



Boulder's Energy Future Today

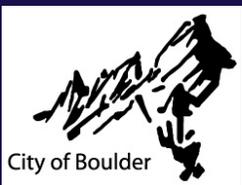
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Municipalization Charter Goals

The city must meet the following criteria to form a local electric utility:

- Rates cannot exceed Xcel's rates at the time of acquisition.
- Revenues must be sufficient to pay for operations and debt, plus an amount equal to 25% of debt payments.
- System reliability must be ensured.
- The city must have a plan to show it can reduce greenhouse gas emissions and increase renewable energy sources.
- The city's information must be verified by an independent, third party analyst.



October 2012
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Finalized work plan to guide exploration of municipalization; metrics will be key to analyzing strategies

On Aug. 28, City Council provided its final comments on the work plan (available at www.BoulderEnergyFuture.com) that was drafted to guide the ongoing efforts to determine whether Boulder should create its own electric utility.

The plan spells out the steps staff, consultants and community members will take in a variety of areas to identify and weigh potential strategies for meeting the community's energy goals. Any and all potential strategies will have to meet voter-approved requirements (see side bar) and associated guiding principles. The work plan lays out the framework to complete the in-depth analysis necessary to determine the best possible plan of action.

Work over the next several months is expected to be intense. Specialized teams will be analyzing legal, financial, and technical strategies with hopes of making strategy recommendations to City Council during the first quarter of 2013

Metrics: how we'll measure strategy effectiveness

To aid in the strategy assessment process, the city and key stakeholders are working together to develop and refine metrics that will be used to analyze all facets of each strategy.

Some of the metrics will be based specifically on whether the strategy meets the baseline requirements of the charter. Some of these are very clear and quantifiable. Others require an additional layer of detail to help those conducting the analysis know whether the

community's intentions are being met. For example, what specific measures will the city use to determine whether the system will be reliable? While the guiding principles state that the city's system must be at least as reliable as Xcel's current operations, it will be impossible to obtain reliability measurements for a city operation unless and until one is up and running. The analysis is likely, instead, to focus on delivery and consistency standards put in place by the National Energy Regulatory Commission (NERC).

It is important to note that both investor-owned utility and municipally run electrical systems are required by the federal government to comply with these standards, and in many cases, municipal systems are actually more reliable than privately operated utilities. In addition to understanding and committing to these standards, a team focused on reliability will also be looking at the level of expertise the city would need for its line crews and mutual aid agreements that could guarantee a prompt response in the event of bad weather or other emergencies.

Upcoming public meetings:

Council is scheduled to review ongoing work at round-table discussions from 4:30 to 5:30 p.m. on Tuesday, Oct. 9, and again on Tuesday, Oct. 23, in City Council Chambers - 1777 Broadway. Members of the community are welcome to attend to obtain more information on the work plan and metrics and offer feedback. Visit InspireBoulder.com or use the online form on the project website to provide comments on the work plan and metrics.

Energy saving tips for winter:

With winter approaching, it's time to think about ways you can make your home and office more energy efficient in order to keep heating costs down. Here are some tips:

Set your thermostat to 68 degrees - Your heating system will operate less and use less energy. Turn your thermostat down 5 degrees at night or when leaving your home for an hour or more to save up to \$70 on energy costs each year.

Set your water heater to 120 degrees - Each time you lower the temperature by 10 degrees Fahrenheit you'll save 3 to 5 percent on water heating costs. That's a savings of \$6 to \$10 a year.

Open window coverings on south-facing windows during the day to warm your home. Also, consider closing window coverings in rooms that receive no direct sunlight to insulate from cold window drafts. At night, close window coverings to retain heat. Up to 15 percent of your heat can escape through unprotected windows.

Replace or clean furnace filters once a month. Dirty filters restrict airflow and increase energy use. Now is the time for a furnace tune-up. By keeping your furnace clean, lubricated and properly adjusted, you will reduce energy use and may save up to five percent of heating costs.

Caulk leaks around windows and doors. Look for places with pipes, vents or electrical conduits that go through the wall, ceiling or floor. Check the bathroom, underneath the sink, pipes in a closet, etc. Caulk works best on small gaps.

Mitigating risk and seizing opportunities

As part of the municipalization exploration project, the city is analyzing the risks and opportunities that come with creating a municipal utility or with maintaining the status quo as customers of Xcel Energy – or taking a third path, if one becomes apparent.

Municipalization comes with certain risks; however, maintaining the status quo also carries risks. By identifying risks, the city hopes to begin to see how different decisions influence each other and how they should best be packaged into distinct strategies.

Here is a brief summary of some of the risks the city is considering at this time.

Financial – A key financial risk comes from the unknown or unpredictable cost increases that can impact rates. Financial risks associated with municipalization include larger than anticipated payments attributed to forming the utility. If these costs cannot be mitigated and rates are projected to be above Xcel's, the city would not be able to form a utility. However, should the city form a utility, Boulder ratepayers will have a say in the level of rates, whereas Xcel's rates are decided at the state Public Utilities Commission (PUC). In its rates, Xcel passes through to its customers the costs of fuel, including increasing coal costs, as well as long-term investments in coal generating plants and other system-wide infrastructure – investments on which it receives a significant rate of return. Ultimately, the longer the city stays with Xcel, the more difficult and costly it could be to take a different approach later.

Environmental – A municipal utility would have the ability to prioritize energy efficiency and renewable energy to meet local demand. This could provide protection from future carbon regulation, but at a potentially higher cost. To mitigate this risk, a municipal utility could, for example, adjust its resource mix to have a blend of clean energy resources, including more gas-based generation, but still work toward meeting its environmental goals. Conversely, Xcel's environmental goals may not be compatible with Boulder's, and the risk of staying with Xcel is that Boulder's ability to meet community carbon reduction goals and build local renewable generation resources is severely constrained. In addition, the community would continue to be required to pay for coal plants and associated mitigation costs to comply with environmental regulations. There are significant questions about the sustainability and costs associated with this system.

Litigation – To move forward with municipalization, there is a potential for costly litigation, but with the end result being that Boulder ratepayers

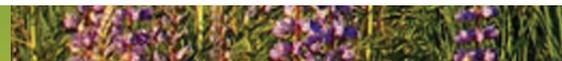
would have more say over electric services and rates. Conversely, by staying with Xcel there is a risk of ongoing litigation at the PUC, which makes statewide rate and policy decisions. PUC oversight requires city participation to advocate for the interests of our community in proceedings such as rate cases, determination of Xcel's resource strategy, and the preservation of renewable energy incentives.

Separation – Forming a municipal utility requires developing a "separation plan," which defines the distribution and transmission assets the city would acquire. Associated risks are both technical and geographic. On the technical side, certain assets will be required to maintain reliability, and other assets may not be acquired because they could create additional federal compliance requirements. Because the condition of the assets is unknown, the city may need to make additional investments to ensure reliability. It is important to remember, however, that Xcel also would need to make similar future capital investments, which it regularly does throughout its service territory, and passes these costs on to ratepayers.

Reliability – There are two risks associated with maintaining reliability: system and operational. System reliability means that assets are in good shape; operational reliability means that crews are responsive in standard and emergency outage situations. The acquisition process will help determine system reliability. Xcel Energy has responded well in emergency situations and has provided good reliability; a Boulder municipal utility would face these same risks, which will be evaluated during the inventory of the distribution system and in the staffing of dedicated local crews. Mitigation strategies could include outsourcing to experienced service providers, partnering with other local utilities, or a combination of hiring experienced employees and outsourcing. Colorado municipal utilities, like Fort Collins, Colorado Springs, and Longmont, provide higher reliability than Xcel.

Time – While time has been factored into each of the above risk areas, it is also its own risk. If we delay reducing our carbon emissions, we continue to negatively impact the global climate. If we delay increasing local decision-making authority, we limit the ability of the local clean-tech industry to test their innovations in Boulder. The passage of time could also have ramifications in terms of the bond market.

As we expand this list of risks to consider, we welcome your suggestions and comments by using the online comment form at www.BoulderEnergyFuture.com.



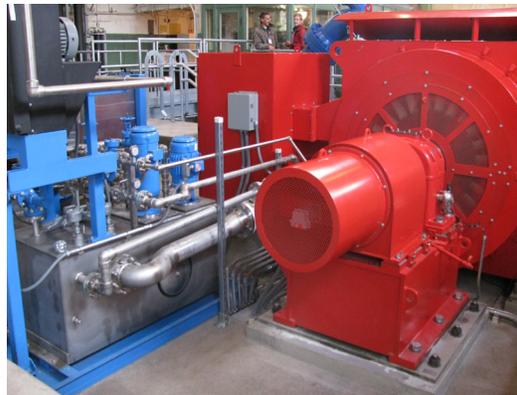
Did you know that the city is already in the business of efficiently generating renewable energy?

Since 1985, the City of Boulder has been producing and supplying the regional power grid with renewable energy that is used by thousands of electricity consumers in Colorado. The city now uses a three-part renewable energy program that includes hydroelectricity, cogeneration, and solar photovoltaic (PV) energy. Although a lesser-known component of the city's water and wastewater utilities, the renewable energy program has a direct impact on the Boulder community, the state of Colorado and the Rocky Mountain region.

In 2010, the renewable energy program generated over 50 million kilowatt (KW) hours of electricity. To put this in perspective, an average Boulder County household uses about 7,600 KW of electricity each year. This means that the city produces enough renewable energy to power 6,578 homes for one year.

Hydroelectric Facilities

In 2001, the city purchased the Boulder Canyon Hydroelectric Plant from the Public Service Corporation of Colorado, which created 8,500 megawatt (MW) hours of renewable energy. Since that time, the city has upgraded the Boulder Canyon facility so that it now produces 11,660 megawatt hours of electricity each year. In addition, the work also added 45 years of service to the facility's lifespan. The hydro plant now saves 300,000 tons of coal from being used, which offsets over 300,000 metric tons of carbon dioxide, 900 tons of nitrous oxide, and 450 tons of sulfur dioxide.



In addition to the Boulder Canyon facility, there are seven other city-owned and operated hydroelectric generators that together convert the energy in falling water into over 44 million kilowatt hours (kWh) of electricity each year. These hydroelectric systems make use of energy from water that is also used to meet the city's water needs.

Cogeneration

Cogeneration utilizes energy from the wastewater treatment process to produce heat and electricity. This type of system is known as a combined heat and power (CHP) system. The city owns and operates one cogeneration facility at the 75th Street Wastewater Treatment Facility.



Methane, a byproduct of wastewater treatment plant operations, is used as fuel for two engine generators to produce electricity. High temperatures resulting from this electricity production are recovered and used to heat wastewater treatment processes and many of the buildings at the 75th Street facility. The electricity generated is used as an energy source at the facility and is also used as a backup power source during outages, which reduces the amount of electricity purchased from Xcel Energy.

Since first being used in 1987, the cogeneration facility has produced more than 50 million kWh hours of renewable electricity. Electricity production by the plant averages approximately two million kWh hours per year.

What else has the city done to reduce its carbon footprint?

Since 2009, the city has partnered with the Colorado Energy Office on an Energy Performance Contract (EPC), which has enabled the city to make significant energy efficiency upgrades to 66 city facilities.

The EPC allowed the city to enter into a lease purchase agreement with McKinstry to implement upgrades, which will be paid off over time using the savings from reduced energy bills. The upgrades do not cost Boulder taxpayers any additional money and the community will reap the long-term benefits of reduced use, energy bills and maintenance costs.

The EPC is a prime example of the city implementing projects that are both environmentally and fiscally responsible.

EPC work highlights include:

- Solar photovoltaic panel installation at nine city facilities including all recreation and community centers and the Main Library
- Solar thermal panels at the East Boulder Community Center and both the South Boulder and North Boulder Recreation Centers
- Energy efficient indoor and outdoor lighting at numerous city facilities
- Occupancy sensors for lighting and HVAC system controls at numerous city facilities.
- Weatherization of 43 city buildings
- Installation of low-flow water fixtures
- Chiller and boiler replacement at several locations.

Learn more about all of the ongoing facility improvements by visiting the city's Facilities & Asset Management website at www.BoulderColorado.gov.

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October is Energy Awareness Month

October has been Energy Awareness Month since a presidential proclamation in 1991. For more than 15 years, government organizations - in partnership with business, associations, and concerned residents - have observed this month with activities and programs to promote public understanding of our energy needs and to reduce energy.

Here are some great resources to help you learn more about the energy we use:

Boulder's Local Environmental Action Division (LEAD) and the climate action website - www.BoulderColorado.gov/ClimateAction can help you reduce energy demand and show you how to increase the amount of renewable energy at home and in the office.

EnergySmart can help your home or business get started on the path to better comfort, energy savings, and lower energy bills - visit www.EnergySmartYes.com.

The U.S. Environmental Protection Agency's Energy Star website can help you calculate your carbon footprint, test your "energy IQ," and provides numerous other tools that help everyone save energy - visit www.EnergyStar.gov.

Renewable energy and the city continued from page 3

Advantages of cogeneration include:

- Methane, a powerful greenhouse gas, is used to generate electricity rather than being released into the atmosphere.
- Efficient energy generation – Cogeneration harnesses heat that would otherwise be wasted.
- It provides heat that can be used without having to burn additional fuel sources.

Learn more about the city's hydroelectric and cogeneration facilities at www.BoulderWater.net.

Solar Photovoltaic (PV)

With an average of 300+ sunny days per year, Boulder is an ideal place for solar PV installations, and the City of Boulder has definitely taken advantage of the conditions.

Nearly two megawatts of solar electric and solar thermal systems have been installed on 18 City of Boulder facilities. These systems reduce peak energy demand in city buildings, heat pools at recreation centers and charge electric vehicles. If you take a look at most of the city's major facilities, you will see several solar panels harnessing the power of the sun – and more are coming.



(LEFT) East Boulder Recreation Center solar array, (RIGHT) Wastewater Treatment Facility solar array

The largest solar array is located in front of the 75th Street Wastewater Treatment Facility (WWTF). After two years of operation, the one megawatt solar electric system at the WWTF has generated more than three million kWh of energy, saving city ratepayers more than \$75,000. This power output represents approximately 100 percent of the system's energy-generation potential and helps offset the power requirements of the city's largest energy user.

The solar system has operated with marked efficiency and reliability during the past two years, providing approximately 15 percent of the WWTF's annual energy needs. On a clear, sunny day, the system can provide up to 67 percent of the plant's total power requirements. If that same power was generated from coal, it would require approximately 1.5 million pounds of coal per year, which would produce:

- Approximately five million pounds of carbon dioxide;
- Approximately 6,300 pounds of sulfur dioxide; and,
- Approximately 6,300 pounds of nitrous oxide.

As you can see, Boulder is doing its part to bring more renewable energy to the regional power grid. Additional information about the city's hydroelectric, cogeneration, and solar photovoltaic operations can be found on the city's main website at www.BoulderColorado.gov.



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