

Boulder Municipalization Study Issue Paper #2

What you should know about Boulder's carbon tax assumption.

June 6, 2013

Issue #2: How Boulder is relying on a carbon tax – which does not exist today – to inflate feasibility

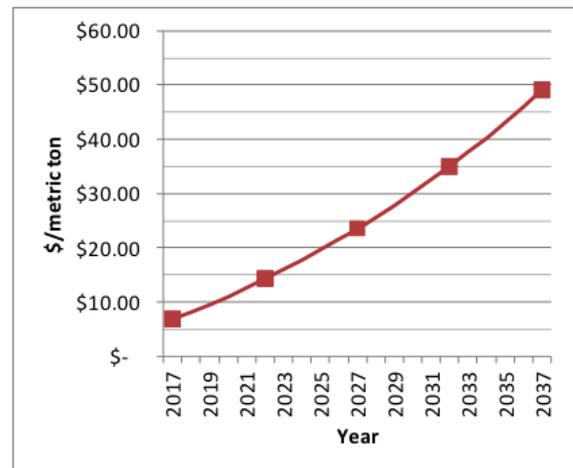
In February, the City of Boulder released a study explaining how it can finance a takeover of Xcel Energy's electric utility system and business within the city as well as in certain areas of Boulder County. As part of that process, the city asked the community and Xcel Energy to provide detailed feedback. 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, examined Boulder's proposal to not incorporate tens of millions of dollars in bond payments in customer rates for the first 18 months of operations. This financing plan is a major reason the city suggests it can meet the city charter requirement to provide rates equal to or lower than Xcel Energy's on the first day of service if it creates a municipal utility. That paper also discussed Boulder's assumption that Xcel Energy's rates would rapidly increase after 2030, driving nearly all of Boulder's forecasted rate savings.

As this second paper will illustrate, **Boulder's study estimates that Xcel Energy's rates will increase significantly, caused by the city's assumption that a state or federal carbon tax would be imposed on fossil-fuel (coal and natural gas) generation of electricity.** Boulder assumes that a municipal utility would respond to any future carbon tax, but that Xcel Energy would not respond to the tax at all. Today, there is no carbon tax applicable to utility operations and future carbon tax policy is uncertain. By applying an uncertain future carbon tax to Xcel Energy's emissions, Boulder's study artificially increases the difference between Xcel Energy's and the city's projected rates by an average of **more than 11 percent, driving hundreds of millions of dollars in forecasted and highly speculative financial benefits to the city.**

Boulder's assumed carbon tax rate in its "norm" case.



Boulder's Carbon Tax Assumption

A key underpinning to the rate savings Boulder's electric utility study projects is the application of a hypothetical carbon tax to both the city's and Xcel Energy's predicted emissions. This one assumption creates the bulk of the city's forecasted rate savings of its municipal utility. In the city's "norm" case, the carbon tax rate in actual year dollars rapidly rises from about \$6 per metric ton (mt) in 2017 to nearly \$50/mt in 2035.¹ Not by coincidence, the latter years in the study is also the time period in which Boulder projects Xcel Energy's rates would be appreciably higher than the city's rates. Despite this large future projected increase in operating cost, the city does not account for reductions in emissions – and costs – that such a tax would prompt for Xcel Energy. Xcel Energy today uses carbon proxy prices to plan its system. By doing so it accounts for the future risk of carbon regulation in a prudent, balanced way.

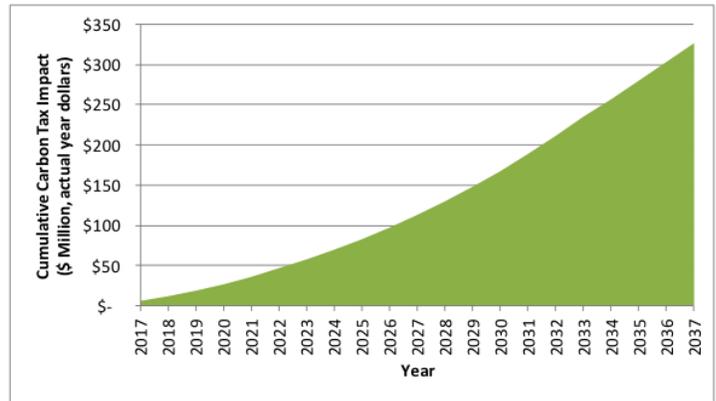
¹Carbon tax rates are calculated from the city's stated assumed carbon tax rates (in 2011 dollars) adjusted to "actual year" dollars (also known as "nominal" dollars) using Boulder's assumed 2.5 percent annual inflation rate.

How the Carbon Tax Assumption Affects Boulder's Study Results

The Boulder study assumes that, if it formed an electric utility, the city would provide substantial rate savings by having a lower carbon tax on its generation fuel mix when compared to its forecast of Xcel Energy's fuel mix.

The city's study reported that the net carbon emissions (the city's forecast of Xcel Energy's emissions less the city's emissions) subject to an assumed carbon tax in its "No Coal" power supply scenario would be 781,418 mt in 2017, declining to 479,013 mt in 2037.² Multiplying the previously discussed Boulder carbon tax assumption by the city's projection of net carbon emissions, it is possible to predict what the city used for an annual carbon tax "savings."

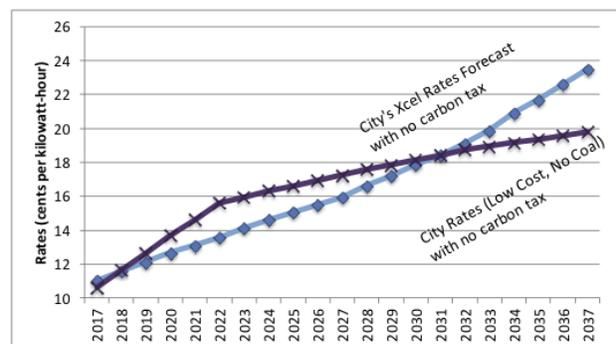
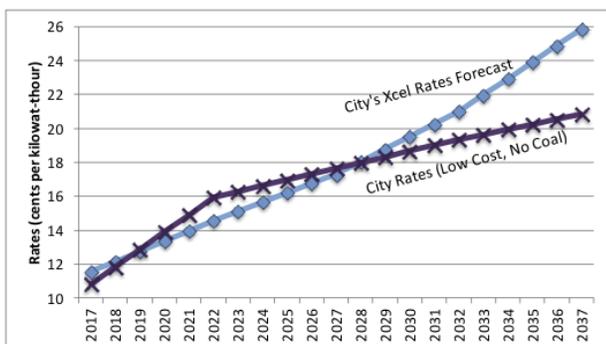
Boulder's cumulative carbon tax impact over the 20-year study period in Boulder's "Low Cost, No Coal" case.



For example, in 2037, multiplying the net carbon emissions of 479,013 mt by \$49.07/mt leads to a total net carbon tax impact in that year of nearly \$24 million. As the graph above indicates, Boulder's assumed net carbon taxes in its "No Coal" scenario are estimated to total \$325 million in cumulative, potentially phantom financial benefits over the 20-year study period.

The Boulder study's carbon tax assumption also has a profound impact on any potential rate savings for customers. The graphs below 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. The left graph is recreated from the study,³ 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, however, the city's projected rates stay above Xcel Energy's until 2028 – 11 years after the city plans to begin utility operations.



City's forecast of projected rates with a carbon tax (left) and without a carbon tax (right). 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.

However, if there continues to be no carbon tax, it would not be until approximately **2032** before the city's rates would be lower than its projected rates for Xcel Energy.

²"Boulder City Council STUDY SESSION Boulder's Energy Future Municipalization Exploration," Difference in GHG emissions between "Xcel Baseline" and Boulder's "Low Cost, No Coal" scenarios, February 26, 2013, page #20.

³"Boulder City Council STUDY SESSION Boulder's Energy Future Municipalization Exploration," February 26, 2013, page #29.

Also note that, in 2022, the city's projected rates without a carbon tax would be more than two cents a kilowatt-hour (kWh) higher than Xcel Energy's (graph on right). Two pennies may not sound like a lot of money, but Boulder customers consume more than 1.5 billion kWh a year. This means that Boulder customers would pay nearly \$30 million, or 17 percent higher rates, compared to the city's forecast of Xcel Energy's rates.

The city's resource acquisition plans would likely cause Boulder customers to pay for higher resource costs, even if there is never a carbon tax imposed. Moreover, when making a comparison between the resource costs of a city utility and Xcel Energy's resource costs, the city did not consider what actions Xcel Energy might take if a carbon tax were someday implemented. Certainly, all utilities, including Xcel Energy, would respond to such a tax by taking steps to lower its costs and rate impact to customers, such as adjusting its fuel resources. City staff has highlighted this exact limitation in its model in response to a question found in the city council's April 16, 2013, information packet:

"Staff has not modeled, either for Xcel or the city electric utility options, course changes that might be made based on new information over the 20-year period. Should council move forward with exploring municipalization, a capability could be added to switch between options (i.e., select a cleaner resource mix subject to cost savings). However, if council proceeds to formation of a local electric utility, it may be worth exploring the use of a more robust, utility specific model for forecasting purposes."⁴

Conclusions

In 2011, when a thin margin of Boulder voters supported examining a takeover of Xcel Energy's electric system within its borders, they likely would not have made that decision if one of the key assumptions for financial feasibility were to impose a theoretical carbon tax, resulting in hundreds of millions of dollars in highly contingent benefits. Most customers probably also did not assume they would have to wait 15 or more years to see any potential rate savings. Or, that the charter language requiring rate parity on "day one" would devolve into *rate parity at some point over the first 20 years of utility operations*.

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 has missed just one key assumption – such as a carbon tax that never materializes, a higher cost to generate and buy power, or reduced availability of affordable wind energy – 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.

Xcel Energy is on track to reduce its Colorado carbon emissions by more than 35 percent by 2020 compared to 2005 levels and has served Boulder customers for more than 100 years, providing reliable, safe, and cleaner electricity at affordable prices. As proof that Xcel Energy is best positioned to seize favorable market conditions for its customers, the company announced on May 30, 2013, another major acquisition of Colorado wind generation that takes advantage of unusually low equipment prices and today's federal tax credit (set to expire in 2013, before the city can start up its electric utility). It's all part of the commitment to keep rates affordable while improving the environment. We look forward to continuing to serve you.

⁴Boulder City Council Meeting Packet, April 16, 2013, packet page #153.