Xcel Baseline Analysis Methodology

To calculate the costs and benefits that might occur through the creation of a municipal utility, the city first created an "Xcel Baseline" analysis for comparison. The Xcel Baseline projects costs Boulder customers will pay to Xcel if the city continues to rely on Xcel Energy as its electric utility provider. Costs for various municipal utility scenarios are then compared to this baseline to calculate the savings or additional costs that are expected from municipalization.

The Xcel Baseline relies as much as possible on forecasts made by Xcel itself in proceedings before the Colorado Public Utilities Commission (CPUC), as well as additional financial and operations data filed by Xcel with the CPUC and the Federal Energy Regulatory Commission (FERC). However, because the city does not have access to all of Xcel's financial and planning data, additional assumptions and calculations were used to build up the baseline.

Overall Approach

Figure 1 provides an overview of the Baseline Analysis, which includes two main steps and a number of substeps. In Step 1, the analysis forecasts the total revenue that Xcel will receive from all of its Colorado retail customers (Xcel's "revenue requirement"). The approach uses methods similar to those used to calculate the revenue requirements that determine electric rates set by the CPUC. In Step 2, the analysis determines the share of Colorado revenue requirement that will be paid by Boulder customers.

Step 1 involves first forecasting the asset investments needed to build the electrical system. These are tracked at original cost ("gross assets"), and also net of accumulated depreciation ("net assets"). From these asset balances, asset-related revenue requirements, including depreciation, cost of capital, and taxes, are calculated. Depreciation expenses grow along with gross assets. (Depreciation on an individual investment is typically calculated as its original investment divided by its useful life.) The other requirements grow with net assets: Xcel earns its cost of capital (including debt interest and equity earnings) as a percentage of its net assets and Xcel pays income taxes as a percentage of its equity earnings. Finally, the analysis adds expenses required to maintain and operate the electric system.

In Step 2, the analysis allocates a share of Xcel's Colorado revenue requirement to Boulder customers. Boulder-specific local taxes are then added to calculate the final Boulder revenue requirement.

The analysis begins with financial data for 2012, and forecasts costs out through the 2017-37 study period for the municipalization analysis. The following sections provide more detail on the approach and assumptions used to derive the Xcel Baseline results.

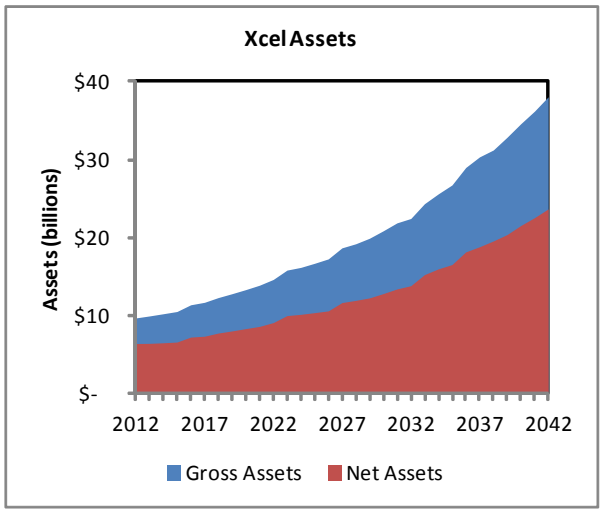
Step 1: Forecast Xcel Total Revenue Requirement

Step 1a: Forecast Xcel Assets

Xcel's investments include generation, transmission, and distribution assets that make up the electrical system, as well as the general assets that support the system (such as office buildings). In addition, because Xcel operates a combination utility in Colorado (including natural gas and steam utilities), Xcel's balance sheet also include some "common" assets that are allocated across the three utilities.

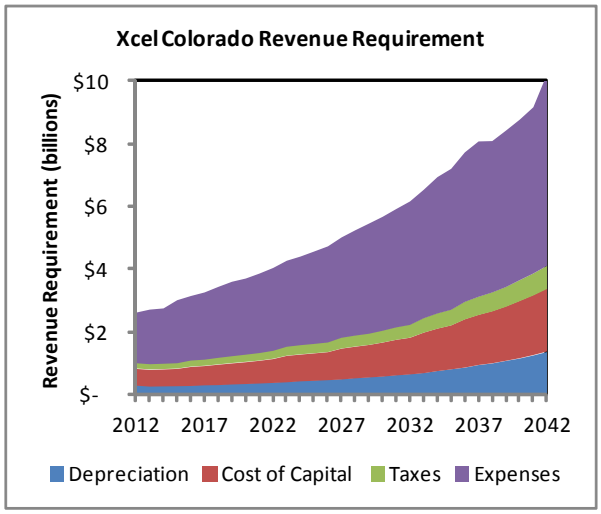
Figure 1
Xcel Baseline Analysis Approach

Step 1a: Forecast Xcel assets

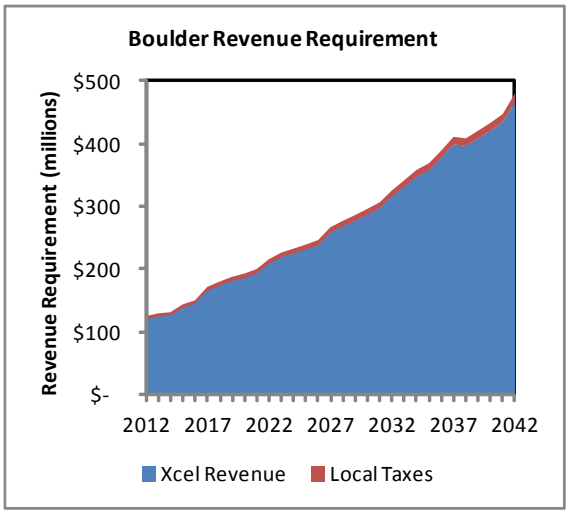


Step 1b: Forecast asset-related revenue requirements
- Depreciation grows with gross assets
- Cost of capital and taxes grow with net assets

Step 1c: Add expenses



Step 2a: Allocate Colorado revenues to Boulder
Step 2b: Add local taxes



Since these assets are paid for over time, they do not show up directly as annual revenue requirements. Instead, the additional calculations shown in Step 1b use these asset balances as inputs to calculating "asset-related" revenue requirements.

Generation Assets: Asset balances were forecast for each individual plant currently on or planned for Xcel's Colorado system. Starting balances were calculated from information provided in Xcel's 2012 Annual Report to FERC and matched to levels approved for Xcel in 2012 for its latest General Rate Case (GRC). Future balances were developed from the forecast of additions and retirements that Xcel included in its 2011 Electric Resource Plan (ERP). Annual and accumulated depreciation were calculated using asset lives consistent with the GRC and ERP. Net assets were then calculated as the difference between gross assets and accumulated depreciation.

Transmission Assets: Asset balances were forecast for the total transmission system. Starting balances were set consistent with the amounts approved in Xcel's GRC. Gross assets and net assets were assumed to grow at rates tied to demand growth and inflation. While Xcel's transmission assets have grown much faster than this in recent years, it is unclear that this trend will continue for the entire analysis period. Instead, the more conservative assumptions—which, for consistency, were also used in forecasting transmission costs for municipalization scenarios—were applied.

Distribution Assets: Asset balances were forecast for the total distribution system. Starting balances were set consistent with amounts approved in Xcel's GRC. Gross assets were assumed to grow at levels consistent with historic growth over the 2002-12 period. Depreciation was calculated using distribution depreciation rates consistent with historic levels. Net assets were calculated as the difference between gross assets and accumulated depreciation.

General and Common Assets: Balances were forecast separately for general and common assets, but a similar approach was used for each asset class. Starting balances were set consistent with levels approved in the GRC. Net and gross assets were assumed to grow at historic levels. Depreciation was calculated using depreciation rates consistent with historic levels.

Step 1b: Forecast Asset-Related Revenue Requirements

Asset-related revenue requirements provide annual reimbursement to Xcel for its system investments, including return of its initial investment (in the form of depreciation), return on investment (in the form of debt interest and equity returns), and income taxes on those equity earnings.

Depreciation: Depreciation is typically calculated using a "straight line" approach, which involves dividing the initial investment by its expected useful life. For example, for a power plant with a useful life of 50 years, Xcel books annual depreciation expenses of 2 percent (1/50) of the initial (or gross) investment. Approaches used to calculate depreciation for each asset class were described in Step 1a.

Cost of capital: Xcel's cost of capital represents the financing costs it pays to investors. Xcel's financing costs include a mix of debt interest (which are paid on the bonds, loans, and similar debt instruments used to fund a share of Xcel's investments) and equity earnings (which are the profits earned by Xcel's shareholders, who also fund a share of its investments).

Cost of capital is calculated as the product of net assets and weighted average cost of capital, which takes into account the capitalization shares and returns paid for each capital source. Table 1 shows the assumptions used in the baseline analysis, which are consistent with those authorized in the GRC.

Table 1
Xcel Cost of Capital

	Share of Total Capital	Interest/ Rate of Return
Debt	44%	5.63%
Equity	56%	10.00%
Weighted Average	**100%**	**8.08%**

Income taxes: The rates Xcel charges to customers also reimburse it for income taxes that it pays on equity earnings. Income taxes are calculated as the product of Xcel's equity earnings and the effective tax rates it pays for federal and state income taxes. The effective rates takes into account various tax incentives available to Xcel, such as accelerated depreciation and investment tax credits.

Because taxes added to Xcel's revenue requirement increase its net income (which is then subject to income taxes), Xcel's revenue requirement is first "grossed up" to ensure that Xcel's authorized rate of return on equity is maintained. Effective tax rates used in the analysis are consistent with levels authorized in the GRC.

Step 1c: Add Expenses

Expenses reimburse Xcel for fuel, purchased power, maintenance and other costs it incurs to operate the electric system. The following approaches were used to forecast expenses:

Generation: Generation expenses include the operation and maintenance (O&M) and fuel costs Xcel incurs to operate its own plants, as well as purchased power costs paid to independent generators. Generation expenses were forecast directly from the projections Xcel included in its ERP.

Demand-Side Management (DSM): DSM expenses cover the costs Xcel incurs for the energy efficiency and demand-response programs it uses to help customer save energy and lower system requirements. DSM expenses through 2020 were forecast from projections Xcel provided in the recent "DSM Strategic Issues" docket at the CPUC , and then assumed to increase at inflation after 2020. To these core DSM budgets, additional costs were added to represent bonuses awarded to Xcel's shareholders for meeting DSM performance targets.

Transmission: Transmission expenses include the O&M costs Xcel incurs to operate its transmission system, which were forecast to increase at inflation plus demand growth. Similar to the approach discussed for transmission assets, while recent O&M expenses have grown faster than this, an approach consistent with the transmission forecast for the muni alternative was used.

Distribution: Distribution expenses include the O&M costs Xcel incurs to operate its distribution system. Distribution expenses were calculated as a percentage of gross distribution asset balances, consistent with historic trends.

Customer and General: Customer expenses cover customer service, sales, and related functions. These costs were forecast to grow at levels consistent with historic trends.

Step 2: Forecast Xcel Total Revenue Requirement

Step 2a: Allocate Colorado Revenues to Boulder

Historically, Boulder customers account for just under 5% of Xcel's Colorado retail sales and around 4.5% of its retail revenue. Revenues represent a lower share because average rates in Boulder are only around 91% of Xcel's statewide average. While Boulder customers pay the same tariffs charged to other customers, a higher percentage of Boulder sales go to businesses, and businesses pay lower rates, on average, than residential customers.

Xcel's Colorado revenue requirements were assigned to Boulder using annual allocation factors that take into account the share of Xcel sales going to Boulder (the sales ratio), as well as difference between Boulder and statewide average rates (the rate ratio). Since the municipalization scenarios assume that some customers outside Boulder city limits will be included in the new utility, sales to these customers were included in the sales ratio. The rate ratio was also adjusted annually to reflect changes in the mix of residential and business sales.

Step 2b: Add Local Taxes

As a final step, local taxes were added in for two separate taxes: an occupation tax calculated as 3 percent of Xcel's electric revenue, and a carbon action plan tax calculated, per kilowatt-hour of sales, at 0.003 cents for industrial sales, 0.009 cents for commercial sales and 0.049 cents for residential sales.