



Purchased Power Costs

In order to maintain reliable and affordable electricity for Boulder customers while increasing the amount of renewable generation in the mix, a Boulder municipal electric utility will both support local generation while simultaneously purchasing power from third parties. These third parties could include Xcel Energy, as well as independent power producers. The financial forecast tool (FFT) contains three power supply scenarios as options for purchased power costs over the 20-year forecast period:

Option 1: 20-year Gradual Departure

Option 1 presumes four years of the city purchasing 100 percent of Boulder's electricity needs from Xcel Energy, then gradually departing from Xcel and replacing its power supply with increasing amounts of wind and other renewable energy,¹ as follows:

- a. Years 5-9: 50 percent Xcel Energy wholesale power, 50 percent wind (using the Rush Creek levelized cost of energy as a proxy)²
- b. Years 10-14: 33 percent Xcel Energy wholesale power, 67 percent wind
- c. Years 15-20: 25 percent Xcel Energy wholesale power, 75 percent wind

Option 2: Four-Year Departure

Four years of purchase from Xcel Energy, then a complete departure to 100 percent renewable energy

Option 3: No Gradual departure

Purchase 100 percent from Xcel for the 20-year forecast period

The [2013 model](#) utilized several power supply mixes or portfolios (combinations of coal, gas, wind, solar and hydro) with associated prices for the purpose of forecasting emissions, renewables and cost of purchased power. The objective of that modeling was to determine whether the Charter requirements related to emissions, renewables and rates could be met under various scenarios. This was an extensive analysis that was not necessary to repeat for the current FFT. Since 2013, Boulder has issued a request for proposals (RFP) to Xcel to open discussions about designing a wholesale power supply arrangement.

¹ Note that the purchased power costs use wind as a proxy for renewable energy. However, the city will publish requests for proposals that would accept all sources of renewable generation.

² The pricing model also assumes that capacity and ancillary services will continue to be procured from Xcel at the prices listed in the production formula rate and open access transmission tariff.

However, in the absence of a firm proposal from Xcel Energy, including the term of a wholesale power contract, the amount of power to be purchased and the fuel mix of the power, the following pricing assumptions were used:

- PSCo existing [Wholesale Formula Production Rate](#)
- PSCo [Open Access Transmission Tariff](#) and associated costs paid by other Colorado wholesale customers of PSCo
- Power Purchase Agreement values from PSCo's [Rush Creek wind proposal](#) as a proxy for current wind prices
 - The Rush Creek \$/MWh levelized cost of energy includes the cost to build 90 miles of 345 kV transmission to interconnect the project.
 - The \$/MWh wind integration costs detailed in the [2016 Electric Resource Plan](#)³ are also included.

Once the utility is operational, resource planners will undertake a complete integrated resource planning (IRP) process. This process will create a plan for how to meet estimated annual peak and energy demand, plus a reserve margin through a combination of utility and customer resources. IRP processes require detailed historic system and customer data, some of which will be transferred from Xcel and some of which will be collected during the initial years of the utility. As such, a Boulder-specific IRP will not be performed until after the utility begins operation. Absent an IRP, buying power through the wholesale market can meet the needs of providing renewable, reliable and affordable energy in the near term.

What does this mean for Boulder's renewable electricity supply?

Boulder's ongoing renewable electricity supply will depend on two factors: (1) the generation mix in any future power supply contract and (2) the amount of local, renewable generation. In each scenario described above (excluding the four-year departure scenario), the generation mix will add new renewable generation as follows:

1. Four-year purchase of 100 percent Xcel wholesale power, then gradual step-down: renewable electricity grows at the same rate as Xcel adds new renewables for the first four years, then becomes 50 percent renewables plus Xcel's percentage of renewables for the remaining 50 percent (e.g. Xcel wholesale is expected to be 33 percent renewable by 2025, meaning Boulder's approximate percentage of renewables would be 66.5 percent in 2025).
2. 20-year purchase of 100% Xcel wholesale power: renewable electricity grows at the same rate Xcel adds new renewables to its statewide system. Xcel's current forecast is to source 33 percent of energy from renewables by 2025 but has not published firm longer-term estimates.⁴

³ See Table 2.7-6.

⁴ See Figure 1.2-1 (page 1-14) in Volume 1 of the [2016 Electric Resource Plan](#). Note that the 2025 forecast assumes approval of PSCo's 2017 RES Plan, Renewable*Connect and Rush Creek wind.