



TEUC Presentation

Burlington Electric Department

January 23, 2018

**Neale Lunderville, General Manager
Darren Springer, Chief Operating Officer**



BED Overview

- Burlington's municipal electric utility
 - Public Power since 1905
 - 117 employees, including 36 at the McNeil Generating Station
 - Owned fiber optic loops and upgraded SCADA system
 - ~96% advanced meter deployment
- 20,000+ customers
 - 16,763 residential / 3,829 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 generator in Vermont with VY Retirement



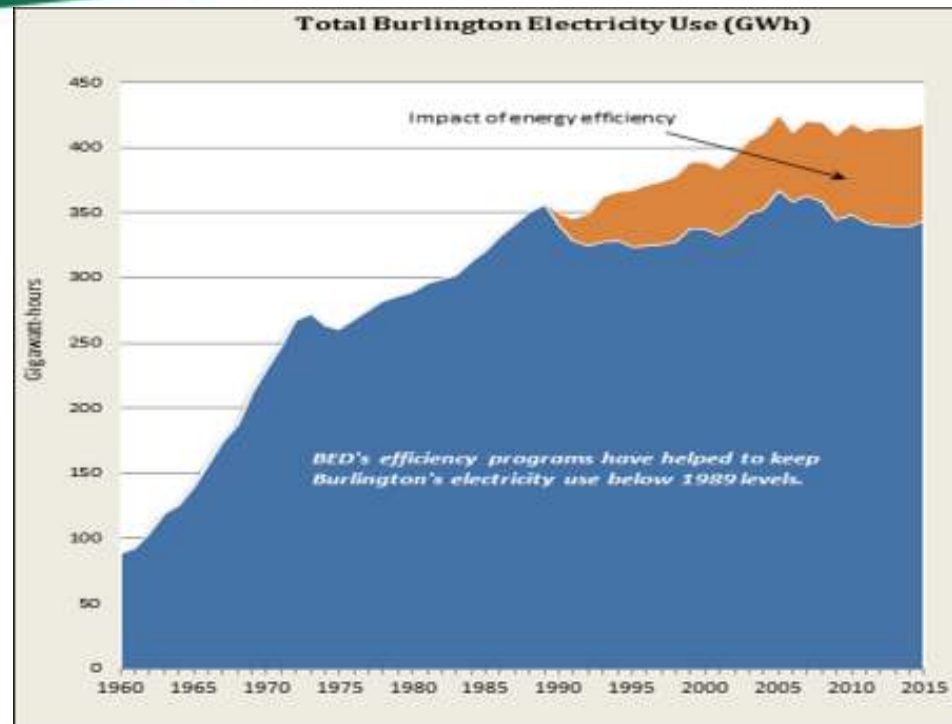
BED Efficiency Program

Efficiency is Cornerstone of Energy Innovation

- ❑ Electric use today down about 4% from 1989.
- ❑ Total BED investment of \$28.8 million since 1990.
- ❑ BED saves an estimated \$4.1 million annually in direct costs (\$2.2 million energy, \$0.5 million capacity, and \$1.4 million transmission) from these investments - even at today's low energy prices.
- ❑ BED's customers save approximately \$11 million annually on their electric bills.
- ❑ On-bill financing available for commercial customers.
- ❑ Examples of business efficiency projects include HVAC and ventilation controls, LED fixtures with occupancy sensors.



BED Energy Efficiency

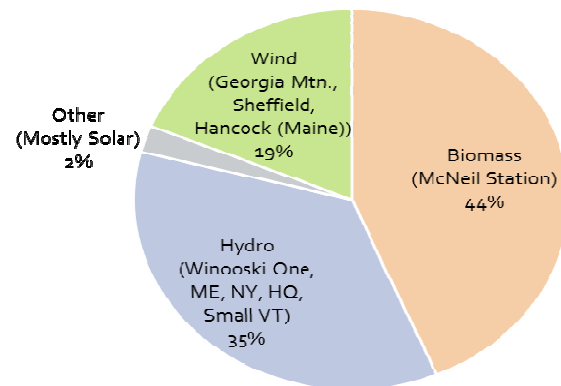




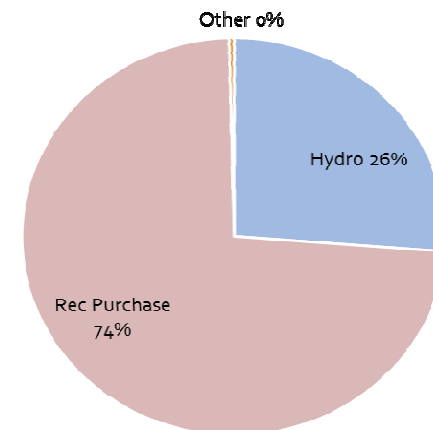
National Leader in Renewable Energy

First city in the nation to source 100% of energy from renewable generation

BED Owned & Purchased Power
Resources CY2016



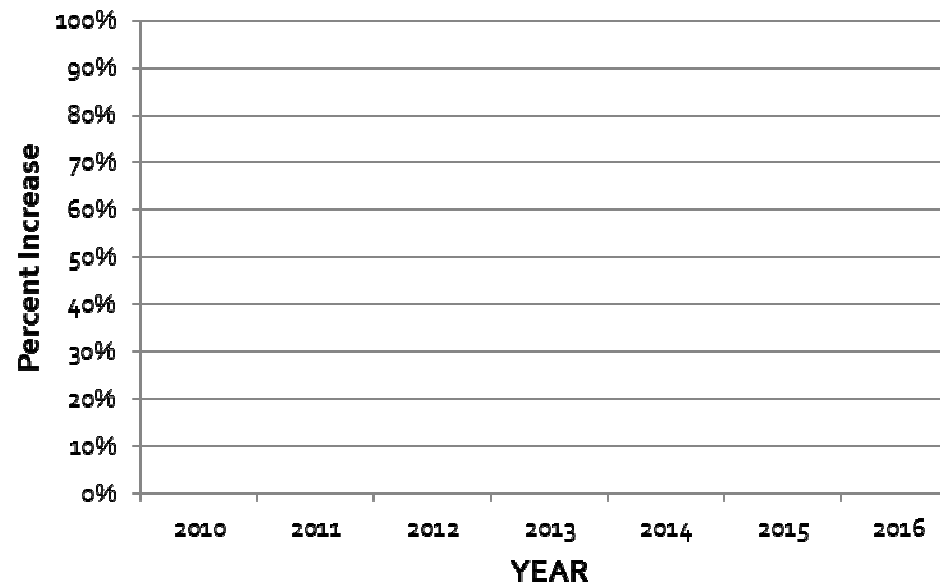
BED Renewability, including REC Sales & Purchases
CY2016 (estimated)





No Rate Increase Since 2009

BED Rate Increase by Fiscal Year





Supporting Local Clean Energy Economy

- McNeil plant wood chip procurement – Mostly within 60 miles of the plant, support local forestry economy
 - *McNeil purchased from 56 different suppliers in FY16 (not including sub-contractors)*
 - *Vast majority of these suppliers are relatively small Vermont-based*
- New load control pilot program – *Packetized Energy*
 - *Using water heaters as a "virtual power plant" using emerging technology identified by the U.S. Department of Energy's Advanced Research Projects Agency-Energy (ARPA-E) as one of the most promising technologies for coordinated distributed energy resources*
- Airport solar project - *Encore Redevelopment*
- Burlington City Schools Solar – *AllEarth Renewables and Encore Redevelopment*
- Accel-VT Energy Accelerator with VT Sustainable Jobs Fund and VCET
- EV charging stations at *Hannafords, Church Street Marketplace, UVM* – over 600 charges by out-of-state visitors annually
- BED and DPW rooftop solar with *DC Energy Innovations*
- BED solar/storage demo project with *Northern Reliability*



Clean Energy Innovation

- ❑ **Electric Vehicles** – In 2017 for the first time ever BED began offering rebates for electric vehicles and plug-in hybrid vehicles, and an enhanced incentive for low and moderate income customers. This program continues in 2018.
- ❑ **Electric Buses** – BED is working with Green Mountain Transit, VTTrans, and other partners to help bring 4 new electric buses to Burlington in 2018.
- ❑ **Electric Bikes** – BED is partnering with Local Motion to offer modest incentives for electric bikes, and create an E-bike lending library for bike sharing.
- ❑ **Solar Shopper** – BED launched a new solar program for customers in 2017, providing a customized solar estimate to interested customers from up to six Vermont-based solar installer partners within 3 business days.
- ❑ **Cold-Climate Heat Pumps** – BED is now offering oil and propane customers an enhanced incentive for purchase of cold-climate heat pumps, and working to coordinate this with weatherization services.



District Energy

- ❑ BED has been working with Corix, our partner, on finally bringing district energy to Burlington.
- ❑ Initial feasibility study showed a district energy system could be cost-competitive with business as usual.
- ❑ Initial plan uses three energy sources: 1) “waste” heat from McNeil; 2) steam heat from McNeil turbine; 3) natural gas generators for peaking and backup
- ❑ Scenario would involve running system from McNeil plant up to UVM Medical Center, and over to downtown.
- ❑ Potential customers are reviewing individual economic assessments from Corix.
- ❑ GHG emissions reduction in natural gas/heating sector in Burlington of approximately 13-15 percent from just initial proposed system, which could expand over time.



Coming in 2018

- ❑ BED is working on offering a clean energy finance program to customers through partnership with local banks/credit unions
- ❑ Electric vehicle charging rate to prioritize off-peak charging
- ❑ Examine net zero milestones and pathways
- ❑ Continue EV rebates, solar shopper, and other new programs
- ❑ Look at options to support more community solar



BURLINGTON ELECTRIC DEPARTMENT

2017-18 STRATEGIC DIRECTION

MISSION

To serve the energy needs of our customers in a safe, reliable, affordable, and socially responsible manner.

VALUES

Safety, Integrity, Community, Engagement, Innovation

2030 VISION

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.

STRATEGIC OBJECTIVES

Create a nimble organization by transforming our business platform and developing our human capital to best leverage an era of rapid change in the energy industry.	Deliver exceptional customer care by enhancing personal service and increasing engagement across all channels to efficiently resolve customer issues and proactively promote energy efficiency and other program opportunities.	Leverage our electric assets to take advantage of high intensity, bi-directional energy made possible by distributed energy resources.
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STRATEGIC INITIATIVES

Establish modern, simple full function customer care platform	Strengthen distribution and generation assets to increase reliability and efficiency	Empower employees with modern technology	Advance nationally significant energy innovation	Budget and manage risk to maintain stable rates
Create service delivery model focused on high quality customer care	Implement asset maintenance plan for McNeil, Wisconsin One, and distribution system	Overhaul IT backbone for core business functions (IT Forward)	Launch solar pilot to speed adoption	Develop and test alternative revenue pilots
Develop web and social media platforms, plus other forms of promotion, to increase engagement	Establish McNeil knowledge transfer program to be completed within three years	Implement collaborative model between end user and technology	Advance district energy, microgrid, and electric transportation projects	Build a suite of financial options to support solar and storage purchases
Focus on making our programs work for all customers, especially rental and New American populations	Upgrade field computing and pilot grid automation	Build shared data center with City	Launch citywide demand reduction strategy	Modernize inventory system
Coordinate with other City departments to promote customer ease-of-use		Enhance cyber security capabilities	Develop dynamic rates and green pricing plans	Develop learning organization model to enhance employee education and training
Re-evaluate energy efficiency model to create even more customer value			Establish milestones to achieve vision by 2030	
			Integrate energy efficiency, demand reduction, and distributed resources in regulatory planning and program design	



**CITY OF BURLINGTON
DEPARTMENT OF PUBLIC WORKS**

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Chapin Spencer
DIRECTOR OF PUBLIC WORKS

Rob Green
*ASSISTANT DIRECTOR
RIGHT OF WAY*

Memo

January 23, 2018

To: City Council Transportation, Energy & Utilities Committee

From: Rob Green, Assistant Director DPW

Re: Recycling Cart Update

In keeping up with ordinance (18-105) Sanitation and the recycling cart requirement for rental property, I wanted to supply to TEUC with some informational updates;

- Currently rental units of 8 or nine are required to provide (1) 65-gallon cart for every (3) units
- Effective March 1, 2018 rental units of 6 or 7 will be required to provide (1) 65-gallon cart for every (3) units.
- Code enforcement is sending their billing out February 1, 2018 and will have these updates attached.
- DPW Sold 317 recycling carts in FY17 and currently has sold 295 in FY18.
- With the help of CSWD we were able to significantly increase our inventory and are ready for the next phase of the ordinance.



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To: City Council Transportation, Energy & Utilities Committee

From: Rob Green, Assistant Director DPW

Re: Residential Consolidated Collection

Burlington Public Works is working with Chittenden Solid Waste District (CSWD) and our neighbor South Burlington in exploring the potential of a Residential Solid Waste Collection System. Consolidated collection is a system in which a municipality contracts with one or more haulers to provide curbside collection service for specific routes within that community, rather than having multiple haulers serve a scattering of customers in each neighborhood. CSWD has been wrestling with consolidated collection for years. In 2009 they formed a study committee, comprising haulers, CSWD board members, and CSWD staff, to direct a study. Unfortunately, after years of input, the committee was never able to reach an internal consensus or all its members to pursue. In response, in 2014 the CSWD Board decided to pause the process and provide technical assistance to individual communities interested in exploring consolidating collection.

As the CSWD Commissioner representing Burlington and the Assistant Director of DPW managing the recycling program, I believe Burlington should explore the possibility of having a consolidated solid waste collection system.

It does bring up many questions that I have, and having conversations with our neighboring municipalities and CSWD will likely bring up more. I look forward to hearing your questions and will keep the TUEC and City Council informed of any future progress.

Why does DPW want to see a Residential Consolidated Solid Waste Collection System?

- To reduce the cost to the residents
- To reduce the heavy truck traffic in the neighborhoods by having all wastes and recyclables picked up on the same day
- To reduce the environmental and infrastructure impacts of truck traffic
- The possibility of increasing the amount residents recycle by having all residents with larger capacity covered wheeled carts
- By having consolidated collection, it could make the costs of organics collection reasonable
- It is time for Burlington Public Works to get out of the recycling collection business
 - Cumbersome Burlington recycling tax
 - High employee turnover rate
 - Expensive equipment to maintain

Questions DPW will be bringing up;

- How much should it cost the residents of Burlington to have weekly curbside pickup of trash, recyclables, and organics?
- Could the hauler offer a bi-annually yard waste collection?
- Could the hauler offer a heavy waste service?
- What is the definition of a residential customer?
- Where recycling routes are already established, could they continue for consolidated collection?
- What size carts should be offered to residents?
- Who bills the residents? Hauler directly? City GF?
- How do we design an RFP for all licensed haulers to have an equal and fair share of Burlington?
- How long should the city contract with a hauler?
- When could we start consolidated collection?



CITY OF BURLINGTON, VERMONT
CITY COUNCIL TRANSPORTATION, ENERGY & UTILITIES COMMITTEE

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Councilor Maxwell Tracy, Chair *WARD 2*
Councilor Richard Dean, *East District*
Councilor Ali Dieng, *WARD 7*

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Transportation, Energy and Utilities Committee of the City Council
Tuesday, January 23rd, 2018 at 6:00 PM

Burlington Department of Public Works – Front Conference Room
645 Pine Street – Burlington, VT

–AGENDA–

1. Agenda

- a. Councilor Tracy called the meeting to order at 6:00 pm

2. Public Forum

- a. None offered

3. Minutes of 11/29/2017

- a. Councilor Dean moved for a motion on the minutes, Councilor Tracy moved to approve the minutes and Councilor Tracy seconded. All in favor.

4. Consolidated Trash Pick-up – 15 minutes

- a. Rob Green: In keeping with the ordinance and the recycling cart requirement for rental properties, Mr. Green wanted to provide an update, see supporting documents online.
- b. With the help of CSWD DPW has been able to significantly increase inventory, additionally DPW is prepared for the next phase of the ordinance.
- c. Consolidated collection: not much work has been done. There will be a meeting on 1/31/18 with CSWD and South Burlington to get consolidated waste collection going. We may need a consultant's assistance to study the issue. It makes sense, from a cost point of view; it will save a significant amount of money. There will be less truck traffic as well. Organics have been a major issue for the landfills. Residents would like to see more leaf pick up, to include a spring pick up, hopefully the consultant will have an answer for this issue. The recycling truck work is a cumbersome issue in terms of manpower as well. The equipment is expensive, and can be difficult to maintain over time.

- d. Dean: Is there potential for getting other communities involved? Mr. Green, there has been an effort, unfortunately there is a lack of consensus. Keeping it smaller may be a better indicator of success. Is there some kind of schedule? This will not make it to City Council before the next fiscal year.
- e. Action: Informative, no action needed.

5. **BED's Net Zero Campaign – 30 minutes**

- a. Neale Lunderville and Darren Springer, see supporting documents online.
- b. Third largest electric utility in Vermont, with over 20,000 customers. BED has 117 employees, with an excellent safety record. Summer peak ~65 MW.
- c. BED Efficiency Program, BED customers save approximately \$11 million annually on their electric bills, BED has invested close to \$30 million on efficiency programs since 1990. BED Uses less electricity now than in 2007. BED is a national leader in renewable energy. Burlington is the first City in the US to source 100% of energy from renewable generation. No rate increase since 2009, there are a lot of headwinds that will make this difficult due to a decrease in renewable energy credits. BED supports a local clean energy economy, there are several solar storage demo projects.
- d. Clean energy innovations. Electric vehicles (several rebates and other programs), electric buses (there are federal funds and grants BED hopes to tap into), electric bikes, solar shopper, and cold climate heat pumps.
- e. BED has been working with Corix on bringing district energy to Burlington. BED has been working through proposals that would allow BED to develop preliminary engineering plans. BED anticipates Corix will design and operate a system owned by Burlington. GHG emissions reduction in natural gas/heating sector in Burlington of 15%.
- f. Dean: The work you're doing makes me proud to live in Burlington. Is there a limit to solar grants? Springer: No there are no limits. Community solar would be a great way to go. Lunderville: There is so much value to these solar projects. Dean: District energy proposal, are there benefits during Summer months. Lunderville: The hospital would have year round needs, so would hotels, and any larger user needs. UVM is a potential client, however they are not an ideal client because UVM uses a different system. Dean: the 20/30 challenge. Lunderville: BED has been the primary funders, and that has been growing as well. It has been a remarkable effort; it has been a truly grassroots effort. Tracy: the district energy piece; the wastewater plant is a potential energy producer. Lunderville: we are looking at the possibility of connecting to the wastewater plant, it will be an overall phased approach. AS the system grows, it will become more cost effective. Tracy: curious about the route the system will take. Lunderville: the plan would be to go up the hill to the hospital, that could change, there is a lot of

coordination that would need to take place. Tracy: how will the residents be affected.

Lunderville: it may not help residents directly in the near term, but the overall system will indirectly help; over time there may be a cost benefit to make it a resident system.

- g. Action: Informative, no action needed.

6. Councilors' Update

- a. Tracy: I would like to discuss the snow fighting efforts, specifically in the protected bike lane on Union Street. There are a variety of concerns that need to be worked through. Public engagement plan, what is in the pipeline for 2018 a February presentation seems ideal.

7. Public Forum

- a. Great streets update: The DPW Commission recommended the new great street standards have been unanimously adopted. The BED Commission has also approved the great street standards as well. The great streets standards will most likely be on the February TEUC agenda.

8. Adjourn

- a. Councilor Dean motioned to adjourn and Councilor Tracy seconded. Meeting was adjourned at 7:17 PM.

Transportation, Energy and Utilities Committee of the City Council

Tuesday, January 23, 2018 6:00 PM

Burlington Department of Public Works – Front Conference Room 645 Pine Street – Burlington, VT

SIGN-IN SHEET

NAME	EMAIL
Phillip Peterson (DPW)	
Alene Longaville (BED)	
Darren Springer (BED)	
Kirsten W Shapiro (CEDO)	
Colleen Nanton (CEDO)	

Please note that this sign-in sheet and any information provided on it will be maintained as a public record and may be subject to disclosure under the Vermont Public Records Act.