



## DUKE ENERGY CORPORATION

### Shareholder Proposal: Report on Plan and Progress in Reaching Goals to Reduce Exposure to Coal Risk

#### **DUKE REMAINS HEAVILY DEPENDENT ON COAL-FIRED GENERATION BUT IT HAS NOT DISCLOSED TO INVESTORS HOW IT WILL MITIGATE THE FINANCIAL AND REGULATORY RISKS FROM ITS RELIANCE ON COAL**

As You Sow, on behalf of shareowners, filed a resolution requesting that Duke's Board of Directors report to shareholders: "on plans to reduce our company's exposure to coal-related costs and risks, including progress toward achieving specific goals to minimize commodity risks, emissions other than greenhouse gases, costs of environmental compliance, and construction risks."

*Duke faces significant financial risks due to its reliance on coal:*

1. Increasing price pressures and price volatility of coal;
2. Competition from natural gas and alternative generation sources;
3. Increasing capital costs for emissions control;
4. Construction cost overruns for its new coal facilities;
5. Cost and technical feasibility of carbon capture and storage for coal plants.

#### **Introduction**

Duke Energy Corporation, which supplies electricity to approximately 4 million customers in the Carolinas and the Midwest, is in the process of a merger with Progress Energy, a Southeastern utility. Once completed, the combined company will be the nation's largest utility, with more than 7 million customers in North Carolina, South Carolina, Florida, Indiana, Kentucky, and Ohio. The combined company will be a regulated utility in North Carolina, South Carolina, Indiana, Kentucky, Ohio, and Florida and will operate as a merchant generator in the MISO and PJM power markets.

The combined company, with approximately 57,000 MW of capacity, will depend on coal for 42% of its generating capacity, 11% of which lacks scrubbers for SO<sub>x</sub> control.<sup>1</sup> Fitch Ratings ranked Duke fifth among top ten U.S. utilities with coal units lacking SO<sub>x</sub> controls that are at risk of retirement; 25% (3,247 MW) of the company's total coal capacity is deemed at-risk.<sup>2</sup>

Duke Energy Corporation's issuer rating/corporate credit are rated Baa2 and A- by Moody's and S&P, respectively. Duke's senior unsecured ratings are Baa2 from Moody's and BBB+ from S&P.<sup>3</sup>

Duke has acknowledged that reliance on coal exposes the company to the risks identified in As You Sow's shareholder proposal. However, the company is doubling down on its coal investments by acquiring Progress and building new coal facilities in Edwardsport, IN, and Cliffside, NC. Both of these new coal projects are in serious trouble with combined construction cost overruns that exceed \$1.5 billion. Indiana's Governor has stated that Duke's shareholders, not ratepayers, should be responsible for \$920 million of Edwardsport's overruns.<sup>4</sup>

While Duke admits that the risks discussed below have the potential to adversely impact the



company, it has not disclosed a plan for how it will mitigate them.

### **The Duke-Progress Generation Fleet**

The combined Duke-Progress fleet will have 89 coal units at 30 plants; 49 coal units at 16 plants lack scrubbers for SO<sub>x</sub> controls and 41 units at 14 plants operate without SCR or SNCR for NO<sub>x</sub> control.<sup>5</sup> The average age of the combined company's regulated coal units is 46.7 years with a 300 MW unit capacity and 42.7 years for merchant units with an average 451 MW capacity.

Duke has announced the retirement of 3,300 MW of coal at eight plants: Dan River, Riverbend, Lee, Buck Units 5 and 6, Wabash River, Gallagher, Beckjord, and Miami Fort Unit 6. Progress will be retiring 4 coal plants: Cape Fear, Lee, LV Sutton, and Weatherspoon.

After these coal plants retire, the average age of the combined company's regulated fleet will be 41.3 years with an average unit capacity of 447 MW and its merchant units will be 35.6 years on average with a 621 MW unit capacity average.<sup>6</sup>

Post-retirement, 11 units at 9 plants will lack scrubbers for SO<sub>x</sub> control and 10 units at 9 plants will lack modern NO<sub>x</sub> controls (SCR, SNCR). None of Duke-Progress' coal units have mercury controls installed.<sup>7</sup>

Utility analysts agree that older, smaller, plants without control technology are uneconomical.<sup>8</sup> In November 2011, Fitch ratings ranked Duke #5 among the top 10 utilities with at-risk coal units with no Sox controls, with 25% of its total coal capacity at risk of retirement.<sup>9</sup> The Electric Power Research Institute (an industry sponsored organization) estimates that installation of one SO<sub>2</sub> scrubber on a 500 MW plant in the Midwest would cost about \$420/kW, or \$210 million.<sup>10</sup> The cost per kW would be higher for a scrubber installed on a unit with lower capacity such as Duke's Allen Steam Plant, Buck, Marshall, Crystal River, and H B Robinson units.

While the company's unregulated coal plants enjoy capacity payments from the PJM, capacity prices for periods beginning June 2011 and continuing through May 2014 will be significantly lower than current and historical capacity prices, resulting in negative impacts through 2014 for Duke's merchant company's operating and revenues and EBT.<sup>11</sup>

Although Duke is retiring coal units, it is investing in new coal plants at Cliffside, NC, and Edwardsport, IN, as discussed below (see Construction Risk). Duke's reliance on coal leaves the company particularly susceptible to the risks identified by industry analysts and the As You Sow resolution.

### **1. Increasing price and price volatility of coal**

Both Duke<sup>12</sup> and Progress<sup>13</sup> source their coal from Central Appalachia and the Illinois Basin. In 2011, Duke and Progress combined sourced 53% of their coal from Illinois Basin and 46% from Central Appalachia. Duke acknowledges that "wholesale electric prices are influenced primarily by market conditions and fuel costs."<sup>14</sup> The average coal fuel costs have increased by 10% for Duke and 3% for Progress since 2009.<sup>15</sup>

Between December 2009 and October 2011, the price of CAPP coal has increased 48% and ILB coal has increased 20%.<sup>16</sup> Although CAPP coal recently plunged to a two-year low of \$58 per



metric ton, U.S. mining companies are shoring up profits by exporting more coal to take advantage of international markets where prices are considerably higher, with Japanese utilities paying as much as \$115 per metric ton.<sup>17</sup>

Domestic coal is no longer captive of domestic demand and U.S. utilities will be paying prices that increasingly reflect global demand for coal. Industry analysts project that going forward coal “price swings will be more erratic and of greater magnitude.”<sup>18</sup> This is due to several factors: depletion of economically recoverable CAPP reserves; increased demand (domestic and international) for low-sulfur PRB coal; and increasing exports. This suggests that coal supply, quality, and price problems will only increase and the growing competitiveness of alternative resources will make coal an increasingly less economical choice for electricity generation.

### **2. Competition from natural gas and alternative generation sources**

Duke Energy’s merchant arm, Commercial Power, markets and sells power through the PJM and MISO competitive wholesale markets. Duke acknowledges that recent commodity pricing trends have led to more gas-fired generation being dispatched to meet customer demands<sup>19</sup> and the continuation of these trends could result in additional costs for managing the company’s coal inventory and increased purchased power.<sup>20</sup>

According to the EIA, “natural gas combined-cycle units operate at higher efficiency than do older, coal-fired units, which increases the competitiveness of natural gas relative to coal.”<sup>21</sup> The 2011 PJM State of the Market Report confirms that last year the market was good for natural gas, bad for coal:

- The report noted that gas prices fell and coal prices rose in 2011. Gas prices decreased on average by 10% and coal prices increased on average by 19% in 2011.
- The report concluded that the market results in 2011 were generally positive for gas fired units, especially new combined cycle units. Total new entrant combined cycle revenues were generally higher in 2011 and exceeded the threshold to incent new entry for most zones.
- The report concluded that the market results in 2011 were generally negative for coal fired units, especially older, smaller coal fired units. The profitability of coal units declined as a result of declining revenues and increased costs. The situation was worse for units requiring additional investments to meet environmental regulations.<sup>22</sup>

The cost of delivered coal per net KW-hour generated for Duke’s coal plants has increased 10% since 2009, while the cost of delivered gas has decreased 23.6%.<sup>23</sup> Deutsche Bank calculates that it is more economical to burn natural gas than coal to generate electricity when natural gas costs \$4-6/mmBtu.<sup>24</sup> The Henry Hub price for natural gas is projected to be \$6 in 2025.<sup>25</sup> Lazard Ltd. calculated the levelized cost<sup>26</sup> of electricity for wind, in most cases, as less than that for coal and thin-film, biomass, and geothermal are, in many cases, less than that for coal.<sup>27</sup>

In its report on “Levelized Cost of New Generation Resources in the Annual Energy Outlook 2011,” the EIA compares costs for generating technologies brought on line in 2016. Allowing for regional variation in levelized cost, EIA found that the most expensive advanced combined cycle gas plant costs less (\$70.5/MWh in 2009 dollars) than the least expensive new conventional coal plant (\$85.5/MWh in 2009 dollars). According to EIA, the levelized cost for the least expensive



wind power is cheaper (\$81.9/MWh in 2009 dollars) than the least expensive conventional coal plant.<sup>28</sup>

### **3. Increasing capital costs for emissions control**

Coal dependent utilities face increased capital costs for emissions controls for their coal plants. Duke admits that its businesses are subject to numerous environmental laws and regulations affecting present and future operations, including: “air emissions (such as reducing NO<sub>x</sub>, SO<sub>x</sub>, mercury, and greenhouse gas emission in the US), water quality, wastewater discharges, solid waste and hazardous waste.” According to the company these regulations will require significant capital expenditures that could increase the company’s cost of operations and could expose the company to environmental liabilities.<sup>29</sup>

As noted above, Duke plans to retire eight coal plants that do not have the required emissions control equipment to meet pending and future regulations by 2015.<sup>30</sup> Progress will retire four unscrubbed coal plants by 2014 to address “growing environmental constraints on coal-fired generation.”<sup>31</sup> Yet, even after these retirements, 44% of the Duke-Progress fleet will lack scrubbers, 40% will lack NO<sub>x</sub> controls (SNCR or SCR), 24% will lack both scrubbers and NO<sub>x</sub> controls.

In its Statement in Opposition to the As You Sow resolution, Duke points to information it has provided to the Carbon Disclosure Project about its carbon emissions and the fact that the IGCC unit at the troubled Edwardsport facility “will reduce emissions by as much as 45% per megawatt hour.” However, Duke has not disclosed how it will control emissions across its entire coal fleet, particularly at plants that lack scrubbers or other necessary control equipment.

Pending regulation of the air, water, and waste impacts of coal plants and the prospect of more stringent enforcement of existing regulations make it highly likely that additional capital expenditures will be needed in the coming years to meet environmental standards for operating coal plants.

In the absence of a national energy policy, utilities face incremental mandates and continued uncertainty over the scope and timing of environmental rules. This further elevates the risks for companies that must decide now whether or not to invest in aging coal fleets. Several of the EPA initiatives affecting coal plants (Cross State Air Pollution Rule, mercury, cooling water intake) are proceeding pursuant to court orders, while others are tied up in litigation. Congressional efforts to stop EPA regulations have ended in stalemate. However, it is very probable that, over the decades-long expected life of these investments, coal-dependent utilities will be forced to internalize even more of their environmental damage costs. Senator Jay Rockefeller, from the coal state of West Virginia, has stated: “Greenhouse gas emissions are not healthy for the earth. It will not go away if we ignore the issue. There will be some additional regulations.”<sup>32</sup>

Duke has \$4.5 to \$5 billion slated for capital expenses related to pollution controls over the next 10 years.<sup>33</sup> Duke Carolina’s economist testified in rate proceedings that its capital expenditure program is “significant” and “could materially dilute the Company’s current earnings and cash flows.”<sup>34</sup> The company acknowledges that regulatory actions are subject to considerable uncertainty.<sup>35</sup> Progress estimates capital expenditures of \$50 million, \$95 million and \$200 million in environmental compliance for 2012, 2013, and 2014, respectively.<sup>36</sup>



Duke's coal ash is predominantly stored in wet handling ash ponds on-site; these present significant future financial and litigation risks. Twelve of Duke's coal plants have on-site ash ponds. Ten of these are noted by the EPA to have a hazard potential – a high risk for six of them, and a significant risk for three.<sup>37</sup> Cliffside pond experienced “a significant localized flood event” and the W.C. Beckjord pond was noted<sup>38</sup> for significant deterioration around the embankment.<sup>39</sup>

Duke Energy estimates that it will spend \$259 million (\$78 million at Duke Energy Carolinas, \$63 million at Duke Energy Ohio and \$118 million at Duke Energy Indiana) between 2012 and 2016 to install synthetic caps and liners at existing and new landfills and to convert some of its coal combustion products from wet to dry systems to comply with current regulations.<sup>40</sup>

Duke is currently facing regulatory enforcement actions and litigation due to its failure to comply with environmental and safety regulations. In 2000 the EPA cited 29 projects performed at 25 of Duke's plants for New Source Review (NSR) violations. Some of the claims were dropped, but a trial on the remaining claims will be scheduled for the second part of 2012.<sup>41</sup> An adverse finding on the NSR violations could force Duke to either retire the plants or bring them into compliance with standards for new generating units.

#### **4. Risks related to Construction and Cost Recovery**

Duke is investing in new coal-fired power plants: an 800 MW unit (Unit 6) at Cliffside, NC, and a 618 MW IGCC plant in Edwardsport, IN.<sup>42</sup> The company faces significant construction risk on these projects which have far exceeded initial cost projections. Construction costs at Cliffside Unit 6 have risen to \$2.4 billion from the \$1.8 billion originally estimated. The Edwardsport IGCC plant's cost has skyrocketed from \$1.985 billion to \$3.3 billion.<sup>43</sup>

Duke Energy Indiana recorded a pre-tax impairment charge of approximately \$222 million related to costs expected to be incurred above its proposed cost cap for the the Edwardsport IGCC project.<sup>44</sup> Edwardsport's costs over \$2.76 Billion are subject to “prudence review” in the next base rate increase.<sup>45</sup> Cost overruns for the new coal plants raise the prospect of disallowance of these costs by regulators. Indiana's Governor has stated that Duke, not ratepayers, should be responsible for \$920 million of Edwardsport's cost overruns.<sup>46</sup>

Cost recovery for Edwardsport could also be jeopardized by the ethics scandal regarding Duke's improper communications with regulators about the Edwardsport project. A former state utility regulator has been indicted, and Duke Energy executives are currently under investigation for possible fraud, concealment, and gross mismanagement related to the Edwardsport plant.<sup>47</sup>

Bernstein Research points out that Duke Energy's regulated subsidiaries face additional risk because they are in jurisdictions where rates are set based on the utility's cost of service in a historic test year:

Such backward looking rate setting mechanisms are disadvantageous when rate base is expanding rapidly, as rates set on the basis of historic test years fail to compensate adequately for rapidly rising depreciation and interest expense. This problem is compounded when regulated utilities are prevented from filing rate cases on an annual basis. Duke suffers from both disadvantages: in the Carolinas, Duke's 2010 rates are



based on a 2008 test year, but the company may not file a new rate case until 2011, with any change in rates taking effect no sooner than 2012.<sup>48</sup>

### **5. Cost and technical feasibility of carbon capture and storage at coal plants**

Duke is evaluating the cost and feasibility of Carbon Capture and Storage (CCS) at Edwardsport. However, the FutureGen 2.0 project to demonstrate CCS technology at Ameren's Meredosia plant was set back when Ameren withdrew from the project, citing fiscal concerns.<sup>49</sup> The estimated cost to retrofit one unit at the Meredosia plant is \$1.65 billion.<sup>50</sup>

According to the EIA, the levelized cost of the most expensive advanced combined cycle gas plant with CCS is \$104 per MWH (in 2009 dollars) while the cost of the least expensive advanced coal plant with CCS exceeds \$126 per MWH (in 2009 dollar).<sup>51</sup> The General Accounting Office found that CCS technology will increase the cost of coal-fired electricity by 30% to 80% above current levels.<sup>52</sup>

The EPA, in promulgating its rules on Best Available Control Technology for greenhouse gas emissions, recognized that "at present CCS is an expensive technology, largely because of costs associated with CO<sub>2</sub> capture and compression, and these costs will generally make the price of electricity from power plants with CCS uncompetitive compared to electricity from plants with other GHG controls."<sup>53</sup>

### **Conclusion**

While Duke acknowledges that commodity, environmental compliance, and construction risks are having or will have an impact on the financial performance of its coal fleet, the company has not disclosed to investors how the company plans to mitigate these risks.

Duke and Progress source over 40% of their coal from Central Appalachia. The combined company faces increased risks as economically recoverable reserves of coal from that region are shrinking, more CAPP coal is being exported, and long-term price pressures may make CAPP coal uneconomical for Duke and other domestic utilities. Current and predicted future natural gas prices that are competitive with coal will make natural gas the price-setter in electric power markets and make Duke's merchant coal plants increasingly problematic to maintain, retrofit, and run.

According to Fitch Ratings, fully 25% of Duke's total coal capacity is at risk of retirement due to lack of environmental controls. While Duke emphasizes that the Edwardsport IGCC plant will reduce emissions, Edwardsport is only one plant. The combined Duke-Progress fleet will have 11 unscrubbed coal units, 10 units without NO<sub>x</sub> controls, and all of the plants will require mercury controls.

Although Duke and Progress are retiring some coal plants, Duke is investing in two new coal plants which have vastly exceeded original cost estimates. The company is embroiled in allegations of illegality regarding the Edwardsport project that could jeopardize cost recovery for that plant.

Duke's planned investment in CCS at Edwardsport presents another financial risk as the technology has not yet been proven viable at an operating coal plant and the costs may be



prohibitive. Duke supports regulation to prevent dangerous climate change. But what is Duke's plan to reduce carbon emissions from its coal fleet if CCS is not viable or affordable?

At a time when coal's share of the U.S. electric power market is shrinking and coal assets are losing value, investors must exercise enhanced diligence regarding investments in coal-dependent utilities. Enhanced diligence requires greater transparency from companies about their plans to mitigate the risks of reliance on coal.

Investors need for Duke to disclose its plans to mitigate its coal risks, not simply disclose that they exist. Duke's mitigation plan should provide specific goals to reduce those risks so that investors will be able to benchmark our company's progress in reducing these material risks to shareholder value.

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<sup>1</sup> "Duke Energy and Progress Energy to Merge: Creating the leading U.S. Utility," Duke Energy, accessed March 14, 2012, <http://www.duke-energy.com/progress-energy-merger/assets/pdfs/Duke-Progress-Merger-Fact-Sheet.pdf>.

<sup>2</sup> B. Mahendale, D. Pidhemy, and P. W. Smyth, "Time to Retire II? The Update to Coal Plant Retirements," *Fitch Ratings*, November 17, 2011.

<sup>3</sup> "Credit Ratings," Duke Energy, accessed March 14, 2012, <http://www.duke-energy.com/investors/fixed-income-investors/credit-ratings.asp>.

<sup>4</sup> "Daniels: Duke Energy Should Underwrite Edwardsport Plant Governor Wants Plant Built, But Only If Duke Foots The Bill," *The Indy Channel*, July 15, 2011, <http://www.theindychannel.com/news/28565307/detail.html>.

<sup>5</sup> "National Electric Energy Data System (NEEDS) v.4.10," Environmental Protection Agency, last updated September 8, 2010, <http://www.epa.gov/airmarkets/progsregs/epa-ipm/BaseCasev410.html#documentation>

<sup>6</sup> "National Electric Energy Data System (NEEDS) v.4.10."

<sup>7</sup> "National Electric Energy Data System (NEEDS) v.4.10."

<sup>8</sup> H. Wynne, F. D. Broquin, and S. Singh, "U.S. Utilities: A Visit to Washington Finds Utility Lobbyists & Environmentalists Agreeing on the Grim Outlook for Coal," *Bernstein Research*, March 9, 2010. M. J. Bradley & Associates, LLC and Analysis Group, "Ensuring A Clean, Modern Electric Generation Fleet while Maintaining Electric Reliability," *M.J. Bradley & Associates, LLC*, August 2010. The Brattle Group, "Potential Coal Plant Retirements Under Emerging Environmental Regulations," December 8, 2010. Fahey, "Why Small Coal-Fired Plants Are Going Away," *Forbes*, July 19, 2010.

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<sup>10</sup> H. Wynne, F. D. Broquin, and S. Singh, "U.S. Utilities: A Visit to Washington Finds Utility Lobbyists & Environmentalists Agreeing on the Grim Outlook for Coal," *Bernstein Research*, March 9, 2010, 2.



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- <sup>12</sup> Duke Energy. *2011 10-K*, 12.
- <sup>13</sup> Progress Energy, *2011 10K*, accessed March 14, 2012, 21.
- <sup>14</sup> Duke Energy. *2011 10-K*, 9.
- <sup>15</sup> Duke Energy. *2011 10-K* 12. Progress Energy. *2011 10-K*, 25.
- <sup>16</sup> "Coal News and Markets," *U.S. Energy Information Administration*, accessed October 18, 2011, [http://www.eia.gov/coal/news\\_markets/](http://www.eia.gov/coal/news_markets/).
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- <sup>19</sup> Duke Energy. *2011 10-K*, 10.
- <sup>20</sup> Duke Energy. *2011 10-K*, 22.
- <sup>21</sup> D. Lowrey, "Coal's share of US electricity generation falls below 40% at end of 2011," *Financial Times*, March 12, 2012.
- <sup>22</sup> "2011 State of the Market Report for PJM Released," PRNewswire, March 15, 2012 <http://www.prnewswire.com/news-releases/2011-state-of-the-market-report-for-pjm-released-142804305.html>
- <sup>23</sup> Calculated from Duke Energy, *2011 10-K*, 12
- <sup>24</sup> Deutsche Bank Climate Change Advisors, "Natural Gas and Renewables: A Secure Low Carbon Future Energy Plan for the United States, Executive Summary," November 2010, 4.
- <sup>25</sup> "Annual Energy Outlook 2011," US Energy Information Administration, April 2011, 78, [http://www.eia.gov/forecasts/aeo/pdf/0383\(2011\).pdf](http://www.eia.gov/forecasts/aeo/pdf/0383(2011).pdf). Futures for natural gas are traded on the New York Mercantile Exchange (NYMEX). Prices for gas delivered to the Henry Hub (a point on the natural gas pipeline) are used as benchmarks for the natural gas market.
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- <sup>30</sup> Duke Energy. *2011 10-K*, 12.
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