



January 26, 2023  
House Environment and Energy  
VELCO overview  
Kerrick Johnson

# Vision, roles and responsibilities

**VELCO's vision:** create a sustainable Vermont through our people, assets, relationships, and operating model.

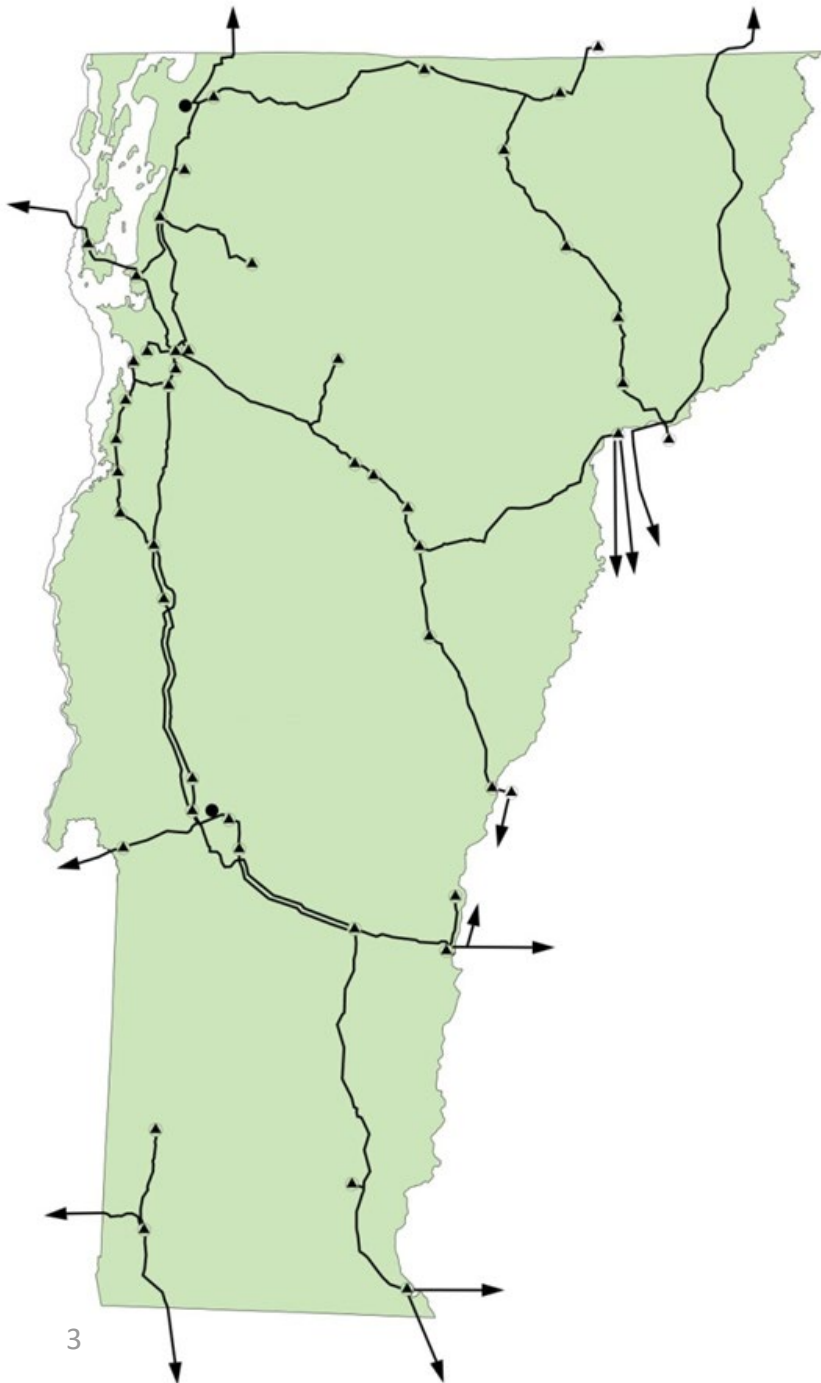
**VELCO's role:** ensure transmission system reliability by planning, constructing, operating and maintaining the state's high-voltage electric grid.

## Related responsibilities:

- Serve as Local Control Center for VT grid operations
- Serve as VT's metering and power contract settlement agent
- Manage the Vermont System Planning Committee
- Develop and submit Vermont's Long-Range Transmission Plan



*Danny Tremblay, VELCO System Operator*

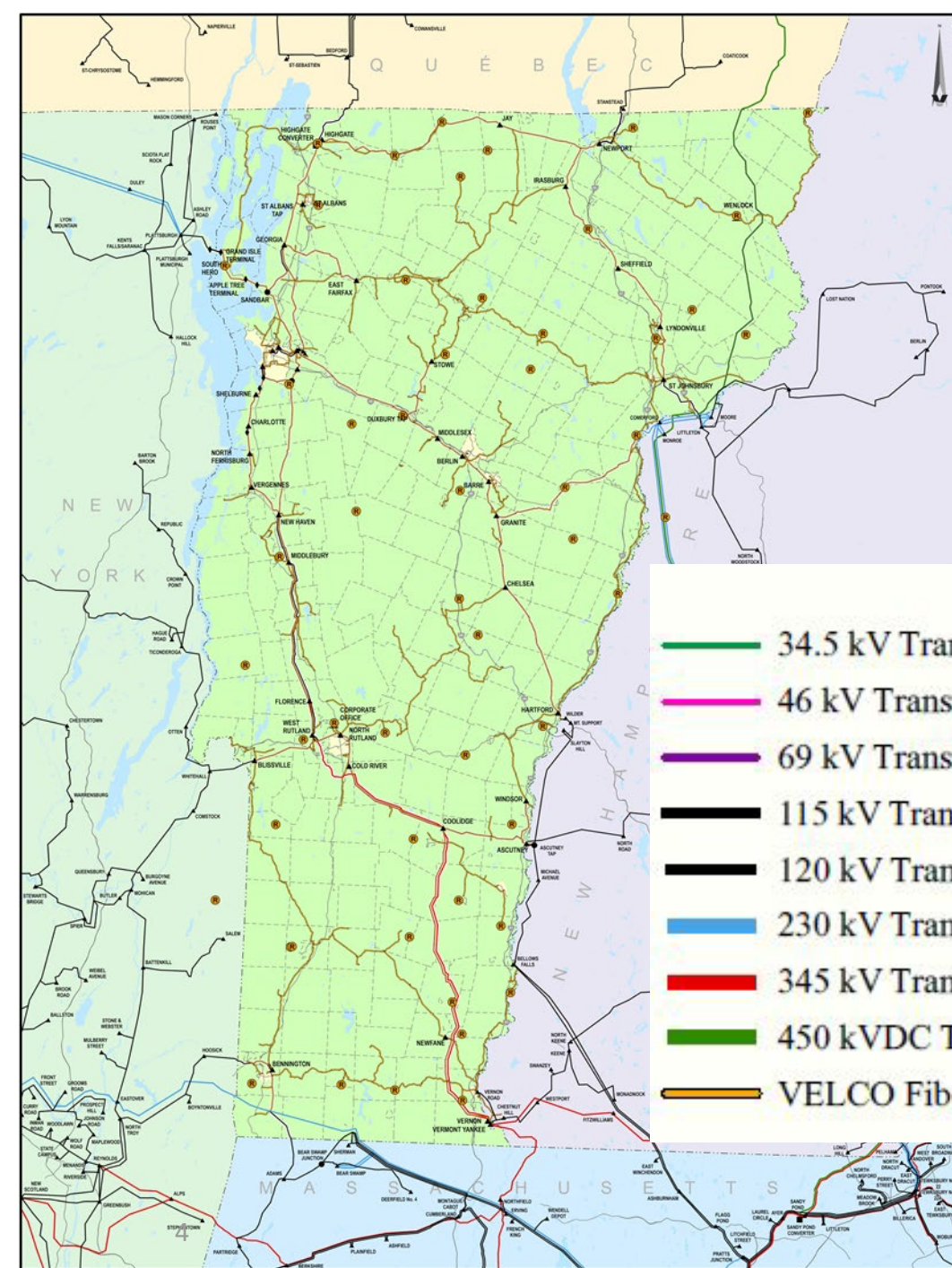


# Managed assets

- 738 miles of transmission line, 115 kV and higher
- 14,000 acres of rights-of-way
- 55 substations, switching stations and terminal facilities
- Equipment that enables interconnected operations with Hydro-Québec
- 1600+ fiber optic communication networks that monitor and control the electric system and contributes to Vermonters' high-speed data internet access
- 56-site Statewide Radio System to enable both daily operations and emergency response
- 52-mile, high-voltage direct current line through the Northeast Kingdom owned by Vermont Electric Transmission Company (VETCO)

## Background

- Formed in 1956 by local utilities to share access to clean hydro power and maintain the state's transmission grid
- First statewide, "transmission-only" company
- Owned by Vermont's 17 local electric utilities and VLITE



# Current Priorities

- Optimize existing transmission system
- 600-mile fiber reliability project:
  - Enables visibility of Distributed Energy Resources (~500 MW)
  - Enables system planning using actual data vs. estimated data
  - Accelerates Vermont broadband access
- New transmission improves resilience, delivers clean energy and moderate rate pressures
  - Franklin County Line Upgrade Project
  - New England Clean Power Link
  - Active pursuit of other options



# Vermont's in-state generation

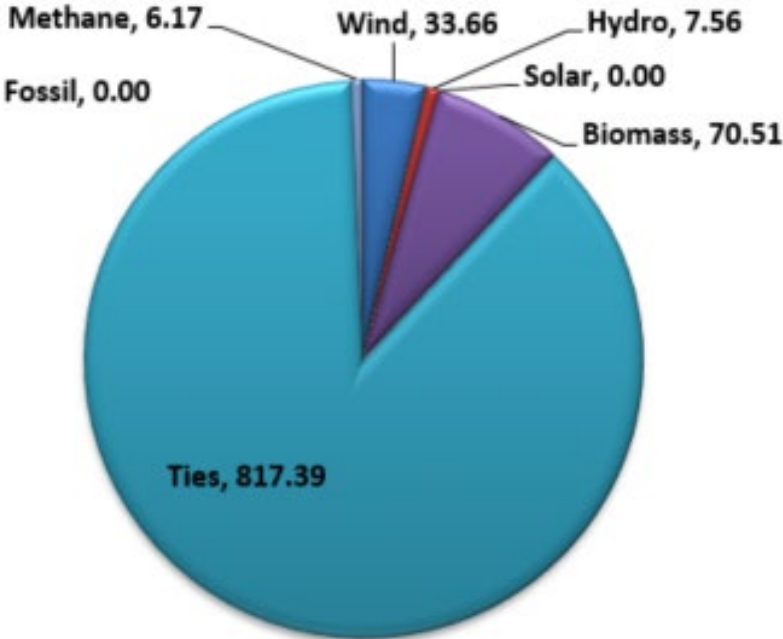
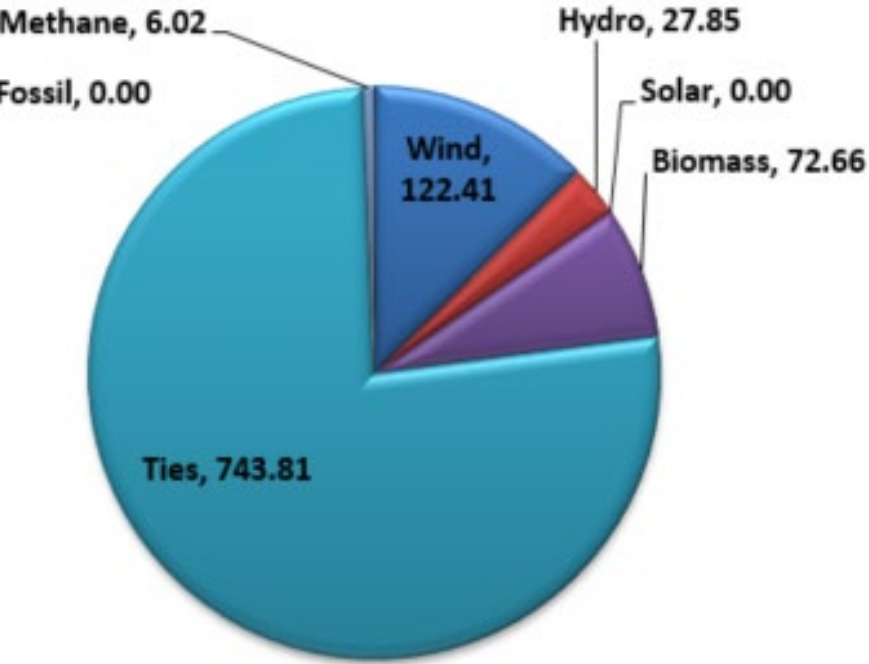
| Type   |        | MW              |
|--|--------|-----------------|
| Fossil (fast start units)  | Winter | 173             |
|  | Summer | 124             |
| Hydro  |        | 152             |
| Wind   |        | 151             |
| Landfill gas   |        | 9               |
| Biomass (wood)   |        | 72              |
| Utility scale solar PV   |        | 20              |
| Small scale solar PV   |        | 450 and growing |
| Small scale farm methane, wind, hydro, storage                     |        | 60 and growing  |
| <b>TOTAL IN-STATE GENERATION<br/>SUMMER NAMEPLATE<br/>CAPACITY</b> |        | <b>~ 1040</b>   |

- Mostly renewable
- Intermittent, weather-dependent
- Reduces reliance on out-of-state resources

# Vermont generation performance at the peak hour

- 2021/22 **winter** peak day (1/29/22, 6:00 PM)
- Load was 972.7 MW

- 2022 **summer** peak day (8/30/22, 6:00 PM)
- Load was 935.3 MW



- Wind
- Hydro
- Solar
- Biomass
- Ties
- Fossil
- Methane

2021

## Vermont Long-Range Transmission Plan

vermont electric power company  
**VELCO**

# 20-year outlook

- System reliability will be maintained
- Vermont is a transmission-dependent state
- Significant load growth expected – winter peaking
- Incremental solar does not reduce load at peak hour
  - Efficiency and solar PV have provided great value
- No major upgrades needed to serve load within the 10-year horizon
  - Presumes additional load management capability
  - Does not resolve all local concerns
- Upgrades more likely beyond 10-year horizon
  - Likelihood or scale reduced by EE, storage, load management, grid-support inverters
- VT utilities continue to implement innovative programs
- Further collaboration and innovation needed to achieve renewable and climate-driven requirements

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# Key takeaways

- **Give greater weight to grid impacts when siting generation**
- **Bring to scale flexible load management**
  - Deepen/broaden fiber communications network
  - Unlock ability of renewables and storage to provide grid support functionality, i.e., select inverter settings than enable voltage control and ride-through capability
  - Continue to evolve with storage
  - Establish data organizational architecture
- **Grid reinforcements (e.g., transmission, subtransmission and distribution investments)**

# Contact information

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