Chapter 9 - Planning Priorities and Action Steps

Based on its Strategic Plan (see Appendices) and the preceding analyses, BED has prioritized the following actions for the next three years. At this time, it appears that none of the contemplated actions would require BED to file Section 248 permit before the next IRP is scheduled to be filed.

Distribution/Operations

In line with our base case (BAU) load projections, the Engineering and Operations group's priorities will continue to focus on normal capital replacement and improvement activities in support of system reliability and efficiency (i.e., the BAU assumes that energy load is not anticipated to exceed 80 MW). Change in peak load levels and load shapes will be monitored to determine how Burlington is proceeding in terms of strategic electrification. If actual load growth begins to accelerate faster than our base case assumptions, the Operations team will begin to implement a series of distribution upgrades that were discussed at length in the NZE chapter. Currently, we anticipate that, should load begin to increase as a result of customers adopting beneficial electrification measures in larger than expected numbers, BED would need between 4 and 7 years to implement the identified distribution upgrades necessary to serve a peak load of 102.8 MW. Please refer to the NZE chapter for more details on the analysis and projects identified.

Generation & Supply – Generation

Over the near-term, BED's Generation team will be focused on maintaining or improving the reliability of existing generating assets through its maintenance programs.

Concurrently with ensuring the reliability/availability of its existing generating fleet, BED is seeking opportunities to improve the efficiency of our resources and provide additional value streams. As in past IRPs, the McNeil Generating Station continues to be a key component of our energy portfolio. As such, any efficiency improvements at McNeil have the potential to affect BED's cost of service. One efficiency project that is being evaluated is the potential use of heat from McNeil for thermal energy in a District Energy System (DES). Another efficiency project is a pilot initiative that seeks to automate combustion air volume in the boiler based on real-time conditions reducing fuel consumption per MWH produced.

Beginning in July 2020, BED modified its wood purchasing policy (see McNeil economics appendix) to attempt to improve the alignment of wood supply and wholesale market conditions and to provide wood suppliers with demands for wood they could plan for with some confidence. McNeil is experimenting with using a blend of base load, seasonal, and on-demand wood contracts with specified volumes by supplier, and with future volume

offerings being based on the demonstrable deliveries under the agreements in prior periods. This policy will need close monitoring and adjustment for the first several years to make sure it is functioning as intended for both BED and its suppliers.

BED currently limits itself to owning generation assets inside the City of Burlington, and it is unlikely that any significant owned generating assets will be developed in the period covered by this IRP. If such an opportunity did present itself, BED would rely on the tools and decision processes developed for this IRP to evaluate the potential impact of those resources.

This IRP includes an attachment with an independent study of the impact of McNeil's operation on the Vermont economy as required by the MOU and Order in BED's 2016 IRP, along with BED comments on that report.

Generation and Supply – Power Supply & Planning

As noted in the Generation and Supply Chapter, BED is entitled to sufficient energy supplies to meet our customer needs and BED's RES obligations over the next three years, unless load levels unexpectedly accelerate due to Net Zero Energy activities.

Modifications or extensions of existing renewable contracts are possible either to smooth the changes in costs associated with contract end dates (so-called "blend and extend" contracts) or to take advantage of currently low market prices.

A possibility does exist, largely due to changing cost-side economics, to engage in a PPA for storage capability in the next three years. BED does not currently anticipate owning such a device at this point, as any decision to acquire such services either through outright ownership or through a purchase power arrangement would require section 248 approval. If BED does decide to pursue such an asset, BED would rely on the economic analyses and decision-making framework described in this IRP.

BED would continue to engage actively in any legislative or regulatory proceedings to maintain both its existing exemption to the RES Tier 2 and to the Standard Offer (provided the renewability tests continue to be met) and its ability to sell and replace RECs not specifically required by the Vermont RES in order to limit rate pressure.

BED intends to develop new Tier 3 programs and will continue prioritizing meeting its RES Tier 3 requirements with end-use electrification programs to the greatest extent possible. BED will seek to design programs to ensure all programs are equitable and accessible to all customers.

Energy Services

BED's Energy Services staff is focused on delivering comprehensive energy solutions aimed at reducing the consumption of all fuel types in the City. Consistent with 30 V.S.A. §209(d) and 8005a(3), the Energy Services group's main priority is to continue providing customers with technical assistance with their energy-related needs and incentives for making energy efficient choices. This responsibility extends beyond traditional electric efficiency services and includes technical assistance relative to beneficial electrification measures (i.e. EVs, EVSE, ccHPs, and more). As in the past, Energy Services staff will help customers address their building weatherization/thermal needs by coordinating services with VGS, where appropriate, or providing incentives through our weatherization partners to customers heating their buildings with nonregulated fuels or electric resistance technologies.

Since Energy Services is the primary point of contact for customers seeking answers to their energy questions, they also provide critical input into program designs and implementation strategies. Similarly, Energy Services staff will continue to seek out new opportunities for additional Tier 3and other efficiency programs that increase customer benefits and support the City's Net Zero Energy transformation. Energy Services is also the Team managing BED's Green Stimulus Program and hopes to be able to learn from the program how increased incentives might impact program participation rates, relative to the increase in utility costs.

While the level of energy efficiency investment is determined through the DRP process, BED staff shall seek to align deployment of efficiency measures with key avoided costs and externality assumptions between the DRP and IRP processes for consistency of decisions over time. Energy services will remain actively engaged in the Act 62 PUC docket and the S337 legislative processes that may result in increased flexibility for deploying/prioritizing existing EEU funds based on greenhouse gas reductions.

Customer Care/Engagement

The work and expertise required of BED's Customer Care team will continue to increase with movement toward attaining our Net Zero Energy goals through strategic electrification. Therefore, achieving the twin goals of maintaining the required metrics under BED's SQRP and simultaneously providing exceptional customer care will be a continuing challenge. BED is fortunate to have a top-notch Customer Care team capable of absorbing additional challenges and we are unique among Vermont's distribution utilities in that our Energy Services team (or energy efficiency utility) partners with the Customer Care team to serve our customers. Nevertheless, the first contact most customers have with BED generally is with a member of the Customer Care team and, accordingly, maintaining BED's excellence in responding to

customers during these exciting times of change and progress in the utility industry will be a key focus.

Finance/Rates

BED will continue to closely monitor its financial performance inclusive of operational and capital budgets, credit rating factors, and other key financial indicators over the next three years and will focus on improving its long-range financial forecasts to inform planning and decision-making. Further, the team will be focused on process documentation, process improvement, and creating efficiencies as part of a planned replacement of our Financial Information System.

Rate design improvements are likely in the next three years, but a wholesale rate re-design would not occur until a rate filing was needed and the cost of service approved, at the earliest. All of the rate changes discussed below will require local approvals before they can be filed, and State approvals before they can take effect.

Potential improvements in rate design being explored currently are:

1. An expansion of BED's existing residential EV charging rates to BED's remaining rate classes. The existing structure is easily "portable" to the other energy-only class (Small General Service), but extension to demand-based rates such as Large General Service (LG) and Primary Service (PS) is more problematic. TOU rates during the off-peak period of any of BED's TOU rates are sufficiently low to be consistent with the net of credit rates for EV charging under the residential EV charging rate.
2. A change to the criteria under which customers are moved from the energy-only SG rate to the energy- and demand-based LG rate. As many customers view demand rates as "penalty" rates (which may or may not be true based on load factor of the customer), BED does not want load increases from strategic electrification, where the load increase is off peak, to drive such conversions.
3. A possible CCHP "end use" rate to create some load control capability for this key technology and potentially improve the economics of CCHPs in comparison with natural gas–fired heating systems.

Information Systems

A primary focus of the IS department over the next two to three years is expected to be the conversion of core utility and business systems to more modern platforms under BED's "IT Forward" project. This project will replace several of BED's core business systems as well as provide for new functionality. This project is expected to represent a material time commitment from all divisions of BED. Other near-term priorities include provisioning a new data center,

enhancing BED's cybersecurity capabilities, completing upgrades to our AMI/smart grid infrastructure, and developing an integrated information and operational technology plan that supports BED's strategic objectives.

Safety, Risk Management and Facilities

BED's Center for Safety strives on a daily basis to achieve and maintain a professional, courteous and well-trained staff that provides high quality support and services to our customers and coworkers.

As such, some major IRP related goals/projects over the next few years are to:

- Assist as needed in electrification programs involving lawn and power equipment, snow removal, fleet vehicles, biodiesel conversions, etc.

- Help facilitate 3rd party contractors' R&D projects within BED and/or with our customers towards installation/testing of control devices on electric water heaters, heat pumps, boilers, etc.

- Continued capitalization of projects such as radiant flooring, insulating buildings, HVAC improvements, a truck bay air system, etc., towards achieving our NZE goals.

Research/Pilot Efforts

Through research activities, particularly in conjunction with the DeltaClimeVT programs that we intend to continue supporting, BED will continue to explore the capabilities of new devices and systems to control load or minimize wholesale market costs. Current pilots underway or in development include:

1. A pilot project with EVMatch, an electric vehicle charger software company that enables smart chargers to be reserved and processes financial payments.
2. Continued partnership with Packetized Energy to deploy control devices on electric resistance water heaters and smart electric vehicle chargers under the Electric Vehicle Charging rate and expansion of these offerings to include a pilot project of submetering and controls for heat pumps.
3. A pilot project in conjunction with BED facilities staff and Medley Thermal to explore the possibility for price-dispatchable electric load in the form of electric boilers located in parallel with fossil fuel boilers. A demonstration of this technology at BED's Pine Street location is the primary focus for this pilot since company property avoids the rate implications during the pilot phase.

4. A pilot project with ThermoAI to optimize the efficiency of the J.C. McNeil Generating Station through learning algorithms. This includes data accumulation and simulation of the biomass plant to determine the potential for fuel savings; use of the algorithms to make suggestions for operational adjustments like air intake; and allowing the trained algorithm to make supervised adjustments to the facility's combustion operations.
5. A pilot project in conjunction with BED, VGS, and WexEnergy to test the thermal savings from their product, Window Skins. This product is a lightweight, transparent plastic window treatment that increases the insulation of windows. BED will be working with VGS to select a building in Burlington to install Window Skins and run measurement and verification analysis to determine the thermal savings achieved.

Net Zero Energy

As discussed in the Chapter of the same title, BED will be intently focused on activities that advance the City's NZE vision. In the near term, the most significant actions will involve engaging with the City's leadership and elected officials as they work to establish new policies and regulations related to heating and transportation in Burlington. Similar types of engagement will extend to the State government level, as the existing body of statutes, ordinances, rules, and regulations are not likely to result in a complete transition of the current fossil fuel–centric economy to Net Zero Energy without significant modifications. BED also plans to focus on ensuring that our strategic electrification programs are accessible to all BED customers by prioritizing equity in our program design, improving our customer outreach and education efforts, and continuing to work with external partners that provide unique value and opportunities to advance Net Zero Energy at a more rapid rate and greater scale.