Registration of Proxy Demand Resource as an EIM Entity

December 4, 2020






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Current Situation

- Large Demand Response (DR) programs (and more coming) motivated interest in figuring out registration process
- Processes/Procedures not tailored to Energy Imbalance Mark (EIM) entities

Goals / Objectives

- Register Idaho Irrigation Program as a Proxy Demand Response (PDR) in time for 2021 season
- Understand & document repeatable process
- Assess viability of PDR path for EIM entities

PacifiCorp DR Offerings

Existing

UTAH

CoolKeeper*

- 215k customers
- Residential / Small Commercial
- 202 MW Average

Soleil Flats

- Virtual Power Plant DR Pilot
- 600 MF units solar + battery
- 5 MW** DR Capacity

Irrigation***

- 239 sites
- 10 MW Average

IDAHO

Irrigation***

- 1,390 sites
- 103 MW Average

OREGON

Irrigation****

- Pilot
- 9 sites
- ~1MW max

New

- Jan 2022: Request for Proposal for Oregon/Washington
- Battery DR Program was approved in Utah October 2020. Expected size: 20-50 MW in 3-5 years.

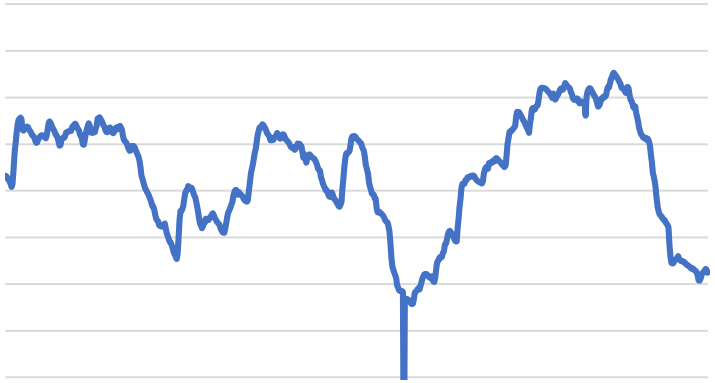
* 2019 Annual Report
** Expected by end of Q1 2021
*** 2018 data
**** Draft 2020 season data

Idaho Irrigation DR Program

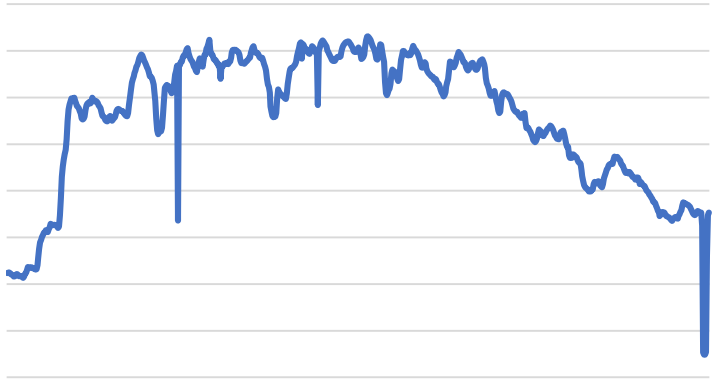
- 1,390 pumps
- Energy use varies heavily based on crop water needs, location, etc.

Comparison

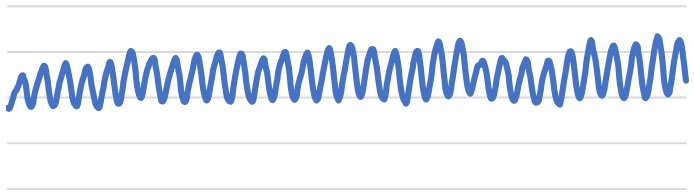
June 2020 Idaho Irrigation Load Shape



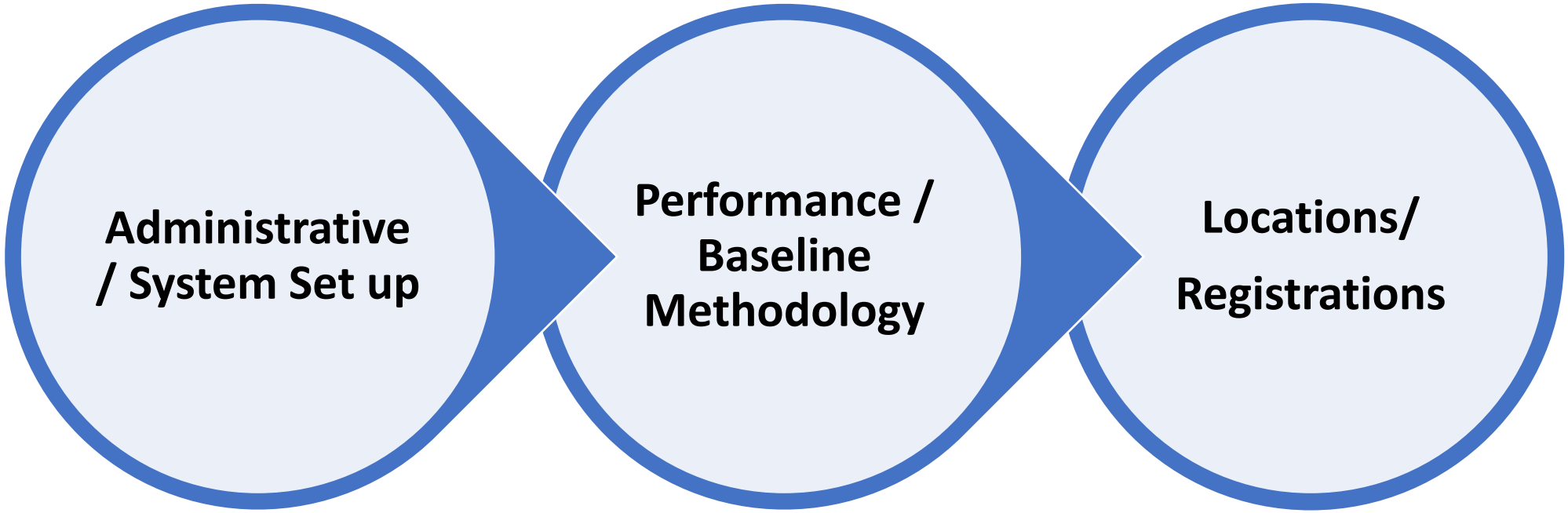
July 2020 Idaho Irrigation Load Shape



July 2020 Residential Load Sample



Overview of Process



Involves
- Setting up user roles
- Online system access

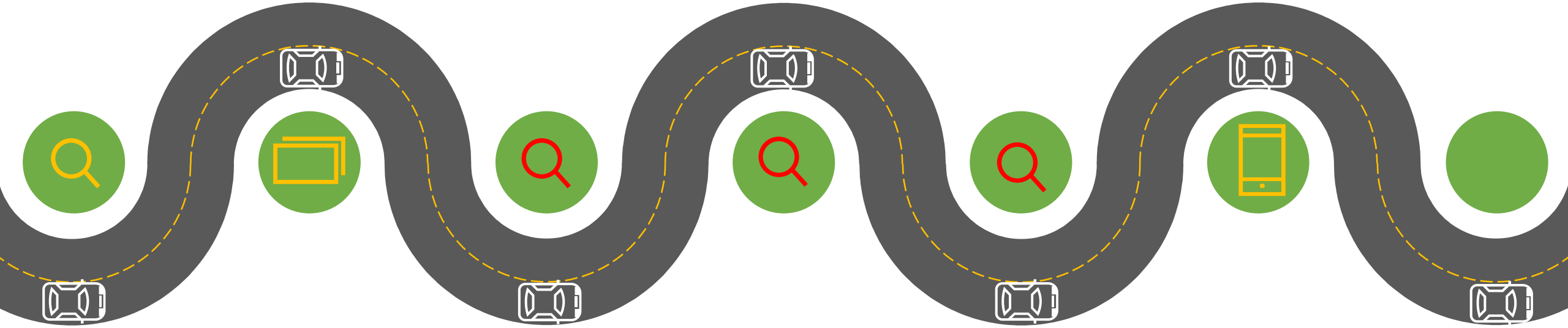
Involves
- Developing baselines
- Settlement Quality Meter Data (SQMD)

Involves
- Allocation strategy of DR to network points
- Mapping DR loads to Network Model

Key Challenges for an EIM Entity

1. Adapting PDR Process / Rules

3. Settlement Quality Meter Data (SQMD)



2. Modeling of DR Load (Network Model Inputs)

4. Performance Evaluation Methodology (PEM)

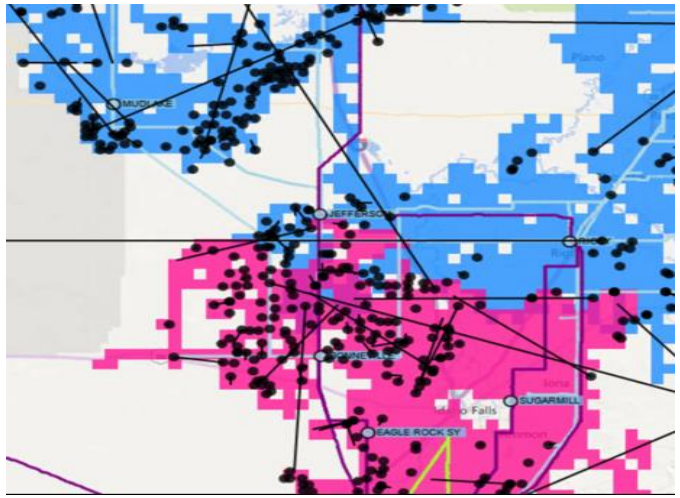
1. Adapting Specific Processes / Rules

- DR processes were structured around CA market participants during stakeholder process

Examples:

- Roles & Responsibilities for PDR process
  - EIM entities don't have IDs for being a load serving entity in CA but it's required
    - Required new process
- CA broken down into smaller load aggregation points (Sub-LAP) which form the bases for simplifications & established processes in PDR
  - Simplifications do not exist for EIM entities which requires setting up custom locations which is more complex and time intensive

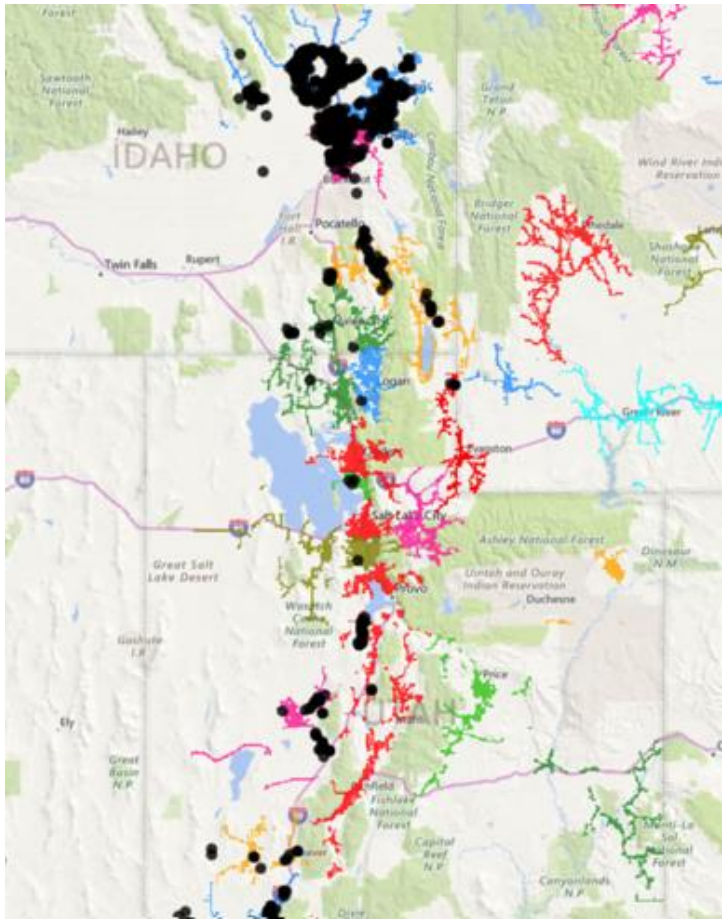
2. Network Model Inputs



Problem: How much DR is on each substation? What should DR aggregation strategy be?

Solution: Using program data, mapped 1,390 pumps using PAC's GREATER tool

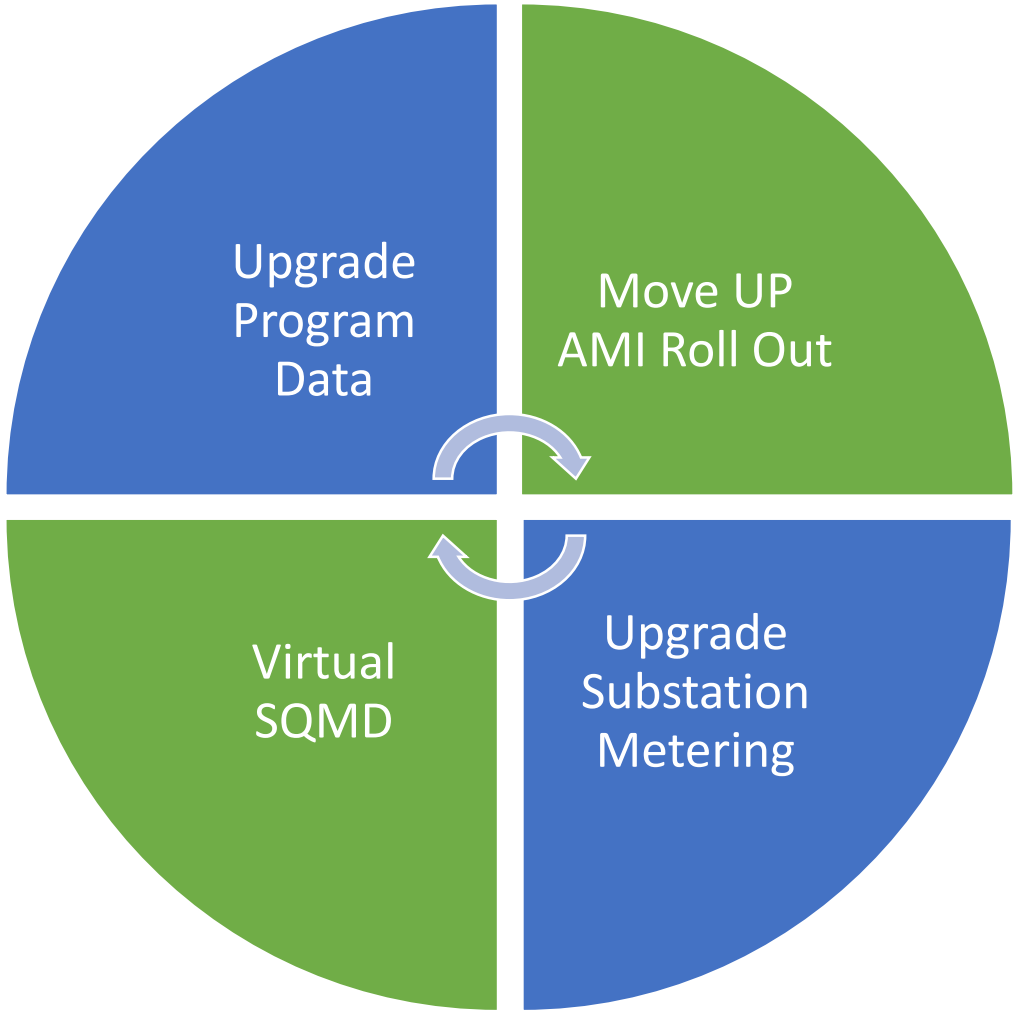
- Large efficiency gains
- Final mapping done by engineering



3. Settlement Meter Data Quality

Situation

- Use program data to credit customers
- Legacy programs not designed to meet CAISO requirements
- AMI rollout scheduled for 2021/2022
- Considering multiple options



4. Performance Evaluation / Baseline Methodology

What it is

- Way to quantify & ‘demonstrate’ load drop
- Counterfactual: what would load have been like without DR event?
- Used for evaluating performance of DR
- Used for settlement

Application to Irrigation

- 10 different PEM options
- Best Option: 10-in-10
  - Counterfactual
  - +/- 20% adjustment
- Large variation in load makes this method hard to apply
- Need to assess potential implications based on 2020 program data

Wrap UP

Lessons Learned

- Existing programs may struggle to qualify under current rules
- Current PEM process may need adjustments to accommodate irrigation programs
- Significant lift to operationalize current process
- Cross-organizational coordination is key, takes time, resources, and planning

Next Steps

- Finish internal assessment of pathways for SQMD challenges
  - Work with CAISO to clarify requirements & identify options
- Engage with CAISO regarding baseline/performance methodology appropriate for irrigation

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Relevant CAISO Reference Documents

Website http://www.caiso.com/participate/Pages/Load/Default.aspx
Best Practice Manuals

- Demand Resource https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Demand%20Response
- Metering https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Metering