

McNeil and District Energy Q&A

MCNEIL ECONOMICS

- *Why do we run McNeil? Is the plant economical for BED ratepayers?*

It is long-standing Vermont policy to support utilities owning assets or signing long-term contracts to avoid volatility and lock in cost stability. That means when market prices are lower, these assets may be out-of-market, but during higher price times, these assets save ratepayers significantly. That is the case with McNeil: in some years, the plant generates excess revenues above expenses as a stand-alone entity; in other years, it does not. For its owners, McNeil can be considered an insurance policy against high wholesale winter energy prices due to limited New England access to natural gas in the winter (see below). Like any insurance policy, there can be a cost in a period where the event of concern does not occur.

Illustrating this variability, BED commissioned economic analysis of McNeil by a third-party, Innovative Natural Resource Solutions (INRS) in both 2020 and 2023 as part of our Integrated Resource Plan that is submitted to the Vermont Public Utility Commission. The 2020 report found that in 2019 McNeil's expenses were approximately \$4 million higher than revenues.¹ (BED owns half of McNeil, so that delta would be approximately \$2 million for BED.) The 2023 INRS report, however, which looks at 2022 data, finds that McNeil revenues outpaced expenses by approximately \$7.5 million, a completely different and more favorable economic result than 2019.² Further, BED estimated for its FY23 rate case that if McNeil was not available, BED would have had to raise rates an additional *20 percent* given expected market energy conditions at that time, because the cost of buying the grid (mostly fossil-fueled) energy we would have needed to cover our load obligation from the ISO-NE exchange would have been so much higher than the cost of producing that energy at McNeil.³

Finally, by operating McNeil and maintaining its 100% renewable portfolio, BED avoids having to participate in three higher cost state energy procurement programs:

- Standard offer (saving over \$1 million annual in prior years);
- Ryegate contract; and
- Tier 2 of Vermont's Renewable Energy Standard.

Operating McNeil also reduces BED's VELCO transmission costs. In addition, part of McNeil's expenses include a payment in lieu of taxes to the City of Burlington, which in 2022 totaled \$1.6 million, supporting the City's general fund budget.

While the savings and avoided costs above do not appear in the plant's financial statements, McNeil offers significant value to BED ratepayers and property taxpayers that positively impact BED's and the City's bottom lines.

- *But isn't every state phasing out eligibility for biomass to qualify for RECs?*

No. Massachusetts took steps to remove new biomass energy from its renewable portfolio standard (RPS) (while keeping eligibility for two existing plants), but biomass resources remain eligible for Massachusetts' alternative portfolio standard and clean energy standard program.⁴ Biomass as a resource generally remains eligible in every other New England state's RPS, with various distinctions:

¹ https://www.burlingtonelectric.com/sites/default/files/IRP2020/2020_IRP_Appendices.pdf (page 81 of the PDF)

² <https://www.burlingtonelectric.com/wp-content/uploads/McNeil-Economic-Impact-26-June-2023.pdf> (page 11)

³ <https://www.burlingtonelectric.com/mcneil> (see myth/fact section)

⁴ <https://programs.dsireusa.org/system/program/detail/22536/clean-energy-standard> and <https://www.mass.gov/info-details/qualifying-woody-biomass-in-the-aps> and <https://www.wbur.org/news/2022/07/22/massachusetts-climate-bill-baker-desk>

- Connecticut will continue to allow biomass resources to sell RECs into their market, for up to half of the output of an eligible plant.⁵
 - Maine includes biomass in its RPS⁶ and its recent market analysis from 2021 found biomass provided 16% of Maine’s electricity and noted that biomass and hydropower are not weather-dependent for generation unlike variable renewable resources.⁷
 - New Hampshire has multiple biomass eligibility options within its renewable portfolio standard.⁸
 - Rhode Island has biomass as an eligible option for its RPS.⁹
 - Vermont counts biomass in its renewable energy standard, and legislation introduced in the 2023 session (but not advanced) to update Vermont’s policy, supported by Renewable Energy Vermont and other groups, would have continued eligibility for biomass and McNeil and Ryegate (Vermont’s other biomass electric facility).¹⁰
- *Ok, but wouldn’t McNeil be uneconomical without RECs?*

This is a question that could be asked of any renewable resource, including solar and wind (which also receive federal tax incentives, unlike McNeil). In McNeil’s case, using the latest 2022 data, the answer is that McNeil is economic even without REC revenues, as explained below.

“RECs” refer to renewable energy certificates or credits, which are an accounting method for determining the creation and ownership of renewable energy placed on the electric grid. RECs are used for compliance purposes for state renewable energy or portfolio standards, and in some cases for voluntary purchases by businesses or organizations seeking to make environmental claims. RECs generated are tracked in a third-party controlled database to ensure proper accounting and avoid double-counting.¹¹ Every New England state now has a renewable energy or portfolio standard (with Vermont adopting its policy in 2015), which requires utilities to procure a certain amount of renewable energy relative to the energy needs of customers. McNeil generates RECs when it produces energy, just like wind and solar and hydro projects do (and as renewable generators their economics include REC values too).

BED sells its high-value RECs and purchases lower-value RECs to replace them in order to provide an economic benefit to our ratepayers and customers. Each year BED “retires” RECs in sufficient quantity to cover the load we serve. Therefore, BED is still 100% renewable after all REC transactions are accounted for and the RECs that BED retires are not claimed by any other party for that year.

REC markets fluctuate just as energy markets do. RECs have been a declining percentage of McNeil’s revenues for the past several years, and BED’s reliance on REC sales has also declined relative to its total budget compared with the middle of the last decade, when REC markets peaked.

⁵ https://portal.ct.gov/-/media/DEEP/declaratory_rulings_other_decisions/Declaratory-Ruling---ReEnergy.pdf

⁶ <http://www.mainelegislature.org/legis/statutes/35-A/title35-Asec3210.html>

⁷ https://www.maine.gov/energy/sites/maine.gov.energy/files/inline-files/GEO_State%20of%20Maine%20Renewable%20Energy%20Goals%20Market%20Assessment_Final_March%202021_1.pdf (pages 16 and 46 of PDF)

⁸ <https://www.energy.nh.gov/renewable-energy/renewable-portfolio-standard>

⁹ <https://rhodeislandres.com/about/> and <https://programs.dsireusa.org/system/program/detail/1095/renewable-energy-standard>

¹⁰ <https://legislature.vermont.gov/Documents/2024/Docs/BILLS/H-0320/H-0320%20As%20Introduced.pdf> (page 24)

¹¹ <https://www.iso-ne.com/markets-operations/settlements/gis/>

Below for Calendar Years 2019-2022 are:

- the megawatt hour production (first column) for BED’s share of McNeil,
- the energy revenues in dollars,
- capacity revenues in dollars,
- ancillary services revenues in dollars,
- REC revenues in dollars generated for the next fiscal year (RECs are created in a given calendar year creating a vintage, but trading/settlement can occur into following calendar year), and
- the percentage of BED’s share of McNeil revenues represented by REC sales.

BED Share of McNeil REC revenues*

					Next FY	Next FY
CY	MWh	Energy	Capacity	Ancillary	RECs	RECs % of Revenue
19	113,624	3,960,552	2,472,079	25,192	3,521,592	35%
20	114,863	2,898,536	1,950,258	24,615	3,943,923	44%
21	136,677	6,474,678	1,660,630	24,299	3,943,920	32%
22	114,490	11,718,488	1,444,069	24,472	3,570,993	21%

* The data above is for BED’s share of McNeil (50% share), not the total output of the plant which we share with Joint Owners.

CY 20 was of course pandemic-impacted and an outlier due to very low energy prices. As shown in the data above, REC revenues represented 21% of McNeil’s total revenues to BED in CY22, the most recent year for which we have data. Currently, energy revenues are the bigger driver of McNeil’s economics compared to RECs, and as we’ve seen higher energy prices in New England the last few years (see 21 and 22 above), particularly in the winter¹², McNeil has protected BED ratepayers by producing during those high-cost times and providing significant energy revenues to benefit our customers. As mentioned, BED estimated for our FY23 rate case that absent McNeil’s important production, our customers would have seen a 20% additional rate increase.

In CY22, according to the INRS analysis, McNeil brought in more revenue relative to expense even without counting REC revenue values.¹³

- *Couldn’t we just replace McNeil with 50 megawatts of solar instead?*

No. This is an apples-to-oranges comparison. Solar has a different generation profile and capacity factor (amount of energy produced per year per MW of installed capacity) than McNeil. Using utility-scale solar, it would take 148 MW¹⁴ to replace McNeil’s 2022 output (which was 229,000 megawatt hours, on the low end of typical annual energy generation for the plant). For context, Burlington’s total solar capacity today is a little under 10MW, and it is challenging to find sites to build even 500 kilowatt projects, much less any larger utility-scale projects, within the City – as explained below. Using estimates for a mix of solar project sizes, it could take

¹² <https://isonewswire.com/2022/04/28/winter-2021-2022-recap-fuel-prices-drove-high-energy-costs-in-new-england-grid-operated-reliably-amid-mild-weather/>

¹³ <https://www.burlingtonelectric.com/wp-content/uploads/McNeil-Economic-Impact-26-June-2023.pdf>

¹⁴ Average capacity factors for net-metered solar in Burlington are 11.9% annually; based on that it would take 219MW of net-metered solar to replace McNeil’s 2022 annual production of energy. The capacity factor for utility-scale solar is higher, approximately 17.7% using the South Forty solar plant in the New North End as a proxy, which is 2.5MW AC.

somewhere between 629-766 acres¹⁵ of solar to replace McNeil's energy production, and significant additional battery storage to even begin to approximate the 24/7 winter operation of McNeil. In addition, building the solar capacity required to replace McNeil's production outside the City of Burlington would likely require BED customers to pay for transmission fees. According to the 2020 census¹⁶, Burlington has a land area of 10.31 square miles (640 acres per square mile), meaning it would take land equivalent to approximately 1/10th of the City of Burlington covered in solar to replace the production McNeil provides.

McNeil can produce energy on a dispatchable basis (meaning it can store fuel and produce when needed) and produces most of its energy around the clock during the winter. McNeil also generates significant capacity revenue from being available to produce energy in this way.

BED strongly supports solar energy and is proud that Burlington is the top city per capita in solar east of the Mississippi River according to the Shining Cities report from 2022.¹⁷ But at a time when the New England grid is dominated by fossil fuels, it is not a choice between solar and local renewable wood energy. We can and should support both, and the differing and complementary energy and capacity values they bring to benefit customers.

¹⁵ According to Renewable Energy Vermont, a mix of net-metered and utility-scale solar requires approximately 3.5 acres per MW of solar capacity - <https://www.revermont.org/is-renewable-energy-a-threat-to-vermont-agriculture/>. A recent utility-scale proposed solar project in Vermont would have used 4.25 acres per MW - <https://vtdigger.org/2023/01/18/contained-fury-shaftsbury-residents-alarmed-over-85-acre-solar-proposal/>

¹⁶ <https://www.census.gov/quickfacts/fact/table/burlingtoncityvermont/PST045222>

¹⁷ <https://environmentamerica.org/resources/shining-cities-2022-2/>