

LOCAL POWER FINANCIAL ANALYSIS

OCTOBER 14, 2020

This citizen-led report summarizes the projected financial benefits of a locally owned electric utility as one viable alternative to continuing with Xcel. The report uses the City of Boulder's Financial Forecast Tool, updated with current 2020 data and assumptions.

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Key Links and Glossary

[2018 RFIP Summary](#)

[2018 City of Boulder Financial Forecast Tool \(FFT\)](#)

[2020 RFP Summary](#)

[FERC Order on Stranded Costs \(decision with formula begins on p. 595\)](#)

[Empower Our Future](#)

GLOSSARY OF ACRONYMS

COB	City of Boulder
DSCR	Debt Service Coverage Ratio
EOF	Empower Our Future
FERC	Federal Energy Regulatory Commission
FFT	Financial Forecast Tool
GHG	Greenhouse Gas Emissions
NPV	Net Present Value
PSCo	Public Service Company of Colorado (Xcel Energy – Colorado)
PV	Present Value
RE	Renewable Electricity
RFP	Request for Proposals
RFIP	Request for Indicative Pricing

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Community Summary

PERSPECTIVE

Empower Our Future believes that we are experiencing a paradigm shift in world energy markets, largely driven by the imperative to stop and reverse climate change. Further, we believe that remaining flexible relative to options for sourcing 100% renewable electricity and open to new technologies and policies that make it possible to share electricity more equitably, reliably, and affordably, is critical. We offer this analysis of one option - that of implementing a locally owned electric utility - to demonstrate that we have at least one viable option at our disposal today. All indications are that even more options will be available in the near future, which strengthens our conclusion that entering into a twenty-year franchise agreement with Xcel is both ill-conceived and poorly timed.

HIGHLIGHTS

This report independently evaluates several alternative scenarios using the City of Boulder's Financial Forecasting Tool, current data, and reasoned projections for the near future to independently determine the financial viability of a locally owned electric utility.

FINANCIAL HIGHLIGHTS

Based upon the financial scenarios presented herein, this team finds that the combination of:

- Lower renewable electricity prices
- Lower bond rates, and
- Increasing electrification of transportation and buildings

...has resulted in a situation in which Boulder citizens can, with confidence, expect that a locally owned utility would at least breakeven financially within 5 to 10 years of startup, relative to continuing to source more carbon-intensive electricity from Xcel.

Further, due to the above favorable conditions, the scenarios predict that enough savings and cash flow would be created to offer Boulder customers lower electric rates for 100% renewable electricity, and to make investments in the modernization of Boulder's electric system for the benefit of all.

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CLIMATE HIGHLIGHTS

The switch to 100% renewable electricity by 2030 would nearly eliminate the City of Boulder’s Greenhouse Gas (GHG) emissions from electricity production in contrast to the 80% reduction mandated by the state of Colorado for Xcel. According to the City of Boulder, that translates into about 215,000 Metric Tons (MT) of GHG we would save from impacting our atmosphere each year! Given that each metric ton of GHG is estimated to cost society \$46/metric ton due to climate change impacts like increased fires, floods, drought, temperatures, and public health concerns, the financial impact of not getting to 100% Renewable Electricity in climate effects alone is almost \$10 million per year. This makes the imperative for local power even more financially justifiable for Boulder and the planet.

LOOKING AHEAD

This report shows that entering into a franchise agreement with Xcel Energy at this critical time, with the currently proposed terms, is not in the best financial interest of Boulder or its citizens. Rather, Boulder should stay the course, keep our options open, and take the lead in establishing an equitable, clean, modern electricity system for now and generations to come.



Financial Modeling Assumptions

This report utilizes the City of Boulder’s [Local Electric Utility Financial Forecast Tool](#)¹ (COB FFT) and updated data to examine multiple scenarios and to better forecast the impact of emerging trends on the financial viability of a Boulder-owned electric utility.

The most recent analysis published by the City of Boulder was based upon [pricing](#) from the City’s 2018 Request for Indicative Pricing (RFIP)² and then-current assumptions. In contrast, this analysis is based upon responses received in [September 2020](#) to the City’s Request for Proposal issued in July 2020³. The changes in variable values are significant in certain areas due to evolving market conditions, including:

- Lower renewable electricity prices
- Lower bond rates
- Increasing electrification of transportation and buildings

Given the rapidly changing energy market and consequent unpredictability of variables beyond 2030, this model examines a ten-year period. However, it is expected that both the environmental and financial advantages of a locally owned electric utility will continue to grow and substantially benefit our community for decades to come.

Since most variable values are not absolute (e.g. energy prices), a wide range of current data is modeled in this report to evaluate and arrive at the following three financial scenarios:

1. **Breakeven** – a scenario in which Boulder would break even financially relative to continuing to source more carbon-intensive electricity from Xcel, thereby enabling Boulder to have its own locally owned utility at a cost that is no more than what we would pay Xcel over the same period of time. Additionally, even at breakeven, this model predicts considerable free cash flow after the first few years. The City’s FFT model was set to reflect “High Renewables” (89% by 2024), in comparison to Xcel’s stated intent to offer only 65-70% renewable electricity by 2030.⁴

¹ See <https://bouldercolorado.gov/local-power/financial-forecasting-tool>

² See https://www-static.bouldercolorado.gov/docs/RFIP_One-pager-1-201902061233.pdf

³ See https://www-static.bouldercolorado.gov/docs/RFP_Summary_of_Results-1-202010071651.pdf

⁴ Public Service Co of Colorado (PSCo), dba Xcel, is statutorily committed to 80% emissions reduction from 2005 levels by 2030. However, this is not the same thing as 80% renewable electricity, or even 80% clean energy, as emission reductions can be achieved in other ways, such as burning fossil fuels like natural gas instead of coal. At a February 17, 2020 Colorado Renewable Energy meeting, Alice Jackson, PSCo president, explained that PSCo system “physics” won’t allow more than 70% renewables. Ms. Jackson confirmed Xcel’s intent to offer only 65-70% renewable electricity at the August 20, 2020 Boulder City Council Meeting.

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2. **Better** – a scenario that is likely given today’s market conditions and would provide significant free cash flow for the City. This scenario updates the City’s model to reflect “100% Renewable Electricity” as per the City’s Energy Future Target of “100% Renewables by 2030”⁵. In comparison, Xcel’s stated intent is to offer only 65-70% renewable electricity by 2030. This Better scenario reduces greenhouse gas emissions produced by electricity production by nearly 100% as compared to Xcel’s target of 80%.
3. **Even Better**– a scenario that is possible if more market conditions are closer to optimal and would provide even greater amounts of free cash flow for the City. This scenario also reflects the City’s Energy Future Target of “100% Renewable Electricity by 2030”. In comparison, Xcel’s stated intent is to offer only 65-70% renewable electricity by 2030. This Better scenario reduces greenhouse gas emissions produced by electricity production by nearly 100% as compared to Xcel’s target of 80%.

The full set of modeling variables are outlined in detail in the [City’s Financial Forecast Tool Manual](#). The model variables examined in this analysis include:

- A. **Wholesale Power Supply:** The cost to the utility to purchase power. Renewable electricity rates in the 2020 [Request for Proposal \(RFP\)](#) for 100% renewable electricity have decreased by 8-15%. All three scenarios conservatively reduce the cost to purchase power predicted in the City’s [2018 FFT](#).
- B. **Changes in Load Forecast:** The amount that energy demand changes over time. Given densification, job growth and the desire to electrify our building and transportation systems, the scenarios in this study predict 1.4-3% to be a range of reasonable growth in demand for electricity for the next decade. Such growth in electrification may require policy changes at the state level to achieve full effect. The 2019 load was updated to reflect actual Xcel data⁶ as the starting point, as opposed to the City’s 2018 FFT forecast.
- C. **Acquisition Cost:** The cost to purchase Xcel’s existing electric distribution assets required to operate an electric utility that serves customers within city limits. This is currently limited by the City Charter at \$214M. These scenarios use values varying from the City’s high estimate of \$192M to the City’s most optimistic 2018 FFT estimate of \$85M.
- D. **Interest Rates (Taxable/Tax-Exempt):** The interest rates on debt issued by the utility. Higher rates are used in the Breakeven and Better scenarios since the bond rating may be lower in the first few

⁵ See City of Boulder Department of Climate Initiatives, <https://bouldercolorado.gov/climate/energy-future>

⁶ See https://www.xcelenergy.com/working_with_us/municipalities/community_energy_reports

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years prior to establishing a track record for good performance. Current bond rates are used in the Even Better scenario⁷.

The Discount Rate in each scenario is set equal to the tax-exempt bond rate, the lowest interest rate in the scenario. Using a lower discount rate lowers the present value of savings reported and is thus a conservative assumption.

- E. **Debt Service Coverage Ratio (DSCR):** 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 Charter⁸ 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.” This would equate to a DSCR of 1.25. The FFT allows the user to target a specific DSCR and to model the revenue collection necessary to cover this expense.

Please note that all three scenarios require a conservative DSCR of 1.5. In essence, the DSCR of 1.5 requires Boulder’s net operating income to be 50% higher than the principal and interest payments on long-term debt, and thus better ensures that excess funds will be on hand to invest in Boulder’s cleaner, more reliable and more equitable electricity future. The Better and Even Better scenarios produce DSCRs significantly above 1.5.

- F. **Annual Operations and Maintenance:** Annual costs required to ensure a utility can operate and maintain the facilities and distribution system with a high level of safety, reliability, and efficiency. These scenarios consider a range from 10% above to 10% below the City’s budget as projected in the 2018 FFT.
- G. **Separation and start-up costs:** Costs associated with the engineering and construction to separate what is now one electrical system into two, as well as costs to start up the utility. All three scenarios presented below assume the most recent, high estimates provided by City staff and consultants.
- Taxable: anything for which the City pays Xcel (e.g. poles and wires, substation expenses, and transmission upgrades) must be paid with taxable bonds.
 - Tax-exempt: anything for which the City pays for its own facilities and upgrades can be financed with tax-exempt bonds.

⁷See: <https://www.fmsbonds.com/market-yields/>

⁸https://library.municode.com/co/boulder/codes/municipal_code?nodeId=THCHBOCO_ARTXIIIIPOUT_S_178CRPUIN

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H. **Stranded Costs:** As part of the compromise judgment reached by the Federal Energy Regulatory Commission (FERC) to make the transmission grid available to all, a customer (in this case, the City of Boulder) that no longer wishes to receive power from its generation provider (in this case, Xcel), but who does wish to continue to use that provider's transmission system for wholesale power purchases, must reimburse the generation provider if that provider cannot sell the power obtained to serve the departing customer to others. These generation investments that cannot be sold to others are referred to as stranded costs. There are several variables that impact this calculation, including whether a generating utility needs additional resources on its system, the length of time the generation assets are deemed stranded, and the price at which the utility or the departing customer could resell the generation acquired. Depending on the power supply option chosen, there may not be any stranded costs to the city.

- Stranded costs are determined by the Federal Energy Regulatory Commission (FERC), an independent agency that regulates the interstate transmission of electricity, natural gas, and oil.
- Recommendations for mitigating any stranded costs determined by FERC are discussed in the City's Financial Forecast Tool Manual⁹.
- According to FERC:

Stranded Cost Obligation (SCO) =

(Rev. Stream Est. (RSE) – Competitive Mkt Value Est. (CMVE)) * Length of Obligation (L)

FERC has set a Cap on Stranded Costs limited to “(RSE - CMVE) and no greater than the average annual contribution to fixed power supply costs (defined as RSE less variable costs) that would have been made by the departing generation customer had it remained a customer.”¹⁰

- Some precedents suggest that since Boulder has been out of franchise for 10 years and has given Xcel 10 years of notice of Boulder's expected departure from their system, the “Length of Obligation” has already been satisfied. If this were the case, with L=0, Stranded Cost could be calculated by FERC to be \$0.
- This model uses \$100M in stranded costs in the Better and Even Better scenarios, which EOF believes is a working compromise based upon previous FERC findings and FERC's published formula for stranded assets¹¹.
- For the Breakeven scenario, this model allows \$188M which is the limit of stranded costs that could be sustained to break even under the conditions set in this scenario.

⁹ See City's Financial Forecast Tool Manual⁹, <https://bouldercolorado.gov/local-power/financial-forecasting-tool>, page 41

¹⁰ See <https://www.ferc.gov/sites/default/files/2020-05/rm95-8-00w.txt>, page 597

¹¹ The FERC formula for stranded assets is found in FERC order 888, starting on page 595 at <https://www.ferc.gov/sites/default/files/2020-05/rm95-8-00w.txt>

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Please note that the following scenarios were developed using the City of Boulder's (COB) Local Electric Utility Financial Forecast Tool (FFT), with the existing options and calculations unchanged. The following functional updates to the tool were made in service of providing clarity and the most updated information:

- EOF's model facilitated the adjustment of Load Growth so that it could account for the effects of growing electrification in buildings and transportation as a separate, new option.
- This model added a new option to be able to adjust and update the power purchase prices used in the model to reflect current RFP pricing for 89% ("Breakeven") and 100% ("Better" and "Even Better") levels of Renewable Electricity in Boulder's electric power supply.
- This model changed other inputs to reflect the scenarios using more current estimates than were used in the 2018 FFT model. For instance, the projected 2019 electric load was updated to actual figures as a starting point instead of using the 2018 projection.
- The City's FFT model offers options to project Xcel rate increases at either 0% growth or approximately 2%. This model used an average of these two 2018 FFT model options to be conservative. This variable is referred to as "Average Rate Growth" in the scenario tables.

NPV Savings: The NPV of the difference in the revenues requirements, or earnings test, is determined by using Xcel Energy's rates and the revenue requirement of the municipal utility. The revenue requirement of the municipal utility includes all expenses and greater than the amount the Charter requires the city to set aside to cover debt payments (DSCR of 1.5 vs Charter minimum of 1.25).

Cumulative Cash Flow: Cash flow is revenue less expenditures after working capital and capital improvements funded. This represents funds that would be available to invest in the electric utility infrastructure and other community-oriented benefits.

The spreadsheets used to develop this report are available upon request, see Contact Info.

A Breakeven Scenario

This Breakeven Scenario considers a case in which Boulder would break even financially relative to continuing to source more carbon-intensive electricity from Xcel.

This scenario demonstrates that Boulder can enjoy a locally owned utility at a cost that is no more than what we would pay Xcel over the same period of time. . Additionally, even at breakeven, this model predicts considerable free cash flow after the first few years. The City’s FFT model was set to reflect “High Renewables” (89% by 2024), in comparison to Xcel’s stated intent to offer only 65-70% renewable electricity by 2030.

Variable values are set near the most unfavorable end of their expected ranges. With unfavorable assumptions and low savings, it is anticipated this could be the least favorable scenario voters would be likely to approve without taking the added costs of carbon emissions into account.

This scenario would break even by year 5 and provides a reasonable level of cash flows by year 10.

Variable values were set as follows:

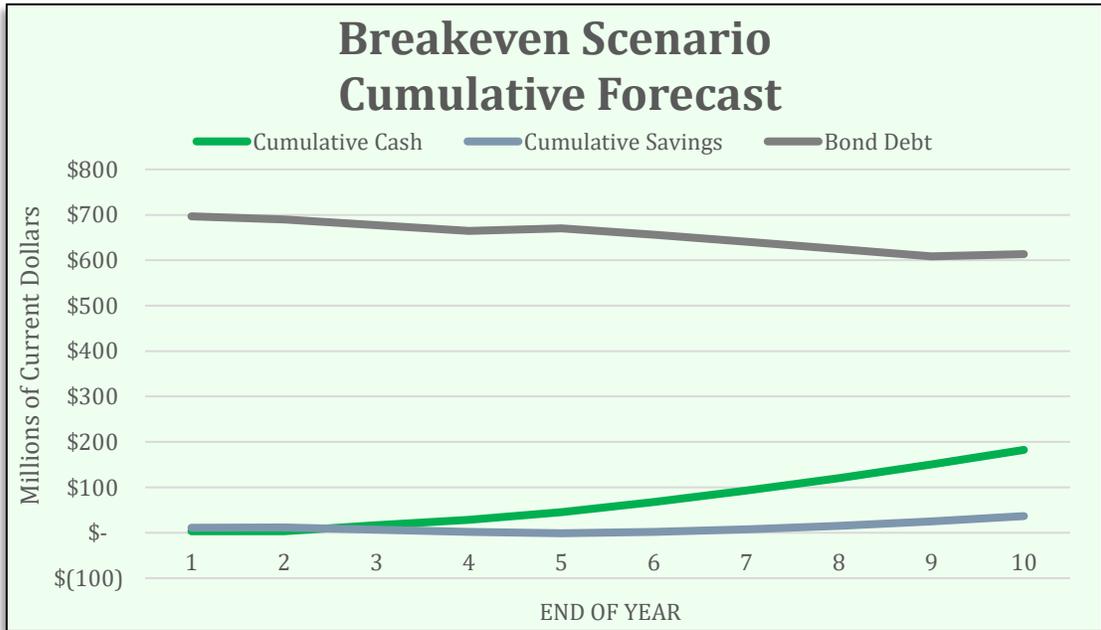
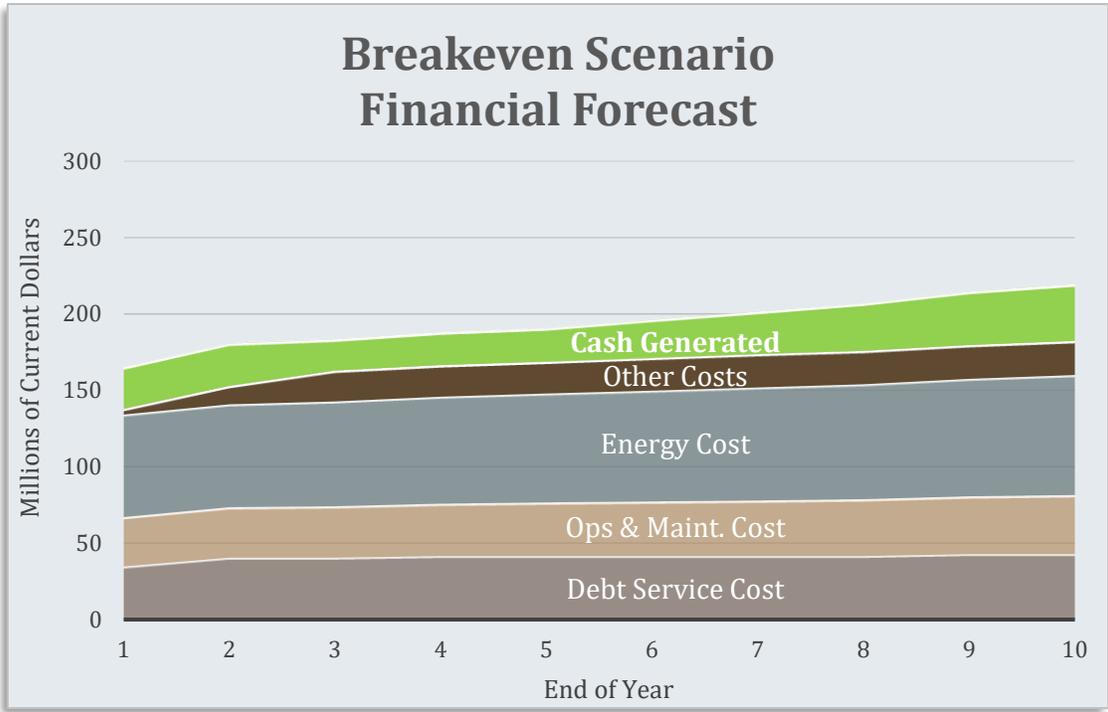
VARIABLE	VALUE	COMMENT
Energy Mix	89%	“High Renewables”, as per 2018 FFT About 20% above Xcel’s stated 2030 RE goal
A Power Supply - Cost Adjustment	90%	10% reduction from 2018 COB FFT rates Uses “High Renewables” cost from 2018 FFT Ref: 8-15% reduction in 2020 RFP responses
B Load Forecast – Annual Increase	1.4%	CO Energy Office statewide projection is about 1.4% growth thru 2030
C Acquisition Costs	\$192M	Current high estimate as per City staff
D Interest Rates – Taxable	4.5%	As per 2020 RFP responses
Interest Rates – Tax-Exempt	3.5%	1% below taxable rate Also used as Discount Rate
E DSCR	1.5	COB FFT default value, City Charter requires a minimum of 1.25
F Ops & Maintenance - Change	+10.0%	FFT high option, relative to City budget
G Separation – Taxable Bonds	\$110M	High estimate from City staff
Separation – Tax-Exempt Bonds	\$ 77M	High estimate from City staff
Startup Cost – Tax-Exempt Bonds	\$ 30M	Estimate from City staff
H Stranded Costs	\$188M	The amount of stranded costs that could be sustained to break even financially

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Breakeven Scenario Settings		89% Renewables	Rate of Load Growth with Electrification	1.4%
Debt Service Coverage Ratio	1.5		Starting Energy Cost/MWh	\$29.92
			Yr 1 Avg Energy & Capacity Cost/MWh	\$48.73
Total Acquisition (no Boulder terminal)	\$192,000,000		Wholesale Energy Cost Adjustment	90.0%
			Taxable Interest Rate	4.50%
			Tax-exempt Interest Rate	3.50%
			Stranded Cost Limit	\$188,000,000
Separation (taxable)	\$110,000,000		Annual Stranded Cost Payment	\$ 10,983,769
Separation (tax-exempt)	\$ 77,000,000		Stranded Cost Bonding	\$202,013,979
Startup (tax-exempt)	\$ 30,000,000		Total Acq, Sep, & Working Cap Bonding	\$379,676,303
SUMMARY OF INPUTS and RESULTS				
Analysis of revenue requirements, EARNINGS TEST		Assumptions/Options		Settings
2019 Data from "Annual Community Report by Xcel Energy" for the city of Boulder ¹²		Inflation (certain costs)		2.00%
Residential Customers	42,865	Annual Operations & Maintenance		High (+10%)
Commercial Customers	7,498	PSCo Rate Increase		<u>Average rate growth</u>
Residential Energy - MWh	246,111	Power Purchase Cost Forecast		Updated Costs Table, 89% Renewables
Commercial Energy - MWh	1,004,692	Intermediate Calculations		Ratio
Street Lighting - Metered - MWh	262	Avg. Debt Service Coverage Ratio		1.65
Street Lighting - Xcel Owned - MWh	3,852			
Discount Rate				
NPV of Savings: City utility vs. paying Xcel	first 5 years	\$ 76,697	3.50%	
	first 10 years	\$28,210,915	3.50%	
Note: yellow cells indicate input, gray and green cells indicate output.	Intermediate Calculations		5yr/10yr (2019 equivalent)	
	Revenue using PSCo Rates		\$128M/\$129M	
	City Electric Utility Required Revenue		\$130M/\$122M	
	Annual Avg \$/MWh (All Customer Classes)		\$86/\$85	
Cumulative Cash Flow After Working Capital & Capital Improvements Funded	at year 5	\$ 45,195,729		
	at year 10	\$182,439,236		

¹² See https://www.xcelenergy.com/working_with_us/municipalities/community_energy_reports

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CONCLUSIONS FOR A BREAKEVEN SCENARIO

- **Boulder can be free from Xcel and enjoy much cleaner electricity at the same cost as if we had stayed with Xcel.**
- **In addition, even in this Breakeven Scenario, Boulder would enjoy significant additional cash flow by year 5.**
- **Boulder can own and operate our electric system with no financial impact and make decisions that benefit the community of Boulder in the most equitable way for all.**
- **The Savings relative to Xcel for both 5 and 10 years from inception is positive:**
 - First 5 years: \$ 0.8M
 - First 10 yrs: \$28.2M
- **The Cumulative Cash Flow after working capital and capital improvements are funded for both 5 and 10 years from inception is positive:**
 - At year 5: \$ 45.2M
 - At year 10: \$182.4M
- ***Even with very conservative assumptions, this financial analysis confirms that from a financial standpoint, investing in local power is a wise choice for Boulder citizens and our climate.***

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A Better Scenario

This Better Scenario considers the case that is likely given today’s market conditions and would provide significant free cash flow for the City.

This scenario updates the City’s model to reflect “100% Renewables” as stated in the City’s Energy Future Target of “100% Renewables by 2030”. In comparison, Xcel’s stated intent is to offer only 65-70% renewable electricity by 2030. This Better scenario reduces greenhouse gas emissions produced by electricity production by nearly 100% as compared to Xcel’s target of 80%.

Variable values are set near the middle of their expected ranges. This scenario would create substantial revenues for Boulder that could be reinvested in modernizing Boulder’s electrical system or used to reduce rates over the next five and ten years.

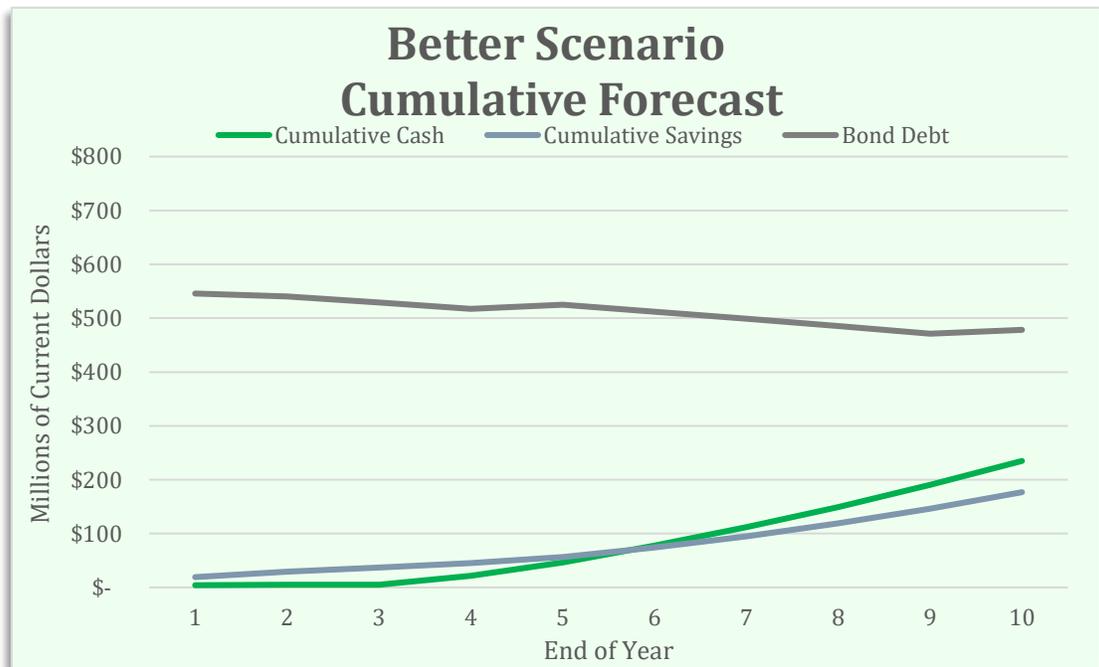
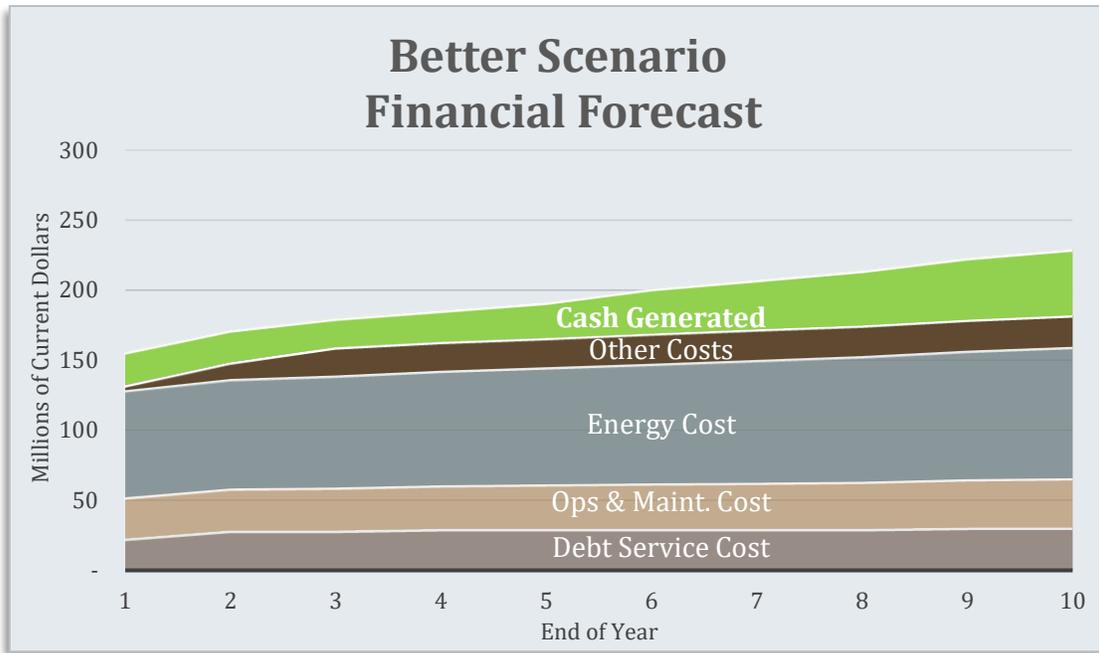
Variable values were set as follows:

	VARIABLE	VALUE	COMMENT
	Energy Mix	100%	100% Renewable Electricity As per the City’s 2030 Goals About 30 percentage points above Xcel’s stated 2030 RE goal
A	Power Supply – Cost Adjustment	90.0%	10% reduction from 2018 COB FFT rates, as per 2020 RFP responses
B	Load Forecast – Annual Increase	2.0%	2.0% assumes a faster increase in electrification for Boulder than statewide
C	Acquisition Costs	\$150M	2018 City FFT value
D	Interest Rates – Taxable	3.50%	Mid-range bond rate
	Interest Rates – Tax-Exempt	2.75%	0.75% below taxable rate Also used as Discount Rate
E	DSCR	1.5	COB FFT default value, City Charter requires a minimum of 1.25
F	Ops & Maintenance - Change	0%	No change from City budget
G	Separation – Taxable Bonds	\$110M	High Estimate as from City Staff
	Separation – Tax-Exempt Bonds	\$ 77M	High Estimate from City Staff
	Startup	\$ 30M	Estimate from City Staff
H	Stranded Costs	\$100M	Working assumption, see FERC discussion

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Better Scenario Settings	100% Renewables	Rate of Load Growth with Electrification	2.0%
Debt Service Coverage Ratio	1.5	Starting Energy Cost/MWh	\$45.90
		Yr 1 Avg Energy & Capacity Cost/MWh	\$53.87
Total Acquisition (no Boulder terminal)	\$150,000,000	Wholesale Energy Cost Adjustment	90.0%
		Taxable Interest Rate	3.50%
		Tax-exempt Interest Rate	2.75%
		Stranded Cost Limit	\$100,000,000
Separation (taxable)	\$110,000,000	Annual Stranded Cost Payment	\$ 5,278,281
Separation (tax-exempt)	\$ 77,000,000	Stranded Cost Bonding	\$106,881,504
Startup (tax-exempt)	\$ 30,000,000	Total Acq, Sep, & Working Cap Bonding	\$324,507,049
SUMMARY OF INPUTS and RESULTS			
Analysis of revenue requirements, EARNINGS TEST		Assumptions/Options	Settings
2019 Data from "Annual Community Report by Xcel Energy" for the city of Boulder		Inflation (certain costs)	2.00%
Residential Customers	42,865	Annual Operations & Maintenance	City budget
Commercial Customers	7,498	PSCo Rate Increase	<u>Average rate growth</u>
Residential Energy - MWh	246,111	Power Purchase Cost Forecast	Updated Costs Table, 100% Renewables
Commercial Energy - MWh	1,004,692		
Street Lighting - Metered - MWh	262	Intermediate Calculations	Ratio
Street Lighting - Xcel Owned - MWh	3,852	Avg. Debt Service Coverage Ratio	2.11
Discount Rate			
NPV of Savings: City utility vs. paying Xcel	first 5 years	\$ 52,403,906	2.75%
	first 10 years	\$148,874,748	2.75%
Note: yellow cells indicate input, gray and green cells indicate output.	Intermediate Calculations		5yr/10yr (2019 equivalent)
	Revenue using PSCo Rates		\$127M/\$129M
	City Electric Utility Required Revenue		\$119M/\$111M
	Annual Avg \$/MWh (All Customer Classes)		\$82/\$78
Cumulative Cash Flow After Working Capital & Capital Improvements Funded	at year 5	\$ 46,392,108	
	at year 10	\$234,914,709	

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CONCLUSIONS FOR A BETTER SCENARIO

- **Boulder can be free from Xcel and enjoy 100% carbon-free, clean electricity while enjoying substantial savings relative to staying with Xcel.**
- **Boulder can own and operate our electric system with substantially positive financial results that can be used to benefit the community of Boulder in the most equitable way.**
- **The Savings relative to Xcel for both 5 and 10 years from inception is positive:**
 - First 5 years: \$ 52.4M
 - First 10 yrs: \$148.9M
- **The Cumulative Cash Flow (after working capital and capital improvements are funded) for both 5 and 10 years from inception is positive:**
 - At year 5: \$ 46.4M
 - At year 10: \$234.9M
- **With Better assumptions, this financial analysis confirms that from a financial standpoint, investing in local power has a high probability of being a wise choice for Boulder citizens and our climate.**
- *This scenario also offers us the flexibility in cash flow to make more affordable, renewably sourced electricity more available to all while generating significant additional cash flow.*

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An Even Better Scenario

This Even Better considers a case that is possible if more market conditions are closer to optimal and would provide even greater amounts of free cash flow for the City.

This scenario also updates the City’s model to reflect the City’s Energy Future Target of “100% Renewables by 2030”. In comparison, Xcel’s stated intent is to offer only 65-70% renewable electricity by 2030. This Better scenario reduces greenhouse gas emissions produced by electricity production by nearly 100% as compared to Xcel’s target of 80%.

Variable values are set near the more desirable end of their expected ranges. This scenario would create impressive revenues for Boulder that could be reinvested in modernizing Boulder’s electrical system, used to reduce rates over the next five and ten years, and employed to take even more aggressive action to reverse climate change.

This is the scenario that would most benefit future generations.

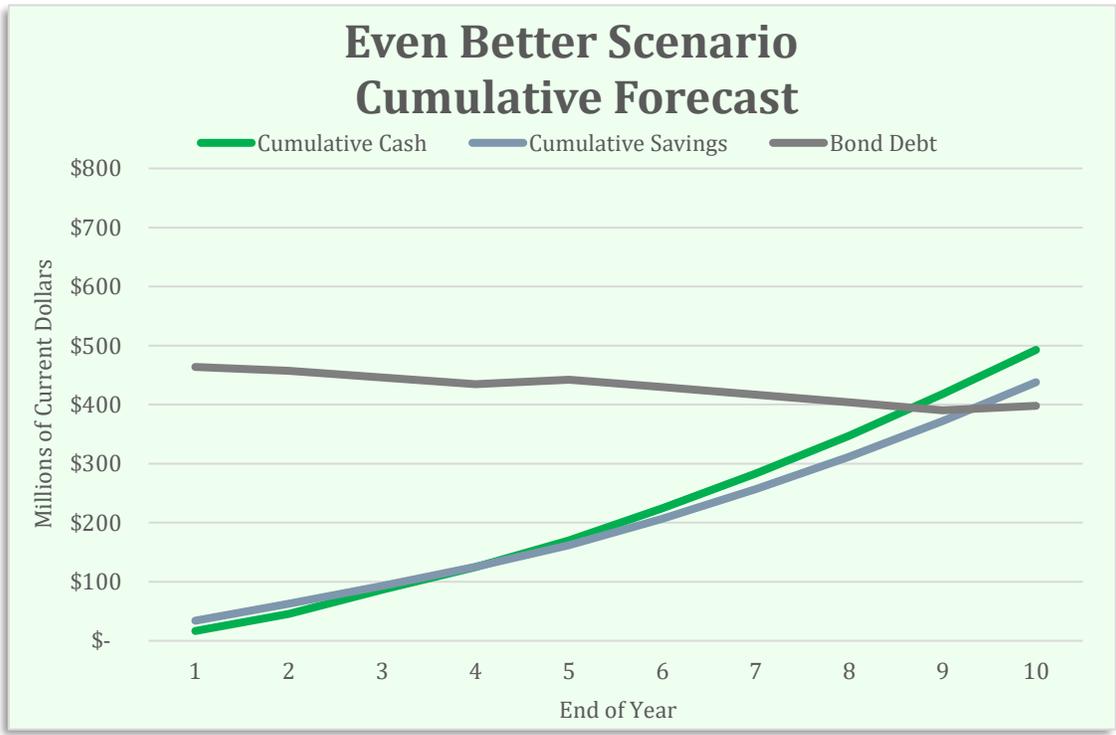
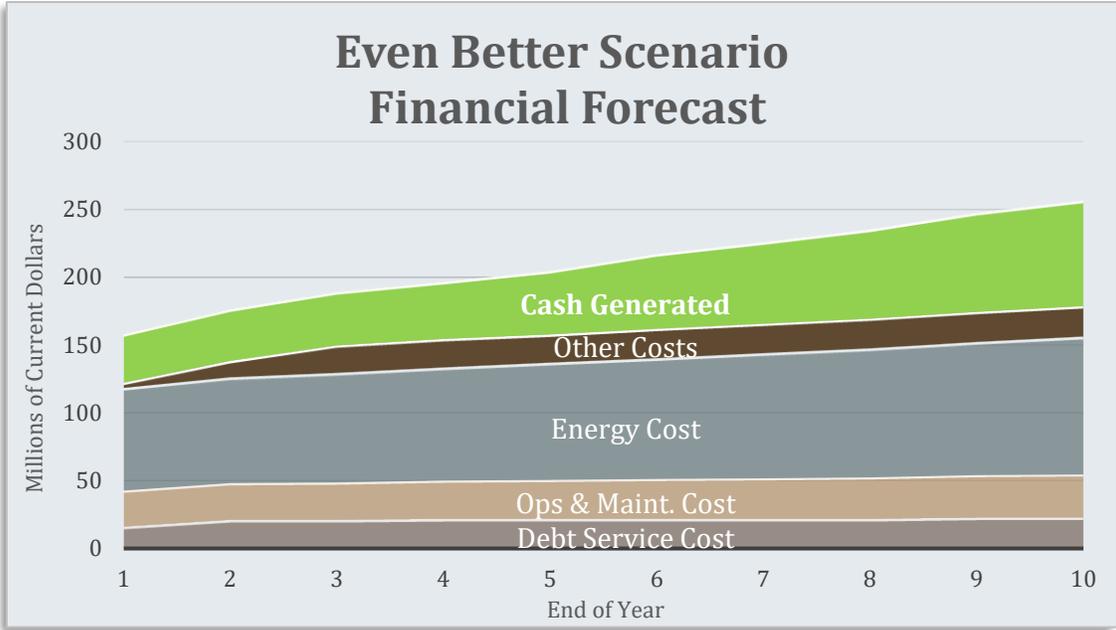
Variable values were set as follows:

VARIABLE	VALUE	COMMENT
Energy Mix	100%	100% Renewable Electricity As per the City’s 2030 Goals About 30 percentage points above Xcel’s stated 2030 RE goal
A Power Supply – Cost Adjustment	85.0%	15% reduction from 2018 forecasted rates, as per 2020 RFP responses
B Load Forecast – Annual Increase	3.0%	3.0% assumes desired increase in electrification of buildings and transportation
C Acquisition Costs	\$ 85M	Optimistic value from 2018 City FFT
D Interest Rates – Taxable	2.5%	Current favorable bond rate
Interest Rates – Tax-Exempt	1.75%	0.75% below taxable rate Also used as Discount Rate
E DSCR	1.5	COB FFT default value, City Charter requires a minimum of 1.25
F Ops & Maintenance - Change	-10%	FFT low option, relative to City budget
G Separation – Tax-Exempt Bonds	\$110M	High Estimate as from City Staff
Separation – Taxable Bonds	\$ 77M	High Estimate from City Staff
Startup	\$ 30M	Estimate from City Staff
H Stranded Costs	\$100M	Working assumption, see FERC discussion

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Even Better Scenario Settings	100% Renewables	Rate of Load Growth with Electrification	3.0%
Debt Service Coverage Ratio	1.5	Starting Energy Cost/MWh	\$43.35
		Yr 1 Avg Energy & Capacity Cost/MWh	\$50.87
Total Acquisition (no Boulder terminal)	\$ 85,000,000	Wholesale Energy Cost Adjustment	85.0%
		Taxable Interest Rate	2.50%
		Tax-exempt Interest Rate	1.75%
		Stranded Cost Limit	\$100,000,000
Separation (taxable)	\$110,000,000	Annual Stranded Cost Payment	\$ 4,579,161
Separation (tax-exempt)	\$ 77,000,000	Stranded Cost Bonding	\$106,171,737
Startup (tax-exempt)	\$ 30,000,000	Total Acq, Sep, & Working Cap Bonding	\$244,007,011
SUMMARY OF INPUTS and RESULTS			
Analysis of revenue requirements, EARNINGS TEST		Assumptions/Options	Settings
2019 Data from "Annual Community Report by Xcel Energy" for the City of Boulder		Inflation (certain costs)	2.00%
Residential Customers	42,865	Annual Operations & Maintenance	City budget
Commercial Customers	7,498	PSCo Rate Increase	<u>Average rate growth</u>
Residential Energy - MWh	246,111	Power Purchase Cost Forecast	Updated Costs Table, 100% Renewables
Commercial Energy - MWh	1,004,692		
Street Lighting - Metered - MWh	262	Intermediate Calculations	Ratio
Street Lighting - Xcel Owned - MWh	3,852	Avg. Debt Service Coverage Ratio	3.53
Discount Rate			
NPV of Savings: City utility vs. paying Xcel	first 5 years	\$153,475,368	1.75%
	first 10 years	\$393,130,101	1.75%
Note: yellow cells indicate input, gray and green cells indicate output.	Intermediate Calculations		5yr/10yr (2019 equivalent)
	Revenue using PSCo Rates		\$127M/\$129M
	City Electric Utility Required Revenue		\$103M/94M
	Annual Avg \$/MWh (All Customer Classes)		\$75/\$68
Cumulative Cash Flow After Working Capital & Capital Improvements Funded	at year 5	\$170,182,931	
	at year 10	\$492,744,029	

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CONCLUSIONS FOR AN EVEN BETTER SCENARIO

- *Boulder can accelerate the electrification of our buildings and transportation system AND enjoy the full environmental benefits of 100% renewably sourced electricity.*
- **Boulder can be free from Xcel and enjoy 100% carbon-free, clean electricity while enjoying substantial savings and impressive community benefits relative to staying with Xcel.**
- **Boulder can own and operate our electric system with substantially positive financial results that can be used to benefit the community of Boulder in the most equitable way for our people AND our planet.**
- **The Net Present Value of Savings for both 5 and 10 years from inception is positive:**
 - First 5 years: \$153.5M
 - First 10 yrs: \$393.1M
- **The Cumulative Cash Flow (after working capital and capital improvements are funded) for both 5 and 10 years out is positive**
 - At year 5: \$170.2M
 - At year 10: \$492.7M
- **With Even Better assumptions, this financial analysis confirms that from a financial standpoint, investing in local power has a high probability of being a wise choice for Boulder citizens and our climate**
- *This scenario offers us the flexibility in cash flow to make affordable, renewably sourced electricity even more equitably available to all.*

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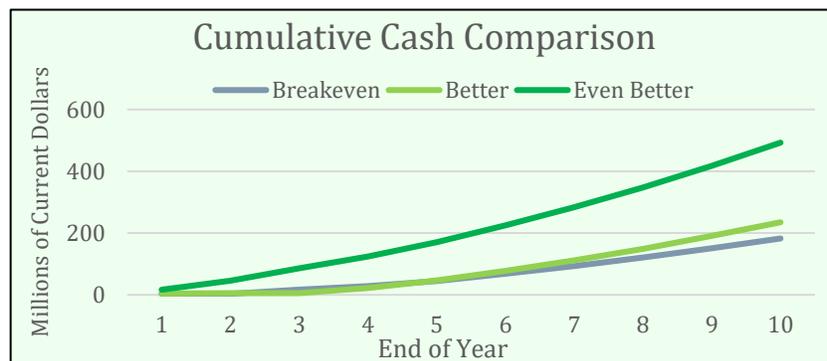
Summary of Scenarios

SUMMARY OF ASSUMPTIONS

SCENARIO	RENEW -ABLES	POWER SUPPLY	LOAD FCST	ACQ. COST	INT. RATES TAX/TAXE	DSCR	OPS & MAINT	SEP. & STRTUP	STRNDD COSTS
Breakeven	89%	90.0%	+1.4%	\$192M	4.5/3.50%	1.50	+10%	\$217M	\$188M
Better	100%	90.0%	+2.0%	\$150M	3.5/2.75%	1.50	0%	\$217M	\$100M
Even Better	100%	85.0%	+3.0%	\$ 85M	2.5/1.75%	1.50	-10%	\$217M	\$100M

SUMMARY OF OUTCOMES

SCENARIO	NPV SAVINGS ¹³ THRU YEAR 5	NPV SAVINGS THRU YEAR 10	5 YEAR CUMULATIVE CASHFLOW ¹⁴	10 YEAR CUMULATIVE CASHFLOW
Breakeven	\$ 0.8M	\$ 28.2M	\$ 45.2M	\$182.4M
Better	\$ 52.4M	\$148.9M	\$46.4M	\$234.9M
Even Better	\$153.5M	\$393.1M	\$170.2M	\$492.7M



¹³ NPV Savings: The Net Present Value of the difference in the revenues requirements, or earnings test, is determined by using Xcel Energy's rates and the revenue requirement of the municipal utility. The revenue requirement of the municipal utility includes all expenses and greater than the amount the Charter requires the city to set aside to cover debt payments (DSCR of 1.5 vs Charter minimum of 1.25).

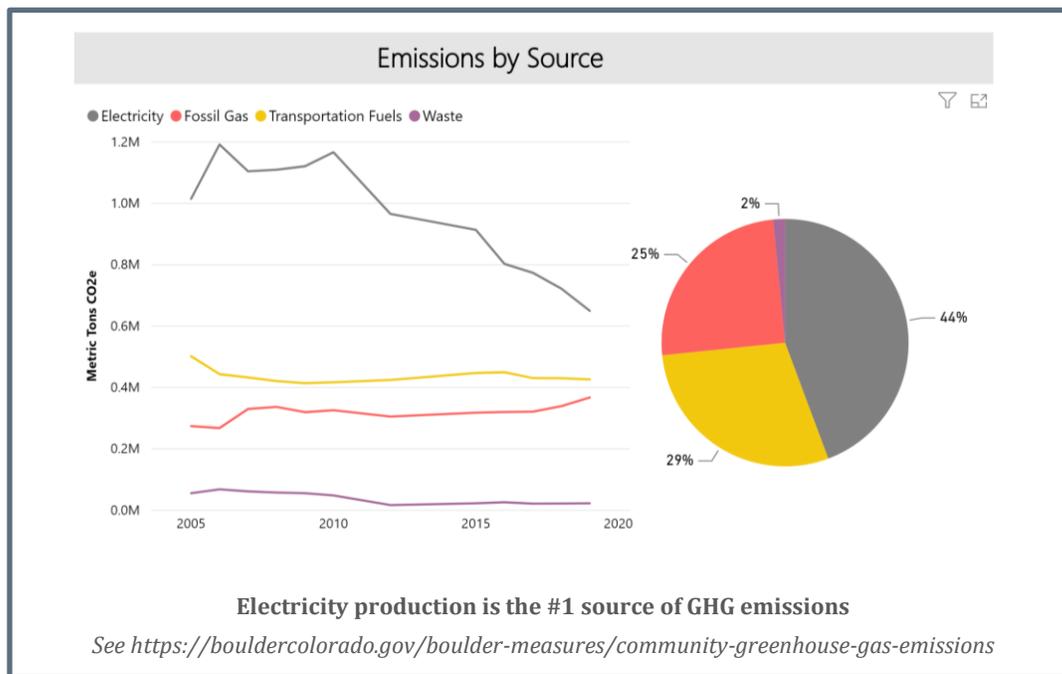
¹⁴ Cumulative Cash Flow: Cash flow is revenue less expenditures after working capital and capital improvements funded. This represents funds that would be available to invest in the electric utility infrastructure and other community-oriented benefits.

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Cost of Environmental Impact

Electricity production is by far the #1 producer of GHG emissions in Boulder. As we grow the number of electric vehicles in our transportation system and move to electrify more buildings, that GHG footprint will grow, too – unless we move NOW to change the way we produce and source electricity.

The switch to 100% renewable electricity by 2030 would nearly eliminate the City of Boulder’s Greenhouse Gas (GHG) emissions from electricity production in contrast to the 80% reduction mandated by the state of Colorado for Xcel.



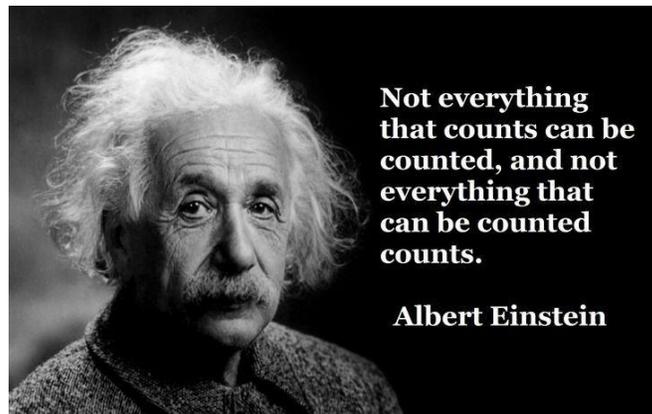
The City utilizes a greenhouse gas emissions (GHG) model that forecasts electricity use based on current community growth trends and anticipated successes of city programs such as the Building Performance Ordinance. Based on this model, **achieving only an 80% reduction in GHG emissions** by 2030, like we would get from Xcel, rather than the 100% renewable electricity mix that is the current estimate for municipalization and a stated city goal, **would result in at least 215,000 metric tons of GHG annual emissions** that would need to be offset through other means, such as carbon sequestration and/or increased reductions in natural gas and transportation fuel use.

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It is now well recognized that the downstream impacts of climate change, like increased fires, floods, drought, temperature, and public health concerns have a very real cost to a society. According Colorado law, that cost is currently estimated to be about \$46¹⁵ per Metric Ton of GHG.

Thus, the cost to society for the added GHG emissions created by Xcel relative to our goal of 100% renewable electricity is close to ten million dollars each year.

So, on top of the financial benefits of the scenarios analyzed above, society would benefit from another \$10M in avoided costs, and enjoy 215,000MT less GHG each and every year by sticking with our stated goal to get to 100% renewable electricity by 2030, a goal that is not possible under Xcel's current franchise agreement.



¹⁵ See Colorado Revised Statute 40-3.2-106(4)

In Conclusion

Empower Our Future believes that remaining flexible relative to options for sourcing 100% renewable electricity and open to new technologies and policies that make it possible to share electricity more equitably, reliably, and affordably, is critical. We offer this analysis of one option - that of implementing a locally owned electric utility - to demonstrate that we have at least one viable option at our disposal today. All indications, including the scenarios analyzed herein and the recent RFP results, indicate that more options will be available in the near future.

This report shows that entering into a franchise agreement with Xcel Energy at this critical time, with the currently proposed terms, is not in the best financial interest of Boulder or its citizens. Rather, Boulder should stay the course, keep our options open, and take the lead in establishing an equitable, clean, modern electricity system for now and generations to come.

In our estimation, Boulder can accelerate the electrification of our buildings and transportation systems AND enjoy the full environmental benefits of 100% renewably-sourced electricity while capturing the financial benefits of a locally owned electric utility for the welfare of our community.

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Empower Our Future Information

Empower Our Future is a coalition of community organizations, local businesses, and individuals with a vision of a sustainable world and a shared commitment to bringing the best local clean energy future to Boulder.

Empower Our Future's mission is to move forward on a path to a 21st century utility that prioritizes innovation, local economic development, equity, sustainability, and energy reliability at competitive rates, while providing cleaner energy with lower emissions.

This analysis and report were created by well-qualified team of Empower Our Future members including business executives, mathematicians, scientists, engineers, and environmentalists, each with decades of experience.