

# **Colorado's Billion Dollar Mistake:**

**The Unit 3 Coal Plant in  
Pueblo**

**Will Colorado Turn Back Now or Will  
We Allow the \$1 Billion Mistake To  
Become a \$2 (or More) Billion  
Mistake????**

**Version 1.1  
April 2009**

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## Acknowledgements

The work discussed in this report is the result of a team of individuals and groups including literally hundreds of supporters and activists from around Colorado, the country and even the world who have contributed to this work in more ways than can be counted. Any effort to list everyone who has contributed to this effort would be extremely long—and yet embarrassingly incomplete. Rather than risk forgetting anyone, let it just be known that everyone's efforts have been critical to the progress we have made. You know who you are. Thanks!!!

## Sole Responsibility

While this work would not have been possible without the support of literally hundreds of individuals, Leslie Glustrom takes full and sole responsibility for the contents of this report.

## Note on the Format

This report is presented in an informal, almost conversational style. The reader is referred to the footnotes for the documents that contain detailed information. When the plural terms “we” or “us” are used, they refer to the hundreds of individuals, businesses and groups that understand that building a new coal plant at the beginning of the 21<sup>st</sup> century is obviously a mistake.

## Finding Documents

Documents from the Public Utilities Commission can be accessed for several years from the PUC website under “Dockets and Decisions” using the proper docket number. The direct link for finding documents at the PUC (as of April 2009) is <http://www.dora.state.co.us/PUC/DocketsDecisions/HighprofileDockets/HighprofileDockets.htm> When documents are no longer available on the PUC website, they can be accessed from the public document room at the Colorado Public Utilities Commission. Documents from previous years may need to be taken out of storage so calling the PUC ahead of time at 303-894-2000 is recommended. Responses to “Discovery Requests” asked as part of a docket generally need to be obtained from the person receiving the Discovery response.

Please send questions or corrections to:  
Leslie Glustrom at [lglustrom@gmail.com](mailto:lglustrom@gmail.com) or 303-245-8637

## **Intention of This Report—Freeing Xcel to Lead the Way**

While talking about mistakes is never easy, nothing in this report is intended to detract from the hard work and dedication of the many fine people working to help make Xcel a utility of the 21<sup>st</sup> century. Under the leadership of their present CEO, Dick Kelly, Xcel has begun to lead the way into the post-fossil fuel era and the entire Xcel team deserves significant recognition and gratitude for these efforts.

The Unit 3 coal plant in Pueblo which is discussed in this report is, in large part, a legacy of Xcel's former CEO, Wayne Brunetti—a legacy that has put Xcel's present employees into a difficult position. While it is never easy to acknowledge a mistake, the sooner that Colorado and Xcel acknowledge that this "Unit 3" coal plant (called "Comanche 3" by Xcel) is a mistake, and the sooner Colorado's citizens and political leaders come together to address this mistake in a way that both protects Xcel's financial health and minimizes the impact on Xcel's ratepayers, the sooner Xcel can be truly free to continue in its efforts to create a utility for the 21<sup>st</sup> century.

It is, therefore, the intention of this report to help liberate Xcel from the "baggage" of its last CEO and to free its management and many fine employees to truly lead the way into this, the post-fossil fuel century.

Respectfully,

Leslie Glustrom

April 2009

## LIST OF ACRONYMS

|                 |   |
|-----------------|---|
| AQCC            | Air Quality Control Commission<br>(Issues air permits for power plants and other facilities)                      |
| APCD            | Air Pollution Control Division<br>(Division of CDPHE that issues air permits.)                                    |
| CCR             | Code of Colorado Regulations<br>(Compilation of regulations for state agencies)                                   |
| CDPHE           | Colorado Dept. of Public Health and the Environment<br>(Issues air permits to pollution sources like coal plants) |
| CO <sub>2</sub> | Carbon Dioxide<br>(The largest contributor to emissions of greenhouse gases)                                      |
| CSP             | Concentrating Solar Power<br>(Using “sunlight and mirrors” to drive steam turbines)                               |
| CEO             | Chief Executive Officer<br>(Usually the top executive in a corporation)   |
| CPCN            | Certificate of Public Convenience and Necessity<br>(PUC approval document for a new generating resource)          |
| CRS             | Colorado Revised Statutes<br>(Compilation of Colorado’s laws)   |
| CWIP            | Construction Work in Progress<br>(Shorthand for charging ratepayers for financing costs)                          |
| GHGs            | Greenhouse Gases<br>(Gases which trap heat leaving the planet such as CO <sub>2</sub> , CH <sub>4</sub> )         |
| IGCC            | Integrated Gasification and Combined Cycle (Coal Plant)<br>(Often referred to by the oxymoron “Clean Coal”)       |
| IOUs            | Investor Owned Utilities<br>(In Colorado, Xcel and Black Hills)   |

|             |  |
|-------------|--|
| IREA        | Intermountain Rural Electric Association<br>(Serves an area in a crescent south of Denver)                         |
| MACT        | Maximum Available Control Technology<br>(Level of control required for mercury and other pollutants)               |
| NOx         | Nitrogen Oxides<br>(Pollution compounds formed by the oxidation of nitrogen)                                       |
| OCC         | Office of Consumer Counsel<br>(An office that helps represent consumers at the PUC)                                |
| PSCo        | Public Service Company of Colorado<br>(The branch of Xcel that operates in Colorado)                               |
| PSD         | Prevention of Significant Deterioration<br>(An effort to keep clean air from becoming dirty.)                      |
| PUC         | Public Utilities Commission<br>(A three-member appointed body in Colorado)   |
| REA         | Rural Electric Association<br>(In theory a “cooperative” electric association)                                     |
| RPS         | Renewable Portfolio Standard<br>(Requiring a certain % of renewable electricity)                                   |
| RRR         | Rehearing, Reargument or Reconsideration<br>(The name for an appeal of a PUC decision)                             |
| SO2         | Sulfur Dioxide<br>(An air pollutant formed by the oxidation of sulfur.)  |
| Xcel        | Xcel Energy--an investor owned utility<br>(Often used in this report to refer to the Colorado branch)              |
| Xcel Parent | Used in this report to refer to the parent utility of “Xcel”<br>Xcel (Parent) operates utilities in several states |

## INTRODUCTION

Xcel Energy is presently completing construction of a new 750 MW coal plant in Pueblo. As detailed in this report, this coal plant was not wise when it was proposed in 2004 and has become increasingly so in the intervening years. The list of reasons why the coal plant is a mistake is long and includes:

- The coal plant is not needed to meet Xcel's load
- The coal plant will interfere with pursuing lower-carbon wind and solar options
- Xcel's failure to secure a long-term supply of coal for the coal plant
- The Rapidly increasing costs of coal
- The likelihood that carbon dioxide will be regulated, greatly increasing costs.
- Operating costs that will likely exceed \$1 billion a decade
- Increased liability risks from carbon dioxide, mercury, coal ash and other environmental pollutants as this is probably one of the last conventional coal plants to be built in the United States

Now Colorado has to decide what to do. If we proceed with the coal plant then it will cost a billion dollars a decade or more to operate the coal plant and we will lose the opportunity to invest that billion dollars on the carbon-free infrastructure that will power our state in the 2020s and beyond.

If we acknowledge that a mistake has been made, we can pay off the construction costs of the coal plant over a 30-40 year period with about a 1-2% increase in rates and instead of sending our energy dollars north to Wyoming to pay for coal and east to Washington DC to pay for CO2 and exposing ourselves to significant liability risks, we can use the billion dollars a decade (or more) in operating costs to invest in wind, solar, efficiency and low-carbon options that will run our state in the 21<sup>st</sup> century.

The choice is ours. Will we proceed to throw good money after bad or will we recognize the mistake, take appropriate actions and leave a legacy our children will be grateful for?

## NOTE ON THE ROLE OF IREA AND HOLY CROSS

The Unit 3 coal plant in Pueblo has a capacity of approximately 750 MW. Xcel intends to own 500 MW (66.6 %) of the plant. Xcel has a contract to sell 190 MW (or about 25.3 %) of the coal plant to the Intermountain Rural Electric Cooperative (“IREA”) which serves a crescent-shaped service area south of Denver. Xcel has a contract to sell the remaining 60 MW (about 8%) of the plant to Holy Cross Energy which serves an area in and around Aspen, Colorado.

Table 1  
Ownership of the Unit 3 Coal Plant in Pueblo<sup>1</sup>

| Utility           | MW Owned | % Ownership |
|-------------------|----------|-------------|
| Xcel              | 500 MW   | 66.6%       |
| IREA              | 190MW    | 25.3%       |
| Holy Cross Energy | 60 MW    | 8%          |

Interestingly, Xcel has about 1.3 million customers in Colorado,<sup>2</sup> while IREA has about 137,000<sup>3</sup> or about 1/10 as many. With about 1/10 as many customers as Xcel, IREA might have been expected to have taken 1/10 as much of the coal plant—or 50 MW. Instead IREA took a 190 MW share of the coal plant, a share that is, on a per/ratepayer basis, that was over three times larger than Xcel’s. IREA took such a large share believing that it would save its ratepayers money (by avoiding paying for natural gas) and because it felt it could forestall the adoption of carbon dioxide charges on the federal level.<sup>4</sup>

Recently, it has become clear that IREA and Holy Cross will be buying their shares of the Unit 3 coal plant but will not be paying a full proportional share for the air pollution control upgrades made at Units 1 and 2 in Pueblo that were part of the air permitting for the Unit 3 coal plant.<sup>5</sup> Rather, Xcel intends to pass the majority of those costs on to Xcel’s Colorado ratepayers, while not charging IREA or Holy Cross for their full proportional share.<sup>6</sup>

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<sup>1</sup> Ownership shares from Xcel Energy in Docket 08S-520E, Colorado PUC.

<sup>2</sup> See for example, page 8 in the Direct Testimony of Xcel witness Scott Wilensky in Docket 08S-520E.

<sup>3</sup> See <http://www.intermountain-rea.com/>.

<sup>4</sup> Personal communication with Stan Lewandowski, General Manager, IREA.

<sup>5</sup> As discussed further below, the air pollution upgrades at Units 1 and 2 were a key component of the strategy for obtaining an air permit for the new Unit 3 coal plant because the upgrades at Units 1 and 2 were used in a “netting” process that allowed the permit for Unit 3 to avoid key aspects of the air pollution control program referred to as PSD or Prevention of Significant Deterioration requirements for emissions of sulfur (“SO<sub>2</sub>”) and nitrogen (“NO<sub>x</sub>”) compounds.

<sup>6</sup> See for example the response of PSCo to Discovery Request LWG 4-7 in Docket 08S-520E.

## I. HISTORY

Xcel's plans to build a new 750 MW coal plant in Pueblo, Colorado date to the early part of the 21<sup>st</sup> century. A history of the key milestones is below.

### A. 2002—Xcel's Stock Crashed Due to the NRG Bankruptcy

The history of the new Unit 3 coal plant in Pueblo really dates to 2002—several years before Xcel gained regulatory approval for the new coal plant.

In 2002, one of Xcel's unregulated subsidiaries, a company called NRG went bankrupt, Xcel had to pay \$752 million to free itself from NRG and, as a result, its stock price crashed.<sup>7</sup> Figure 1 is a graph of Xcel's stock price for the last ten years.<sup>8</sup>

Figure ZZ  
Stock Price for Xcel Energy 1999-2009

Source: <http://phx.corporate-ir.net/phoenix.zhtml?c=89458&p=irol-stockChart>

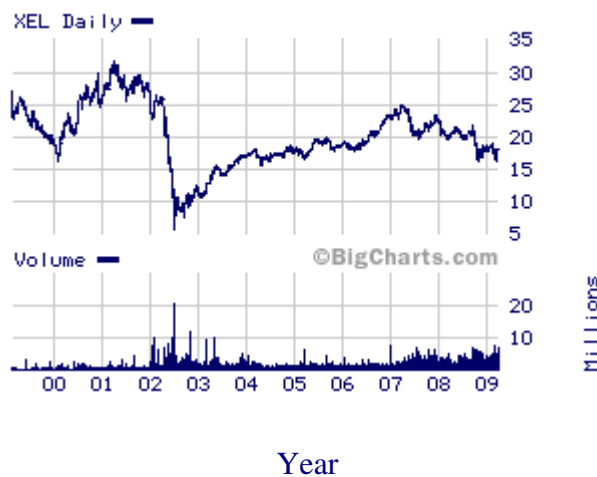


Figure 1 shows that in the summer of 2002 the price of Xcel stock plummeted from above \$25 a share to well below \$10 a share. By comparison, Figure 1 shows that the significant stock price drop that happened in October 2008 was minor compared to the cataclysmic drop that happened in the summer of 2002.

<sup>7</sup> See Xcel's stock price at [www.xcelenergy.com](http://www.xcelenergy.com) under "Investor Information." The information on the NRG payments is in Xcel's August 2004 SEC report.

<sup>8</sup> The graph is from <http://phx.corporate-ir.net/phoenix.zhtml?c=89458&p=irol-stockChart> which is accessed from "Investor Information" on Xcel Energy's home page at [www.xcelenergy.com](http://www.xcelenergy.com).



Utilities make money for investors by making large capital investments and it wasn't long after the stock price crash of 2002 that Xcel began planning to build a large coal plant in Colorado<sup>9</sup>—an investment that it presumed would help increase its shareholder value. During 2003 and 2004, Xcel proceeded to spend several million dollars on engineering and permitting,<sup>10</sup> long before the new Pueblo coal plant was approved by the Colorado Public Utilities Commission.

In short, there is strong reason to believe that the motivation for the coal plant was not to provide Colorado with the cleanest or cheapest energy solution, but rather to make a large capital investment so that Xcel could use the return on the capital investment for its shareholders.<sup>11</sup>

In short, there is strong reason to believe that the motivation for the coal plant was not to provide Colorado with the cleanest or cheapest energy solution, but rather to make a large capital investment so that Xcel could use the return on the capital investment for its shareholders and begin to recover from the stock price crash of 2002.

### **B. 2003—Xcel Began Planning for a Coal Plant Before They Had PUC Approval**

Planning for the Pueblo coal plant began in approximately March 2003,<sup>12</sup> little over a year before Xcel submitted the proposal for the coal plant to the Colorado PUC. Under the rules at the time, Xcel was supposed to submit

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<sup>9</sup> While planning to build a new coal plant in Colorado, Xcel also was undertaking the conversion of coal plants in Minnesota to natural gas plants in order to reduce air pollution in the Minneapolis-St. Paul Metro area. Known as the “Metro Emissions Reduction Project” or “MERP” these conversions also involved approximately a billion dollars of investment, but while Colorado was slated to receive a new coal plant, Minnesota was slated to have coal plants replaced with the cleaner burning natural gas. See for example the presentation prepared for the Xcel Energy Midwest Investor Meetings, May 31-June 1, 2005 available under “Investor Information” at [www.xcelenergy.com](http://www.xcelenergy.com).

<sup>10</sup> Xcel has reported spending approximately \$3.7 million on the new Unit 3 coal plant in 2003 and 2004—before it gained approval to proceed with the plant from the Public Utilities Commission. These expenditures were provided in response to Discovery Response LWG 4-3 in Docket 08S-520E

<sup>11</sup> To see how Xcel expected large capital expenditures to benefit utility stockholders, see for example the presentation prepared for the Xcel Energy Midwest Investor Meetings, May 31-June 1, 2005 available under “Investor Information” at [www.xcelenergy.com](http://www.xcelenergy.com).

<sup>12</sup> See pages 50-58 in the transcript for November 1, 2004 hearing in Dockets 04S-214E, 04A-215E and 04A-216E at the Colorado Public Utilities Commission.

a plan to the Public Utilities Commission (PUC), gain approval for that plan and put plants out to bid before undertaking construction plans.<sup>13</sup> Xcel didn't submit its "2003 Least Cost Plan" to the PUC until April 2004—over a year after it began planning for the new Pueblo coal plant—and the PUC didn't formally approve the plan and the 750 MW Unit 3 coal plant until January 2005.<sup>14</sup>

**C. 2004—Xcel Submits a Plan While Asking for An Exemption to PUC Bidding Rules and Ignoring Efficiency and Solar Resources; Colorado Environmental Groups Negotiate a Settlement Agreement Clearing the Way for the New Coal Plant**

**Xcel's "2003 Least Cost Plan" Proposal  
Definitely Not "Least Cost"**

On April 30, 2004, Xcel submitted its "2003 Least Cost Plan" to the Colorado PUC<sup>15</sup> and claimed that building a new 750 MW coal plant in Pueblo, Colorado would be a "least cost" option for ratepayers—but insisted that the plant not be put out to bid, as required by PUC "Least Cost" Planning rules.<sup>16</sup>

As part of the "2003 Least Cost Plan" Xcel:<sup>17</sup>

- Failed to propose any utility-managed efficiency programs<sup>18</sup>

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<sup>13</sup> The utility planning rules in place at the time were referred to as the "Least Cost Planning Rules" and could be found as part of the PUC rules at 4 Code of Colorado Regulations ("CCR") 723-3, Rules 3600 -3615 adopted by the PUC after appeal through "RRR" by Decision C02-0991.

<sup>14</sup> Approval for the Unit 3 coal plant was granted by Colorado PUC Decision C05-0049.

<sup>15</sup> Xcel's Colorado "2003 Least Cost Plan" was submitted to the PUC along with a request for approval for a Certificate of Public Convenience and Necessity ("CPCN") for the new Unit 3 coal plant and for a rate increase to support the construction of the new coal plant, which was euphemistically referred to as its "Regulatory Plan. The "2003 Least Cost Plan" was given Docket number 04A-214E. The request for the rate increase was given docket number 04A-215E and the request for the CPCN for the coal plant was given docket number 04A-216E. The three dockets were then consolidated by the PUC in Decision C04-0710. The 2003 "Least Cost Plan" was supposed to be submitted on October 31, 2003, but Xcel asked for a six-month delay and the PUC granted the delay in Decision C03-1224. It soon became clear that Xcel used the six month delay to get a head start on the air permitting process for the Unit 3 coal plant—beginning discussions with the Colorado Department of Public Health and the Environment in the last half of 2003—before the "2003 Least Cost Plan" was even submitted to the PUC for approval.

<sup>16</sup> See Rule 3610 (b) of (4 CCR 723-3) of the the PUC "Least Cost" Planning Rules in effect in 2004, as adopted by Commission Decision C02-0991.

<sup>17</sup> See Xcel's Application and Testimony in consolidated dockets 04A-214E, 04A-215E and 04A-216E

<sup>18</sup> Unfortunately, back in 2004, Xcel's management didn't believe in doing efficiency so there were only very meager efficiency programs considered as part of the plan that led to the coal plant. In fact, Xcel said that

- Put an arbitrary cap on the amount of wind resources<sup>19</sup>
- Failed to give any consideration whatsoever to solar resources<sup>20</sup>
- Asked for an exemption to the PUC rule that all resources bigger than 250 MW go out to bid<sup>21</sup>
- Assumed that coal prices would only increase at 1.5% per year<sup>22</sup>
- Dictated that the modeling program could only “choose” a 750 MW coal plant in the 2009-2011 timeframe—precisely when Xcel wanted to build the plant.<sup>23</sup>
- Presented modeling results in confusing tables that obscured the fact that the savings claimed for the Unit 3 coal plant would have been dwarfed by increased investments in energy efficiency and wind energy.<sup>24</sup>

In addition to asking for an exemption to the requirement that all resources bigger than 250 MW go out to bid, and not considering any efficiency or solar resources and assuming that the price of coal would stay essentially flat over the 30 year modeling period, when Xcel presented modeling results they did so in Tables that were very confusing and obscured the almost non-existent savings associated with the Unit 3 coal plant.

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efficiency (or “demand side management (DSM)” programs) would have been too difficult for their modeling program to handle, so instead they focused primarily on supply-side generation resources. In the plan in which the coal plant was proposed, Xcel stated, “Inclusion of DSM technologies would have very likely made the optimization problem too large to solve [for the thirty year planning period].” See page 1-78 in Volume 1 of Xcel’s “2003 Resource Plan submitted in consolidated dockets 04A-214E, 04A-215E and 04A-216E

<sup>19</sup> See the first modeling constraint on page 1-88 in Volume 1 of Xcel’s “2003 Least Cost Plan” submitted in Dockets 04A-214E, 04A-215E and 04A-216E. This constraint only allowed four 80 MW wind facilities each year with a cumulative capacity of 2000 MW acquired over the thirty year study period.

<sup>20</sup> While members of the public submitted many comments noting that solar resources were likely to be technically and economically competitive during the 10 year acquisition period and certainly during the 30 year study period covered by the “2003 Least Cost Plan,” Xcel completely failed to consider the potential for solar resources as part of the 04A-214E, 04A-215E and 04A-216E Dockets. This can be seen by examining the modeling constraints on page 1-88 in Volume 1 of Xcel’s “2003 Least Cost Plan” and examining Xcel’s testimony submitted in Dockets 04A-214E, 04A-215E and 04A-216E.

<sup>21</sup> See for example, page 2 of Public Service Company of Colorado’s Application for Approval of the 2003 Least Cost Plan in Docket 04A-214E. The exemption to the 250 MW limit on bidding exemptions was included as paragraph 4 on page 7 of the Comprehensive Settlement Agreement that accompanied Decision C05-0049.

<sup>22</sup> See page 27, lines 13-14 as well as page 28 of Xcel witness Jim Hill’s Rebuttal Testimony dated October 2004 in Dockets 04A-214E, 04A-215E and 04A-216E.

<sup>23</sup> See the sixth modeling constraint on page 1-88 in Volume 1 of Xcel’s “2003 Least Cost Plan” submitted in Dockets 04A-214E, 04A-215E and 04A-216E. This constraint only allowed a 750 MW coal plant such as the Unit 3 coal plant in Pueblo to be “chosen” by the model for the years 2009-2011.

<sup>24</sup> See for example Table JFH-5 on page 9 of Xcel witness Jim Hill’s Rebuttal Testimony dated October 2004 in Dockets 04A-214E, 04A-215E and 04A-216E.

Table 2 below reproduces Table JFH-5 from Xcel witness Jim Hill's October 2004 Rebuttal Testimony. This Table was presented by Xcel in support of the cost savings that would come from building the Unit 3 coal plant and is very difficult to interpret.

Once Table 2 is deciphered, it illustrates the many fallacies underlying Xcel's effort in 2004 to justify the new Unit 3 coal plant as a "Least Cost" option, as it most clearly was not as shown by the graph in Figure ZZ.

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## Table 2 Xcel Modeling Results Designed to Demonstrate Cost Savings of the Unit 3 Coal Plant

Source: Page 9, Table JFH-5 for \$5 Natural Gas ” Rebuttal Testimony, Xcel Witness Jim Hill,  
Dockets 04A-214E, 04A-215E and 04A-216E at the Colorado PUC.  
Table JFH-5 is entitled “Cost Savings of Comanche 3 vs No More Coal”

|   |   | 2003-2034 Present Value Millions       |                          |                          |  |   |
|---|---|--|--------------------------|--------------------------|--|---|
| Contract Extension Assumption <sup>25</sup> | Comanche 3 in Least Cost Plan <sup>26</sup> | Emission Cost Assumption <sup>27</sup> | \$4.00 Gas <sup>28</sup> | \$5.00 Gas <sup>29</sup> | Extreme DSM and 30% Wind \$4.00Gas <sup>30</sup> | Extreme DSM and 30% Wind \$5.00 Gas <sup>31</sup> |
| Extended                                    | No  | N/A                                    | \$20,319                 | \$21,673                 | \$17,387   | \$18,667  |
| Extended                                    | No  | CSI                                    | \$20,646                 | \$21,990                 | \$17,707   | \$18,982  |
| Extended                                    | No  | CSI & CO2 \$12                         | \$21,452                 | \$22,915                 | \$18,353   | \$19,649  |
| Extended                                    | Yes   | N/A                                    | \$19,893                 | \$21,052                 | \$17,086   | \$18,094  |
| Extended                                    | Yes   | CSI                                    | \$20,184                 | \$21,334                 | \$17,370   | \$18,372  |
| Extended                                    | Yes   | CSI & CO2 \$12                         | \$21,219                 | \$22,380                 | \$18,248   | \$19,263  |
| Delta Plan Costs (PV Millions)              |   | N/A                                    | (\$426)                  | (\$621)                  | (\$301)  | (\$573)   |
| Delta Plan Costs (PV Millions)              |   | CSI                                    | (\$462)                  | (\$656)                  | (\$337)  | (\$610)   |
| Delta Plan Costs (PV Millions)              |   | CSI & CO2 \$12                         | (\$233)                  | (\$535)                  | (\$105)  | (\$386)   |

<sup>25</sup> “Contract Extension Assumption” refers to the assumption about whether contracts with Independent Power Producers (“IPPs”) are extended for the 30 year study period. For all cases, it was assumed that the contracts were extended.

<sup>26</sup> This column specified whether the plan included the 750 MW Unit 3 coal plant in Pueblo (“Comanche 3”) or not. The top three cases did not include the coal plant, the bottom three did.

<sup>27</sup> “Emission Cost Assumption” refers to the assumption used about pollution control for the plans. “N/A” was confusing during the docket, but appears to refer to no additional pollution control. “CSI” referred to the effort by the administration of President George W. Bush to weaken the Clean Air Act with what was referred to as the “Clear Skies Initiative.” The Clear Skies Initiative died in Committee in the United States Senate in March 2005. “CSI plus CO2 \$12” assumed the requirements of the Clear Skies Initiative plus \$12/ton for CO2. These assumptions about air pollution control tended to favor a coal plant, because they assumed that the Clear Skies Initiative would pass and pollution control requirements for coal plants would be eased from those of the Clean Air Act laws in place at the time. The reduced costs of the CSI compared to the CAA were discussed in Technical Appendix Section 1.10 in Volume 4, (pages 231-234) of Xcel’s “Least Cost” Plan application in Dockets 04A-214E, 04A-215E and 04A-216E.

<sup>28</sup> \$4.00 Gas refers to \$4 per MMBTU natural gas. MMBTU is a million BTUs. A BTU is the amount of heat needed to raise the temperature of 1 pound of water 1 degree Fahrenheit.

<sup>29</sup> \$5.00 Gas refers to \$5 per MMBTU natural gas. MMBTU is a million BTUs. A BTU is the amount of heat needed to raise the temperature of 1 pound of water 1 degree Fahrenheit.

<sup>30</sup> “Extreme DSM” refers to levels of Demand Side Management (e.g. energy efficiency and demand reduction) that were similar to what Xcel was already doing in Minnesota at the time. “30% wind” refers to giving a 30% capacity factor to wind resources instead of the 10% capacity factor assumed by Xcel. The goal of these runs was to see if increasing efficiency and wind resources could delay or eliminate the “need” for the Unit 3 coal plant—the only problem is that model had a constraint in it that effectively forced the model to select the Unit 3 coal plant—no matter how much wind or efficiency were added. See the sixth modeling constraint on page 1-88 in Volume 1 of Xcel’s “2003 Least Cost Plan” submitted in Dockets 04A-214E, 04A-215E and 04A-216E. This constraint only allowed a 750 MW coal plant such as the Unit 3 coal plant in Pueblo to be “chosen” by the model for the years 2009-2011, while simultaneously forcing the model to serve a rapidly increasing load for 30 years. In essence the model was forced to “choose” the Unit 3 coal plant in precisely the time frame (2009-2011) that Xcel wanted to build the coal plant.

<sup>31</sup> “Extreme DSM” refers to levels of Demand Side Management (e.g. energy efficiency and demand reduction) that were similar to what Xcel was already doing in Minnesota at the time. “30% wind” refers to giving a 30% capacity factor to wind resources instead of the 10% capacity factor assumed by Xcel.

The footnotes provide a detailed description of the assumptions used in Table 2, but to simplify things, here are a few points to help decipher Table 2:

- The numbers are in millions, and are most easily understood if they are translated to billions. For example, the number in the uppermost left corner (“\$20,319 millions”) is most easily translated as \$20.3 billion.
- The two columns of numbers on the left side of the dark line were modeled costs for the plan without increased investments in energy efficiency (“DSM”) and giving a 30% capacity credit to wind energy instead of the 10% that Xcel was typically using.<sup>32</sup> The two columns on the right side of the dark line are the modeled costs with increased investments in energy efficiency (“DSM”) and wind energy.
- Note that when comparing numbers from the columns on the left side of the table to those in the corresponding columns on the right hand side, that the numbers on the right hand side are much smaller than those in the two left columns—e.g. 17.4 billion (“\$17,387 million”) on the right hand side compared to \$20.3 billion (“\$20,319 million”) on the left hand side for the “N/A” and “\$4.00 Gas” set of assumptions. The lower numbers on the right side of Table 2 reflect the significant savings (e.g. \$2.9 billion) that could have come from increased investments in efficiency (e.g. “DSM”) and renewable energy.
- The claimed savings from the Unit 3 coal plant are in parentheses at the bottom of Table 2. Note that the savings claimed for the coal plant range from \$105 million to \$656 million. Note that these savings are less than \$1 billion, while increased investments in efficiency and renewable energy could have saved ratepayers \$2 to \$3 billion. All of this can be seen easily from the graph in Figure 2.

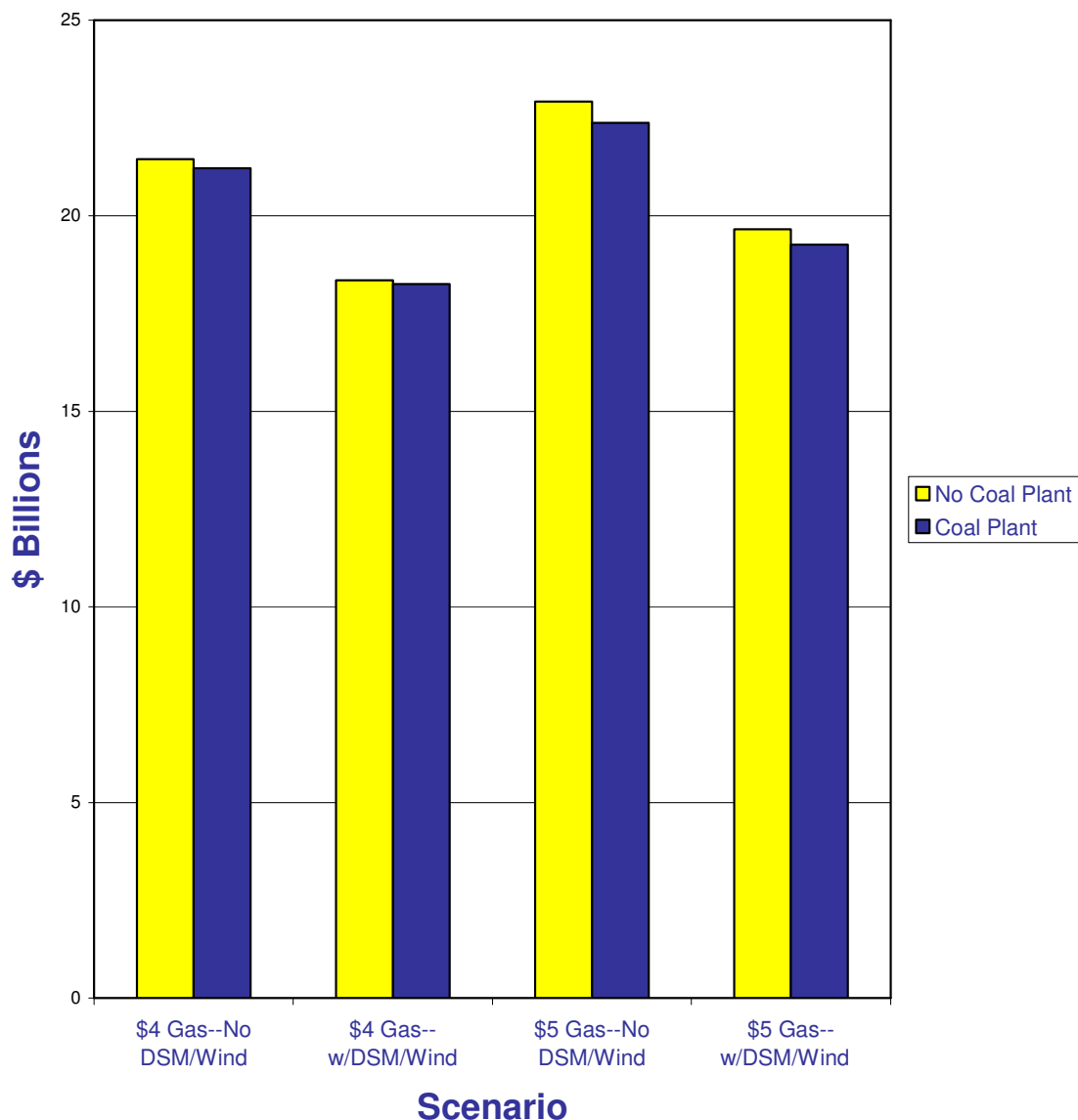
Table 2 shows that Xcel’s own modeling demonstrated in 2004 that billions of dollars could have been saved ratepayers from increased investments in energy efficiency (“DSM”) and wind energy, but Xcel’s Table was so confusing that almost no one understood the information that was being presented.

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<sup>32</sup> The 10% capacity credit used by Xcel was discussed on page 1-95 of Volume 1 in Xcel’s 2003 “Least Cost” Plan filed in the 04A-214E, 04A-215E and 04A-216E Dockets.

Figure 2  
 Graph of Xcel's Cost Models of "Savings"  
 From the Unit 3 Coal Plant 2003-2034

Data Table JFH-5  
 Rebuttal Testimony Xcel Witness Jim Hill Oct 2004  
 Dockets 04A-214E, 04A-215E and 04A-216 E Colorado PUC



All Scenarios Are for CSI and CO2 \$12 Assumptions  
 "CSI" Refers to the Now Failed Clear Skies Initiative of  
 President George W. Bush

In the graph in Figure 2, the yellow (or light) bars are the costs Xcel modeled for the 30 years of the plan if the Unit 3 coal plant was not built. The blue (or dark) bars are the modeled 30 year costs if the Unit 3 coal plant was built. When the figures are graphed, it is obvious that the \$100 to \$600 million in savings that were supposed to accrue from the Unit 3 coal plant were an insignificant amount of the total costs of the “Least Cost” plan—and these razor thin savings depended on a host of pro-coal assumptions—including that the price of coal would stay flat (or decline in real terms) over the 30 years of the plan,<sup>33</sup> which it clearly has not.

The graph in Figure 2 also shows clearly that the model runs that assumed increased DSM (i.e. energy efficiency) and a 30% capacity credit for wind resources could have saved ratepayers billions of dollars. (See the “w/DSM/Wind” bars in Figure 2).

In short, if Xcel had really wanted to produce a “Least Cost” plan they would have invested much more strongly in energy efficiency and renewable energy. Their own models showed that these investments could have saved ratepayers billions of dollars. Xcel, however, was determined to build a coal plant and did not want to invest in efficiency and additional renewable energy and the PUC Commissioners at the time didn’t make them, but rather made it clear they would approve the new coal plant.

Table 2 is very difficult to decipher and it was buried in literally thousands of pages of testimony at the PUC and the PUC Commissioners<sup>34</sup> never saw the data graphed as they are in Figure 2. As a result, there was essentially no discussion about the very small savings claimed for the proposed coal plant and of the billions of dollars of savings that could come from increased investments in energy efficiency (“DSM”) and increased reliance on wind energy.

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<sup>33</sup> Xcel assumed that the cost of coal would increase at 1.5% for the next 30 years, see page 27, lines 13-14, Jim Hill’s Rebuttal Testimony, October 2004, Docket 04A-214E, 04A-215E and 04A-216E. Xcel’s coal costs began increasing in 2006 when its long term contracts began expiring and have been increasing about 10-20% a year since then.

<sup>34</sup> The PUC Commissioners that voted to approve the Unit 3 coal plant were Chairman Greg Sopkin, Commissioner Polly Page and Commissioner Carl Miller. The decision is found in Colorado PUC Decision C05-0049. Chairman Sopkin supported the coal plant, but dissented to C05-0049 due to the concessions that were made to the environmental groups as a result of the Settlement Agreements attached to C05-0049.



Instead of discussing data such as that shown in Table 2 and Figure 2, Colorado's PUC Commissioners in 2004 signaled that they were very likely to vote for the coal plant—regardless of any environmental or legal arguments that might have been made. It was out of this obvious intention of the PUC Commissioners to approve the coal plant that the 2004 Settlement Agreement with Colorado's environmental groups discussed below arose.

Table 2 and Figure 2 demonstrate that when Xcel was forced to model increased efficiency, they found that it was indeed cheaper—a lot cheaper—than building supply side resources like a coal plant—and that the savings claimed for the coal plant were so small as to be insignificant. Unfortunately, the results were presented in such a confusing fashion that no one realized how small the coal plant savings were on a relative basis or that billions of dollars of savings could have been achieved by increased efficiency efforts and increased reliance on wind resources.

### **Colorado's Large Environmental Groups Sign a Settlement Agreement Clearing the Way for the Unit 3 Coal Plant**

During the summer of 2004 many of Colorado's large environmental and clean energy groups waged an effort to pass what was referred to as "Amendment 37"—a Renewable Portfolio Standard ("RPS") calling for 10% renewable energy for the state's investor owned utilities ("IOUs") by 2015. The ballot measure passed in November 2004 and Colorado became the first state to enact a Renewable Portfolio Standard by ballot.<sup>35</sup>

At the same time that the leaders of Colorado's environmental community were working to enact Amendment 37, Xcel, under their former Chief Executive Officer ("CEO") Wayne Brunetti, was working to defeat the RPS and to gain approval for the new Unit 3 coal plant in Pueblo. Then President George W. Bush had made it clear that his administration intended to weaken environmental laws and regulations governing coal plants, and many utilities rushed to put in coal plant applications.<sup>36</sup> Xcel's then CEO Wayne Brunetti, joined that rush, proposing the new 750 MW coal plant in Pueblo that Xcel refers to as "Comanche 3."

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<sup>35</sup> See for example <http://www.renewableenergyworld.com/rea/news/article/2004/11/colorado-voters-pass-renewable-energy-standard-17736>

<sup>36</sup> See for example, "New Coal Plants Bury Kyoto," by Mark Clayton, Christian Science Monitor, December 23, 2004 available from <http://www.csmonitor.com/2004/1223/p01s04-sten.html>.

A new coal plant needs approval from a number of governmental entities, but the most important are approvals in Colorado that need to come from the Public Utilities Commission (“PUC”) and the Air Quality Control Commission (“AQCC”). The PUC would issue an approval to build the new power plant called a Certificate of Public Convenience and Necessity (“CPCN”) and the AQCC would need to issue one or more air permits governing the amount of pollution that would come from the coal plant and associated facilities such as coal crushers.

It was clear to observers in 2004 that both the PUC and the AQCC were dominated by appointees of Colorado’s fossil-fuel friendly Governor, Bill Owens, and that these appointees were favorably disposed to Xcel’s plan to build a new coal plant. As a result, many of Colorado’s top environmental groups believed the coal plant was a “done deal”—even before hearings began in front of the PUC or the AQCC.<sup>37</sup> Consequently, leaders of Colorado’s top environmental groups began thinking about negotiating a settlement agreement on the coal plant which would give them “something” in exchange for agreeing to the coal plant--instead of the “nothing” they expected to get from the PUC and the AQCC when they approved the coal plant.

Negotiations on two different settlement agreements were conducted in the fall of 2004 and the settlements became public in November 2004. One settlement included environmental and community parties that were not necessarily part of the PUC proceeding but which had a potential interest in the outcome.<sup>38</sup> The other settlement agreement was the Comprehensive Settlement involving many of the parties at the Public Utilities Commission.<sup>39</sup>

The two Settlement Agreements provided that Xcel would increase its efforts in energy efficiency and renewable energy and would undertake some environmental and sustainability projects in Pueblo. In exchange for these efforts, the groups signing the settlement agreements agreed that they would

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<sup>37</sup> While it was clear that Xcel would be violating many Colorado laws and regulations in its effort to move the Unit 3 coal plant forward, the environmental groups did not seem to think that going to court was an option.

<sup>38</sup> Groups that signed the Concerned Environmental and Community Parties (“CECP”) Settlement Agreement with Public Service Company of Colorado (Xcel’s Colorado subsidiary) included: Western Resource Advocates, Sierra Club, Environmental Defense, Environment Colorado, Better Pueblo, Diocese of Pueblo, Southwest Energy Efficiency Project, Colorado Renewable Energy Society and Smart Growth Advocates. The CECP Settlement Agreement is Attachment A to the Comprehensive Settlement Agreement which is attached to PUC Decision C05-0049.

<sup>39</sup> The Comprehensive Settlement Agreement is attached to PUC Decision C05-0049 and was signed by many of the parties to the formal negotiations at the PUC in the consolidated dockets 04A-214E, 04A-215E, and 04A-216E.

not challenge the air permit or to do anything else to interfere with the opening of the Unit 3 coal plant. The Comprehensive Settlement Agreement was attached to the decision on Xcel’s “2003 Least Cost” Plan and was approved in its entirety.<sup>40, 41</sup>

In 2004, both the PUC and the AQCC were dominated by appointees of Colorado’s fossil-fuel friendly Governor, Bill Owens. As a result, many of Colorado’s top environmental groups believed the coal plant was a “done deal” and they decided to negotiate two settlement agreements with Xcel. In exchange for the environmental groups agreeing to not oppose the new coal plant, Xcel agreed to undertake increased efficiency and wind efforts and to work with the Pueblo community on a variety of environmental and sustainability projects. The key provisions of the settlement agreements were approved by the Colorado PUC in January 2005 in Decision C05-0049.

When news of the Settlement Agreement became public, Colorado citizens that were opposed to the settlement agreements came together to discuss what might be done. Out of that effort, a new group which ultimately became “Clean Energy Action” began.<sup>42</sup> Since the time of the Settlement Agreements, Clean Energy Action has led the campaign against the new Unit 3 coal plant due, among other things, to concern about the increases in emissions of carbon dioxide, mercury and other pollutants and the unwise use of Colorado’s precious water resources. These issues are discussed further in Part ZZ below.

#### **D. 2005—Xcel’s Air Permit is Challenged: Xcel Begins Construction Nonetheless**

The application for the air permit for the Unit 3 coal plant was submitted to the Colorado Department of Public Health and the Environment (“CDPHE”) on August 6, 2004—before the PUC had approved the coal plant. The air permit needed for the new Unit 3 coal plant included permits for several other

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<sup>40</sup> Xcel’s “2003 Least Cost Plan,” including the granting of the Certificate of Public Convenience and Necessity (“CPCN”) was approved by the Colorado PUC in Decision C05-0049 with an effective date of January 21, 2005.

<sup>41</sup> For a summary of the Comprehensive Settlement from Xcel’s point of view see [http://www.dora.state.co.us/PUC/presentations/InformationMeetings/Tours/11-19-07NOA\\_ComancheSettlementFrankPragerPresentation.pdf](http://www.dora.state.co.us/PUC/presentations/InformationMeetings/Tours/11-19-07NOA_ComancheSettlementFrankPragerPresentation.pdf)

<sup>42</sup> See [www.cleanenergyaction.org](http://www.cleanenergyaction.org) .

parts of the coal plant and a package of 10 air permits was analyzed and issued on July 5, 2005.<sup>43</sup>

Citizens groups had a number of concerns about the air permits for the new Unit 3 coal plant and a lawsuit challenging the air permits was filed in Pueblo District Court in August 2005. Among other things, the air permit lawsuit noted that Xcel had used emissions from Units 1 and 2 to “net out” of key analyses (including those related to visibility impairments in sensitive areas such as National Parks) and that key regulations related to such “netting” activities were not followed.<sup>44</sup> Importantly, the emissions from Units 1 and 2 were under a Notice of Violation (“NOV”) and should not have been used in a netting transaction without modifying the “State Implementation Plan” or “SIP” for complying with the federal Clean Air Act<sup>45</sup>—but no such SIP revision was ever done.

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<sup>43</sup> At the time of writing, the air permits allowing construction of the new Unit 3 coal plant could not be located on the website of the Colorado Department of Public Health and the Environment (“CDPHE”) Air Pollution Control Division (“APCD”). Copies can be obtained by contacting the APCD at 303-692-3100

<sup>44</sup> There were several grounds for the challenge to the air permit but the key arguments were related to Xcel’s effort to use the emissions from Units 1 and 2 that were under a Notice of Violation (NOV) issued by the United States Environmental Protection Agency (“EPA”) in June 2002 to “net” out of key air pollution regulations related to emissions of sulfur dioxide and nitrogen oxides. The NOV issued by the EPA was for upgrading Units 1 and 2 without upgrading the pollution controls for SO<sub>2</sub> and NO<sub>x</sub> at the same time. The violations cited in the NOV are referred to as New Source Review (“NSR”) violations. The arguments used in the air permit lawsuit can be summarized as follows:

- Failure of the CDPHE to investigate the NOV from the EPA despite clear direction to do so in Colorado statutes (Colorado Revised Statutes (“CRS”) § 25-7-115)
- Failure to follow the requirements of Part A of Regulation 3 of the CDPHE regarding netting transactions. The CDPHE should have done the following things:
  - a) Ensure that the reductions at Units 1 and 2 had already occurred and been verified. (CDPHE Regulation 3, Part A. V. D. 2.)
  - b) Ensure that the reductions at Units 1 and 2 were not just reductions down to compliance levels (CDPHE Regulation 3, Part A.V.E. 1.a.)
  - c) Ensure that there would not be an “increased concentration, at the point of maximum impact, of hazardous air pollutants.” (CDPHE Regulation 3, Part A.V.F.2.)
  - d) Obtain a State Implementation Plan (“SIP”) Revision (CDPHE Regulation 3, Part A. V.F. 13.f.)
- Conducted a thorough investigation of all the possibilities for reducing air pollutant emission as called for by the definition of Best Available Control Technology (“BACT”) (CDPHE Regulation 3, Part D. II.A.8.)
- Conducted a thorough analyses of impacts on visibility in Class I areas such as Rocky Mountain National Park (“RMNP”) and the Great Sand Dunes Wilderness Area. (CDPHE Regulation 3, Part D. XIV. C. 1. and XIV.E.)

<sup>45</sup> State Implementation Plan revisions for netting transactions involving emissions that were under a Notice of Violation (“NOV”) were required by (CDPHE Regulation 3, Part A. V.F. 13.f.)

Unfortunately, the State Court system upheld the CDPHE permitting process, but did so without analyzing the air permit regulations for which violations were alleged. Rather the State Courts just said that CDPHE had the discretion to interpret its regulations as it saw fit.<sup>46</sup> The appellate court decision was issued in July 2008<sup>47</sup> and the Supreme Court did not agree to review the appellate decision and no other legal avenue appeared feasible.

In December 2005, while the air permit was still being considered by the Pueblo District Court, Xcel began construction on the Unit 3 coal plant. This added extra pressure to the court system, because if they had invalidated the air permit, then Xcel would have had to stop construction until it had a valid air permit.

Unfortunately, the State Court system upheld the air permit for the new coal plant but did so without analyzing the actual language of the air permit regulations for which violations were alleged. Rather the State Courts said that CDPHE had the discretion to interpret its regulations as it saw fit. Xcel began construction on the new Unit 3 coal plant in 2005—two and a half years before the lawsuits on the air permit were settled.

### **E. 2006—Xcel Acknowledges It Hasn’t Analyzed the Coal Supply for the New Plant**

In 2006, Xcel came to the PUC to begin recovering Construction Work in Progress (“CWIP”) funding for the Unit 3 coal plant. CWIP funding<sup>48</sup> allows a utility to begin recovering the financing charges for a new power plant before the plant becomes operational and is, in PUC parlance, “used and useful.” Normally, power plants have to be “used and useful” before ratepayers are

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<sup>46</sup> The decision by the State Appellate Court was particularly disappointing. During oral argument two judges asked many excellent questions and appeared to understand the legal arguments being made. The decision, however, was written by the third judge who had asked essentially no questions during the oral argument and the decision did not even understand the basic structure of the case and which party had filed the key “Motion for Partial Summary Judgment.”

<sup>47</sup> *Citizens for Clean Air and Water in Pueblo v. Colorado Department of Health and the Environment* Colorado Appellate Court (2008)

<sup>48</sup> Technically “CWIP financing” is actually “CWIP without an Allowance for Funds Used During Construction (“AFUDC”) offset” funding—an accounting mechanism that allows a utility to begin recovering the financing charges during the construction of a power plant instead of waiting until the power plant is producing power and is “used and useful”—which is the usual standard applied before ratepayers are charged for power plant construction.

charged for them.<sup>49</sup> The collection of CWIP financing costs is a deviation from the standard “used and useful” practice and was part of the Settlement Agreement approved in Decision C05-0049 approving the Unit 3 coal plant.<sup>50</sup>

The rate increase to institute the CWIP financing was considered as part of Docket 06S-234EG at the Colorado PUC.<sup>51</sup> Interestingly, as part of the 06S-234EG Docket, the Commission was presented with information showing that:

- a) Xcel had had significant problems keeping its coal plants supplied with coal in 2005 and 2006;<sup>52</sup> and
- b) Xcel had not done anything to analyze long term coal supplies for the new Unit 3 coal plant.<sup>53</sup>

Much to the surprise of observers to the 06S-234EG Docket, when asked about coal supply constraints during 2005 and 2006, Xcel acknowledged that all of its Colorado coal plants had faced coal supply constraints and that this had cost ratepayers almost \$50 million in replacement fuel costs.<sup>54</sup>

Even more shocking to observers of the 06S-234EG Docket, when asked what analyses the Company had conducted of coal supply constraints for its Colorado coal plants, Xcel acknowledged that “No such analyses have been conducted.”<sup>55</sup>

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<sup>49</sup> There have only been a few times in Colorado’s history when ratepayers paid financing costs for power plants before they were operational, and then there were extreme circumstances (e.g. very high interest rates). No examples are known from Colorado in which ratepayers were asked to pay all of the financing costs for a new power plant. For a discussion of the practice of charging ratepayers for power plants before they are operational in Colorado, see the testimonies of Ron Binz (Colorado Energy Consumers), Jim Greenwood (OCC) and Karlton Kunzie (PUC Staff) in the combined Dockets 04A-214E, 04A-215E and 04A-216E at the Colorado PUC.

<sup>50</sup> Approval of CWIP financing for the Unit 3 coal plant was discussed on pages 37-39 of Decision C05-0049.

<sup>51</sup> The 06S-234EG rate increase docket included a number of changes in rates, including incorporating the costs of coal into the fuel cost rider known as the Electric Commodity Adjustment (“ECA”) and the adoption of an incentive to burn more coal known as the “Baseload Energy Benefit” or “BLEB.” The final decision in the 06S-234EG Docket was Commission Decision C06-1379.

<sup>52</sup> See the Direct Testimony of Xcel witness Scott Imbler (pages 8 and 9) and Exhibit 117 (Testimony of Xcel President for Energy Supply David Wilks before the US Senate Committee on Energy and Natural Resources, May 25, 2006) and Exhibit 118 (Discovery Request RUC 2-10 regarding coal supply constraints) in Docket 06S-234EG at the Colorado PUC.

<sup>53</sup> See Exhibit 118, RUC 2-10 (g) in docket 08S-234EG for the acknowledgment by Xcel that it had not conducted any analysis of its long term coal supply for the Unit 3 coal plant.

<sup>54</sup> See Exhibit 118, RUC 2-10 in docket 06S-234EG for information on coal supply constraints in Xcel’s Colorado territory in 2005-2006.

<sup>55</sup> See Exhibit 118, RUC 2-10 (g) for Xcel’s acknowledgement that it had not conducted any analyses of coal supply constraints for the proposed lifetime of the Unit 3 coal plant in Pueblo.

In 2006, Xcel ratepayers were shocked to find that Xcel had not conducted any analyses of its long term coal supply for its Colorado coal plants—despite the fact that it was planning on spending about \$1 billion building a new coal plant which it expected to operate for 50 years.

Dan Friedlander, a citizen intervenor in the PUC 06S-234EG Xcel rate increase docket challenged the rate increase in court<sup>56</sup> for failure to assure that the coal plant could function as a coal plant before beginning to charge ratepayers CWIP charges. Once again the court decided in favor of the PUC without addressing the substantive issues raised in the case.

### **F. 2007—Xcel Begins to Turn Its Back on Coal, But Not Unit 3; It Becomes Clear that the Coal Plant Will Be Excess Capacity and Xcel Proposes to Retire Other Aging Coal Plants**

The year 2007 marked several important turning points in Colorado for Xcel with respect to generation resources. These included:

- Xcel analyzed a “clean coal” power plant (also known as IGCC or Integrated Gasification and Combined Cycle) and decided not to pursue such a plant until at least 2016.<sup>57</sup>
- Xcel successfully opposed the addition of another coal plant onto its system for 2013.<sup>58</sup>
- Xcel proposed moving ahead with up to 200 MW of Concentrating Solar Power with thermal storage.<sup>59</sup>

The combination of these decisions marked a historic turning point for Xcel in Colorado away from coal for large new centralized power generation and towards the use of Concentrating Solar Power technologies

<sup>56</sup> See *Friedlander v. Public Utilities Commission*, Case 2007CV104 in Boulder District Court.

<sup>57</sup> In early 2007, Nancy La Placa and Leslie Glustrom brought a complaint at the Colorado PUC which put Xcel on notice that further investments in an IGCC (coal gasification) plant would be challenged as imprudent. See Docket 07F-088E. Several months later, Xcel announced that it would not proceed with a coal gasification plant. See [http://www.denverpost.com/business/ci\\_7334257](http://www.denverpost.com/business/ci_7334257). In late 2007, Xcel submitted its 2007 Resource Plan, with the IGCC plant postponed until at least 2016. See pages 1-38, 1-41, 1-48, and 1-52 in Volume 1 of PSCo’s 2007 Colorado Resource Plan in Docket 07A-447E showing that Xcel had postponed consideration of an IGCC plant until at least 2016.

<sup>58</sup> The issue of the “2013 coal plant” was discussed in Docket 05A-543E and continued and resolved in the combined Dockets 07A-107E and 07A-196E with the final decision in the latter two dockets being issued in C07-0758.

<sup>59</sup> See for example pages 1-38, 1-41 and 1-50 in Volume 1 of PSCo’s 2007 Colorado Resource Plan in Docket 07A-447E.

that sunlight and mirrors in a variety of configurations to produce steam to turn a steam turbine and produce electricity.<sup>60</sup> Importantly, CSP technologies are thermal technologies which allow for the storage of heat (usually in large molten salt tanks) and the stored heat can be used to produce electricity even when the sun isn't shining. This characteristic of being at least "semi-dispatchable"<sup>61</sup> is critical for utilities that must provide electricity on demand. Alternatively a CSP plant can be hybridized with natural gas to carry it through times when the sun isn't shining and the plant is needed.<sup>62</sup>

In 2007, Xcel made an historic shift away from heavy reliance on coal by opposing a new coal plant on its system, deciding not to pursue an IGCC "coal gasification" (sometimes erroneously called "clean coal") plant and proposing to move ahead with up to 200 MW of Concentrating Solar Power in Colorado.

One of the interesting developments of 2007, was that revised demand projections indicated that the coal plant would no longer be needed to meet Xcel's Colorado load in 2010 because Xcel would have 532 MW of excess capacity in 2010 on top of its 16% reserve margin.<sup>63</sup> In other words, if Xcel didn't bring its 500 MW share of the Unit 3 coal plant on line in 2010, the revised demand analysis showed that Xcel would be able to meet its load and on top of that would have a 16% reserve margin. In short, the new Unit 3 coal plant would not be needed to meet the needs of Xcel's ratepayers; rather the coal plant was "excess capacity."

During 2007 Xcel began to realize that it would have excess capacity when it was planning on bringing the new Unit 3 coal plant on line. During

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<sup>60</sup> For an overview of Concentrating Solar Power technologies try [www.ausra.com](http://www.ausra.com). For more technical information try [www.nrel.gov/csp/troughnet](http://www.nrel.gov/csp/troughnet). As of 2009 there were several thousand MW of Concentrating Solar Power projects being pursued by Southwestern utilities—depending on the availability of financing during the economic downturn.

<sup>61</sup> See for example, page 1-50 in Volume 1 of Xcel's 2007 Colorado Resource Plan in Docket 07A-447E for a short description of the ability of

<sup>62</sup> Natural gas plants are not always run 24/7, so the CSP plant is not necessarily needed around the clock either. Rather, it is often most needed during the summer peak when there is a good probability that the sun will be shining and a few hours of thermal storage can greatly increase the usefulness of the plant.

<sup>63</sup> The 532 MW of excess capacity in 2010 was portrayed in Exhibit 19 in Docket 07A-107E and was provided by Xcel in response to Discovery Request LWG 1-3 in that 07A-107E Docket. A copy of the Discovery Request showing the 532 MW of excess capacity in 2010 was included as Attachment 111 to the Answer Testimony of Leslie Glustrom in Docket 08S-520E.



that year Xcel rearranged 191 MW of gas contracts, which had the effect of reducing the excess capacity in 2010<sup>64</sup> and also proposed to begin retiring coal plants in the 2010 to 2014 time frame.<sup>65</sup>

At the time the coal plant retirement proposal was discussed in the local media, Xcel CEO Dick Kelly was quoted as saying, “That is why we built Comanche 3 so we can shut down the more inefficient ones.”<sup>66</sup> There does not appear to be any reference to building Comanche 3 so that Xcel could retire existing coal plants in the records of the PUC prior to this point and it appears that Xcel was proposing to retire some old coal plants<sup>67</sup> in large part to make room on its otherwise crowded system for the new Unit 3 coal plant.

The proposal to retire coal plants received wide spread attention as an effort to reduce emissions of CO<sub>2</sub>,<sup>68</sup> but the announced coal plant retirements cannot offset the new CO<sub>2</sub> emissions from the Unit 3 coal plant. The Unit 3 coal plant is a 750 MW coal plant (with 500 MW for Xcel ratepayers) but Xcel only announced retirement plans for 229 MW of old coal plants—plants that should have been retired anyways. Consequently, the retirement of the 73 MW Cameo and 156 MW Arapahoe coal plants will

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<sup>64</sup> In Docket 07-107E and 07A-196E, Xcel arranged for two gas contracts totaling 191 MW to be rearranged with Tri-State Generation and Transmission so that Xcel would transfer these two contracts (Limon, 63 MW and Brighton, 128 MW) to TSGT for 2010-2012, and then would take the capacity back starting in 2013. See e.g. ¶’s 2, 9, 10, and 49 in Decision C07-0758. For reasons that aren’t clear, Xcel transferred the Limon contracts for the four years from 2009-2012 and the Brighton contracts for three years from 2010-2012, as can be seen from the updated Loads and Resources Table filed by Xcel on December 11, 2008. A copy of this Loads and Resources Table is included as Attachment 113 to the Answer Testimony of Leslie Glustrom in the 08S-520E Docket.

<sup>65</sup> The coal plant retirements were proposed as part of the 07A-447E Docket. Examining the Loads and Resources Table filed by Xcel on December 11, 2008 shows that Xcel proposed retiring, the 73 MW Cameo 1&2 coal plants in 2011, and the 156 MW Arapahoe 3 & 4 coal plants in 2014. The Loads and Resources Table also shows plans for retiring the 39 MW Zuni 1 natural gas/oil plant in 2010 and the 68 MW Zuni 2 natural gas/oil plant in 2013. A copy of this Loads and Resources Table is included as Attachment 113 to the Answer Testimony of Leslie Glustrom in the 08S-520E Docket. The actual schedule for the retirement of the Cameo and Arapahoe coal plants is expected to be determined late in 2009 as part of what is referred to as “Phase 2” of the 2007 Resource Plan in Docket 07A-447E.

<sup>66</sup> See the November 2, 2007 Denver Business Journal Story, “Xcel Ponders Closing Some Power Plants,” by Cathy Proctor available at <http://denver.bizjournals.com/denver/stories/2007/11/05/story1.html>

<sup>67</sup> According to Discovery Request LWG 3-6 in Docket 07A-447E, Cameo 1&2 were commissioned in 1957 and 1960 respectively while Arapahoe 3 & 4 were commissioned in 1951 and 1955 respectively. Information on Xcel’s coal plants in Colorado is also available from the Xcel Energy website at [http://www.xcelenergy.com/Company/About\\_Energy\\_and\\_Rates/Power%20Generation/Pages/ColoradoPlants.aspx](http://www.xcelenergy.com/Company/About_Energy_and_Rates/Power%20Generation/Pages/ColoradoPlants.aspx). According to the website, the Zuni 1 (39MW) and 2 (68 MW) plants were commissioned in 1900 and use either natural gas or oil as fuel. The Zuni units also produced steam for downtown Denver buildings.

<sup>68</sup> For discussions of Xcel’s plans to retire coal plants as a way to reduce emissions of carbon dioxide, see for example [http://www.washingtonpost.com/wp-dyn/content/article/2008/08/17/AR2008081702193\\_3.html](http://www.washingtonpost.com/wp-dyn/content/article/2008/08/17/AR2008081702193_3.html) or <http://solveclimate.com/blog/20080825/welcome-future-xcel-energy-shuts-down-coal-plants-solar-and-wind>

not offset the new emissions from the 750 MW Unit 3 coal plant if it is brought on line. Moreover, Xcel has now asked for a 60 year life span for the new Unit 3 coal plant<sup>69</sup> and clearly, retiring 229 MW of old coal plants that were ready for retirement anyways did not offset a new 60 year commitment to CO2 emissions from a 750 MW coal plant.

In 2007, Xcel realized that it would have significant amounts of excess capacity if it brought on the new Unit 3 coal plant and soon proposed retiring some older coal units. While often portrayed as an effort to reduce emissions of carbon dioxide, the proposed coal plant retirements did not offset the increased carbon dioxide emissions from the new Unit 3 coal plant, but did help create more room on Xcel’s system for the new Unit 3 coal plant by masking the fact that Xcel was overbuilding its system and asking ratepayers to pay for it.

**G. 2008—Xcel Moves Forward with Concentrating Solar Power; Reorganizes Another Gas Contract; Once Again Acknowledges That it Hasn’t Analyzed Its Long Term Coal Supplies; Files the Rate Increase to Cover the Costs of the New Coal Plant**

In 2008, there were many developments in Xcel’s plans for its Colorado system—particularly as it related to Xcel’s plans for bringing on the new Unit 3 coal plant and possible alternatives. These included:

- In June 2008, Xcel proposed moving forward with up to 600 MW of Concentrating Solar Power with thermal storage;<sup>70</sup>
- Once again, Xcel acknowledged that it had not conducted any analyses of its long-term coal supplies;<sup>71</sup>

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<sup>69</sup> See the Direct Testimony of Xcel witness Lisa Perkett in Docket 08S-520E, page 16. line 8.

<sup>70</sup> See the June 2008 Rebuttal Testimony of Xcel witness Greg Ford, pages 9-16 in Docket 07A-447E for a description of Xcel’s proposal to move forward with up to 600 MW of Concentrating Solar Power with thermal storage.

<sup>71</sup> For Xcel’s acknowledgement that it had not conducted any analyses of constraints in future coal supply from the Powder River Basin (e.g. Wyoming) see Attachment 48 (PSCo Response to Discovery Request LWG 5-11) to the Answer Testimony of Leslie Glustrom Docket 07A-447E. For Xcel’s acknowledgement that it had not conducted any analysis of future limitations on the supply of coal from Colorado mines, see Attachment 49 (PSCo Response to Discovery Request LWG 5-12) to the Answer Testimony of Leslie Glustrom in Docket 07A-447E. In each case, when PSCo was asked what analyses it had conducted on future constraints in coal supply, the answer was “No such analysis conducted by PSCo exists.”

- Once again, Xcel rearranged plans related to a new natural gas facility to reduce the excess capacity on its system for the 2010 time frame when it planned to bring the new Unit 3 coal plant on line. This rearrangement reduced the excess capacity in 2010 by approximately 140 MW.<sup>72</sup>
- Xcel’s plans for moving ahead with up to 600 MW of Concentrating Solar Power, up to 800 MW of new wind resources, the use of a \$20/ton planning charge with a 7% escalation factor for carbon dioxide (“CO2”) emissions and the retirement of the Arapahoe and Cameo coal plants was approved in Decision C08-0929 issued on September 19, 2008 as part of the 07A-447E Docket. This decision also allowed Xcel to assume that the cost of coal would rise about 2.33% per year.
- In October 2008 Xcel filed its Annual Progress Report for its 2007 Colorado Resource Plan noting that it had asked for 150 MW of wind and received almost 2400 MW of acceptable bids for new wind projects. For photovoltaic (“PV”) solar, Xcel asked for 25 MW of bid and received 400 MW of acceptable bids.<sup>73</sup> In both cases, Xcel received bids for 16 times as much wind and solar capacity as it asked for. Since Xcel took less than 200 MW of the

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<sup>72</sup> The rearrangement of plans for the new natural gas facility scheduled to come on line in 2009 was determined in the 07A-469E Docket which was generally referred to as the “Fort St. Vrain” Docket. Xcel learned late in 2007 that the proposed 500 MW Squirrel Creek combined cycle gas turbine project which was expected to come on line for 2009 was experiencing financing issues and probable delays. As a result, Xcel decided to replace the Independent Power Producer (“IPP”) 500 MW Squirrel Creek project with 260 MW of company owned gas turbines at the Fort St. Vrain site near Greeley. This rearrangement had the effect of reducing capacity on Xcel’s system in 2010 by about 140 MW. The rearrangement was approved in Decision C08-0369 and Application for RRR was denied in Decision C08-0522. One of the very contentious issues in the 07a-469E Docket was the potential to reduce summer peak demand (and possibly eliminate the need to build new natural gas turbines) by undertaking a vigorous demand response program such as those conducted by firms such as EnerNOC or ConsumerPowerline. Xcel opposed all of these efforts in a series of intensely fought motions, but the Commission ordered that Xcel also move ahead with a Demand Response program as part of Decision C08-0369. (See e.g. ¶’s 48-52 and ¶’s 59-67 of Decision C08-0369.) If not for the rearrangement of the 500 MW Squirrel Creek contract and its replacement with the 260 MW Fort St. Vrain project, there would have been an additional 140 MW of capacity on Xcel’s system in 2009.

<sup>73</sup> See the October 31, 2008 Annual Progress Report for the 2007 Colorado Resource Plan submitted as part of Docket 07A-447E. The summary of wind and solar bids received is on pages 3 and 4. The story of the solar and wind bids exceeding expectations was published on November 4, 2008 in the (now defunct) Rocky Mountain News in a story by Gargi Chakrabarty entitled, “Wind, solar bids surpass expectations: Developers give Xcel plans for 2,800 megawatts.” Possibly available at <http://www.rockymountainnews.com/news/2008/nov/04/wind-solar-bids-surpass-expectations/#>.

over 2400 MW of bids received, over 2000 MW of wind and solar projects sit waiting to be developed in Colorado.

- On November 14, 2008, Xcel filed a request for a \$174.4 million rate increase which became Docket 08S-520E. One of the drivers of the requested rate increase was Xcel's intention to bring the new Unit 3 coal plant on line in 2009.<sup>74</sup>

Key developments in 2008 included:

- Xcel committing to move ahead with up to 600 MW of Concentrating Solar Power with thermal storage
- Xcel acknowledging again that it hadn't analyzed constraints on future coal supplies.
- A PUC decision to add a \$20/ton CO<sub>2</sub> adder to resource selection decisions—favoring carbon-free resources.
- Xcel receiving bids for 16 times as much wind and solar capacity as it asked for in 2008—leaving over 2000 MW of clean energy projects waiting to be built in Colorado.
- Xcel filing a rate increase request for an additional \$174 million for 2009 in part due to Xcel's plans to bring on the new Unit 3 coal plant in 2009—even though it isn't needed to meet Xcel's load in 2009.

#### **H. 2009—Xcel Once Again Realizes The Coal Plant Will Be Excess Capacity—and It's Appetite for Renewable Energy Will Be Reduced; Coal Supply Report Released; Rate Increase for Unit 3 Contested**

In 2009, developments as of April include:

- In February 2009 the report entitled “Coal: Cheap and Abundant—Or Is It? Why Americans Should Stop Assuming that the US has a 200 Year Supply of Coal,” was released by Clean Energy Action member Leslie Glustrom.<sup>75</sup> The report underscores the fact that the major coal mines in the United States have less than a 20 year life span and how future coal mine expansions will face serious geologic, economic, legal and transportation constraints.

<sup>74</sup> For a summary of the drivers of the 08S-520E rate increase see the Direct Testimony of Xcel witness Scott Wilensky, Docket 08S-520E, pages 12-14.

<sup>75</sup> The report is available at [www.cleanenergyaction.org](http://www.cleanenergyaction.org) or from the author.

- On March 19, 2009 Xcel filed an updated estimate of demand which included a Loads and Resources Table that shows that, once again, Xcel will have 500 MW of excess capacity in 2010 for its system (on top of the 16% reserve margin) and the Unit 3 coal plant is not needed to meet the demand from Xcel customers.<sup>76</sup> In addition, Xcel put the PUC on notice that it might not be accepting as many wind and solar bids as it had intended to due to decreased demand on the system.
- The prudence of the Unit 3 coal plant is challenged in accordance with Rule 3613 (d) of the PUC rules as part of the 08S-520E rate case docket. Final decisions will not be reached until mid 2009.
- Xcel is notified on March 13, 2009 that the air permit for the Unit 3 coal plant needed to be updated to reflect case-by-case Maximum Available Control Technology (MACT) for mercury control.<sup>77</sup>

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<sup>76</sup> The March 19, 2009 Loads and Resources Table was submitted as part of a compliance filing in the 07A-447E Docket. The filing shows 122 MW of excess capacity in 2009—before the Unit 3 coal plant is brought on line and 511 MW of excess capacity assuming Xcel brings on its 500 MW share of the coal plant.

<sup>77</sup> The need for a case-by-case Maximum Available Control Technology (“MACT”) permit for the Unit 3 coal plant was communicated to Xcel by the Colorado Department of Public Health and the Environment in a letter dated March 13, 2009 to Gary Magno, Environmental Principal, Xcel Energy.

**Table 3**  
**Capacity of Xcel's System 2009-2015**

Based on PSCo Loads and Resources February 2009 Demand Update  
Submitted to Colorado PUC March 19, 2009 in Docket 07A-447E  
Xcel's wholesale obligations can also affect resource need.

**Numbers in ( )'s are excess capacity.**

| Year  | 2009        | 2010          | 2011  | 2012          | 2013          | 2014  | 2015  |
|---|-------------|---------------|---|---------------|---------------|---|---|
| <b>Xcel Need (Long) w/o Coal Plant (MW)</b>   | (122)       | (11)          | 203   | 73            | 747           | 1572  | 1660  |
| <b>Xcel Need (Long) w/ Coal Plant (500 MW)</b>  | (622)       | (511)         | (297)   | (427)         | 247           | 1072  | 1160  |
| <b>Gas Plants Potentially Available</b>   | <b>0 MW</b> | <b>103 MW</b> | <b>103 MW</b>   | <b>103 MW</b> | <b>881 MW</b> | <b>1378 MW</b>  | <b>1378</b>   |
| <b>Xcel Need (Long) w/ Gas Plants and w/o Unit 3 Coal Plant (MW)</b>  | (122 )      | (124)         | 100   | (30)          | (31)          | 194   | 282   |
| <b>Can Xcel Meet The Load of Its Ratepayers without the Unit 3 Coal Plant? (Assuming Gas Plant Contracts Are Extended.)</b> | <b>YES</b>  | <b>YES</b>    | Probably OK (100 MW shortfall for 16% reserve margin; not a large amount. | <b>YES</b>    | <b>YES</b>    | Probably OK (194 MW shortfall for 16% reserve margin— but lots of time to prepare.) | Probably OK (282 MW shortfall for 16% reserve margin— but lots of time to prepare.) |

In addition to the excess capacity and the existing natural gas plants shown in Table 3, Xcel has received many more bids for wind and solar developments than it has used. In 2008, Xcel received 16 times as many wind and solar bids as it requested, as shown in Figure 3 below. These are bids that are ready for development and which could be added to Xcel's system in 1-2 years—helping to address any potential shortfall in capacity on Xcel's system. Xcel also received new bids on April 10, 2009 for wind, natural gas and concentrating solar power plants. While the number and type of bids received on April 10, 2009 will not be publicly known for several more months, it is likely that there will be additional bids available for development from this April 2009 round of bidding—on top of the over 2000 MW of wind and solar bids already awaiting development.

**Figure 3**

**Xcel Receives 16 Times as Many  
Wind and Solar Bids As it Requests in 2008**

Source: Public Service Company of Colorado October 2008 Update to 2007 Colorado Resource Plan

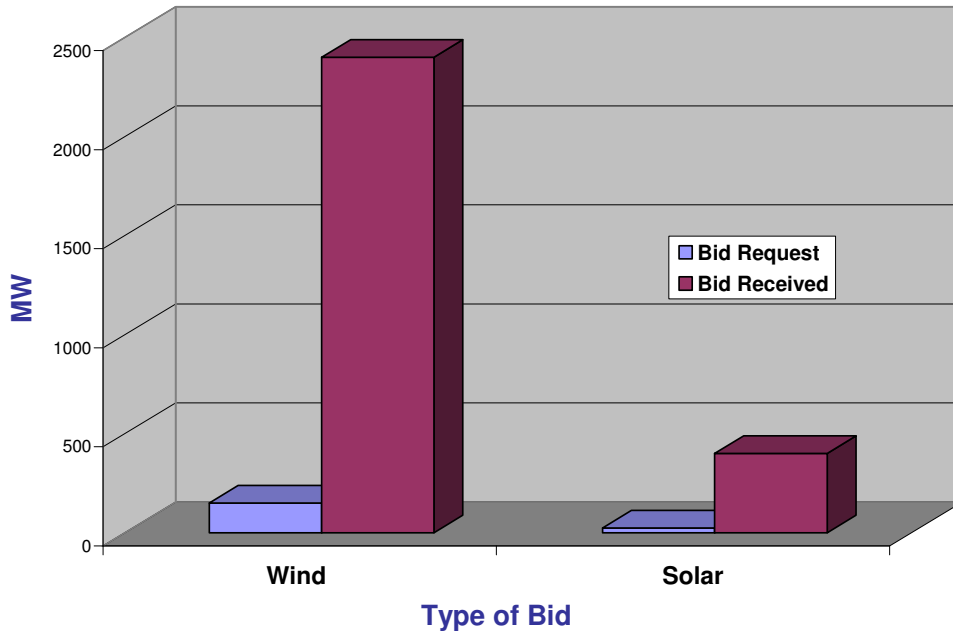


Figure 3 makes it clear that there are over 2000 MW of wind and solar projects waiting to be developed in Colorado. These can play an important role in filling any future need for generation resource—as could any extra bids received on April 10, 2009 by Xcel. While wind and solar projects can be more variable than coal plants and have different generation profiles, there is a growing recognition that the ability to integrate these generation resources is improving and that what is really needed are “load-following”,<sup>78</sup> resources along with the improved metering and grid management techniques that will allow the generation profiles of carbon-free generation resources to be matched to the needs of the grid.

<sup>78</sup> “Load following” resources naturally follow the daily load pattern—with greater use during the daylight hours than at night. Base load resources like coal plants operate around the clock—whether the electricity is needed or not. As concerns about climate change, pollution and fuel supply constraints intensify, there is a growing discussion about the need for “load following” resources rather than resources that operate at night whether the electricity is needed or not.

## **II. THE BILLION DOLLAR MISTAKE**

The list of reasons why the new Unit 3 coal plant is a mistake is long. Below is a list of some of the major reasons Colorado should turn back now—before our \$1 billion mistake becomes a \$2 billion mistake or more.

### **A. Xcel’s Motivation Was to Make a Large Capital Expenditure— Not to Serve Colorado With the Cheapest or the Cleanest Energy Sources**

As outlined in Part I above, Xcel’s motivation in building the Unit 3 coal plant was apparently to make a large capital expenditure in order to increase its earnings and regain lost value for its stock—not to bring Colorado the cheapest or cleanest way of producing electricity. Xcel’s own modeling showed that increased investments in efficiency and renewable energy would have saved ratepayers billions of dollars. (See Figure ZZ above.)

### **B. The New Unit 3 Coal Plant Isn’t Needed to Meet Colorado’s Energy Needs**

Xcel has significant amounts of excess capacity on its system and many natural gas plants with contracts that can be renewed. In addition, there are over 2000 MW of wind and solar contracts waiting to be developed. There is certainly no need to bring the Unit 3 coal plant on line to “keep the lights on” for Xcel’s customers.

### **C. Xcel Failed to Secure a Long Term Coal Supply and Is Highly Unlikely to Be Able to Do So**

Unbeknownst to many people, all the major coal mines in the United States have only about a 20 year life span and future coal mine expansions are likely to face serious geologic, economic, legal and transportation constraints.<sup>79</sup> Xcel has proposed that the Unit 3 coal plant be given a 60 year life, and yet will be lucky to demonstrate a secure 20 year coal supply for the plant. To date, Xcel has not provided any public analysis of its long term coal supplies or indicated how it intends to supply the coal plant with coal for the requested 60 year life of the plant.

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<sup>79</sup> A detailed analysis of United States coal supplies can be found in the report, “Coal: Cheap and Abundant—Or Is It? Why Americans Should Stop Assuming that the U.S. has a 200 Year Supply of Coal.” The report was issued in February 2009 and is available for free download at [www.cleanenergyaction.org](http://www.cleanenergyaction.org).



#### **D. The New Coal Plant Will Cost Approximately a Billion Dollars a Decade to Operate; Most of These Energy Dollars Will Leave Colorado**

Xcel has estimated that its coal costs for the plant will be \$50 million or more per year, with operating and maintenance costs of \$16 million per year or more.<sup>80</sup> As these costs mount, it can be expected that the coal plant will cost about a billion dollars a decade to operate. In recent years, Xcel's coal costs have begun to increase by 10% or more per year.<sup>81</sup> If regulation of carbon dioxide moves forward, the Unit 3 coal plant is expected to emit over 4 million tons of CO<sub>2</sub> per year and if carbon dioxide emissions are priced at \$20 per ton, this could add about \$80 million per year or \$800 million per decade to the operating costs for the coal plant. Most of these costs will be sent out of state with the costs for coal being sent north to Wyoming and the costs for carbon dioxide regulation likely to go to the federal government. In contrast, spending \$1 billion a decade on wind, solar, efficiency and other Colorado generating resources will keep more of Colorado's energy dollars in the state.

#### **E. The Coal Plant Will Contribute Over 4 Million Tons of CO<sub>2</sub> Per Year to the Atmosphere; Carbon is "Forever"**

The exact amount of carbon dioxide emitted by Unit 3 is not clear, but it is likely to emit substantially more than 4 million tons of CO<sub>2</sub> per year.<sup>82</sup> Four million tons per year equates to over 20 million pounds of CO<sub>2</sub> emitted per day.

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<sup>80</sup> Information on coal costs and operating and maintenance costs for the Unit 3 coal plant received from Xcel in Discovery as part of the 08S-520E Docket. See the testimony and statements of Leslie Glustrom in the 08S-520E Docket for more information.

<sup>81</sup> See the Supplemental and Cross Answer Testimony of Leslie Glustrom in Docket 07A-447E as well as the Motion of Leslie Glustrom to Reconsider Coal Costs in the 07A-447E Docket.

<sup>82</sup> See page A-8 in the October 2007 Final Colorado Greenhouse Gas Inventory available at <http://www.coloradoclimate.org/ewebeditpro/items/O14F13894.pdf>. The Unit 3 coal plant is calculated to emit about 4.38 million metric tons of CO<sub>2</sub> per year. This equates to about 4.8 million (U.S.) tons. Also, the Greenhouse Gas Inventory only assumed the coal plant would operate 80% of the time. A well functioning coal plant is likely to operate more than that and so would emit more CO<sub>2</sub>.

According to the U.S. Environmental Protection Agency's Greenhouse Gas Equivalencies Calculator,<sup>83</sup> 4 million tons of CO<sub>2</sub> per day equates to the CO<sub>2</sub> emitted (or absorbed) by:

**664,604 passenger vehicles**  
**503,292 households (electricity use)**  
**93,044,585 tree seedlings planted and grown for 10 years**

Carbon dioxide is the molecule that forms the basis of life, and consequently it is remarkably stable. Recent modeling studies indicate that much of the CO<sub>2</sub> that is emitted will stay in the atmosphere for thousands of years and approximately 25% is likely to stay for over 5000 years.<sup>84</sup> As a consequence, we can expect that at least part of the carbon dioxide emitted now by the Unit 3 coal plant (or other carbon producing source) is likely to contribute to the warming of the planet for several thousand years.

#### **F. The Unit 3 Coal Plant Will Require Large Amounts of Water— The Warming and Drying of Colorado Will Make It Increasingly Hard to Secure—and Justify—This Water**

Coal plants require large amounts of water that is used to cool the steam that turns the turbines of the power plant. The new Unit 3 coal plant will have a hybrid air-water cooling system that will reduce water use—but which will still require about 5500 acre-feet of cooling water a year taken from the Arkansas River Basin.<sup>85</sup> This equates to the consumption of over 4 million gallons of water a day in order to operate the coal plant.

As seen in Figure 4 below, the amount of water used by the coal plant dwarfs the use by the top 10 water users in Pueblo. The warming of the planet is expected to dry out the interior of continents at mid-latitude<sup>86</sup> (e.g. Colorado) and as Colorado warms and dries it is likely to become increasingly difficult to obtain these large quantities of water—particularly if the coal plant is competing with other residential and industrial uses.

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<sup>83</sup> See the EPA Greenhouse Gas Equivalence Calculator at <http://www.epa.gov/solar/energy-resources/calculator.html>

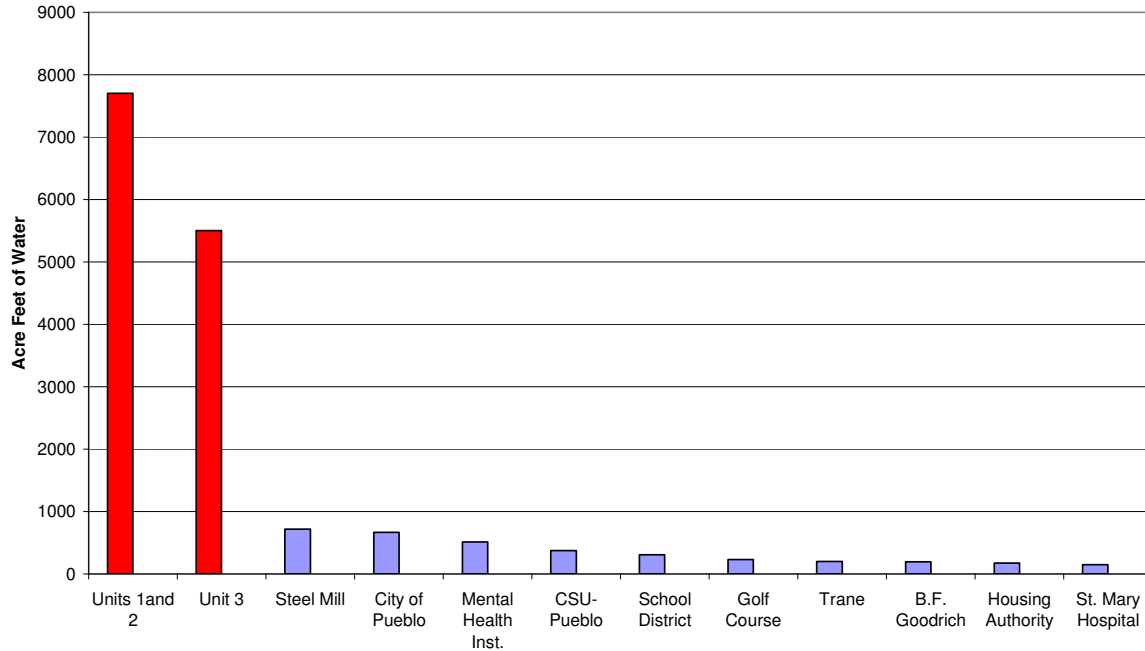
<sup>84</sup> See “Long term fate of anthropogenic carbon,” by Montenegro et al., *Geophysical Research Letters*, L19707 (October 10, 2007).

<sup>85</sup> Information on water use from the Pueblo Board of Water Works

<sup>86</sup> See the reports of the Intergovernmental Panel on Climate Change available at [www.igcc.ch](http://www.igcc.ch)

Figure 4  
**Water Use by the Pueblo Coal Plants  
 Compared to the Top 10 Water Users in the State**  
 (Information from the Annual Report of the Pueblo Board of Water Works)

**Water Use by the Coal Plants Compared to  
 Pueblo's Top Ten Users of Treated Water**

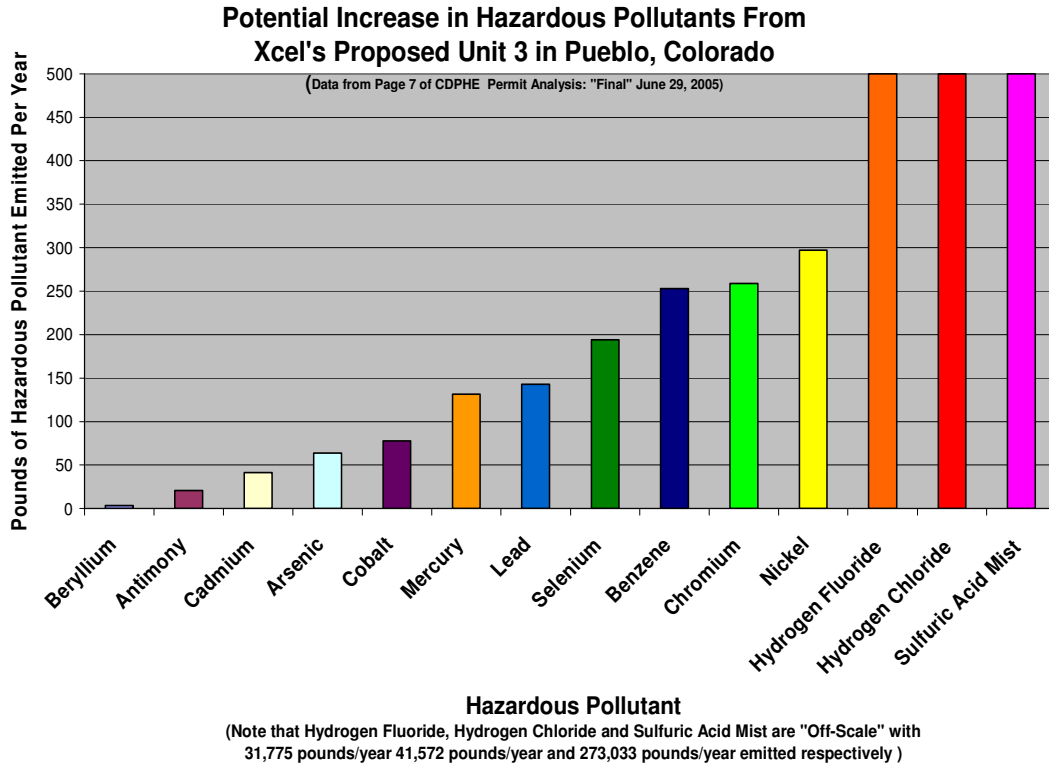


**G. The Unit 3 Coal Plant Will Emit Large Amounts of Hazardous and Other Pollutants; Legal and Financial Liability Associated With These Pollutants is Likely to Increase in the Coming Years**

The Unit 3 coal plant—as with all coal plants—will emit large quantities of hazardous pollutants such as mercury, lead, arsenic, selenium and benzene.<sup>87</sup> Figure 5 shows the potential emissions of hazardous pollutants from the new Unit 3 coal plant as analyzed by the Colorado Department of Public Health and the Environment. For example, the Unit 3 coal plant will have the potential to emit approximately 130 pounds of mercury a year—or 2 pounds of mercury a week.

<sup>87</sup> See the Colorado Department of Public Health and the Environment Final Analysis of the Air Permit for the Comanche 3 Station, July 2005.

Figure 5  
 Potential Emission of Hazardous Pollutants from the Unit 3 Coal Plant  
 (Data from Colorado Department of Public Health and Environment  
 Analysis of the Unit 3 Air Permit, July 2005)



As further scientific information is gathered on these pollutants, it can be expected that increased regulation and potential financial and legal liability will increase for sources such as the new Unit 3 coal plant that are emitting these pollutants.

In addition to hazardous pollutants, the new Unit 3 coal plant will have the potential to emit large quantities of other regulated pollutants including SO<sub>2</sub>, NO<sub>x</sub>, particulate matter, volatile organic compounds and carbon monoxide, as shown in Table 4 below.

**Table 4**  
**Unit 3 Potential Emissions of Air Pollutants**  
 From CDPHE Analysis of Air Permit, July 2005

| <b>Pollutant</b>                      | <b>Unit 3 Potential Emissions<br/>Per Year</b> |
|---------------------------------------|--|
| <b>SO<sub>2</sub></b>                 | <b>3250 Tons/Yr</b>                            |
| <b>NO<sub>x</sub></b>                 | <b>2600 Tons/Yr</b>                            |
| <b>PM-10 Particulates</b>             | <b>650 Tons/Yr</b>                             |
| <b>Volatile Organic<br/>Compounds</b> | <b>114 Tons/Yr</b>                             |
| <b>Carbon Monoxide</b>                | <b>4225 Tons/Yr</b>                            |

**H. The Unit 3 Coal Plant Will Produce Large Amounts of Coal Combustion Waste (e.g. Ash) Which Is Likely to Carry Financial and Legal Liability Concerns**

A number of dramatic spills of coal ash have occurred in recent years. For example, in the week before Christmas 2008 a coal ash containment pond in Tennessee broke flooding areas with coal ash sludge and potentially contaminating water supplies.<sup>88</sup> The federal government is expected to move forward on the regulation of coal ash<sup>89</sup> and these regulations could increase operating costs (as well as legal liability risks) for the Unit 3 coal plant.

**I. Coal Plants Make it Harder to Incorporate Wind and Solar Energy and Can Reduce a Utility’s Appetite for Clean Energy**

Coal plants do not ramp up and down as quickly as natural gas plants, so they do not complement wind and solar resources as well as gas plants. When Xcel recently studied the incorporation of more wind on its system in Colorado

<sup>88</sup> See “Coal Ash Spill Revives Issues of Its Hazards,” New York Times, December 24, 2008 available at <http://www.nytimes.com/2008/12/25/us/25sludge.html> .

<sup>89</sup> See “Administration Plans New Regulation on Coal Ash Ponds,” New York Times, March 9, 2009 available at <http://www.nytimes.com/2009/03/08/us/politics/08ash.html>

it realized that it was already having to consider the cycling of coal plants to accommodate the growing amount of wind on its system.<sup>90</sup> If the Unit 3 coal plant is brought on line it will probably make it more difficult to accommodate more wind and solar energy on Xcel's Colorado system. In addition, just as eating chocolate cheesecake before dinner can spoil your appetite for more healthy foods, moving forward with the Unit 3 coal plant is likely to dampen Xcel's appetite for more wind and solar on its Colorado system.

### **III. COLORADO'S CHOICES--WHAT DO WE DO NOW?**

#### **A. The Story of the Peanut Corporation of America—A Warning Worth Heeding....**

In late 2008, the Peanut Corporation of America apparently knowingly shipped salmonella contaminated peanut butter to a number of outlets. The salmonella sickened hundreds of people and is thought to have led to the death of several people. As the story unfolded, the peanut butter cream was recalled and the Peanut Corporation of America filed for Chapter 7 bankruptcy.<sup>91</sup>

Undoubtedly the Peanut Corporation of America management did not want to take the short term loss that would go with holding the peanut butter cream back since it had already paid for the peanuts and the processing. It is clear in hindsight, though, that the company would have been better off to recognize the mistake and take appropriate action—including managing the short-term loss—instead of moving forward down a road that has led the company into bankruptcy.

The Unit 3 coal plant is supposed to have a 60 year life span, yet it will be extremely difficult to keep the coal plant operating as a coal plant for that period of time and operating costs are likely to mount dramatically. It appears that it would behoove both Xcel and those regulating the company to acknowledge the mistake that has been made and to give serious consideration to paying off the coal plant without operating it,<sup>92</sup> while freeing Xcel and Colorado to move forward into the post-fossil fuel world. The alternative is to

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<sup>90</sup> See "Wind Integration Study for Public Service of Colorado: Addendum—Detailed Analysis of 20% Wind Penetration," by EnerNex for Xcel Energy, December 1, 2008. See the "Appendix B—Discussion of Coal Unit Impacts," for a discussion of the probable need to begin cycling coal plants as more wind is added to Xcel's Colorado system.

<sup>91</sup> See "Salmonella-hit peanut company files for bankruptcy," Reuters, February 13, 2009 available at <http://www.reuters.com/article/topNews/idUSTRE51C67C20090213>

<sup>92</sup> Preliminary information from Discovery Responses from Xcel in Docket 08S-520E indicate that the coal plant could probably be paid off with a 1-2% increase in rates for the next 30 or so years.

drain billions of dollars of operating costs out of Colorado for an asset that is highly unlikely to function for its intended life.

### **B. Choice #1—Do Nothing and Proceed with the Unit 3 Coal Plant**

Xcel, the Public Utilities Commission and Colorado’s top political leaders have indicated that they don’t intend to do anything to reevaluate the issue of moving forward with the Unit 3 coal plant because it is already permitted and constructed. The consequences of doing nothing and allowing Xcel to move forward with the coal plant are likely to include:

- Taking billions of dollars of operating costs out of Colorado and sending them out of state.
- The needless emission of millions of tons of CO<sub>2</sub> each year and over 2 pounds of mercury a week while the coal plant operates.
- Dramatically increasing operating costs as the cost of coal increases and the financial risks associated with emissions of CO<sub>2</sub> and other pollutants such as mercury mount.
- Missing the opportunity to invest in increased levels of Colorado-based wind, solar and efficiency resources that will keep Colorado’s energy dollars in the state while building a carbon-free energy system that will have a good chance of “keeping the lights on” in this century.
- Increasing constraints on coal supplies that can threaten the reliability of the electric grid.
- Increased legal and financial risk for Xcel, one of the country’s largest utilities and the operator of what is likely to be one of the country’s last conventional coal plants.
- Wasting the decade of the 2010’s and then finding ourselves with a non-functional and very expensive coal plant that is likely to lose its coal supply long before its expected life is over.

### **C. Choice #2—Recognizing Our Mistake, Paying Off the Coal Plant and Moving Forward Into the 21<sup>st</sup> Century**

The alternative choice to allowing the Unit 3 coal plant to proceed is to recognize the mistake that has been made and to take constructive action to address the mistake—ensuring that both the financial health of Xcel and the long-term interests of the State and of ratepayers are

considered. While this second path appears to be more difficult at first, it soon becomes obvious that it has a number of benefits including:

- Spending our time and money building the carbon-free infrastructure that will serve future generations for decades to come—because once wind and solar projects are built, they just keep on producing carbon- and fuel-free electricity.
- Keeping Colorado’s energy dollars circulating in Colorado instead of heading north to Wyoming on those “empty” coal trains.
- Avoiding the emission of pollutants such as CO2 and mercury that will remain in the environment essentially forever—leaving a legacy to future generations that is likely to be extremely difficult to manage.
- Preserving Colorado’s water resources for agriculture, industrial and residential uses that will support proportionately much greater levels of economic productivity.
- Building an electric generating structure that can provide reliable electricity in the 2020’s and beyond—at a time when coal supply constraints will become increasingly obvious to everyone involved.
- Preventing Xcel from going further down an imprudent path that could have very serious legal and financial consequences for the company and for the state.

#### **D. Who Will Lead the Way??**

One might hope that Colorado’s elected and appointed officials would show courageous and visionary leadership on this issue so that our state does not waste any more money than it already has. Unfortunately, it does not appear that this will be the case. That means that it will be up to the people to lead the way through discussion, action and organizing. This is often how social change has been achieved in the past and it appears that once again the old adage will need to be affirmed—“When the people lead, the leaders will follow!”



## IV. CONCLUSION

Colorado faces an interesting choice. A billion dollar mistake has been made; the Unit 3 coal plant in Pueblo has been constructed. Now, we can choose to do nothing and allow what is now a \$1 billion dollar mistake to become a \$2 billion or more mistake. Alternatively, we can recognize our mistake, pay off the coal plant and then use the billion dollars a decade (or more) that would be spent paying for coal and CO2 and other pollution control obligations to build a carbon-free infrastructure that we can be proud to pass on to future generations. The choice is ours. What will you advocate that we do?

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