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CREDIT OPINION

13 October 2019

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	Stable

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.

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Duke Energy Corporation

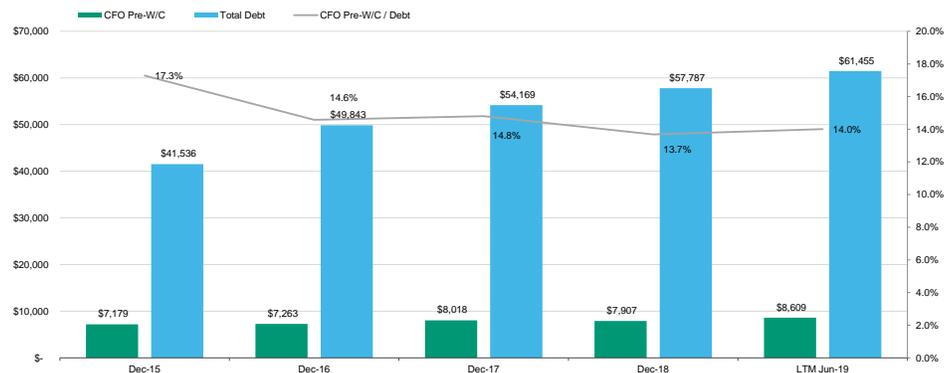
Update to credit analysis

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 about 97% of earnings and cash flow are derived from rate regulated businesses in growing economies with supportive regulators. These credit supportive factors are balanced against weak financial metrics that we expect will improve somewhat in 2019, but dip again in 2020 before rebounding in 2021.

Exhibit 1

Historical CFO Pre-WC, Total Debt and CFO Pre-WC to Debt (\$MM) [1]



[1] CFO Pre-WC is defined as cash flow 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
- » Approved recovery of the majority of coal ash related expenditures

Credit challenges

- » Weak consolidated credit metrics
- » Significant, primarily debt financed, capital program
- » Lag in the recovery of storm related costs and coal ash remediation spending

- » Increasing regulatory uncertainty surrounding coal ash cost recovery
- » Delays and cost increases at Atlantic Coast Pipeline (ACP) project
- » Relatively high parent company debt levels

Rating outlook

The stable outlook reflects our expectation that Duke will maintain supportive regulatory relationships in all of its jurisdictions. The outlook also assumes management will manage its operating, capital and financing plans in a manner that supports credit quality and enables the maintenance of credit metrics that are consistent with our expectations. For example, we anticipate the company's ratio of cash flow from operations excluding working capital (CFO pre-WC) to debt will improve to the 15% range.

Factors that could lead to an upgrade

- » Ratings could be upgraded if regulatory environments were to become more supportive, leading to increased cash flow and reduced leverage, and if the ratio of CFO pre-WC to debt can be maintained above 18%.

Factors that could lead to a downgrade

- » A deterioration in the credit supportiveness or emergence of a more contentious regulatory relationship which negatively impacts cash flows or the timeliness of cost recovery, particularly with regards to coal ash remediation recovery in North Carolina
- » A ratio of CFO pre-WC that we expect to remain below 15% beyond 2020, or an increase in parent company debt levels above 35% of total consolidated debt

Key indicators

Exhibit 2

Duke Energy Corporation [1]

	Dec-15	Dec-16	Dec-17	Dec-18	LTM Jun-19
CFO Pre-W/C + Interest / Interest	5.3x	4.7x	4.7x	4.4x	4.6x
CFO Pre-W/C / Debt	17.3%	14.6%	14.8%	13.7%	14.0%
CFO Pre-W/C – Dividends / Debt	11.8%	9.9%	10.3%	9.4%	9.8%
Debt / Capitalization	44.2%	47.5%	53.0%	52.9%	53.6%

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

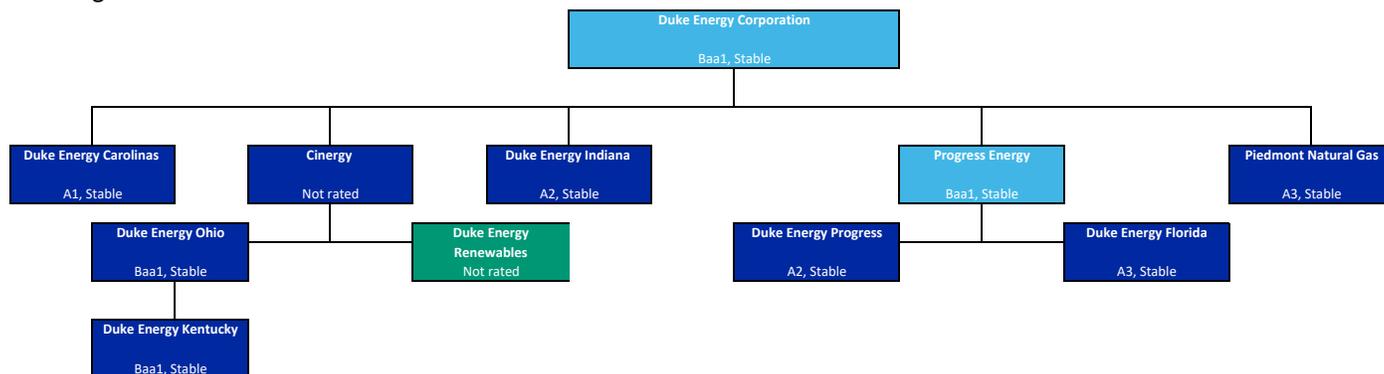
Source: Moody's Financial Metrics

Profile

Duke is a large (2018 revenues of \$24.5 billion), diversified energy company with mostly regulated utility operations headquartered in Charlotte, North Carolina. Its main business consists of its electric utilities and infrastructure business segment, which serves approximately 7.7 million retail electric customers in six US states and made up about 90% of Duke's 2018 earnings base. The company's gas utilities and infrastructure businesses provide natural gas to over 1.6 million customers located in five states. Duke has also formed a joint venture to build and own a 47% share of the estimated \$7.0-\$7.8 billion Atlantic Coast Pipeline, a 600-mile interstate natural gas pipeline from West Virginia to the Carolinas which has been experiencing permitting delays and increased costs. The company's relatively small (about 3% of 2018 adjusted earnings) commercial renewables business segment builds, develops and operates wind and solar generation projects throughout the continental US.

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the ratings tab on the issuer/entity page on www.moody's.com for the most updated credit rating action information and rating history.

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. In addition, the company has achieved reasonably credit supportive outcomes in its major jurisdictions on issues related to the majority of its coal ash remediation spending and federal tax reform.

In Duke's largest electric jurisdiction, North Carolina, the North Carolina Utilities Commission (NCUC) issued orders in 2018 for both Duke Energy Carolinas and Duke Energy Progress (combined approximately 56% of Duke's 2018 regulated earnings base) that established revenues based on a 9.9% return on equity, and a 52% equity base. The orders followed settlement agreements on traditional rate making parameters. We view the ability to regularly settle on more traditional issues as a credit positive.

The North Carolina orders also resolved issues relating to the recovery of costs for coal ash remediation. Spending for coal ash remediation has been deemed reasonable and prudent and, with the exception of a specific manageable penalty assessed in each case, the companies have been authorized to recover their prior expenditures over five years with a full debt and equity return. Ongoing expenditures will continue to be deferred for future recovery. We view the ability to earn a full return on these expenditures, and to recover them over reasonable time frames, as credit positive. As a result of this rate base like treatment, we currently view the spending for coal ash remediation to be akin to a capital expenditure.

In 2018, the NCUC also addressed the impact of federal tax reform. During the year, both Duke Energy Carolinas and Duke Energy Progress' revenue requirements were reduced by the full amount of the change in tax rate to 21% from 35%. However, the utilities were allowed to retain all excess deferred taxes for three years, or until its next rate case, whichever is sooner. At that time, the NCUC will evaluate how to best return this value to customers. We believe the form of return could include accelerated recovery of certain expenses, or the avoidance of rate increases. We would view such outcomes as credit positive.

The NCUC did however deny Duke's requests for rider recovery for grid modernization investments and ongoing coal ash remediation, both credit negatives. As a result, there will continue to be regulatory lag associated with these expenditures and we expect the utilities will need to file frequent rate cases to minimize this exposure. Duke has been working with lawmakers in an attempt to pass legislation that would allow securitization of storm costs as well as the consideration of alternative rate adjustment mechanisms such as rider recovery, multiyear plans, incentive mechanisms or ROE bands. Last week, a North Carolina conference committee produced a compromise bill that would authorize securitization of storm costs immediately, but would delay the implementation of alternative rate plans until 2021. The bill was immediately approved by the Senate and must now be approved by the House before heading to the Governor. A vote in the House is expected in October. Our stable outlook assumes a continuation of regulatory outcomes that will allow the companies to maintain cash flow based credit metrics at levels that are supportive of their current credit quality.

In South Carolina, in May 2019, the Public Service Commission of South Carolina (PSCSC) issued an order for rate increases at Duke Energy Carolinas and Duke Energy Progress for \$107 million and \$41 million respectively based on a 9.5% ROE and a 53% equity

ratio. New rates were effective June 1, 2019. In a credit negative development, the PSCSC denied the recovery of certain coal ash costs deemed to be related to the North Carolina Coal Ash Management Act and incremental to the federal Coal Combustion Residuals rule in the amount of \$115 million and \$65 million at Duke Energy Carolinas and Duke Energy Progress respectively. In May 2019, both Duke subsidiaries filed a petition for rehearing or reconsideration of the PSCSC's order contending substantial rights of Duke Energy Carolinas and Duke Energy Progress were prejudiced by unlawful, arbitrary and capricious rulings by the commission on certain issues, including its ability to fully recover its coal ash remediation spending. In June 2019, the PSCSC issued a directive denying the company's request for rehearing. Duke Energy Carolinas and Duke Energy Progress are currently awaiting the written order detailing the PSCSC's decision and are prepared to appeal portions of the case to the South Carolina Supreme Court. Depending on the outcome of the appeal, we may modify our treatment of the portion of expenditures that are not recoverable.

In Florida (approximately 18% of 2018 regulated earnings base), as part of a 2017 second revised and restated settlement agreement (which amended a 2013 settlement agreement), Duke Energy Florida will increase base rates by an incremental \$67 million (subsequently adjusted to \$55 million to reflect the effects of federal tax reform) each year from 2019 through 2021, subject to an ROE range of 9.5% to 11.5%. The 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 Public Service Commission authorized Duke Energy Florida to utilize the remainder of the benefits of lower tax rates to avoid a rate increase for power restoration costs associated with the company's 2017 response to Hurricane Irma. In June 2019, the FPSC approved the company's request to recover approximately \$221 million of incremental operating costs incurred as a result of Hurricane Michael. We view the ability to utilize tax reform savings to offset storm costs as a credit positive. Approved storm costs are currently expected to be fully recovered around year-end 2022.

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 1,640 MW \$1.5 billion Citrus County combined cycle plant was placed into service in 2018. The 2017 settlement included a similar mechanism for up to 700MW of new solar generation to be acquired or constructed between 2018 and 2022.

In Indiana (about 11% of 2018 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. In June 2018, Duke Energy Indiana reached a settlement with key intervenors on tax reform. The settlement calls for a flow through of the reduction in tax rate to 21% from 35% beginning in September. However, the protected portion of excess deferred taxes will be retained until January 2020, after which it will be returned over approximately 26 years. The unprotected portion will be returned over 10 years, but to mitigate the impact on cash flow based credit metrics, the amount is lower in the first five years.

In July 2019, Duke Energy Indiana filed a request for a \$395 million (approximately 15%) base rate increase premised on a 10.4% return on equity and a 53% equity component. This is Duke Energy Indiana's first base rate case filing in 16 years and is being driven by capital investments in generation, improvements in the grid to ensure reliability and a growing customer base. The request includes \$138 million relating to a change in depreciation, primarily to accelerate the retirement of certain coal-fired units. The company is also requesting the use of a forward test year, which was authorized by law in 2013. Duke expects hearings to begin in early 2020 with new rates effective by mid 2020.

On the natural gas side, Duke's local gas distribution subsidiary Piedmont Natural Gas (Piedmont), has historically received supportive treatment from its regulators in North Carolina (73% of rate base), South Carolina (14%) and Tennessee (13%). In addition, all three states provide cost recovery mechanisms and frameworks that lead to reduced regulatory lag.

In August 2019 Piedmont reached a settlement agreement with the NCUC public staff for a base rate increase of approximately \$109 million, after the expiration of various rider credits to flow back federal and state income tax credits. The agreed increase was based on a 9.7% ROE and a 52% equity layer. Piedmont initially requested an increase of \$83 million (net of \$37 million of reductions due

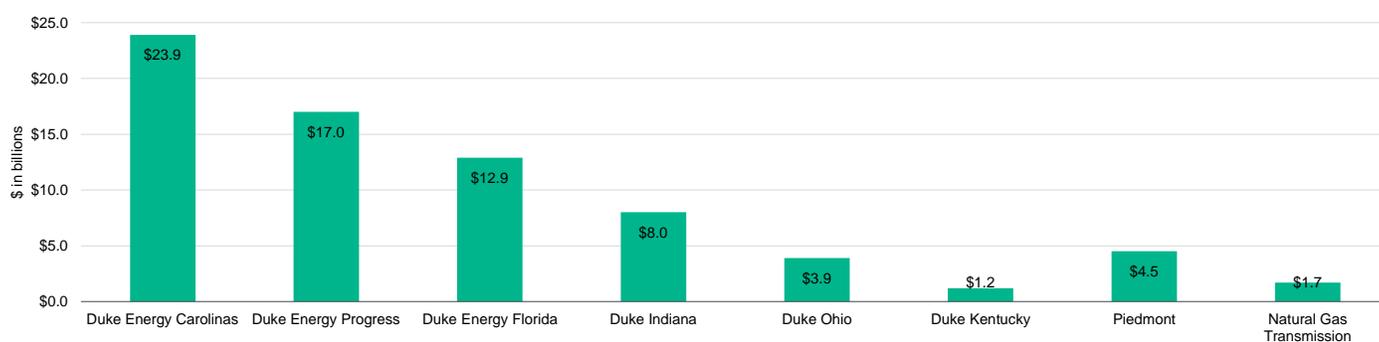
to lower tax rates), based on a 10.6% ROE and a 52% equity layer. The settlement allows continuation of an integrity management rider for federally mandated safety and capital investments and establishes a new distribution integrity management program recovery mechanism. The settlement is subject to the review and approval of the NCUC.

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. In 2016, Duke sold its more volatile Latin American businesses and acquired Piedmont Natural Gas Company (Piedmont), expanding its relatively low risk local natural gas distribution operations in the historically credit supportive states of North Carolina, South Carolina and Tennessee. As a result, essentially all of its operations are now either state or federally regulated. Duke's commercial renewables segment provides services under long term contracts, and contributed under 5% of the company's 2018 earnings. The shift to lower business risk operations has helped to mitigate the decline in credit metrics that followed the Piedmont acquisition.

Exhibit 4

2018 Regulated Utilities Earnings Base



Source: Company

Consolidated financial credit metrics are weak

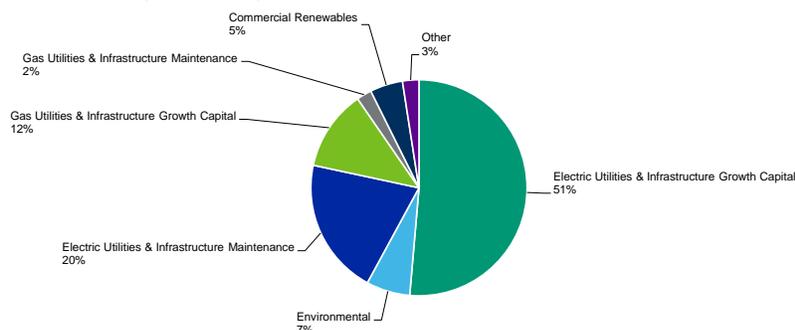
Duke's revenues and cash flow are being negatively impacted by the 2017 Tax Cuts and Jobs Act (TCJA), continued lag in recovery of coal ash remediation costs, severe storm activity, and lag in recovery of grid modernization investments. As a result, cash flow based credit metrics, which declined in 2016 following Duke's acquisition of Piedmont, have remained below our financial metric downgrade triggers. For example, for the last twelve months ended June 30, 2019, we calculate Duke's ratio of cash flow from operations excluding changes in working capital (CFO pre-WC) to debt to be about 14%, which is at the lower end of the "Baa" scoring range for this metric in our rating methodology for regulated electric and gas utilities and below our financial metric downgrade trigger of 15%. Absent the impact of the 2018 storms, we estimate the company's twelve month trailing ratio of CFO pre-WC to debt would be about 15%.

While we anticipate Duke's ratio of CFO pre-WC to debt will be around 15% for full year 2019, we believe it could fall toward 14% in 2020 before rebounding in 2021 as a result of rate case activity, operational enhancements, and lower dividend growth. In addition to planning regular rate cases in the Carolinas, Duke is also actively working with lawmakers on legislation that would allow the securitization of storm costs as well as alternative rate mechanisms that could reduce the lag in recovery, and would be credit positive. Our stable outlook assumes management will remain focused on achieving and maintaining a ratio of CFO pre-WC to debt in the 15-16% range, and that the metric will move into this range by 2021.

High capital spending for utility infrastructure and growth initiatives

Capital expenditures at Duke, inclusive of spending for coal ash remediation, have steadily increased year over year, nearly doubling from about \$5.5 billion in 2014 to about \$10.1 billion in 2018. As shown in the exhibit below, the largest portion of the plan represents what Duke terms "growth" capital driven by grid modernization in the Carolinas and natural gas infrastructure. In 2018, maintenance spending increased to \$3.2 billion due in part to restoration efforts related to storm damages; going forward maintenance spending is expected to range between \$2 and \$2.5 billion per year.

Exhibit 5

2019-2023 Capital Expenditures Forecast (\$50 Billion)

Source: Company

In addition to its core utility investment, Duke is growing its natural gas pipeline businesses and plans to continue to selectively invest in renewables. Included in the company's capital plan for 2019-2023 is about \$2.9 billion for midstream pipelines, primarily the Atlantic Coast Pipeline (ACP), and about \$2.5 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. Duke recently sold a minority share in its commercial renewables portfolio, generating pre-tax proceeds of approximately \$415 million, which will likely also reduce the future capital needs of this segment.

Delays and cost increases at Atlantic Coast Pipeline (ACP) project

ACP is a 600-mile interstate natural gas pipeline being built by Dominion Energy, Inc. (Baa2 stable) from West Virginia to eastern North Carolina. 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, as well as to Piedmont and other utilities in the area.

Construction of ACP has been halted due to adverse court rulings on environmental issues, including a biological opinion and a permit to cross under the Appalachian Trail. As a result, the estimated cost to complete the project increased by about \$1 billion, and its estimated completion schedule was extended by over a year. The pipeline is currently expected to cost between \$7 and \$7.8 billion (\$3.3-\$3.7 for Duke) and could be completed in two phases. Construction of the first phase, which does not cross the Appalachian Trail, could be restarted by year-end if there is a successful re-issuance of its biological opinion.

Construction of the second phase requires resolution of a Fourth Circuit Court of Appeals decision to vacate the permit issued by the U.S. Forest Service allowing ACP to cross under the Appalachian Trail. ACP has appealed the decision to the U.S. Supreme Court and just recently learned the Court has accepted the case. A decision is required by June 2020, which if favorable, would allow construction to begin next summer and the pipeline to be completed by the end of 2021. The increased costs, and delay of cash flow from this project, are maintaining downward pressure on Duke's credit metrics.

Lag in the recovery of storm related costs will pressure metrics in the near term

In the fall and winter of 2018, Duke's operations were impacted by a succession of severe storms. Hurricane Florence arrived in mid-September and affected the company's operations in North and South Carolina. One month later, Hurricane Michael came ashore in the gulf region and caused damage all the way from Florida through North and South Carolina. In December 2018, Winter Storm Diego was the third major storm to impact Duke Energy Progress and Duke Energy Carolinas service territories.

Total costs for the three storms was in excess of \$1 billion, primarily in Duke Energy Progress' North Carolina and Duke Energy Florida's service territories. Utilities in these territories have a good history of storm recovery, albeit with some regulatory lag. Duke has been working with lawmakers to enact securitization legislation, which would assure recovery of costs at lower cost to customers; however recovery would likely not begin until 2020 and will be spread out over a number of years. In the meantime, Duke's consolidated debt balances are about \$1 billion higher than previously forecast, which continues to add negative pressure to credit metrics.

Recovery of coal ash expenditures primarily resolved, but lag persists and uncertainty is increasing

In 2014, North Carolina lawmakers overwhelmingly passed the Coal Ash Management Act which regulates and requires the closure of coal ash basins at all coal plant sites throughout the state. The legislation, which was amended in 2016, required Duke to take costly, immediate action to excavate and close coal ash basins at three of its highest risk sites by the end of 2019. These basins were all successfully closed ahead of schedule by July 2019. A fourth basin is required to be closed by August 2022. The 2016 amendment required the remaining sites to be closed by either 2024 or 2029, depending on their priority designation.

In April 2019, the North Carolina Department of Environmental Quality (NCDEQ) ordered Duke Energy to excavate coal ash at all of its low-risk sites in North Carolina where specific closure plans had not been determined. The decision is credit negative as it will cost substantially more than the alternative closure options proposed by Duke for these six sites, and in some cases it may take decades, stretching well beyond current state and federal deadlines. The company is required to submit closure plans by December 31, 2019. Duke has appealed the order to the North Carolina Office of Administrative Hearings. In August 2019 the court issued an order dismissing several of Duke's claims relating to procedure, but allowing the substantive claims to move forward. The company expects the process will take 9-12 months.

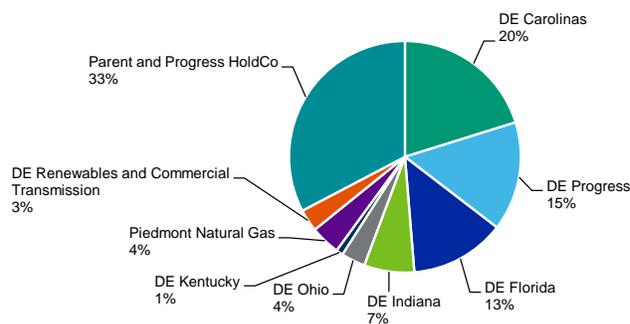
In 2014, Duke recognized a \$3.5 billion Asset Retirement Obligation (ARO) for its estimated obligations to close its North Carolina coal ash basins. In the second quarter of 2015, after publication of the EPA's final Coal Combustion Rules, Duke incrementally increased the ARO by \$1 billion as it created 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 and there is additional information around closure requirements. As of June 30, 2019, Duke had spent approximately \$2.1 billion and its total ARO had increased to approximately \$6.5 billion (\$2 billion more than reported as of December 2018).

In Duke's largest jurisdictions in North and South Carolina, coal ash basin closure and remediation spending is not recovered via trackers or other automatic cost recovery provisions and must be recovered via base rate case filings. As a result, there will likely continue to be regulatory lag in the recovery of these costs. To date, the majority of coal ash expenditures incurred have been recovered with rate base like treatment. Therefore we currently view the spending for coal ash remediation to be akin to a capital expenditure. However in their most recent South Carolina rate cases Duke Energy Progress and Duke Energy Carolinas were denied recovery of certain coal ash costs. The company plans to appeal this decision and we note that it represents a relatively modest portion of total incurred costs. Depending on the outcome of the appeal, we may modify our treatment of the portion of expenditures that are not recoverable.

Equity issuance has contained parent leverage – but it will still be relatively high

Duke's \$2 billion 2018 equity issuance, and its plans for ongoing issuance of \$500 million per year, have helped control the company's need for parent level debt financing. Prior to the announced 2018 equity issuance, we expected the level of parent debt to spike in 2018 and 2019 due in part to investments in ACP. Currently, we expect the proportion of Duke parent debt as a percentage of total consolidated debt will remain under 35%. This is still relatively high when compared to some other regulated utility holding company peers, and a factor in the wide differential between Duke and most of its subsidiaries' credit quality.

Exhibit 6
2018 Reported Debt by Entity

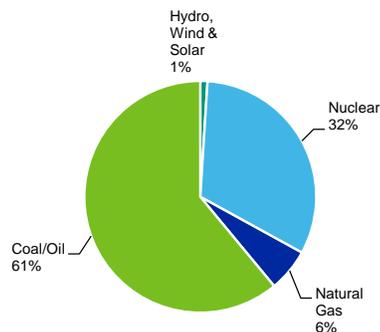


Source: Moody's Investors Service, Company

Environmental, social and governance considerations

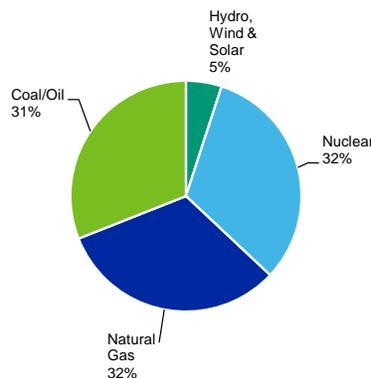
Duke has moderate carbon transition risk within the regulated utility sector as the majority of its energy is generated by fossil fuels. Since 2005, Duke has reduced carbon dioxide emissions by 31% and currently plans a 50% (increased from 40% in 2017) reduction by 2030. Furthermore Duke just announced a goal to achieve net-zero carbon emissions by 2050. As of 2018, the company's consolidated net output included about 31% from coal / oil fired resources, versus about 61% in 2005. By 2030 Duke estimates that 15% of its total company generation will be fired by coal.

Exhibit 7
2005 Fuel Diversity



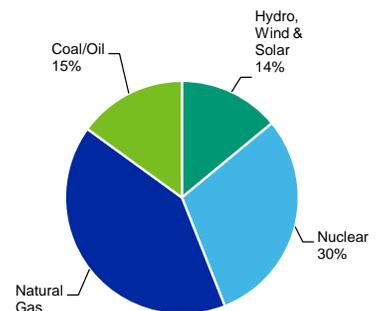
Source: Company

Exhibit 8
2018 Fuel Diversity



Source: Company

Exhibit 9
2030 Fuel Diversity[1]



[1] Company Estimate
Source: Company

Liquidity analysis

Given its large capital programs, Duke is reliant on external sources of liquidity. For the twelve months ending June 2019, Duke's consolidated cash flow from operations was approximately \$7 billion while cash used for investing activities was about \$10.5 billion and the company paid around \$2.6 billion in dividends resulting in negative free cash flow of approximately \$6 billion. The shortfall was funded via a combination of sources including subsidiary and parent level debt as well as preferred and common equity (about \$2 billion).

As of June 2019, the Duke had \$336 million of cash and short-term investments on hand, \$3.9 billion available under its \$8 billion master credit facility, and \$500 million available under its \$1 billion parent level revolving credit facility (May 2022 expiration). The master credit facility matures in March 2024 and includes sub-limits for each of its utility subsidiaries. As of June 30, 2019, Duke's parent company borrowing sub-limit under the master credit facility was \$2.65 billion, and the subsidiary sub-limits were: \$1.25 billion for Duke Energy Progress, \$800 million for Duke Energy Florida, \$1.75 billion for Duke Energy Carolinas, \$600 million for Duke Energy Indiana, \$450 million for Duke Energy Ohio, and \$500 million for Piedmont Natural Gas.

The master credit facility 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 June 30, 2019, we estimate Duke's consolidated ratio to be about 57%.

As of June 30, 2019, Duke had about \$3.4 billion of commercial paper outstanding, including about \$1 billion allocated to the parent company under its \$2.65 billion credit facility sub-limit. Of the total \$8 billion master credit facility, Duke and its utilities had about \$3.9 billion of availability with \$3.4 billion of commercial paper, \$500 million of coal ash set-aside, \$81 million of tax-exempt bonds, and \$53 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.

As an additional source of liquidity Duke also has the ability to raise short-term debt through a variable 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 June 30, 2019, Duke had about \$991 million 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 \$3.8 billion total notes payable and commercial paper outstanding as of June 30, 2019.

Duke's scheduled long-term debt maturities over the twelve months beginning June 30, 2019 total approximately \$2.35 billion, including approximately \$830 million at the parent level Duke Corp., \$350 million at Progress Energy, \$450 million at Duke Carolinas, \$600 million at Duke Florida, \$100 million at Duke Kentucky. We expect most of this debt will be refinanced.

Rating methodology and scorecard factors

Exhibit 10

Rating Factors

Duke Energy Corporation

Regulated Electric and Gas Utilities Industry Scorecard [1][2]	Current LTM 6/30/2019		Moody's 12-18 Month Forward View As of Date Published [3]	
	Measure	Score	Measure	Score
Factor 1 : Regulatory Framework (25%)				
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	A	A
Factor 4 : Financial Strength (40%) [4]				
a) CFO pre-WC + Interest / Interest (3 Year Avg)	4.6x	A	4.6x - 5x	A
b) CFO pre-WC / Debt (3 Year Avg)	14.3%	Baa	14% - 16%	Baa
c) CFO pre-WC – Dividends / Debt (3 Year Avg)	10.0%	Baa	10% - 12%	Baa
d) Debt / Capitalization (3 Year Avg)	51.8%	Baa	50% - 54%	Baa
Rating:				
Scorecard-Indicated Outcome Before Notching Adjustment		A3		A3
HoldCo Structural Subordination Notching	-1	-1	-1	-1
a) Scorecard-Indicated Outcome		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 6/30/2019(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.

[4] Standard risk grid for financial strength

Source: Moody's Financial Metrics

Appendix

Exhibit 11

Cash Flow and Credit Metrics [1]

CF Metrics	Dec-15	Dec-16	Dec-17	Dec-18	LTM Jun-19
As Adjusted					
FFO	7,638	7,586	8,514	8,954	9,540
+/- Other	(459)	(323)	(496)	(1,047)	(931)
CFO Pre-WC	7,179	7,263	8,018	7,907	8,609
+/- ΔWC	181	394	(752)	(138)	(993)
CFO	7,360	7,657	7,266	7,769	7,616
- Div	2,269	2,338	2,457	2,484	2,587
- Capex	7,278	8,697	8,687	9,959	11,209
FCF	(2,187)	(3,378)	(3,878)	(4,674)	(6,179)
(CFO Pre-W/C) / Debt	17.3%	14.6%	14.8%	13.7%	14.0%
(CFO Pre-W/C - Dividends) / Debt	11.8%	9.9%	10.3%	9.4%	9.8%
FFO / Debt	18.4%	15.2%	15.7%	15.5%	15.5%
RCF / Debt	12.9%	10.5%	11.2%	11.2%	11.3%
Debt / EBITDA	4.4x	5.1x	5.0x	5.5x	5.6x
Revenue	22,371	22,743	23,565	24,521	24,779
Cost of Good Sold	7,338	6,789	6,863	7,396	7,390
EBITDA	9,417	9,728	10,737	10,480	10,927
Interest Expense	1,681	1,977	2,171	2,330	2,388
Net Income	2,530	2,119	3,106	2,281	2,627
Total Assets	119,812	131,655	136,911	144,659	151,314
Total Liabilities	80,026	90,739	95,410	101,027	106,786
Total Equity	39,785	40,916	41,501	43,633	44,529

[1] All figures and ratios are calculated using Moody's estimates and standard adjustments. Periods are Financial Year-End unless indicated. LTM = Last Twelve Months
Source: Moody's Financial Metrics

Exhibit 12

Peer Comparison Table [1]

(in US millions)	Duke Energy Corporation			American Electric Power Company, Inc.			Southern Company (The)			Xcel Energy Inc.		
	Baa1 Stable			Baa1 Stable			Baa2 Stable			Baa1 Stable		
	FYE Dec-17	FYE Dec-18	LTM Jun-19	FYE Dec-17	FYE Dec-18	LTM Jun-19	FYE Dec-17	FYE Dec-18	LTM Jun-19	FYE Dec-17	FYE Dec-18	LTM Jun-19
Revenue	23,565	24,521	24,779	15,425	16,196	15,765	23,031	23,495	22,006	11,404	11,537	11,646
CFO Pre-W/C	8,018	7,907	8,609	4,580	4,831	4,572	7,242	7,107	6,245	3,314	3,116	3,083
Total Debt	54,169	57,787	61,455	24,138	26,588	28,552	51,414	47,808	46,185	16,917	18,376	19,243
CFO Pre-W/C / Debt	14.8%	13.7%	14.0%	19.0%	18.2%	16.0%	14.1%	14.9%	13.5%	19.6%	17.0%	16.0%
CFO Pre-W/C - Dividends / Debt	10.3%	9.4%	9.8%	14.0%	13.4%	11.4%	9.4%	9.7%	5.3%	15.3%	13.0%	12.1%
Debt / Capitalization	53.0%	52.9%	53.6%	49.2%	50.6%	51.6%	60.2%	56.2%	53.3%	52.8%	53.2%	53.9%

[1] All figures & ratios calculated using Moody's estimates & standard adjustments. FYE = Financial Year-End. LTM = Last Twelve Months. RUR* = Ratings under Review, where UPG = for upgrade and DNG = for downgrade
Source: Moody's Financial Metrics

Ratings

Exhibit 13

Category	Moody's Rating
DUKE ENERGY CORPORATION	
Outlook	Stable
Issuer Rating	Baa1
Sr Unsec Bank Credit Facility	Baa1
Senior Unsecured	Baa1
Jr Subordinate	Baa2
Pref. Stock	Baa3
Commercial Paper	P-2
DUKE ENERGY CAROLINAS, LLC	
Outlook	Stable
Issuer Rating	A1
First Mortgage Bonds	Aa2
Bkd Senior Secured	Aa2
Senior Unsecured	A1
DUKE ENERGY PROGRESS, LLC	
Outlook	Stable
Issuer Rating	A2
First Mortgage Bonds	Aa3
Senior Secured	Aa3
DUKE ENERGY INDIANA, LLC.	
Outlook	Stable
Issuer Rating	A2
First Mortgage Bonds	Aa3
Senior Secured	Aa3
Senior Unsecured	A2
PROGRESS ENERGY, INC.	
Outlook	Stable
Senior Unsecured	Baa1
PIEDMONT NATURAL GAS COMPANY, INC.	
Outlook	Stable
Senior Unsecured	A3
Commercial Paper	P-2
DUKE ENERGY OHIO, INC.	
Outlook	Stable
Issuer Rating	Baa1
First Mortgage Bonds	A2
Senior Unsecured	Baa1
DUKE ENERGY KENTUCKY, INC.	
Outlook	Stable
Senior Unsecured	Baa1

Source: Moody's Investors Service

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