

Welcome to the Energy Future Community Open House

March 13, 2013

Thank you for coming and helping to shape Boulder's Energy Future. We look forward to hearing from you!

Suggestions for getting the most out of tonight's event:

1. **Watch the introductory video on the TV outside the Creekside Room.**
The video is a good way to learn more about the project to date and the six options the city modeled related to achieving the community's energy goals.
2. **Walk through the information area. Stop at the "modeling the options" station.**
Ask questions and learn more about what the city has analyzed so far.
3. **Visit the Governance, Service Reliability, Xcel Partnership and Specialist areas.**
Individuals at these stations will be able to address more specific questions about these topics.
4. **Share your thoughts with City Council in the "What's on your mind?" room (also known as the Alpine Room).**
 - a) **Look over feedback statements that the city has received so far from the community. Find the ones that most represent what excites you or concerns you most about the possible creation of a city electric utility.**
If you have feedback that is not represented on the wall already, feel free to add concise and legible statements to the adjacent paper. Subsequent participants will have the opportunity to read and choose from these as the night goes on.
 - b) **Place your 12 sticky dots, dividing them up however you wish, next to the statements that are most representative of the thoughts you would like to share with council and have considered by city staff.**
Please note, if you use all your dots to prioritize your feedback early in the evening, you may miss some of the feedback statements added by the community throughout the night.
 - c) **Share your vision for the Electric Utility of the Future.**
Write, sketch, color or otherwise share your creative vision of what you hope the Electric Utility of the Future will mean for Boulder – and for you. Be sure to also check out The Watershed School's student projects about Energy Utopia in this area.
 - d) **Fill out a comment form to provide more specific feedback or ask questions.**

All feedback and input will be included in the April 16 memo to City Council.



Modeling & Reliability



What is modeling, and why did we do it?

The city's analysis incorporated five major areas of focus: financial, reliability, resource mix, asset acquisition and legal issues. Models were designed to span 20 years, from 2017 to 2037. The 20-year analysis allows the community to see not just what could be accomplished on day one, but what an electric utility could look like well into the future. It also allows for a comparison between options in which a local electric utility is formed with an option in which Boulder residents and businesses continue to be customers of Xcel. An extensive list of inputs, which were vetted by community working groups and expert consultants,

drew upon current market pricing, analyses by federal labs, benchmarking from the American Public Power Association (APPA) and regional utilities, and other sources to ensure that data was accurate, realistic, conservative and locally relevant. Although the models are robust, they have limitations – for example, they do not currently allow for course changes that might happen in reality. The significance of this is that a city-owned utility could start on a path of least-cost power and move to more renewable energy based on changing market conditions, just like Xcel could.

Reliability: Ensuring the power stays on

Reliability was raised as a key concern by both the business community and residents, so ensuring reliability was a high priority for all options. In the end, engineers defined a technically optimal service area that includes all six of the electrical substations currently serving the city and some surrounding areas. Essentially, the city would use the same distribution system and redundancy checks that Xcel currently has in place; therefore ensuring that reliability would be the same as we experience now. The models also include costs to maintain the local grid and to make long-term investments that would improve reliability, such as undergrounding wires. In addition, if agreed upon, the city could use electric utility revenues to improve the existing system and further increase reliability.

In addition to the city's self-imposed Charter requirements for reliability, the municipal electric utility would also answer to regional- and federal-level utility watchdogs: the Western Electricity Coordinating Council (WECC) and the North American Electrical Reliability Corporation (NERC). All public and private electric utilities must meet both agencies' rigorous standards for reliability or face penalties that could include large fines.

Xcel Baseline: Maintaining the status quo

A model based on how electricity is currently provided was created to provide both a clearer understanding of what can be achieved as is and how this compares to possibilities under municipal utility models. To create this model, city staff, consultants and working group members mined publicly available records that detail Xcel's current operations and projected levels of costs and investments over the next 20 years. To date, the company has declined to provide the city with any additional data.

While the city believes that some of the projections made by Xcel in these public filings are overly optimistic, such as the utility's forecasted price of coal, the city used Xcel's own numbers to create as conservative a comparison as possible. In addition to coal costs, Xcel's latest rate increases are not included in this model and there are also questions about whether the rates as projected by the utility fully include \$3.5 billion in capital investments the company has planned.

The city has invited the utility to provide more specific data so that it can run an updated model. In addition, the city has agreed to participate with Xcel in a citizen task force process to explore whether there are ways the company and the community could partner to create innovative, non-municipalization ways to achieve Boulder's goals.



Key Findings

- The Xcel Baseline offers some benefits in terms of a history of reliability and the ability to take advantage of the economies of scale.
- Rates are likely to increase over time, but no more so than they would for other customers in Xcel Energy's Colorado service territory.
- The community, with Xcel Energy as a provider and no new partnership, would face challenges meeting its carbon reduction goals because the supply would still be largely based on coal.

Rates, Reliability, Renewables

Rates: Your monthly electrical bill

Customers' bills would remain the same as all other customers in Xcel's Colorado service area territory. Xcel's rates have been increasing steadily since 2002 and Xcel predicts additional increases of about 2.5 to 3 percent a year. As previously stated, there is historical and industry data that suggests rates could rise more quickly and to higher levels than Xcel has forecast.

Reliability: Ensuring the power stays on

Many customers have expressed satisfaction with Xcel's current level of reliability, and some

businesses, such as IBM, have been able to partner with the company and invest some of their own resources to ensure even higher levels of reliability.

Renewables: Greening the Supply

Xcel Energy is a leader among investor-owned utilities in terms of wind power. Under the state renewable energy standard, the utility is required to achieve 30 percent renewable (minus some credits it receives for in-state generated renewables) by 2030. The utility has taken steps to achieve this, but recent filings with the PUC suggest there are no plans to bring any additional renewables on line.

Phase-out of power purchased from Xcel Energy

This option reduces the potential legal risk associated with creating a city-run utility. The utility would be formed and then it would buy electricity from Xcel Energy for five years under a power purchase agreement (PPA). This PPA would be based on Xcel's current wholesale energy mixture of coal, natural gas and a small amount of renewable energy, particularly wind power.

At the end of the five-year PPA, the city utility would be free to enter into contracts with other energy providers, including those that offer different mixes, or cheaper sources, of electricity. As an example, this option assumes that after the five-year PPA with Xcel expired, the city utility would contract for a mix of natural gas and renewable energy like that modeled for the Low Cost, No Coal option. However, any of the other resource mixes that were modeled could be looked at in its place.



Key Findings

- This option may prevent the city from having to pay stranded costs to Xcel Energy —this could significantly reduce the cost of forming a city utility.
- While there would be minimal change in the amount of renewables and greenhouse gas emissions for the first five years, the city would be positioned to make progress in these areas after its contract with Xcel expired.
- A city utility would be able to start making decisions to meet some of its other goals from day one.

Rates and Renewables

Rates: Your monthly electrical bill

Residents, businesses, and large local institutions have all raised concerns that rates need to be predictable and low. To form an electric utility, the city is required by the City Charter to have rates that are at or below Xcel's rates at the time the local electric system is acquired. Whether this requirement can be met depends primarily on how much stranded and acquisition costs the city would have to pay Xcel. This option is designed to minimize those potential costs, allowing the local electric utility to have lower rates than Xcel from day one.

But the analysis took this one step further to look at whether a city-run electric utility could provide lower rates over the long term than Xcel. It's very likely that, with low stranded and acquisition costs, the Phase Out option would create cost savings over

20 years that would allow rates to be lower not just

at time of acquisition, but also in year 20. Those cost savings could be passed directly to residents and businesses in Boulder, or could be used to invest in other community values, like even cleaner energy, or higher reliability.

Renewables: Greening the Supply

For the first five years, the level of renewables and carbon emissions would be almost the same as if the city remains with Xcel Energy under the status quo. As an electric utility, however, the city could provide additional incentives to increase locally generated solar and other renewables. After the PPA with Xcel expired, the city would be able to move quickly to reduce emissions and increase renewables, similar to the levels achieved in the Low Cost options.

Low Cost Option: Lowest cost while reducing GHGs

The Low Cost option attempts to balance the community's desire to reduce emissions with concerns about costs. It explores how deeply greenhouse gas (GHG) emissions could be cut while making costs lower and rate parity a priority—and it shows that the tradeoff between rates and renewables is not as big as people generally think.

This option would form a municipal electric utility and generate electricity using a mix of fuel sources designed to reduce emissions while keeping electricity rates comparable to Xcel's. In this option, the city would use a mixture with more renewable energy sources and approximately half the amount of coal that Xcel uses to generate electricity. This option would reduce GHG emissions from day one while being likely or highly likely to save residents and businesses money over 20 years compared to staying with Xcel Energy, even under high-end cases of stranded and acquisition costs.

The results of this option show that rates and renewables can both be met through significant reductions in GHG emissions while still meeting or exceeding rate parity.



Key Findings

- This option meets all the Charter requirements of reliability, rate parity, debt service coverage, GHG reductions, and more renewable energy.
- This option would allow Boulder to exceed the Kyoto Protocol in the first year.
- This option could provide cost savings over 20 years compared to staying with Xcel Energy even under high-end cases of stranded and acquisition costs.

Rates and Renewables

Rates: Your monthly electrical bill

Residents, businesses, and large local institutions have all raised concerns that rates need to be predictable and low. To form an electric utility, the city is required by the City Charter to have rates that are at or below Xcel's rates at the time the local electric system is acquired. Whether this requirement can be met depends primarily on how much stranded and acquisition costs the city would have to pay Xcel. The Low Cost option could meet this requirement even under the highest levels of stranded and acquisition costs. The city's analysis then looked at whether a city utility could run less expensively and provide lower rates over the long term. It's very likely that, even at the middle case of close to \$300 million in stranded and acquisition

costs, the Low Cost Option would create savings

over 20 years that would allow rates to be lower for this whole period. Those cost savings could be passed directly to residents and businesses in Boulder, or could be used to invest in other community values, like even cleaner energy, or higher reliability.

Renewables: Greening the Supply:

The Low Cost Option greatly exceeds the GHG emissions and renewable energy metrics while still meeting rate parity. In year one, this option would generate 57.5% renewables compared to the Xcel Baseline, which shows 23.1% renewables. By using less carbon-intensive energy, Boulder would greatly exceed the Kyoto Protocol goal of 7% below 1990 GHG emissions on day one of operation.

Low Cost, No Coal Option: Lower GHG emissions while meeting rate parity

The Low Cost, No Coal Option attempts to balance the community's desire to substantially reduce emissions with concerns about costs. It explores how much greenhouse gas (GHG) emissions could be cut by eliminating coal while still keeping other costs for power low.

This option would form a municipal electric utility and generate electricity using a mix of fuel sources that provide GHG reductions cheaply, like wind and natural gas. This option would include more renewable energy sources in its mixture than Xcel does, and it would not use any coal.

An analysis indicates this option would provide a reduction in GHG emissions from day one of operations. Although eliminating coal would provide a large reduction in GHG emissions, it could be less cost-competitive compared to Xcel than the Low Cost option that does include some coal.

Rates and Renewables

Rates: Your monthly electrical bill

To form an electric utility, the city is required by the City Charter to have rates that are at or below Xcel's rates at the time the local electric system is acquired.

Whether this requirement can be met depends primarily on how much stranded and acquisition costs the city would have to pay Xcel.

The Low Cost option could have rates lower than Xcel's on day one even under the highest levels of stranded and acquisition costs. The analysis then looked at whether a city-run electric utility could run less expensively and provide lower rates over the long term than Xcel. It's very likely that, even at close to \$300 million in stranded and acquisition costs, the Low Cost, No Coal option would create cost savings over 20 years that would allow rates to be lower for this entire time period.



Key Findings

- The charter requirements of reliability, rate parity, debt service coverage, GHG reductions, and more renewable sources of energy could be met.
- It would exceed the Kyoto Protocol in the first year.
- This option cuts GHG emissions substantially and could create cost savings under even the middle level of stranded and acquisition costs.

Those cost savings could be passed directly to residents and businesses in Boulder, or could be used to invest in other community values, like even cleaner energy, or higher reliability.

Renewables: Greening the Supply

The Low Cost, No Coal Option greatly exceeds the GHG emissions and renewable energy metrics. In year one, this option would generate 50.5% renewables compared to the Xcel Baseline which shows 23.1% renewables in the first year. By using less carbon-intense energy, Boulder would greatly exceed the Kyoto Protocol goal of 7% below 1990 GHG emissions on day one of operation. Furthermore, this option removes coal from Boulder's energy mix entirely, reducing the community's contribution to the negative environmental impacts of coal.

Lowest GHG Emissions: Largest reduction of Boulder's carbon footprint

The Lowest Greenhouse Gas (GHG) Emissions Option puts the community goal of reducing Boulder's carbon footprint and reducing the release of harmful emissions first. It explores the effect that a maximum-impact renewable energy portfolio could have on customer rates. This option was modeled with current energy efficiency and renewable energy investments and recent information about Boulder's current electricity consumption trends. Like the Low Cost, No Coal Option, this was also modeled with no coal in Boulder's portfolio.

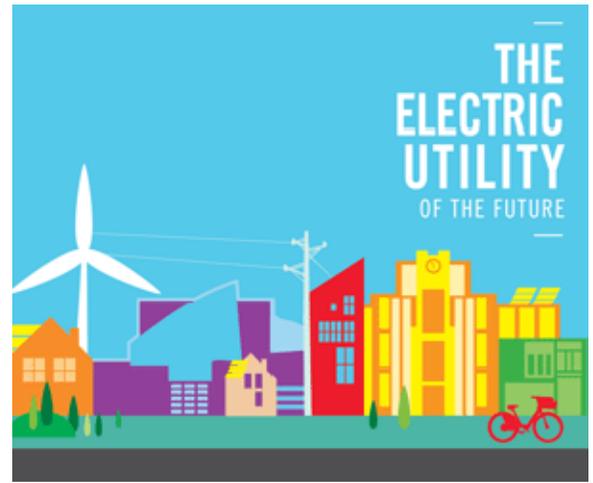
Although the renewable energy and storage technologies it incorporates are cost effective, the mix is expensive compared to that modeled in the other options.

This option represents the most dramatic and fastest shift from the Xcel Baseline (Status Quo) option. Unlike the Low Cost options, this option was modeled without any requirement that the lowest generation costs be achieved. This means that a Boulder electric utility would bring in as much renewable energy resources as possible into the city's electricity supply until a certain point of diminishing returns is reached.

Rates and Renewables

Rates: Your monthly electrical bill

To form an electric utility, the city is required by the City Charter to have rates that are at or below Xcel's rates at the time the local electric system is acquired. If the city were to pursue the Lowest GHG Emission option, it is likely that Boulder customers would face rates that are higher than Xcel would charge. According to the Charter, the city could not proceed with this option if the rates would be higher at time of acquisition. This option is likely to only appeal to individuals and businesses that are willing to pay more to increase renewable beyond the time of acquisition.



Key Findings

- This option meets all Charter requirements except the rate parity at the time of acquisition metric.
- This option would allow the Boulder community to exceed the Kyoto Protocol in year one, and would see the greatest reduction of greenhouse gas emissions as compared to the other five options, including staying with Xcel Energy.
- This option has higher costs than both Low Cost options, but does not generate proportionately greater reductions in the carbon intensity of the fuel supply.

Renewables: Greening the supply

The Lowest GHG Emission Option would bring the most renewable energy into our electricity supply out of all the options presented. This option sets up the most dramatic and fastest shift to the greenest electric utility feasible based on current technology. At the startup of a Boulder municipal utility in 2017, Boulder's electricity supply would obtain approximately 65% of its energy from renewable resources (mostly from wind) and 35% from natural gas. As the utility moves towards the future and renewable energy and electricity storage technology advances and associated prices decline, the city could increase the amount of renewable energy in its mix and start to move away from the use of fossil fuels entirely.

Lowest GHG Emissions with Reduced Use: Largest reduction in carbon footprint

The Lowest Greenhouse Gas (GHG) Emissions with Reduced Use Option puts the community goal of reducing Boulder's carbon footprint and reducing the release of harmful emissions first, just like the Lowest GHG Emission Option. This option explores the effect that a maximum-impact renewable energy portfolio could have on customer rates but also reflects the impact increased local energy efficiency investment would likely have on load.

The idea was to see what effect a reduction in customers' demand would have on the potential utility's ability to cover its costs. The city would not only maintain the level of energy efficiency programs and services as it and Xcel already offer; it would ramp-up those services in order to further reduce the total amount of energy the community uses. The city wanted to see how much renewable energy could be supplied if the load was lower using the same costs modeled for the other options. Like the Low Cost, No Coal Option, this was also modeled with no coal in Boulder's portfolio.

This also represents the most dramatic and fastest shift from our current situation to the utility of the future: where energy is primarily generated from renewables and treated as a service not a commodity.

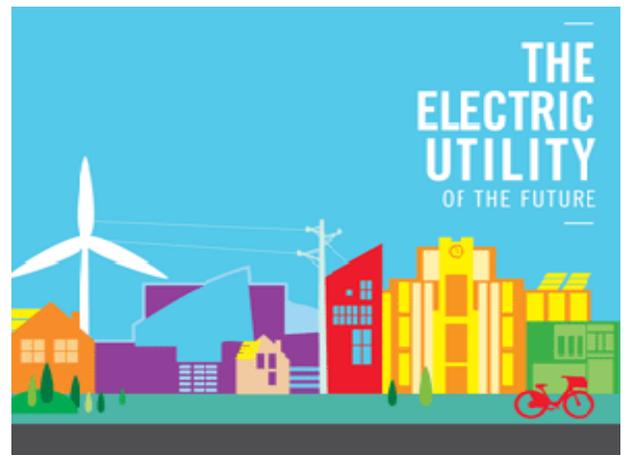
Rates and Renewables

Rates: Your monthly electrical bill

If the city were to pursue the Lowest GHG Emission option, it is likely that Boulder customers would have to pay rates that are higher than Xcel would charge initially. According to the Charter, the city could not proceed with this option if the rates would be higher at time of acquisition. This option is likely to only appeal to individuals and businesses that are willing to pay more to increase renewable and energy efficiency programs over time.

Renewables: Greening the supply

The Lowest GHG Emission-based option sets up the



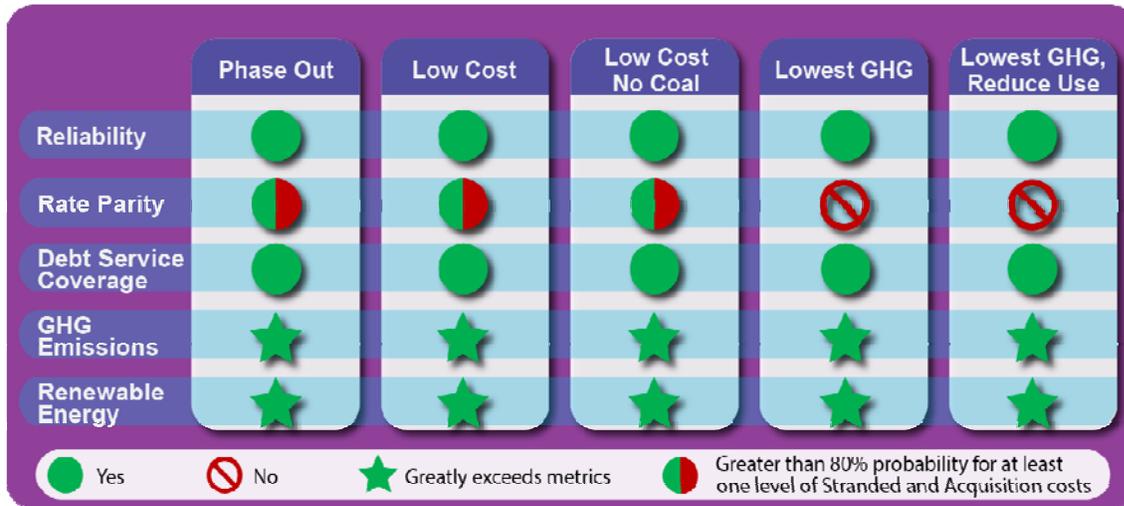
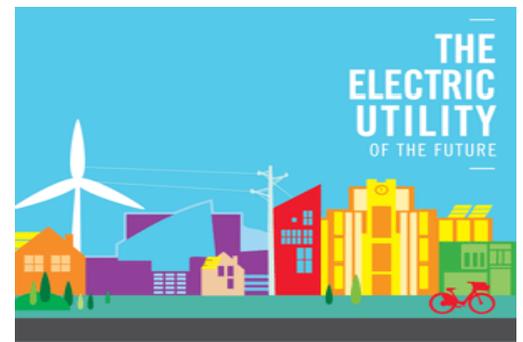
Key Findings

- This option meets all Charter requirements except the rate parity at the time of acquisition metric.
- This option would allow the Boulder community to exceed the Kyoto Protocol in year one, and would see the greatest reduction of greenhouse gas emissions as compared to the other five options.
- This option has higher costs than both Low Cost options, but does not generate proportionately greater reductions in carbon intensity of the fuel supply.
- Increasing energy efficiency investments resulted in a greater level of emissions reductions, over 20 years, than the other lowest GHG emissions option because of the increased energy efficiency.

most dramatic and fastest shift to the greenest electric utility feasible for Boulder and would bring the most renewable energy into our electricity supply out of all the options.

At the start of a municipal utility in 2017, Boulder would obtain approximately 65% of its electricity from renewable resources (mostly from wind) and 35% from natural gas. As the utility moved towards the future and renewable energy and electricity storage technology advances, and associated prices decline, the city could increase the amount of renewable energy in its mix and start to move away from the use of fossil fuels.

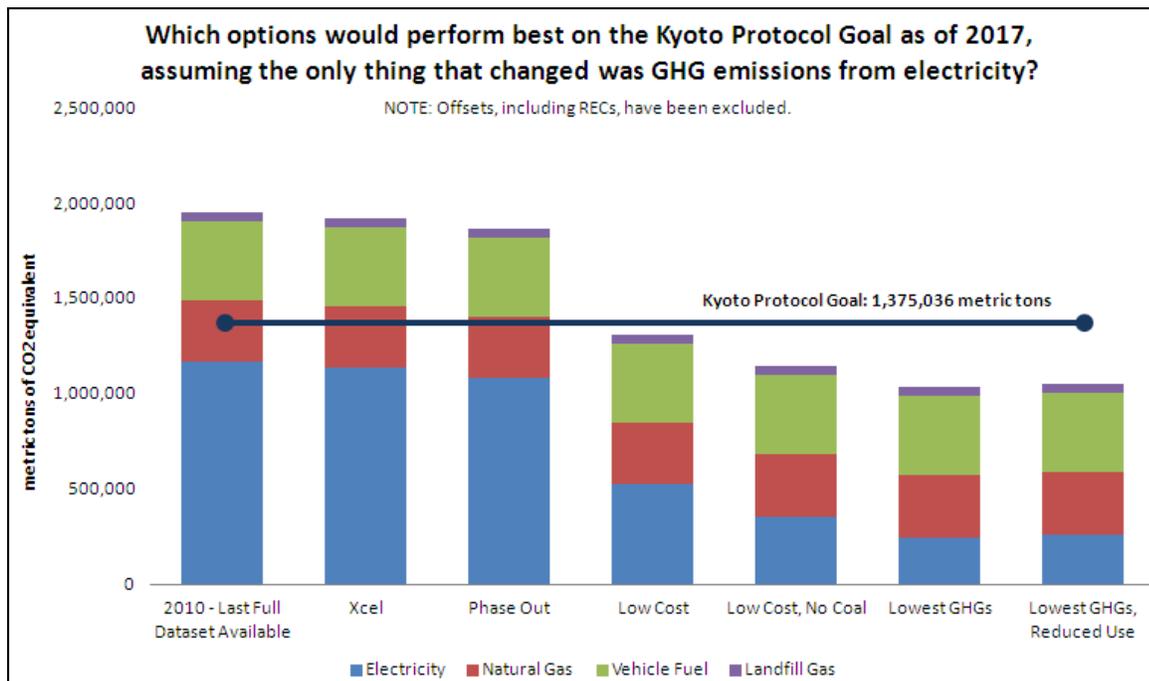
Key Findings Related to Charter Metrics



Renewables: How Green are the options?

Kyoto Protocol:

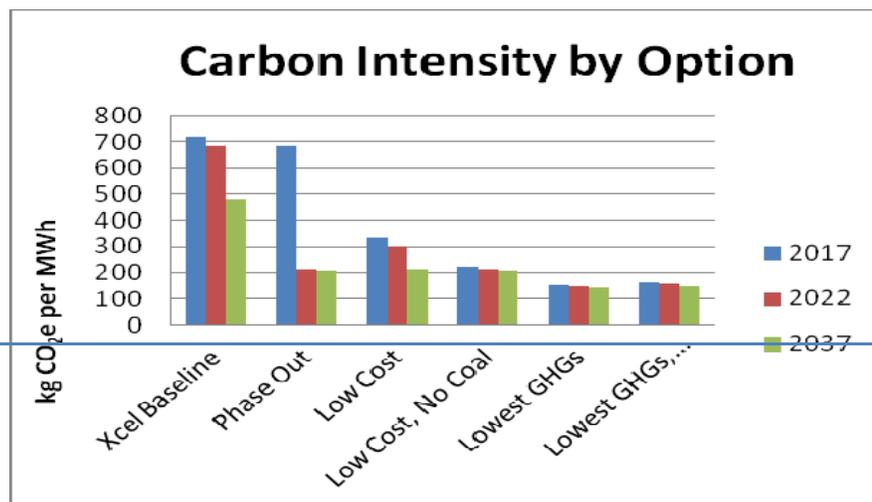
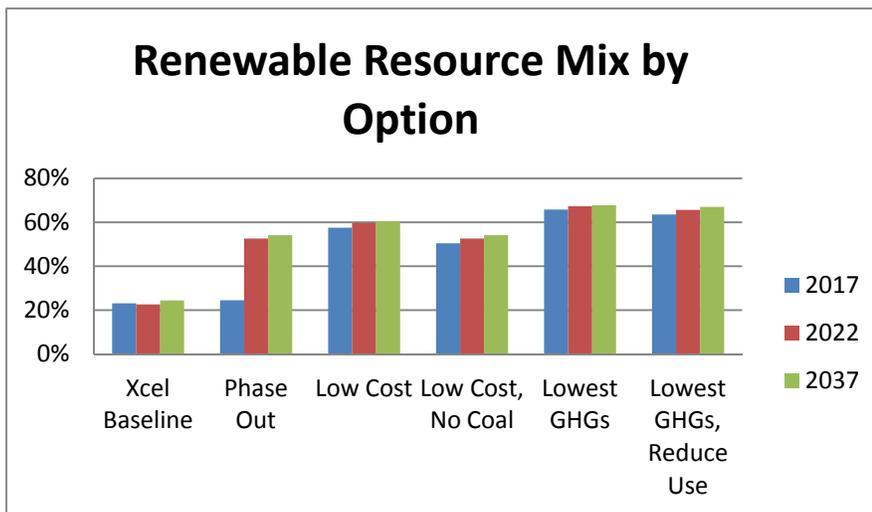
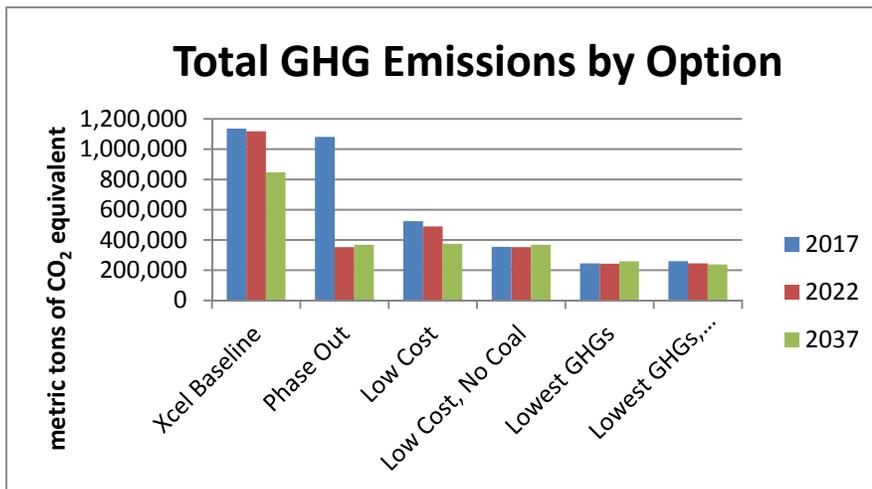
The Chart below shows that all municipalization options exceed the GHG emission reduction levels associated with the Kyoto Protocol levels¹ immediately except for the Phase Out option, which would meet Kyoto after the switch to the Low Cost, No Coal option in year five.



Renewables Continued...

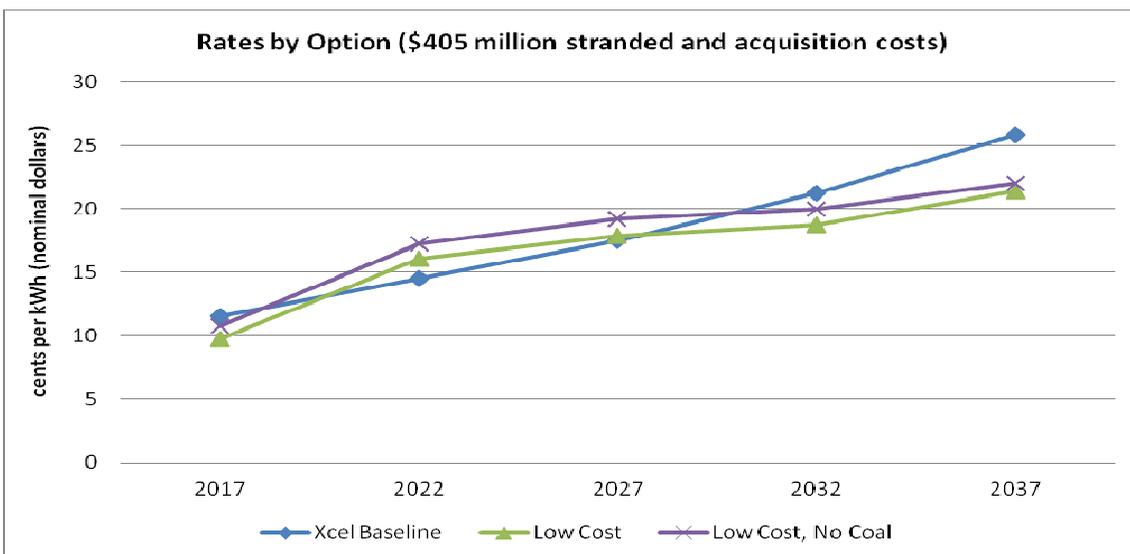
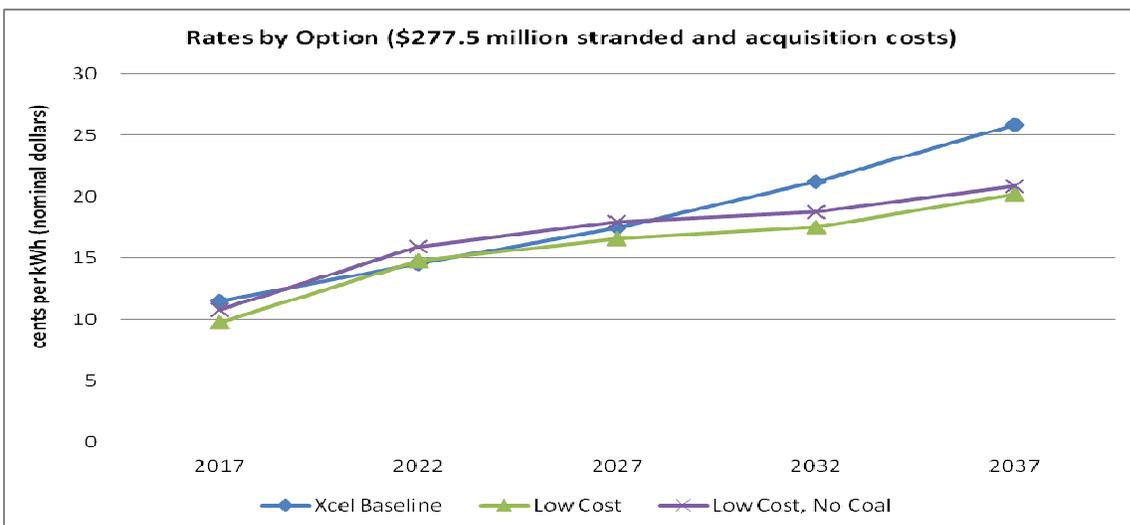
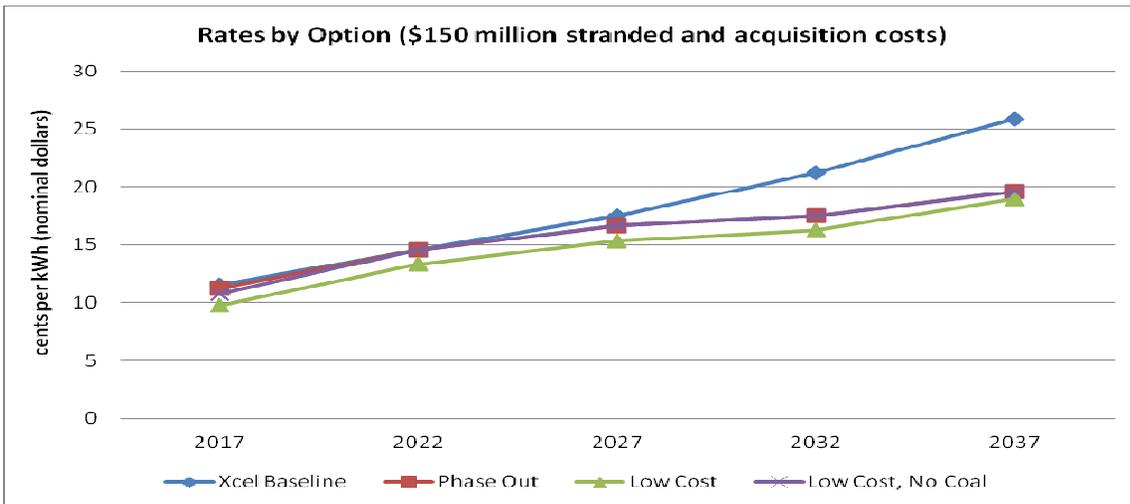
These charts are measured for 2017, 2022, 2037 values.

- (a) **The total GHG emissions of the six options**, as measured in metric tons of carbon dioxide equivalent.
- (b) **The percentage of renewable energy associated with each option**. As expected, the percentage of renewables in each portfolio (due to purchasing large amounts of renewable energy such as wind, solar and hydroelectricity¹) directly influences the overall carbon intensity of each option.
- (c) **The expected carbon intensity or the amount of carbon by weight emitted per unit of energy consumed, of each option**. Because there are several fuels assumed in each option, carbon intensity is based on their combined emissions coefficients.



Rates: How do the rates compare with Xcel?

These show average rates by option at three different levels of stranded and acquisition costs over time for the top performing municipal options (i.e., those that have a greater than 50 percent likelihood of meeting the Charter metrics) in comparison to the Xcel Baseline.



What's Next:

Key Decisions

On April 16, 2013, after receiving answers to the questions they posed on Feb. 26 and hearing community feedback, City Council will discuss options and provide guidance on the next steps the city should take with regards to Boulder's Energy Future and the municipalization exploration study. Council has a couple of options:

- Select a single option for further refinement
- Select more than one option for further refinement
- Take an off-ramp and stick with the system that is in place today, which is having Xcel Energy continue with the status quo.

It's important to note that this is an important step in the process, but by no means is this the last time that the City Council could decide to take an off-ramp.

If an off ramp is taken, it is unlikely that the project will be completely over, as the city will continue to work with Xcel Energy on ways to achieve the community's greenhouse gas emission reduction and climate change goals.

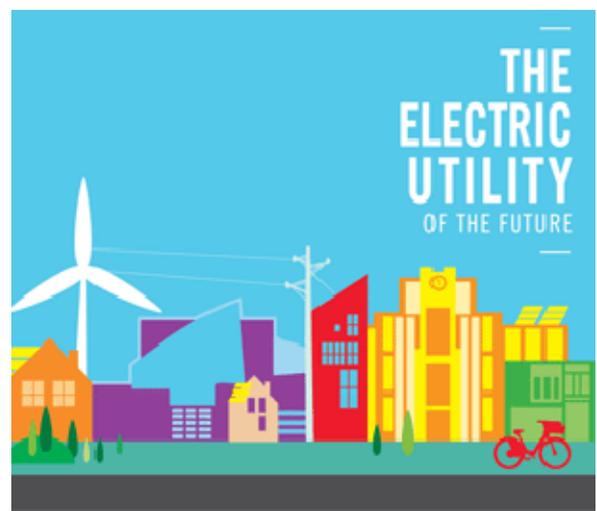
What would Phase II of the work plan involve?

Should City Council decide to move forward with an option or options, several actions will be triggered that will take place in Phase II, including:

- Authorize the city attorney to complete the due diligence efforts that are required by law before council can take formal action to acquire the property needed to operate a municipal electric utility;
- Authorize the city attorney to initiate and pursue, or intervene in any action necessary to determine any potential rights or obligations of the city and means of separating from Xcel Energy's system under state or federal laws;
- Authorize discussions with bond rating agencies for possible financing of the electric utility;

- Authorize the city manager to develop a process for hiring a third-party expert to verify the city's findings and models for creating a municipal electric utility;
- Initiate utility governance discussions;
- Identify service providers – issue requests for proposals (RFPs);
- Develop a formal implementation plan;
- Ongoing public engagement and outreach;
- Working with Xcel Energy on potential partnership options.

Phase II of the work plan is anticipated to take one to four years to complete. Phase III will involve the actual physical creation and operation of a Boulder municipal electric utility.



Important Dates

- **April 16** – Public meeting with City Council to receive guidance on moving forward
- **April 17** – Phase II or work plan begins, or city discontinues municipalization exploration study
- **July 23** – Study Session with City Council to provide an update on the work plan, should council decide to move forward with Phase II

March 13 Energy Future Open House Comment Form

1. How did you hear about this event?

2. Did you like the structure of the event? YES / NO (please circle)
If no, what would you do differently?

3. Do you (check all that apply):
 - Own a home in Boulder
 - Rent a home in Boulder
 - Work in Boulder
 - Own property outside of the Boulder city limits that is part of the proposed service

4. Would you like to receive updates about this initiative? If so, please provide your email address and we will add you to our e-mail update list.

Email: _____

Comments/Questions (Please feel free to use back of sheet for more)

For more information please visit www.BoulderEnergyFuture.com