Application of Duke Energy Ohio, Inc., for Approval to Amend Rider PSR.	))	Case No. 17-873-EL-ATA
In the Matter of the Application of Duke Energy Ohio, Inc., for Approval to Change Accounting Methods.	))	Case No. 17-874-EL-AAM
In the Matter of the Application of Duke Energy Ohio, Inc., for Authority to Establish a Standard Service Offer Pursuant to Section 4928.143, Revised Code, in the Form of an Electric Security Plan, Accounting Modifications and Tariffs for Generation Service.	)))))	Case No. 17-1263-EL-SSO
In the Matter of the Application of Duke Energy Ohio, Inc., for Authority to Amend its Certified Supplier Tariff, P.U.C.O. No. 20.	)))	Case No. 17-1264-EL-ATA
In the Matter of the Application of Duke Energy Ohio, Inc., for Authority to Defer Vegetation Management Costs.	))	Case No. 17-1265-EL-AAM
In the Matter of the Application of Duke Energy Ohio, Inc., to Establish Minimum Reliability Performance Standards Pursuant to Chapter 4901:1-10, Ohio Administrative Code.	)))	Case No. 16-1602-EL-ESS

SUPPLEMENTAL TESTIMONY OF JOHN L. SULLIVAN, III

IN SUPPORT OF STIPUATION

June 6, 2018

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Attachment:

Supplemental Attachment JLS-1 - Moody's Credit Opinion for Duke Energy Ohio dated August 11, 2017

Supplemental Attachment JLS-2 - Moody's Credit Opinion of Duke Energy Corporation issued February 20, 2018.

I. INTRODUCTION AND PURPOSE

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is John L. Sullivan, III, and my business address is 550 S. Tryon Street, Charlotte, North Carolina 28202.

Q. BY WHOM ARE YOU EMPLOYED AND IN WHAT CAPACITY?

A. I am employed by Duke Energy Business Services LLC (DEBS) as Director, Corporate Finance and Assistant Treasurer. I am also the Assistant Treasurer of Duke Energy Ohio, Inc. (Duke Energy Ohio or the Company). DEBS provides various administrative and other services to Duke Energy Ohio and other affiliated companies of Duke Energy Corporation (Duke Energy).

Q. PLEASE BRIEFLY SUMMARIZE YOUR EDUCATION AND PROFESSIONAL EXPERIENCE.

I received a Bachelor of Arts degree from the University of North Carolina-Chapel Hill in 1995 and an MBA degree from Wake Forest University in 2000. From 2000 to 2009, I worked in Bank of America's Global Corporate & Investment Banking unit, providing corporate finance, capital markets and strategic advisory services to energy and power clients. In 2009, I joined Duke Energy as a General Manager in the Treasury group. In 2010, I moved to Duke Energy's Corporate Development group where I served as a Director responsible for managing various strategic transactions for the company's regulated and commercial businesses. In January 2016, I returned to Duke Energy's Treasury department and assumed my current role.

Q. PLEASE SUMMARIZE YOUR RESPONSIBILITIES AS DIRECTOR, CORPORATE FINANCE AND ASSISTANT TREASURER.

A. I am responsible for financing the operations of Duke Energy and its subsidiary utilities. This includes the issuance of new debt and equity securities, and obtaining other sources of external funds. My responsibilities also include financial risk management for Duke Energy and its subsidiaries. Additionally, I maintain relationships with Duke Energy's commercial banks, the fixed income investor community and the credit rating agencies.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THE PUBLIC UTILITIES COMMISSION OF OHIO?

A. Yes. I previously provided testimony on behalf of Duke Energy Ohio in Case No. 17-32-EL-AIR , in support of its Capital Structure.

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my testimony is to offer support for the Stipulation and Recommendation filed in these proceedings. I discuss the significance of this settlement as it relates to Duke Energy Ohio's ability to maintain its credit quality. This has become more important as the Company is now facing new challenges to fund its necessary capital investments in both maintaining and modernizing its electric delivery system, particularly following the recent passage of the Tax Cuts and Jobs Act of 2017 (TCJA).

II. DISCUSSION

Q. WHAT ARE DUKE ENERGY OHIO'S FINANCIAL OBJECTIVES?

A. The Company at all times seeks to maintain its financial strength and flexibility, including its strong investment-grade credit ratings, thereby ensuring reliable access to capital on reasonable terms. Financial strength and access to capital are necessary for Duke Energy Ohio to provide cost-effective, safe, and reliable service to its customers. Specific objectives that support financial strength and flexibility include: 1) financing the business to maintain the allowed equity component of the capital structure; 2) maintaining strong credit quality; 3) ensuring timely recovery of prudently incurred costs; 4) maintaining sufficient cash flows to meet obligations; and 5) maintaining a sufficient return on equity to fairly compensate shareholders for their invested capital. The ability to attract capital (both debt and equity) on reasonable terms is vitally important to the Company and its customers, and each of these objectives helps the Company meet its overall financial goals.

Q. PLEASE EXPLAIN CREDIT QUALITY AND CREDIT RATINGS, AND HOW THEY ARE DETERMINED.

A. Credit quality (or creditworthiness) is a term used to describe a company's overall financial health and its willingness and ability to repay all financial obligations in full and on time. An assessment of Duke Energy Ohio's creditworthiness is performed by Standard & Poor's (S&P) and Moody's Investors Service (Moody's), and results in Duke Energy Ohio's credit ratings and outlook.

Many qualitative and quantitative factors go into this assessment. Qualitative aspects may include Duke Energy Ohio's regulatory climate, its track record for delivering on its commitments, the strength of its management team, corporate governance, its operating performance, and its service territory. Quantitative measures are primarily based on operating cash flow and focus on Duke Energy Ohio's ability to meet its fixed obligations (interest expense in particular) on the basis of internally generated cash and the level at which Duke Energy Ohio maintains debt balances. The percentage of debt to total capital is another example of a quantitative measure. Creditors and credit rating agencies view both qualitative and quantitative factors in the aggregate when assessing the credit quality of a company.

Q. WHAT IS THE ROLE OF REGULATION IN THE DETERMINATION OF THE FINANCIAL STRENGTH OF A UTILITY COMPANY?

A. Investors, investment analysts, and the rating agencies regard regulation as one of the most important factors in assessing a utility company's financial strength. These stakeholders want to be confident a utility company operates in a stable regulatory environment that will allow the company to recover prudently incurred costs and earn a reasonable return on investments necessary to meet the demand, reliability, and service requirements of its customers. Important considerations include the allowed rate of return, cash quality of earnings, timely recovery of capital investments, stability of earnings, and strength of its capital structure. Positive consideration is also given for utilities operating in states where the regulatory process is streamlined and outcomes are equitably balanced between customers and investors.

Q. HOW ARE DUKE ENERGY OHIO'S OUTSTANDING SECURITIES CURRENTLY RATED BY THE CREDIT RATING AGENCIES?

A. As of the date of this testimony, S&P and Moody's rated Duke Energy Ohio's outstanding debt as follows:

	Rating Agency	
	S&P	**Moody's**
Senior Secured Debt	A	A2
Senior Unsecured Debt	A-	Baa1
Ratings Outlook	Stable	Positive

Q. WHY IS IT IMPORTANT FOR DUKE ENERGY OHIO TO MAINTAIN STRONG CREDIT QUALITY AND INVESTMENT-GRADE CREDIT RATINGS?

A. To ensure reliable and cost-effective service, and to fulfill its obligations to serve customers, the Company must continuously plan and execute major capital projects. This is the nature of regulated capital-intensive industries like electric and gas utilities. The Company must be able to operate and maintain its business without interruption and refinance maturing debt on time, regardless of financial market conditions. The financial markets continue to experience periods of volatility, most recently driven by geopolitical tension, changing fiscal, monetary and trade policies. Duke Energy Ohio must be able to finance its needs throughout such periods and strong investment-grade credit ratings provide the Company greater assurance of continued access to the capital markets on reasonable terms during periods of volatility.

If Duke Energy Ohio's credit quality declines, the rating agencies may respond by downgrading the Company's credit ratings. This could increase its cost of capital, and ultimately increase customer rates. A credit downgrade may also result in more restrictive terms and conditions for obtaining necessary financing. If the cost of capital increases and the terms for obtaining capital become more restrictive, this would reduce funds available for important infrastructure investments.

Q. WHAT STRENGTHS AND WEAKNESSES HAVE THE AGENCIES IDENTIFIED WITH RESPECT TO DUKE ENERGY OHIO?

A. With respect to the regulated transmission and distribution businesses of Duke Energy Ohio, the rating agencies believe the Ohio regulatory environment generally supports long-term credit quality with timely and sufficient recovery of prudently incurred costs and expenses. Following the Company's sale of its merchant generation assets in 2015, S&P updated the Company's business risk profile to the highest rating of "Excellent." In August 2017, Moody's improved the Company's rating outlook from stable to positive, citing a credit supportive regulatory environment in Ohio. Generally speaking, the credit rating agencies have identified the following Strengths and Challenges when assessing the credit quality of Duke Energy Ohio:

- Credit Strengths:
  - Entirely regulated transmission and distribution business;

- Current Electric Security Plan (ESP) includes credit supportive riders; and
- Appropriate financial metrics for a predominantly transmission & distribution utility

- Credit Challenges:
  - Uncertainty regarding recovery of Ohio Valley Electric Corporation (OVEC) contract costs; and
  - Sizeable capital program

The rating agencies speak to the importance of a constructive regulatory framework and the outcomes of future rate cases as key focus items. Such comments highlight the importance of the outcome of these proceedings in supporting credit quality and the Company's financial objectives.

Q. WHAT ADDITIONAL CHALLENGES DOES DUKE ENERGY OHIO FACE IN MAINTAINING ITS STRONG CREDIT QUALITY?

A. Duke Energy Ohio has worked hard to maintain healthy credit metrics as it manages through a period of sizable capital investments to improve reliability performance. Moody's recognized this as part of its rationale for placing the Company on a positive rating outlook in August 2017. However, the recently enacted TCJA is expected to pressure the Company's credit metrics by reducing cash flow available to service obligations and fund investments.

Another headwind for the Company is the Commission's recent decision impacting the Company's recovery of costs under its Distribution Capital Investment Rider (Rider DCI). On May 30, 2018, the Commission issued an Entry[1] that could suspend a significant source of cash flow for the Company. Any such reduction to cash flow and earnings resulting from a suspension of Rider DCI will put additional pressure on the Company's key credit metrics. The cumulative effect of suspending Rider DCI, pressure from the Intercompany Power Agreement with OVEC, the impacts of the TCJA, and the capital spending to enhance the distribution grid all combine to challenge Duke Energy Ohio's financial metrics for its current credit rating and, without relief, may increase its cost of capital.

Q. HAS A RATING AGENCY OFFERED GUIDANCE AS TO ANY FACTORS THAT COULD LEAD TO A CREDIT DOWNGRADE FOR DUKE ENERGY OHIO?

A. Yes. Attachment JLS-1 to my testimony is the Credit Opinion issued by Moody's Investor Service on August 11, 2017. This opinion identifies two specific items that could lead to a credit downgrade for Duke Energy Ohio as follows:

- The rating could be downgraded if the company's regulatory environments become less supportive or less consistent; or
- If the outcome of future base rate cases is less favorable such that the ratio of cash from operations excluding changes in working capital to debt (or CFO/Debt) falls below 19 percent on a sustained basis.

Q. WHAT HAS BEEN DUKE ENERGY OHIO'S HISTORIC CFO/DEBT RATIO AND HOW MIGHT THIS METRIC BE IMPACTED IN THE FUTURE?

A. For the past two years, Duke Energy Ohio's consolidated CFO/Debt ratio has trended around 20%. Moody's calculated the ratio at 20.7% and 19.4% as of

December 31, 2016, and June 30, 2017, respectively (see table below and Attachment JLS-1). Moody's has identified a risk of potential credit downgrade if Duke Energy Ohio's consolidated CFO/Debt falls below 19% on a sustained basis. This does not leave the Company with much cushion to incur any meaningful reductions to cash flow and hold its current credit ratings. As Duke Energy Ohio adjusts its base rates and riders to reflect the impact of the TCJA, management expects the Company's consolidated CFO/Debt credit metric to weaken. Given this downward pressure, it becomes even more important that Duke Energy Ohio obtain constructive treatment on OVEC recovery through Rider PSR. For context, $18 million of potential annual recovery through Rider PSR would support Duke Energy Ohio's CFO/Debt ratio by approximately 90 basis points.

Moody's Calculation for Duke Energy Ohio's CFO / Total Debt (a)

Date	CFO (b)	Total Debt	CFO/Debt
12/31/2016	$447	$2,162	20.7%
6/30/2017 (Last 12 months)	$435	$2,236	19.4%
Adj to include Rider PSR (c)	$453	$2,236	20.3%

(a) 12/31/2016 and 6/30/2017 data and ratios per Moody's credit opinion dated August 11, 2017.
(b) CFO is cash from operations excluding changes in working capital.
(c) Assumed $18 million for purposes of illustration.

Approval of Rider PSR would improve more than the quantitative metrics of Duke Energy Ohio; it would also demonstrate to the credit agencies and the investment community that Ohio regulators value the importance of credit quality and the significance of being consistent in cost recovery mechanisms among Ohio utilities on common issues.

In its August 2017 report, Moody's stresses the importance of consistent rate-making on a common issue by stating, "Given the precedent set for OVEC cost recovery in [Ohio], our positive outlook incorporates a view that recovery of Duke Ohio's OVEC related costs will ultimately be approved." The Moody's report goes on to say that "[w]e note that several pieces of energy legislation have recently been proposed by Ohio law makers. One would allow for OVEC recovery through 2030, which would be credit positive for Duke Ohio and other Ohio utilities with an interest in OVEC." While this legislation has not come to fruition to date, the importance of certainty surrounding this issue has not been diminished.

Q. HOW DOES DUKE ENERGY OHIO'S CREDIT QUALITY AND REGULATORY TREATMENT IMPACT ITS PARENT'S CREDIT QUALITY?

A. As of the date of this testimony, S&P, Moody's and Fitch rated Duke Energy Corporation's outstanding debt as follows:

	Rating Agency		
	S&P	**Moody's**	**Fitch**
Senior Unsecured	BBB+	Baa1	BBB+
Outlook	Stable	Negative	Negative

The overall credit quality of Duke Energy Corporation is influenced by the credit profiles of each of its wholly owned electric and natural gas utility subsidiaries. The rating agencies generally view the regulatory jurisdictions in which Duke Energy operates as credit supportive. The agencies point to rate settlements in place across many of our jurisdictions, which provide cost recovery mechanisms and reasonable returns on investments. Positive or negative regulatory developments at the utilities are taken into consideration by the rating agencies when assessing the overall credit quality of Duke Energy Corporation.

Attachment JLS-2 to my testimony includes the February 20, 2018, Credit Opinion of Duke Energy Corporation issued by Moody's. In this report, Moody's provides factors that could lead to a return to a stable outlook, including whether Duke Energy is able to achieve credit supportive outcomes in its current rate proceedings, and is also able to mitigate the negative cash flow impacts of tax reform. In describing certain factors that could lead to a downgrade, Moody's states that downward rating action could be considered if there were to be a deterioration in the regulatory relationship at one or more of Duke Energy's key utility subsidiaries. These factors are indicative of the close tie between the parent company's credit quality and the credit profiles of the operating subsidiaries.

Q. HAS THE COMMISSION PREVIOUSLY PROVIDED RELIEF TO OHIO UTILITIES WHOSE CFO COVERAGE PERCENTAGE HAS DECLINED TO LEVELS THAT COULD IMPACT CREDIT RATINGS?

A. Yes, it has. For example, I am aware of the Commission providing relief to FirstEnergy's jurisdictional electric distribution utilities: Ohio Edison Company; the Cleveland Electric Illuminating Company; and the Toledo Edison Company as part of their respective Electric Security Plan (ESP) in Case No. 14-1297-EL-SSO. In that case, this Commission approved a Distribution Modernization Rider (DMR) for the utilities that, collectively, provided approximately $131 million that was based on the minimum amount necessary for FirstEnergy Corp to maintain a CFO to debt ratio of 14.5 percent.

Similarly, I am also aware of the Commission granting similar relief to the Dayton Power and Light Company (DP&L) as part of its recent ESP, Case No. 16-395-EL-SSO. In that case, the Commission approved a stipulation that, like the one at under consideration for Duke Energy Ohio, also allows DP&L to recover the net proceeds from selling its interest in OVEC energy and capacity into the PJM marketplace and OVEC costs through a non-bypassable Reconciliation Rider.[1]

While Duke Energy Ohio did not request such monetary relief through a mechanism such as the Rider DMR approved for FirstEnergy and DP&L, in any of the consolidated cases addressed by the Stipulation, that does not dilute the importance of the impact of the resolution of the multitude of issues and certainty with respect of cost recovery of capital investments in the distribution system, grid modernization, recovery of vegetation management costs and other clarity and certainty afforded by this settlement. This is particularly so with respect to the treatment of Duke Energy Ohio's interest in OVEC that is set forth in this Stipulation, and which has been identified as a challenge for the Company by its rating agencies.

[1] *In the Matter of the Application of the Dayton Power and Light Company to Establish a Standard Service Offer in the Form of an Electric Security Plan,* Case No. 16-395-EL-SSO, (Order)(October 20, 2017).

Q. HAVE YOU REVIEWED THE STIPULATION FILED IN THESE PROCEEDINGS?

A. Yes. Duke Energy Ohio witness William Don Wathen Jr., discusses the various terms and associated financial impacts of the Stipulation. I have reviewed the Stipulation insofar as whether this settlement is consistent with the Company's five financial objectives previously outlined.

Q. DO YOU HAVE AN OPINION REGARDING THE ABILITY OF THE STIPULATION TO ENABLE DUKE ENERGY OHIO TO MAINTAIN ITS CREDIT QUALITY AND ADDRESS THE CHALLENGES THAT RATING AGENCIES HAVE IDENTIFIED FOR DUKE ENERGY OHIO?

A. Yes. The Stipulation is constructive by providing more clarity on OVEC recovery and the terms of cost recovery for portions of Duke Energy Ohio's sizable capital program, which are two of the key issues that Moody's had previously identified as being credit challenges to Duke Energy Ohio. Addressing these two credit challenges through this Stipulation are important to Duke Energy Ohio's ability to maintain its credit quality and were a key component to the Company's willingness to enter into the Stipulation, which among other things produces a base distribution rate reduction for customers by approximately $19 million.

Q. IS CONSISTENCY IN TERMS OF REGULATORY TREATMENT OF UTILITIES IN OHIO IMPORTANT FOR RATING AGENCIES AND INVESTORS?

A. Yes. The positive outlook issued by Moody's in August 2017 for Duke Energy Ohio occurred following the Commission's 2016 Order approving the ESP for the

First Energy utilities. Duke Energy Ohio's positive outlook was thus, based, in part, on improved regulatory treatment in Ohio for jurisdictional regulatory utilities with respect to maintaining overall financial stability. In a way, the favorable regulatory treatment toward the larger Ohio utility peers had a positive read through to Duke Energy Ohio. Conversely, an adverse regulatory outcome to Duke Energy Ohio on a matter that is common among other Ohio utilities, like the recovery and treatment of OVEC that other participating utilities have received, may be viewed by the credit rating agencies as a reversal of recent improvements in supportive regulatory treatment. This could negatively affect not only Duke Energy Ohio, but also other Ohio utilities.

III. <u>CONCLUSION</u>

Q. WERE ATTACHMENTS JLS-1 AND JLS-2 PREPARED BY YOU OR UNDER YOUR SUPERVISION?

A. Yes. They are Moody's credit opinions that I included as part of my testimony.

Q. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes.

MOODY'S
INVESTORS SERVICE

CREDIT OPINION

11 August 2017

Update

Rate this Research

RATINGS

Duke Energy Ohio, Inc.

Domicile	Cincinnati, Ohio, United States
Long Term Rating	Baa1
Type	LT Issuer Rating
Outlook	Positive

Please see the ratings section at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

Contacts

Laura Schumacher 212-553-3853
VP-Sr Credit Officer
laura.schumacher@moodys.com

Michael G. Haggarty 212-553-7172
Associate Managing Director
michael.haggarty@moodys.com

Jim Hempstead 212-553-4318
MD-Utilities
james.hempstead@moodys.com

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

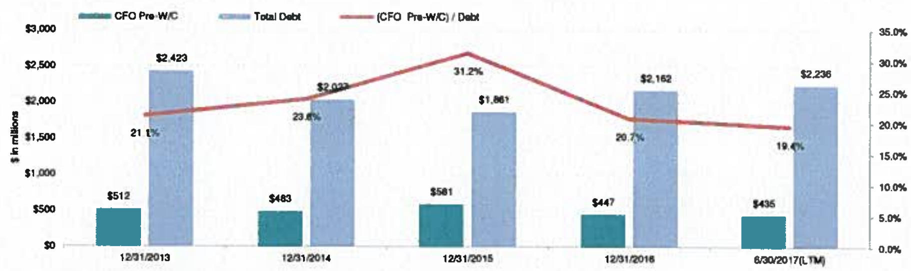
Duke Energy Ohio, Inc.

Update to credit analysis

Summary

Duke Energy Ohio, Inc.'s (Duke Ohio, Baa1) credit considers the lower risk nature of the company's business and operating profile as a company that no longer owns merchant generation assets. The positive outlook recognizes financial credit metrics that are expected to remain strong. Our view also considers Duke Ohio's ownership of the smaller, vertically integrated, and neighboring, electric and gas operations of Duke Energy Kentucky, Inc. (Duke Kentucky, Baa1 stable).

Exhibit 1
Historical CFO Pre-WC, Total Debt, and CFO Pre-WC to Debt



CFO Pre-WC is defined as cash from operations excluding changes in working capital.
Source: Moody's Financial Metrics

Credit Strengths

» Operations are entirely regulated and primarily lower risk transmission and distribution systems

» Regulatory framework incorporates numerous credit supportive riders

» Financial metrics are expected to remain strong for a transmission and distribution utility with modest exposure to regulated generating assets

Credit Challenges

» Uncertainty regarding recovery of Ohio Valley Electric Corp. (OVEC) contract costs

» Sizeable capital program

Rating Outlook

The positive outlook for Duke Ohio's ratings reflects a credit supportive regulatory environment and our expectation that the utility will continue to demonstrate financial metrics that are strong for its current Baa1 rating.

Factors that Could Lead to an Upgrade

» Duke Ohio's rating could be upgraded if the company receives reasonably supportive treatment in its current and upcoming rate proceedings, including the continuation of riders and other recovery mechanisms to maintain cash flow stability.

» If financial credit metrics are maintained at or above their current levels, for example, if the ratio of cash from operations excluding changes in working capital (CFO pre-WC) to debt remains near 20%.

Factors that Could Lead to a Downgrade

» The rating could be downgraded if the company's regulatory environments become less supportive or less consistent, or

» If the outcome of future base rate cases is less favorable such that CFO pre-working to debt falls below 19% on a sustained basis.

Key Indicators

Exhibit 2

KEY INDICATORS [1]
Duke Energy Ohio, Inc.

	12/31/2013	12/31/2014	12/31/2015	12/31/2016	6/30/2017(L)
CFO pre-WC + Interest / Interest	6.5x	5.8x	7.2x	5.5x	5.2x
CFO pre-WC / Debt	21.1%	23.8%	31.2%	20.7%	19.4%
CFO pre-WC – Dividends / Debt	21.1%	18.9%	23.2%	19.5%	18.3%
Debt / Capitalization	25.0%	24.0%	30.8%	32.8%	33.0%

[1]All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
Source: Moody's Financial Metrics

Corporate Profile

Duke Ohio is an electric and gas utility providing electric service to approximately 850,000 customers and transmission and distribution of natural gas to about 529,000 customers covering a 3,000 square mile area in southwestern Ohio and part of Kentucky. The company includes a regulated utility subsidiary, Duke Energy Kentucky, Inc. (Duke Kentucky, Baa1 stable). Duke Ohio is a subsidiary of Duke Energy Corporation (Duke Energy, Baa1 stable).

Detailed Credit Considerations

2015 sale of competitive generating assets lowered business risk

The April 2015 sale of Duke Energy's ownership interest in its Ohio generating assets eliminated a more risky, volatile business from the company's predominantly regulated utility operations and completed the transition of Duke Ohio into a transmission and distribution company. The company's generation ownership is now limited to its 9% (approximately 200 MW) interest in Ohio Valley Electric Corp. (OVEC, Ba1 negative), a generation cooperative that owns two coal-fired generating plants in Ohio and Indiana; and its ownership of Duke Kentucky, an electric and gas utility with about $900 million of earnings base including around 1,062 MW of generating capacity. Duke Kentucky's electric earnings base of approximately $600 million represents about 20% of Duke Ohio's earnings base.

Supportive regulatory environment in Ohio

We view the Ohio regulatory environment under the Public Utilities Commission of Ohio (PUCO) as supportive to the credit quality of transmission and distribution utilities. For the past several years, as the state has been restructuring its electric industry, utilities have been operating under individually tailored electric security plans (ESPs) for their standard service offers. Duke Ohio is currently operating under its third ESP, ESP III, which covers the three years beginning June 2015 and ending May 2018. Under its current ESP, the company utilizes a competitive procurement process to supply all of its customers' energy and capacity needs.

ESP III also provides for certain riders relating to the delivery of energy and capacity, including a distribution capital investment rider (incorporating a 9.84% return on equity (ROE)) for the recovery of certain distribution system improvement costs, and a distribution storm rider for the recovery of storm restoration costs. ESP III also continued several cost recovery riders that were part of the company's prior ESP, including retail capacity, retail energy, supplier cost reconciliation, and alternative energy resource riders. The company is also authorized to continue its distribution decoupling rider until the company's next base rate increase.

In June 2017, Duke Ohio filed for approval of ESP IV, under which it proposes to offer standard service for June 2018 through May 2024. The utility proposed a continuation of its competitive bidding process as well as the continuation or enhancement of existing riders and the approval of several new riders. Newly requested riders include a power forward rider for grid modernization projects, a vegetation management rider, a regulatory mandates rider, and an incentive rider which would simplify the company's annual significantly excessive earnings test (SEET) review.

In March 2017, Duke Ohio filed an electric distribution rate case, requesting an approximately $15 million (3.2%) distribution base rate increase premised on a 10.4% return on equity, a capital structure incorporating about 50% equity and a rate base of about $1.3 billion. The filing was submitted primarily in response to a PUCO requirement that the utility file a distribution rate case within one year of completing certain smart grid investments. The application also seeks to continue certain riders and to establish new ones relating to the installation of LED outdoor lighting and regulatory mandates.

We view the use of riders and trackers as supportive of credit quality as they result in more stable and predictable cash flow for the utility.

Some uncertainty regarding OVEC recovery

In ESP III, the PUCO approved a "placeholder tariff" for a price stabilization rider (PSR) requested by Duke Ohio as a means of passing through net gains and losses associated with its 9% contractual interest in OVEC. The PUCO however denied the company's request to begin specific rider recovery at that time. In May 2015, Duke Ohio filed an application for rehearing requesting the PUCO modify or amend certain aspects of the approved ESP, including those related to the PSR request. That request is still pending.

In March 2017, following the PUCO's approval of a similar request by another Ohio transmission and distribution utility, Duke Ohio filed to adjust the PSR to pass through the net costs relating to its contractual commitments to OVEC. The company's has also requested the PSR rider be continued in the ESP IV period. Given the precedent set for OVEC cost recovery in the state, our positive outlook incorporates a view that recovery of Duke Ohio's OVEC related costs will ultimately be approved.

Legislative uncertainty should be manageable

We note that several pieces of energy legislation have recently been proposed by Ohio law makers. One would allow for OVEC recovery through 2030, which would be credit positive for Duke Ohio and other Ohio utilities with an interest in OVEC. There is also a proposal to clarify the ability of regulated entities to recover the cost of new generation, which we expect could be utilized for utility investments to meet renewable commitments. A third proposal would prohibit utility ownership of generating assets, and eliminate ESPs. In this third scenario, the Ohio utilities would continue to procure energy and capacity via a competitive bidding process and could seek approval to maintain its various credit supportive riders and trackers in a general rate proceeding. As noted above, Duke Ohio currently has similar rider requests in both its current ESP filing and its distribution rate case filing.

Supportive framework in Kentucky, but limited base rate case history

In Kentucky, utilities benefit from timely cost adjustment mechanisms for the recovery of fuel, purchased power and environmental compliance costs; however Duke Kentucky has not filed for a general rate increase in many years. In June, the company received approval from the Kentucky Public Service Commission (KPSC) for the construction of projects to repurpose an ash basin at its East Bend facility. The project was estimated to cost approximately $93 million and to be in service in the fourth quarter of 2018. In its next general rate case, Duke Kentucky will seek to begin recovery of these costs, as well as the cost of a KPSC approved two year automated meter installation project estimated at about $49 million.

On August 2, 2017, Duke Kentucky filed notice that it intends to submit an electric base rate application around September 1st. The company's last case was decided 11 years ago based on a settlement agreement. The last electric ROE decision was in 1992 when an 11.5% return was established. Kentucky permits the use of a forward test year, and rates may be implemented without refund if the KPSC has not acted within ten months, which should help to mitigate regulatory lag. To the extent Duke Kentucky's upcoming rate case is decided in a reasonably timely and supportive fashion, such that credit metrics could be expected to remain near their current levels; for example CFO pre-WC to debt above 20%, there could be upward pressure on Duke Kentucky's rating or outlook.

Financial metrics are expected to remain strong for a high Baa-rated transmission and distribution company with modest exposure to regulated generating assets

We expect Duke Ohio's financial metrics to remain at levels that are strong for a high Baa-rated transmission and distribution utility. We anticipate ratios will remain near these ranges, for example we expect the ratio of CFO Pre-WC to debt will remain in the high teens to 20% range. These metrics include the results of subsidiary Duke Kentucky, which are consolidated into the financial statements of Duke Ohio. When evaluated in light of the standard business risk grid factors (used for vertically integrated electric utilities such as Duke Kentucky), Duke Ohio's overall credit metrics are still strong for the rating.

Liquidity Analysis

Duke Ohio maintains an adequate liquidity profile. For the last twelve months ended June 30, 2017, Duke Ohio generated approximately $367 million of cash from operations (CFO), invested about $548 million in capital expenditures and up streamed $25 million in dividend payments, resulting in negative free cash flow (FCF) of about $206 million. For FY 2016, Duke Ohio generated approximately $425 million of CFO, invested approximately $476 million in capital expenditures and up streamed $25 million in dividend payments to parent Duke, resulting in negative FCF of approximately $76 million. Going forward, we expect Duke Ohio to remain free cash flow negative as capital expenditures for electric transmission and distribution, and a natural gas pipeline extension, increase and some distributions are paid to the parent.

As of June 30, 2017, the utility has $450 million of borrowing capacity under Duke Energy's $8 billion multi-year (2022 termination) bank credit facility. As of June 30, 2017, the utility had $45 million of commercial paper outstanding, reducing capacity available from the parent credit facility. The credit facility does not contain a material adverse change clause for new borrowings and has a single financial covenant requiring that Duke Energy and its utility subsidiaries each maintain a consolidated debt to capitalization ratio of no more than 65% (except for Piedmont Natural Gas Company which has a maximum ratio of 70%). As of June 30, 2017, each company was reported to be in compliance with this financial covenant and we estimate Duke Ohio's ratio to be about 39%. Duke Ohio's next long term debt maturity is $450 million of first mortgage bonds due in April of 2019.

Rating Methodology and Scorecard Factors

Exhibit 3

Rating Factors				
Duke Energy Ohio, Inc.				
Regulated Electric and Gas Utilities Industry Grid [1][2]	Current LTM 6/30/2017		Moody's 12-18 Month Forward View As of Date Published [3]	
Factor 1 : Regulatory Framework (25%)	**Measure**	**Score**	**Measure**	**Score**
a) Legislative and Judicial Underpinnings of the Regulatory Framework	A	A	A	A
b) Consistency and Predictability of Regulation	A	A	A	A
Factor 2 : Ability to Recover Costs and Earn Returns (25%)				
a) Timeliness of Recovery of Operating and Capital Costs	Baa	Baa	A	A
b) Sufficiency of Rates and Returns	Baa	Baa	Baa	Baa
Factor 3 : Diversification (10%)				
a) Market Position	Ba	Ba	Ba	Ba
b) Generation and Fuel Diversity	N/A	N/A	N/A	N/A
Factor 4 : Financial Strength (40%)				
a) CFO pre-WC + Interest / Interest (3 Year Avg)	6.3x	Aa	4x - 8x	Aa
b) CFO pre-WC / Debt (3 Year Avg)	25.3%	A	19% - 23%	A
c) CFO pre-WC – Dividends / Debt (3 Year Avg)	22.1%	A	18% - 22%	A
d) Debt / Capitalization (3 Year Avg)	32.4%	Aa	32% - 36%	Aa
Rating:				
Grid-Indicated Rating Before Notching Adjustment		A3		A3
HoldCo Structural Subordination Notching		0	0	0
a) Indicated Rating from Grid		A3		A3
b) Actual Rating Assigned		Baa1		Baa1

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
[2] As of 6/30/2017(L)
[3] This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.
Source: Moody's Financial Metrics

Ratings

Exhibit 4

Category	Moody's Rating
DUKE ENERGY OHIO, INC.	
Outlook	Positive
Issuer Rating	Baa1
First Mortgage Bonds	A2
Senior Secured Shelf	(P)A2
Senior Unsecured	Baa1
ULT PARENT: DUKE ENERGY CORPORATION	
Outlook	Stable
Issuer Rating	Baa1
Sr Unsec Bank Credit Facility	Baa1
Senior Unsecured	Baa1
Jr Subordinate	Baa2
Commercial Paper	P-2
DUKE ENERGY KENTUCKY, INC.	
Outlook	Stable
Senior Unsecured	Baa1

Source: Moody's Investors Service

REPORT NUMBER 1082994

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

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CREDIT OPINION

20 February 2018

Update

Rate this Research

RATINGS

Duke Energy Corporation

Domicile	Charlotte, North Carolina, United States
Long Term Rating	Baa1
Type	LT Issuer Rating - Dom Curr
Outlook	Negative

Please see the ratings section at the end of this report for more information. The ratings and outlook shown reflect information as of the publication date.

Analyst Contacts

Laura Schumacher +1.212.553.3853
VP-Sr Credit Officer
laura.schumacher@moodys.com

Dexter East +1.212.553.3260
Associate Analyst
dexter.east@moodys.com

Michael G. Haggarty +1.212.553.7172
Associate Managing Director
michael.haggarty@moodys.com

Jim Hempstead +1.212.553.4318
MD-Utilities
james.hempstead@moodys.com

CLIENT SERVICES

Americas	1-212-553-1653
Asia Pacific	852-3551-3077
Japan	81-3-5408-4100
EMEA	44-20-7772-5454

Duke Energy Corporation

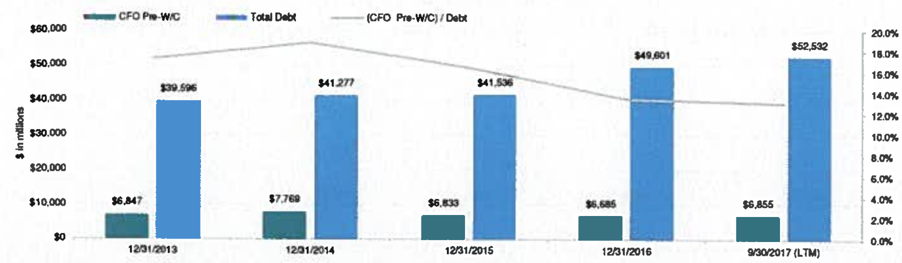
Update following change of outlook to negative

Summary

Duke Energy Corporation (Duke) is one of the largest utility holding companies in the US. Its credit profile reflects the company's diverse, low business risk operations in which over 95% of earnings and cash flow are derived from rate regulated businesses that provide services in supportive regulatory environments. The negative outlook recognizes consolidated cash flow credit metrics that are currently weak, partly due to the high level of parent company debt, and our view that notwithstanding the company's newly announced balance sheet strengthening plans, the recently enacted tax reform policy will put additional downward pressure on these metrics. We recognize the potential for metrics to improve somewhat if there are supportive outcomes in ongoing general rate cases in Duke's largest North Carolina jurisdictions, and post the completion of generation projects in Florida. However, we believe this potential improvement is likely to be offset by the cash flow leakage caused by lower statutory tax rates and revenue requirements.

Exhibit 1

Historical CFO pre-W/C, total debt, and CFO pre-W/C to debt[1]



[1] CFO pre-W/C is defined as cash from operations excluding changes in working capital
Source: Moody's Financial Metrics

Credit strengths

» Diverse group of utilities operating in seven states in three geographic regions

» Credit supportive regulatory relationships

» Businesses are essentially all regulated or contracted

Credit challenges

» High parent company debt levels

» Consolidated credit metrics are weak, which will be exacerbated by tax reform

» Increased capital spending for utility growth and other potential gas investments including the Atlantic Coast pipeline

» Regulatory lag in the recovery of coal ash spending will maintain pressure on credit metrics

Rating outlook

The negative outlook for Duke recognizes consolidated cash flow credit metrics that are currently weak and likely to be incrementally pressured by tax reform. For example, we currently anticipate the company's ratio of cash flow from operations excluding changes in working capital (CFO pre-WC) to debt could remain below 15% through 2019.

Factors that could lead to an upgrade

» The outlook is currently negative, as such, the rating is not likely to move upward over the next 12-18 months.

» The outlook could return to stable if Duke achieves credit supportive outcomes in its current rate proceedings, and is able to mitigate the negative cash flow impacts of tax reform through regulatory treatment or financial policies such that it can sustain a ratio of CFO pre-WC above 15%, for example.

» Longer term, a ratio of CFO pre-WC to debt closer to 20% could lead to an upgrade.

Factors that could lead to a downgrade

» Downward rating action could be considered if there were to be a deterioration in the regulatory relationship at one or more of Duke's key utility subsidiaries.

» If recent tax reform or other developments cause the ratio of CFO pre-WC to debt to remain below 15% for an extended period.

» Parent company debt levels above 35% of total Moody's adjusted consolidated debt for an extended period.

Key indicators

Exhibit 2

Duke Energy Corporation indicators[1]

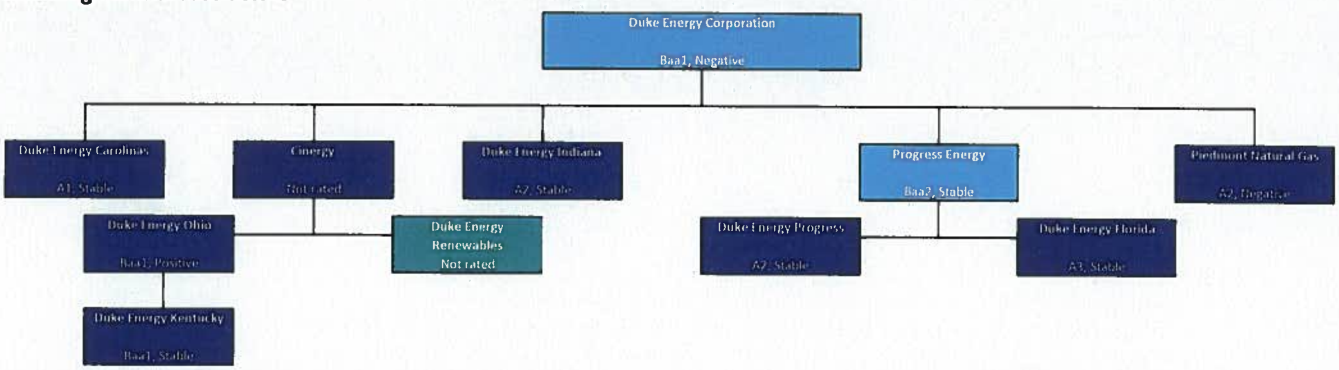
	Dec-13	Dec-14	Dec-15	Dec-16	LTM Sep-17
CFO pre-WC + Interest / Interest	5.0x	5.6x	5.1x	4.4x	4.4x
CFO pre-WC / Debt	17.3%	18.8%	16.5%	13.5%	13.1%
CFO pre-WC – Dividends / Debt	11.7%	13.2%	11.0%	8.8%	8.4%
Debt / Capitalization	42.5%	43.1%	44.2%	47.3%	48.0%

[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
Source: Moody's Financial Metrics

Profile

Duke is a diversified energy company with mostly regulated utility operations headquartered in Charlotte, North Carolina. Its largest business consists of its electric utilities and infrastructure business segment, which serves approximately 7.5 million retail electric customers in six US states. The company's gas utilities and infrastructure businesses provide natural gas to over 1.5 million customers located in five states. Duke has also formed a joint venture to build and own the proposed Atlantic Coast Pipeline, a 600-mile interstate natural gas pipeline from West Virginia to the Carolinas. It also has a $225 million investment in the Sabal Trail Pipeline into Florida. The smaller commercial renewables business segment builds, develops and operates wind and solar generation projects throughout the continental US.

Exhibit 3
Duke organizational structure



Source: Moody's Investors Service, Company

Detailed credit considerations

Diverse group of utilities operating in credit supportive regulatory environments

Duke's overall credit profile is driven by seven regulated utilities operating in seven US states, which provide a high degree of regulatory and geographic diversity. We consider these regulatory jurisdictions to be supportive with rate settlements in place at most of its utilities, although there have been a recent unexpectedly adverse staff recommendations with regard to North Carolina coal ash remediation spending. In addition, the North Carolina Utilities Commission (NCUC) recently ordered utilities in the state to collect the tax component of their rates on a provisional basis, and in Duke Carolinas current rate case, staff is recommending that rates be reduced by the full amount of the change in corporate tax rate from 35% to 21%. This is in contrast to agreements Duke reached in Florida which allow a portion of tax savings to be utilized to accelerate depreciation of coal plants, or potentially to recover storm costs in lieu of a rate increase.

With the 2016 acquisition of Piedmont Natural Gas Company (Piedmont), Duke expanded its relatively low risk local natural gas distribution operations in the historically credit supportive states of North Carolina, South Carolina and Tennessee. These states provide cost recovery mechanisms and frameworks that lead to shorter regulatory lag and reasonable returns on utility investments. We also view the Federal Energy Regulatory Commission (FERC) regulatory framework to be constructive for those natural gas companies with interstate pipelines and storage such as Piedmont.

In Duke's largest electric jurisdiction, North Carolina, we view the 2013 rate settlements currently in place at both Duke Energy Carolinas and Duke Energy Progress, which were each granted three-year rate increases based on a 10.2% ROE and a 53% equity ratio, as credit supportive. Duke Energy Carolinas has an identical rate settlement agreement in place in its smaller neighboring South Carolina service territory, while Duke Energy Progress in December 2016 received approval for a two-step increase of $56 million based on a 10.1% ROE and a 53% equity ratio in South Carolina. Importantly, the South Carolina decision also allowed the recovery of coal ash expenditures incurred through June of 2016 over 15 years with the ability to earn a full debt and equity return on the deferred asset.

In North Carolina, both Duke Energy Progress and Duke Energy Carolinas filed for general rate increases in 2017. Both companies requested an ROE of 10.75% and a 53% equity layer with initial base rate increase requests of $447 million (subsequently revised to $420 million) and $647 million, respectively. The case includes a request for recovery of, and a return on, recent investments in generation, recovery of coal ash remediation spending to date, and recovery of ongoing coal ash remediation spending. Duke Energy Carolinas is also seeking to establish a new Grid Reliability and Resiliency Rider to recover grid modernization costs. Constructive outcomes in these pending rate proceedings will be a key factor in allowing Duke to improve its consolidated financial performance. In particular, we would view the approval of riders or trackers to accelerate the recovery of costs for grid modernization and/or coal ash remediation as credit positive.

In November 2017, Duke Energy Progress announced it had reached a preliminary partial settlement with the North Carolina Utilities Commission (Public Staff) relating to certain issues in its pending rate case. The settled items include, among other things, an ROE of 9.9% and a 52% equity layer. We view Duke Energy Progress' ability to reach what appears to be a reasonable agreement on more traditional rate making items as credit positive.

Duke Energy Progress' requests relating to the recovery of coal ash remediation spending remain the subject of the ongoing rate proceedings. In its filed testimony, the Public Staff recommended a significantly longer recovery period, disallowance of certain deferred coal ash expenditures incurred to date, disallowance of an ongoing recovery mechanism for coal ash remediation spending, and an overall rate increase (prior to consideration of the above mentioned settlement items) of only $2.8 million. In Duke Energy Carolinas' case, the Public Staff issued a recommendation that would similarly extend the time period over which coal ash remediation spending could be recovered, and also recommends against an ongoing recovery mechanism for these expenditures. To the extent Duke is unable to timely recover the majority of its coal ash remediation spending at its large Carolina utilities, it could challenge the company's ability to improve credit metrics to levels that are commensurate with its current credit quality.

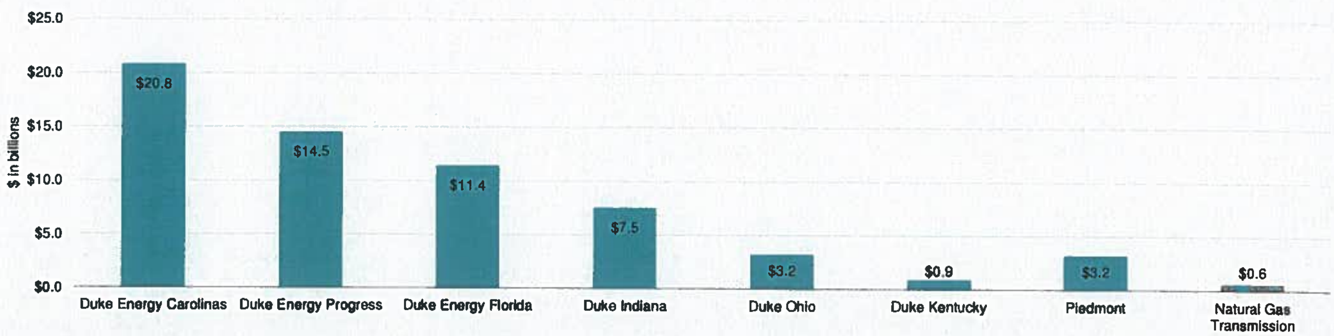
In Florida (approximately 18% of 2016 regulated earnings base), as part of a 2017 second revised and restated settlement agreement (which amends a 2013 settlement agreement), Duke Energy Florida will increase base rates by an incremental $67 million each year from 2019 through 2021, subject to an ROE range of 9.5% to 11.5%. The updated order also included provisions that addressed the expected passage of federal tax reform and included the ability to use a portion of future benefits resulting from lower tax rates to accelerate the depreciation of existing coal plants rather than decreasing revenue. In January 2018, the Florida Office of Public Counsel and consumer groups supported Duke Florida's plan to further utilize the benefits of lower tax rates to avoid a rate increase for power restoration costs associated with the company's response to Hurricane Irma. We view these tax reform related developments as supportive of credit quality. Duke Energy Florida also continues to benefit from a credit positive Generation Base Rate Adjustment (GBRA) mechanism for new generation built or purchased during 2016-2018 that allows recovery of prudently incurred costs through a base rate adjustment when the generation is placed in service. Duke Florida's 1,650 MW $1.5 billion Citrus County combined cycle plant is scheduled to begin operations in 2018.

In Indiana (about 12% of 2016 regulated earnings base), in June 2016, the Indiana Utility Regulatory Commission (IURC) approved a settlement agreement between Duke Energy Indiana and key consumer groups on a seven year $1.4 billion grid modernization plan. As a result, in accordance with previously approved state legislation, 80% of the plan's costs will be recovered through a rate rider, with the remaining 20% recoverable through future base rate proceedings. In May 2017, Duke Energy Indiana received approval to recover 60% of the capital and 80% of the operating costs of complying with the US Environmental Protection Agency's Coal Combustion Residuals rules via an environmental mandate tracker, and to defer the remaining difference for recovery in the utility's next rate case.

Operations are essentially all regulated

In 2015, Duke successfully exited the merchant generating business with the sale of Duke Energy Ohio's competitive generating assets to Dynegy, Inc. In 2016, Duke acquired Piedmont, a regulated local natural gas distribution company with operations in North Carolina, South Carolina and Tennessee, and sold its more volatile Latin American businesses. As a result, essentially all of its operations are now either state or federally regulated. Duke's commercial renewables segment, which provides services under long term contracts, is expected to contribute under 5% of the company's 2017 earnings.

Exhibit 4
Regulated utilities earning base



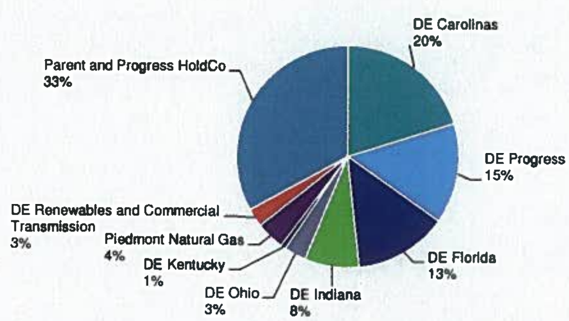
Source: Company

Debt financed acquisition of Piedmont Natural Gas increased parent company leverage

In October 2016, Duke acquired Piedmont for about $5 billion in cash and assumed debt of nearly $2 billion. Piedmont is a relatively low risk gas utility that increased and diversified Duke's primarily electric utility business in the Carolinas. Despite this attractive risk profile, the mostly debt financed acquisition (equity for the transaction was limited to approximately $750 million of proceeds from a forward stock sale) at a particularly high multiple (estimated 16x 2015 EBITDA of about $420 million; 13x 2016 EBITDA of about $530 million), resulted in a significant increase in Duke's already high parent company debt level.

As a result of the highly leveraged nature of the acquisition, we estimate that when the transaction closed, Duke's parent level debt jumped to over 35% of its consolidated total. In December of 2016, Duke sold its Latin American operations for an enterprise value of about $2.4 billion, generating cash proceeds to the Duke parent of about $1.9 billion which was used to reduce parent company debt. As a result, as of year-end 2016, on a reported basis, we calculate parent level debt, excluding non-recourse commercial renewables segment debt, at about 33% of Duke's consolidated debt outstanding. Including Moody's standard adjustments for pensions and leases (which increase utility level debt), the ratio is about 31%. Duke's newly announced plans for a significant increase in equity capital, beginning with $2 billion to be issued in 2018, should help keep the percentage of reported parent level debt in the consolidated capital structure below 35%.

Exhibit 5
2016 total reported debt by entity



Source: Moody's Investors Service, Company

Consolidated credit metrics are weak

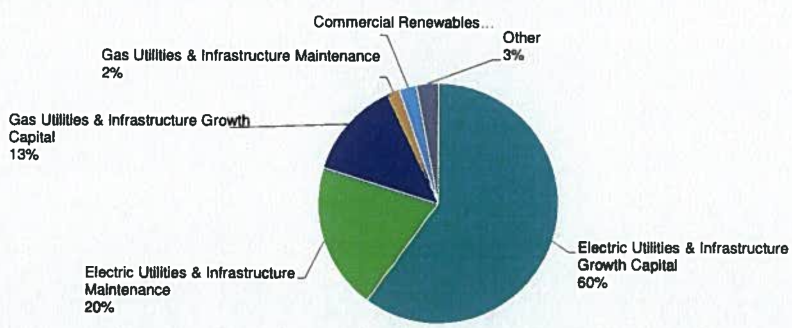
Duke's credit metrics are weak for its Baa1 rating, even after the repayment of a portion of the Piedmont acquisition debt with proceeds from the Latin American sale. For example, for the year ending December 2016, we calculate Duke's ratio of cash from operations excluding changes in working capital (CFO pre-W/C) to debt at about 13.5%; for the twelve months ending 30 September 2017, the ratio was about 13.1%. These metrics are at the very low end of the "Baa" scoring range indicated for this factor in our rating methodology for regulated electric and gas utilities. The 2016 metrics are impacted by the accounting treatment of coal ash remediation spending, and also reflect the inclusion of about $1.2 billion of securitization debt at Duke Energy Florida. Absent these items, we estimate the metric would have been around 14%. Unusually severe storm activity in Duke's Florida and Carolina service territories has also put negative pressure on metrics.

We expect Duke's credit metrics will likely remain near their current adjusted levels when reported for full year 2017, which is generally more in line with Baa2 rated holding company peers such as Southern Company (Baa2 negative) and Dominion Energy, Inc. (Baa2 negative). Our view of Duke's credit considers its lower business risk profile, and the scalability of its current investment plan. The negative outlook reflects our expectation that, notwithstanding the company's newly announced balance sheet strengthening efforts, the recently enacted tax reform policy will put additional downward pressure on credit metrics. While we recognize there is a potential for increased cash flow if there are supportive rate outcomes in Duke's largest North Carolina jurisdictions, and as generation projects are completed in Florida, we believe this potential improvement is likely to be offset by the cash flow leakage caused by lower statutory tax rates and revenue requirements.

High capital spending for utility infrastructure and growth initiatives

Capital expenditures, inclusive of spending for coal ash remediation, have increased meaningfully at Duke from about $5.5 billion in 2014 to about $7 billion in 2015 and about $8.8 billion in 2016. Duke projects capital spending to range from about $9-$10 billion annually for 2017-2021, versus $8-9 billion in the prior five year forecast. As shown in the exhibit below, nearly all of the increase can be attributed to what Duke terms "growth" capital driven by grid modernization in the Carolinas and natural gas infrastructure along with increased spending for coal ash remediation. Maintenance spending is expected to remain relatively flat at slightly over $2 billion per year.

Exhibit 6
2017-2021 capital expenditures forecast ($49 billion)



Source: Company

In addition to its core utility investment, Duke also plans to grow its natural gas pipeline businesses and to continue to selectively invest in renewables. Included in the company's capital plan for 2017-2021 is about $3.3 billion for midstream pipelines, including Atlantic Coast and Sabal Trail, and about $1 billion for utility scale contracted renewables. Although we view the commercial renewables business as higher risk than its regulated utility business segment, these assets for the most part sell power to investor owned, cooperative, or municipal utilities under risk mitigating long-term contracts.

The Atlantic Coast Pipeline (ACP) is a $5 to $5.5 billion, 600-mile interstate natural gas pipeline being built by Dominion from West Virginia to eastern North Carolina. Following its acquisition of Piedmont, Duke holds a 47% share in the project. The pipeline will supply natural gas from the Utica and Marcellus shale basins to natural gas generation at Duke Energy Carolinas and Duke Energy Progress, Piedmont, and other utilities in the area. Duke projects that it will spend approximately $2.4 to $2.6 billion on the pipeline, which is currently expected to be in service in the second half of 2019, although the actual investment amount will depend on how the pipeline and Duke's investment in it are financed. Although this represents a substantial investment and Duke's first major venture into US midstream energy infrastructure since it spun off its other gas related businesses several years ago, it entails relatively stable, low risk FERC regulated pipeline assets. In May 2015, Duke announced a similar but smaller (7.5%) investment in the 515-mile Sabal Trail pipeline into Florida, which will provide gas to Duke Energy Florida. Phase one of the project was placed into service in July 2017. Duke's total investment is projected to be $225 million; as of September, the company had invested about $218 million.

Regulatory lag in the recovery of coal ash spending will continue to pressure credit metrics

Duke continues to be affected by repercussions from a February 2014 storm water pipe break beneath a coal ash basin at one of Duke Energy Carolinas' retired power plants. The break resulted in the spill of 30,000-39,000 tons of coal ash into the Dan River and has subjected all of Duke's North Carolina coal ash storage basins to scrutiny.

In 2014, North Carolina lawmakers overwhelmingly passed the Coal Ash Management Act of 2014, which regulates and requires the closure of coal ash basins at Duke's coal plant sites throughout the state. The legislation requires Duke to take costly, immediate action to excavate and close ash basins at three of its highest risk sites (including two Duke Energy Progress plants) by August 2019 and a fourth by August 2022. The 2014 legislation also required the evaluation and classification of all of the remaining basins, many of which were initially determined to be of "intermediate" priority, which would have required closure by 2024.

In July 2016, new legislation was passed that amended the Coal Ash Management Act and required Duke to provide permanent alternative water supplies to neighbors within a half mile of its coal plants, but importantly also mandated the reclassification of certain intermediate priority sites as low priority once alternative water supplies are in place and certain dam enhancement projects are complete. This expanded the options for closing these basins and extends the time frame for closure to 2029.

In 2014, Duke recognized a $3.5 billion Asset Retirement Obligation (ARO) for its estimated obligations to close its North Carolina coal ash basins. In the second quarter of 2015, after publication of the EPA's final Coal Combustion Rules, Duke incrementally increased the ARO by $1 billion as it created additional obligations for the company in South Carolina, Indiana, and Kentucky, putting its total ARO at $4.5 billion. Duke continues to refine its estimated obligations as work continues on the sites. As of 30 September 2017, Duke's total ARO was approximately $4.6 billion.

There are no riders or tracking mechanisms in place at either Duke Energy Carolinas or Duke Energy Progress for automatic recovery of ash remediation expenditures. This spending must be recovered via base rate filings and as such, is subject to regulatory lag. In South Carolina, in 2016, Duke Energy Carolinas and Duke Energy Progress both received approval to defer certain ash basin closure costs for future recovery; Duke Energy Progress also received approval to begin the recovery of costs incurred through June of 2016 over fifteen years.

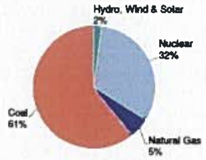
As noted previously, in their current North Carolina rate cases, both Duke Energy Progress and Duke Energy Carolinas have requested recovery of prior and ongoing spending for coal ash remediation. Proceedings are underway. Initial Public Staff testimony in both cases recommended a significantly longer recovery period and disallowance of an ongoing recovery mechanism for coal ash remediation spending.

We view supportive regulatory treatment relating to coal ash spending (which is a significant component of the company's planned $2.45 billion of environmental expenditures through 2017-2018) as a key factor that will determine Duke's ability to improve its financial performance.

Environmental Sustainability

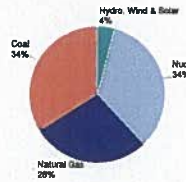
In its 2016 Sustainability Report, Duke outlines key areas of opportunity that include strengthening the company's energy delivery system, generating cleaner energy using natural gas and renewables, and expanding the company's natural gas infrastructure to meet customer needs. Since 2005, Duke has reduced carbon dioxide emissions by 29% and currently plans a 40% reduction by 2030. As of 2016, the company's consolidated net output included about 34% from coal-fired resources, versus about 61% in 2005. By 2030 Duke estimates that less than 30% of its net output will be generated by coal.

Exhibit 7
2005 fuel diversity



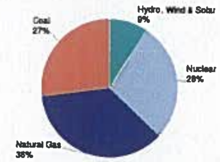
Source: Company

Exhibit 8
2016 fuel diversity



Source: Company

Exhibit 9
2030 fuel diversity[1]



[1] company estimate
Source: Company

Liquidity analysis

Duke has an adequate liquidity profile, with about $282 million of cash and short-term investments on hand as of 30 September 2017. The company's external liquidity sources include a bank master credit facility with a capacity of $8 billion maturing on March 16, 2022. The master credit facility includes sub-limits for each of its utility subsidiaries and supports a $4.85 billion commercial paper program. The facility does not contain a material adverse change clause for new borrowings and has a single financial covenant requiring that Duke and its utility subsidiaries each maintain a consolidated debt to capitalization ratio of no more than 65%, except for Piedmont. The debt to capital covenant for Piedmont is a maximum of 70%. As of 30 September 2017, Duke reported that all of the borrowing entities were in compliance with this covenant.

As of 30 September 2017, Duke's parent company borrowing sub-limit under the master credit facility was $2.85 billion and the master credit facility included borrowing sub-limits of $1.25 billion for Duke Energy Progress, $1.0 billion for Duke Energy Florida, $1.35 billion for Duke Energy Carolinas, $600 million for Duke Energy Indiana, $450 million for Duke Energy Ohio, and $500 million for Piedmont Natural Gas.

As of 30 September 2017, Duke had about $1.57 billion of commercial paper outstanding, including about $404 million at the parent company under its $2.85 billion credit facility sub-limit. Of the total $8 billion master credit facility, Duke and its utilities had about $5.8 billion of availability with $1.57 billion of commercial paper, $500 million of coal ash set-aside, $81 million of tax-exempt bonds, and $60 million of letters of credit outstanding. Duke also maintains a money pool arrangement among its utility subsidiaries allowing it to more efficiently utilize available cash balances throughout the organization.

In addition to the $8.0 billion master credit facility, Duke has a three year (2020 expiration) $1.0 billion revolving credit facility that provides additional liquidity to the parent. As of 30 September 2017, Duke had $270 million drawn under the facility.

As an additional source of liquidity Duke also has the ability to raise short-term debt through a variable rate floating rate demand note program called PremierNotes. The company's filings with the SEC indicate that no more than $1.5 billion of such notes will be outstanding. The notes have no stated maturity date and can be redeemed in whole or in part by Duke or at the investor's option at any time. As of 30 September 2017, Duke had about $1.0 billion of PremierNotes outstanding. Although not explicitly backed by Duke's bank credit facility, the facility could be used to fund the maturities of such notes. These notes are classified as part of the $1.9 billion total notes payable and commercial paper outstanding as of 30 September 2017.

Duke's scheduled long-term debt maturities over the twelve months beginning 30 September 2017 total approximately $3.3 billion, including approximately $750 million at Duke Energy, $200 million at Duke Energy Progress, $500 million at Duke Energy Florida, $1.2 billion at Duke Energy Carolinas, and $250 million at Piedmont Natural Gas. We expect that most of this debt will be refinanced.

Rating methodology and scorecard factors

Exhibit 10

Rating Factors	Current LTM 9/30/2017		Moody's 12-18 Month Forward View As of Date Published [3]	
Duke Energy Corporation				
Regulated Electric and Gas Utilities Industry Grid [1][2]				
Factor 1 : Regulatory Framework (25%)	**Measure**	**Score**	**Measure**	**Score**
a) Legislative and Judicial Underpinnings of the Regulatory Framework	A	A	A	A
b) Consistency and Predictability of Regulation	Aa	Aa	Aa	Aa
Factor 2 : Ability to Recover Costs and Earn Returns (25%)				
a) Timeliness of Recovery of Operating and Capital Costs	A	A	A	A
b) Sufficiency of Rates and Returns	Baa	Baa	Baa	Baa
Factor 3 : Diversification (10%)				
a) Market Position	Aa	Aa	Aa	Aa
b) Generation and Fuel Diversity	A	A	Aa	Aa
Factor 4 : Financial Strength (40%)				
a) CFO pre-WC + Interest / Interest (3 Year Avg)	4.8x	A	4.5x - 4.9x	A
b) CFO pre-WC / Debt (3 Year Avg)	14.7%	Baa	13% - 15%	Baa
c) CFO pre-WC – Dividends / Debt (3 Year Avg)	9.8%	Baa	8% - 12%	Baa
d) Debt / Capitalization (3 Year Avg)	46.6%	Baa	49% - 53%	Baa
Rating:				
Grid-Indicated Rating Before Notching Adjustment		A3		A3
HoldCo Structural Subordination Notching	-1	-1	-1	-1
a) Indicated Rating from Grid		Baa1		Baa1
b) Actual Rating Assigned		Baa1		Baa1

[1]All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
[2]As of 9/30/2017(L)
[3]This represents Moody's forward view; not the view of the issuer; and unless noted in the text, does not incorporate significant acquisitions and divestitures.
Source: Moody's Financial Metrics

Appendix

Exhibit 11

Peer comparison table [1]

	Duke Energy Corporation Baa1 Negative			American Electric Power Company, Inc. Baa1 Stable			Southern Company (The) Baa2 Negative			Xcel Energy Inc A3 Stable		
(in US millions)	FYE Dec-15	FYE Dec-16	LTM Sep-17	FYE Dec-15	FYE Dec-16	LTM Sep-17	FYE Dec-15	FYE Dec-16	LTM Sep-17	FYE Dec-15	FYE Dec-16	LTM Sep-17
Revenue	$22,371	$22,743	$23,343	$16,453	$16,380	$15,405	$17,489	$19,896	$22,583	$11,024	$11,107	$11,403
CFO Pre-W/C	$6,833	$6,685	$6,855	$4,714	$4,630	$4,079	$6,299	$4,524	$6,277	$2,980	$3,178	$3,313
Total Debt	$41,536	$49,601	$52,532	$22,071	$23,576	$23,388	$30,644	$48,956	$51,513	$14,815	$15,907	$16,457
(CFO Pre-W/C + Interest) / Interest Expense	5.1x	4.4x	4.4x	5.8x	5.7x	5.2x	7.2x	4.0x	4.5x	6.0x	5.9x	6.0x
(CFO Pre-W/C) / Debt	16.5%	13.5%	13.1%	21.4%	19.6%	17.4%	20.6%	9.2%	12.2%	20.1%	20.0%	20.1%
(CFO Pre-W/C - Dividends) / Debt	11.0%	8.8%	8.4%	16.6%	14.9%	12.5%	15.2%	6.1%	8.2%	16.0%	15.7%	15.8%
Debt / Book Capitalization	44.2%	47.3%	48.0%	42.8%	44.7%	43.4%	47.0%	54.2%	55.5%	46.9%	47.2%	46.7%

[1]All figures & ratios calculated using Moody's estimates & standard adjustments. FYE = Financial Year-End. LTM = Last Twelve Months.
Source: Moody's Financial Metrics

Ratings

Exhibit 12

Category	Moody's Rating
DUKE ENERGY CORPORATION	
Outlook	Negative
Issuer Rating	Baa1
Sr Unsec Bank Credit Facility	Baa1
Senior Unsecured	Baa1
Jr Subordinate	Baa2
Commercial Paper	P-2
DUKE ENERGY CAROLINAS, LLC	
Outlook	Stable
Issuer Rating	A1
First Mortgage Bonds	Aa2
Senior Secured Shelf	(P)Aa2
Senior Unsecured	A1
DUKE ENERGY PROGRESS, LLC	
Outlook	Stable
Issuer Rating	A2
First Mortgage Bonds	Aa3
Senior Secured Shelf	(P)Aa3
Senior Unsecured Shelf	(P)A2
PROGRESS ENERGY, INC.	
Outlook	Stable
Senior Unsecured	Baa2
DUKE ENERGY INDIANA, LLC.	
Outlook	Stable
Issuer Rating	A2
First Mortgage Bonds	Aa3
Senior Secured	Aa3
Senior Unsecured	A2
DUKE ENERGY OHIO, INC.	
Outlook	Positive
Issuer Rating	Baa1
First Mortgage Bonds	A2
Senior Secured Shelf	(P)A2
Senior Unsecured	Baa1
PIEDMONT NATURAL GAS COMPANY, INC.	
Outlook	Negative
Senior Unsecured	A2
Commercial Paper	P-1
DUKE ENERGY KENTUCKY, INC.	
Outlook	Stable
Senior Unsecured	Baa1

Source: Moody's Investors Service

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