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CREDIT OPINION
31 October 2019

Update

Rate this Research

RATINGS

Duke Energy Carolinas, LLC

Domicile	Charlotte, North Carolina, United States
Long Term Rating	A1
Type	LT Issuer Rating
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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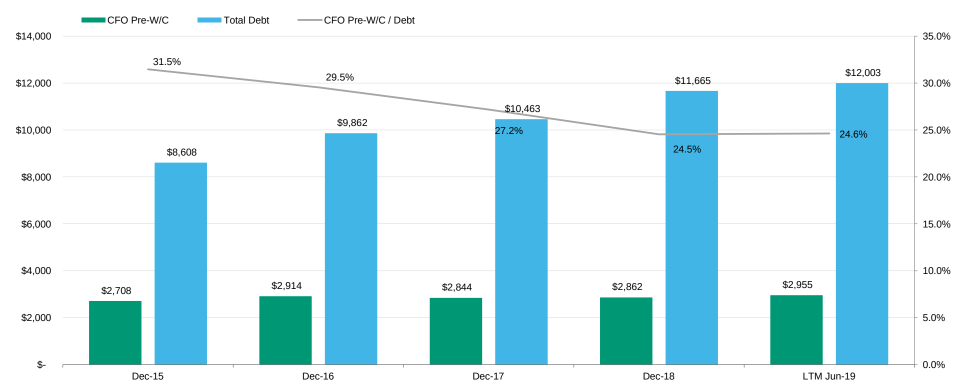
Duke Energy Carolinas, LLC

Update to credit analysis

Summary

Our view of Duke Energy Carolinas' (Duke Carolinas) credit reflects its low business and operating risk profile and historically supportive regulatory environments in both North and South Carolina. Our view is tempered by the utility's weaker financial credit metrics, but also considers the company's position as the largest subsidiary within the Duke Energy Corporation family, making up about a third of its rate base. Our view recognizes the benefits of scale and the potential for operational efficiencies that are enabled by joint management with affiliate Duke Energy Progress.

Exhibit 1
Historical CFO Pre-WC, Total Debt and CFO Pre-WC to Debt ($ MM)



Source: Moody's Financial Metrics

Credit Strengths

» Credit supportive regulatory environments

» Approved recovery for the majority of coal ash related expenditures

» Growing service territories

» Position as part of Duke Energy utility system

Credit Challenges

» High capital expenditures

» Increasing regulatory uncertainty surrounding coal ash remediation spending

» Financial metrics are under pressure

Rating Outlook

The stable rating outlook considers the utility's relatively low business risk profile and primarily credit supportive regulatory frameworks in both North and South Carolina. The outlook reflects our expectation that management will manage and finance Duke Carolinas relatively large capital expenditure program in a manner that allows the utility to demonstrate financial credit metrics that are consistent with its credit profile. The stable outlook also reflects our expectation that the company will continue to be able to fully recover the majority of its coal ash closure and remediation costs in rates.

Factors that Could Lead to an Upgrade

» Credit positive changes in the utility's regulatory framework, including more riders and trackers to reduce regulatory lag for ongoing capital investment, and real time recovery of coal ash remediation costs

» A sustained improvement in cash flow credit metrics, for example if the ratio of cash from operations excluding changes in working capital (CFO pre-W/C) to debt were to move above 30% on a sustained basis

Factors that Could Lead to a Downgrade

» A decline in the credit supportiveness of Duke Carolina's regulatory relationships in North or South Carolina, particularly with regards to coal ash remediation recovery in North Carolina

» Additional capital expenditures or other capital needs that result in a material increase in debt levels or are not recoverable

» A ratio of CFO pre-W/C to debt remaining below 25% on a sustained basis

Key Indicators

Duke Energy Carolinas, LLC [1]

	Dec-15	Dec-16	Dec-17	Dec-18	LTM Jun-19
CFO Pre-W/C + Interest / Interest	6.9x	7.2x	7.0x	6.9x	7.0x
CFO Pre-W/C / Debt	31.5%	29.5%	27.2%	24.5%	24.6%
CFO Pre-W/C – Dividends / Debt	26.8%	9.3%	21.2%	18.1%	22.5%
Debt / Capitalization	32.8%	36.4%	41.6%	43.3%	43.0%

[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 Carolinas is a vertically integrated electric utility serving approximately 2.6 million customers in North Carolina (about 2 million) and South Carolina. The utility is the largest subsidiary of Duke Energy Corporation (Duke Energy, Baa1 stable) and is regulated by the North Carolina Utilities Commission (NCUC) and the Public Service Commission of South Carolina (PSCSC).

Detailed Credit Considerations

Historically credit supportive regulatory environments, but uncertainty is increasing

The regulatory environments in both North and South Carolina have historically been credit supportive. While the PSCSC's May 2019 order in Duke Carolina's recent rate case denied recovery of around 25% of Duke Carolinas' spending on coal ash remediation, the balance of the order (which included recovery of development costs associated with a canceled nuclear project and an approved 53% equity ratio) was generally credit supportive. Duke Energy is planning to appeal the coal ash disallowance. On a positive note, the South Carolina order did continue authorization of the utility's ability to earn a full weighted average cost of capital return on its approved coal ash remediation spending. The order also shortened the recovery period to five years, versus a previously approved fifteen years.

In North Carolina (71% of retail rate base), the utility's July 2018 rate order authorized a partial settlement agreement with respect to certain traditional rate making parameters, such as return on equity (9.9%) and equity ratio (52%). The order also deemed spending for coal ash remediation to be reasonable and prudent and, with the exception of a specific, manageable penalty, authorized the company to recover its prior expenditures over five years with a full debt and equity return. Ongoing expenditures will continue to be deferred for future recovery, and thus remain subject to regulatory lag.

We view Duke Carolinas ability to earn a full return on its coal ash remediation 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. We note however that there is increasing regulatory uncertainty as a portion of these expenditures have been disallowed in South Carolina, while the North Carolina decision authorizing recovery has been appealed by the state Attorney General and the Public Staff. Depending on the outcome of these appeals, we may modify our treatment of the portion of expenditures that are not recoverable.

In both of Duke Carolinas' jurisdictions, the utility has historically been able to recover its prudently incurred costs, and it has been authorized equity returns and approved equity layers in the capital structure that have been among the most credit supportive in the U.S. However, Duke Carolinas' requests for rider recovery for grid modernization investments and ongoing coal ash remediation have been denied, a credit negative as it maintains the utility's exposure to regulatory lag.

In North Carolina, 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. On October 30th, the North Carolina House and Senate both approved a bill that, if signed by the Governor, will authorize securitization of storm costs; however, the more controversial proposal that would have allowed the implementation of alternative rate plans was dropped. Our stable outlook assumes that, in the absence of alternative rate mechanisms the company will continue to file frequent, likely annual, rate cases. The outlook also assumes and that regulatory outcomes will provide an opportunity for Duke Carolinas to maintain cash flow based credit metrics at levels that are supportive of its current credit quality.

In September 2019, Duke Carolinas filed a base rate case in North Carolina requesting an approximate 6% increase in revenue premised on a 53% equity ratio and a 10.3% return on equity. The filing also seeks recovery of $480 million of coal ash remediation costs deferred from January 2018-January 2020 over five years. The utility requested rates become effective no later than August 2020. Our stable outlook assumes Duke Carolinas will continue to be allowed to recover the majority of its coal ash remediation spending, and that it will be able to earn a return on the deferred balance.

Capital expenditures expected to remain elevated

Capital expenditures (inclusive of coal ash remediation spending) at Duke Carolinas have been on the rise, growing steadily from about $1.7 billion in 2013 to around $3 billion for the twelve months ending June 2019. We expect spending to remain near these levels for at least the next year or so as spending for new generation, environmental compliance and grid modernization investments in transmission and distribution continue.

Duke Carolina's current profile incorporates our expectation that the utility will continue to recover its capital expenditures as part of its rate proceedings. Although there will likely be some regulatory lag, particularly with regard to coal ash as discussed below, we expect the utility to seek to mitigate the lag through frequent rate case filings.

Coal ash remediation is well underway, but costs are rising 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 alternative closure options proposed by Duke for these six sites - Duke estimated full excavation would cost $4-$5 billion more than its previously projected aggregate cost of $5.6 billion to close all basins in the Carolinas. The company also believes in some cases excavation 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 and October 2019 the court issued orders 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.

Through June 2019, Duke Carolinas had spent approximately $1 billion on coal ash remediation. Management continues to refine the estimated cost of its coal ash remediation obligations as work continues on the sites and there is additional information around closure requirements. As of June 2019, Duke Energy's total asset retirement obligation relating to coal ash was reported at $6.5 billion (versus $4.8 billion in June 2018) and included $5.7 billion for the Carolinas. Duke Carolinas asset retirement obligation was reported as $2.9 billion versus $1.8 billion in June 2018.

As noted above, in its most recent South Carolina rate case, recovery of certain coal ash costs were denied. We expect the company to appeal this decision and 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.

Historically strong financial coverage metrics are being impacted by storm activity, coal ash remediation spend and delayed rate relief

Duke Carolinas' historically strong financial coverage metrics have been under pressure in recent years as the company has been spending for coal ash remediation, new generation, and grid modernization, while rates have essentially remained at levels established in 2013. Duke Carolina's 2018 rate order established a new base-line, and determined the utility's spending on coal ash remediation should be recovered over five years with a full return, a credit positive. However, the authorized increase in rates was entirely offset by a reduction in revenue due to the lower corporate tax rate.

In addition, in the second half of 2018, a succession of unusually severe storms resulted in over $1 billion of unplanned costs across Duke's territories in the Carolinas and Florida. The impact of the storms put downward pressure on financial metrics for all of the impacted utilities. For the twelve months ending June 2019, Duke Carolinas' ratio of CFO pre-WC to debt was around 25%. Absent the unusual storm activity, we estimate this ratio would have been around 26%.

Going forward, lag in the recovery of ongoing coal ash remediation spending and grid modernization will maintain negative pressure on financial credit metrics. As a result, Duke Carolinas will need to file regular, possibly annual, rate cases to help sustain credit metrics. In its current rate case filed in October, Duke Carolinas is requesting an approximate $290 million (6% rate increase) with rates to become effective no later than August 2020. Our stable outlook assumes that management will manage and finance Duke Carolinas relatively large capital expenditure program with a balanced mix of debt and equity, including the retention of utility cash flow, in a manner enables the utility to demonstrate financial credit metrics that are consistent with its credit profile. For example, a ratio of CFO pre-WC to debt above 25%, which is in the middle of the "A" scoring range for this factor in our rating methodology for regulated electric and gas utilities.

Environmental, social and governance considerations

Duke Carolinas has a moderate carbon transition risk within the regulated utility sector because, as an integrated utility, its generation ownership places it at a higher risk profile than transmission and distribution companies. As of December 31, 2018, approximately 33% of Duke Carolinas' 20,209 MW generation portfolio is coal fired. In 2018, Duke Carolina's generated energy was produced approximately 52% from nuclear fuel, which lowers the company's carbon footprint, 26% from coal, and 19% from natural gas. When considering all sources of energy, purchased power (which includes renewables), made up 11% of the energy supply, with nuclear contributing 46%, coal 23%, natural gas 17% and owned renewables 3%.

Natural gas is playing an important role in the company's plans to transition to a cleaner generation mix, and we expect the proportion of energy supplied by natural gas to increase as coal declines. In 2019, gas co-firing capability was added at the 1,388 MW Rodgers plant, and the 560 MW Ashville combined cycle plant is scheduled to come on line. By 2024, Duke Carolinas plans to retire three coal fired units at its Allen Station (totaling 604 MW) and to add 468 MW of gas-fired capacity at its Lincoln Station. By 2021, gas-firing optionality is planned at Duke Carolinas 2,220 MW Belews Creek and its 2,060 MW Marshall plants. The remaining two coal-fired Allen units (totaling 526 MW) are expected to be retired by 2028.

Liquidity Analysis

Given its large capital expenditure program, continuing dividends, and current borrowing capacity under Duke Energy's bank credit facility, Duke Carolinas is reliant on market access to maintain adequate liquidity. For the twelve months ended June 30, 2019, Duke Carolinas generated approximately $2.6 billion of cash from operations (CFO), invested approximately $2.8 billion in capital expenditures and up streamed approximately $250 million in dividend payments to parent Duke Energy, resulting in negative free cash flow (FCF) of $424 million. In 2018, Duke Carolinas generated approximately $2.5 billion of CFO, invested about $2.7 billion in capital expenditures and up streamed $750 million in dividend payments, resulting in negative FCF of $926 million. Going forward, we expect Duke Carolinas will remain cash flow negative.

Duke Carolinas' alternate liquidity sources include access to funding from the parent company's commercial paper program through the Duke Energy system money pool, and direct borrowings from the money pool. As of June 2019, the utility had $1.75 billion of borrowing capacity under Duke Energy's $8 billion master credit facility. As of June 2019, the utility had $1.1 billion of commercial paper outstanding, $4 million of letters of credit outstanding, and $250 million set aside to meet its obligations related to a May 2015 Plea Agreement with the US Department of Justice related to coal ash, reducing available capacity to $397 million from the parent master credit facility.

Duke Energy's $8 billion master credit facility terminates in March 2024. The 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. The debt to capitalization covenant for Piedmont is a maximum of 70%. As of June 2019, we estimate Duke Carolinas' ratio to be about 49%. Duke Carolinas' nearest long-term debt maturity is $450 million of first mortgage bonds due in June 2020.

Rating Methodology and Scorecard Factors

Exhibit 3

Rating Factors

Duke Energy Carolinas, LLC

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]	
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	A	A	A	A
Factor 3 : Diversification (10%)				
a) Market Position	A	A	A	A
b) Generation and Fuel Diversity	A	A	A	A
Factor 4 : Financial Strength (40%)				
a) CFO pre-WC + Interest / Interest (3 Year Avg)	7.1x	Aa	6.5x - 7x	Aa
b) CFO pre-WC / Debt (3 Year Avg)	26.2%	A	24% - 26%	A
c) CFO pre-WC – Dividends / Debt (3 Year Avg)	19.7%	A	16% - 19%	A
d) Debt / Capitalization (3 Year Avg)	41.2%	A	40% - 43%	A
Rating:				
Grid-Indicated Outcome Before Notching Adjustment		A1		A1
HoldCo Structural Subordination Notching	0	0	0	0
a) Scorecard-Indicated Outcome		A1		A1
b) Actual Rating Assigned		A1		A1

[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.
Source: Moody's Financial Metrics

Appendix

Exhibit 4

Cash Flow and Credit Metrics [1]

CF Metrics	Dec-15	Dec-16	Dec-17	Dec-18	LTM Jun-19
As Adjusted					
FFO	2,694	2,883	2,915	3,129	3,130
+/- Other	14	31	(71)	(267)	(175)
CFO Pre-WC	2,708	2,914	2,844	2,862	2,955
+/- ΔWC	(128)	349	54	(96)	(83)
CFO	2,580	3,263	2,898	2,766	2,872
- Div	401	2,000	625	750	250
- Capex	2,097	2,507	2,788	2,942	3,048
FCF	82	(1,244)	(515)	(926)	(426)
(CFO Pre-W/C) / Debt	31.5%	29.5%	27.2%	24.5%	24.6%
(CFO Pre-W/C - Dividends) / Debt	26.8%	9.3%	21.2%	18.1%	22.5%
FFO / Debt	31.3%	29.2%	27.9%	26.8%	26.1%
RCF / Debt	26.6%	9.0%	21.9%	20.4%	24.0%
Revenue	7,229	7,322	7,302	7,300	7,322
Cost of Good Sold	1,872	1,789	1,803	1,800	1,787
Interest Expense	456	469	474	482	491
Net Income	985	1,127	1,160	1,025	1,033
Total Assets	35,553	36,657	37,851	40,121	42,442
Total Liabilities	24,027	25,975	26,585	28,542	30,270
Total Equity	11,526	10,682	11,266	11,579	12,172

[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 5

Peer Comparison Table [1]

	Duke Energy Carolinas, LLC			Duke Energy Progress, LLC			Alabama Power Company			Virginia Electric and Power Company		
	A1 Stable			A2 Stable			A1 Stable			A2 Stable		
(in US millions)	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	7,302	7,300	7,322	5,129	5,699	5,819	6,039	6,032	5,977	7,556	7,619	7,945
CFO Pre-W/C	2,844	2,862	2,955	1,947	1,763	1,752	2,016	1,879	2,167	2,931	3,198	2,606
Total Debt	10,463	11,665	12,003	8,215	8,975	9,639	7,933	8,500	8,396	13,275	13,697	14,006
CFO Pre-W/C / Debt	27.2%	24.5%	24.6%	23.7%	19.6%	18.2%	25.4%	22.1%	25.8%	22.1%	23.3%	18.6%
CFO Pre-W/C – Dividends / Debt	21.2%	18.1%	22.5%	22.2%	17.7%	16.4%	16.5%	12.7%	16.1%	13.1%	20.0%	15.8%
Debt / Capitalization	41.6%	43.3%	43.0%	45.7%	46.1%	46.8%	44.6%	44.3%	40.8%	47.2%	46.2%	46.8%

[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 6

Category	Moody's Rating
DUKE ENERGY CAROLINAS, LLC	
Outlook	Stable
Issuer Rating	A1
First Mortgage Bonds	Aa2
Bkd Senior Secured	Aa2
Senior Unsecured	A1
PARENT: 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

Source: Moody's Investors Service

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