



NET ZERO ENERGY

BURLINGTON VERMONT



AGENDA:

1. BED BACKGROUND
2. NET ZERO ENERGY GOAL AND ROADMAP FINDINGS
 - a. Business as Usual
 - b. 2030 and 2040 Scenarios
3. NEW PROGRAMS AND INCENTIVES



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:

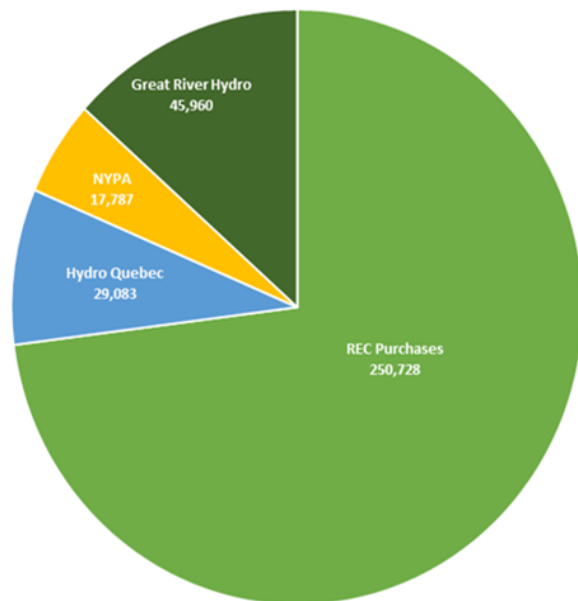
- ❑ Electricity consumption - 6.1% *lower* than in 1989 (1990 \$11.3 million bond for efficiency)
- ❑ Over same period statewide electric consumption increased 8.4%.
- ❑ Over same period U.S. electric consumption increased approximately 29%.
- ❑ Over \$70 million invested by BED and our customers in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





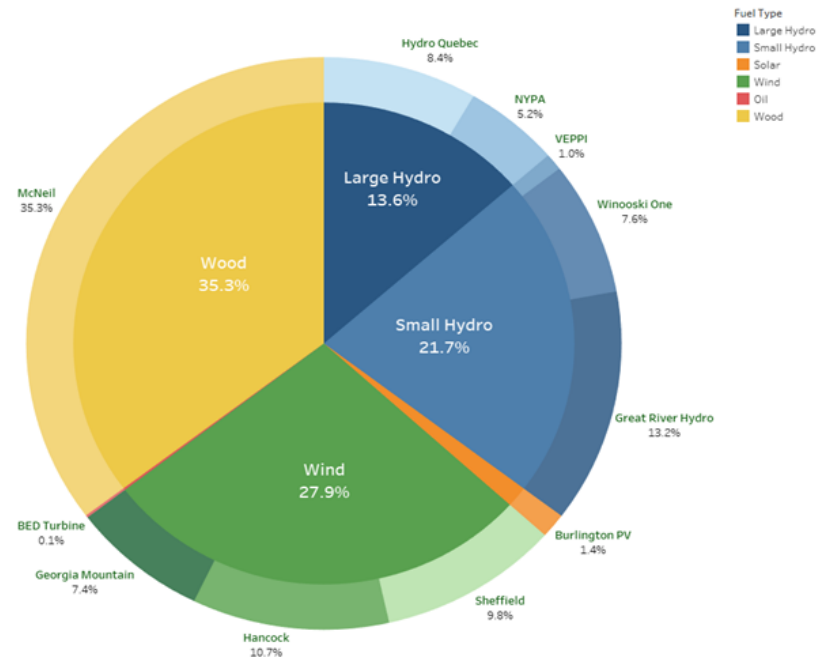
CY 2018 BED RENEWABILITY

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.



- ❑ **BED Tier 3 Energy Innovation Programs**
 - ❑ **EV rebate** -- \$1,200, or \$1,800 for low/moderate income customers
 - ❑ **PHEV rebate** -- \$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 partnerships** -- VSECU, Vermont Federal and Green Mountain Credit Unions
 - ❑ **EV Workplace Charging Station Incentive** -- \$1,000
 - ❑ **EV Public Chargers** – 14 stations and 26 ports
 - ❑ **E-Bus incentive** – two buses with an option for more
 - ❑ **E-Bike rebate** -- \$200 at local retail shops



**BED Goal: To Become a Net Zero Energy city
by transitioning off of fossil fuels in the thermal and ground
transportation sectors**





Net Zero Energy Roadmap with Synapse and RSG

- ❑ Establish baseline of energy use across all sectors.
- ❑ Determine Business-as-Usual (BAU) projection in each sector out to 2030.
- ❑ Analyze pathways to Net Zero Energy by 2030 - including cost-benefit
- ❑ Present analysis and pathways to Net Zero Energy

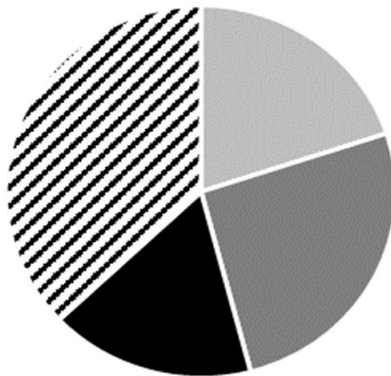


Synapse
Energy Economics, Inc.



RSG

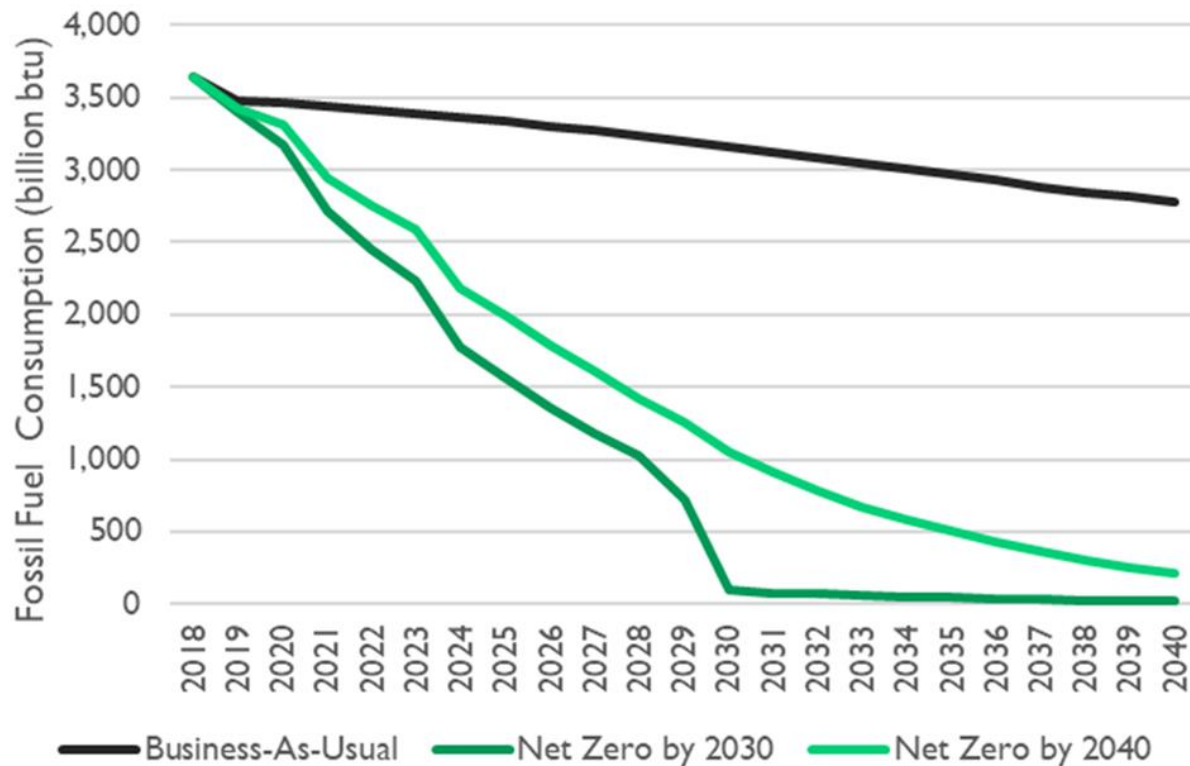
the science of insight



- Residential Buildings
- Commercial Buildings
- Transportation: Burlington Vehicles
- ✓ Transportation: Non-Burlington Vehicles

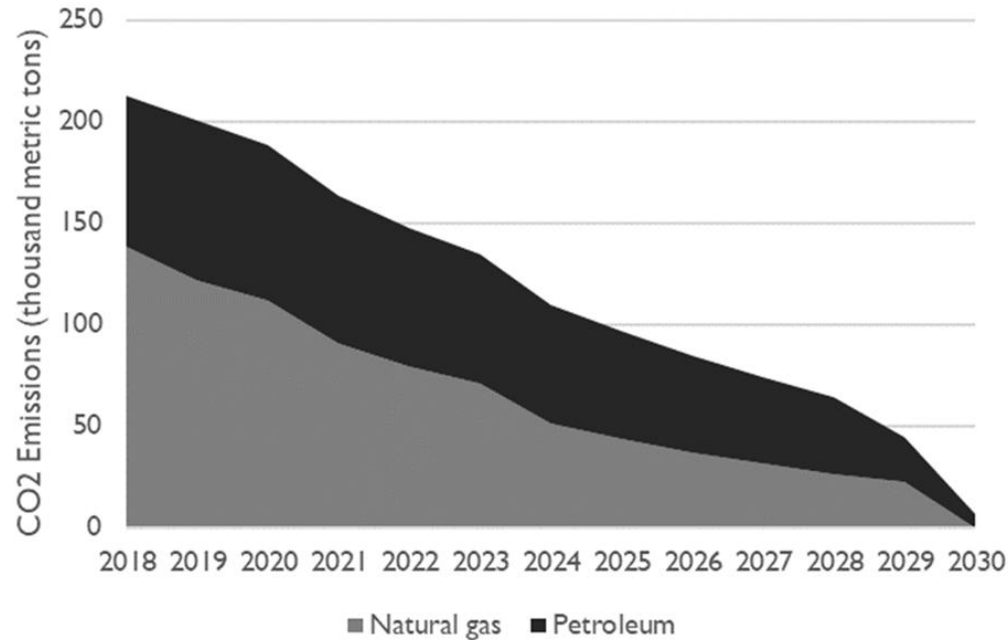
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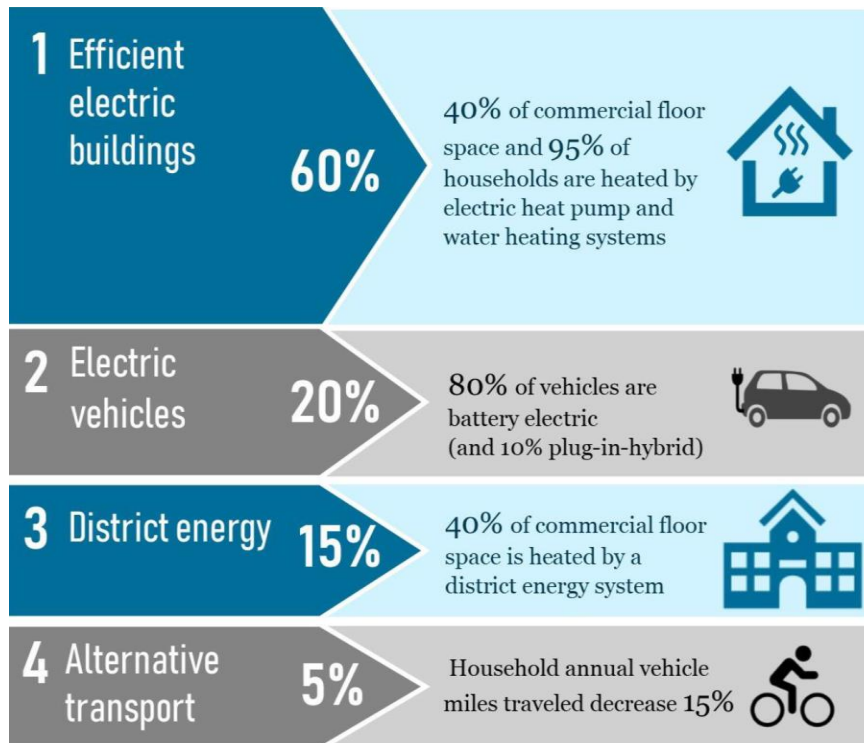


Reduction in CO₂ Emissions for NZE 2030



NET ZERO ENERGY

BURLINGTON VERMONT





BED New Programs

Thermal:

- Up to \$2,250 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





Darren Springer, General Manager
Dspringer@burlingtonelectric.com

Jennifer Green, Director of Sustainability
Jgreen@burlingtonelectric.com

<https://www.burlingtonelectric.com/>

**A Resolution Concerning Pedestrian Safety on East Avenue and Elsewhere in the City of
Burlington**

November 2019

Wards 1+8 NPA

DRAFT

Whereas, Burlington prides itself in being a walkable city, and

Whereas, Safety is of paramount importance, and

Whereas, A pedestrian was struck within the crosswalk on East Avenue at the top of Bilodeau Court at 6:39 AM on October 23 and was injured significantly enough that she was taken to the medical center on a stretcher; and a car was rear-ended while stopping at this crosswalk just a few days later, and

Whereas, A significant percentage of vehicles on East Ave in this area have been documented to travel at a speed of 10 mph or more above the speed limit, and

Whereas, Visibility is challenged at the East Ave/Bilodeau Court crosswalk due to vegetation and lighting limitations, and

Whereas, Over one hundred people have signed a petition calling for action to improve safety on East Ave, and

Whereas, A request for traffic calming for East Ave was submitted 2.5 years ago,

Therefore, We request the City of Burlington take immediate action to

- Make crossings on East Ave safe for pedestrians by implement measures such as:
 - o Removing vegetation on the west side of the Bilodeau Court/East Ave intersection.
 - o Improving lighting in the area of the crosswalks on East Ave.
 - o Installing safety features at the crossings that improve visibility and slow traffic such as rapid-flashing pedestrian lights, stop signs, speed bumps, speed radar signs, and other measures.
- Accelerate action on the request for traffic calming.
- Move East Ave up in the Complete Streets queue.
- Identify other crossings in the City that pose similar risks to pedestrians and take action.
- Direct the City Department of Public Works to prioritize improving crosswalk safety.

Wards 1 & 8 Neighborhood Planning Assembly (NPA)

13 November 2019

UVM Medical Center's McClure Lobby Conference Room

7:00 pm - 9:00 pm

6:45 pm Refreshments and Open House

AGENDA

Facilitator: Cindy Cook

Recorder: Phet Keomanvanh, CEDO

- 7:00 pm President Suresh Garimella - [UVM](#)
Introduction
- 7:30 pm Introductions and NPA Business: Election of Ward 8 SC Representative;
Resolution on Safety related to East Ave accident; Polling Membership on
Dedicated Housing Meeting (note - first two items are for NPA action)
- 7:40 pm Speak-out
An opportunity to make announcements and to raise issues that affect our
community
- 7:55 pm Darren Springer (General Manager) and Jennifer Green (Director of
Sustainability and Workforce Vitality), BED - [Net Zero](#)
Follow-up from the roll-out of our Net Zero Energy Roadmap, to inform,
and garner feedback from the public - analysis, barriers and opportunities
- 8:15 pm Megan Moir - [Water Resources](#)
Initial Public Engagement for Water Resources Rate, Fee and
Affordability Study; important because outcome will directly impact
ratepayer bills
- 8:45 pm Sharon Bushor, Adam Roof, Jack Hanson - [City Council](#) updates
- 9:00 pm Adjourn

Free Parking is available in the lot across from the McClure entrance. The City will provide free child care, if it is requested in advance of the meeting.

NPA Members: [Cindy Cook](#) (1), [Caryn Long](#) (1), [Liv Peña](#) (1), [Carol Livingston](#) (1), [Jonathan Chapple-Sokol](#) (1), [Linda Rizvi](#) (8) - contact information also available on our [CEDO NPA website](#):

<https://www.burlingtonvt.gov/CEDO/Neighborhood-Services/NPAs/Ward-1-NPA>

Neighborhood Planning Assembly Attendees



NPA (choose one)	Wards 1 & 8	Wards 2 & 3	Wards 4 & 7	Ward 5	Ward 6
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Date of Assembly : 11/13/2019 Location: McCleave Community Center

Please return to your convener, _____,
or email to pkeomanyvanh@burlingtonvt.gov

- | | |
|-----------------------|-------------------------|
| 1 Hannah King | 20 Brian Sewell |
| 2 Grace Viscito | 21 Lisa LaX |
| 3 Sydney Pherric | 22 Sam Trulli |
| 4 Aidan May | 23 Muehland |
| 5 Carol Livingston | 24 Anne Breña |
| 6 Linda Rizvi | 25 Taraya Hightower |
| 7 Sophie Quest | 26 Jahna Belz |
| 8 Jason Williams | 27 Charlotte Smith |
| 9 Sharon Bushor | 28 Darren Spritzer |
| 10 Ryan Shea Guleri | 29 Amy [unclear] |
| 11 Lexie Wheeler | 30 Jen Green |
| 12 Sally Short | 31 Martha R. Lang |
| 13 Haylie Haberstich | 32 Sandy Lyons |
| 14 Angie Chapple-Sork | 33 Jane Stromberg |
| 15 Lisa Kingbury | 34 Aden Haji |
| 16 Jim Bear | 35 DAVID. CAWLEY |
| 17 TOM GUSTAFSON | 36 Patricia Seelan WARD |
| 18 Mici Brown | 37 Michael Long ward? |
| 19 Richard Hillyard | 38 GREG NEEDLE WARD 1 |
| 20 CARRY COOK | 40 Keith Pillsbury Ward |

41	Adam Rant	66
42	Jack Hanson	67
43	Mark Porter	68
44	Megan Moir (DPW-WR)	69
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CITY OF BURLINGTON

Water Resources Division

Rates & Affordability Project

Initial Ratepayer Engagement NPA Tour

November 2019



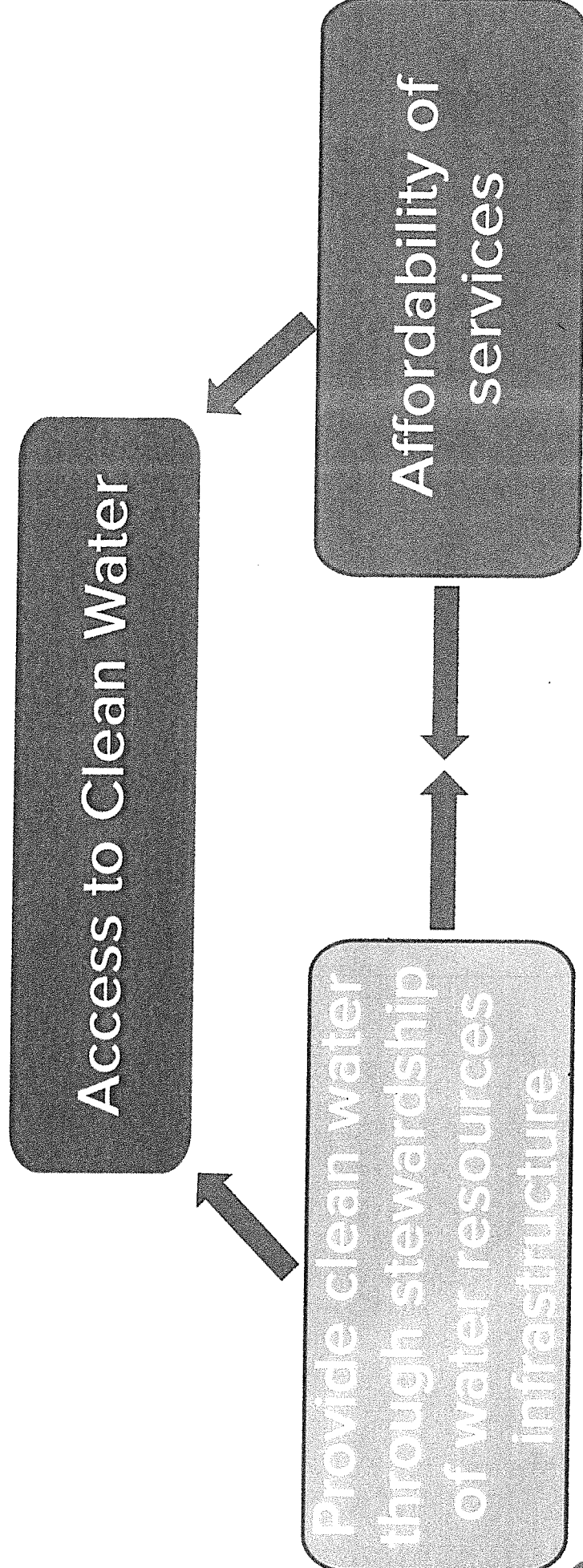
R RAFTTELIS

Tonight's Agenda

- Overview of Water Resources operations and capital investments
- Impetus for rate study and project tasks
- Existing rates and charges
- Summary of the catalog of options being considered and analyzed
- Remaining project schedule

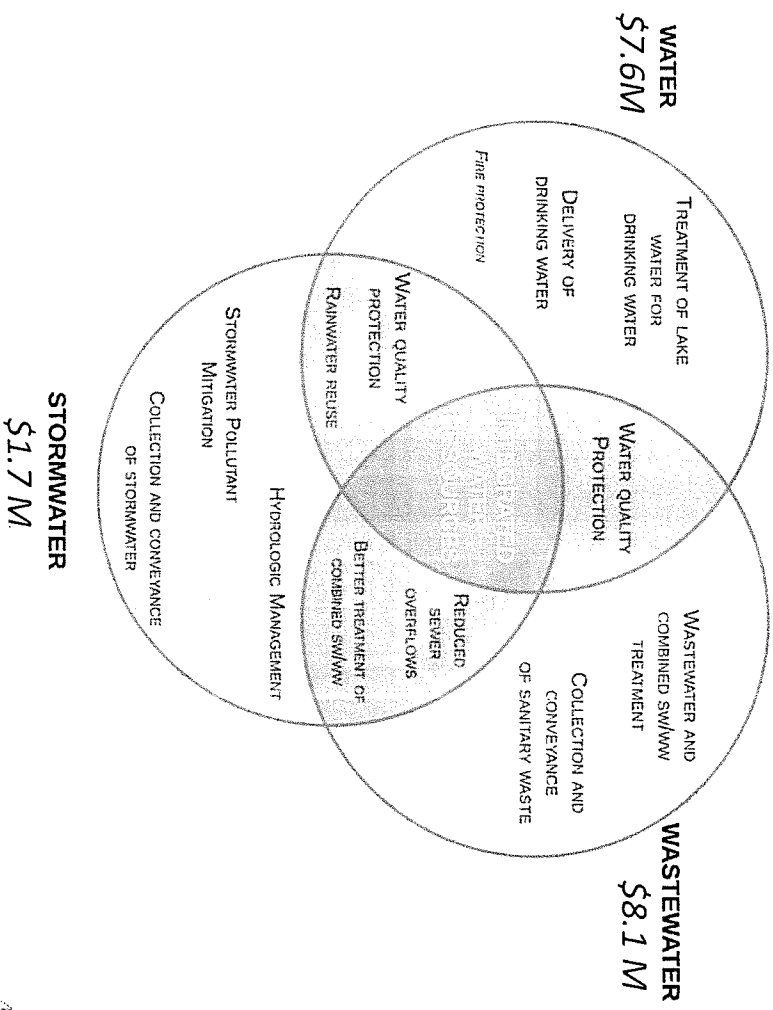


Core Values



Water Resources Overview

- 3 separate **enterprise funds**
 - › Each fund is independently responsible for the recovery of annual revenue requirements
 - › No reliance on property taxes
- Serve approximately 10,000 connections and 42,000 residents
- 43 full-time staff



Water Enterprise Fund Overview

- Drinking Water
- Fire Protection
 - Daily treatment and pumping of 4 million gallons from Lake Champlain to Burlington properties and small section of Colchester
 - 7 million gallons of storage at Main Street reservoir
 - 650,000 gallons of elevated storage at UVM Tank and Redstone tank
- Maintenance, repair and replacement
 - › 110 miles of transmission and distribution mains
 - › 1000s of feet of service lines
 - › 911 fire hydrants
 - › 10,000+ water meters



Wastewater Enterprise Fund Overview

- Water Recovery - Remove pollutants from sewage and combined sewer flow before discharge back to environment
- 3 Wastewater Treatment Plants, treating average of 1.8 billion gallons of flow annually
 - › Annual Flow includes stormwater treated by Wastewater Plant
 - › 95% phosphorus removal overall, with 97% P removal at Main Plant
- 25 pump stations
- Manage 10,000 tons of biosolids
- Maintenance, repair and replacement of Wastewater collection system
 - › 49 miles sanitary sewer
 - › 45 miles of combined sewer



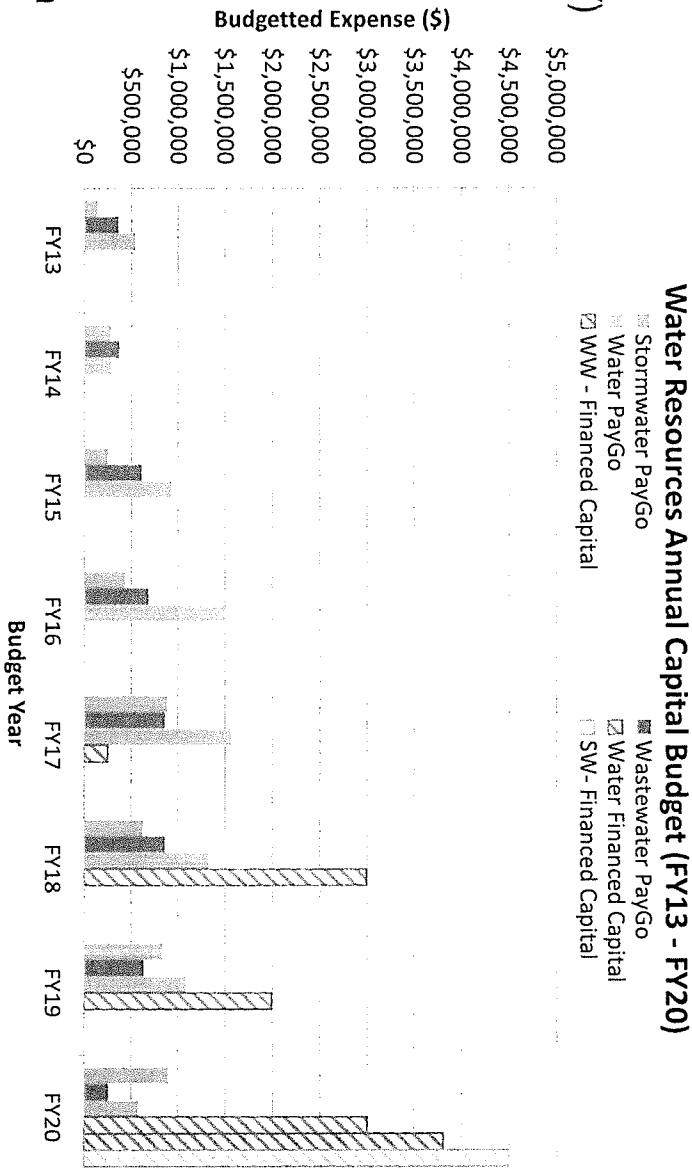
Stormwater Enterprise Fund Overview

- Reduce non-point source pollutants from entering waterbodies
 - › Phosphorus
 - › Bacteria
 - › Sediment
 - › Oils & Grease
- Reduce amount of stormwater volume contributing to combined sewer system overflows
- Ensure compliance
 - › Erosion prevention and sediment control
 - › Stormwater management
- Maintenance, repair, replacement
 - › 37 miles of separate stormwater mains
 - › 3200 storm drains
 - › 102 stormwater outfalls



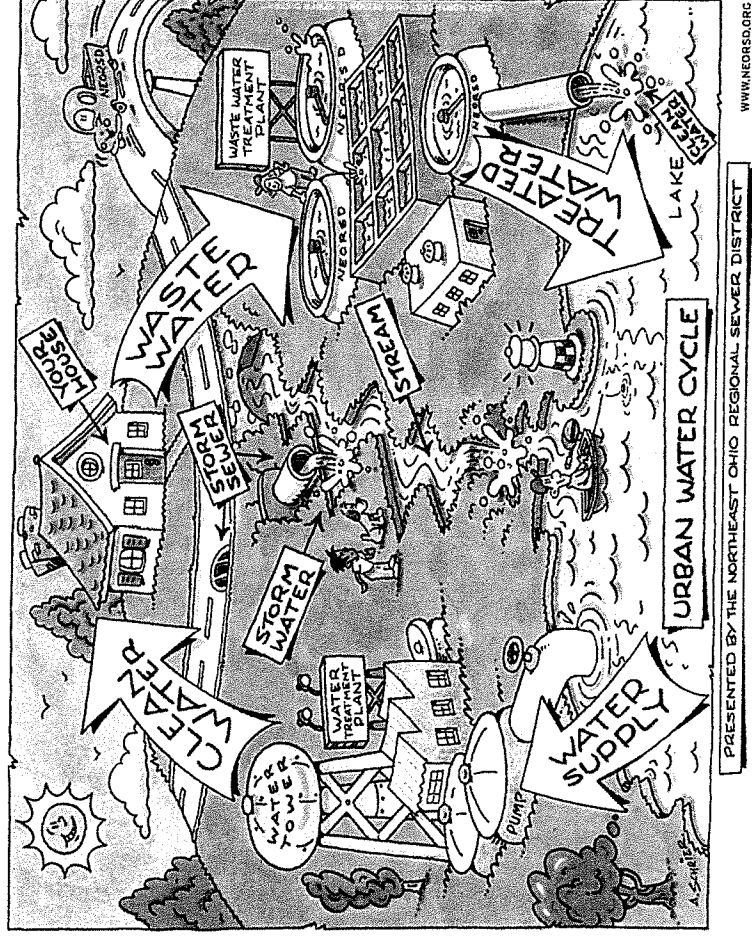
Capital Reinvestment Efforts

- Water
 - › Water mains (starting in FY17)
 - › Elevated Tanks FY20-21
- Wastewater
 - › Disinfection System
 - › SCADA/PLC
 - › Pump Station
 - › Collection System
- Stormwater
 - › Collection System
 - › Outfalls
 - › Wet weather runoff reduction (combined sewer)

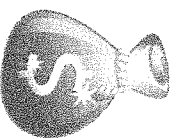


One Water...

- Integrated functions for:
 - > Administration and oversight
 - > Billing
 - > Planning
 - > Engineering
 - > Project Review
 - > Customer Care
- Results in:
 - > Overall cost savings by sharing resources across funds
 - > Holistic thinking

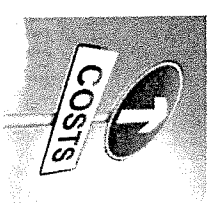


Rate Pressures



- **Big Budget Lines**
 - › Personnel related costs
 - › Debt service from 1990 WW upgrades
 - › Indirect fees and PILOT from City
 - › Biosolids contract
 - › Electricity (pumping and aeration costs)
 - › Chemicals
 - › Repair & Maintenance
 - › Debt Service from recent increase in capital investment

- **Anticipated Budget Pressures**



- › Personnel costs
- › Indirect fees and PILOT from City
- › Biosolids
- › Capital program
 - Replacement of existing aged infrastructure
 - Capital enhancements to meet newer regulations

Impetus for Rate & Affordability Study

- Recognizing the need for future rate increases, Water Resources was directed by Burlington City Council to evaluate the following options during fiscal year 2020
 - › Alternative revenue sources;
 - › Alternative rate structures, including progressively priced tiers to protect access to “essential” water; and
 - › Affordability frameworks, including discounts for certain qualifying rate payers, water conservation programs and grants and loans for upgrades to service lines
- City Council also directed Water Resources to conduct an initial stakeholder process to educate and solicit input on Water Resources rates and to conduct a follow-up stakeholder process reporting on the proposed solutions

RATE STUDY GOAL

Ensure Burlington's Essential
Access to Clean Water by:

1

Fully recovering
all necessary
costs

2

Equitably
recovering
costs

3

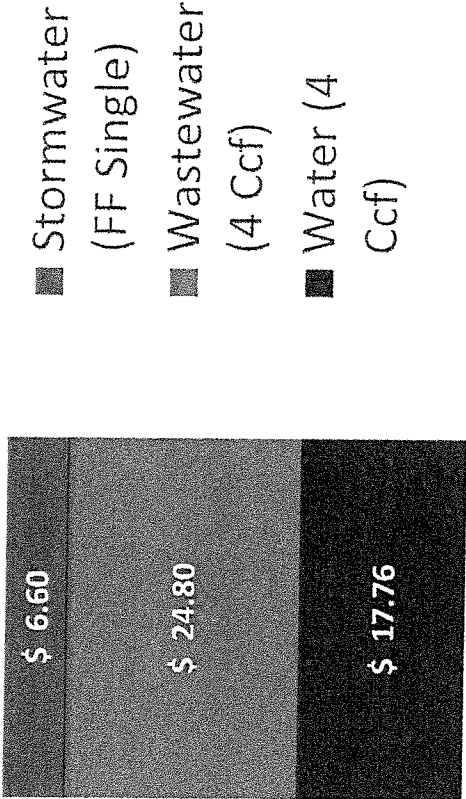
Maintaining
affordable
service



Existing Rates & Charges

- **Water Rate:** \$4.44 per 100 cubic feet (748 gallons)
- **Sewer Rate:** \$6.20 per 100 cubic feet
- **Stormwater Flat Monthly Fees:**
 - › Single-family = \$6.60
 - › Duplex = \$6.56
 - › Triplex = \$7.56
 - › All other customers are assessed \$2.47 per 1,000 sq. ft. of impervious area

TYPICAL MONTHLY BILL



FY 2020

High Priority Options Under Consideration

- Recover Costs and Stabilize Revenue

- › Standalone fixed charges by meter size
- › Connection charges (new connections)
- › Fire protection charges
- › Additional high-strength sewer surcharges
- › Capital recovery charges
- › New miscellaneous fees (account set-up, etc.)

- Affordability Enhancements

- › Lifeline volumetric rates
- › Volumetric rates by ratepayer customer class
- › Low-income customer assistance programs

Volumetric Rates	Per Ccf
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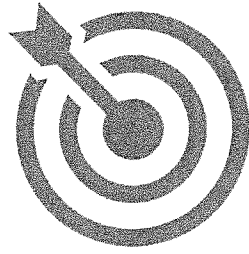
Existing: All Usage \$ 4.44

Example for single family residential:

Tier 1: 0-4 Ccf (lifeline) \$ 2.78

Tier 2: > 4 Ccf \$ 5.56

Full Suite of Affordability Programs for Consideration



Tools for Addressing Affordability

- Rate Structure Options
 - › Lifeline rates
 - › Alternative rate structures

- Bill Assistance Programs
 - › Bill discounts
 - › Fixed bills
 - › Write-offs

Some approaches not implemented in FY21 may be implemented in a future phase

- Water Efficiency Options
 - › Conservation assistance
 - › Leak detection / repair
 - › Education

- Other Measures
 - › Stormwater management credit
 - › Alternative billing practices
 - › Financial counseling
 - › Disconnection moratorium

Project Schedule

- October 29, 6-8 pm: Initial Public Engagement Meeting;
- November 2019: Visit NPAs, social media campaign, presentation video and survey
- December 2019 - January 2020: Develop preliminary analyses
 - › Identify cost savings/operational efficiencies
 - › Estimate customer impacts from new or revised fees; anticipated revenue and rate benefit
 - › Develop customer Assistance Program (CAP) framework
- February 2020: Council Work Session with stakeholders invited to inform stakeholders and obtain feedback on initial proposals:
 - › Revenue requirements for next 5 years based on updated financial model
 - › Identified cost efficiency opportunities
 - › New revenue/fee opportunities
 - › Rate options (up to 3 alternatives)
- March 2020: Visit NPA and other stakeholder groups with initial analyses
- April 2020: Board of Finance/City Council Meeting
 - › Recommend final portfolio of options
 - › Obtain decision to adopt new rate structure, fees, affordability programs etc.
- June 2020: Obtain approval for FY 2021 budget

Questions? Suggestions?

<https://www.burlingtonvt.gov/DPW/Water/AffordabilityProject>



R RAFTELIS

Wards 1 and 8 NPA
November 13, 2019
UVM, McClure Lobby Conference Room
7:00-9:00pm
Draft Minutes

Start: 7:05pm

Steering Committees present: Cindy Cook-Ward 1, Caryn Long-Ward 1, Linda Rizvi-Ward 8, Carol Livingston-Ward 1

Suresh Garimella, UVM President

Arrived in June and enjoy Vermont and Burlington. Have tried best to learn about UVM's position in the state and the community. Feel what's good for UVM is good for the state and the community. UVM brings social and economic capital. About 68% of VT students stay and 31% out state students stay. UVM is VT's second largest employer and understand that housing and quality of life in the neighborhood has been a challenge. Have lived in college neighborhoods for 40 + years. Priority is student success and affordability. 40% of Vermonters attend free and put 160 million into scholarships. Proud that UVM is a land grant which means UVM brings asset to the community and region. UVM got a large grant for opioids and know that this is a big issue for the state and nation. House 63% of undergrad students on campus and undergoing study of housing needs. Will bring this report to Wards 1 and 8 NPA. Committed to have team work with the City and the community. The plan is not to increase student number at UVM but graduating students and keeping college affordable. Would like to have students in first year be connected to internships and career. Also need to engage local employers to connect to students to show them there is opportunity in the State. Student success is tied to affordability. See that students are committed to climate change. Will support renewable energy and multimodal transportation.

Introduction to NPA Business:

Election of Ward 8 SC Representative

Hannah King running for Ward 8 Steering Committee member. UVM Student and has been involved in the Community Coalition and low barrier homeless shelter. Hannah was voted in as Ward 8 NPA Steering Committee.

Resolution on Safety related to East Ave accident

See attached resolution.

Wards 1 and 8 NPA endorsing resolution was voted in to move forward to bring to council and the City.

Polling Membership on Dedicated Housing Meeting. This will be an alternative meeting from the NPA about housing. If interested contact and sign up with Cindy Cook

Speak Out

Zoraya Hightower running for City Council Ward 1. Moved to Burlington 4 years ago and bought an apartment on Riverside. On Development Review Board and running on housing and transit. Aligned with Progressive values.

Adam Roof incumbent running for Ward 8 City Council

Sharon Bushor incumbent running for Ward 1 City Council

Keith Pillsbury Ward 8 School Board Commissioner. There will a school budget forum on 11.14.19 at Hunt 7pm.

Hannah King with low barrier shelter raised \$750.00 and collecting money and items to give to person experiencing homelessness

Thank-you's to Burlington Police and Fire Protection members who attend our NPA regularly and work hard to protect our community.

Darren Springer and Jennifer Green Net Zero Energy Road map

Burlington Electric Department (BED) is a public power electric utility. There is 180 employees and in 11th year without raising rates. Recognized nationally to be 100% renewable energy. Since 80's have been investing in energy efficiency and saving 12 million a year. Get electricity from biomass, wind, hydro, and solar. Next step will be transforming on the transportation off of fossil fuels to be NetZero by 2030. With Synapse Inc., assessed where we are with energy use and presented a road map of where to go. From this saw that focus needs to be on building and transportation. Will need to move off petroleum and natural gas if want to reach NetZero goal. Need to electrify 60% of building and moving away from gas. Need to increase electric vehicles, have district heating, and improve alternative transportation. Some incentives are EV rebate, new heat pump hot water that warms and cools housing, energy efficiency standards for rental housing and energy efficiency workforce training. See attached presentation.

Megan Moir DPW Water Resources

Believe access to clean water is a human right. To provide this need to take care of our system and funded by public billing but want to keep it affordable. There are three utility divisions under Water Resources; Drinking, Waste, and Stormwater.

With the capital bond was able to update water mains, disinfection system, and computerize main control system. Even if there are 3 utility water divisions all of the waters are connected. Currently have a big budget and also an anticipated budget that will require the need to increase more revenue sources. Did a rate study to change rate structure but also will keep water affordable. Most likely the higher rates will affect commercial business. Right now everybody pays \$4.44 for 100CCF but looking to change this. Will look into affordability programs. Currently doing community engagement and will be required to come back to City Council to present on what rate structure want to go with. See attached presentation.

City Council Update

Sharon Bushor, Community Development and Neighborhood Revitalization (CDNR) committee. The topic was Brookfield and how the developer will engage with the community now that there is a proposed amended plan. City Council has also been in discussion on the sale of Burlington Telecom (BT) which the City got 7million dollars. Some of the money will go into retirement and possible seat on the BT board to be a shareholder. Working with BED to have new development have electric heat.

Adam Roof, looking at Airbnb and making progress. The warming shelter had been operated by Community Health Centers of Burlington (CHCB) but CHCB is not able to operate the warming shelter anymore. Helped to bring in a new operator. The warming shelter will need help with dinner and toiletries.

Jack Hanson, Concerned with Amtrak and issues of sound and a second track for storage. Will have a meeting with Vtrans that will be coming Tue. 21 at 6:30 at Burlington Police Dept. The Winooski Corridor proposal will have two bike lanes. From the Housing Summit looking at eliminating parking and having development to help shift alternative behavior in transportation such as busing and carshare. Vermont's emission is high compared to other neighboring states.

Adjourn: 9:01pm

Minutes by Phet Keomanyvanh-CEDO