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CREDIT OPINION
5 May 2020

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.

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

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.

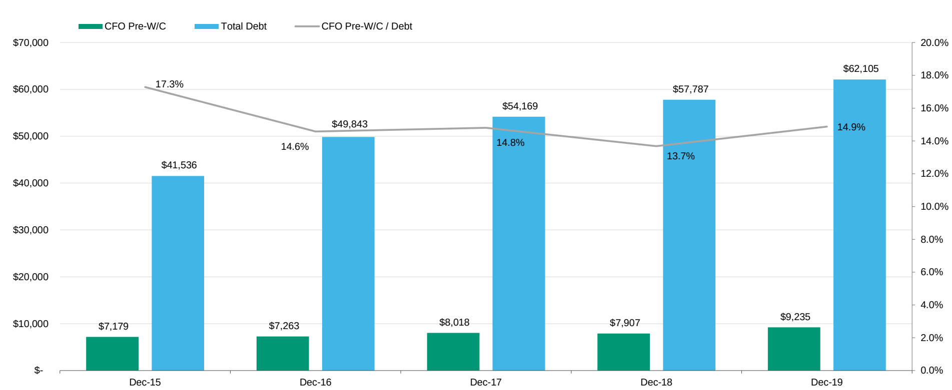
Recent Developments

The rapid and widening spread of the coronavirus outbreak, deteriorating global economic outlook, falling oil prices, and asset price declines has created challenges for many sectors, regions and markets. The combined credit effects of these developments are unprecedented. As events related to the coronavirus unfold, there is a higher than usual degree of uncertainty around all macro-economic forecasts. Therefore, in our analysis, we are taking into consideration that there is a wider range of potential outcomes, including more severe downside scenarios, over the course of the year.

We expect utilities like Duke to be relatively resilient to recessionary pressures because of their predominantly rate regulated businesses. Nevertheless, we are watching for electricity usage declines, utility bill payment delinquency, particularly as utilities have suspended disconnection policies, and the regulatory response to counter these effects on earnings and cash flow. Longer term, recessionary pressures may increase regulatory resistance to rate increases, which could also negatively impact credit metrics.

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 historical coal ash related expenditures

Credit challenges

- Weak consolidated credit metrics
- Significant 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 adjust its operating, capital and financing plans, as necessary, to mitigate the impacts of the coronavirus, potential negative regulatory developments surrounding coal ash recovery, or severe storms, or adverse developments at ACP, in a manner that supports long-term credit quality. For example, we anticipate the company's ratio of cash flow from operations excluding working capital (CFO pre-WC) to debt will be in 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 the emergence of a more contentious regulatory relationship which negatively impacts cash flows or the timeliness of cost recovery, particularly with regard to coal ash remediation recovery in North Carolina
- A ratio of CFO pre-WC to debt 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	Dec-19
CFO Pre-W/C + Interest / Interest	5.3x	4.7x	4.7x	4.4x	4.7x
CFO Pre-W/C / Debt	17.3%	14.6%	14.8%	13.7%	14.9%
CFO Pre-W/C – Dividends / Debt	11.8%	9.9%	10.3%	9.4%	10.6%
Debt / Capitalization	44.2%	47.5%	53.0%	52.9%	52.8%

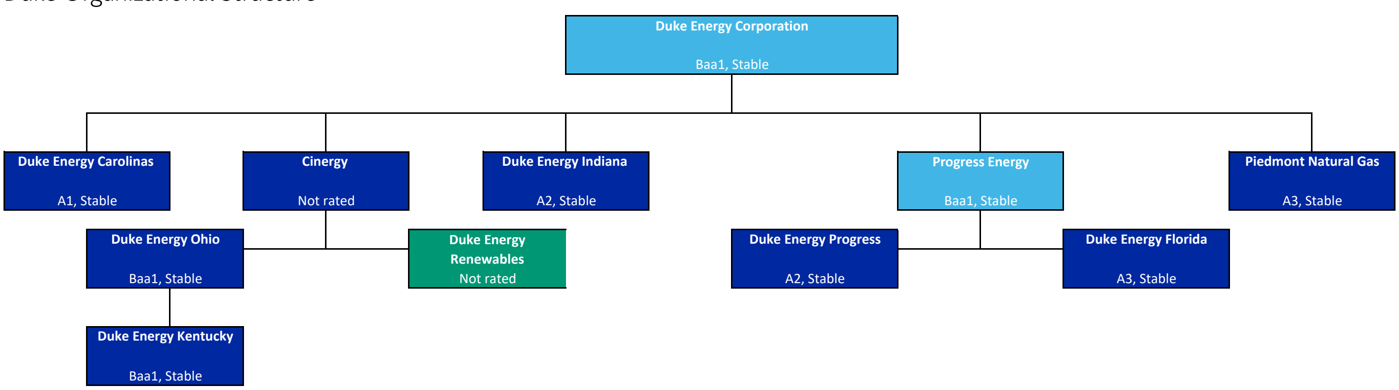
[1] All ratios are based on 'Adjusted' financial data and incorporate Moody's Global Standard Adjustments for Non-Financial Corporations.
Source: Moody's Financial Metrics

Profile

Duke is a large (2019 revenues of $25.1 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 7.8 million retail electric customers in six US states and made up about 88% of Duke's 2019 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 $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 5% of 2019 adjusted earnings) commercial renewables business segment builds, develops and operates wind and solar generation projects throughout the continental US.

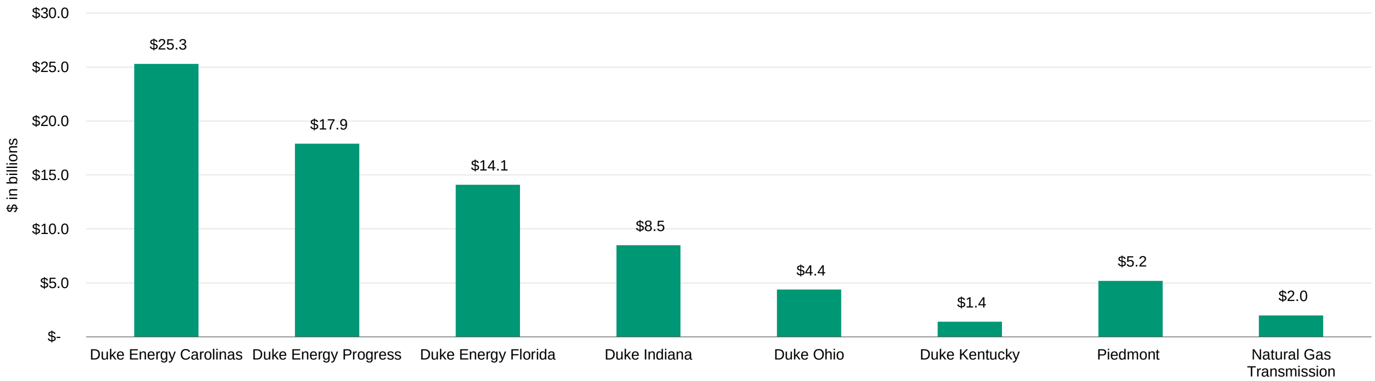
Exhibit 3

Duke Organizational Structure



Source: Moody's Investors Service, Company

Exhibit 3
2019 Regulated Utilities Earnings Base



Source: 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. However, in its largest service in the Carolinas, a reliance on traditional base rate case proceedings, rather than riders or trackers for the recovery of other increased costs or investment, leaves approximately 55% of Duke's earnings base susceptible to regulatory lag. We are also closely watching the regulatory treatment of coal ash remediation spending.

In North Carolina, the North Carolina Utilities Commission (NCUC) issued orders in 2018 for both Duke Energy Carolinas and Duke Energy Progress 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 through the third quarter of 2017 (Progress) and early 2018 (Carolinas). Spending for coal ash remediation was deemed reasonable and prudent and, with the exception of a specific manageable penalty assessed in each case, the companies were authorized to recover their prior expenditures over five years with a full debt and equity return. Ongoing expenditures 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.

The NCUC's 2018 decision on coal ash remediation spending has been appealed by the state Attorney General and the Public Staff, and the regulator recently took a different position in the case of another smaller utility operating in the state. In the case of Virginia Electric and Power Company (A2 stable), the NCUC authorized recovery of coal ash spending, but over a ten-year period rather than five, with no return during the amortization period. To the extent Duke's subsidiaries are no longer allowed to recover, or earn a return, on their coal ash remediation spending, we would view this as credit negative and may modify our treatment of the portion of expenditures that are not recoverable or for which a return is not authorized.

In September and October of 2019, Duke Energy Carolinas and Duke Energy Progress each filed base rate cases in North Carolina requesting approximate revenue increases of about 6% and 12% (net of credits to return excess deferred income taxes), respectively, both premised on a 53% equity ratio and a 10.3% return on equity. The filings also seek recovery of $480 million of coal ash remediations costs deferred from January 2018 – January 2020 at Duke Energy Carolinas, and $530 million of costs deferred from September 2017 — February 2020 at Duke Energy Progress over five years. The filings also seek to resolve the manner in which excess deferred income taxes will be returned to customers (the 2018 decisions left this issue to future filings). The utility requested rates become effective no later than August and September of 2020; however, the procedural schedule will likely be pushed out due to the impact of the coronavirus.

In their 2019 North Carolina filings, both utilities requested recovery of extraordinary storm restoration costs (totaling $758 million in North Carolina) in the wake of Hurricanes Florence, Michael and Winter Storm Diego in 2018 and Hurricane Dorian in 2019. Both utilities noted their intention to seek securitization of these costs if enabling legislation was passed. In March 2020, Duke Energy Carolinas agreed with Public Staff to remove the request to recover its storm restoration costs from its pending rate case and to instead file for a securitization within 120 days of the NCUC determining the costs were reasonable and prudent. Also in March, due to the continuing uncertainty surrounding the coronavirus, the NCUC suspended the procedural schedule for both utilities general rate cases until further notice.

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. Duke has appealed the ruling and a decision is pending. 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 2019 regulated earnings base), as part of a 2017 second revised and restated settlement agreement (which amended a 2013 settlement agreement), Duke Energy Florida is increasing base rates by $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 (FPSC) 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 mid-2022. In December of 2019, Duke Energy Florida filed to recover incremental costs estimated at $167 million associated with preparing for Hurricane Dorian. Recovery of these costs began in March 2020 and will occur over 12 months.

Florida is a state prone to Hurricanes, the frequency and intensity of which appear to be increasing. As such, in 2019, state lawmakers enacted legislation that requires investor-owned utilities to harden their transmission and distribution infrastructure and also provides for cost recovery outside of a general rate case, a credit positive. In April 2020, the Florida utilities, including Duke Energy Florida, submitted their plans. Duke Energy Florida intends to invest approximately $6 billion over 10 years to harden its system and increase reliability including a new initiative to upgrade overhead distribution systems. The FPSC has six months to review the plans, and the utilities will file cost recovery petitions in the summer.

Duke Energy Florida historically benefitted from a credit positive generation base rate adjustment (GBRA) mechanism for new generation that allowed recovery of prudently incurred costs through a base rate adjustment when the generation is placed in service. Duke Energy Florida's 1,640 MW $1.5 billion Citrus County combined cycle plant was placed into service in 2018. Currently, the company is benefitting from a similar solar base rate adjustment (SOBRA) mechanism included in its 2017 settlement for up to 700 MW of new solar generation to be acquired or constructed between 2018 and 2022. To date, five facilities totaling approximately 270 MW, the Hamilton, Columbia, Trenton, Lake Placid and DeBary projects, have been approved. The total annual revenue requirement for all five projects is about $61 million.

In Indiana (about 11% of 2019 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 called for a flow through of the reduction in tax rate to 21% from 35% beginning in September 2018. However, the protected portion of excess deferred taxes was 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 included $138 million relating to a change in depreciation, primarily to accelerate the retirement of certain coal-fired units. The company also requested the use of a forward test year, which was authorized by law in 2013. Hearings in the case concluded in February 2020 and Duke expects new rates to be 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.

Consolidated financial credit metrics are weak

Duke's historical revenues and cash flow have been 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. These factors have contributed to cash flow based credit metrics remaining below our financial metric threshold for a possible downgrade for several years.

For full year 2019, Duke's ratio of cash flow from operations excluding changes in working capital (CFO pre-WC) to debt was 14.9%; absent over $370 million of pre-tax additional expenditures caused by Hurricane Dorian, we estimate the ratio would be around 15.4%. We note however, that the metric is also being positively impacted by the accounting treatment of alternative minimum tax (AMT) refunds, which includes an originally expected 2020 refund amount of $287 million in its 2019 CFO pre-WC; absent this impact, we estimate the ratio would be around 14.4%. The ratio is also positively impacted by our treatment of coal ash expenditures as a capital expense; absent this treatment we estimate the ratio would be around 13.7%. These ratios are 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 threshold for a possible downgrade of 15%. If Duke is no longer able to earn a return on its coal ash remediation spending, we will likely revise our treatment of these cash flows.

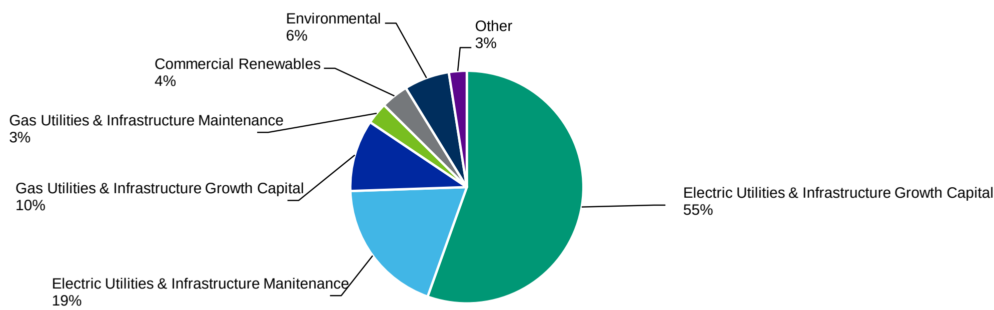
In 2020, we anticipate Duke's revenue and earnings will be adversely impacted by economic shut downs related to the outbreak of the coronavirus; however, we expect at least a portion of the decline in commercial and industrial activity may be mitigated by increased residential demand and management's cost reduction efforts. From a cash flow perspective, Duke will benefit from a provision in the March 2020 Coronavirus Aid Relief and Economic Security (CARES) Act which allows the acceleration of previously generated AMT credits. As a result, the full amount of these credits will be refunded in 2020 and will increase Duke's cash flow from operations by $287 million this year (the offset is less cash in 2021 and 2022).

While we recognize the near-term challenges posed by the coronavirus outbreak and the uncertainty surrounding regulatory outcomes at Duke's key Carolina subsidiaries, 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.

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, more than doubling from about $5.5 billion in 2014 to about $12.1 billion in 2019. 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. Although maintenance spending can be impacted by severe storm activity or hardening efforts, rising above $3 billion in both 2018 and 2019, going forward it is forecast to range between $2-$3 billion per year.

Exhibit 4
2020-2024 Capital Expenditures Forecast ($56.5 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 2020-2024 is about $2.2 billion for midstream pipelines, primarily the Atlantic Coast Pipeline (ACP), and about $2.2 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. In 2019, Duke 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 southeastern 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 pipeline is currently expected to cost $8 billion ($3.8 billion for Duke) and, in a best case, is expected to be completed by the first half of 2022.

The project consists of two portions, one of which does not cross the Appalachian Trail, but requires a successful re-issuance of its biological opinion. Construction of the second phase requires resolution of the biological opinion as well as 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 appealed the decision to the U.S. Supreme Court and a decision is expected by June 2020. A decision on the biological opinion is expected around the same time.

Storm prone service territories

In September 2019, Hurricane Dorian impacted Duke's service territories in Florida and the Carolinas. Although the storm weakened considerably before making landfall in the Duke Energy Progress service territory as a Category 2 hurricane, it still caused significant power outages and resulted in approximately $375 million of additional restoration and preparedness costs (over half at Duke Energy Progress). In the fall and winter of 2018, Duke's operations were impacted by Hurricanes Florence and Michael as well as Winter Storm Diego. 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. In Florida, costs for Florence, Michael and 2017's Hurricane Irma are currently being recovered as an offset to customer credits for the return excess deferred income tax.

These expenditures are expected to be fully recovered by mid-2022. Expenditures for Dorian are being recovered at a much faster rate, over twelve months beginning in March 2020, a credit positive.

In the Carolinas, costs have been deferred and included in pending rate cases. Following the state's recent enactment of storm securitization legislation, the utilities will now seek to securitize these expenditures at a lower cost to customers; however, cost recovery will likely be spread out over a number of years whereas Duke's consolidated debt balances swell immediately upon the incurrence of the additional expenditures.

Cost of coal ash remediation spending has been primarily resolved, but there is new uncertainty regarding recovery

Duke has continued to refine its estimates of coal ash remediation spending since it first recognized an Asset Retirement Obligation (ARO) in 2014. In December of 2019 the company reached an agreement with the North Carolina Department of Environmental Quality (NCDEQ) establishing the means and timeframes for remediation of its remaining coal ash basins. The settlement calls for the full excavation of the majority of the ash over a period of 15-20 years. As of December 31, 2019, Duke had spent approximately $2.5 billion and its total ARO was estimated at $6.3 billion.

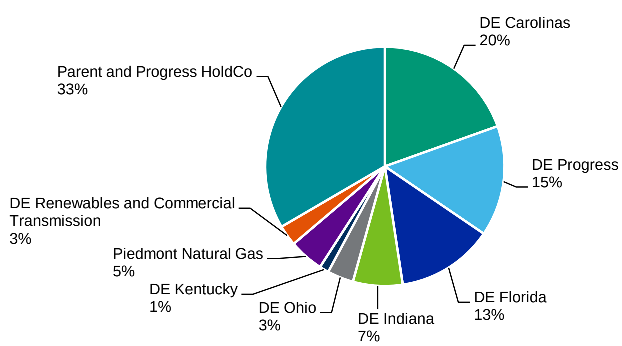
In Duke's largest jurisdictions in North and South Carolina, coal ash basin closure and remediation spending is not recovered via trackers or other automatic cost recovery provisions and must be recovered via base rate case filings. As a result, there will likely continue to be regulatory lag in the 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. As noted above, the recovery provisions in North Carolina have been appealed and South Carolina recently denied recovery for a portion of the expenditures. In North Carolina, another utility was denied the ability to earn a return on the amortizing portion of the expenditures, making them more akin to a current expense.

Depending on the outcome of Duke's pending North Carolina rate cases and South Carolina coal-ash related appeals, we may modify our treatment of the portion of expenditures that are not recoverable, or for which a return is not authorized. Doing so could reduce cash flow to debt metrics by upwards of 50 basis points.

Relatively high parent leverage

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 5
2019 Reported Debt by Entity



Source: Moody's Investors Service, Company

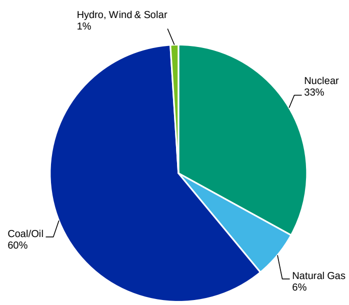
ESG Considerations

Environmental considerations incorporated into our credit analysis for Duke are primarily related to carbon regulations. 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 has a goal to achieve net-zero carbon emissions by 2050. As of 2019, the company's consolidated net output included about 26% from coal/oil fired resources, versus about 60% in 2005. By 2030, Duke estimates that 12% of its total company generation will be generated by coal.

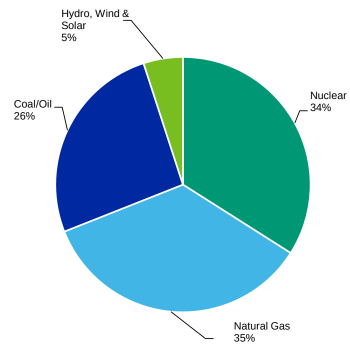
Social risks are primarily related to health and safety as well as demographic and societal trends. From a governance perspective, financial and risk management policies including a strong financial profile are important characteristics for managing environmental and social risks. We view management and governance of Duke as high (GA-2) based on our assessment criteria. Moody's framework for assessing corporate governance is discussed in "Utilities and power companies – North America Corporate governance assessments show generally credit-friendly characteristics" (September 19, 2019).

Exhibit 6
2005 Fuel Diversity



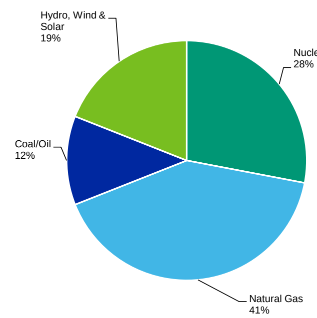
Source: Company

Exhibit 7
2019 Fuel Diversity



Source: Company

Exhibit 8
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 year ended December 31, 2019, Duke's consolidated cash flow from operations was approximately $8.2 billion while cash used for investing activities was about $11.1 billion and the company paid around $2.7 billion in dividends resulting in negative free cash flow of approximately $5.6 billion. The shortfall was funded via a combination of sources including subsidiary and parent level debt as well as preferred and common equity (about $2.3 billion).

As of December 31, 2019, the Duke had $311 million of cash and short-term investments on hand, $4.8 billion available under its $8 billion master credit facility. In an effort to bolster liquidity during the coronavirus disruption, in March 2020, Duke entered into a new $1.5 billion 364-day term loan facility with an accordion feature to increase the size of the facility up to $2 billion. In addition to entering into the new facility, Duke borrowed the remaining $500 million available under its existing $1 billion parent level revolving credit facility (May 2022 expiration). The additional liquidity allowed Duke to manage the near-term commercial paper maturities using these proceeds.

Duke's master credit facility matures in March 2024 and includes sub-limits for each of its utility subsidiaries. As of December 31, 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, $1.5 billion for Duke Energy Carolinas, $600 million for Duke Energy Indiana, $600 million for Duke Energy Ohio, and $600 million for Piedmont Natural Gas.

The master credit facility supports a $6 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 December 31, 2019, Duke reported that all of the borrowing entities were in compliance with this covenant and we estimate Duke's consolidated ratio to be about 57%.

Of the $8 billion master credit facility, as of December 31, 2019, Duke and its utilities had about $4.8 billion of availability with $2.5 billion of commercial paper outstanding (including $1.1 billion at the parent), $500 million of coal ash set-aside, $81 million of tax-exempt bonds, and $50 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 December 31, 2019, Duke had about $1.05 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 $3.1 billion total notes payable and commercial paper outstanding as of December 31, 2019.

Duke's scheduled long-term debt maturities over the twelve months beginning December 31, 2019 total approximately $2.8 billion, including approximately $350 million at the parent level Duke Corp., $450 million at Duke Carolinas, $1.0 billion at Duke Energy Progress, $500 million at Duke Florida, $500 million at Duke Indiana. We expect this debt will be refinanced.

Rating methodology and scorecard factors

Exhibit 9

Rating Factors

Duke Energy Corporation

Regulated Electric and Gas Utilities Industry Scorecard [1][2]	Current FY 12/31/2019		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	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%) [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)	14.5%	Baa	14% - 16%	Baa
c) CFO pre-WC – Dividends / Debt (3 Year Avg)	10.1%	Baa	10% - 12%	Baa
d) Debt / Capitalization (3 Year Avg)	52.9%	Baa	50% - 54%	Baa
Rating:				
Scorecard-Indicated Outcome Before Notching Adjustment		A3		A3
HoldCo Structural Subordination Notching		-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 12/31/2019(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 10
Cash Flow and Credit Metrics [1]

CF Metrics	Dec-15	Dec-16	Dec-17	Dec-18	Dec-19
As Adjusted					
FFO	**7,638**	**7,586**	**8,514**	**8,917**	**9,810**
+/- Other	(459)	(323)	(496)	(1,010)	(575)
CFO Pre-WC	**7,179**	**7,263**	**8,018**	**7,907**	**9,235**
+/- ΔWC	181	394	(752)	(138)	(250)
CFO	**7,360**	**7,657**	**7,266**	**7,769**	**8,985**
- Div	2,269	2,338	2,457	2,484	2,629
- Capex	7,278	8,697	8,687	9,959	12,048
FCF	**(2,187)**	**(3,378)**	**(3,878)**	**(4,674)**	**(5,692)**
(CFO Pre-W/C) / Debt	17.3%	14.6%	14.8%	13.7%	14.9%
(CFO Pre-W/C - Dividends) / Debt	11.8%	9.9%	10.3%	9.4%	10.6%
FFO / Debt	18.4%	15.2%	15.7%	15.4%	15.8%
RCF / Debt	12.9%	10.5%	11.2%	11.1%	11.6%
Revenue	22,371	22,743	23,565	24,521	25,079
Cost of Good Sold	7,338	6,789	6,863	7,396	7,306
Interest Expense	1,681	1,977	2,171	2,330	2,475
Net Income	2,530	2,119	3,106	2,281	3,412
Total Assets	119,812	131,655	136,911	144,659	156,804
Total Liabilities	80,026	90,739	95,410	101,027	111,168
Total Equity	39,785	40,916	41,501	43,633	45,636

[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 11
Peer Comparison Table [1]

	Duke Energy Corporation Baa1 Stable			American Electric Power Company, Inc. Baa1 Negative			Southern Company (The) Baa2 Stable			Xcel Energy Inc. Baa1 Stable		
(in US millions)	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-17	FYE Dec-18	FYE Dec-19	FYE Dec-17	FYE Dec-18	FYE Dec-19
Revenue	23,565	24,521	25,079	15,425	16,196	15,561	23,031	23,495	21,419	11,404	11,537	11,529
CFO Pre-W/C	8,018	7,907	9,235	4,580	4,831	4,410	7,242	7,278	7,172	3,314	3,111	3,470
Total Debt	54,169	57,787	62,105	24,138	26,314	30,800	51,414	47,808	47,490	16,917	18,376	19,632
CFO Pre-W/C / Debt	14.8%	13.7%	14.9%	19.0%	18.4%	14.3%	14.1%	15.2%	15.1%	19.6%	16.9%	17.7%
CFO Pre-W/C – Dividends / Debt	10.3%	9.4%	10.6%	14.0%	13.6%	9.9%	9.4%	15.1%	9.4%	15.3%	13.0%	13.6%
Debt / Capitalization	53.0%	52.9%	52.8%	49.2%	50.3%	52.8%	60.2%	56.2%	53.1%	52.8%	53.2%	52.8%

[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 12

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
Senior Secured Shelf	(P)Aa2
Senior Unsecured	A1
DUKE ENERGY PROGRESS, LLC	
Outlook	Stable
Issuer Rating	A2
First Mortgage Bonds	Aa3
Senior Secured	Aa3
Senior Unsecured Shelf	(P)A2
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
DUKE ENERGY OHIO, INC.	
Outlook	Stable
Issuer Rating	Baa1
First Mortgage Bonds	A2
Senior Secured Shelf	(P)A2
Senior Unsecured	Baa1
PIEDMONT NATURAL GAS COMPANY, INC.	
Outlook	Stable
Senior Unsecured	A3
DUKE ENERGY KENTUCKY, INC.	
Outlook	Stable
Senior Unsecured	Baa1

Source: Moody's Investors Service

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