Institute for Energy Economics and Financial Analysis
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Memo on Duke Energy and Costs of Coal Ash Cleanup

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The Institute for Energy Economics and Financial Analysis (IEEFA) has reviewed the general financial condition of Duke Energy and its subsidiary, Duke Energy Carolinas, and offers the following perspective on the impact of the costs of coal as clean up on company finances.

IEEFA conducts research and analyses on financial and economic issues related to energy and the environment. This review was conducted by Tom Sanzillo, Director of Finance for IEEFA, who has 30 years of experience in public and private finance. He served as the first deputy comptroller of New York State, a job that put him in charge of the finances of 1,300 units of local government, the management of 44,000 government contracts annually, oversight of over $200 billion in state and local municipal bond programs and the head of a $156 billion pension fund.

Executive Summary

Duke Energy and its subsidiary Duke Energy Carolinas are well-positioned to provide the needed financial resources to cover the estimated $2-$10 billion cost of cleaning up its 14 coal ash sites in North Carolina. [1] The company has stated it will seek rate relief to offset these expenditures. The company is capable of absorbing the costs of the ash fill cleanup. Given recent rate increases, Duke Carolina and its parent Duke Energy do not require additional rate relief to offset cleanup costs. Taken as a whole, cleanup of coal ash sites should not have any material impact on long term stock performance.

The two entities can develop a financial plan over a period of years that combines: 1) additional borrowing by Duke Energy Carolinas; 2) cash resources from operating flows; 3) adjustments to the company capital projects portfolio (a capital expenditure program that already includes funds set aside for ash management); 4) slower dividend growth; 5) sales of underperforming or noncore assets and 6)

[1] Duke Energy, Form 10Q 2014 First Quarter, p. 45 (10Q-2014 Q1)

insurance. Prudent management of these financial resources should allow the company to undertake the cleanup without any material impact on long term company performance.

Overview

Duke Energy

Duke Energy benefits from solid financial fundamentals. Its rate base growth and consistent support from regulators have created a strong balance sheet. The operating performance of the company shows rising revenues, progress toward cost containment and significant operating revenue. Duke Energy is prudently leveraged with a robust, forward looking capital expenditure program. The company is working to realize financial synergies from its recent merger with Progress. The company pays the second highest dividend payments in the United States for investor-owned utilities. Its international operations in Latin America and Saudi Arabia are profitable and productive.[2] The company is assessing those operations[3] and also divesting a significant portion of its merchant coal plant fleet.

Duke Energy is the largest investor-owned utility by market capitalization in the United States.[4] The company reported $114 billion in assets in 2013.[5] Duke Energy anticipates spending $19.8-$21.7 billion on capital expenditures over the next three years.[6] [7] The company invests between $4 and $5 billion annually out of its annual cash flow of approximately $7 billion.[8] The company is prepared to use $6.8 billion in dividend payments over the next three years. Some analysts anticipate dividend payments will increase further.[9] At the end of 2013 the company had operating income of $4.9 billion.[10]

Duke Energy has maintained prudent borrowing policies. In 2013, Duke Energy received $24.6 billion in revenue and paid 6.1%, or $1.5 billion, in interest expenses.[11] According to the Edison Electric

[2] Duke International has an interest in a methanol production deal in Saudia Arabia and has power generation plants through Latin America in Brazil, Chile, Ecuador, Peru, Arentina, El Salvador and Guatemala, Duke Energy, 2013 Form 10K, p. 15.
[3] UBS, *Duke Energy: Gaining Clarity on a Turnaround*, June 9, 2014
[4] EEI, 2013 Financial Review
[5] Duke Energy, 2013 Form 10K, p. 79 (2013 Form 10K)
[6] 2013 Form 10K, p. 61
[7] One analyst identified more than $2 billion already set aside for ash management projects, *Seeking Alpha, Duke Energy: The Horizon Looks Bright on all fronts*, June 6, 2014 (Seeking Alpha)
[8] 2013 Form 10K, p. 64
[9] Seeking Alpha
[10] 2013 Form 10K, p. 77
[11] 2013 Form 10K, p. 77

Institute, the average for interest expenses for all investor-owned utilities in 2013 was 6.5%. The company carried $38.2 billion in long term debt.[12] Duke Energy has a credit rating of BBB from Standard and Poor's and BBB+ from Fitch, slightly above the national average for all investor-owned utilities.

Duke Energy Carolinas

Duke Energy Carolinas is the premier financial performer in the Duke Energy portfolio. It provides the largest contribution to the company's generation output and provides significant support to most of the company's fundamental financial measures.

Duke Energy Carolinas is capable of generating additional cash and borrowing to pay for a significant portion of the coal ash cleanup expense. The remainder of the cleanup can be financed through a combination of resources identified in Table I. Duke Energy Carolinas received $6.9 billion in revenue in 2013 (28% of Duke Energy's revenues) and spent 5.2% of revenue, $359 million, for interest expenses. This is below Duke's average and appreciably below the national average for all utilities. Duke Energy Carolinas ended 2013 with $1.8 billion in operating revenue, or 36% of Duke Energy's overall operating revenue. Duke Energy Carolinas carried $8.1 billion in long term debt.

Table I: Resources Available for Dan River and other ash basin cleanup

Source	Amount ($ billion)	Status
Planned CAPEX next three years [1]	$19.8-$21.9	Committed
Additional Borrowing by Duke Energy/Carolina (12 mths)	$2.20	Available
Annual Operating Cash Flow over next three years	$7.70	Available
Asset Sales – International and Commercial Power Plants	undetermined	Available
Planned Dividend Distributions next three years	$6.80	Available
Insurance	undetermined	Available

Duke Energy Carolinas has a BBB+ rating from Standard and Poor's and an A rating from Fitch. Both ratings exceed the national average.

[12] 2013 Form 10K, p. 79

Costs of coal ash cleanup

In its first quarter 2014 financial report, Duke Energy notified its shareholders of the Dan River ash spill and said it would not seek recovery of clean-up costs from ratepayers:

> On February 2, 2014, a break in a 48-inch stormwater pipe beneath an ash basin at Duke Energy Carolinas' retired Dan River steam station caused a release of ash basin water and ash into the Dan River. On February 8, 2014, a permanent plug was installed in the 48-inch stormwater pipe stopping the release of materials into the river. On February 21, 2014, a permanent plug was installed in a 36-inch stormwater pipe beneath the ash basin. Duke Energy Carolinas estimates 30,000 to 39,000 tons of ash and 24 million to 27 million gallons of basin water were released into the river during the incident. Duke Energy Carolinas incurred approximately $15 million of repairs and remediation expense related to this incident during the three months ended March 31, 2014. This amount is recorded in Operations, maintenance and other on the Condensed Consolidated Statements of Operations and Comprehensive Income. Duke Energy Carolinas will not seek recovery of these costs from ratepayers. Other costs related to the Dan River release and other ash basins, including regulatory directives, natural resources damages, pending litigation, future claims or litigation, long-term environmental impact costs, long-term operational changes, and costs associated with new laws and regulations cannot be reasonably estimated at this time. However, the total costs to be incurred to remediate the Dan River ash release are not expected to be material. [13]

The spill has resulted in a series of investigations by state and federal officials. Duke Energy has also received a subpoena from the United States Attorney.

Duke also provided an estimate of a range of clean-up costs for all of its ash sites in North Carolina on April 22, 2014. Duke's preliminary estimate of the total costs for cleanup is between $2 and $10 billion, contingent on regulatory, legal responses and the results of the company's engineering analysis. The company stated that it anticipates recovering prudent costs of the clean up as permitted by the relevant state Public Service Commissions.[14] [15] Duke's first quarter 2014 report includes the following summary:

> On April 22, 2014, a representative of Duke Energy appeared before the Environmental Review Commission of the North Carolina General Assembly and outlined cost estimates for a range of ash handling and ash basin closure options. The table below summarizes estimated costs of various potential approaches to ash management for North Carolina ash basins. These amounts represent a rough order of magnitude and are not detailed engineering grade estimates. The estimates assume coal ash will retain a

[13] 10Q-2014 Q1, p. 44
[14] 10Q-2014 Q1, p. 45
[15] One recent article suggested the number of actual ash sites could be as high as 70. Rural NC sites become dumping grounds for unwanted coal ash, *News Observer*, May 22, 2014

non-hazardous designation by the EPA and exclude financing costs. Any ultimate activities and resultant costs will be dependent upon state and federal environmental requirements. Cost recovery for these expenditures will be pursued through the normal ratemaking process with state utility commissions, which permits the recovery of necessary and prudently incurred costs associated with Duke Energy's regulated operations. Duke Energy records asset retirement obligations when it has a legal obligation to incur retirement costs associated with the retirement of a long-lived asset and the obligation can be reasonably estimated. Duke Energy has not recorded an asset retirement obligation related to these proposals as a legal obligation has not yet been incurred. As the necessary approvals are obtained to permit the work to proceed an asset retirement obligation could be recorded.

(in billions)	Range
Baseline assumptions(a)	$ 2.0 - 2.5
Estimated additional costs related to full excavation (b)	$ 4.0 - 5.5
Estimated additional costs related to all-dry systems (c)	$ 1.0 - 2.0
Total range of costs	**$ 2.0 - 10.0**

(a) Assumes (i) hybrid cap in place closure for ash basins at ten coal plants, (ii) excavation and relocation of ash to lined structural fills or landfills for the retired Dan River, Riverbend and Sutton coal plants, (iii) dry fly ash conversion at the Asheville units and Cliffside Unit 5, (iv) continued structural fill disposal for the Asheville coal plant, and (v) dry bottom ash handling conversions and fly ash reliability improvements. Includes costs for actions noted in the March 12, 2014 letter to the Governor of North Carolina and existing plans to close ash basins. (b) Represents estimated additional costs to excavate and relocate ash to lined landfills for the ten plants under hybrid cap in place closure in the baseline assumptions. (c) Represents estimated additional costs to convert all active coal plants to all-dry pneumatic bottom ash handling systems and thermally-driven evaporation of other process water.

Conclusion

Duke Energy and its subsidiary Duke Energy Carolinas are well-positioned to provide the necessary financial resources required to fund a $2-$10 billion coal ash site cleanup. The two entities can develop a financial plan over a period of years that combines: 1) additional borrowing by Duke Energy Carolinas; 2) cash resources from operating flows; 3) adjustments to the company capital projects portfolio (a capital expenditure program that already includes funds set aside for ash management); 4) slower dividend growth; and 5) sales of underperforming assets. Prudent management of these financial resources should allow the company to undertake the cleanup without any material impact on long term company performance.