

COMMONWEALTH OF KENTUCKY  
BEFORE THE PUBLIC SERVICE COMMISSION

In the Matter of:

THE APPLICATION OF EAST KENTUCKY POWER	)	
COOPERATIVE, INC. FOR A CERTIFICATE OF	)	
PUBLIC CONVENIENCE AND NECESSITY FOR THE	)	CASE NO.
CONSTRUCTION OF AN AIR QUALITY CONTROL	)	2008-00472
SYSTEM AT COOPER POWER STATION	)	

ORDER

East Kentucky Power Cooperative, Inc. ("East Kentucky") filed its application on November 14, 2008 for a Certificate of Public Convenience and Necessity ("CPCN") for the construction of an Air Quality Control System ("AQCS") at its J.S. Cooper Generating Station ("Cooper") near Burnside, Kentucky. The estimated cost for the AQCS is \$324 million.

On September 24, 2007, the U.S. District Court for the Eastern District of Kentucky entered a Consent Decree between East Kentucky and the United States Environmental Protection Agency ("EPA"). The Consent Decree was for the purpose of resolving claims by the EPA against East Kentucky for violations of the Clean Air Act. Under the Consent Decree, East Kentucky has two principal options: either install and continuously operate nitrogen oxide ("NOx") emission controls and sulfur dioxide ("SO<sub>2</sub>") emission controls at Cooper Unit 2 by December 31, 2012 and June 30, 2012, respectively, or retire and permanently cease operation of Dale Units 3 and 4 by December 31, 2012.<sup>1</sup> In addition, East Kentucky has the option to retire the two Dale units by December 31, 2012 and repower them by May 31, 2014. Burns & McDonnell,

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<sup>1</sup> Direct Testimony of Julia J. Tucker at 2.

an engineering consulting firm, was retained by East Kentucky to assist in its evaluation to determine the best option to comply with the Consent Decree.

East Kentucky considered four options relating to Cooper Station and four options relating to Dale Station to meet the obligations of the Consent Decree. Burns & McDonnell developed performance data, capital cost estimates, and operation and maintenance cost estimates for each option. The options analyzed are shown below.

- Cooper 2 Dry Scrubber
- Cooper 2 Wet Scrubber
- Cooper 1 & 2 Wet Scrubbers
- Cooper 1 & 2 Repower with Circulating Fluidized Bed (“CFB”)
- Retire Dale 1-4<sup>2</sup>
- Repower Dale 3 & 4 with Gas - Combined Cycle (2-1x1 7FA)
- Repower Dale 3 & 4 with Gas - Combined Cycle (2-1x1 7EA)
- Repower Dale 3 & 4 with CFB

A 20-year Net Present Value (“NPV”) analysis showed that the costs of the eight alternatives range from \$7.6 billion to \$8.8 billion.<sup>3</sup> Based on these results, East Kentucky determined the four best alternatives, which are listed below.

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<sup>2</sup> While the Consent Decree option only requires Dale Units 3 and 4 to be retired, because Units 1 and 2 represent less than 25 percent of Dale Station’s total generating capacity, East Kentucky did not consider the continued operation of just the two smaller units to be a viable plan. Response to Staff Data Request 1, Item 2.a.

<sup>3</sup> East Kentucky Application, Exhibit 3 at 41.

<u>Alternatives</u>	<u>Total 20-Year NPV Cost</u>
Case 1 (Scrub Cooper)	\$7.93 Billion
Case 2 (Retire Dale)	\$7.60 Billion
Case 3 (Repower Dale with Gas)	\$8.18 Billion
Case 4 (Repower Dale with CFB)	\$8.26 Billion

East Kentucky indicated that, at the time the Burns & McDonnell analysis was being conducted, it assumed that it would have to meet the requirements of the Clean Air Interstate Rule (“CAIR”) and Best Available Retrofit Technology (“BART”) as proposed by the EPA.<sup>4</sup> The CAIR Final Rule appeared in the Federal Register on May 12, 2005 and established federally-required emissions thresholds for SO<sub>2</sub>, NO<sub>x</sub>, and particulate matter (“PM”) pollution.<sup>5</sup> CAIR was vacated by the D.C. Circuit Court of Appeals on July 11, 2008,<sup>6</sup> although the court has since stayed the effect of its order pending further rulemaking by the EPA, which is expected to result in regulations similar to those proposed under CAIR.

In Kentucky, CAIR resulted in lower emission requirements than BART for both SO<sub>2</sub> and NO<sub>x</sub>. Therefore, BART was applied only to PM emissions for those units that were built and completed between 1962 and 1977.<sup>7</sup> East Kentucky has four units that

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<sup>4</sup> Id. at 42.

<sup>5</sup> Direct Testimony of John R. Twitchell at 4.

<sup>6</sup> Id.

<sup>7</sup> Id. at 5.

meet the criteria for BART (Spurlock 1 and 2, Cooper 1 and 2).<sup>8</sup> The Kentucky Division for Air Quality required East Kentucky to meet the regulations under BART for PM as proposed in Kentucky's state implementation plan ("SIP"),<sup>9</sup> which was submitted to the EPA in June 2008.<sup>10</sup> For Cooper Station, Kentucky's SIP included a Wet Flue Gas Desulfurization ("Wet FGD") process and a Wet Electrostatic Precipitator ("Wet ESP") as the appropriate strategy for BART. Even though CAIR was vacated, the Kentucky SIP was not modified and still reflects the former CAIR requirements for SO<sub>2</sub> and NO<sub>x</sub>.<sup>11</sup> While all four alternatives included in its final analysis would satisfy East Kentucky's need to comply with the Consent Decree, the "scrub Cooper" alternative is the only one that will also achieve compliance with the Kentucky SIP and BART. As a result, in order to comply with the Kentucky SIP, BART, and the Consent Decree, East Kentucky determined that it should choose Case 1 (Scrub Cooper).<sup>12</sup>

East Kentucky indicated that it intended to finance the construction through the Rural Utilities Service and stated its belief that this project would be eligible for cost recovery through its environmental surcharge. East Kentucky indicated that it would

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<sup>8</sup> Id.

<sup>9</sup> The SIP is an EPA-approved state plan for the establishment, regulation, and enforcement of air pollution standards.

<sup>10</sup> Id.

<sup>11</sup> Id.

<sup>12</sup> Id. at 6.

seek approval to amend its environmental compliance plan to include this project sometime in 2009.<sup>13</sup>

East Kentucky indicated that two scrubbing processes currently operational in the electric generating industry will provide it with the ability to meet the pollutant removal requirements of the Consent Decree—Wet FGD and CFB Dry FGD.<sup>14</sup> Burns & McDonnell stated that, from an emission perspective, the CFB Dry FGD technology is equivalent to or better than the Wet FGD.<sup>15</sup> The CFB Dry FGD process includes a CFB dry scrubber system that uses water and hydrated lime to capture the sulfur constituents of the flue gas. This process creates dry solid particles that are then collected in a fabric filter. The collected solids are recycled to the CFB absorber to maximize pollutant removal and lime utilization.<sup>16</sup> East Kentucky has a preference for the CFB Dry FGD because it is more compatible with Cooper Unit 2, is a less complex system, requires a much smaller equipment footprint, and has lower capital costs.

The CFB Dry FGD process avoids the costs and maintenance of handling the limestone water slurry found in a Wet FGD. East Kentucky stated that, even though it is proposing to construct the CFB Dry FGD technology, other Dry FGD technologies will also be considered provided the manufacturer guarantees acceptable performance.<sup>17</sup> A CFB Dry FGD will not require installing a new stack at Cooper Station, whereas a new

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<sup>13</sup> Direct Testimony of David G. Eames on Behalf of East Kentucky Power Cooperative, Inc. at 2.

<sup>14</sup> Id. at 7.

<sup>15</sup> Id. at 8. See also Twitchell Exhibit 1 at 10.

<sup>16</sup> Direct Testimony of John R. Twitchell at 8.

<sup>17</sup> Id.

400-foot stack would be required for a Wet FGD process. Burns & McDonnell's cost analysis demonstrated that the CFB Dry FGD will provide East Kentucky with initial capital investment savings of \$127 million and a 20-year net present value savings of \$21 million compared to the Wet FGD process.<sup>18</sup> East Kentucky believes that the proposed AQCS for Cooper Unit 2 will meet all the requirements of the Consent Decree and BART and, in addition, will allow Cooper Station to meet the anticipated Maximum Achievable Control Technology requirements for mercury.<sup>19</sup>

Based on the application and being otherwise sufficiently advised, the Commission finds that East Kentucky's proposed construction of an AQCS at Cooper Unit 2 is the least-cost alternative and is necessary to meet the September 24, 2007 Consent Decree, BART, and Kentucky's SIP. The Commission finds that, while the other alternatives considered by East Kentucky would enable it to comply with the September 24, 2007 Consent Decree, they would not ensure compliance with BART and Kentucky's SIP, which would ultimately require that East Kentucky install additional air pollution control equipment at Cooper Station in the future.

IT IS THEREFORE ORDERED that:

1. East Kentucky is granted a Certificate of Public Convenience and Necessity to construct the proposed Air Quality Control System facilities at Cooper Unit 2 described in its application.

2. East Kentucky may construct a dry FGD system other than the proposed CFB Dry FGD system if the manufacturer provides East Kentucky a guarantee of

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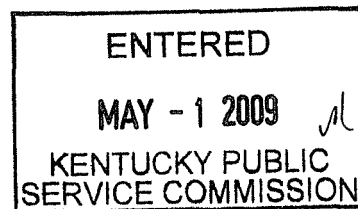
<sup>18</sup> Id. at 9-10.

<sup>19</sup> Id. at 12.


acceptable performance for the alternative dry FGD system and if the cost of the alternative system is less than the cost of the proposed CFB Dry FGD system.

3. If East Kentucky chooses to construct a dry FGD system other than the proposed CFB Dry FGD system, it shall file a report with the Commission, within 30 days of making the final selection of the dry FGD system, describing in detail the dry FGD system that was chosen, the estimated capital cost of the chosen dry FGD system, the difference in the net present value costs of the chosen dry FGD system and the proposed CFB Dry FGD system, and the calculations used to determine the net present value cost difference, and shall attach a copy of the performance guarantee from the system manufacturer.

By the Commission



ATTEST:

  
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Executive Director

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