

## Boulder Municipalization Study Issue Paper #3

What you should know about Boulder's wind cost assumption.

June 19, 2013

### Issue #3: How Boulder's Low-Cost Wind Assumption Impacts Feasibility

*In February, the City of Boulder released a study explaining how it can finance a takeover of Xcel Energy's electric utility system and business within the city as well as in certain areas of Boulder County. As part of that process, the city asked the community and Xcel Energy to provide detailed feedback. Although this has been somewhat challenging because the city would not make public all of its assumptions and modeling outputs, Xcel Energy is preparing a series of white papers to outline concerns. That study is being used as justification for Boulder to continue spending millions of dollars and city resources to determine whether, and if it should forcibly acquire the electric utility business from Xcel Energy, most likely through a condemnation (eminent domain) process expected to take years to complete.*

*To ensure those customers potentially affected by Boulder's decision have a more complete perspective on the issue and in response to the city's request for feedback, Xcel Energy is examining key assumptions and conclusions in Boulder's study.*

The first white paper, posted at [www.yourboulderenergy.com/issue1](http://www.yourboulderenergy.com/issue1), examined the impact of Boulder's proposal to not incorporate bond payments in customer rates in the first 18 months of operation and nearly all of Boulder's projected financial benefits of a municipal utility occur after 2030, making their forecast highly speculative. The second white paper, posted at [www.yourboulderenergy.com/issue2](http://www.yourboulderenergy.com/issue2), shows how Boulder mischaracterized the effect of a potential future carbon tax – which does not exist today – to create hundreds of millions of dollars in their forecast of municipal utility financial benefits.

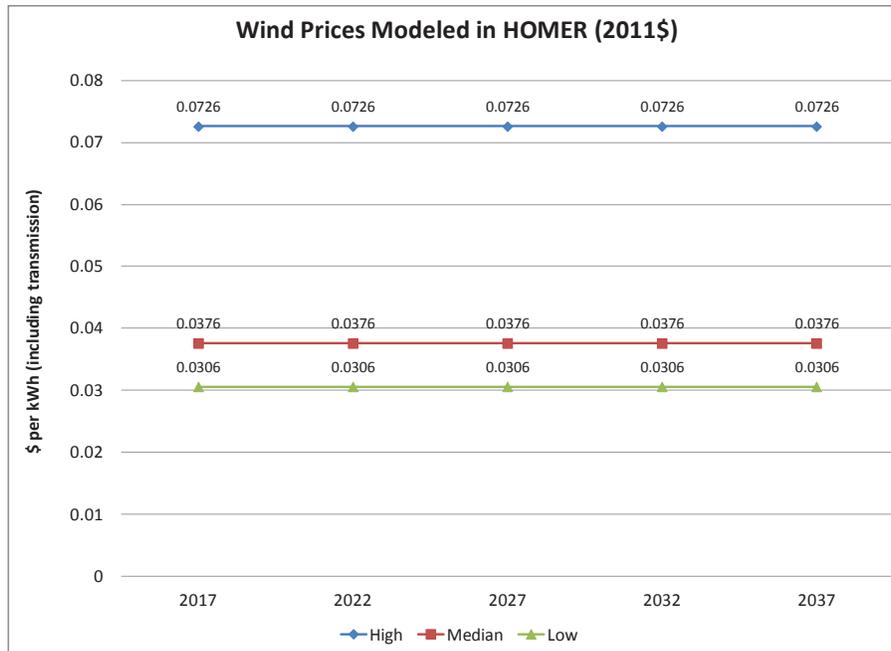
As this third paper will illustrate, Boulder's assumptions for low-cost wind energy also include substantial forecasted financial benefits for the proposed start-up utility. In most scenarios, **Boulder's feasibility study assumes the continuation of a federal production tax credit (PTC), amounting to hundreds of millions of dollars in financial benefits** for the city-run utility. **The PTC is set to expire in 2013 and the city has no "Plan B" if wind turns out to be unaffordable** nor has it accounted for other realistic possibilities, such as needed investments in new, required transmission infrastructure so additional wind can be integrated into the Colorado power grid. Both higher-cost wind and transmission requirements would lead to higher energy prices for Boulder.

### Boulder's Low-Cost Wind Cost Assumption

A key assumption used for the rate savings in Boulder's electric utility study is that the city will be able to contract for low-cost wind generation from for-profit, independent power producers. Chart 1 shows the city's wind price assumption and was provided on its feasibility study website. Notice how the city is assuming wind power could cost anywhere from 3.06 to 7.26 cents per kilowatt-hour (¢/kWh), with the median set at 3.76 ¢/kWh.

This means half the city's study simulations contain wind prices in a narrow range of 3.06 to 3.76 ¢/kWh, with the other half in a much larger range of 3.76 to 7.26 ¢/kWh. The study skews the data, with a disproportionate number of simulations assuming a very low-cost wind resource. The result? Boulder has essentially ensured that its study results would show financial feasibility in most cases. The forecasted financial savings are also inflated as the city has assumed Xcel Energy would add little wind during the 2017 to 2037 study period, even if it were available at such a low cost.

Chart 1: Boulder's assumed wind price range in its feasibility study.



### How Wind Assumptions Are Flaws in Boulder's Study

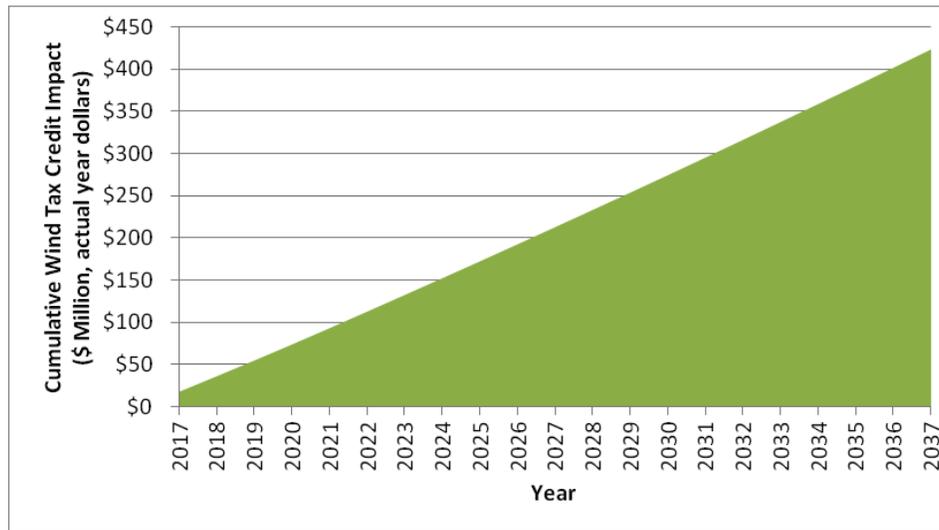
The Boulder study assumes that if it formed an electric utility, the city would provide substantial rate savings by having access to low-cost wind power and that Xcel Energy would add little additional low-cost wind to its system. The low-cost assumption relies on the tenuous hope that the federal production tax credit, which keeps the cost of wind power low today and is set to expire at the end of 2013, will be renewed and available when the city creates its electric utility.

Boulder's study also assumes that when its utility start-up is ready, there would be ample ideal locations in the state for new wind farms and for transmission infrastructure to carry the electricity those facilities generate. If wind power grows in the five to 10 years it would take Boulder to form a utility, it is possible Boulder's wind requirements would need additional infrastructure because existing wind would already have used the physical limits of the power system. The city has not presented a "Plan B" for what it would do if wind power is unavailable or is very expensive in this possible scenario.

Even assuming Boulder can contract for wind power when it forms a utility, the loss of the PTC would substantially and negatively affect its business case. Boulder's study assumes about half its power (more than 713 million kWh per year) would come from wind. If the city were able to create its electric utility in five years and the current level PTC were somehow extended until then, the PTC in 2017 – adjusted for inflation, tax benefits and levelized over 20 years – would be about 2.5 ¢/kWh. This means if the PTC were not extended beyond this year, its absence would increase the cost of power to Boulder customers in 2017 by about \$18 million above the city's assumed costs (2.5 ¢/kWh x 713 million kWh of wind generation per year).

As Chart 2 indicates, Boulder’s built-in PTC benefits are estimated to total nearly \$450 million in cumulative financial benefits over the 20-year study period.

*Chart 2: Boulder’s cumulative wind PTC impact over the 20-year study period in Boulder’s “Low Cost, No Coal” case.*

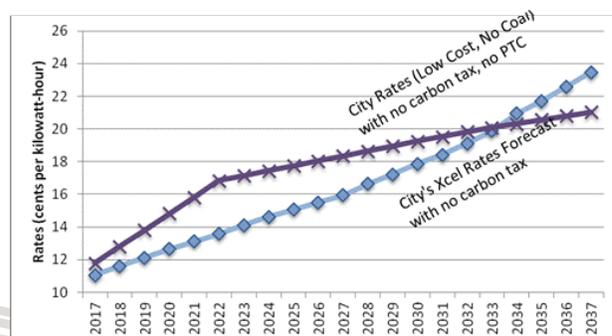
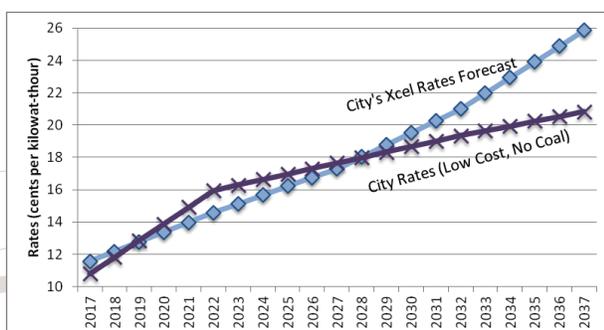


The PTC also has a profound impact on any potential rate savings for customers. Charts 3 and 4 show the estimated impact on the study’s forecast for Xcel Energy’s and the city’s rates in a scenario in which the city pays \$277 million to form a utility and purchases power primarily from independent producers of wind energy and natural gas. Chart 3 was recreated from the study,<sup>1</sup> and shows that, for the first two years, slightly lower rates are projected for the city (purple line with “X” markers) compared to its forecast for Xcel Energy (blue line with diamond markers). The first white paper showed how this is due, in large part, to the city’s plan not to include its bond payments into customer rates for the first two years of operation.

Once the city starts making bond payments in 2019 the city’s projected rates stay above Xcel Energy’s until 2028 – 11 years *after* the city plans to begin utility operations. However, if there continues to be no carbon tax (as explained in the second white paper) and the PTC is not renewed, it would not be until approximately **2035** before the city’s rates would be lower than its projected rates for Xcel Energy.

Also note in 2017 the city’s rates would be higher than Xcel Energy’s, in violation of the city charter. And in 2022, the city’s projected rates without a carbon tax and PTC would be more than 3 ¢/kWh higher than Xcel Energy’s (Chart 4). Three pennies may not sound like much money, but Boulder customers consume more than 1.5 billion kWh a year, so in 2022 Boulder customers would pay more than \$45 million, or about 25 percent higher average rates, compared to the city’s forecast of Xcel Energy’s rates.

*Charts 3 and 4: City’s forecast of projected rates with a carbon tax and PTC (Chart 3) and without a carbon tax and PTC (Chart 4). Boulder’s forecast of Xcel Energy’s rates are shown in the blue line with diamond markers and Boulder’s forecast of its rates are shown in the purple line with “X” markers.*

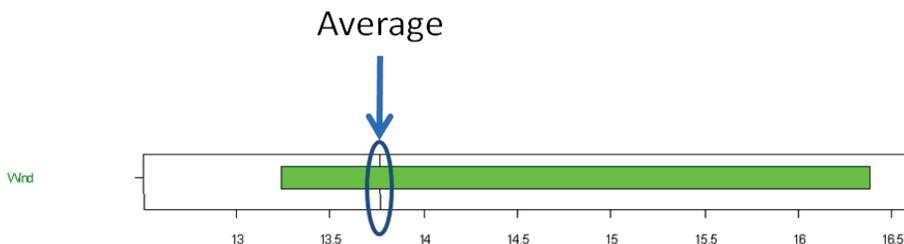


<sup>1</sup>“Boulder City Council STUDY SESSION Boulder’s Energy Future Municipalization Exploration,” February 26, 2013, page #29.

The city admitted in a February 27, 2013, memo that its study results are highly sensitive to the actual cost of wind. In fact, close inspection of the sensitivity analysis (Figure 2, page 259 of that memo) shows just how much an unfavorable movement in wind cost could impact its rates. In its “Low Cost Option” the city shows average rates over the 20-year study period of the simulations would be about 13.75 ¢/kWh.

Notice, however, there is little potential for lower rates in its wind cost sensitivity as the best case shows a 13.25 ¢/kWh rate (just slightly below the average 20-year rate of 13.75 ¢/kWh). But the worst-case cost is nearly 16.25 ¢/kWh. Why? There is so much downside risk (potential for higher rates) in the study because the city study skewed its wind cost assumption where half the scenarios contain a very low price for wind energy.

*Chart 5: Diagram copied from Boulder’s study showing the sensitivity of Boulder’s average rates over 20 years to wind cost assumptions.*



### **Xcel Energy’s Wind Energy Investment**

Contrary to Boulder’s assumption that Xcel Energy would add little wind in the future even if it were available at a low cost, the company is taking action *now* to acquire low-cost wind power while the PTC is available. Xcel Energy has nearly 2,200 MW of wind generation capacity in Colorado and is on track to have more than 23 percent renewable generation in just seven years, by 2020. It is also on track to reduce carbon emissions by at least 33 percent when compared to 2005 levels by 2020.

This year Xcel Energy was again named the number one wind generation provider from more than 3,000 electric utilities in the U.S. by the American Wind Energy Association. Xcel Energy has held the number one spot for nine years in a row. Xcel Energy can and does take advantage of opportunities in today’s positive market conditions. It has the ability to be involved in wind projects requiring hundreds of millions of dollars of investment and to partner in innovative industry practices, such as developing an advanced wind generation software model with NCAR.

### **Conclusions**

In 2011, Boulder voters narrowly approved examining a takeover of Xcel Energy’s electric system within its borders. Those who voted for the issue likely would not have made that decision if they knew that one of the key assumptions for financial feasibility was the hope that a federal wind tax credit set to expire in 2013 would be extended and that the hope was the foundation for nearly \$450 million in highly contingent benefits. Most customers probably also did not assume they would have to wait 20 or more years to see any potential rate savings.

In fact, the Boulder plan forecasts – in its most optimistic scenarios – only single-digit percentage savings over the first 20 years of operations, leaving no room for error and putting the city at great risk for potential financial loss.

The essential, sobering lesson is that, if the Boulder study misses just one key assumption – such as its assumptions regarding Xcel Energy’s response to a potential future carbon tax, or the loss of a wind tax credit – the forecasted savings are eliminated.

Other key but potentially flawed assumptions in Boulder’s study will be addressed in future white papers to provide a more complete picture of the potential costs and risks of forming a start-up utility. The Boulder City Council is set to make a decision August 6, 2013, to authorize condemnation to form a city-run electric utility.