Asset Condition Project Presentation

Chester SVC Valves and Controls Upgrade

PAC Presentation March 24, 2026

Versant Power Representative
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R3

Project Title:	Chester SVC Valve and Controls Upgrade
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Date:	March 24, 2026
State:	Maine
Company:	Versant Power
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Background Information

- Installed in 1989
- +445MVAR
- -120MVAR
- Dynamic variable var supply
- Helps maintain system stability between New England and the Maritimes Canada
- Significantly damps dynamic swings in Maine for numerous contingencies

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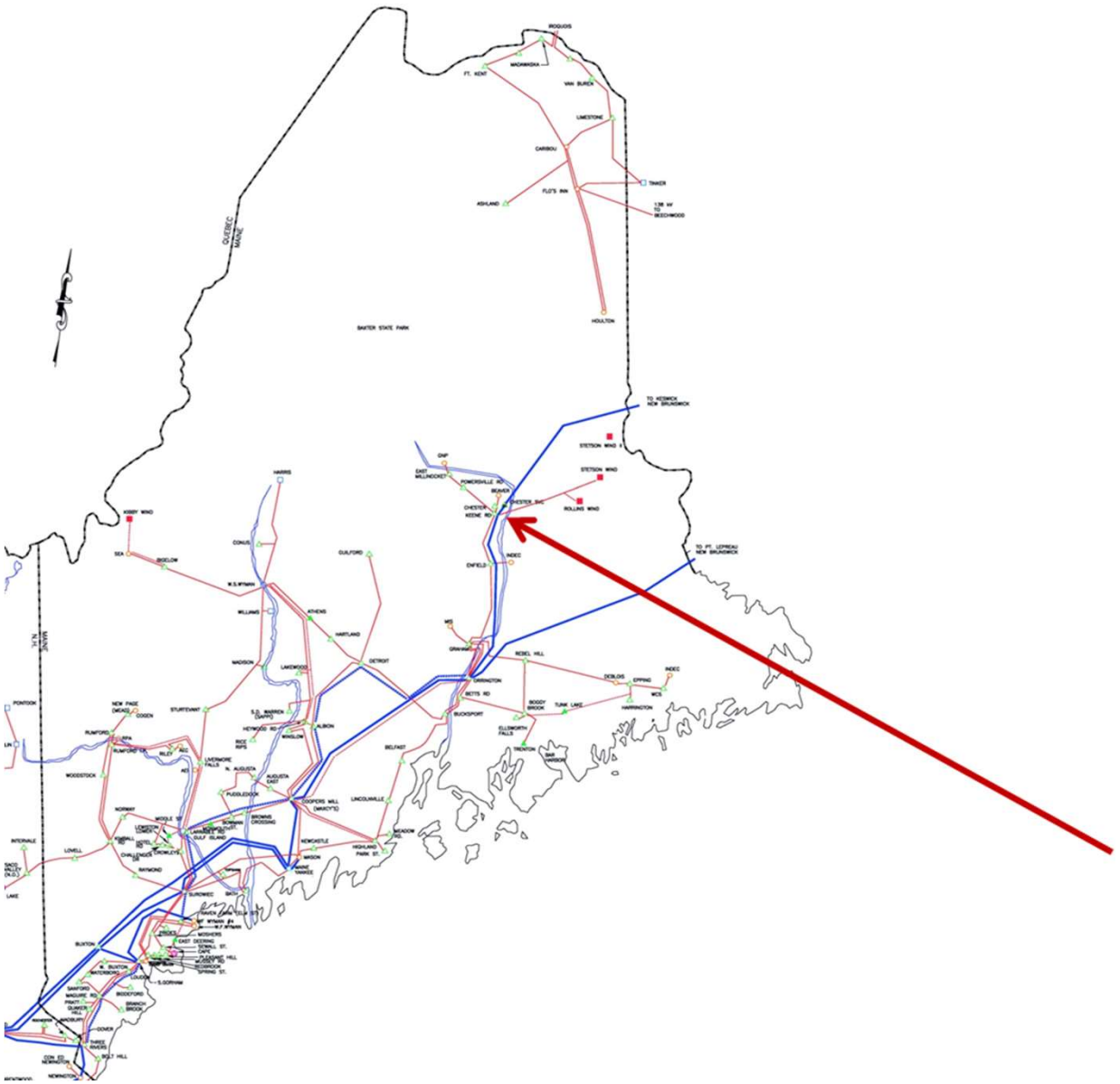
Background Information



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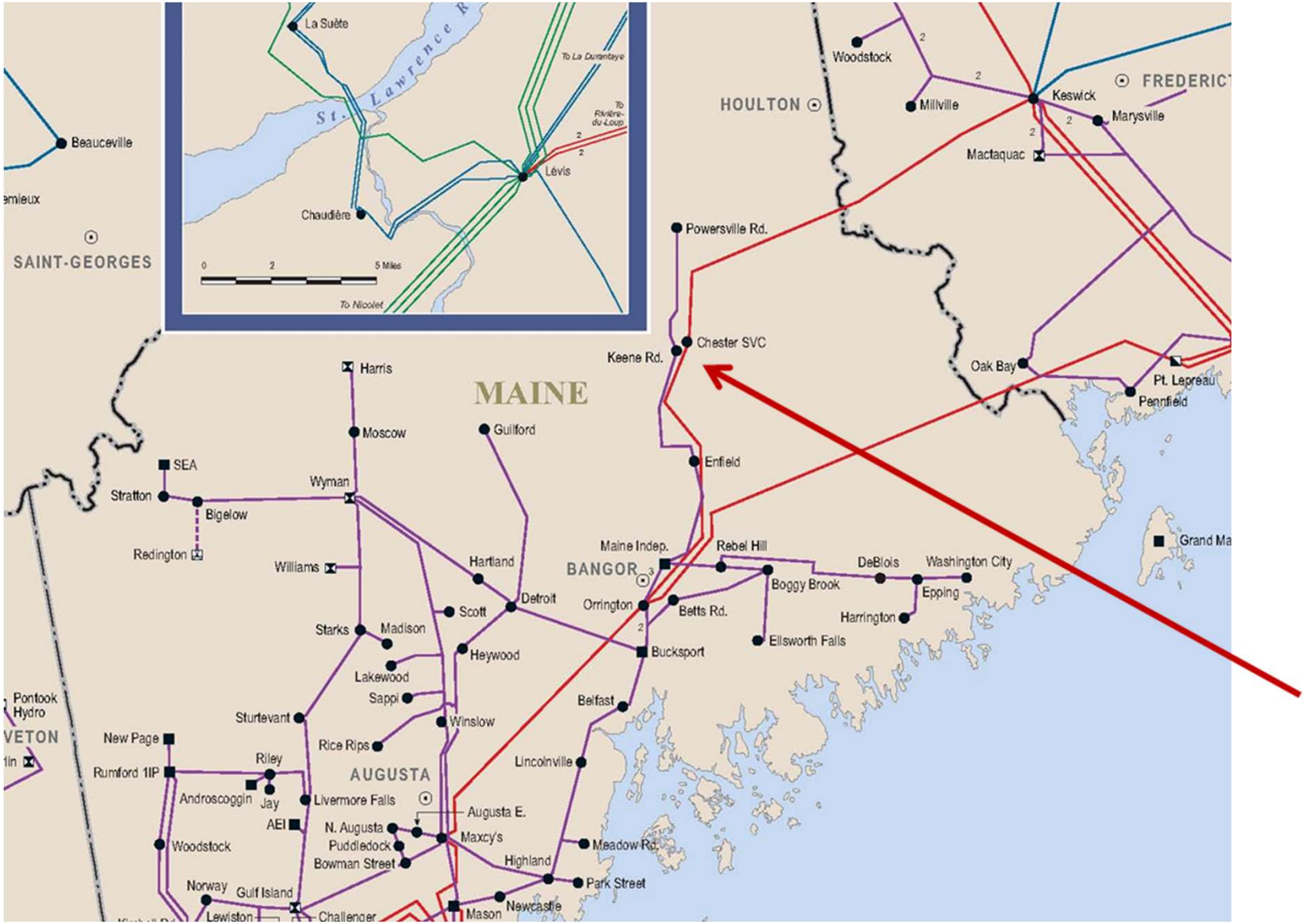
Background Information



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Background Information

- Capacitance is controlled with Thyristor Switches, i.e. Thyristor Switched Capacitors (TSC)
- Inductance is controlled with Thyristor Controls, i.e. Thyristor Controlled Reactors (TCR)
- Together the TSC/TCR offer variable var output

Background Information – Life Cycle

- TSC1 and TSC2 are considered Obsolete
- I/O* for these valves are considered Obsolete
- Existing computer system is considered Classic
- TCR is considered Active
- TSC3 is considered Active

- While not well defined by Hitachi, an Active component is considered to have 10-20 years of remaining life, Classic 5-10 years remaining life, Limited is considered due for replacement, and Obsolete is considered on borrowed time.

* I/O (input/output) is the interface of the hardware to software

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Background Information

- 2013 upgrade due to asset condition included
  - Control Computer and Input/Output “I/O”
  - TCR Replacement
  - 1 of three TSC Replacements (spare parts from the replaced TSC were used to extend the life of the remaining TSCs)

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Issues

- Control Computer – will be due for replacement in approximately 5 years. This will be proactively replaced during this upgrade to eliminate the need to do so two years after the upgrade is complete.
  - Support for replacement parts for the control computer is likely to be stopped in 5 years.
  - The new computer would be considered Active and anticipate a life of 10-20 years.

Issues

- Remaining original two TSC valves need to be replaced due to recurring failures and lack of available spare parts. This includes the interface cards. Replacement valves will replacement of the I/O systems as the new valves do not communicate with the present vintage I/O
  - Valve and I/O systems failing and parts no longer available
- Other misc. systems such as DFR*, SER* and SVC system protection have marginal functionality and need to be upgraded.
- Factory technical support of original controls as well as valves and I/O equipment is limited due to staff retirements and minimum equipment in the field

*Digital Fault Recorder (DFR) and Sequence of Events Recorder (SER) are information and trouble shooting tools common to HV substations

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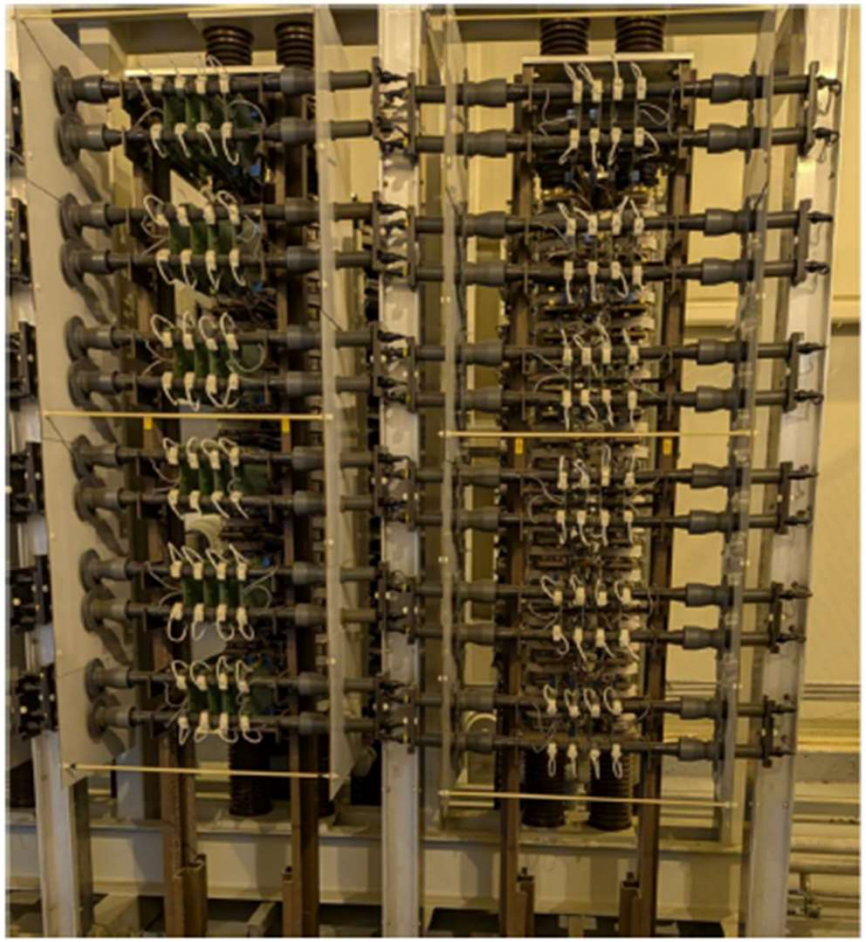
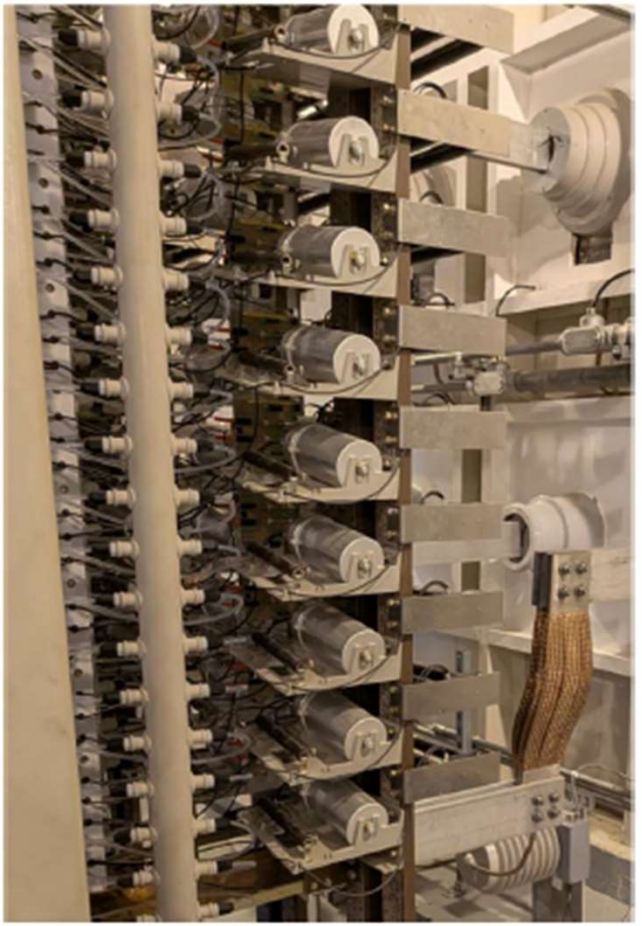
Background





TSC1-2

What present valves look like as background information

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Issues

Protection A showing some of the failed units

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Alternatives – (1) Replace Valves and Computer

- Replace the control computer with the latest version. This will give the facility the longest life before needing to address again.
- Replace TSC1 and TSC2 with latest technology to be the same as TSC3 for parts and repair.
- All of these changes will be “like kind” and operate as originally studied and approved, so no new or updated studies required.
- Updated control system will be capable of enhanced operation if needed and studied in the future. This may be desirable to the system at some point – updated response algorithms and models for better dynamic support

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Alternatives – (2) No Upgrade

- As equipment fails and replacement parts no longer available, elements of the SVC will be OOS until an upgrade can be planned and implemented
- Some failures may only reduce capability of the system while others may take the SVC totally offline

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Costs and Schedule

Alternative	PTF Dollars	Schedule
1	$11M (-25%/+50%)	3 years after receipt of order
2	$0.5M (-50%/+200%)	Unknown before a long-term outage occurs as, even today, some parts/support are no longer available

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Recommendation

- Versant Power recommends Alternative 1
- This provides the long term continued support of a key transmission component
- Minimal impact to other projects, studies, long term planning

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Planned Schedule

- PAC presentation – March 2026
- RC TCA – May 2026
- Construction to begin late summer 2029
- In service end of 2029 (includes multi month system outage fall of 2029)

Comment Submission

- Comment Deadline: April 8, 2026
- Contact Email Address: jeff.fenn@versantpower.com
- Transmission Owner Contact Name: Jeff Fenn
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