Washington Electric Co-op Powershift Pilot

Presentation for Better Buildings by Design 2020

6 February 2020

Grid-Connected Homes Workshop

WEC Powershift Pilot

BBD 2020 grid connected homes

Washington Electric CO-OP

WEC Powershift Pilot

OBJECTIVE: Introduce “flexible load control” to an electric co-op’s residential members, while having had NO LOAD CONTROL support or program for 20 years.

Back in the last century, WEC used electro-mechanical hot water timer controls:

The cost of maintaining a fleet of timers to stay synchronized with utility peak demand hours was greater than the value of the peak demand reduction. The program was ended in 1998.

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WEC partners include:

- Efficiency Vermont; two year research & development study support
- Vermont Low Income Trust for Electricity (VLITE); grant award to fund two “software as a service” vendors:
  - Packetized Energy Technologies (Winooski, VT)
  - Virtual Peaker (Louisville, KY)

What is flexible load control?

Conventional electric hot water

Heat Pump Hot Water (HPWH)

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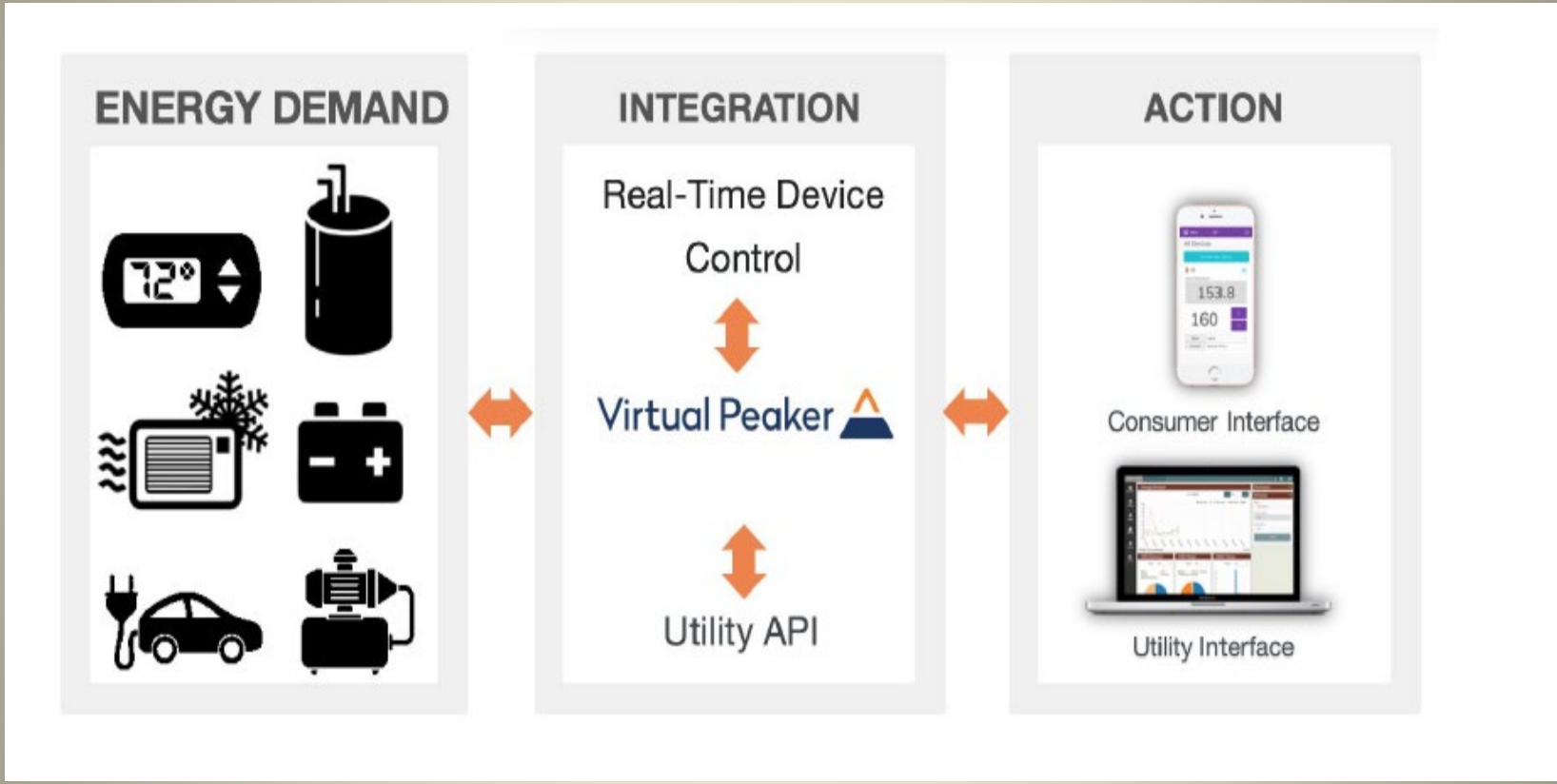
What is flexible load control?



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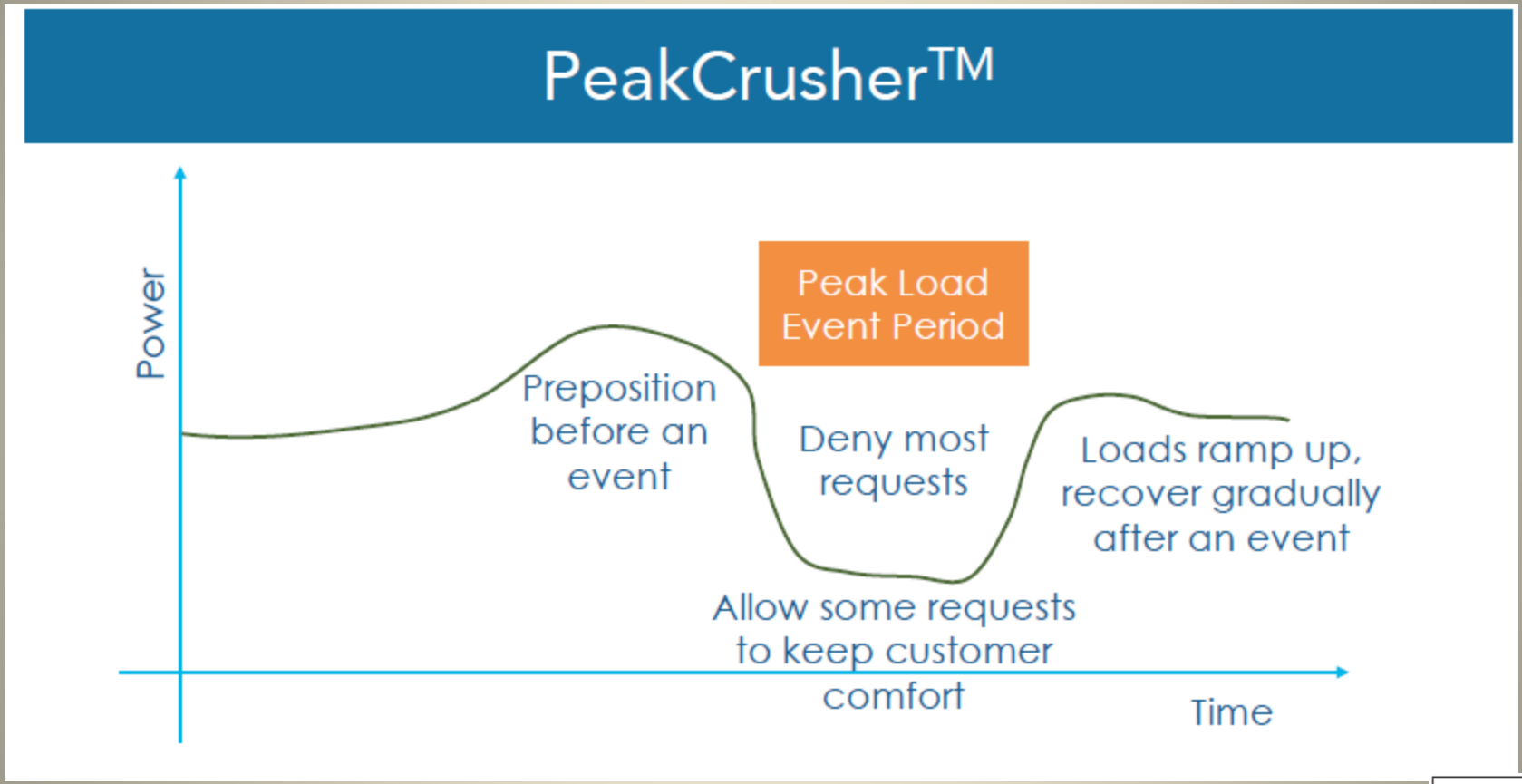
What is flexible load control?



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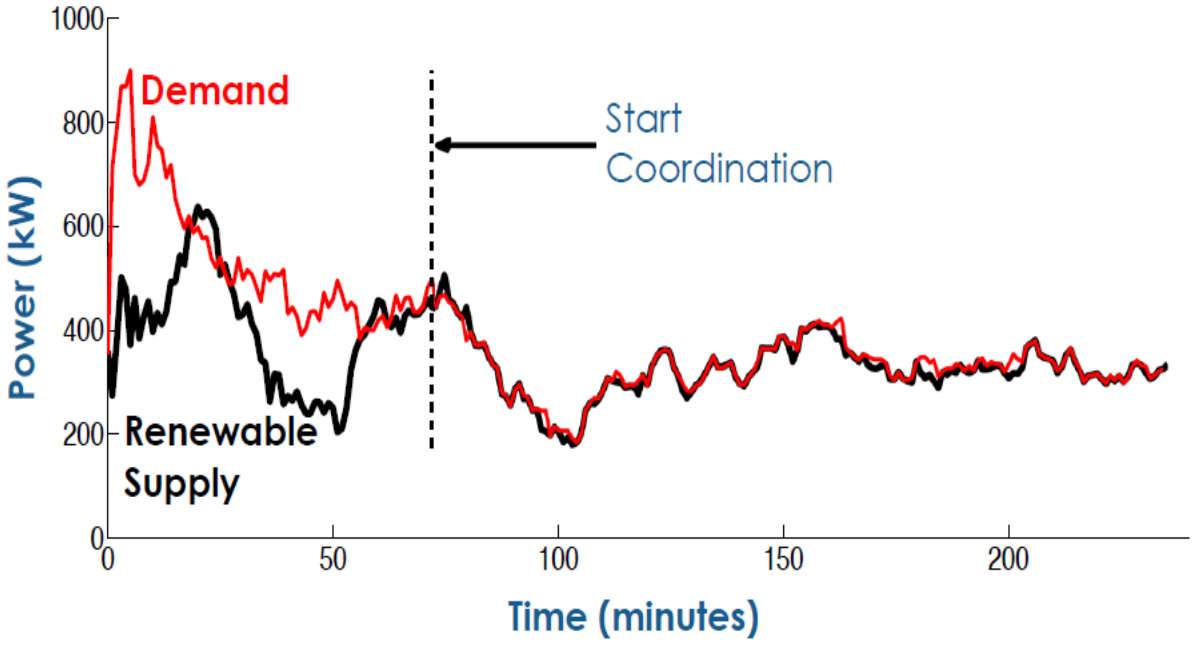
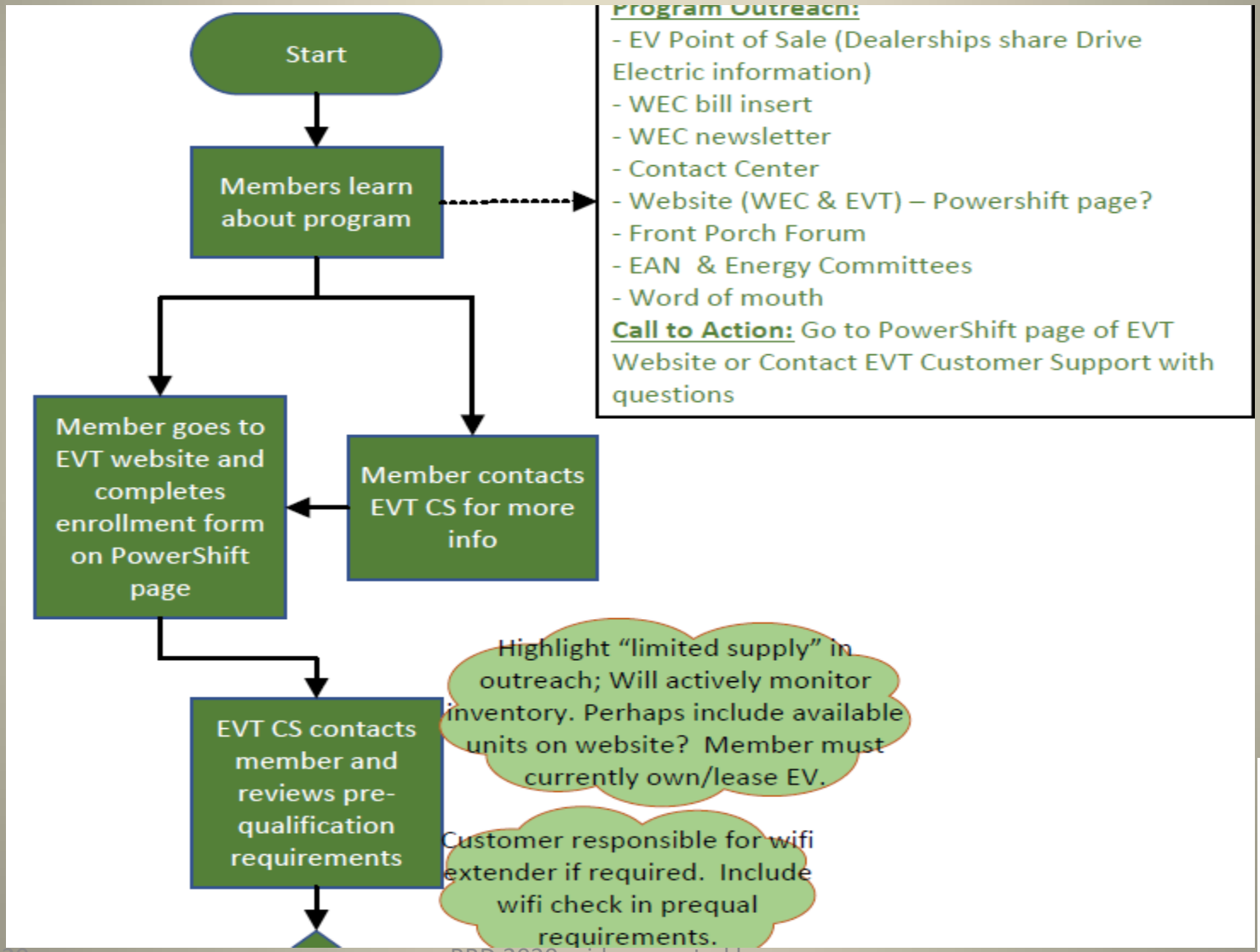
Managing variability with 300 water heaters



PACKETIZED ENERGY

What is flexible load control?



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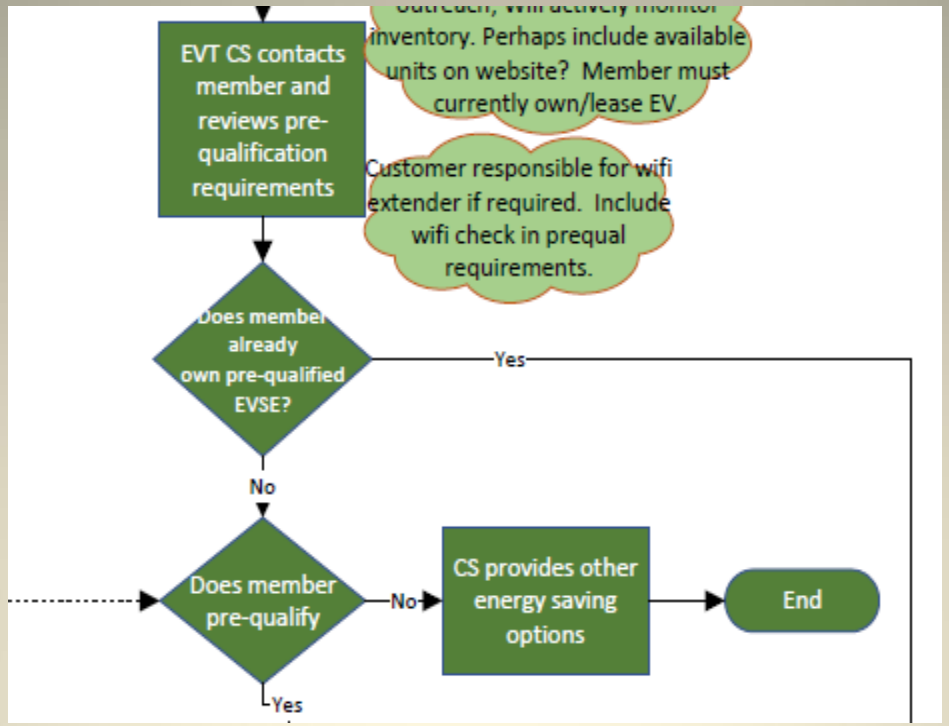

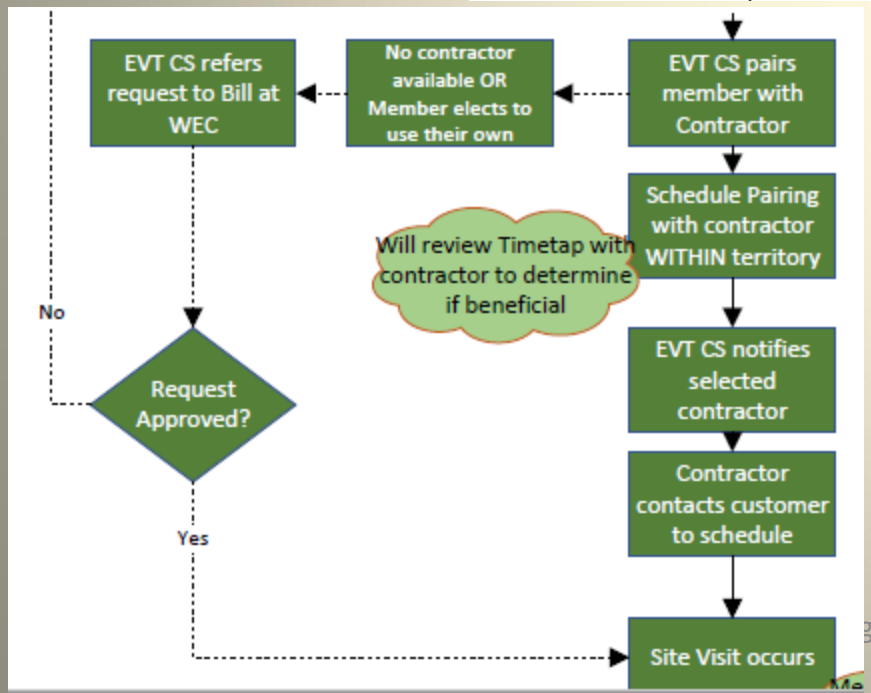

grid connected homes

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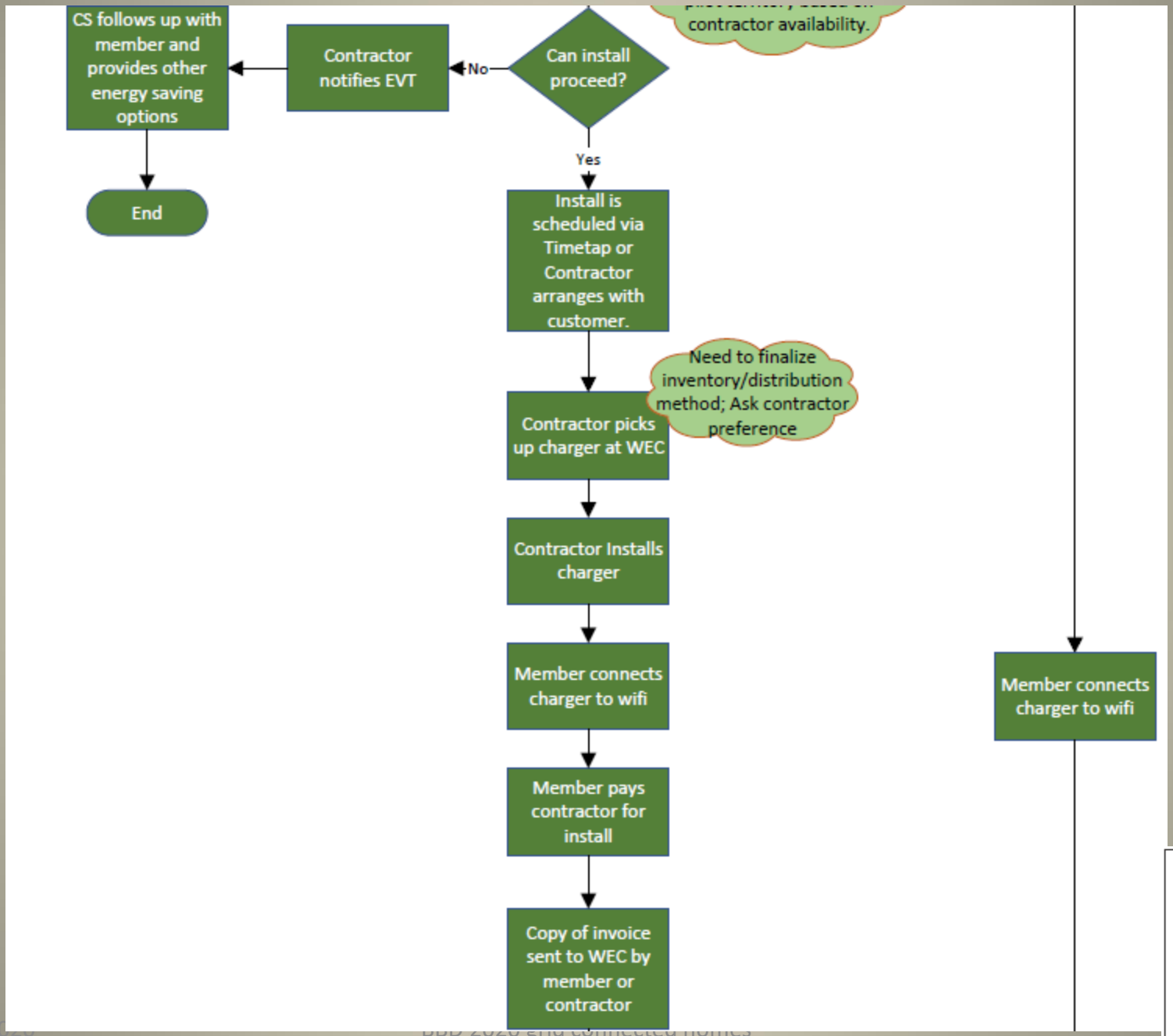

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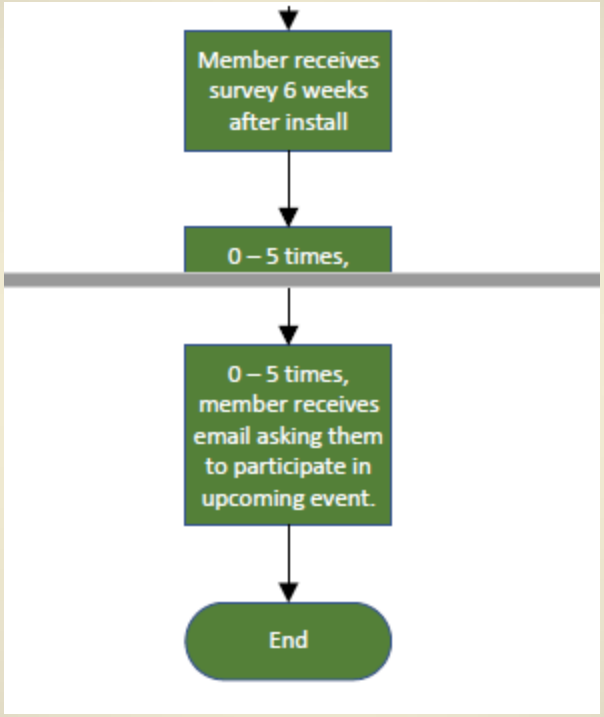

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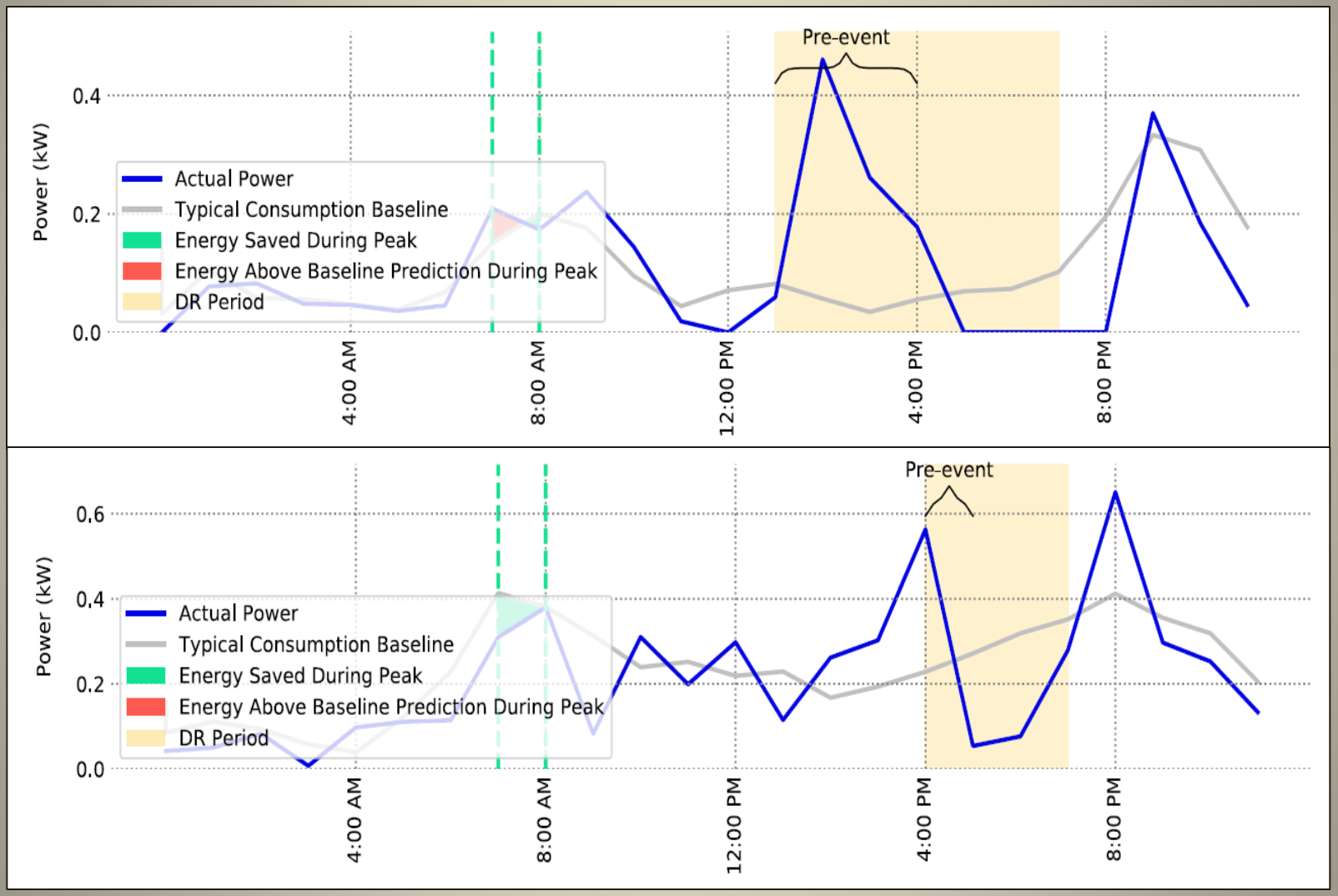
M&V


Pre-event
0.4
0.2
0.0
Power (kW)
Actual Power
Typical Consumption Baseline
Energy Saved During Peak
Energy Above Baseline Prediction During Peak
DR Period
4:00 AM
8:00 AM
12:00 PM
4:00 PM
8:00 PM
Pre-event
0.6
0.4
0.2
0.0
Power (kW)
Actual Power
Typical Consumption Baseline
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Energy Above Baseline Prediction During Peak
DR Period
4:00 AM
8:00 AM
12:00 PM
4:00 PM
8:00 PM

WEC Powershift Pilot

2020 next steps:

- Continue to enroll WEC members with conventional or HPWH
- Expand Powershift to include networked Type II EVSE
- Achieve a scale of load control to justify cost to implement system within TIER3 program offering
- Monitoring and evaluation to verify implementation and lessons learned.

PowerShift Video:
https://youtu.be/uZCwlimzU2Y