

## 4 Major Capital Projects (2021-2025)

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### Eden #2 Transformer Upgrade (2023- 2024)

2023- Design, Permitting

2024- Construction

This project upgrades the three existing 833 kVA transformers at VEC's Eden #2 substation to three 1667 kVA transformers or one 5,000kVA transformer due to increases base load as well as maple sugaring loads. Voltage regulators will also be replaced to match the increase in transformer capacity.

In certain areas of VEC's system such as the Eden substation, non-coincident single-phase peak loads are driven by maple sugar makers. The Eden substation peak is about 75% of capacity. At times, two phases of the substation are peaking at about 93% of nameplate, which leaves only about 60 kVA of additional capacity on those phases. Sugar loads continue to grow in this area and typically come online at 50 kVA or greater single phase, making the ability to serve new load a challenge.

VEC has added approximately 1.75 miles of three phase line to help balance the substation load, and is currently adding about another 1.5 miles. However, a large portion of Eden substation circuits are single phase and this is where we tend to see the sugaring loads. This makes it very difficult to serve new sugar loads, and limits our ability to allow for expansion of existing services.

Increasing the substation capacity will allow for more time to improve the availability of three phase to new and existing customers.

This project screened out of Docket 6290 and no non-transmission alternatives were identified for the project.

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### Sheldon Substation (2019-2025)

Project will replace the existing Sheldon substation due to age and condition. A new substation will be constructed on site adjacent to the existing one, and the old substation will be decommissioned after cutover.

2020- permitting

2021-CPG received

2022- 2023 begin construction, complete below grade site work

2024- install steel structure

2025- Energize, commission, decommission old substation

This project screened out of Docket 6290 and no non-transmission alternatives were identified for the project.

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## **Belvidere Substation Rebuild and Montgomery Substation Retirement (2021)**

2021- Belvidere substation structure rebuilt, transformer, voltage regulator, and recloser replaced. SCADA added. At this time VEC will continue to evaluate the need to address load growth in this area on an annual basis. The current peak load at Belvidere is below planning criteria with the increased capacity.

This project screened out of Docket 6290 and no non-transmission alternatives were identified for the project.

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## **Hinesburg #19 Transformer Upgrade (On Hold)**

VEC is evaluating the need to increase capacity at this substation. Currently the peak load sits just below VEC's planning criteria of 80% of nameplate. The load is balanced, leaving about 500 kVA per phase of additional capacity for load growth while we plan for replacement or improvement.

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## **VELCO SCAP Projects (2020-2024)**

VELCO developed an evaluation criterion (Substation Condition Assessment Project or SCAP) that it used to conduct a condition assessment of its substations. The objectives of the substation condition assessment project (SCAP) is to address stations within VELCO's system that are believed to require refurbishment. Typically, these stations are older and have not recently undergone significant capital upgrades as well as consist of facilities with planned replacements. VELCO first performs a comprehensive condition assessment of the facility, with the recognition that age alone does not warrant replacement, to develop the scope of work with the objective of refurbishing the station, extend the life of the assets, and improve reliability.

At several of these locations VEC owns exclusive facilities (facilities that are as necessary for the operation and control of that DU's own system and not required by VELCO). If it is determined that exclusive facilities need to be replaced, VEC will bear 100% of that cost.

The SCAP identified 3 substations that are located within VEC's service territory and with the exception of the Irasburg project, where a need to replace the transformer was identified, there has not been a scope for the projects. As such, estimates are budgetary and only based on total costs of other SCAP station projects. Once the projects are developed a condition assessment report will be completed along with a scoping exercise. At this point in time the locations and rough timelines for these projects are listed below:

- Irasburg SCAP (Expected 2020-2021 and \$1.6 million) Complete
- Highgate SCAP (Expected 2020-2024)
- South Hero SCAP (Expected 2021-2024)
  - Substation evaluation completed, maintenance planned for 2024
  - Minor structure, and fence repairs were identified for VEC substation