



# NET ZERO ENERGY

BURLINGTON VERMONT



## Vermont's Renewable Energy Standard (RES)

- ❑ Passed in 2015 by large majorities in Legislature
- ❑ First implementation year was 2017
  - ❑ Tier 1 – 55% renewable in 2017, rising to 75% by 2032
  - ❑ Tier 2 – 1% starting in 2017, rising to 10% by 2032 (adds new distributed generation annually)
  - ❑ Tier 3 – Requirement for utilities to provide programs and incentives to transition customers off of fossil fuels in thermal, transportation, other sectors
- ❑ DPS report found in 2017 Vermont was 63% renewable, cut carbon pollution by 579,000 tons compared to 2016, equivalent to taking over 100,000 cars off the road.
- ❑ DPS expects RES to reduce carbon pollution by 6-7 million tons over next ten years, equivalent to taking more than 1.3 million cars off the road for a year.
  - <https://publicservice.vermont.gov/sites/dps/files/documents/2019%20Annual%20Report%20on%20the%20RES.pdf>



## Burlington Electric Department (BED)

- Burlington's municipal electric utility
  - Public Power since 1905
  - 118 employees, including the McNeil Generating Station
- 21,000+ customers
  - 17,196 residential / 3,876 commercial and industrial
  - >6,000 residential accounts turn over each year
- Electricity facts:
  - Summer Peak: ~65 MW / Annual energy Use: ~350,000 MWH
  - Third largest electric utility in Vermont
  - McNeil is the largest energy producer in Vermont with VY Retirement
  - 100% of power from renewable generation as of 2014
  - No rate increase since 2009





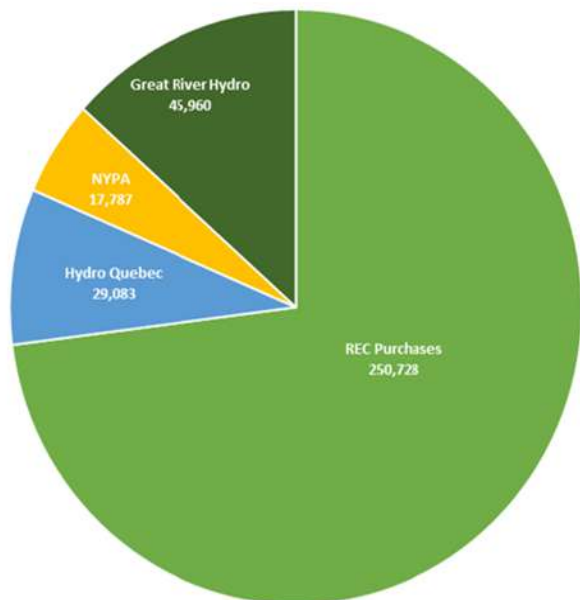
- ❑ **BED is an Energy Efficiency Utility (EEU) appointed by the PUC.**
- ❑ **Strong Track Record:**
  - ❑ Electricity consumption in Burlington is 6.1% *lower* today than in 1989 (1990 \$11.3 million bond for efficiency)
  - ❑ Over same period statewide electric consumption increased 8.4%.
  - ❑ Over same period U.S. electric consumption increased approximately 29%.
  - ❑ Over \$70 million invested by BED and our customers in efficiency.
  - ❑ Energy efficiency investments in Burlington are saving our customers \$12 million annually on electric bills, including avoided energy and transmission and capacity costs.





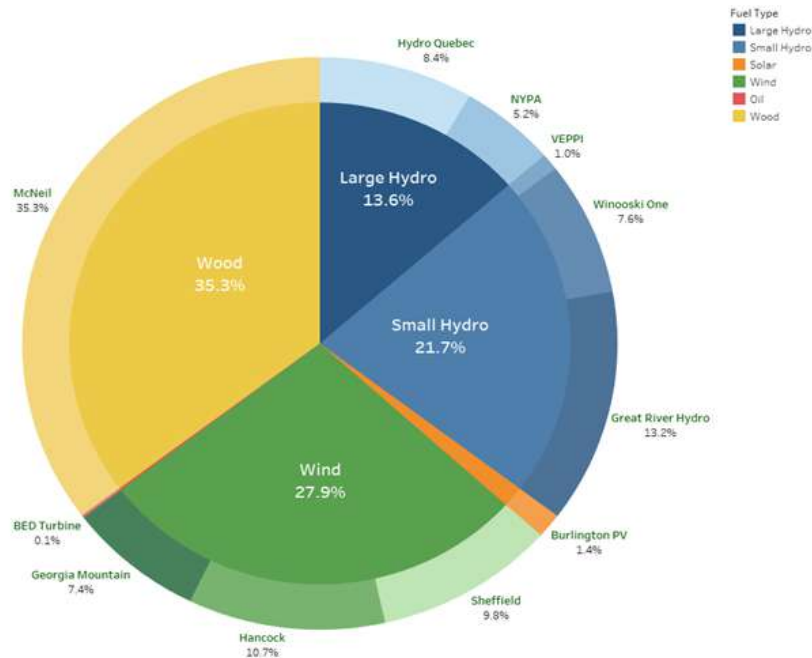
## CY 2018 BED RENEWABILITY

Including REC Sales & Purchases



Note: The above graph depicts Renewable Energy Certificates (RECs) that have been retired against BED's electric sales for calendar year 2018. BED retired VT Tier 1 Compliant RECs in excess of electric sales for 2018 by approximately 3%.

## 2018 BED ENERGY SUPPLY BY SOURCE



NOTE: BED has no contracts for resources fueled by Natural Gas, Nuclear or Coal. 0.1% of generated energy comes from Oil used at the BED turbine. The energy supply profile exceeded sales. The above represents energy supplied and purchased by BED prior to REC sales.





**Make Burlington a Net Zero Energy city**  
across electric, thermal, and ground transportation sectors  
by managing demand, realizing efficiency gains, and  
expanding local renewable generation while increasing system resilience.



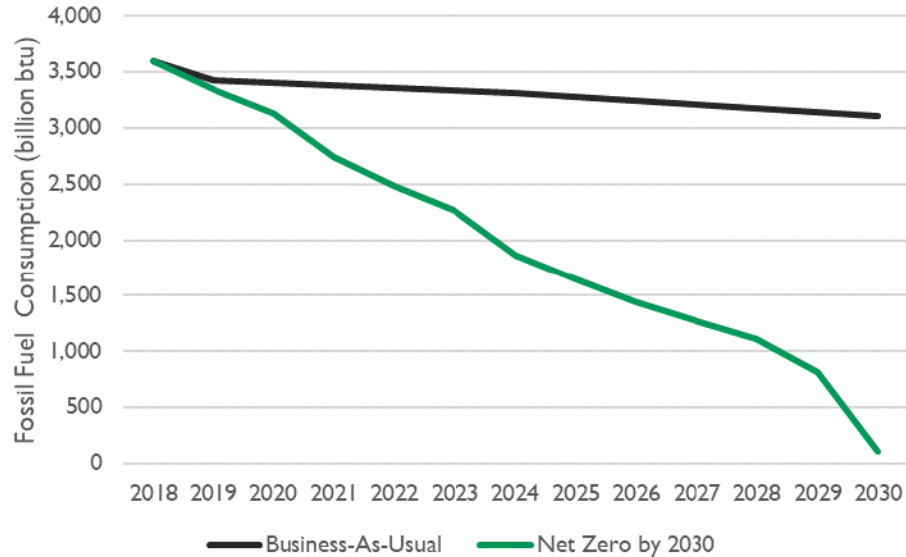


## Key Takeaways from Roadmap Project

- ❑ [www.burlingtonelectric.com/NZE](http://www.burlingtonelectric.com/NZE)
- ❑ Transportation is largest share of emissions in Burlington and Vermont
  - ❑ Focus on miles traveled by Burlington residents
  - ❑ Secondary focus on commuters/visitors
- ❑ Transportation electrification offers:
  - ❑ Savings for community
  - ❑ Benefits from national and international trends
- ❑ Buildings need additional weatherization, electrification, and renewable fuels.
- ❑ Burlington will benefit from supportive policies at state and federal level.



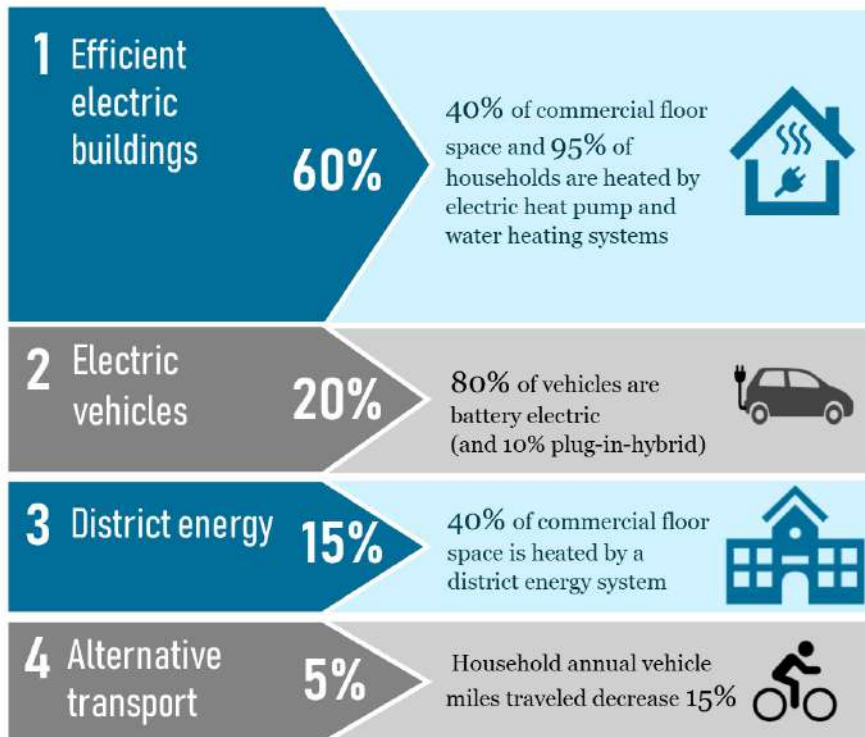
## Business-as-Usual Fossil Fuel Consumption vs. Net Zero Energy 2030





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## □ BED Tier 3 Energy Innovation Programs

- **EV rebate** of \$1,200, or \$1,800 for low/moderate income customers
- **PHEV rebate** of \$1,200, or \$1,500 for low/moderate income customers
- **Tier 3 incentive for residential EVSE** tied to new BED Residential Charging Rate(credit) – charge off-peak for equivalent of 60 cents a gallon of gas
- **EV finance partnership with VSECU, Vermont Federal and Green Mountain Credit Unions**
- **EV Workplace Charging Station Incentive** of \$1,000
- **EV Public Chargers** – 15 stations and 27 ports around the City including at UVM
- **E-Bus incentive** – two buses expected in 2019 with an option for more in the future
- **E-Bike rebate** of \$200 at local retail shops
- **E-Mower rebate** of \$100 residential and \$3,500 commercial





## Tier 3 Results to-date

- ❑ **111 EV/PHEV rebates since May 2017**
  - ❑ **7 low/moderate income enhanced rebates**
  - ❑ **3 finance loans through credit union partners**
  - ❑ **9 EV charging station rebates**
  - ❑ **19 customers signed up for EV rate**
- ❑ **142 E-Mower rebates since May 2019**
- ❑ **10.26 megawatt hours from 15 charging stations Oct 2019 (1166 sessions)**
- ❑ **107 E-Bike rebates**
- ❑ **2 electric bus purchase incentives planned for 2019**





## BED Announcements on 9/9/19

### Thermal:

- ❑ Up to \$2,200 for cold-climate heat pump incentives (includes enhanced incentive for low/moderate income customers)
- ❑ New heat pump hot water incentive
- ❑ Up to \$6,500 for electric forklifts
- ❑ Energy efficiency standards for rental housing
- ❑ Energy efficiency workforce training



### Transportation:

- ❑ Up to 2 EV rebates per household or business, more for fleets
- ❑ Level 1 charging cord for off-peak EV rate (60 cents a gallon equivalent)
- ❑ More than 20 new EV chargers, including at multi-family buildings
- ❑ CarShare EV



### Outreach and Engagement:

- ❑ New Net Zero Energy data tracking
- ❑ Public Engagement Effort



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