

# NET ZERO ENERGY

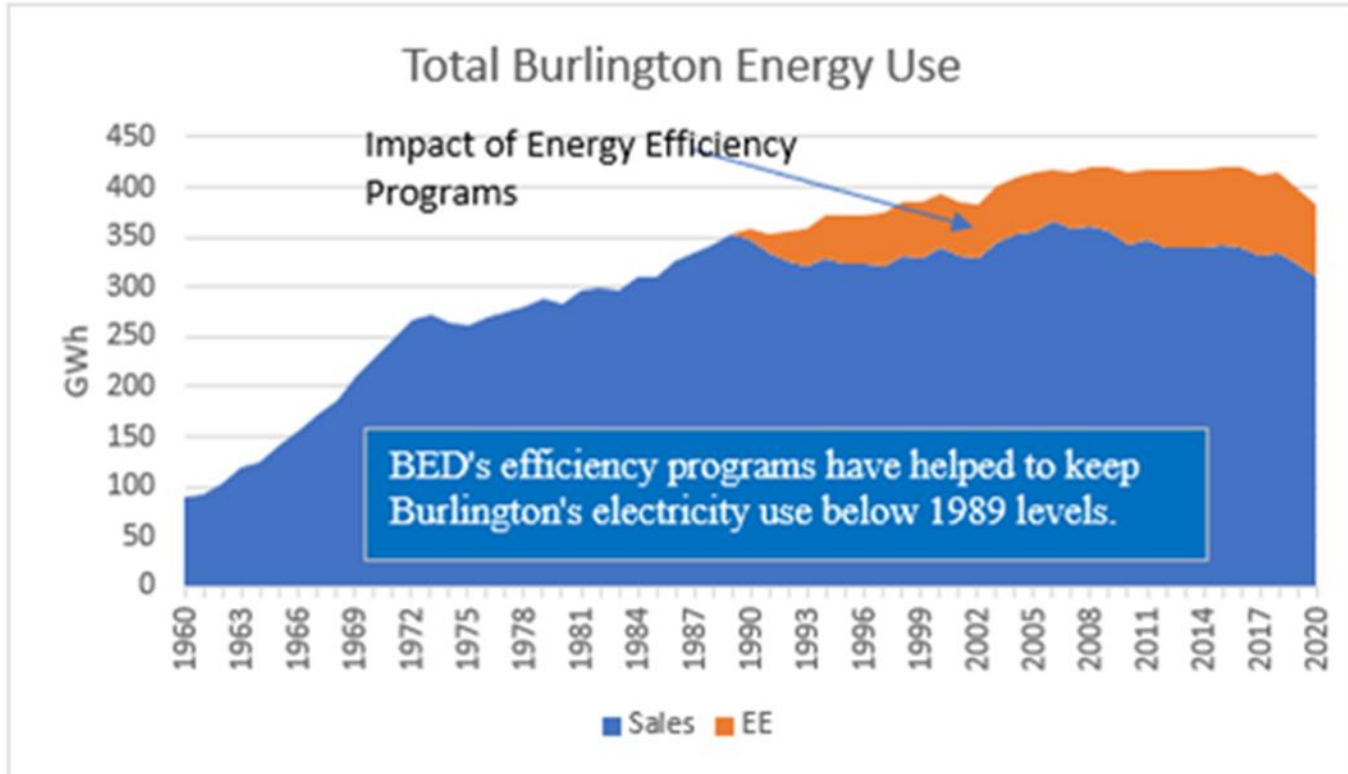
BURLINGTON VERMONT



## About Burlington Electric Department (BED)

- Burlington's municipal electric utility
  - Public power since 1905
  - 118 employees, including the McNeil Generating Station
  - Third-largest electric utility in Vermont
- 21,000+ customers
  - 17,282 residential, 3,983 commercial and industrial
  - 5,500-6,000 residential accounts turn over each year
- Electricity facts:
  - Summer peak: ~65 MW; annual energy use: ~330,000 MWH
  - McNeil is the largest energy producer in Vermont with Vermont Yankee retirement
  - 100% of power from renewable generation as of 2014
  - No rate increase from 2009-2021; first rate change in FY22 due to pandemic - 7.5%; FY23 rate change - 3.95%

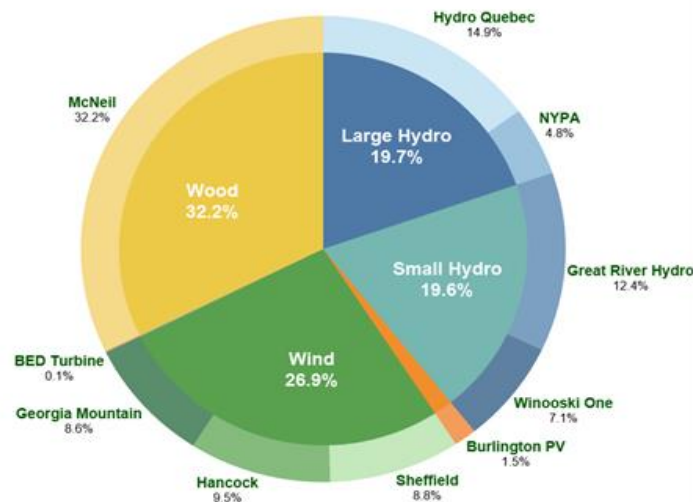






## 2022 BED ENERGY SUPPLY

Prior to REC Sales & Purchases

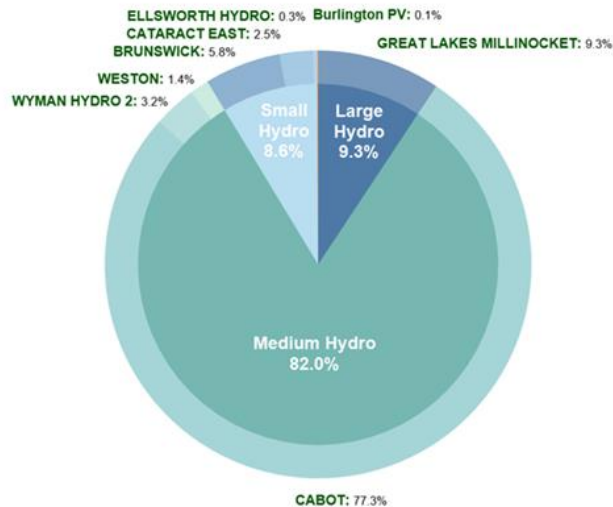


*BED's 2022 energy supply by source - The above chart represents energy purchased by BED prior to REC purchases and sales and amounts to 349,402 MWh of electricity. The chart does not represent an ability to claim those fuel types for renewability purposes – for more detailed information, see BED's website. BED has no contracts for resources fueled by natural gas, nuclear or coal. 0.1 percent of generated energy comes from oil used at the BED Gas Turbine (in excess of BED's energy needs). The sourced energy from renewables exceeded sales by 10 percent. Hydro is divided into large ( $\geq 100$  MW), medium ( $\geq 30$  MW and  $< 100$  MW), and small ( $< 30$  MW).*



## 2021 BED RENEWABILITY

After REC Transactions



BED's renewability profile for calendar year 2021. Compliance for Vermont's Renewable Energy Standard is determined on an eight (8) month lag relative to the calendar year due in part to the REC trading period for New England that trades on a six (6) month lag. Due to this, Renewability for 2022 will not be finalized until the REC trading period closes in June and the Renewable Portfolio Standard Compliance Filing is submitted in August. BED expects its renewability profile to resemble what has been reported for Calendar Year 2021. BED retired renewable energy certificates (RECs) in excess of its sales by 2.6% during this period, which accounts for line losses on the distribution and transmission systems along with company use. The number of RECs retired amounts to 326,677 MWh. Hydro is broken out into Large ( $\geq 100$  MW), Medium ( $\geq 30$  MW and  $< 100$  MW), and Small ( $< 30$  MW).

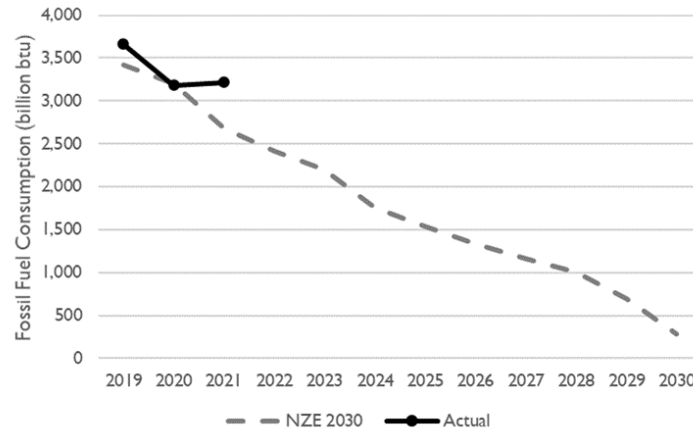


**2030 Vision: Make Burlington a Net Zero Energy city** by eliminating fossil fuel usage across electric, thermal, and ground transportation sectors. [www.burlingtonelectric.com/nze](http://www.burlingtonelectric.com/nze). The Net Zero Energy Roadmap was adopted by the City Council in September 2019. Burlington's Net Zero Energy Roadmap is the most ambitious local climate change plan in the nation that BED is aware of, *recognized by the Smart Electric Power Alliance as the "first US Net-Zero 2030 plan."*

## Synapse Energy Economics Net Zero Energy Roadmap Update for 2022 – Commissioned by BED

### Fossil Fuel Energy Consumption:

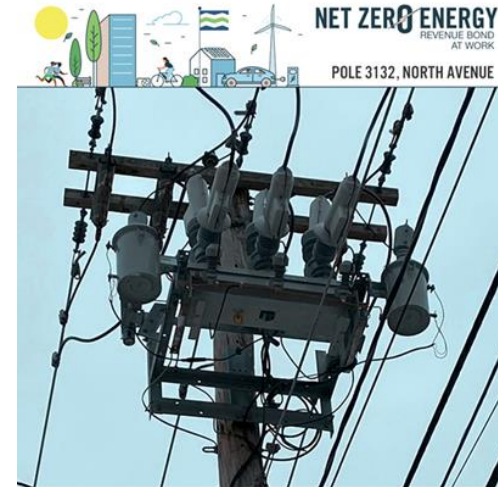
#### Thermal and Ground Transportation 2019-2021





## 2022 \$20M Net Zero Energy Revenue Bond

- **Builds on Prior Energy Efficiency Bond** – BED’s \$11.3 million revenue bond for energy efficiency in 1990 jumpstarted our energy efficiency investments. 2022 Net Zero Energy Revenue Bond continues that foundational investment strategy.
- **Supports Investment in BED Infrastructure** – The 2022 Revenue Bond will fund upgrades, maintenance, and continued reliability of BED distribution system and grid, technology systems, and renewable energy plants in a manner that is fiscally responsible for ratepayers. Some of the infrastructure support is needed for upgrades to serve increasing loads from electrification.
- **Permits Additional Progress Toward Net Zero Energy Goal** – The 2022 NZE Revenue Bond also frees up BED’s GO Bonds to permit increased investment in customer incentives to accelerate progress toward Burlington 2030 Net Zero Energy goal.





## Doubled Strategic Electrification (Tier 3) Incentive Funding FY23-25

- **Continue Green Stimulus** – Per PUC Order under Act 151 BED can keep Green Stimulus level incentives for heat pumps, EVs, through at least end of 2023.
- **Support Faster Progress Toward Net Zero Energy Goal** – Funding for adoption rate double the State Renewable Energy Standard compliance level. Incremental GHG reduction beyond business as usual of 47,000 tons lifetime, equivalent to nearly 100,000 barrels of oil consumed. Change in Tier 3 and REC accounting helpful in this effort.
- **Use a Portion of Existing BED GO-Backed Annual Bonds** – Projected \$5.3 million of investment during this three-year period. The projects that these GO bond proceeds normally would have funded will be funded by the 2022 NZE revenue bond.





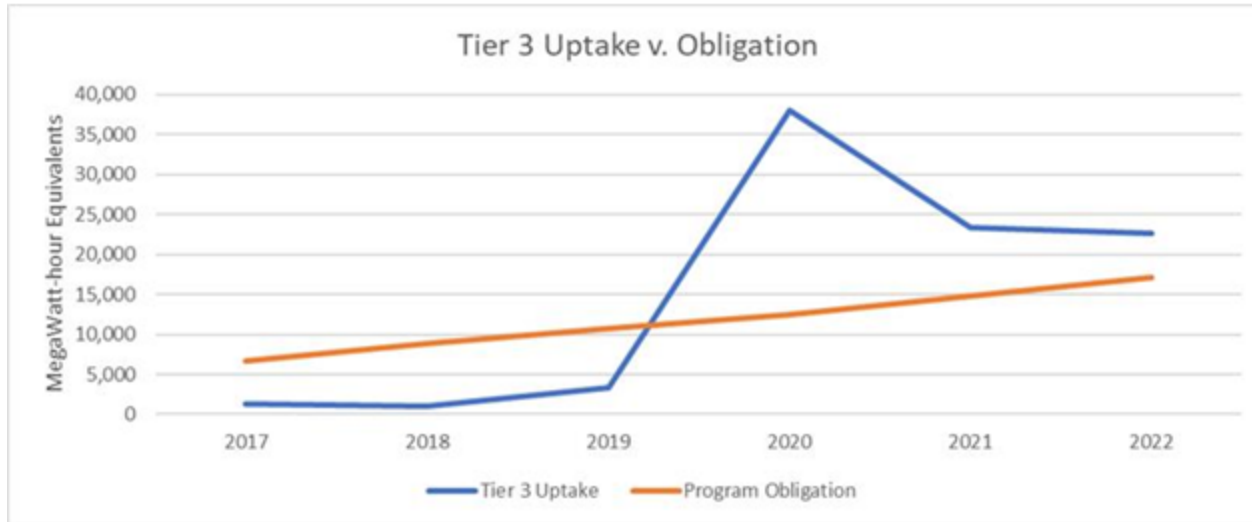


## CY2022 BED Tier 3 and Net Zero Energy Programs

*Tier 3 Budget for FY23 = \$2.1 million*

*EEU and Act 151 Budget for FY23 = \$1.55 million*

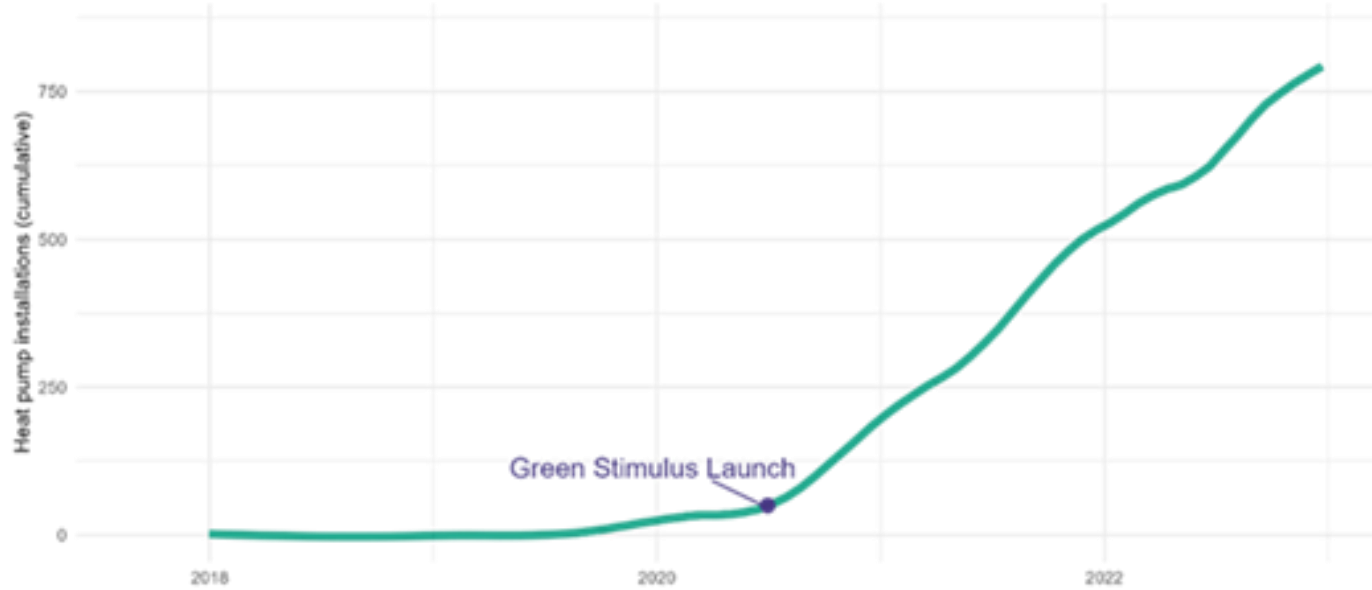
- ❑ **EV rebate** of \$2,300, or \$3,000 for low/moderate income (LMI) customers up to 80% area median income
- ❑ **PHEV rebate** of \$2,000, or \$2,300 for LMI customers
- ❑ **Pre-Owned EV/PHEV rebate** - \$1,300, plus \$200 for LMI customers
- ❑ **Incentive for residential charger** up to \$900
- ❑ **EV finance partnership with three credit unions**
- ❑ **EV Workplace Charging Station Incentive** of up to \$10,000
- ❑ **EV Public Chargers** – 16 stations and 29 ports
- ❑ **E-Motorcycle** - \$500 rebate
- ❑ **E-Bus incentive** – two buses delivered in 2020
- ❑ **Electric Induction Cooking** – up to \$200 rebate
- ❑ **E-Bike rebate** of \$200, 0% loans for low-income customers
- ❑ **E-Mower** rebate of \$100-\$300 residential and \$3,500 commercial
- ❑ **Custom Programs** –VRF, geothermal, etc.
- ❑ **Cold-Climate Heat Pump rebate** – up to \$3,350 including \$400 LMI rebate
- ❑ **Central-Ducted Heat Pump rebate/discount** – up to \$6,250, plus \$400 per condenser for LMI customers
- ❑ **Air-to-Water Heat Pump rebate** – up to \$12,400, including \$400 for LMI customers
- ❑ **Heat Pump Water Heater rebate** – up to \$1,000, plus \$200 additional for LMI customers
- ❑ **Electric Forklift rebate** – up to \$6,500
- ❑ **Electric Leaf Blower rebates** - \$50 residential, \$150 commercial
- ❑ **Residential Loan Program**– as low as 0% for income-qualified customers for heat pumps, water heaters, Energy Star appliances
- ❑ **0% Commercial Loan Program**– on-bill finance for efficiency, heating and cooling, ventilation



BED's Tier 3 annual performance for program uptake vs. annual obligation. Note that 2022 Tier 3 Program Obligation and Uptake are not final. For the 2022 Tier 3 Uptake, more measures may be entered for 2022 and the claims must be submitted to the PUC and DPS for verification. The 2022 Program Obligation is based on twelve months of sales ending 11/30/2022 and will slightly adjust when actual December 2022 sales are available.

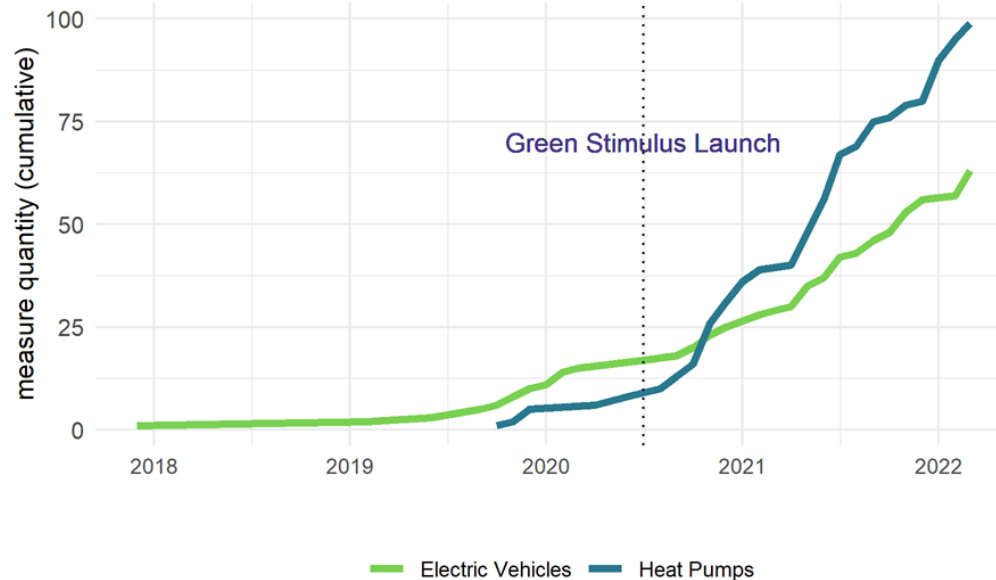


## Tier 3 Residential Heat Pump Installations





## Improved Accessibility to Tier 3 Programs



Currently 18.2% of EV/PHEV rebates and 15.5% of heat pump rebates have been enhanced rebates available to income-qualified customers



## BED and City Energy Innovation Projects Underway

- ❑ Solar Research Center with UVM, permit approved at PUC
- ❑ Continued participation in DeltaClima clean energy business accelerator
- ❑ NZE Revenue Bond funded capital projects, such as Level 3 fast chargers
- ❑ Geothermal well testing funding available for first time
- ❑ Electric bucket truck coming in FY24, new BED fleet EVs FY23
- ❑ Working with CarShare Vermont to expand access to EVs, including in Old North End
- ❑ Rate Design Pilot and EVSE charging grants from State of Vermont
- ❑ 14 EVMatch chargers at rental/multi-family buildings, expanding with 50-60 more
- ❑ District Energy Phase III nearing conclusion, Go/No Go decision in 2023
- ❑ Low-income pilot rate in FY23
- ❑ WRAP Tariff on-bill financing for income-qualified customers





## City Policy

- ❑ **Rental Weatherization Standards Implementation** – Multi-year implementation requiring rental properties above certain energy use threshold to weatherize buildings, with assistance available from VGS and BED.
- ❑ **Primary Renewable Heating Ordinance Implementation** – Requires as of 2021 all new construction to have primary renewable heating system capable of serving at least 85% of building load.
- ❑ **Charter Change/new policies for thermal energy regulation** – Approved by voters March 2021 (65% yes), and legislature and Governor in 2022. City can use carbon pricing and other tools to regulate emissions in buildings. Final report issued Dec. 5, 2022, Town Meeting Day vote on proposed recommendations March 2023.



## Legislative Policy

- ❑ **Act 151 Extension**– BED supports extending Act 151 efficiency program pilot from 2020
- ❑ **Renewable Energy Standard**– BED in unique position as 100 percent renewable utility, in-depth discussion and analysis required to ensure ratepayer and customer benefit and avoid negative unintended consequences
- ❑ **Affordable Heating Act** – Ensure compatibility with BED Tier 3 programs, allow for BED to retain relevant clean heat credits for Burlington Net Zero Energy goals