

Responding to the connected future

Mid-West Electric Consumers Association

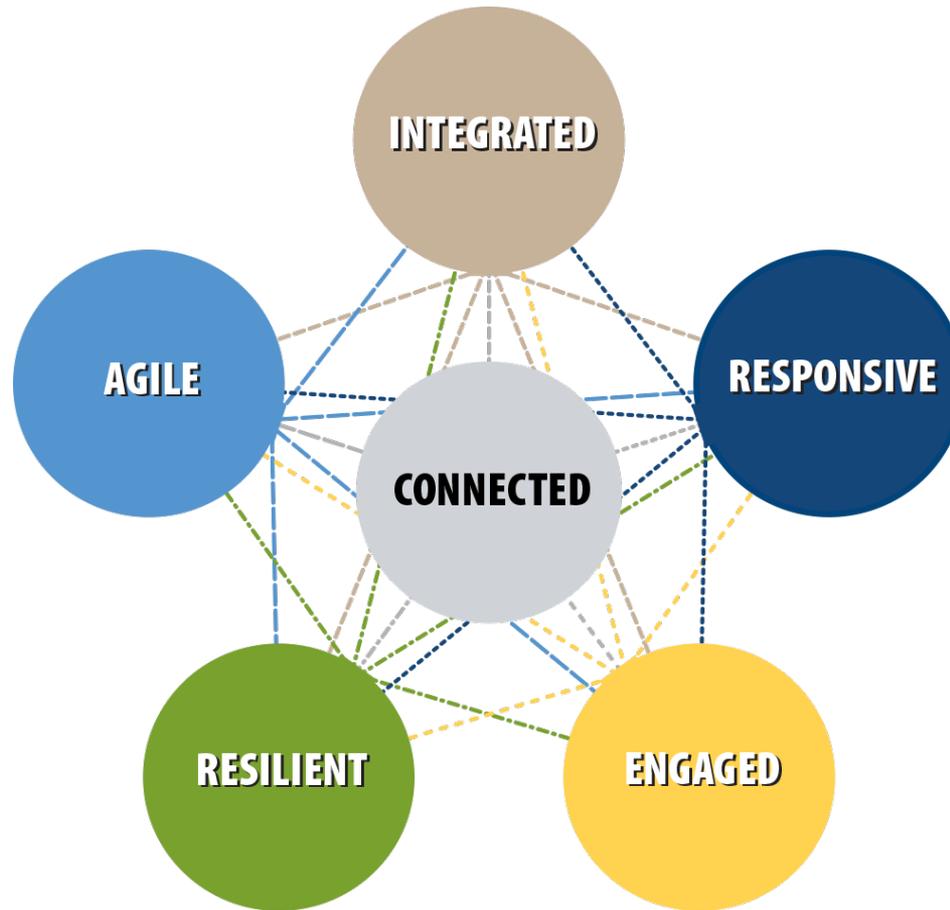
June 18, 2019 | Billings, MT

Mark A. Gabriel
Administrator and CEO

Shared Integrated Grid



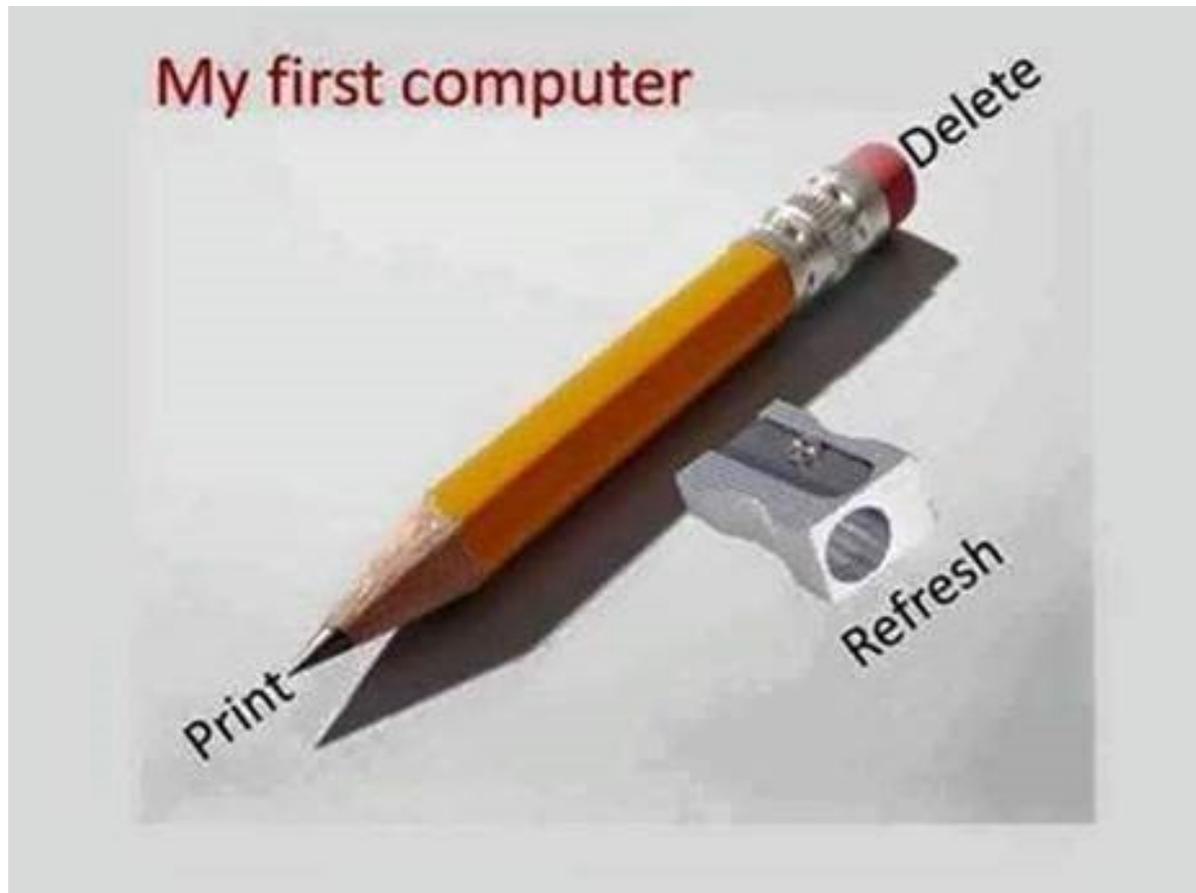
Connected energy future



Strategic Roadmap 2024



It worked, yet...



Why the cloud?

- Vendors switching software to cloud
- Better use of computing resources
- Help manage costs
- On-site servers eventually obsolete
- Expand ability to deliver value
- Increase agility, collaboration & productivity

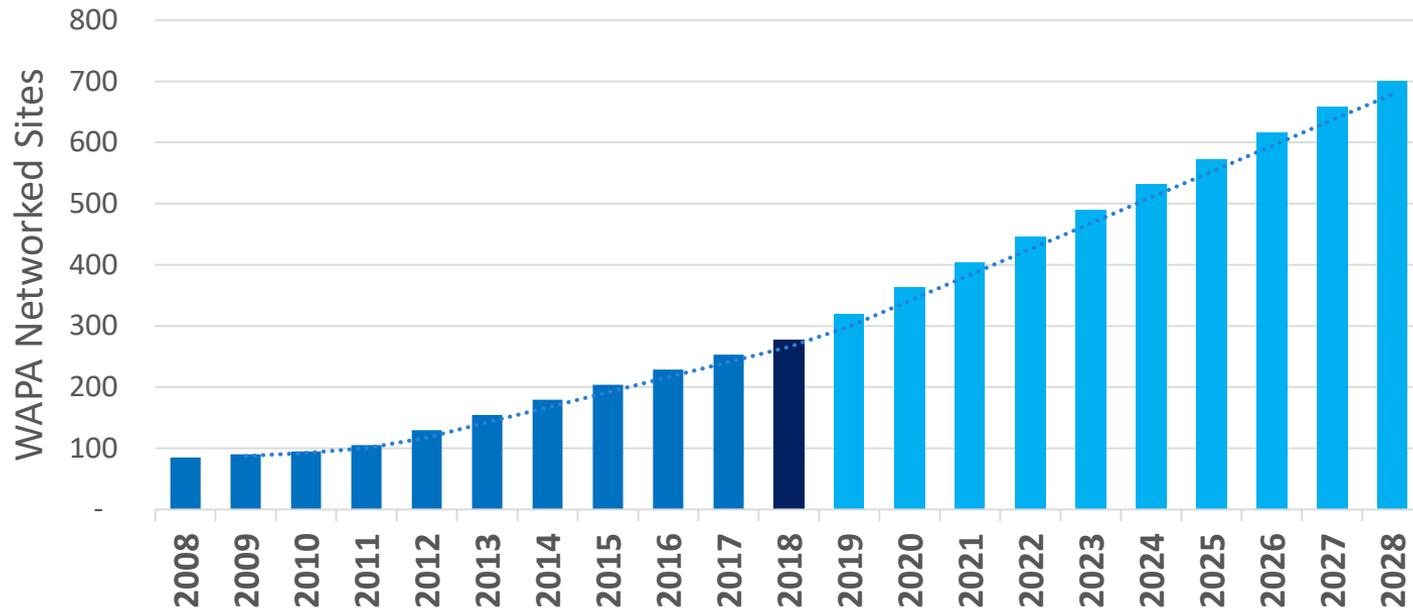


Common SCADA vendor

- Does not equal one SCADA across WAPA
- Equals one SCADA vendor
- Expected benefits
 - Improve operational flexibility
 - Increase reliability
 - Avoid future support and administrative costs due to cross training and supporting multiple contracts

Network expansion

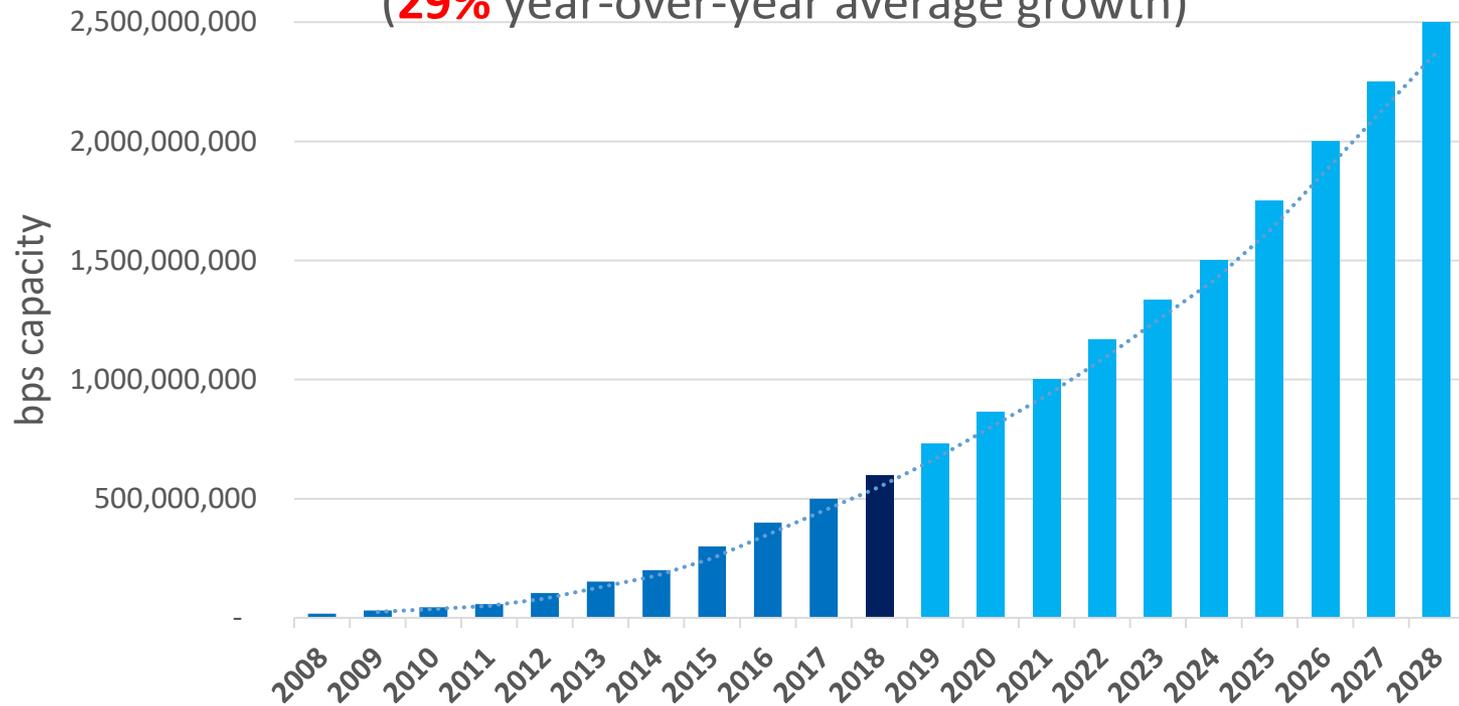
WAPA Networked Locations (10% year-over-year average growth)



Internet use

WAPA Internet Use

(**29%** year-over-year average growth)



Power System Change Control

- CPI project
- System changes not being incorporated into business processes
- Risks
 - Worker safety
 - Grid reliability
 - Limits power marketing capabilities
 - Poor decision making

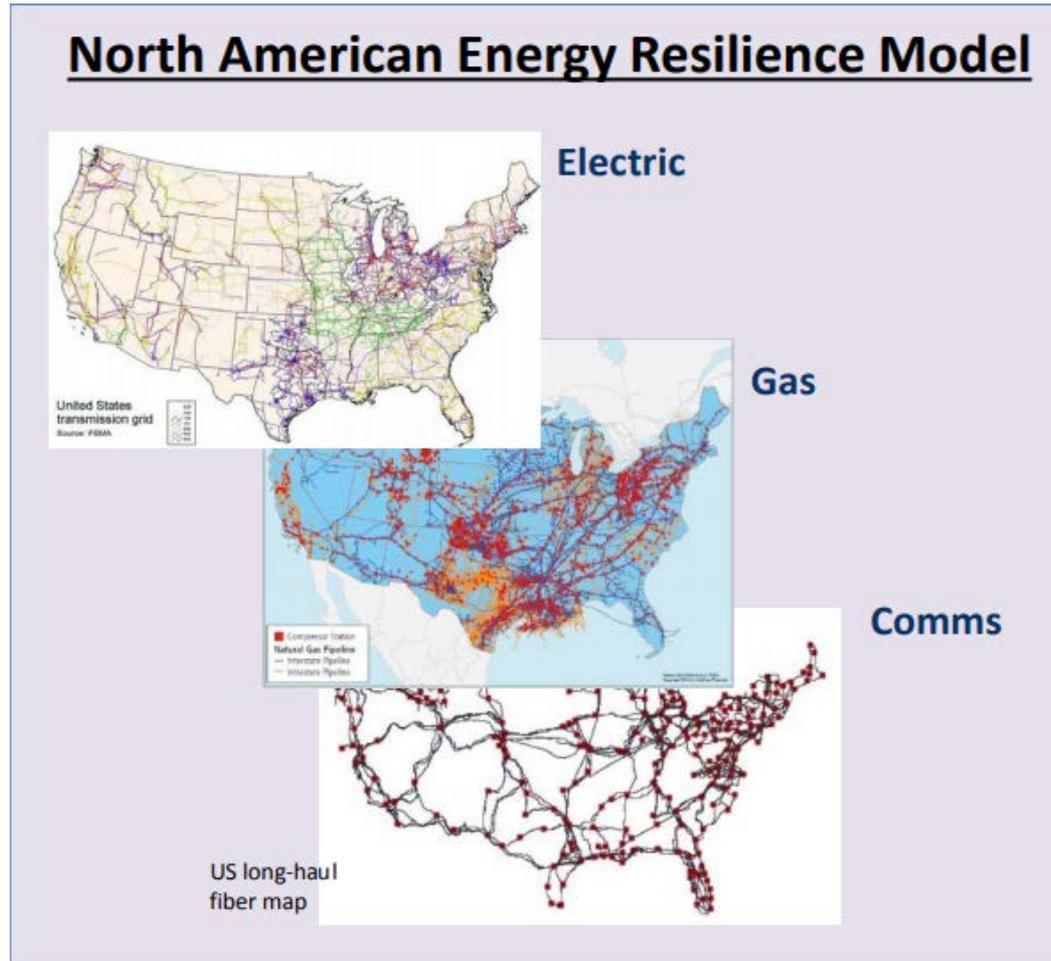


Physical Security update

- Implemented tiered security protection levels to focus resources on more critical sites
 - 1,000+ tasks reduced to ~450
- Expect 94 site assessments to be complete by year's end
- 72% of planned security tasks to be complete for FY 2019
- FY 2020 tasks: 103
- FY 2021 tasks: 72



North American Energy Resiliency Model



Work with DOE

Initiative	DOE-provided non-reimbursable funding
Geomagnetic disturbance study	\$1.2 million
Electro-magnetic pulse study	\$88,787
Fiber partnership	\$750,000 (pending)
Cybersecurity for Protective Relays	\$200,000
IT equipment and licenses	~1.25 million
TOTAL	~\$3.48 million

Fiber update

- **To date**
 - Established Fiber Optic Partnerships feasibility assessment team
 - Submitted plan for Feasibility Assessment to DOE
 - Held initial meeting with work group
- **June-September:** Regional outreach
- **December:** Submit feasibility assessment
- Report progress quarterly using performance metrics

Evolving with industry, customers

- Energy Imbalance Markets
 - **Ensure reliable delivery of our hydropower while adjusting to a changing energy mix**
- Integrated Resource Plans
- RC transition
- Vegetation management
- Northwest Power Pool

Key takeaways

Preparing for a connected energy future.

Stay flexible to meet industry changes.

Preserve and strengthen ability to complete mission.



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Gavins Point