EVERSOURCE

TSRG FLEX CONNECT SUBGROUP

Flexible Interconnections

DER Gateway & DERMS

January 21, 2025

Agenda

- System Planning - Flexible Interconnections
- Flexible Interconnection - Operating Schedule
- DER SCADA Monitoring and Control Requirements
- DER Gateway
- DER Gateway to PPC High Level Design
- DERMS
- DERMS to DER Gateway

System Planning - Flexible Interconnections

- Objective is to provide an interconnection mechanism that reduces storage impacts on Substations to achieve an economic optimum between resource value and interconnection cost through implementation of storage schedules that limit storage during dispatch
- Based on the interconnection request, **transformer loading limits**, the Company conducts a spreadsheet-based load analysis of time series loading data
- This analysis will review 24-hour time series data in 15-min intervals for each season, returning estimated schedules (where they would be more restrictive than the base schedule)
- The Company will return to the developers the following upon the initial review:
  - Ability to interconnect on Base Schedule without capacity related upgrades (yes/no), if no
  - Required schedule to prevent station capacity upgrades
  - This is a preliminary capacity based-only evaluation and do not reflect any power flow related issues that might arise that has a potential to shift BESS schedules
- The Developer then makes a decision on how they would like their interconnection to be studied

Flexible Interconnection - Operating Schedule

- Example of Flexible Interconnection with Operating Schedule for a BESS facility
- The Company is currently working on utilizing such Operating Schedules for Solar only Sites along with considering any feeder thermal limitations that could impact these Schedules

Discharge Limit Schedule (DLS)	07:00 - 12:00	12:00 - 15:00	15:00 - 19:00	19:00 - 07:00
Spring	100%	100%	100%	100%
Summer	100%	100%	100%	100%
Fall	100%	100%	100%	100%
Winter	100%	100%	100%	100%
Charge Limit Schedule (CLS)	**06:00 - 11:00**	**11:00 - 15:00**	**15:00 - 22:00**	**22:00 - 06:00**
Spring	100%	100%	100%	100%
Summer	75%	25%	0%	100%
Fall	100%	75%	75%	100%
Winter	100%	100%	100%	100%

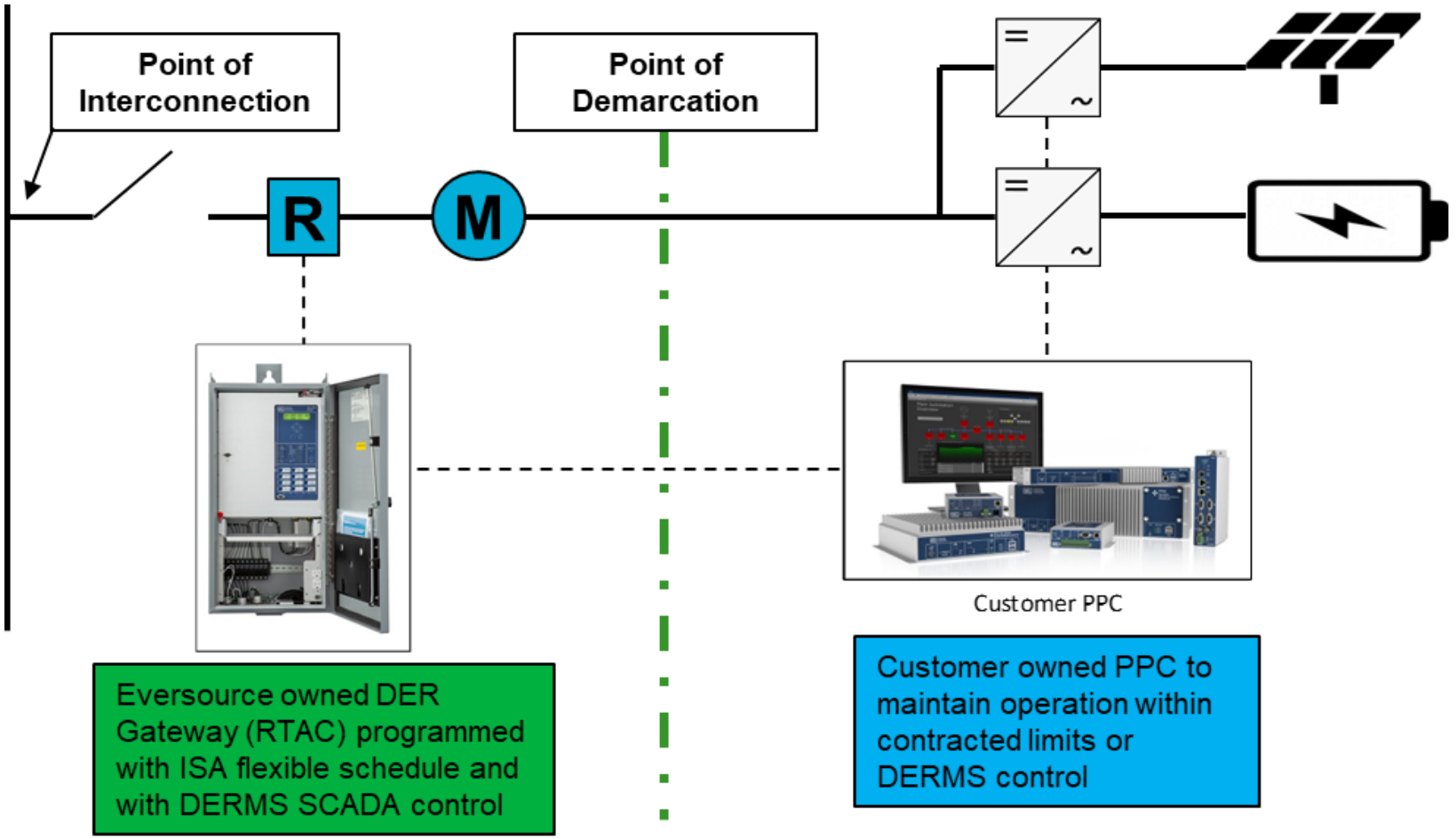
DER SCADA Monitoring and Control Requirements

- For a DER facility >= 500kW the standard is we will install and operate the utility side POI Recloser and DER Gateway using DNP3 protocol on the EDC comms network
- We also require the customer to install a Power Plant Controller (PPC) to provide SCADA monitoring and control to the DER Gateway
  - Fiber cable connection between the DER Gateway and PPC using DNP3 protocol
  - RTAC can be used for a PPC
- This will also require the customer to provide an interface between their PPC and the inverter control system to provide for monitoring and P/Q (real & reactive) control
- For flexible DER interconnections we are requiring DER Gateway to use an SEL RTAC programmed with the P/Q operating limits and/or Operating Schedule to directly control the customer PPC or inverter control system locally

DER Gateway

- DER Gateway to Power Plant Controller
  - DER Gateway (RTAC) on Eversource side
  - PPC on Customer side
- An SEL-3350 RTAC can perform the role of DER Gateway or PPC
- Consistent with National Grid design using a DER Gateway
- Nationally, utilities are moving towards common terminology and design using DER Gateway to Power Plant Controller for DER facilities
- Information and Technical Requirements for Interconnection of Distributed Energy Resources (DER) dated 10/7/2024 issued by Eversource
  - der-information-technical-requirements.pdf

DER Gateway to PPC - High Level Design



DER Gateway: Grid Modernization Projects

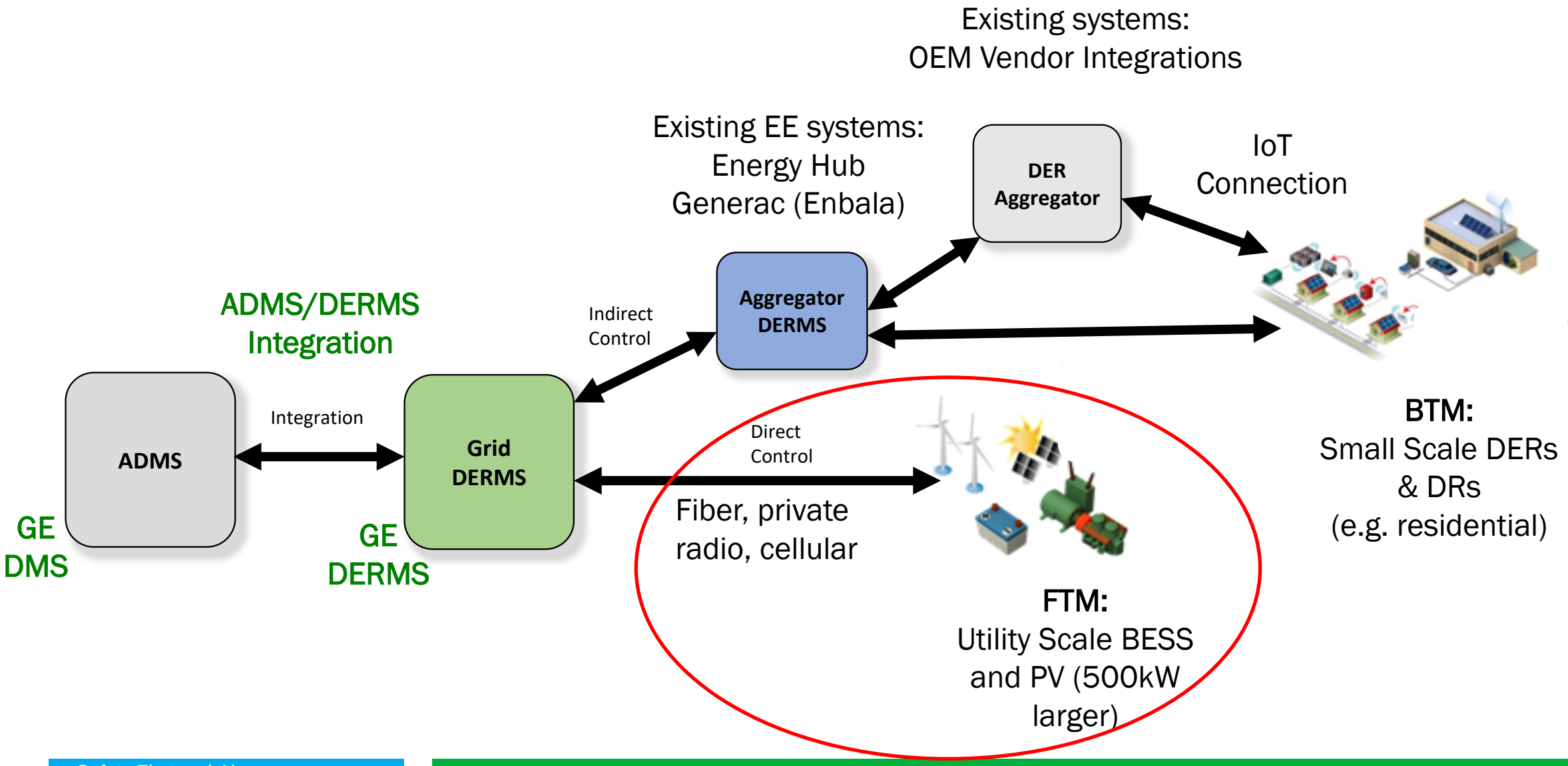
Objective:

- Integrate DER facilities into SCADA/DMS to provide monitoring and control
- Develop consistent interface and commissioning across DER facilities with standard points list for DMS/DERMS dispatch

Schedule:

- 2023: Southampton - RTAC → 4 inverters
- 2024: Sunderland - DER Gateway → string inverters
- 2025: Hatfield - DER Gateway → PPC → string inverters

DERMS to DER Gateway High Level Overview



DERMS

- Eversource has selected GE GridOS DERMS
- WMA DERMS in production Q4 2025
  - DERMS Program availability to DER Customers TBD
- EMA DERMS in production 2027
  - DERMS Program availability to DER Customers TBD
- Currently DERMS availability only applicable to Eversource-owned sites

Questions?