

Idaho Power Distribution System Practices



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Idaho Power Distribution System Goal



“To safely, reliably, and cost-effectively meet near- and long-term load service requirements.”

Core Principle of Distribution System Practices & Planning: Reliability



- Circuit management: Planning capacities, which are more conservative than thermal capacities, used to allow increased operational flexibility
- Standard asset sizes and voltages used to facilitate speedy restoration during maintenance or unplanned outages
- The distribution system designed to meet peak demand, regardless of the largest distributed generator on each circuit or transformer

Primary Driver of Decision-making: Cost-effectiveness



- General process for determining equipment replacement: Asset inspections, performance metrics, preventive maintenance
- Cost-benefit analysis for large distribution projects
- Project prioritization: All projects are ranked based on the costs and drivers including fit within budgeting, timing, and resource constraints.

Four Core Evaluations of the Distribution System



- Load growth
- Aging infrastructure
- Non-wires Solutions
- Optimization and advances in equipment (grid modernization)

Load Growth



- Near-term forecasts: Seasonal peak demand forecasts on ~700 distribution circuits and 300 substation transformers are adjusted to reflect a 1-in-20 year peak temperature event
- Long-term forecasts are based on zoning and future land use

Aging Infrastructure



- Replacement of aging infrastructure (evaluated annually by cost center managers)
 - Based on equipment performance
 - Identified failure points from regularly scheduled patrols and inspections
 - Equipment obsolescence

Distribution

- Overhead Circuits
- Underground Circuits
- Line Equip (Regulators, Capacitors, Reclosers, Transformers)
- Line Switches
- Distribution Relays

Stations

- Transformers
- Circuit Breakers
- Protective Relays
- Instrument Transformers
- Batteries
- Communication Equipment

Non-Wires Solutions



- Optional solutions identified based on: Load shape
 - Time of peak
 - Forecasted growth of the area
- Non-wires solutions compared with traditional solutions for cost-effectiveness including ongoing maintenance

Optimization & Advances in Equipment (Grid Modernization)



- SCADA monitoring
- New Volt/Var control system
- Distribution relay replacement program
- Field Area Network (FAN) addition to expand communication with system equipment