

SMARTgrid Workshop

HYDRO



July 12, 2018

Idaho Power Smart Grid Vision

At Idaho Power, our smart grid vision remains focused on seven major characteristics :

1. Enhance customer participation and satisfaction
2. Accommodate distributed generation/storage
3. Enable new products/services/markets
4. Improve power quality
5. Optimize asset efficiency
6. Anticipate and respond to disturbances
7. Provide resilient operation/robustness

Idaho Power's Smart Grid Strategy

Focus investments in:

Operations

...real-time sensing, diagnostic, communications, and control equipment to increase efficiency and reliability of the system and make the system more resilient.

Customer Systems

...customer expectations are changing and they want more information about their energy use.

Advanced Metering Infrastructure (AMI)

...more fully utilize the information received from AMI meters to improve services offered.

Oregon Commission's Smart Grid Goals

The Commission's goal is to benefit ratepayers of Oregon investor-owned utilities by fostering utility investments in real-time sensing, communication, control, and other smart-grid measures that are cost-effective to consumers and that achieve some of the following:

- Enhance the reliability, safety, security, quality, and efficiency of the transmission and distribution network
- Enhance the ability to save energy and reduce peak demand
- Enhance customer service and lower cost of utility operations
- Enhance the ability to develop renewable resources and distributed generation

Oregon Commission's Smart Grid Goal

Enhance the reliability, safety, security, quality, and efficiency of the transmission and distribution network

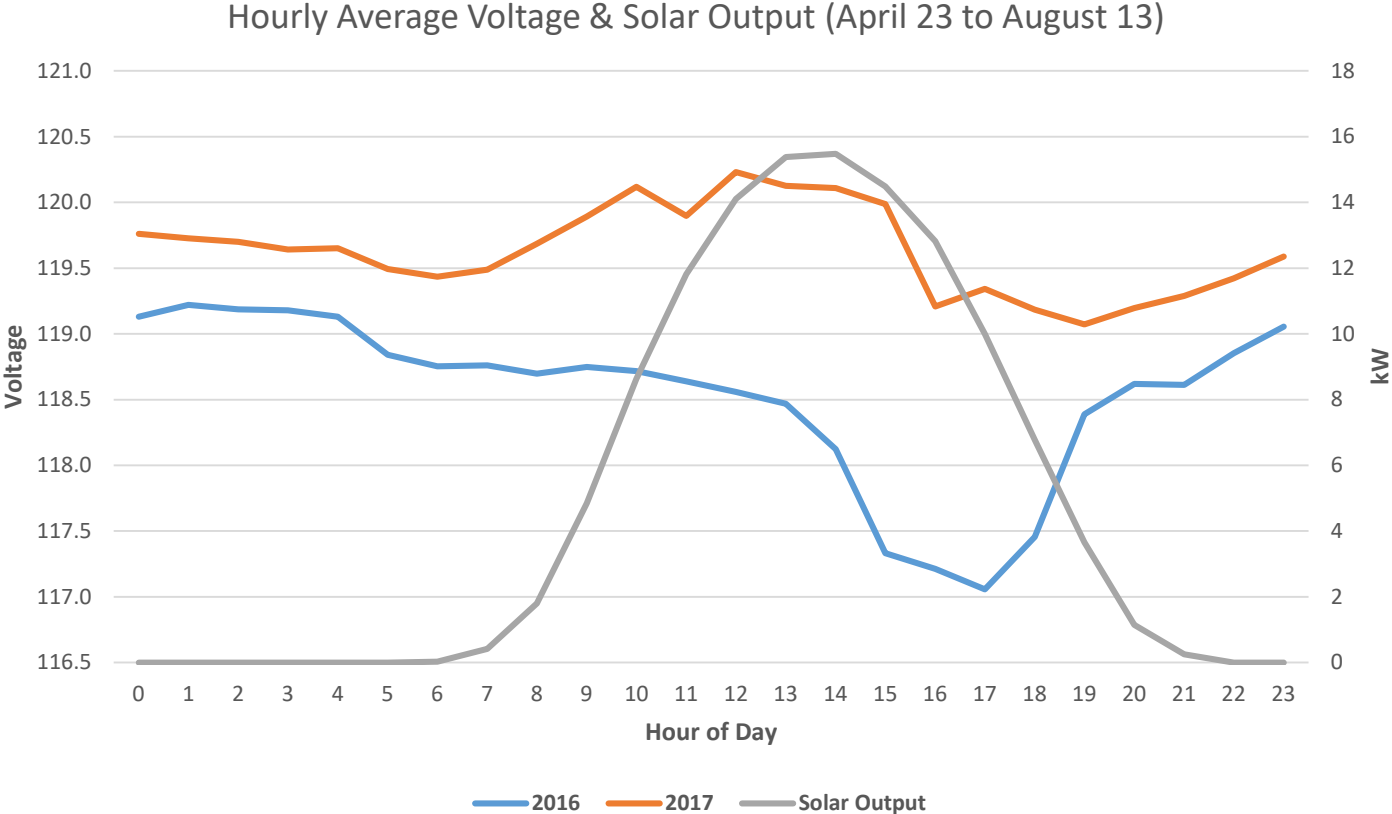
- Solar End-of-Feeder Pilot
- Integrated Volt-Var Control (IVVC) System
- Outage Management System (OMS) Upgrade
 - Integrated with AMI
 - Outage Dashboard

Solar End of Feeder Pilot

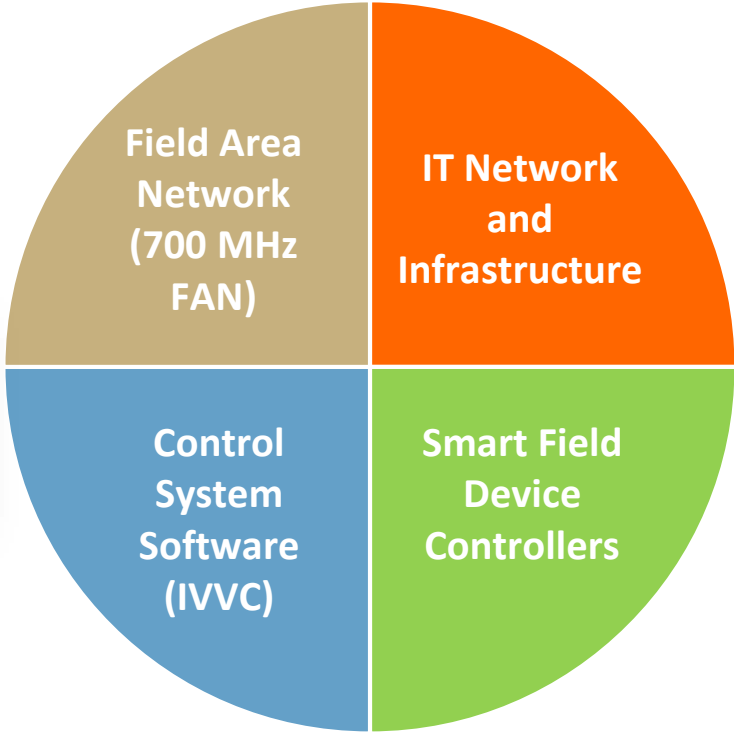
- <https://www.youtube.com/watch?v=JeT6JH5vZgg>



End-of-Feeder Solar 2017 Results



Integrated Volt/Var Control Phase 1

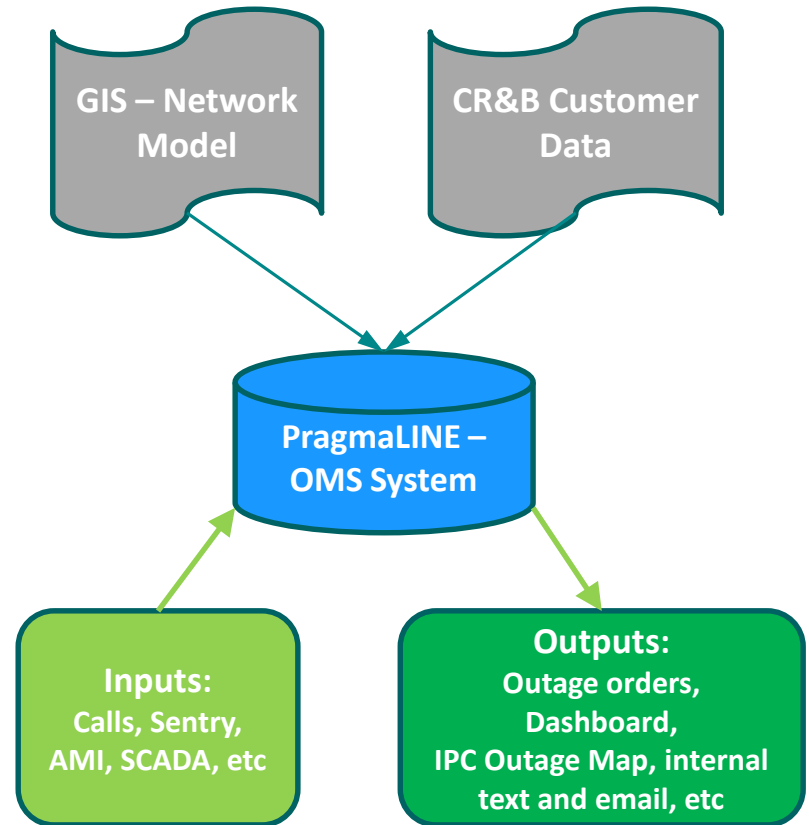


OMS Project Summary

- Consisted of two previously independent projects
 - OMS Replacement Project
 - Mobile Workforce Management System Upgrade Project
- Project Duration – 27 Months

The OMS system

- Models our distribution system
- Ties our customers to the distribution network
- Predicts outage location
- Dispatches restoration crew via Mobile Workforce Management system
- Provides outage information for customers



New Functionality

- A more “Active” system
 - Substations now part of the operational model
 - SCADA integration
 - Sentry integration
 - AMI System integration
 - iETR (initial Estimated Time of Restoration)

Oregon Commission's Smart Grid Goal

Enhance the ability to save energy and reduce peak demand

- Demand Response Update
 - Irrigation Peak Rewards Program
 - Flex Peak Program
 - A/C Cool Credit Program
- Oregon Residential Optional Time-of-Use (TOU) Pilot Evaluation
 - Goals
 - Next Steps

2017 Demand Response Programs

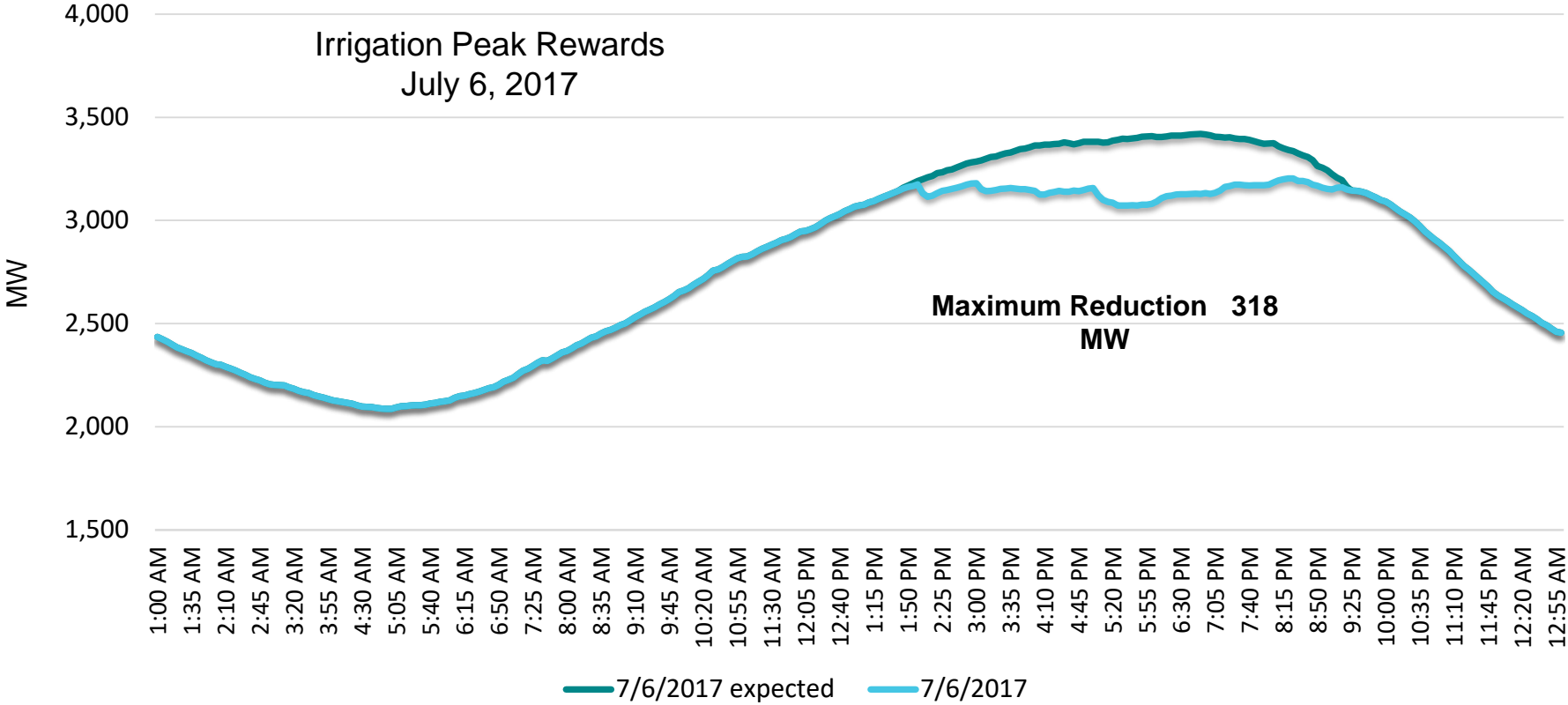
Total available capacity – 394 MW

- Irrigation Peak Rewards
 - 2,307 sites 318 MW
 - \approx 7 MW in Oregon
- Flex Peak
 - 141 sites 36 MW
 - \approx 12 MW in Oregon
- A/C Cool Credit
 - 28,214 sites 29 MW
 - \approx 0.4 MW in Oregon



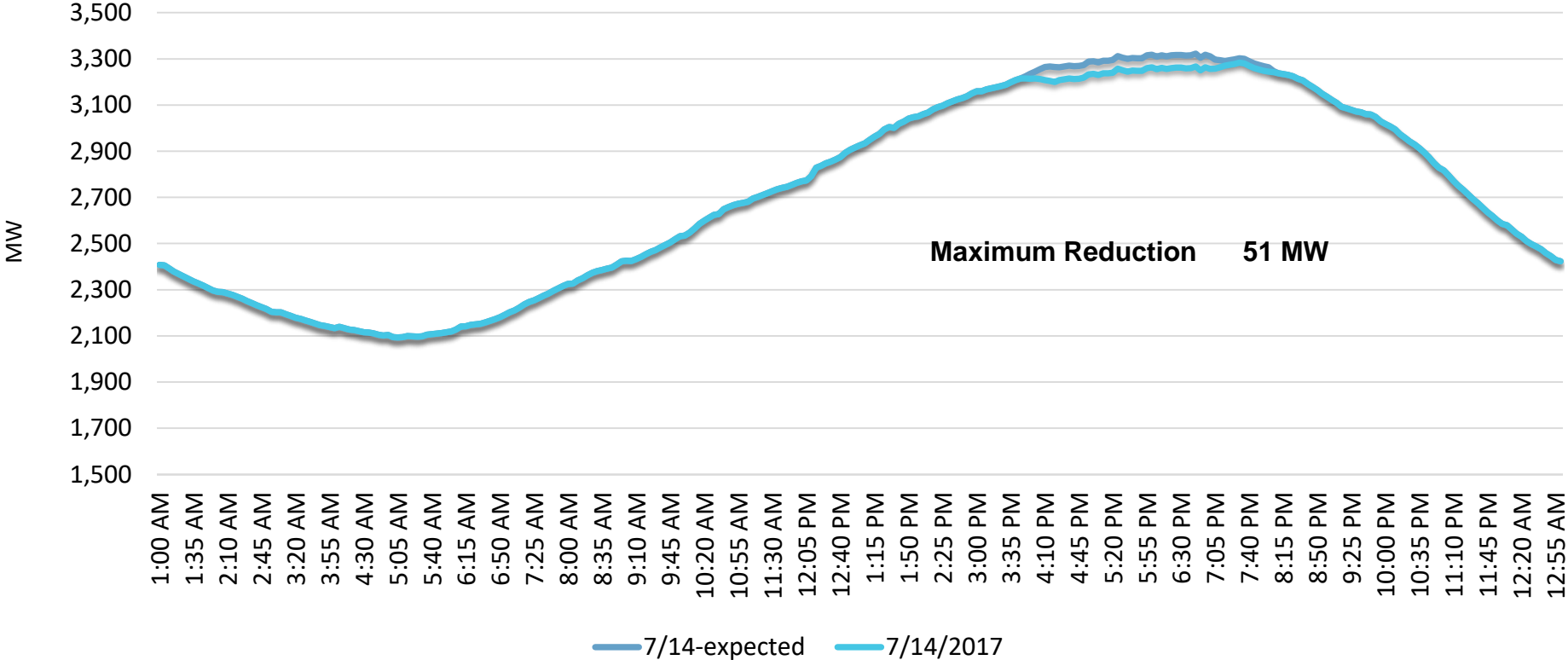
2017 Irrigation Peak Rewards

Irrigation Peak Rewards
July 6, 2017



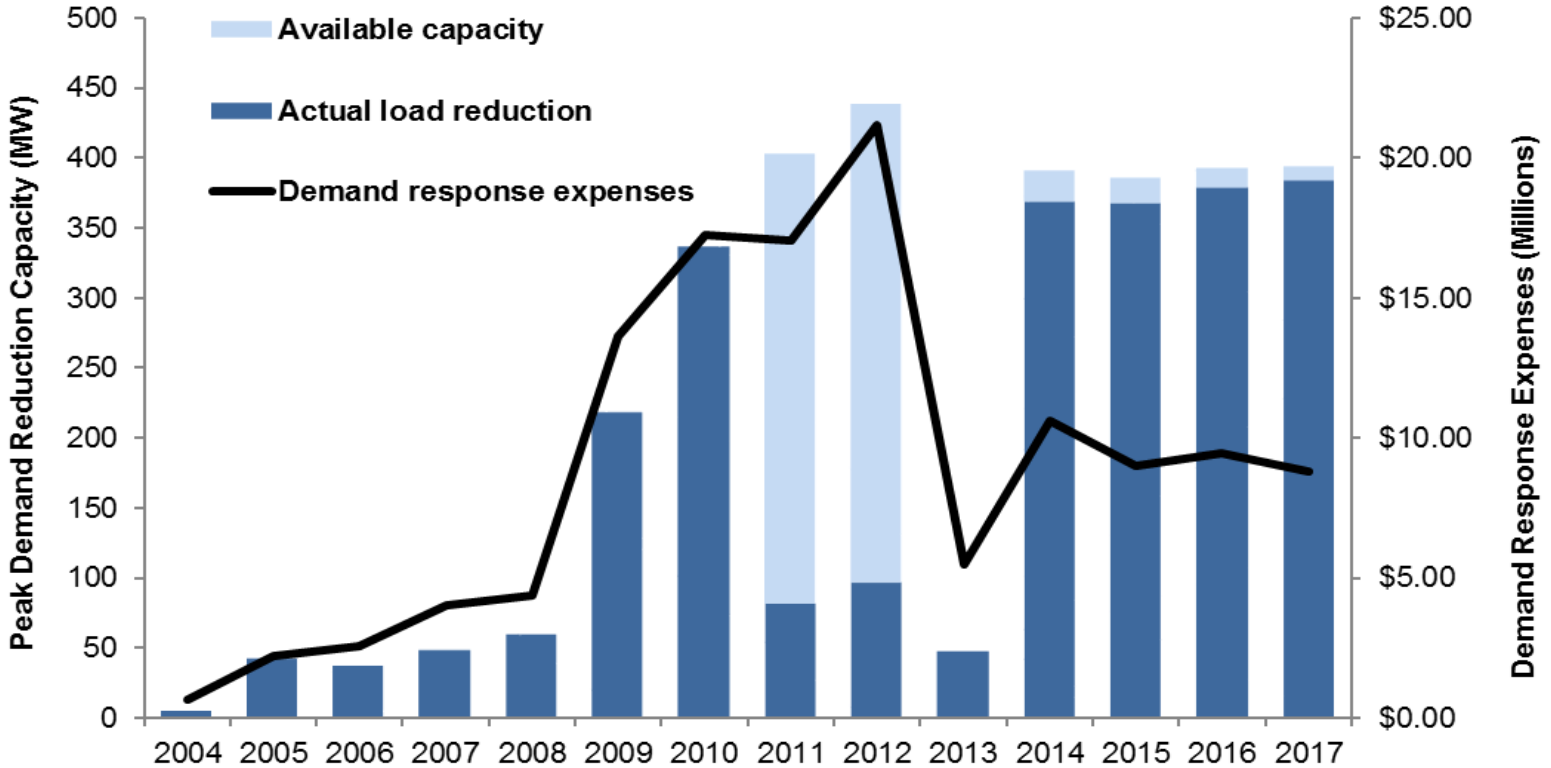
2017 A/C Cool Credit & Flex Peak

July 14, 2017



Demand Response Results

2004 - 2017

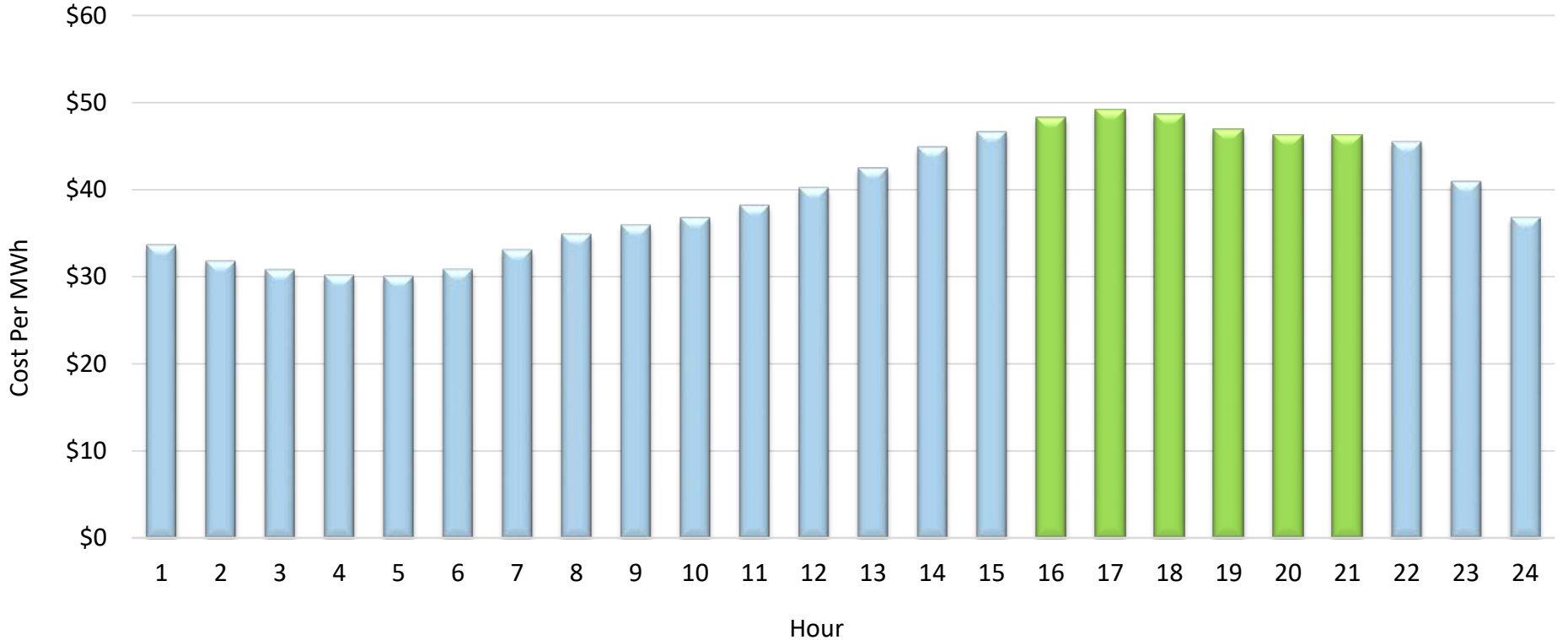


Oregon Residential TOU Pilot Evaluation

- Idaho Power's Goals for a Residential TOU Pilot
 - Design rates that reflect the actual cost to serve
 - Corresponding reduction in energy costs when a customer shift usage
 - Easy for customers to understand and remember on-peak hours
 - Create a program that is inviting and attractive to customers
 - Does not unduly limit Idaho Power's ability to recover its fixed costs of service.
- Basic Design Under Consideration
 - Seasonal component
 - On-Peak hours
 - Summer 3-9pm
 - Non-Summer 7-9am & 3-9pm

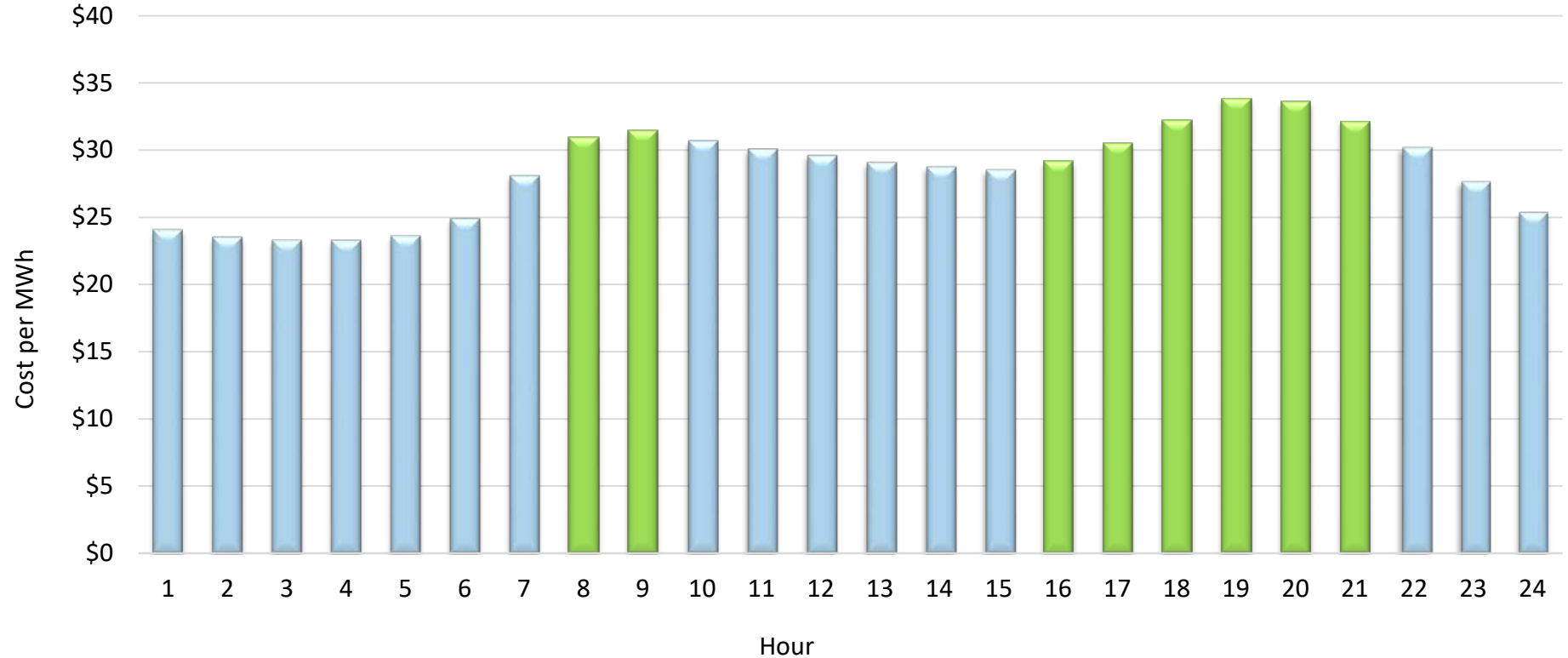
Avg. Variable Cost/Hour (Summer)

(On-Peak 3-9pm)



Avg. Variable Cost/Hour (Non-Summer)

(On Peak 7-9am, 3-9pm)



Oregon Residential TOU Pilot Evaluation

- Next Steps
 - Continue working with OPUC Staff
 - Work with interested parties to determine feasibility of moving forward with a filing

Oregon Commission's Smart Grid Goal

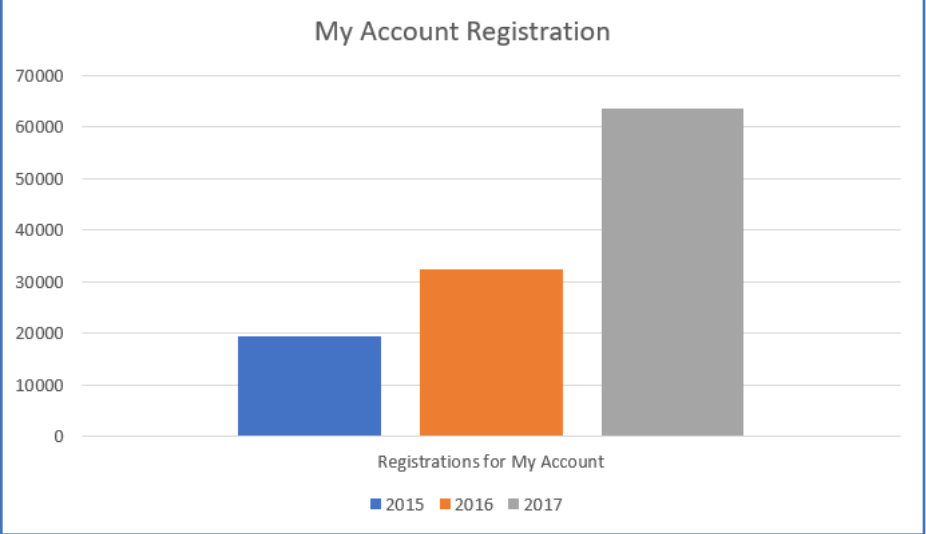
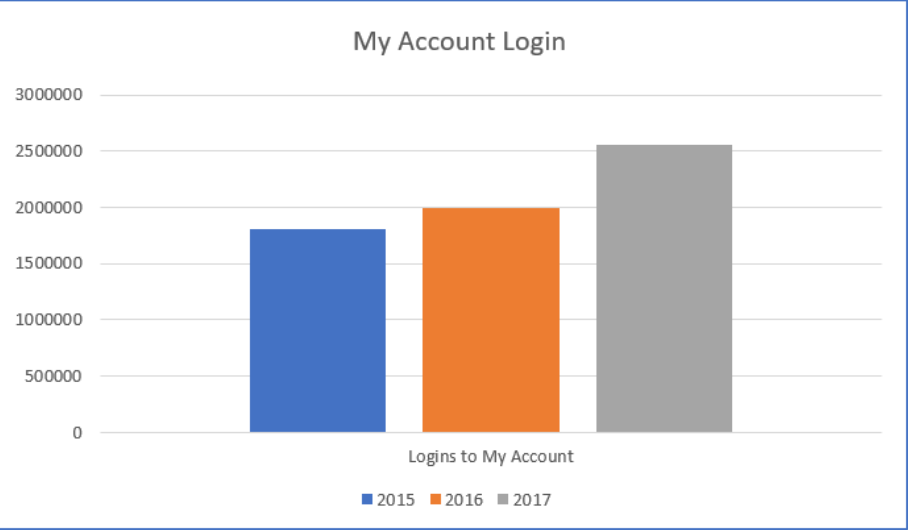
*Enhance customer service and lower
cost of utility operations*

- Customer Experience
 - Idaho Power Website
 - 2018 Projects and Initiatives
 - Customer Relationship Management (CRM) System

New Idaho Power Website

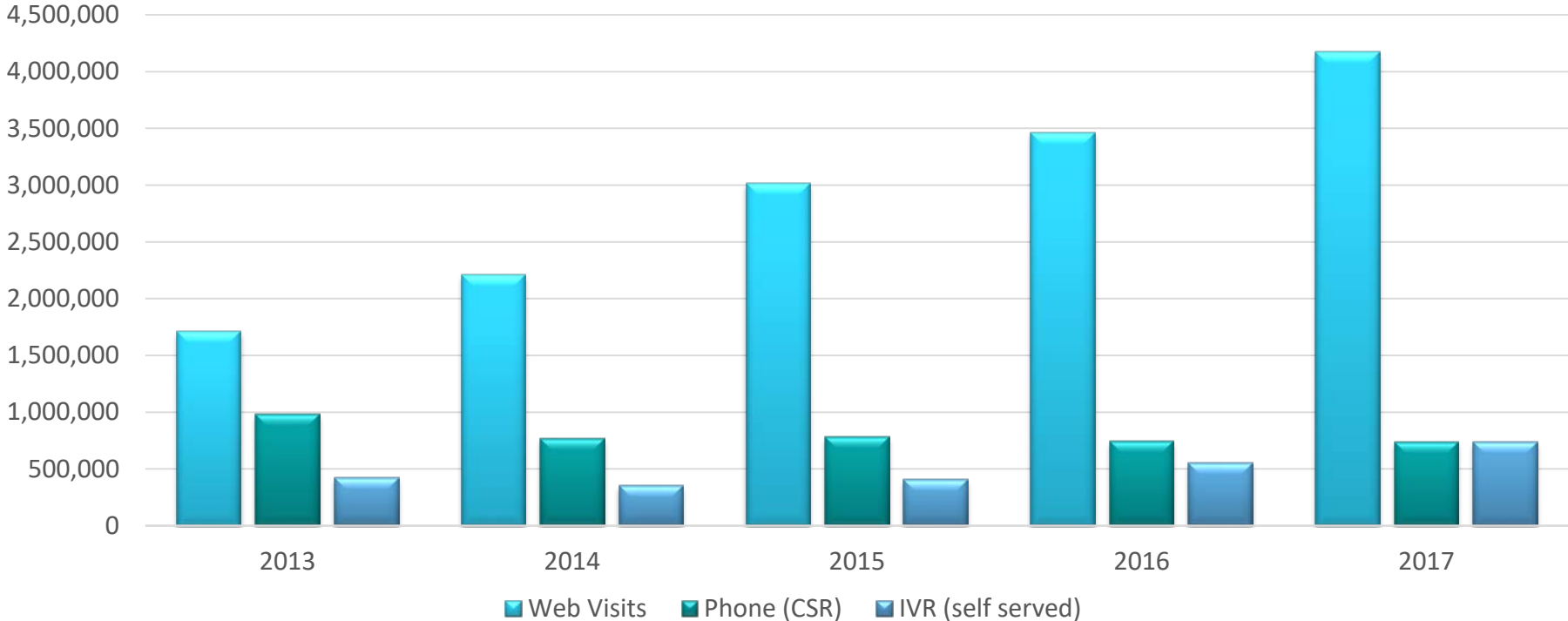


My Account - Metrics

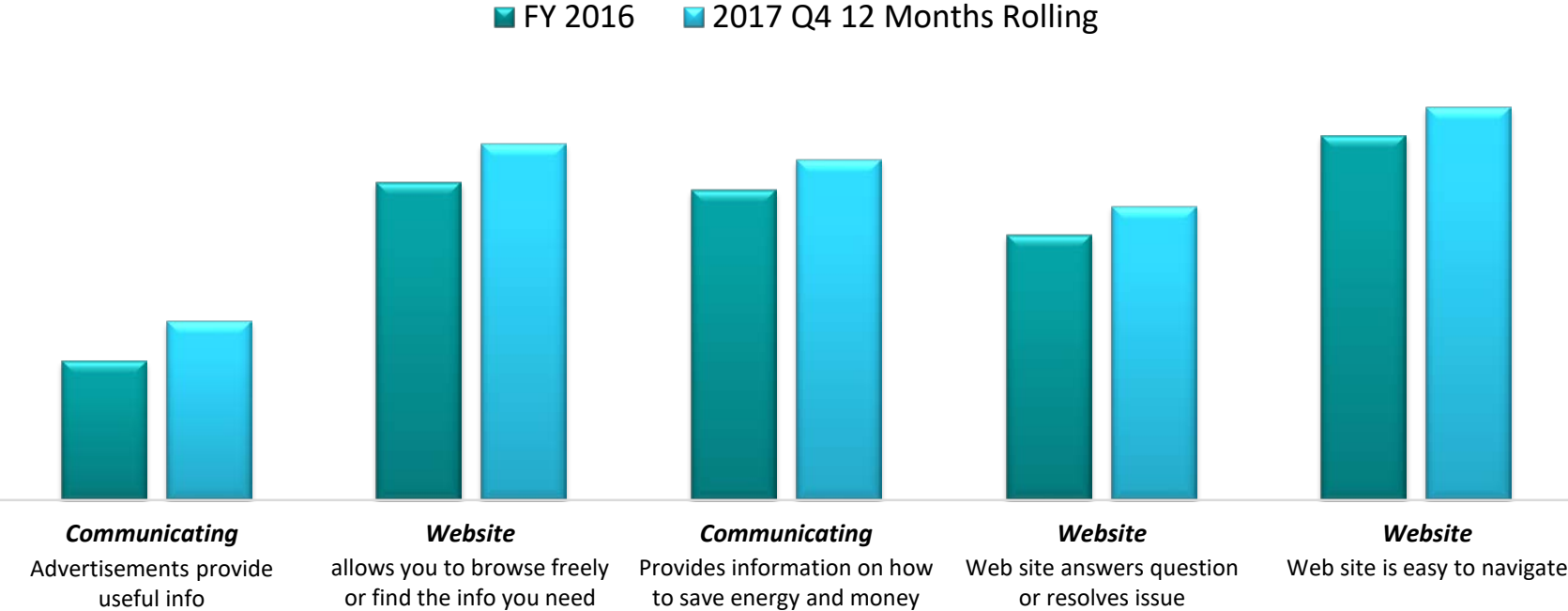


Customer Interaction Metrics

Customer Contacts



Customer Relationship Index



Outage Alerts

- **Current Outage alerts**

- Text updates

- **2018 Initiatives**

- Outage Communication
 - IVR/OMS integration
 - Outage alerts

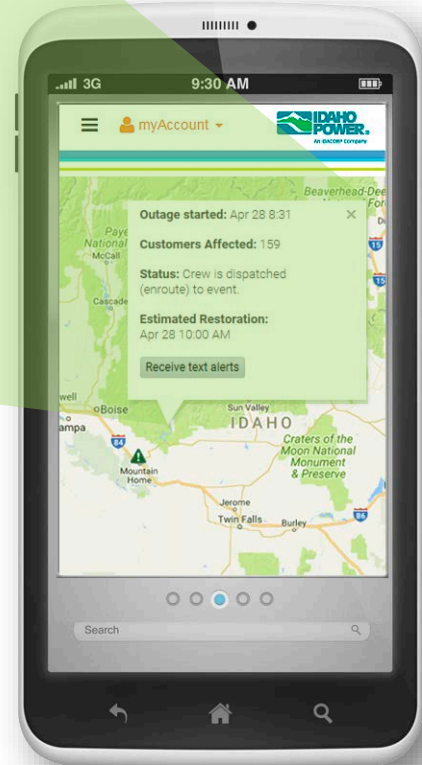
Outage Started: June 28 8:31

Customers Affected: 159

Status: Crew is dispatched
(enroute) to event.

Estimated Restoration:
June 28 10:00 AM

[Receive text alerts](#)



Account Alerts

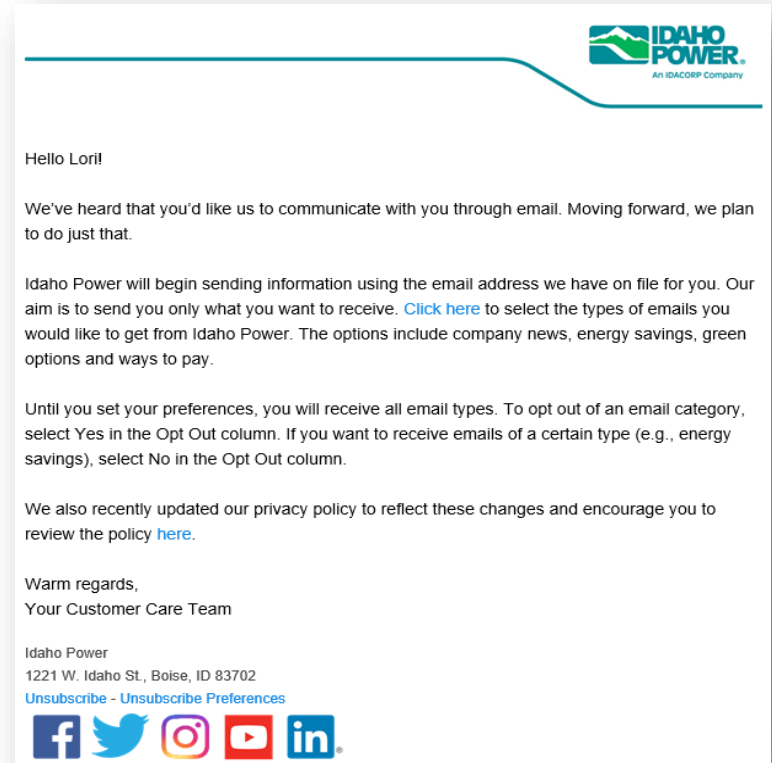
- **Current Account alerts (residential)**
 - Past Due
 - Bill Threshold
- **2018 Initiatives**
 - Expanded account alerts
 - Tailored to specific customer classes

Hello, this is a friendly reminder that your account is past due.



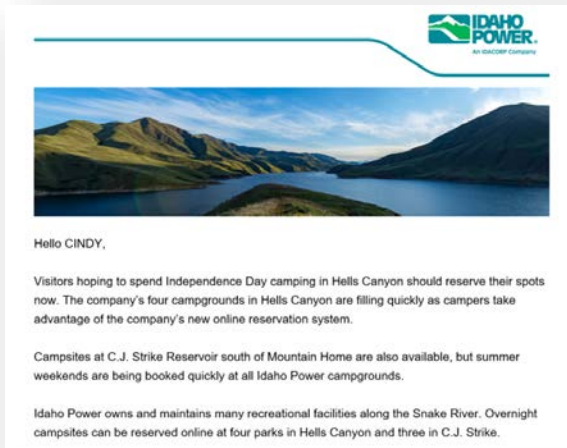
Customer Relationship Management (CRM) - Update

- Customer Search
 - Provides a Systematic method to manage CAN SPAM regulation, manage email preferences, and will enable the customer-facing preference Portal
- Enhanced Communication
 - Enables better communication with its customers, the CRM system integrates with the company's text alert and email campaign Vendor



CRM Update (cont.)

- Customer Segmentation
 - Part of Campaign Management – can ‘build’ a segment, attach it to a campaign and email or mail to the selected segment



- Campaign Management
 - Tracks aspects of a campaign including the results of a campaign's effectiveness and manages customer preferences collected during a campaign
 - Successfully completed email marketing campaigns to \approx 150,000 customers during the months of May and June while tracking customer activity

Oregon Commission's Smart Grid Goal

*Enhance the ability to develop renewable
resources and distributed generation*

- Energy Storage System

Energy Storage System Objective

- Jordan Valley seasonally overloaded transformer
- 200kW/200kWh Battery could defer replacement for 10 years



Energy Storage System RFP

- Low response rate
- Prices higher than estimated
- Lower cost smaller suppliers pose a higher financial risk



A decorative green line at the top of the slide, starting as a straight horizontal line and then curving downwards and to the right.

Questions?