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CITY OF BOULDER ENERGY FUTURE PROJECT:

Financial Forecast Tool: Overview

Purpose: The Financial Forecast Tool (FFT) is an in-house financial planning tool the city has created. It is used to evaluate the cash flows[1] and budget associated with the operation of a local electric utility over time. The tool provides flexibility to change assumptions and run a variety of scenarios that enable decisions to be made about the utility's financial health. More specifically, the tool:

- Generates budget forecasts and financial metrics for submission to rating agencies prior to bond issuance;
- Formulaically represents relevant city financial policies such as debt service coverage ratio, capitalized interest, and operating reserves.
- Demonstrates sensitivity and impact on cash flows from scenarios at a deterministic[2] level—from changing inputs such as resource costs, capital costs, operations costs, sales and economic trends;
- Generates budgets to be placed into the city's accounting/financial system; and
- Evaluates key metrics related to debt service coverage, performance and liquidity.

The FFT does not:

- Design rates
- Generate load forecasts
- Plan for long-range power supply
- Create forecasts related to City Charter metrics on reliability, renewable energy and carbon intensity[3]
- Compare rates with peer utilities, including other municipal utilities[4]

The above objectives will be accomplished by different processes and tools.

Will the FFT continue to be updated as new data is received? The FFT is designed to be a living document. As new or updated information becomes available through the municipalization process and new analyses are completed, staff and the public can update assumptions and review the outcomes.

[1] The total amount of money flowing in and out of the utility.

[2] Deterministic refers to the ability of the user to change individual inputs or assumptions and see the impact on the results. In contrast, probabilistic analyses perform statistical analyses on the probability or likelihood of certain assumptions and the resulting outcomes by systematically varying assumptions.

[3] The forecast can show, however, the economic impact of increased renewables and a cleaner power supply portfolio over the current Xcel Energy plan.

[4] Since the FFT uses Xcel Energy's rates in the current forecast, it allows the user to verify that the rates Xcel Energy uses are sufficient to cover the expenses of a municipal utility. This is described in more detail below.

Analysis and assumptions: No one can predict the future, but the city can use good data to make realistic assumptions about particular aspects related to our energy future. Like all forecasts, it is unlikely that every outcome will line up as assumed, and the forecast produced by the city's tool will not precisely match the future. This is inherent in every modeling process; nonetheless, the FFT is still very useful. Its value lies not in its predictive capabilities, but in its ability to evaluate outcomes of a range of assumptions about the future based on solid data, expert opinion and historic trends.

While this tool was not created to produce a statistical risk model as was done in 2013, it does allow the user to measure the financial impact of varying assumptions to the utility. For purposes of this analysis, the city used the following assumptions based on low, medium, and high values on some of the most sensitive variables to the forecast. This gives the user the ability to test a wide-range of outcomes by modeling various combinations of future scenarios.

Table 1 below identifies five "high-impact" variables, and a range of inputs of each. This means that each of these variables has the ability to influence the output of the modeling effort. By selecting a high, medium or low option for each variable, users can create multiple scenarios and determine the impact on the financial feasibility of a new utility.

Table 1: Low, Medium, and High Inputs in the FFT

	Acquisition Cost	Interest Rates (Taxable/Tax Exempt)	Debt Service Coverage Ratio[5] (DSCR)	Annual Operations & Maintenance	Load Growth Rates[6]
Low	**$150M**	**4.5/3.5**	**1.25**	**-20%**	**2.46%**
Medium	**$150M**	**5.5/4.5**	**1.50**	**APPA[7] Median**	**1.43%**
High	**$214M**	**6.5/5.5**	**1.75**	**+20%**	**0.31%**
Source	**City Charter/Xcel Energy**	**Financial Advisor**	**Financial Advisor**	**APPA**	**PSCo/ Xcel Energy ERP (Vol. 2, Table 2.2-2)**

[5] Debt Service Coverage Ratio (DSCR) is explained further on p.4. It should be noted that even though the user can adjust FFT for a minimum DSCR, the FFT does not solve for this factor but rather will not allow the coverage to go lower than this value in any of the 20-years. So, if the DSCR is set at 1.50, it likely it will be at 1.50 in some of the years but much higher in all other years. Additionally, when looking strictly at the cash flow analysis, if the rates are not raised beyond the forecast set, the FFT will show a DSCR lower than the target amount, see the conclusion section for more discussion on this.

[6] Higher load growth is considered in the low case because this would translate to more energy sales, which provides more revenue; this is a positive when considering a utility's financial picture. However, a city-owned utility would continue and seek to enhance energy efficiency programs, where appropriate, and switch to cleaner fuel sources as quickly as possible so that increase in energy use would not increase greenhouse gas emissions.

[7] American Public Power Association

While the scenarios in **Table 1** are the basis for the high, medium and low runs of the FFT, the other factor that greatly impacts the outcome on the forecast is the cost of purchased power. In this case, there are three power purchase scenarios programmed into the current FFT:

1. Four-Year Gradual Departure: Four years of purchase from Xcel Energy followed by a gradual departure from Xcel Energy and increasing amounts of clean energy from other sources
2. Four-Year Complete Departure: Four years of purchase from Xcel Energy followed by a complete departure to 100 percent renewable electricity from other sources
3. 20-Year Xcel Energy Supply: Purchase 100 percent of electricity from Xcel Energy for the 20-year forecast period

From this analysis, staff believes that the medium case is a fair and conservative proxy for what is most likely to occur. The results presented below reflect the medium case with variations on acquisition cost and power purchase costs. These results are summarized both in chart form and in the Summary Results document. Users are welcome to adjust these assumptions and see the results.

A few important definitions:

The FFT and the financial metrics in the City Charter: In 2011**,** Boulder voters approved Charter provisions that guide the ability of the city to create a local electric utility. The two provisions which relate to the financial aspects of the utility are rates and debt service coverage.

Chart 1: Financial Charter Requirements

Charter Requirement	Metric
Rates: The local electric utility must have rates less than or equal to those of Xcel Energy at the time of acquisition.	*Average cost per kilowatt hour (kWh) of electricity compared to Xcel Energy's average cost per kWh
Debt Service Coverage: Rates produce revenues sufficient to pay for the new utility's operating expenses and debt payments plus an amount equal to 25% of debt payments	*Debt service coverage ratio (DSCR) will be measured net income (adjusted for depreciation/amortization and interest on debt) divided by annual debt service payment. The DSCR must be at least 1.25 for this Charter requirement.

Rates: The FFT evaluates the "rates" charter metric by comparing the municipal utility's revenue collection using Xcel Energy's current and forecasted rates to the municipal utility's revenue requirement. It is important to note that the city has not undergone a rate-making process or analysis[8] so the "rates" depicted here do not demonstrate what customers would be charged for electricity.

[8] Rate making analysis: Rate design and forecasts are informed by a cost of service study, which assigns specific costs to a function (production, distribution, transmission, etc.) and classification (demand, energy, customer

To determine actual rates that will be charged to customers, the city will need to conduct what the industry calls a "cost of service study." To complete this study, the city will need to know the acquisition cost, detailed demand and consumption data. The city will also need an operational understanding of how these costs are currently being allocated to customers by Xcel Energy. This information will only be available to the city following conclusion of the transfer of assets proceeding at the Public Utilities Commission (PUC) where the city hopes to obtain more detailed information about customer use by class in Boulder and the determination of an acquisition price, either through negotiations with Xcel Energy or during a condemnation case at district court.

In the absence of this data, the city's analysis relies on Xcel Energy's current rates based on its cost of service study as approved to the PUC, as well as the forecasts for rate change increases over time derived from published electric load and fuel cost forecasts. Since the charter metric states that the local electric utility must have rates "less than or equal to those of Xcel Energy at the time of acquisition", the FFT includes the assumption that Xcel Energy's rates will be adopted by the city at the start of operations.

Just like with any utility, Xcel's Energy's rates change over time; historically, these changes have resulted in increased costs. For forecasting purposes, Xcel Energy's 20-year rate forecast is included in the FFT. During the first few years of operations of the municipal electric utility, the city would complete a cost of service study and adopt a local rate design through a governing body, as defined in the Charter (City Council and the Utility Governing Board). Since the charter metric for rates only references Day 1, longer term costs are addressed through the charter's guiding principles of fiscal responsibility,[9] comparability with the investor-owned utility that would have otherwise served the city, as well as neighboring utilities and ratepayer equity[10].

> **How does the FFT test the rate charter metric?** The FFT forecasts both the expected revenues of the utility (based on the rates charged and the energy sales) and the expenses or revenue requirement (based on detailed inputs of all the costs to operate the utility). Since the FFT uses Xcel Energy's rates, if the revenue collected is sufficient to meet the revenue requirement, then the charter metric is assumed to be met.

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charge, etc.), and then allocates them to a customer class (residential, commercial, industrial, etc.). This analysis identifies the cost drivers associated with electric service, and allocates the revenue requirement necessary to provide service equitably among customer classes.

[9] Guiding Principle on Fiscal Responsibility: "The cost of electric power is a significant portion of business and household budgets. The utility will operate in a fiscally responsible manner, always mindful that expenditures will be reflected in customers' rates and will affect household budgets and business profitability. The utility will, while always honoring its obligations to bondholders, strive to maintain rate parity with any investor-owned utility whose service area would include the City of Boulder." Charter Section 178(c).

[10] Guiding Principle on Ratepayer Equity: "The utility will direct its efforts to promote ratepayer equity in all aspects of its operations. Rates charged by the utility will be designed to create a fair and equitable distribution among all users of the costs, replacement maintenance, expansion, operations of facilities, energy, and energy conservation programs for the safe and efficient delivery of electric power to city residents and other customers. The utility will consider the effects of its programs, policies, and rates in the development of programs for low-income customers." Charter Section 178(c).

Debt Service Coverage: The debt service coverage ratio (DSCR) is the net operating income divided by the principal and interest payments on long-term debt. According to the charter metric, the rates must "produce revenues sufficient to pay for the new utility's operating expenses and debt payments plus an amount equal to 25 percent of debt payments." The FFT allows the user to target a specific DSCR and the revenue collection necessary to cover this expense.

> **How does the FFT test the DSCR metric?** While the charter requires a 25 percent coverage, in reality the city may want to have a DSCR that is higher for purposes of potentially obtaining higher bond ratings. For the forecast, the FFT analyzes a few different coverage ratios ranging from 25 percent, or 1.25 being the lowest, and higher coverage rates of 50 percent, or 1.50 and 75 percent or 1.75. The charter metric is assumed to be met as long as the DSCR does not fall below 1.25[11]. The forecast actually shows coverage much higher than these levels in many years.

Results: What does all this tell us about the financial feasibility of a municipal utility?

As stated previously, staff considers the medium case described in the table on p. 2 as the most likely scenario. The medium level assumptions serve as the base assumptions for most other scenarios analyzed. Additionally, most scenarios analyzed use a power supply scenario that most closely aligns with the city's recent filing at the PUC, which involves a gradual departure arrangement with Xcel Energy.

Each scenario is based on a 20-year forecast. Financial feasibility is measured through the net present value (NPV) of savings or losses over five, 10 and 20 years. This is measured in two ways:

1. The NPV of the **difference in the revenues requirements, or earnings test,** collected using Xcel Energy's rate and the revenue requirement of the municipal utility. The revenue requirement of the municipal utility includes all expenses and the amount collected to meet the debt service coverage level set in the FFT. Therefore, years that are negative are ones where additional revenue is likely needed to meet the target DSCR set in the FFT.
2. The NPV of the **actual cash flows** over the forecast period. This analysis shows the amount of cash the utility has available to use each year after all expenses and debt payments are made. The cash flow includes the revenues collected for debt service coverage, because the utility can use money collected to meet debt service coverage for reinvestment in the system, building cash reserves or other utility purposes. Since the rates are fixed at a certain amount, this analysis shows the actual debt service coverage ratio year to year rather than the target DSCR set in the FFT.

With such a long-term forecast, is it very difficult to predict the year-to-year conditions that will occur. **It is important to note that the forecasts presented do not account for decisions and adjustments that would be made on an annual or even more frequent basis to manage cash flows and other changes to conditions.** For example, if cash flows were less than acceptable levels, costs like annual operations and

[11] In one scenario presented below as feasible, the DSCR falls below 1.25 in one year, but there are excess cash flows in the year's prior that can easily cover the difference for that one year.

maintenance or capital improvements could be kept level until cash flow improved**.** The FFT does not show any changes in rate structures or additional escalations over time beyond a conservative assumption that rates will go up on average 3 percent every year.

Five-, 10- and 20-year savings/losses are calculated and used as the measure for financial feasibility over time, as opposed to annual performance. Meaning, some feasible scenarios may still show losses in some years. Another way to look at this data is to examine cumulative savings/losses and any excess revenues over the forecast period. Excess revenues or cash flows could be leveraged over time to manage any cash flow concerns and ensure the financial health of the utility. Excess revenues or cash flows over time show how the utility could manage risk and any unanticipated costs that may arise. In other words, there may be years that show losses, however that does not indicate the utility is not financially feasible. Those anticipated short-falls are typically addressed by having ample cash flows in previous years and/or management decisions such as keeping certain expenses level.

Therefore, there are some cases where the forecast shows the utility is financially feasible, and there are some that do not. Staff expects that interested members of the public will use the FFT to conduct their own analyses. Staff's work presents the FFT, all assumptions documented with sources and a selection of results, starting with the most likely scenarios. The results presented use the following combination of assumptions:

Scenario	Acquisition Cost	Power Supply
1	$150M	4 years Xcel Energy, then step down
2	$214M	4 years Xcel Energy, then step down
3	$150M	4 years Xcel Energy, then 100% renewable
4	$214M	20 years Xcel Energy

A more complete overview of the scenarios can be found in the Summary of Results document. Below is a high-level summary of the net present value over five, 10, and 20 years for each of the four scenarios listed above shown by both revenue requirement and cash flow.

Results - Revenue Requirement/Earnings Test, DSCR min is 1.50	Scenario			
NPV of Savings/(Losses) $ in (000s)	1	2	3	4
NPV of Savings/(Losses) over 5 years	$ 13,781	$ (4,463)	$ 33,086	$ (24,006)
NPV of Savings/(Losses) over 10 years	$ 118,962	$ 77,611	$ 254,672	$ (72,163)
NPV of Savings/(Losses) over 20 years	$ 322,837	$ 246,010	$ 539,128	$ (101,719)

Results - Cash Flow, no minimun DSCR set	Scenario			
NPV of Cash Flow $ in (000s)	1	2	3	4
NPV of Cash Flow over 5 years	$ 57,007	$ 50,465	$ 76,312	$ 30,922
NPV of Cash Flow over 10 years	$ 203,258	$ 183,200	$ 338,968	$ 33,426
NPV of Cash Flow over 20 years	$ 469,196	$ 427,066	$ 685,487	$ 79,336
Debt Service Coverage at acceptable levels	Yes	Yes	Yes	No

Conclusions

The base case (Scenario 1- medium case) demonstrates a financially feasible utility with sufficient annual

and cumulative savings to provide flexibility to manage risks and meet the local goals set out for forming a municipal utility. The results of this analysis show there are multiple scenarios that are financially viable. In fact, from a cash flow perspective, all scenarios except number four (20-year Xcel Energy power supply) are feasible. As shown in the Summary of Results document, when analyzing cash flows, there are some cases that are still feasible although in one or two years, the DSCR falls below 1.50 or 1.25, but the other years of the forecast have DSCRs that are above 2.0 and 3.0 in most years. For the years that fall below, there is enough excess cash in earlier years to cover the gap in DSCR in years three and four without raising rates, which tend to be the leanest years.

Once again, the city acknowledges that there are scenarios that are not financially feasible. Scenario 4 presents the most costly case in this analysis. This is fundamentally due to the fact that Boulder would be purchasing 100% of its electricity requirements from Xcel Energy as a wholesale customer, which is substantially more expensive than other options. City Council has indicated that the city will only proceed with municipalization if the costs are affordable based on the charter metrics test. Staff anticipates that the city's power-supply obligations will become more clear through additional regulatory and legal proceedings. If it becomes clear that the city would need to continue to purchase electricity from Xcel Energy beyond a period that is financially feasible, the city would evaluate taking an off-ramp and pursuing alternatives to meeting the community's energy future goals.