What the Modeling Does and Doesn't Do

Attempting to forecast the future is always complex, especially looking out 20 years in an industry that is experiencing rapid change. The objective of the modeling was to, based on the metrics test, compare municipal utility options to the Xcel Energy Baseline (the status quo relationship with Xcel). Among the outputs compared were renewable resources as a percentage of total generation resources, GHG reductions over time, and rates. As in any modeling exercise, there are inherent limitations, which are discussed below. Some of these will be addressed in later phases.

The modeling outputs are based on the "can we" question.
The model outputs were tied to the quantitative metrics being used to measure performance against the Charter requirements. These metrics have to do with debt service coverage, rates, GHG emissions, and renewable energy. Analysis on reliability feeds into the financial model based on the funding needed for capital investment, self-insurance, operations and maintenance, etc. However, there are other values important to meeting Boulder's Energy Future goals—such as local job creation, and providing new options for commercial and residential customers to manage their own energy use. Analysis on these issues is being treated qualitatively at this stage in the process, but these could be modeled quantitatively as more information becomes available.

The ability to model options based on a new partnership with Xcel was limited by lack of information.
As described earlier, the modeling focuses on an Xcel Baseline option and five options related to forming a local electric utility. The Xcel Baseline was modeled using Xcel's own forecasts for the next few decades and is used in comparison with the municipal utility options. Dramatic shifts to Xcel's operations or business structure—such as the formation of a robust ancillary services market or the legislature dramatically increasing the Renewable Energy Standard—are not currently modeled, nor are most of the creative new partnerships that the city proposed in its December 2012 paper on alternatives. Xcel has not provided a response describing what alternatives are viable and which are not, making it illogical to invest resources in modeling any of the partnership ideas that were presented.

This is not to say, however, that alternative partnerships have been excluded entirely. In December, staff proposed that Xcel could provide power purchase agreements to a Boulder municipal utility through a "Boulder rate," representing a continuing relationship that would serve both parties. For any of the municipal utility options, Xcel could provide power purchase agreements to suit the city's desired resource mix. The range of costs used for resources includes Xcel's forecasts in the development of ranges. There would need to be other shifts to the relationship related to mutual goal-setting, collaboration, and information exchange, but the selecting of municipal utility options does not preclude a continuing, innovative relationship with Xcel Energy distinct from the Xcel Baseline option that was modeled.

The modeling does not currently allow for course change.
Each option represents a set of decisions that are committed to over a 20-year period. In reality, if a municipal utility were formed, changing circumstances would lead to shifting strategies over time, resulting in the pursuit of a mixture of these potential paths. For example, based on

policies set forth at the time of creation of a municipal utility, staff could begin developing a roadmap for startup based on the Low Cost option. If there are cost savings within five years, the utility could pursue a cleaner energy portfolio. Staff is investigating how to incorporate changing decisions over time in the models.

Rate or cost parity was not modeled as a separate option at this time.
The working groups recommended modeling an option that looked specifically at the reduction in GHG emissions, or other added values that could be achieved, based on matching the Xcel Baseline rates over the 20-year period. However, because this analysis incorporates probabilistic analysis, a municipalization option that matches Xcel's rates for a single set of inputs may not match Xcel's rates once the outcome is adjusted for risk, including legal risks (see description of probabilistic modeling beginning on page 18). An alternative way to get to a similar result is to consider the relative revenue requirements of the various options; i.e., how much funding each option needs to cover its costs over 20 years, discounted to net present value. If a municipalization option is expected to have cost savings compared to the Xcel Baseline option, the City Council could choose to set rates in ways that better serve customers while keeping rates comparable to Xcel's. As will be shown below, even under a middle case of stranded and acquisition costs, the Low Cost option would provide more than $200 million over 20 years that could be reinvested based on the utility's priorities. These include, but are not limited to, even higher reliability; grid intelligence; microgrid capabilities and islanding; an increasingly renewable energy portfolio; non-fracked natural gas resources; local distributed generation and energy efficiency incentives; research and development; and pilot projects with local entrepreneurs.

The risks inherent in the Xcel Baseline option have not been modeled as completely as in the municipalization options.
Carbon prices were modeled as uncertainties in all of the options; however, there are two variables that could significantly increase the amount of risk associated with the Xcel Baseline that have not been modeled. These are the impacts of Xcel's large coal investments, and whether the company's projected $3.5 billion capital expansion costs from 2012 to 2017 have been fully incorporated into its rate projections. These factors will affect Xcel's projected costs, potentially resulting in higher rates than modeled for the Xcel Baseline.