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September 5, 2018

MEMORANDUM

TO: Council Members

FROM: Charlie Grist

SUBJECT: Eugene Water and Electric Board Briefing

BACKGROUND:

Presenter: Frank Lawson, General Manager, EWEB

Summary: Frank Lawson will address the Council on EWEB's strategic plan, west coast carbon policies, wholesale market valuation of flexible capacity and thoughts about conservation delivery.

Background: Mr. Lawson has been general manager at EWEB for about two years. Eugene Water and Electric Board is the largest customer-owned utility in Oregon serving about 90,000 customers and supplying about five percent of Oregon electric sales. EWEB is a municipal utility and supplies drinking water as well as electricity.

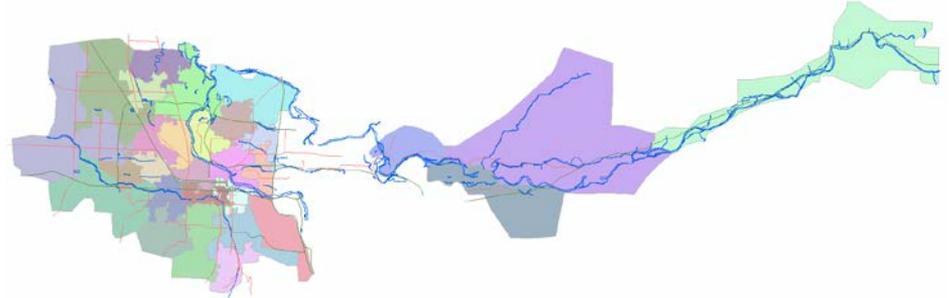
More Info: Frank Lawson bio:
<http://www.eweb.org/about-us/general-manager>

EUGENE WATER & ELECTRIC BOARD (EWEB) Eugene, Oregon

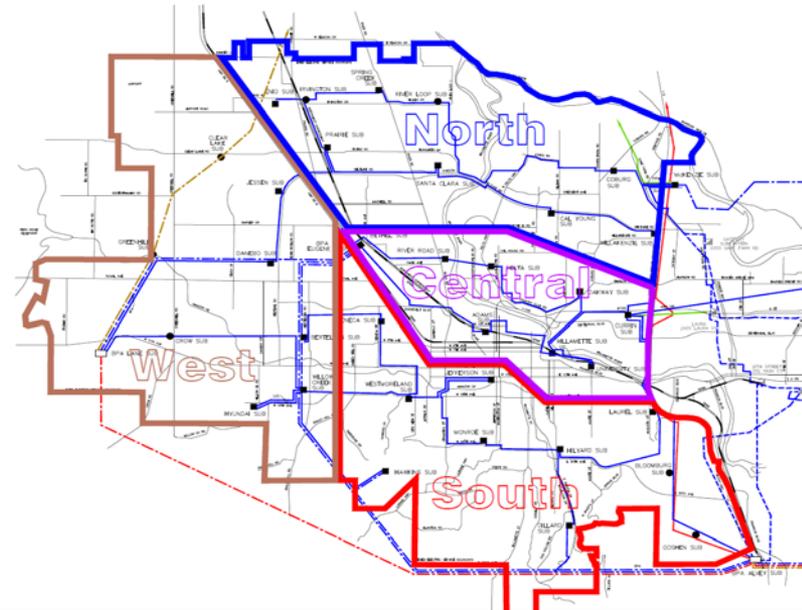


Distributed Energy Resources
Utility Cross-Share

System Summary



Type	Public
Customers	200,000
Services (Electric)	90,000
Services (Water)	65,000
Employees	487
Consumption	2.4B kWh/Year
Consumption	275 MWa
Consumption (Peak)	600 MWa
Service Territory	236 Sq. Miles
Power Lines	1,300 Miles
Distribution Lines	1,132 Miles
Substations	38



Strategic Issues: Two “big ones”

1. *Emergency Preparedness & Disaster Recovery*
2. *Electric Supply Resources*



DER & Utility System Planning

EWEB service territory as a stand alone grid (“Resilient Spine”)

- Transmission/distribution and local generation
- Larger existing (local) generation + Microgrids (PV, energy storage, other self generation)
- Switching orders, contracts, critical loads, etc.



Microgrid Usage

How does EWEB intend to use microgrids in our community?

1. Resiliency

- Wind and Ice Storms (short term outage)



Microgrid Usage

How else does EWEB intend to use microgrids?

2. Research

- Develop PNW economic analysis (use cases)
- Develop interconnection standards for energy storage

3. Economics

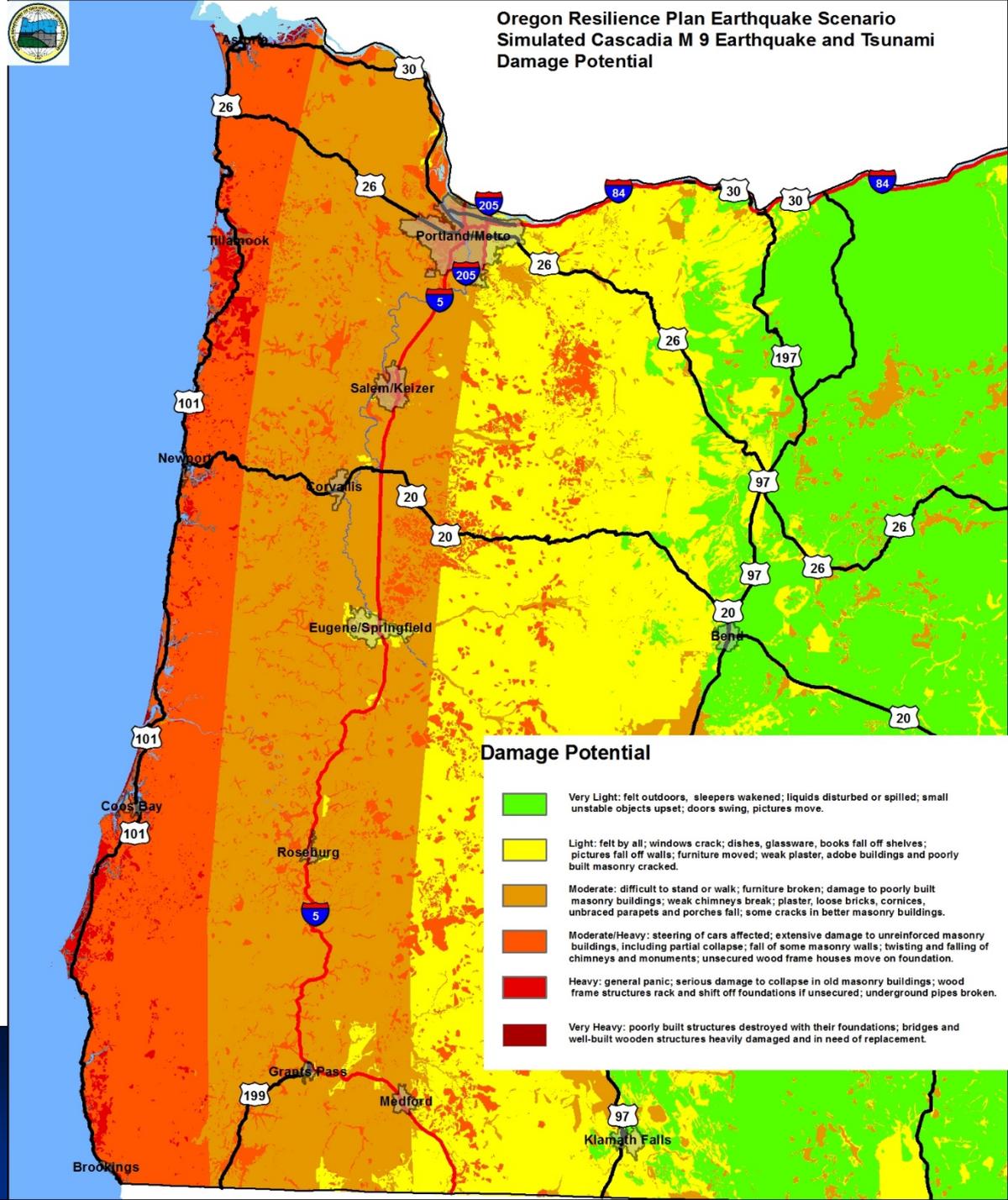
- Customer Demand bill reduction
- Utility BPA bill reduction (Balancing, Peak Shaving)
- BPA Various Demand Response Cases
- Frequency Regulation



Oregon Resiliency Plan Earthquake Scenario Simulated Cascadia M 9 Earthquake and Tsunami Damage Potential

1. Resiliency

- Cascadia subduction zone earthquake (long term outage)



Distributed Generation and Water Distribution Stations

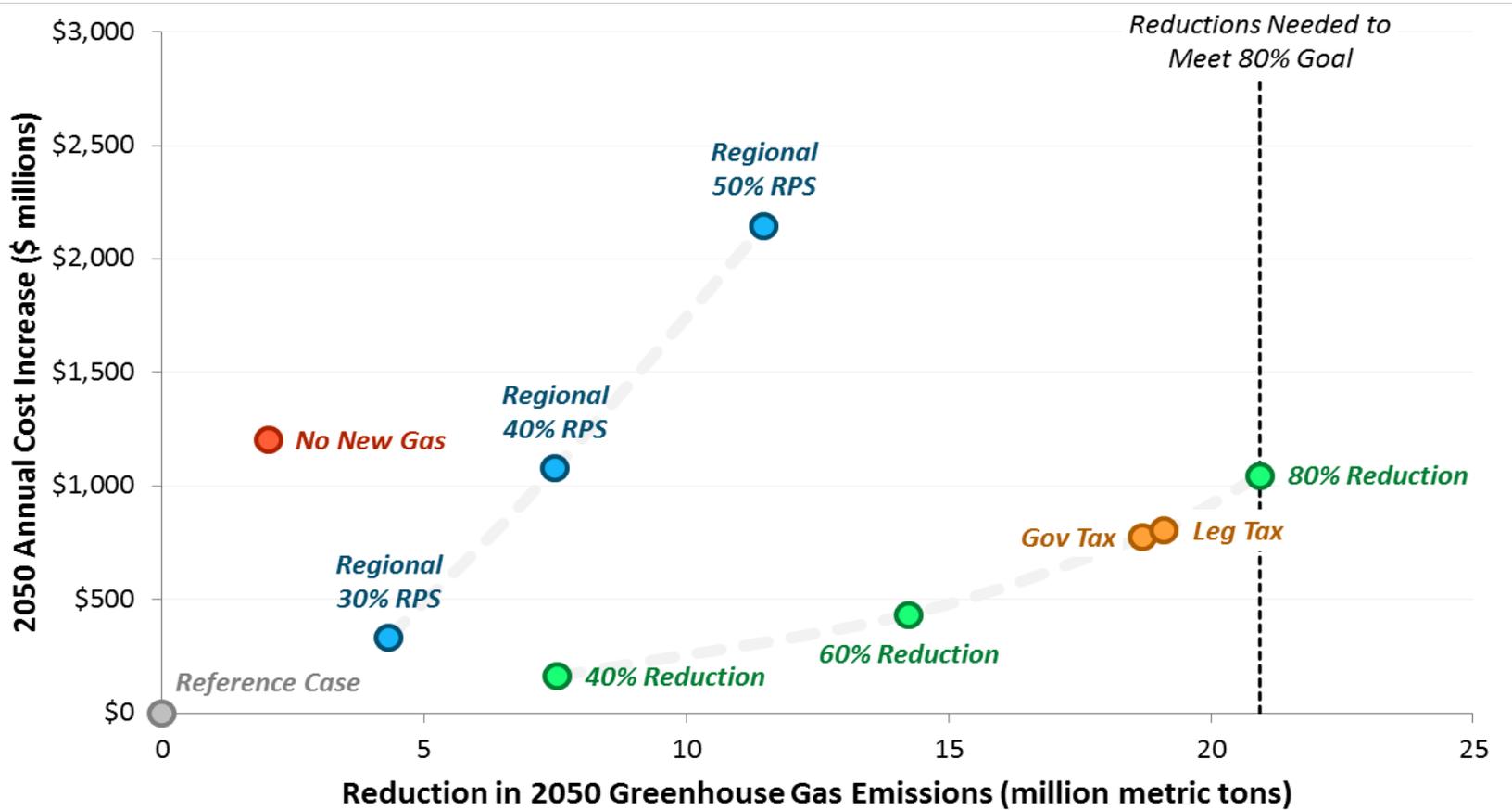
- FEMA Designated Community Points of Distribution (CPOD's)
- Focusing on Local Schools
 - Water source availability
 - Large open area
 - Existing solar installations
 - New or recent construction
- Schools spread around town
- Will be for water distribution for community members in large scale disaster and limited shelters

Variety of Futures

- Policy – Carbon/RPS
 - Carbon pricing has positive impact on electric wholesale markets
 - RPS has negative impact on electric wholesale markets
- Markets – EIM/RTO (Regionalization)
 - EIM moving forward quickly
 - RTO (CAISO expansion) evolving at slower pace

PGP/E3 NW Low Carbon Study (2018)

Cost & Emissions Impacts in 2050



Note: Reference Case reflects current industry trends and state policies, including Oregon's 50% RPS goal for IOUs and Washington's 15% RPS for large utilities

- Electrification Scenarios (Source NREL)

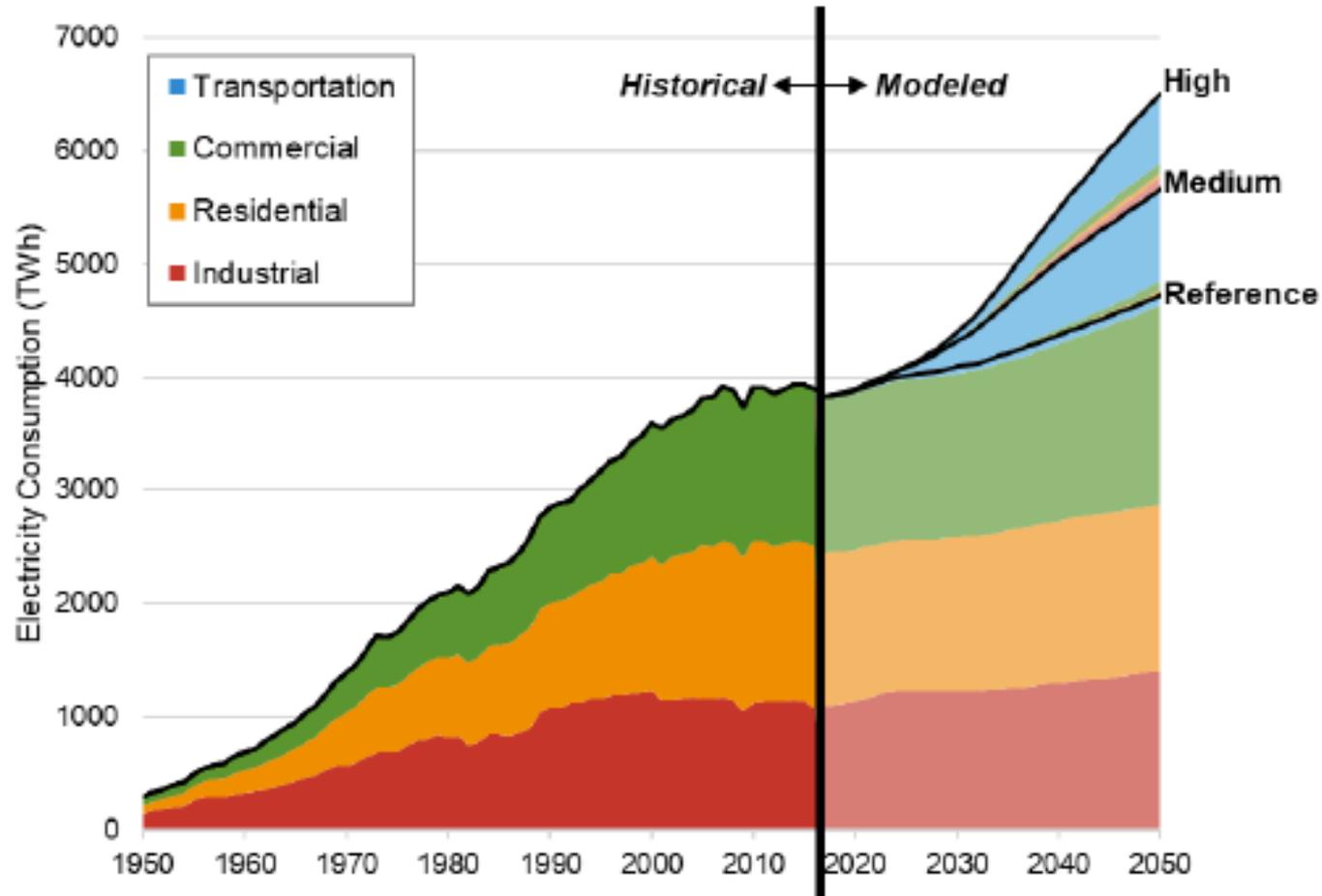
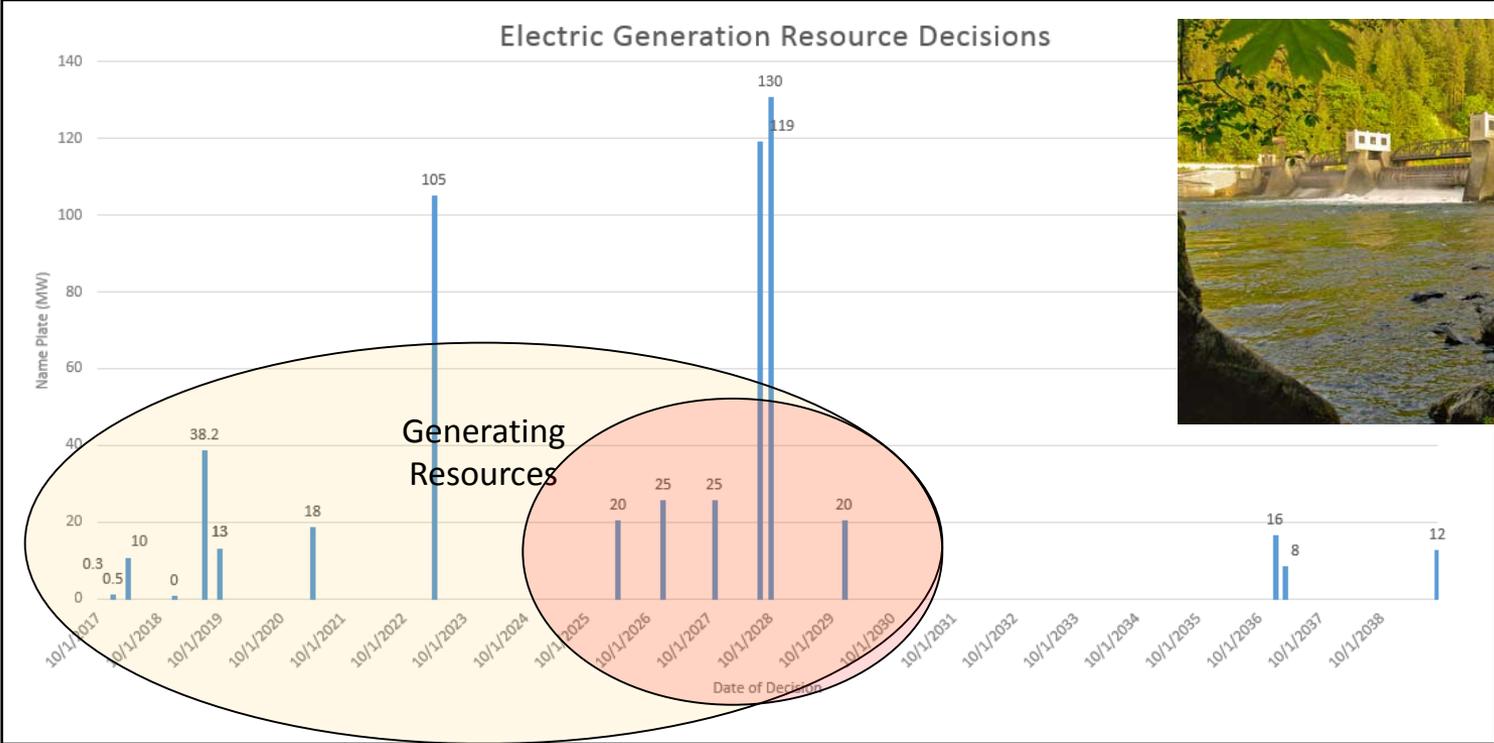


Figure ES-3. Historical and projected annual electricity consumption

Moderate technology advancements are shown. Slight adjustments were made to the modeled industry consumption estimates (for 2017–2020) to align them with available historical data.

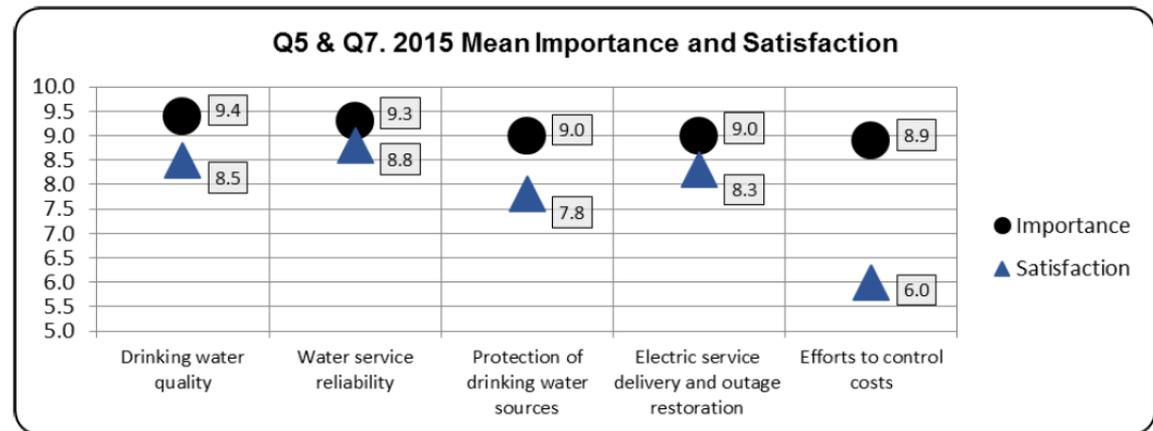
Electric Resources





Foster Customer Confidence

1. Consistent Performance (Safe & Reliable)
2. Cost Improvement
3. Service/Responsiveness
4. Open and Transparent Communications



Questions?