VWAC Peak Load Management

vermont electric power company

VELCO

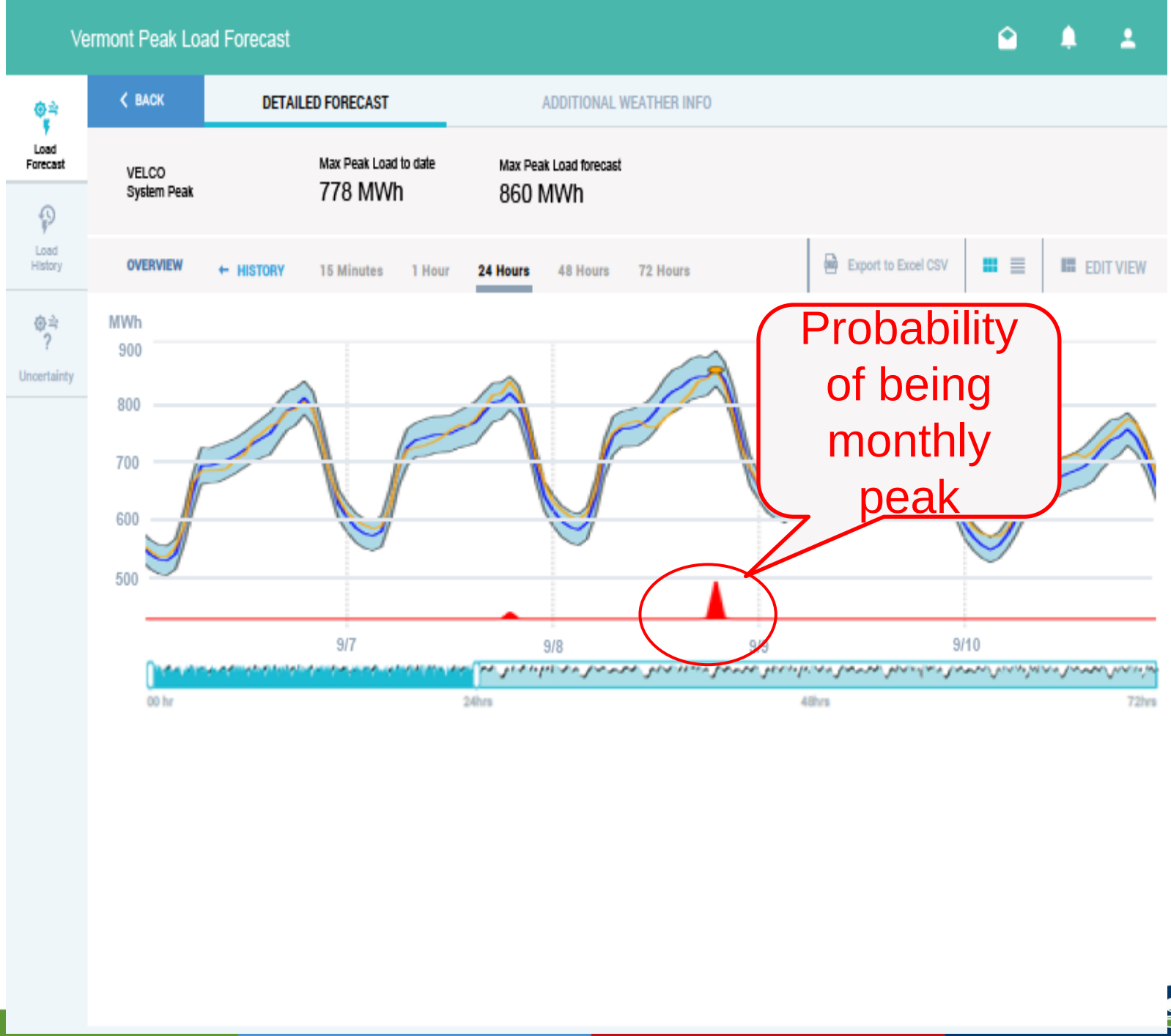
January 25, 2017

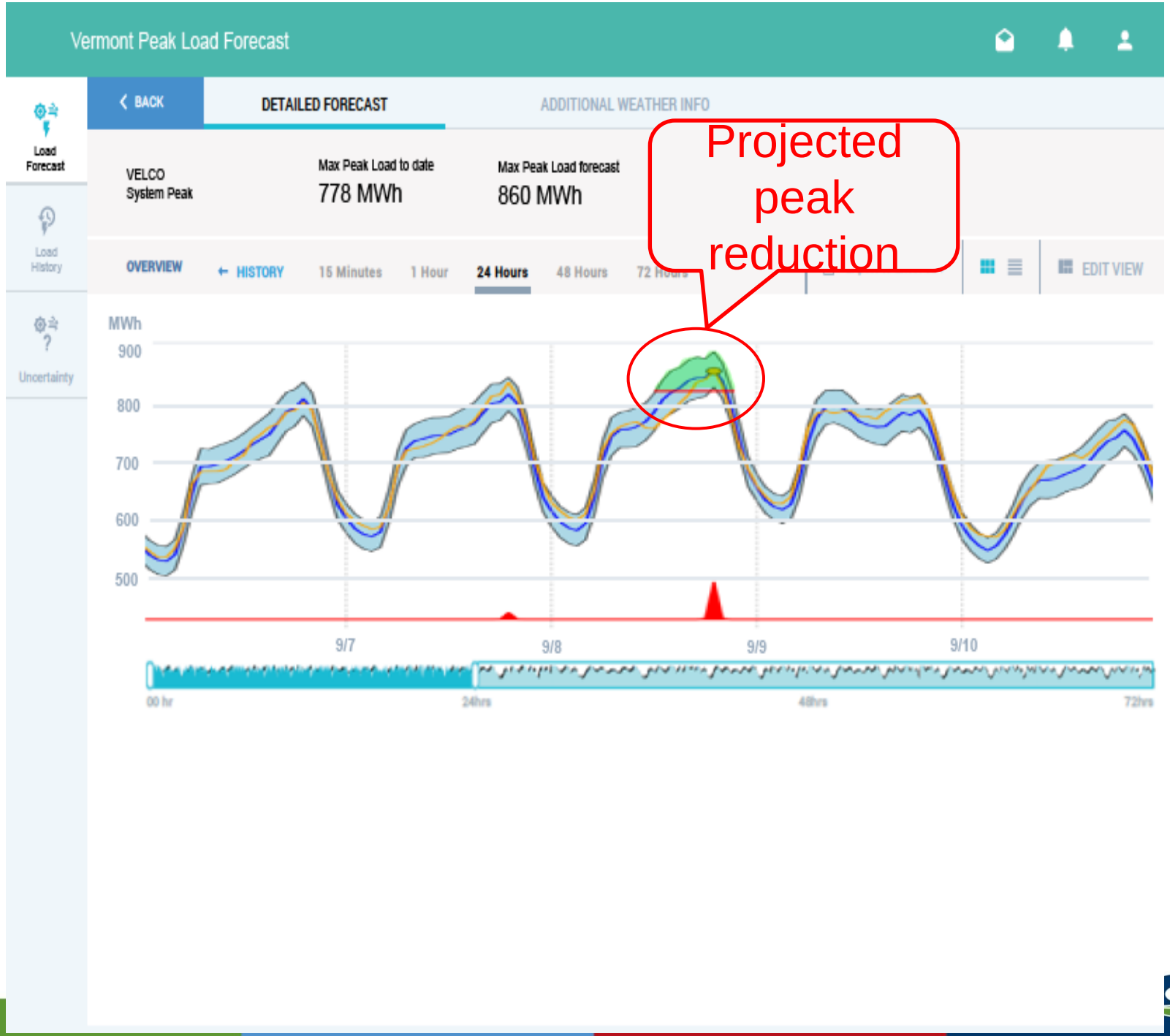
VWAC peak load management

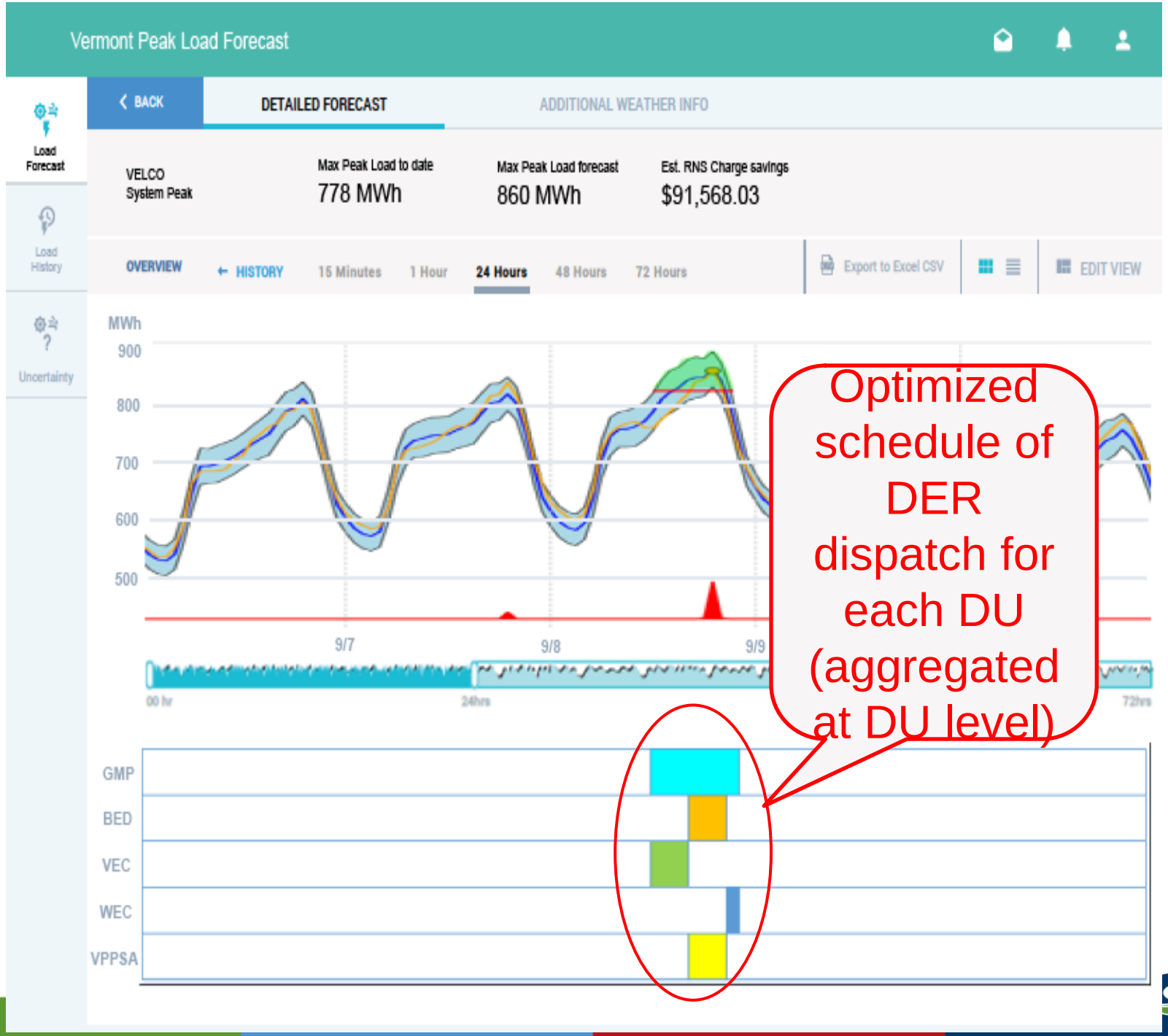
- Provide advance notice of monthly VELCO and VT distribution utility (VDU) peak loads, and ISO-NE yearly peak (i.e., residual demand)
- Data will include date/time, probability of occurrence, probability of being the peak, and forecasted MWh load
- Will enable VDUs to reduce peaks to minimize:
  - Capacity cost
  - Regional Network Service (RNS) costs
  - Future transmission projects

Output of peak load program

- Output signals will be made available through an Application Programming Interface (API)
- Also used to drive two additional information paths:
  - Email alert component that users can register with to receive peak alerts
  - Browser portal that users can log into to monitor forecasts and peak alerts
- To support forecast creation, input data sources will be collected on a continuous basis


Vermont Peak Load Forecast
BACK
DETAILED FORECAST
ADDITIONAL WEATHER INFO
Load Forecast
Load History
Uncertainty
VELCO System Peak
Max Peak Load to date
778 MWh
Max Peak Load forecast
860 MWh
OVERVIEW
HISTORY
15 Minutes
1 Hour
24 Hours
48 Hours
72 Hours
Export to Excel CSV
EDIT VIEW
MWh
900
800
700
600
500
9/7
9/8
9/10
00 hr
24hrs
48hrs
72hrs
Probability of being monthly peak


Vermont Peak Load Forecast
BACK
DETAILED FORECAST
ADDITIONAL WEATHER INFO
Load Forecast
Load History
Uncertainty
VELCO System Peak
Max Peak Load to date
778 MWh
Max Peak Load forecast
860 MWh
Projected peak reduction
OVERVIEW
HISTORY
15 Minutes
1 Hour
24 Hours
48 Hours
72 Hours
EDIT VIEW
MWh
900
800
700
600
500
9/7
9/8
9/9
9/10
00 hr
24hrs
48hrs
72hrs


Vermont Peak Load Forecast
BACK
DETAILED FORECAST
ADDITIONAL WEATHER INFO
Load Forecast
Load History
Uncertainty
VELCO System Peak
Max Peak Load to date
778 MWh
Max Peak Load forecast
860 MWh
Est. RNS Charge savings
$91,568.03
OVERVIEW
HISTORY
15 Minutes
1 Hour
24 Hours
48 Hours
72 Hours
Export to Excel CSV
EDIT VIEW
MWh
900
800
700
600
500
9/7
9/8
9/9
00 hr
24hrs
72hrs
GMP
BED
VEC
WEC
VPPSA
Optimized schedule of DER dispatch for each DU (aggregated at DU level)

Performance metrics for peak load (draft)

Operational Objective	Technical Measurement	Performance Result	Economic Benefit	Societal Benefit
Peak management	• xxx% accuracy in predicting statewide peak hour on a daily/monthly basis • 24-hr lead time alerts with 5% MAE rate • Each month we will need to reconstitute the load from the VT DUs.	• 1% drop in Vermont peak (approx. 8 MW) • Demand response program efficiency (batting average metric to be defined by BED, GMP, VEC)	• $1M savings ($700K for VT + $300K for exceeding other NE states' reductions) • $250k annually in peak power purchase savings/ cost avoidance	• 0.6 tons of reduced CO_2 per MWh • Increased grid reliability • Reduced transmission build imperative • Improved customer engagement/ collaboration

*Extrapolating this capability to New England will yield an estimated $1.364M in annual fuel cost savings alone

Overall performance (so far)

- Great collaboration with all members
- Program could save VT significant monies
- Other states have peak reduction programs
- Hope to enroll early adopters to program pilot