

LEADING THE WAY **CampusEnergy**2022

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Alternative Business Model Bringing Renewable District Energy to Burlington, VT

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McNeil Generation Station

- 50 MW biomass-fired electric generation plant
- Jointly-owned
 - Burlington Electric: 50%
 - Vermont Public Power Supply Authority: 19%
 - Green Mountain Power: 31%
- Built in 1984
- Certificate of Public Good (first issued by the State in 1981) included language referring to a DES specifically for University of Vermont (UVM) and its Medical Center (UVMHC).



History of Burlington DES Development

- 1984: 50 MW biomass-fired McNeil Generation Station built
- 1994, 1996, 1998, 2002: Burlington Electric District Energy Studies
- 2007: BURDES formed to pursue district energy in Burlington
- 2011: Ever-Green Study to serve downtown and UVMMC with hot water from McNeil
- 2014: Ever-Green Study to serve UVMMC and UVM with hot water from McNeil
- 2016: Study to begin hot water district energy in the downtown and expand to include capturing waste heat from McNeil
- 2019: Ever-Green re-engaged to investigate alternative strategies for implementation of district energy



Local Partners Leading Change



Burlington DES Planning Phase II (2019)

- Evaluate steam and high-temperature HW options
- Distribution system and plant/customer interconnection design
- Updated construction pricing from local contractors
- Compensation mechanism for McNeil Joint Owners
- Examine potential DES regulatory, financing, and ownership structures
- Develop operational and financial risk mitigation plans
- Develop operational protocols for dispatch and integration with UVMCMC



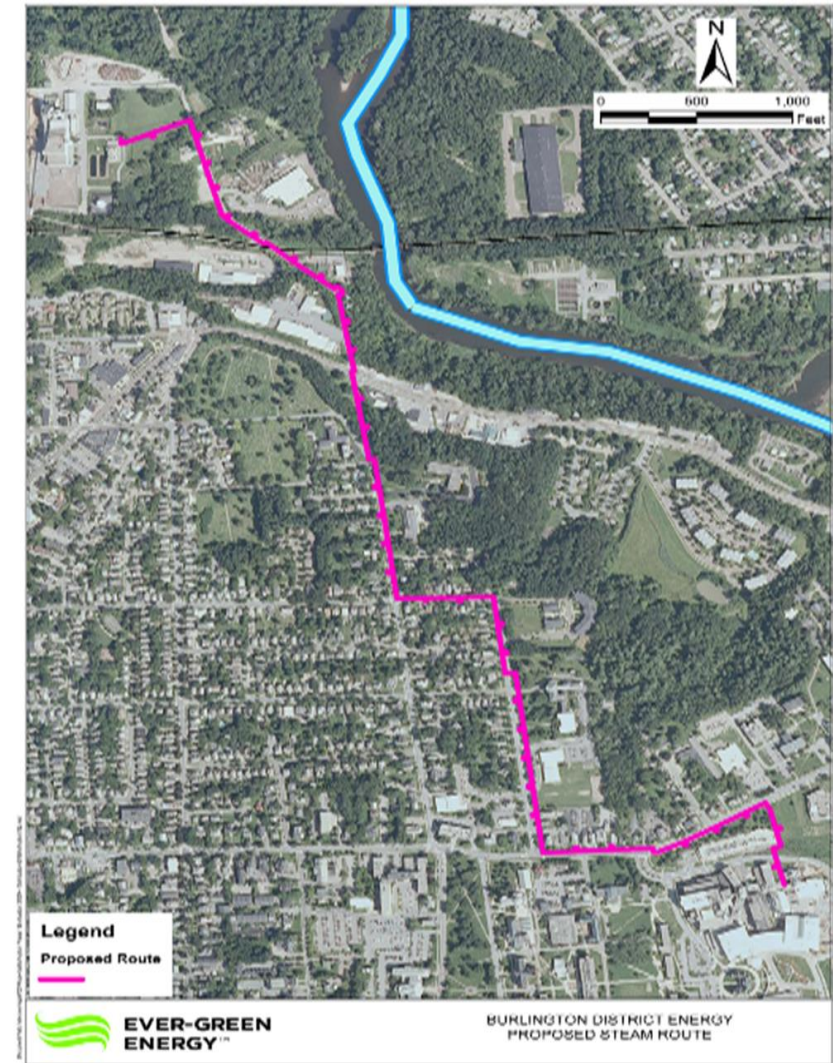
Burlington DES Planning Phase III (2021)

- Identify financing sources
- Refine engineering and interoperability work with UVMMC
- Identify all necessary permits and approvals
- Growth strategy discussions (pipe sizing)
- Identify incentive opportunities with all partners
- Identify additional customers/participants for the RTCs
- Energy Service Agreements drafted
- Vermont Public Utility Commission approval



Burlington DES

- Formed as a 501c3 non-profit business
- Steam extraction and waste heat recovery at McNeil
- ~1.5 miles of steam and condensate distribution connecting McNeil to UVMMC
- ~\$25 million construction
- Condensed debt-service term to reduce long-term rates & minimize risk of McNeil changing operations profile



UVMMC Interface

- ~190,000 MMBtu/year of energy delivered
- ~85% of UVMMC's needs
- UVMMC would keep their natural gas boilers to supplement their needs and provide redundancy
- UVMMC would realize an efficiency improvement of approximately 35,000 MMBtu related to reduced boiler losses
- UVMMC could purchase some portion of Renewable Thermal Credits (RTCs)

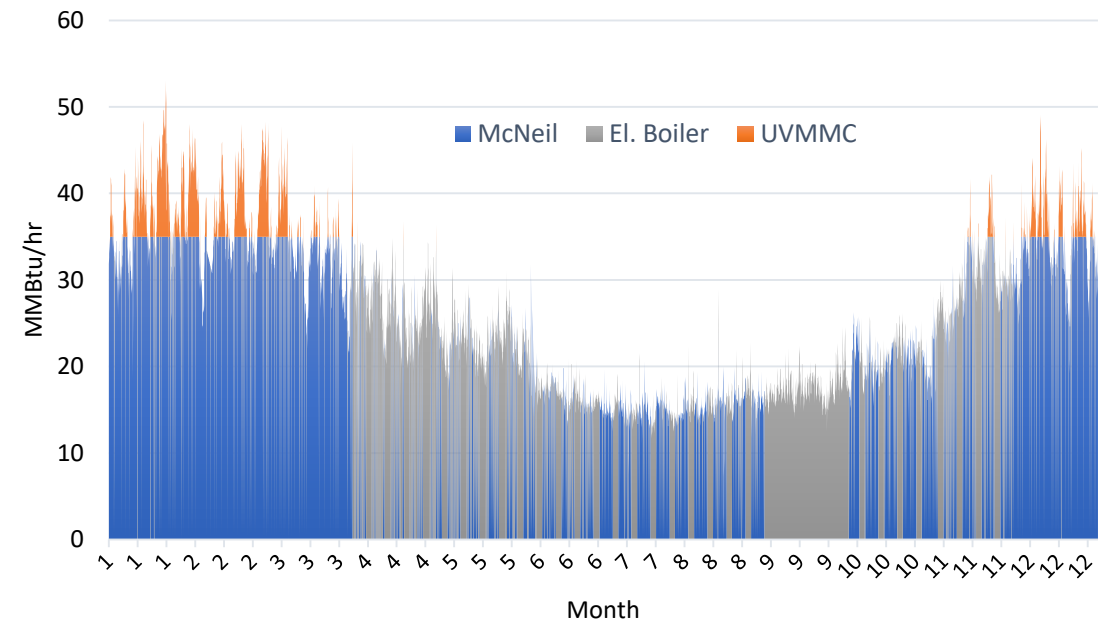


BED Renewable Electricity Supply



- 10 MW electric boiler at McNeil
- Mitigates the risk of McNeil outages
- Carbon-free electricity supply
- Supplying up to 25% of annual steam load

UVMCC Annual Load Profile



Burlington DES Non-Profit Structure

- 100% debt-financed
- Potential to lower-cost tax-exempt debt
- Local participation in system governance
- Cost-based energy rates provide transparency for system customers
- Potential to avoid sales and use taxes for purchases
- Improved marketability to other potential local customers
- Structure would allow the non-profit entity to seek grant funding and other funding programs



Burlington District Energy System - Contracting Approach

Working Concept: February 2021

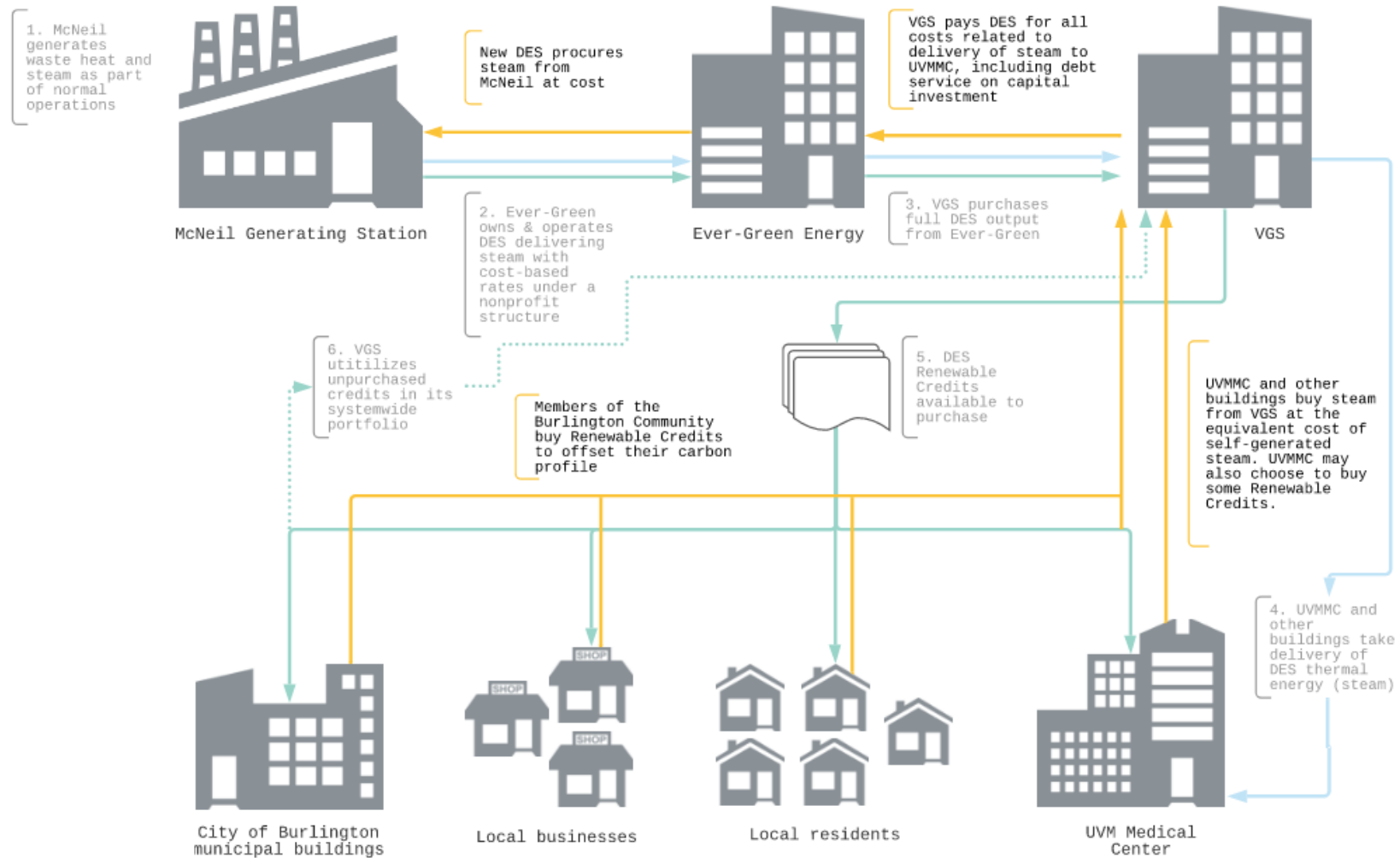
Legend:

DES: District Energy System

Thermal Energy (Steam)

DES Renewable Credit

Contracting



VGS BDES Billing Plan

- VGS will bill steam & RTC customers
- VGS steam will be sold without renewable attributes
- VGS Steam Rate will be indexed to VGS Industrial Natural Gas Rate adjusted with boiler efficiency and other agreed upon costs.
- RTCs will pay for the difference between steam cost from DES and the VGS Steam Rate
- RTCs sold to
 - City
 - UVMCC
 - Other voluntary customers
 - Blended into VGS' Renewable Portfolio



Summary of BDES Partner Roles

Partner	Role
Ever-Green Energy	Develop, design, finance, construct, and operate the system
McNeil Generation Station	Sell carbon-free steam to the DES
Burlington Electric	Sell renewable electricity to the DES when McNeil isn't operational.
UVMMC	The primary receiver of the BDES steam. Purchaser of RTCs
Vermont Gas	Will purchase all the steam and resell it to UVMMC and other customers. VGS will also sell the DES RTCs to offset the remaining cost of the steam
City of Burlington	Purchase a portion of the RTCs for City buildings. Program support.

Next Steps

- Finalize term sheets with McNeil Owners, BED, VGS, and UVMMC
- Finalize technical and operational integration with UVMMC
- Secure additional customers (UVM, Intervale Cooperative, etc.)
- VGS files for a BDES tariff and approval to purchase the energy
- Binding agreements with Parties
- Detailed design and permitting
- Construction commencement targeted for Spring 2023

Thank You

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