



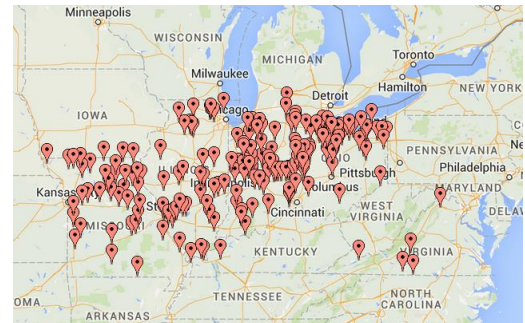
## Research Memo: Cost of Coal From 'Mine-Mouth' Prairie State Plant Isn't the Bargain That Was Promised

By Tom Sanzillo, Director of Finance, IEEFA

When Peabody Energy developed the Prairie State Energy Campus coal-fired power plant in Southern Illinois a decade ago, it promoted the "mine-mouth plant" as a way to save money on coal transportation costs. The coal from Peabody's Lively Grove coal mine, located next to the plant, was supposed to provide fuel at a bargain price for 30 years to come.

However, a careful review of how the cost of coal is calculated, given the unusual business model governing this plant, demonstrates that any savings expected from using Lively Grove coal have not been realized.

By late 2007, Peabody had sold 95 percent of the ownership of the Prairie State plant to municipal power agencies representing over 200 communities from across the Midwest and Virginia. The total development cost of the plant—mine and ash fill—was approximately \$5 billion, more than \$1 billion more than the estimates most of the communities received when they signed contracts for the power.



Map of PSGC communities. [Link to map](#)

Many of these individual communities signed "take-or-pay" contracts guaranteeing their electric utility revenues to pay back the over \$5 billion of bonds issued to build the plant. The Prairie State plant began operating in 2012. Since the plant opened, the cost of its electricity has soared well beyond what was originally promised, and is roughly twice the cost of power that can be bought on the market.

We have examined the reporting documents that participating communities have received since the plant opened, as well as numerous financing documents, official statements for bond issues, independent data sources and presentations made to the communities. Comparison of Lively Grove coal with other market products is made difficult because the various documents provided by plant owners do not always compare "apples to apples," but we have sifted through various budgets and reports to analyze the promises and compare them to the results.

Our examination shows that:

- The claims by Prairie State Generating Company (PSGC) that buying coal from Lively Grove would be a big cost savings have turned out, for the most part, not to be true. This is because the costs of the mine and its debt service are higher than originally estimated and the plant is running below capacity. Lively Grove coal costs roughly the same as

other Illinois Basin coal would have cost, even taking shipping costs for that coal into account.

- Lively Grove coal also costs about the same as coal that could have been purchased from the Powder River Basin (PRB), even taking shipping costs for that coal into account.
- The quality of the Lively Grove coal has contributed to unplanned outages at the plant, and PSGC has proposed new capital expenditures to improve the mine and plant.

As a matter of price, the Lively Grove coal is about the same price as either delivered higher-quality 11,500 Illinois Basin Coal or 8400 PRB Coal. In an overall sense, given the poor quality of the coal and plant performance to date, Lively Grove has been costlier than other sources of coal might have been. As such, it presents more risk to Prairie State communities and investors going forward.

### **Understanding PSGC Claims of the Lively Grove Coal Financial Advantage**

Coal is classified according to the basin from which it originates and its heat value (for example, ILB 11400 means coal originating in the Illinois Basin region with a heat content of 11400 Btu). The higher the number of the heat value (also known as the Btu value), the more efficient the coal. Other factors that are important in considering the value of the coal are the level of ash content and the level of sulfur and other chemicals.

Besides the Illinois Basin (ILB), the other major coal basins in the country are the Powder River Basin (PRB) and the Central (CAPP) and Northern Appalachian (NAPP) basins.

The heat content is divided by the cost per ton of the coal to determine a value called "MMBtu" (one million Btus) so that it is possible to compare the cost of coal types according to their respective heat values.

IEEFA has examined the claims that Peabody and the various municipal electric agencies made about the cost of the Lively Grove coal at the time that communities were deciding whether to buy into the plant. The coal was marketed to communities as having a Btu value of 8400. This heat value is too low to qualify under any of the marketable coal classifications in the Illinois Basin family. Marketable Illinois Basin coal ranges in heat value from 10500 Btu to 11800 Btu.<sup>1</sup>

PSGC's presentations to Cleveland, Ohio<sup>2</sup> (in November 2014), portrayed the Lively Grove mine costs favorably to other coals on the market. Specifically, they compared the Lively Grove coal to ILB 11400, PRB 8800 and Northern Appalachian 12500 coal.

The purported cost of Lively Grove coal has been a moving target. When PSGC came to the communities with the Prairie State deal, it cited a cost of production of Lively Grove coal of \$14.44 per ton (\$0.86 MMBtu). PSGC has since acknowledged in several studies that the original

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<sup>1</sup> Platts covers pricing for ILB 10,500, 11,000, 11,500, 11,800 Btu products

<http://www.platts.com/IM.Platts.Content/MethodologyReferences/MethodologySpecs/coalmethodology.pdf>

<sup>2</sup> PSGC, *Prairie State Update -Cleveland*, November 25, 2014, p. 16 (PSGC-Cleveland).

estimate was too low.<sup>3</sup> In a September 2013 update to NIMPA,<sup>4</sup> PSGC acknowledged that the actual cost of production for 2013 was \$18.98 per ton (\$1.13 MMBtu), 30 percent higher than the original estimates. A 2015 debt-refinancing document from American Municipal Power (the largest single owner of the facility) stated that “annual per ton operating costs of the mine remain higher than those originally assumed.”<sup>5</sup> The causes of the operating-cost increases are unspecified in the financing document.

In 2013, PSGC distributed documents to participating communities that cited PSGC's 2013 actual cost of coal as \$18.98 (\$1.13 MMBtu), and compared it to PRB 8800 coal as \$32.03 per ton delivered (\$1.82MMBtu) and ILB 11400 as \$51.52 per ton (\$2.26 MMBtu).

However, this comparison is not complete for two important reasons:

1. The figure for the PSGC cost of production does not include the cost of the bonds to buy and build the mine (debt service). The PRB 8800 and ILB 11400 numbers do include debt service. (This omission of debt service is noted with a footnote in the PSGC NIMPA and Cleveland presentations.)

Under the PSGC business model, state authorities and local governments are responsible for the debt service and PSGC is responsible for the costs of production. That leaves no central place where the actual cost of production plus debt service for the mine is calculated and publicized. Coal producers in the normal, private market when they sell coal to a utility or power generator include in their market price both the cost of production and the cost of debt service (and a profit). Normal industry practice when expressing the cost per ton of coal does not bifurcate the cost of operation and debt service.

2. The PRB and ILB figures refer to delivered market price, but the PSGC budget only refers to the cost of production.

The omission of debt service from the PSGC coal price presents an exaggerated comparison with the PRB, CAPP, and NAPP coals. The debt service omission is significant.

## **Adjusting Lively Coal Price to Include Debt Service**

The failure by PSGC and the other owners or the plant to adjust for debt service robs local officials of the opportunity to clearly compare Prairie State coal and power costs with those of other mining and generation facilities (particularly coal generating facilities) and to assess risk.

We calculated a per-ton debt service number and adjusted PSGC's 2013 actual cost of production to include it. We added \$7.31 per ton to the baseline cost of production figure, reflecting the acquisition cost of the coal, price for mine construction and borrowing costs.<sup>6</sup>

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<sup>3</sup> In the R.W. Beck consulting study accompanying AMP, Inc. Official Statement the cost of production is \$14.70 per ton in 2010 and assumed to grow by approximately 2% annually. Under this scenario the 2013 figure cited in NIMPA as “originally budgeted” should have been \$15.60 per ton. Apparently several new baselines have been established since the official statements. <http://emma.msrb.org/EA421203-EA328116-EA723971.pdf>

<sup>4</sup> Prairie State Generating Campus (PSGC), *Prairie State Update, NIMPA*, September 20, 2013 (PSGC-NIMPA).

<sup>5</sup> <http://emma.msrb.org/ER828952-ER646158-ER1048046.pdf>, p. 22

<sup>6</sup> We added in \$202.8 million for the price of mine construction, \$114.3 million for coal reserve purchase by PSGC from Peabody Energy, an additional development fee to Peabody and borrowing costs of approximately \$93 million representing the percentage costs related to the mine purchase and development. We then used a 5% annual interest rate and 30 year

Adding together the PSGC 2013 actual cost of production with the debt service cost yields a cost per ton for Lively Grove coal of \$26.29 (\$1.56 MMBtu). So the real cost of the coal is 68 percent more than the \$15.60 per ton cost presented in the “original budget” in the official statement.

How does this true cost of coal stand up next to the actual market price of comparable market products? If we move to the next logical step and compare the price of coal from Lively Grove with current market coal prices, we see that there is almost no price difference between the high-quality ILB 11400 coal and the lower-quality Lively Grove 8400. It amounts to a difference of about 1 percent, far from the significant savings portrayed in the PSGC presentations. Lower-quality PRB 8400 coal is slightly more expensive, but only marginally so. Our price comparisons include delivery charges for the PRB and ILB products.



## Results of IEEFA Comparison

Coal Type and Assumptions	Btu Value of Coal	\$/Cost per ton	Cost of Coal \$ MMBtu
<b>2013 PSGC Budgeted COP exclusive of debt service<sup>1</sup></b>	8400	\$14.44	\$0.86
<b>2013 Actual COP<sup>2</sup></b>	8400	\$18.98	\$1.13
<b>IEEFA PSGC 2013 Actual Cost of Production (COP) including debt service</b>	8400	\$26.29	\$1.56
<b>2015 PSGC Estimated COP<sup>3</sup></b>	8400	\$18.31	\$1.09
<b>PRB (PRB-Cleveland – November 25, 2014)</b>	8800	\$32.03	\$1.82 <sup>4</sup>
<b>PRB (Platts 9.20 per ton; SNL: \$19.00/ton delivery)</b>	8400	\$28.20	\$1.68
<b>Illinois Basin plus truck delivery</b>	11500	\$36.50 <sup>5</sup>	\$1.58

pay back derive the debt service. Lively Grove has mined on average 4.8 million tons per year over 2012 and 2013 (we believe this amount includes a 1 million stockpile – coal mined and paid for but not burned).

<sup>7</sup> Prairie State Generating Campus (PSGC), Prairie State Update, NIMPA, September 20, 2013, pg. 6 ([PSGC-NIMPA](#))

<sup>8</sup> [PSGC-NIMPA](#), p. 18

<sup>9</sup> [PSGC, Prairie State Update -Cleveland](#), November 25, 2014, p. 16 (PSGC-Cleveland). This 2015 estimate assumes the plant will run at 85% and burn 6 million tons of coal in 2015. The plant has not run at 85% capacity since opening and burns on average 4.5 million tons for the two full years of operation 2012/2013.

<sup>10</sup> [PSGC-Cleveland](#)

<sup>11</sup> Platts Coal Trader, (Chart), March 7, 2015, p. X, ILB 11500: \$31.00 per ton; \$5.50 per ton delivery: <http://www.eia.gov/coal/transportationrates/pdf/table3a.pdf>

Since the plant opened, PSGC and others have noted that the poor quality of the coal <sup>12</sup> <sup>13</sup> has contributed to a series of unplanned outages and low capacity factors. Planned capital expenditures have been made to correct for some of these deficiencies. <sup>14</sup> Neither the ILB 11500 nor the PRB 8400 are known as coal products that contribute to unplanned outages or other plant dysfunctions.

## Placing Lively Grove Costs in Perspective

Currently Prairie State power costs its member communities roughly twice as much as electricity that can be purchased on the market. Prairie State's construction budget came in substantially over budget. The market price of coal has dropped over the past few years, and the original exaggerated claims related to Lively Grove's savings do not stand up under scrutiny.

There are no independent audits of PSGC, and no financial consultant or local administrator has put together the many clarifications needed to understand the coal deal. The mine-mouth deal for the coal is what is known as a "market of one." Because there is only one customer for the coal—the Prairie State plant—there are no arm's-length reviews of the transaction, as would occur in a normal sale of coal from a mine to a coal-fired power plant.

Peabody received payment for the mine, for the mine development and for its management; Bechtel was paid for the construction of the overpriced plant; all of the investment banks, lawyers and accountants who took part received fees to underwrite the bonds. Of late, the credit-rating agencies have mostly maintained their support of the project, despite the high costs of its electricity and the threat it poses to local economics and budgets. The more important cost overruns of this project have been accompanied by major mistakes and mischaracterizations, and all of the resulting costs are being borne by households and businesses.

## Recommendation

Several communities are looking to refinance their existing indebtedness. Official statements contain some recognition of early plant difficulties and representations that there are now plans in place to make corrections.<sup>15</sup> Absent an engineering audit of the coal mine and other operational matters, the communities buying the electricity and the bond investors who have a stake in the project have no true, independent understanding of the coal issue. Such a study would improve the quality of the diligence.

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<sup>12</sup> Testimony by Marc Gerken, AMP President and Interim CEO of Prairie State, at the [Paducah City Commission](#) meeting on September 24, 2014 "[Lively Grove coal] is abrasive, high sulfur, and high ash." [https://www.youtube.com/watch?v=AfA7myQM0E&list=TLdoGJQ7YV3i9jZ8E\\_CCCrQK6o8-S28Udd](https://www.youtube.com/watch?v=AfA7myQM0E&list=TLdoGJQ7YV3i9jZ8E_CCCrQK6o8-S28Udd)

<sup>13</sup> James Bruggers, *Louisville Courier-Journal*, [Bad bets traps Paducah in coal-fired nightmare](#), "The mine that supplies Prairie State has 'the worst quality coal I've ever seen an analysis on in my 35 years in the coal plant industry,' said Jeff Parsley, a former TVA executive and energy consultant," February 15, 2015.

<sup>14</sup> The [PSGC-NIMPA](#) document (p.20) contains a new schedule of charges of \$25 million per year for the next ten years (\$250 million) including \$53 million for mine improvements. These charges have been incurred within the first eighteen months of operation. They are not financed but appear to be part of a ten year charge.

<sup>15</sup> AMP Official Statement, <http://emma.msrb.org/ER828952-ER646158-ER1048046.pdf>