



PERFORMANCE MEASURES REPORT 2019





YEAR IN REVIEW

BURLINGTON ELECTRIC DEPARTMENT

The Burlington Electric Department (BED) is pleased to present the 2019 Performance Measures Report. This annual report highlights progress toward our organizational goals for the benefit of our customers and the entire Burlington community.

BED's mission is to serve the energy needs of our customers in a safe, reliable, affordable, and socially responsible manner. Safety is our number one value, and we are focused on creating a culture of continuous improvement and engagement when it comes to safety. To further prioritize and bring greater organizational focus to our safety efforts, BED created a new Center for Safety in 2019. We continued to focus on providing reliable power for all of our customers, and once again exceeded state standards. Our customers experienced an average of only one outage in 2019, and the average duration of an outage (whether planned or unplanned)

was only 45 minutes. The BED Operations team, including our line crew, power system coordinators, engineers, field crew, and technicians, continues to do an outstanding job of ensuring that our grid is reliable and well-maintained. In addition, BED benefits from managing multiple energy generation facilities locally, including the McNeil Generating Station, the Winooski One hydroelectric plant, and several solar generation projects throughout our community.

In 2019, BED's Customer Care team continued delivering exceptional customer care to the Burlington community. BED is proud to have had two straight years of zero customer complaints to the Vermont Department of Public Service (DPS). The BED Customer Care team strives to answer customer inquiries – whether in person, on the phone, or online – thoroughly and efficiently.

Holding Rates Steady for an 11th Year

We are proud to have gone another year without a rate increase, having not raised rates since 2009. As we enter 2020, our 11th year since the last rate increase, we continue to balance strong fiscal management with the need to make important capital investments in our technology and distribution systems. We also are focused on innovation, and our 2019-20 Strategic Direction adopted by the Burlington Electric Commission continues to prioritize efforts to help Burlington become a Net Zero Energy city by 2030. BED's work toward this goal is built on our successful work on energy efficiency, where investments in reducing energy use save our customers millions of dollars annually in avoided costs. Burlington is using approximately six percent less electricity today than in 1989. Our work toward achieving Net Zero Energy also benefits from Burlington having become in 2014 the first city in the nation to source 100 percent of our power from renewable generation. Our Net Zero Energy goal calls for us to make similar progress in the heating and ground transportation sectors.

eliminate fossil fuel use in the heating and ground transportation sectors by 2030. Our Roadmap release was particularly timely given the recent report from the Intergovernmental Panel on Climate Change (IPCC) that makes clear that we need to reduce greenhouse gas emissions by 45 percent from 2010 levels by 2030 to mitigate a global average temperature increase and certain climate change risks. Our Net Zero Energy goal is one of the most ambitious local climate change goals in the nation, and the Roadmap provides a clear set of action steps for the future. These steps include improving the efficiency of our buildings and heating systems, moving to electric transportation, advancing district energy (which BED is continuing to scope with partners), and supporting alternative transportation modes that reduce vehicle miles traveled. The BED team has shared the Roadmap and our Net Zero Energy initiatives with members of the community at Neighborhood Planning Assemblies (NPAs) throughout Burlington. We invite you to read the Roadmap report, provide your feedback, and learn more about ways you can participate in reducing fossil fuel use and greenhouse gas emissions by visiting burlingtonelectric.com/NZE.

As we enter 2020, our 11th year since the last rate increase, we continue to balance strong fiscal management with important capital investments in our technology and distribution systems.

Net Zero Energy Roadmap

2019 was a milestone year for work on the Net Zero Energy initiative, as BED joined with Mayor Miro Weinberger to release the Net Zero Energy Roadmap, which offers a ground-breaking analysis of how Burlington as a community can significantly reduce and eventually

BED will be reporting and tracking new Net Zero Energy metrics in our Performance Measures Report annually. BED also announced as part of the Roadmap release a suite of new programs and incentives to help our customers reduce fossil fuel use. These new programs build on existing incentives for electric bikes, electric vehicles (EVs), and plug-in hybrid vehicles (PHEVs).



New incentives launched as part of the Roadmap release include:

- First-ever \$800 rebate for pre-owned EVs and PHEVs;
- Expansion of our existing EV and PHEV incentives to allow up to two rebates per household, and more than two rebates for fleet purchases with prior approval;
- New incentives for cold-climate heat pumps of up to \$2,200, with enhanced incentives for low- and moderate-income (LMI) customers;
- New incentives for commercial building heat pump systems;
- New heat pump water heater incentives, with enhanced incentives for LMI customers; and
- First-ever electric forklift incentives.

Also in 2019, BED launched our first-ever electric lawn mower rebate program, and saw more than 140 Burlingtonians make the switch from a gas mower to an electric mower. Gas mowers can be a significant source of air pollution, and electric mowers offer a cleaner option and do not require gasoline storage. BED and the Department of Parks, Recreation & Waterfront both

purchased commercial-grade electric mowers to use for our own facilities.

In addition to new incentive programs, BED committed to expand the charging station network around the City. We worked with CarShare Vermont to install a new charging station to support their new all-electric Nissan LEAF, available for CarShare members to drive, at Main and St. Paul streets. We also added a new public charging station at the same location. BED has partnered with EVmatch, a company we learned about through the DeltaClimateVT (formerly Accel-VT) energy business accelerator program, to make charging stations available for installation at multi-family and other locations around the City. We also are installing additional public chargers at our 585 Pine Street BED offices.

We recognize the importance of ensuring that the benefits of energy efficiency and innovation are available to all of our customers. To that end, the BED team worked with Mayor Weinberger through the Mayor's Housing Summit to develop and support a new proposal to create broad energy efficiency standards for rental housing, currently under consideration with the City

Council for 2020. BED also is working with both the Office of City Planning and the Department of Permitting and Inspections on a proposal to support adoption of efficient electric heating systems, such as cold-climate heat pumps, in new construction buildings.

Importantly, our Net Zero Energy initiative and related incentive programs are not just aimed at fighting climate change; they also help benefit our community economically. For example, driving electric can help Burlingtonians save money. Charging an electric vehicle at one of our public charging stations costs the equivalent of \$1.46 per gallon of gas. With our residential EV charging rate, Burlingtonians can charge off-peak for the equivalent of \$0.60 cents per gallon. Increasing the use of our electric grid during off-peak times can help BED keep rates low and affordable for all of our customers. From a broader economic standpoint, we know that nearly 80 cents of every dollar spent on fossil fuel leaves the Vermont economy. Comparatively, when a driver spends one dollar charging an electric vehicle with BED's 100 percent renewable electricity, more than 50 cents of that dollar stays in the Vermont economy, and more than 75 cents of that dollar stays in the regional economy. When you drive electric, use efficient electric heating such as cold-climate heat pumps, ride an electric bike, and/or mow with an electric mower, more of your dollars stay local.

BED is excited about its work to make even more progress on Net Zero Energy in 2020, when we will:

- See two new Burlington-based electric buses join Green Mountain Transit's fleet with financial incentives from BED;
- Launch new incentive programs, including our first-ever incentives for electric leaf blowers, electric snow blowers, and electric induction cook stoves;
- Recommend preferred partners for our customers who want to shop for cold-climate heat pumps, EVs, and solar installations;
- Partner with the State of Vermont to support a new additional EV rebate that will make driving electric even more affordable for income-eligible customers;
- Continue work on energy efficiency standards for rental housing and electrification and efficiency standards for new construction; and
- Change over more of BED's fleet vehicles to EVs and PHEVs.

The BED team looks forward to continuing to serve our customers and community in 2020, and supporting additional efforts to move to Net Zero Energy. [We invite your comments and suggestions by clicking here.](#)

We have created this report as an electronic download available on our website, rather than in print form, saving \$1,500 in printing costs.

SAFETY IS OUR #1 VALUE

At BED, safety is our number one value. In 2019, BED created the new Center for Safety, elevating the visibility and commitment of safety's role throughout the organization. The Center for Safety includes the areas of Safety, Environmental, Risk Management, General Services, Purchasing, and Inventory. The roles and tasks of each of these areas closely align with our core safety goals of protecting people, assets, and property.

	Actual	Target
Lost time incident rate (# incidents)	0.89	≤ 3.5
Lost time severity rate (# days)	78.21	≤ 71.0

BED completed the update and distribution of the Generating Assets Accident Prevention Manual to include the McNeil Generating Station, Winooski One Hydro, and the Gas Turbine. Our on-site physical therapists (IHMS) performed ergonomic baseline testing for our Lineworkers. Also, the Center for Safety completed high-voltage annual testing certification on insulated tools, as well as training for McNeil staff on Electrical Safety Standards and Arc Flash Assessment.

Environmental accomplishments included the completion of the State of Vermont's Tier II Environmental Inventory annual reporting for all BED facilities and the McNeil Groundwater Withdrawal Report. The installation of an automated silica analyzer and reconfiguration of the boiler panel instrumentation significantly improved the water quality monitoring systems at McNeil.

We completed an extensive Northeast Power Coordinating Council (NPCC) Guided Self-Certification (GSC) on PRC-005 and PRC-006 standards with our Engineering Department, as well as our NERC/FERC compliance consultant. We also coordinated with the Burlington Police Department, conducted Run-Hide-Fight and ALICE (Alert-Lockdown-Inform-Counter-Evacuate) training for our employees. We are working closely with the Burlington Fire Department (BFD) to improve our Safety Rescue procedures.

Finally, as an important step toward achieving our Net Zero Energy city goal, the General Services/Purchasing and Inventory group has undertaken the charge of replacing fossil fuel equipment and vehicles with electric equivalents, including the purchase of a zero turn, all-electric lawn mower. Additionally, we completed the major project of raising our air conditioning units on top of our Pine Street building for clearance and ease of repairs and maintenance.





BED TO THE RESCUE

BED lineworkers work each day to provide safe, reliable electric service to the Burlington community. BED crews work night and day for both planned and unplanned outages, and continue to make improvements to our distribution system by upgrading switches and replacing aging equipment. These improvements continue the great reliability that Burlington ratepayers experience.

BED actively supports mutual aid programs by assisting other utilities around Vermont in restoring power. After a large wind event in November 2019, BED sent crews to assist Vermont Electric Cooperative in restoring power to thousands of customers in the northern portion of the state.

In addition to assisting within Vermont, BED actively participates with the North East Public Power Association (NEPPA) to help other utilities across New England. In October 2019, BED sent two crews to assist with a large outage in New Hampshire Electric Cooperative's service area and helped restore power to thousands of its customers.

BED also was prepared to provide assistance to the Orlando Electric Department when they were threatened by Hurricane Dorian in September. BED was part of a NEPPA deployment to Orlando, Florida to pre-stage in preparation for the looming destruction forecasted with Dorian bearing down on Florida. Fortunately, the storm changed course, but BED was poised to help.



RELIABILITY AND GENERATION

RELIABILITY

In FY19, BED continued efforts to improve its distribution system’s reliability and efficiency and replaced its infrastructure in several areas. BED completed projects to rebuild the distribution systems feeding Edgemoor Drive and Ferguson Avenue as part of a multi-year effort to relocate aerial facilities located in backyards and other areas not accessible to BED’s trucks and equipment. BED also replaced underground cables on part of the University of Vermont Redstone campus circuit.

BED installed several remotely controlled switches that allow BED to restore power to customers more quickly in the event of unplanned outages and help reduce the number of customers affected by outages. BED replaced condemned poles at various locations in the City, based on the severity of inspection and test results. BED continued to install animal guards on its distribution circuits to reduce the number of outages and blips caused by squirrels coming into contact with the electrical system.

2019 Interruptions	Actual	Target
Avg. # customer interruptions	1.02	2.10
Avg. hours of interruptions	0.75	1.20

McNeil Generating Station	
MWH generated	227,247
Availability factor	72%
Capacity factor	51.8%

Winooski One Hydro	
MWH generated	33,247
Availability factor	96%
Capacity factor	51%

GENERATION

After 35 years of producing renewable energy, the McNeil Generating Station continues to contribute to the local economy with approximately 70 wood suppliers bringing sustainably harvested wood chips to the plant as often as six days a week. During 2019, the plant produced 227,247 net MWh of power while using 338,491 tons of wood with a capacity factor of 51.8 percent. The annual capacity factor for McNeil is defined as the ratio of its actual output to its potential output if it were possible for it to operate at full capacity continuously for one year.

Unique in the utility space, BED employs four foresters to manage and oversee the process of BED's wood procurement. The forestry staff procures locally sourced wood from well-managed forests, while protecting critical wildlife habitats, wetlands, and waterways. Notably, all wood harvesting in the State of Vermont consumes 50 percent of the annual growth, of which McNeil consumes nine percent. The positive result is that 50 percent of annual growth remains on site, increasing the amount of forest cover available to sequester carbon. In this manner, forests are growing faster than they are being harvested.

The McNeil Waste Wood Yard took in an estimated 7,191 tons of waste wood, including approximately 10 tons of used Christmas trees. This waste wood, which otherwise would have found its way to a landfill and taken up valuable space, was chipped and burned to produce power.

In 2019, 8,208 tons of fly ash were recycled from McNeil. A majority of the fly ash was used by 75 farms who enjoyed the benefit of improved soils and crop production. This fly ash is a source of local organic potassium, is fast-acting, and quickly raises soil pH while building healthy soils. Additionally, 1,062 tons of bottom ash were recycled, with a significant amount being used by farmers to improve access to their fields. The remainder was recycled by several soil purveyors to enhance the quality of topsoil for use by local contractors and landscapers. The McNeil Generating Station is proud of its commitment to sustainability as it works to recycle 100 percent of its wood ash each year.



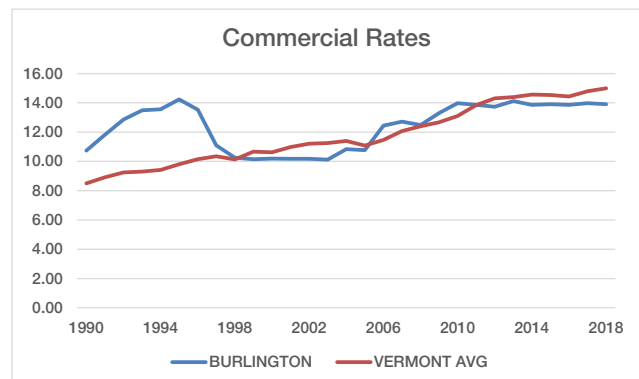
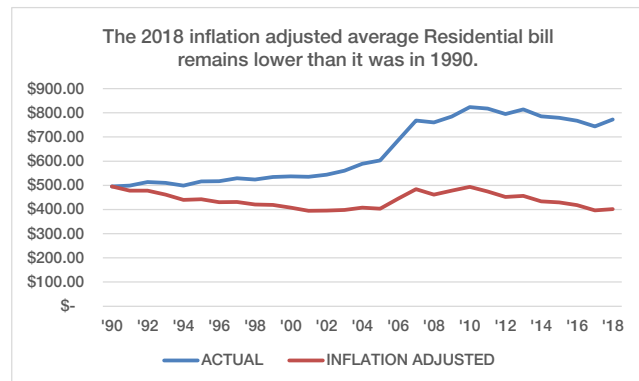
KEEPING RATES LOW

BED provides electric service to 17,309 residential customers and 3,953 commercial and industrial customers. Commercial and industrial customers use much more electricity than residential customers and account for 74 percent of electricity sales.

BED vs. Vermont Averages	
Year of last rate increase	2009
Average rate	BED 6.3% lower (2018)
Average residential rate	BED 12.4% lower (2018)

BED last raised its rates more than 10 years ago, in 2009. The combination of competitive rates and energy efficiency has produced relatively stable bills for Burlington residents over the years.

As the long-term contracts entered into by BED in recent years have started to deliver energy, and we depend less on the New England spot markets, BED's average rates have stabilized.





PROMOTING INNOVATION

Net Zero Energy

Burlington’s success in the transition to Net Zero Energy (NZE) can best be demonstrated by the degree to which we reduce fossil fuel use (as measured in BTUs) while increasing our use of renewable electricity (as expressed in megawatts or MWH). The following baseline metrics illustrate where we are and, as we transition away from fossil fuels in the heating and ground transportation sectors, where we need to be by 2030.

The NZE Roadmap calls for Burlington to reduce motor gasoline, electrify ground transportation, and reduce total vehicle miles travelled. This reduction in gasoline partly will be achieved thanks to the various incentives and rebates BED offers on new and used EVs, PHEVs, and EV charging infrastructure. The Roadmap also calls for increased efficiency and strategic electrification in the residential and commercial building sectors. With help of our various heat pump

rebates, Burlington will drop fossil fuel BTUs and significantly reduce greenhouse gas and air pollution.

Metric	Baseline (Billions BTU)	2030 Target
Renewable electricity consumption (MWH)	330,000	544,500
Motor gasoline (BTV Residents)	931	0
Diesel	54	0
Fuel Oil	54	0
Residential Natural Gas	1,100	0
Commercial Natural Gas	1,500	0
Total Fossil Fuel Consumption	3,638	0

Energy Efficiency

BED's energy efficiency programs have achieved demonstrated success for residential and commercial customers over several decades. BED will continue to evolve our energy efficiency services to create more customer value and complement greenhouse gas and strategic electrification efforts. As both a distribution utility and an energy efficiency utility (EEU), BED is in a unique and strong position to offer our customers a full suite of efficiency and beneficial electrification solutions. BED continues to explore and adopt new strategies for electric efficiency as well as a much deeper expansion into the renewable, thermal, demand response and transportation arenas.

BED's work with new construction and major renovation projects is a prime example of this strategy. Electric heat pump technology is continuing to emerge as an alternative for building space conditioning, even when natural gas service is available. BED helps customers evaluate the costs and benefits of various HVAC systems such as air source and ground source heat pumps. BED is now offering incentives for all customers to install heat

pumps, regardless of their current heating fuel type. EEU funds can be applied toward the highest efficiency heat pump equipment, high performance thermal shells (high levels of insulation and air sealing), LED lighting with controls, and other smart building controls measures.

Furthermore, BED's new construction program provides performance-based tiered incentives. The incentive package is based on how much energy is saved from a given building that just meets Vermont required energy code when compared to the actual usage of the more energy efficient building. Under this "energy model" approach, BED pays 50 percent of the total estimated incentive upon successful project completion. The remaining incentive then is paid 12 months after project completion, with approval of the remaining balance contingent upon a comparison of the actual, post-occupancy energy use with the results of the baseline energy model performed during the design phase.

BED has developed this "energy model" approach as we have learned that it often takes approximately one year for larger commercial buildings to be fully occupied, equipped, and debugged of performance issues. This

2019 Energy Efficiency Highlights

BED Electric Use 2019 Compared to 1989	~6% Less
Total annual mWh saved via the Energy Efficiency programs in 2019	4,077
Total residential annual mWh saved via the Energy Efficiency programs in 2019	1,276
Total commercial annual mWh saved via the Energy Efficiency programs in 2019	2,801
Residential weatherization completions in 2019	53
Commercial buildings (existing and new construction) with improved thermal envelopes in 2019	3
BED investments in Energy Efficiency (program lifetime)	\$36M
Customer investment in Energy Efficiency (program lifetime)	\$36.5M
Total investment in Energy Efficiency (program lifetime)	\$72.5M
Annual savings for customers	~\$11M

tiered approach allows for deeper BED involvement, leads to more accurate savings claims when compared to prescriptive approaches, and ensures that building operators are encouraged to optimize the performance of their buildings.

BED's program also will continue to offer financial assistance for commercial building envelope commissioning. With a growing number of heat pump heated and cooled buildings (ductless mini splits, variable refrigerant flow, and ground source heat pump systems) coming on line, we are increasing our focus on high performance building shells and HVAC controls. With the help of Vermont-based thermal envelope specialists, BED continues working with architects, owners, and

contractors to encourage building envelopes that are being designed and constructed use higher performance thermal envelope techniques.

The new Eagles Landing dormitory at Champlain College is a recent example of this work. The construction team worked alongside the envelope commissioning specialist (Zero by Degrees of Vermont) throughout the project, and the increased energy performance results were significant. Below is an email exchange that describes the blower door air leakage testing results.

BED is proud to be a part of this exciting time in the emerging energy transformation world, and we remain committed to ensuring that all of our customers have access to our Net Zero Energy programs and services.

Subject: Eagles Landing Blower Door Test Results

All,

The official detailed blower door test report is forthcoming, but unofficially the building tested at 0.035 CFM₅₀/SF. The target was 0.25 CFM₅₀/SF or less. Congratulations to everyone on an outstanding air tightness result.

This is an excellent example of what can happen when all parties of the team are committed to the end goal of the envelope. Thank you for everyone's responsiveness throughout the envelope commissioning phase. This has potential to be one of the tightest, if not the tightest, new commercial construction buildings in the state.



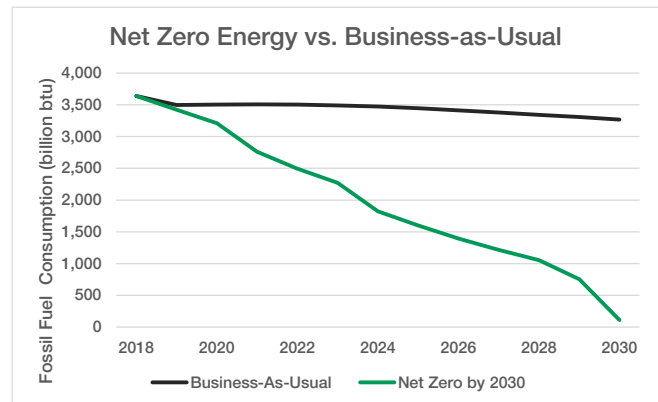
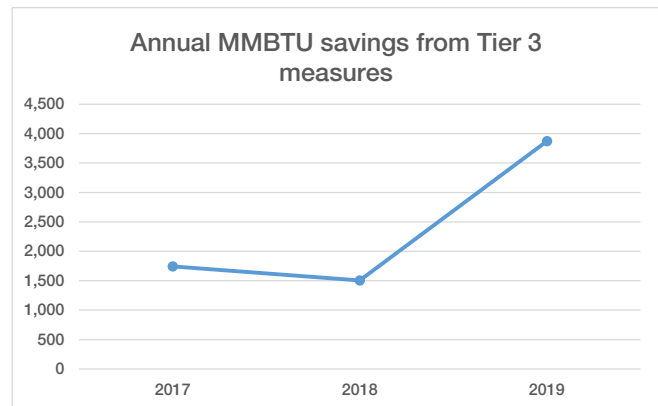
Strategic Electrification

Pursuant to the Vermont Renewable Energy Standard law (under the “Tier 3” or Energy Innovation Program), BED offers programs designed to encourage customers to reduce their fossil fuel use and emissions in line with Burlington’s Net Zero Energy Roadmap. These programs are largely related to the heating and ground transportation sectors (since Burlington already sources 100 percent of its electricity from renewable generation) by converting to electric technologies that are more efficient than fossil fuels and can use renewable electricity.

BTU savings from Tier 3 measures – 2017-19

BED saved 3,872 MMBTUs in 2019 via our strategic electrification programs.

In addition to its growing EV rebate program, BED has helped Green Mountain Transit take delivery of its first two electric transit buses in Burlington by providing incentives and by bringing in other partners that provided funding. The buses are expected to enter service in March 2020. Further, BED has created rebate programs for E-Mowers (residential and commercial), heat pump water heaters, and electric forklifts. BED is planning to launch additional programs for electric leaf blowers, snow blowers, and induction cooktops in 2020.

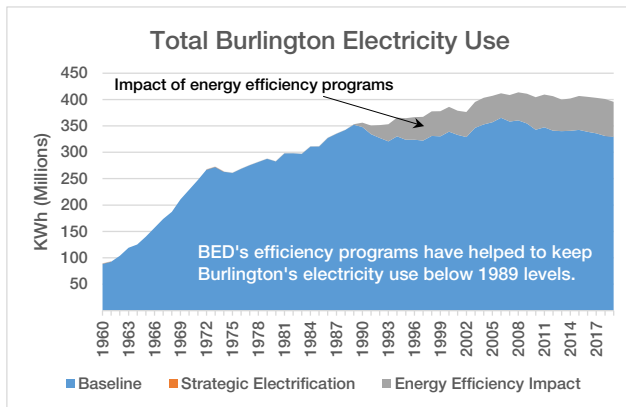


Tier 3 Measures	Quantity	Tier 3 Credits	Lifetime MMBtu Savings
Electric Vehicles (EV) Rebates (new & preowned) (2017-19)	118	3,596	33,270
EV (off-peak) Rate Charging Customers (2018-19)	30	n/a	n/a
Public EV Charging Stations (2017-19)	14	126	1,152
Public EV Charging Stations Energy Dispensed (kWh) (2019)	78,000	n/a	n/a
E-bike rebates (2018-19)	129	689	6,356
E-lawnmower rebates (2019)	142	348	3,224
Residential Heat Pumps (2019)	30	722	7,600
Commercial Heat Pump (2019)	2	55	506
Heat Pump Water Heaters (2019)	4	75	630
LMI rebates (EV, PHEV, HP, HPWH) (2018-19)	14	n/a	n/a

A New View of Electricity Use

Electricity Use 1989 v. 2019

For many years, BED has been helping customers become more efficient in using electrical energy, and BED does not intend to reduce its focus in this area.

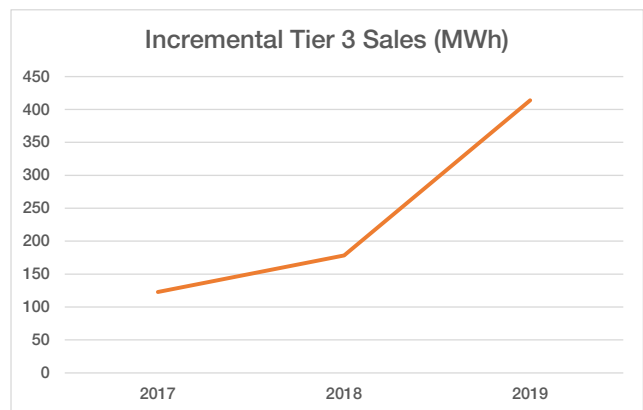


However, given our Net Zero Energy goal and strategic electrification efforts, we need to evaluate electricity use in a new light. Converting certain fossil fuel uses for transportation and heating to electricity represents a more efficient use of energy, but a higher use of electricity in exchange for the reduced fossil fuel consumption. To realize Burlington's Net Zero Energy goals, electricity use by the transportation and heating sectors is expected to rise significantly.

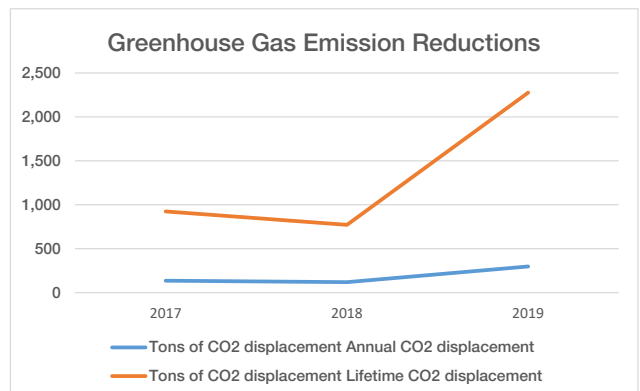
Accordingly, the graph above now includes the portion of BED's sales that result from these activities as a separate category so their impact (and their benefits) can be understood. While early impacts of strategic electrification are small compared to BED's existing total sales, we anticipate the impact of these programs will show up in higher sales to customers over time as we reduce fossil fuel use and increase the use of renewable electricity.

Tier 3 added kwh/GHG impact

The following graph shows the sales increases resulting from strategic electrification programs (included in the above graph but impossible to see due to scale). These increased sales represent additional revenues to BED, and provided the peak implications of the new loads can be limited (for example through BED's EV charging rate), these additional revenues should contribute positively to meeting BED's fixed costs and keep rates lower than they would otherwise have been.



By converting the fossil fuel use to electric use, and coupling it with BED's 100 percent renewable energy, the measures that created the above increased sale, are expected to provide the following reductions in greenhouse gas emissions.



Power Supply

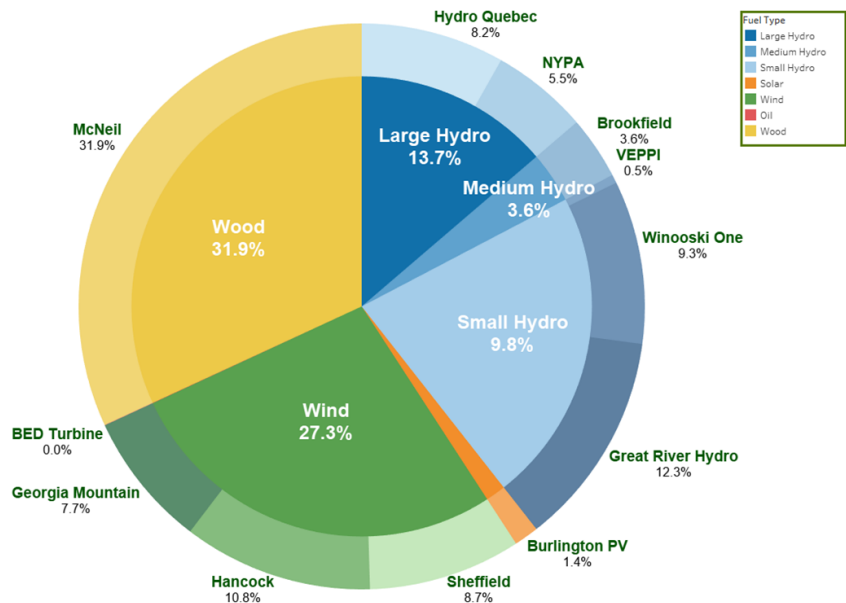
BED's power supply reflects a number of considerations including cost, renewability, predictability, reliability, diversity, and other economic and environmental impacts. While cost is always critical, other factors influence purchase decisions. BED has succeeded in maintaining comparatively low and stable rates, while continuing our commitment to renewables and, to the extent possible, keeping money in Vermont by supporting Vermont-based renewable generation.

Perhaps most importantly, none of BED's primary energy producing resources relies directly on fossil fuels. Therefore, sudden changes in fossil fuel prices do not materially impact BED customers. In 2019, BED's energy purchased came from all renewable resources (with the exception of BED's Gas Turbine, which primarily runs for testing purposes and is maintained for reasons of reliability).

2019 BED Energy Supply by Source

The following pie chart illustrates what resources provide the energy that BED purchases, but it is not a statement of BED's renewability. For 2019, BED sold many of the RECs from McNeil and its wind and hydro resources. The RECs were sold to reduce the rate impacts of purchasing long-term renewable resources. The Burlington Electric Commission currently has approved the sale of RECs five years into the future and continues to review the economics of selling RECs to control rates versus retaining the ability to claim renewability from our own resources.

2019 BED ENERGY SUPPLY BY SOURCE



BED energy purchases exceeded customer needs in 2019 by 7.6%. As a result, the chart above reflects percentage of total purchases, not sales to customers. McNeil, for example, was 35% of BED's energy supply by source based on sales to customers.

BED's energy purchases exceeded our customers' total needs by 7.6% in 2019.

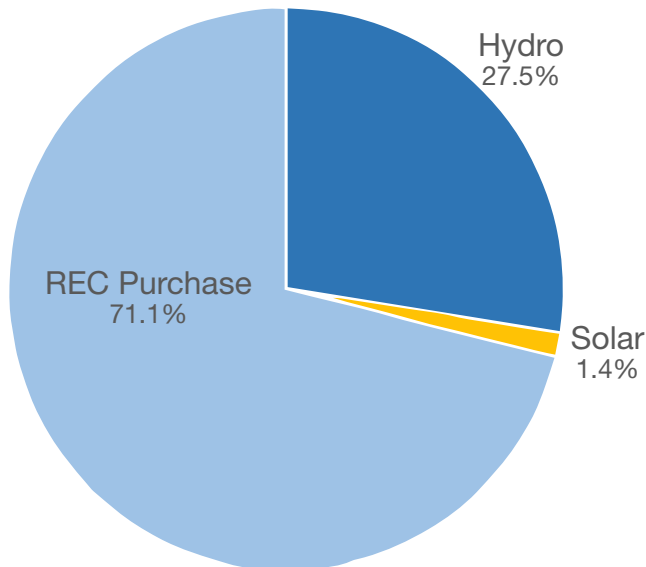
100 Percent Renewable Power Supply

Burlington was the first city in the country to source 100 percent of its power from renewable generation and continues to receive regular attention from other communities around the country and even internationally. BED works hard to maintain this level of power from renewable generation by monitoring our resources and securing new contracts for renewable generation resources as needed.

BED sells RECs from McNeil Generating Station, Georgia Mountain Community Wind, Sheffield Wind, Hancock Wind, and Winooski One Hydro. BED chose to retain for its own use all RECs from solar production in 2018. To maintain our 100 percent renewably sourced generation status, BED offsets its REC sales



CY 2018 BED Renewability
Including REC Sales & Purchases



by purchasing RECs from other sources (typically from small hydro facilities in New England that may command a lower price than BED's newer renewable assets).

After accounting for all REC transactions (both sales and purchases), BED's energy mix for CY18 (the last full year settled with the New England Power Pool Generation Information System) was 100 percent renewable. In fact,

BED retired or reserved RECs in excess of the energy used by its customers. The following chart illustrates the renewability of BED's energy portfolio subsequent to REC purchases and sales.

Local Sourcing of Renewable Energy

BED has a goal to increase its reliance on locally sourced energy whenever practical. Given the small geographic area in Burlington and the very limited amount of land that could be developed for generation, some energy will inevitably need to be purchase regionally, though in this case, BED prefers Vermont-based resources whenever practical.

Increasingly, our generation supply is even more local. For example, when a hydropower contract outside Vermont recently expired, BED replaced it with a contract for Vermont-based hydropower resources. This hydro contract was renewed for an additional five years in 2019. Also in 2019, BED negotiated a five-year extension for 40 percent of the output of the Sheffield Wind Farm in Northeast Vermont. The extension comes at a lower price.

All of the generating assets that BED owns are in BED's service territory. All resources outside BED's service territory provide power under contract, but are owned by other entities.

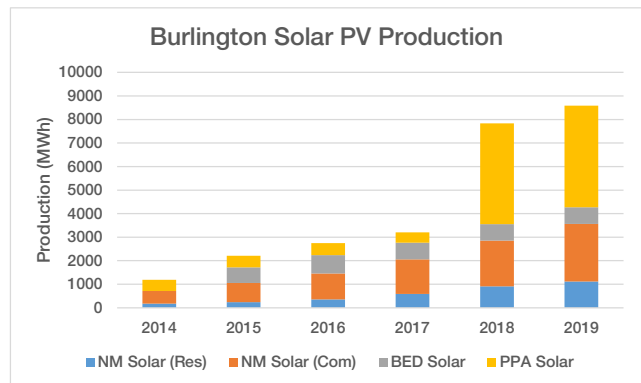
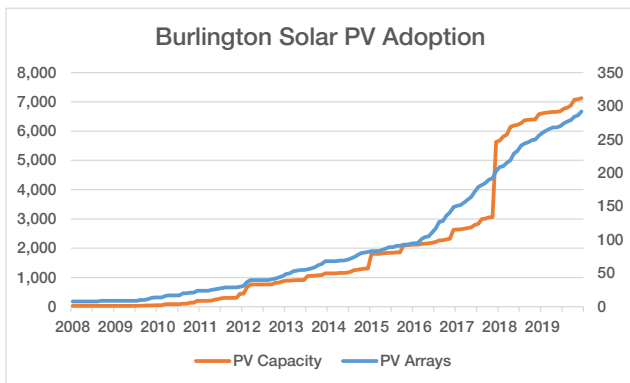
Local Energy Production	
Energy produced in Vermont	72%
Energy produced in Burlington	43%

Solar Development

Solar, particularly rooftop solar, represents one of the relatively few options for additional renewable generation in Burlington. Solar in Burlington is made up of net metering arrays owned by customers (or on customer's property), solar owned by BED itself, and solar under contract to BED (Purchase Power Agreements or "PPAs"). Net metering in Burlington has grown every year since the program began and, most recently, the

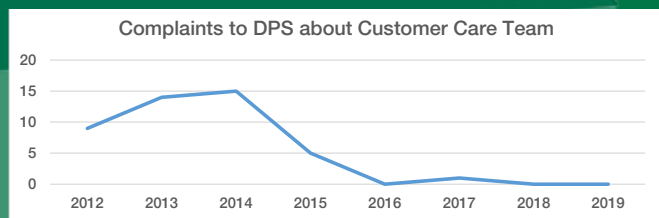
South Forty Solar array in the New North End began delivering energy under a PPA (there are six other solar PPAs, but they are much smaller).

Between BED's solar array at the Burlington International Airport and the array at BED's Pine Street offices, we produced 693 MWh of electricity. By harnessing the power of the sun, BED produced energy when we needed it the most: in the summer. BED is a summer-peaking utility, meaning that our largest loads are during summer months. Solar helps ease the load. Total energy deliveries from solar resources in Burlington include those from the two BED-owned arrays mentioned above, from a number of solar arrays under contract to BED, and from arrays under the Vermont net metering programs. Total solar output from these sources continues to climb, and saw a large increase in 2018 due to the South Forty Solar array coming online.



EXCEPTIONAL CUSTOMER CARE

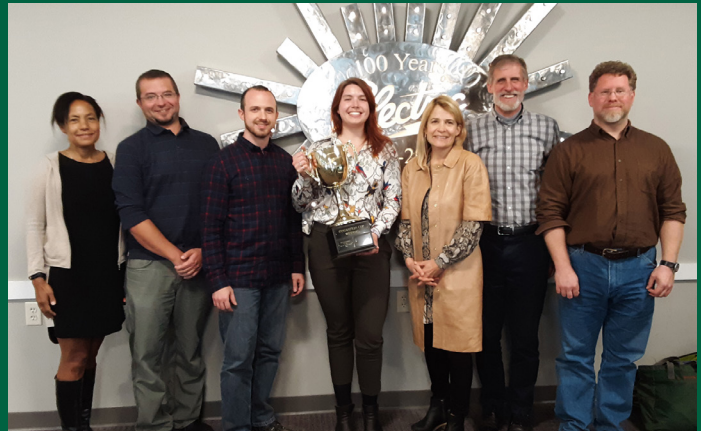
In 2019, BED's Customer Care team continued delivering exceptional customer care to the Burlington community. BED is proud to have had two straight years of zero customer complaints to the Vermont Department of Public Service (DPS).



WORKFORCE DEVELOPMENT

BED's Workforce Development efforts include three key components. First, we coordinated and hosted the second annual Innovation Cup (pictured), an opportunity for BED staff to showcase innovations that enhance BED's ability to bolster safety, improve processes, and advance our Net Zero Energy goals, while building cross-departmental collaboration and unleashing our staff's inherent creativity, ingenuity, and vast expertise and knowledge. Second, Workforce Development created a repository of training videos intended to ensure that the various skills and processes required to maintain and operate the McNeil Generating Station and other key resources are documented for the future, especially for use in the hiring and new staff training processes.

Third, Workforce Development has focused on a review and possible update to the current staff evaluation forms and processes. This effort is intended to streamline the existing process and offer staff and leadership the opportunity to better identify and advance staff professional development opportunities.



IT FORWARD

BED continues to undergo a strategic transformation as part of its transition to "Utility 2.0." As part of this ongoing effort, we are continuing to review policies and processes to achieve efficiencies, increase staff productivity, and better serve our customers. In 2019, BED completed the final stage of a rigorous and multi-step procurement process for replacement of the customer, financial, workforce, and meter

data management systems that form the backbone of our business infrastructure. We are in the final stages of vendor selection and are gearing up for implementation starting in spring 2020. While this project will be a large and complex undertaking spanning multiple years, the BED team is excited and well-equipped to meet this challenge.



DEFEAT THE PEAK

In 2019, BED ran our Defeat the Peak program for the third year in a row. The program is a community-based, voluntary effort to limit Burlington’s energy use during periods when wholesale costs are very high, helping to keep rates low for all BED customers. BED notifies participating customers one day in advance of each peak event and again on the day of the peak event about which hours we’d like them to reduce energy usage. BED determines a target for expected load reduction from all participating customers and, if the actual load is reduced during the event by at least that amount, \$1,000 is donated to a non-profit that provides valuable community services in Burlington and the surrounding region. We announce the non-profit in advance to encourage the community to participate and so the non-profit can

reach out to its supporters to help enlist additional load reductions. The program has received national interest, and BED has been pleased by the growth in the program, both in terms of customers engaged and actual results.

Last summer, BED successfully forecasted the peak event while calling on customers to reduce loads during nine hours across four event days.

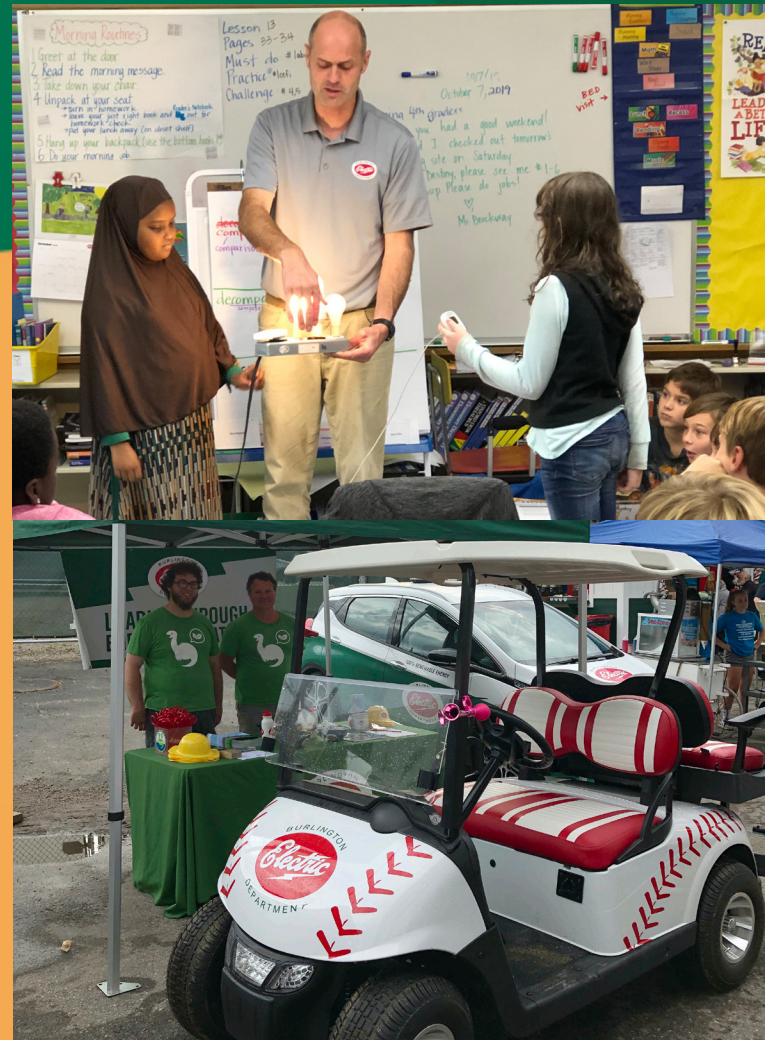
Defeat the Peak 2019 Results	
Residential participants	523
Commercial participants	40
KWh saved	968
Power costs saved	\$38,098

BED IN THE COMMUNITY

In 2019, our employees engaged with the Burlington community through many meaningful community events, including the Spectrum Sleep Out, Kids Day at Burlington’s Waterfront Park, BED’s annual Net Zero Energy Calendar Contest open to all Burlington 4th graders, Art Hop and Kids Hop, the Farmers Market, and Operation Fire Cuffs holiday toy drive. Additionally, BED engages with students from grade school to college levels and offers internships for those interested in exploring a career at a forward-looking utility.

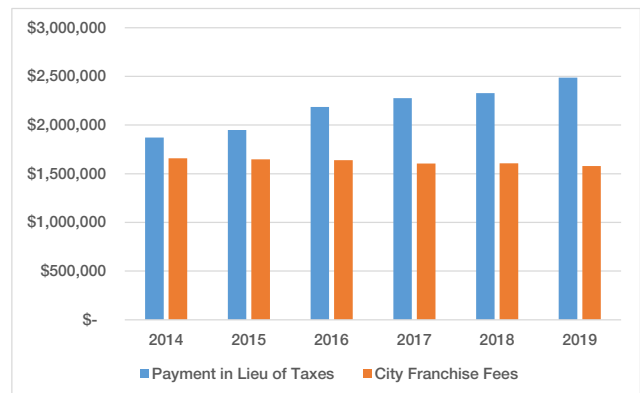
BED employees made meaningful contributions to the United Way’s “Live United” campaign to support United Way charities.

Our BED team is proud to participate in these and other activities in an effort to give back to the community we love so much.



PILOT/City Franchise Fee

As a municipal entity, BED is not required to pay property taxes. However, BED makes an annual payment in lieu of taxes (PILOT). In 2019, BED paid \$2,487,458. We collect a 3.5 percent franchise fee for the City. This is significant because these payments come from all customers. This is a more equitable distribution to finance City operations and is an important benefit of public power.





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