

Power System and Operational Planning

System and Operational Description
Maintenance/Repair
Outage Planning
Emergency Operations

Presented to the visitors from the
National Electric Power Corporation of
Jordan
May 4, 2009

System and Operational Description

- Service Territory
 - 11 counties
 - 1.1 million consumers
 - Approx 35,000 square miles
 - 54 generating units
 - 411 substations
 - 5,234 transmission line miles
 - 28,022 distribution line miles

System and Operational Description

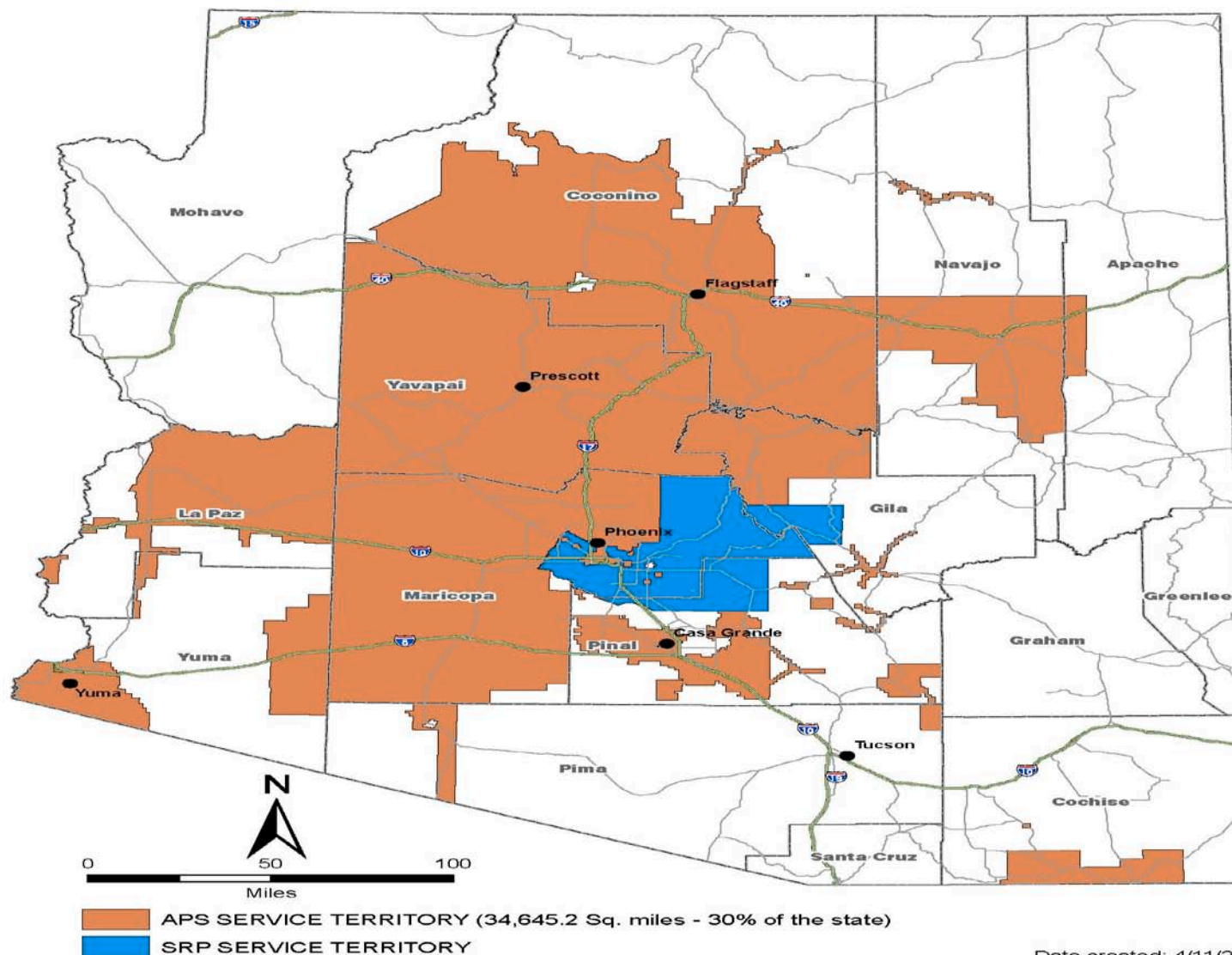
- Operations Description
 - 18 Transmission System Operators
 - 5 work teams, 5 week rotation
 - 4 Outage Coordinators
 - 1 Support Tech
 - 12 Generation/Scheduling System Operators
 - 5 work teams, 5 week rotation
 - 4 Preschedulers

System and Operational Description

- Operations Description
 - APS EHV system and 69 kV system jurisdiction
 - Coordination with intra company distribution operations centers
 - Clearance/Safety coordination with neighboring utilities
 - Clearance/Safety coordination with Construction and Maintenance work teams



APS & SRP SERVICE TERRITORY



Date created: 4/11/2007

Arizona Public Service Company

Maintenance/Repair Description

- Outage Planning
 - Outage coordinators coordination with construction planners/crews
 - Maintenance work routed through coordinators for inter and intra company affect
 - Long range outage plan communication to WECC reliability coordination center
 - Updates as time slides forward

Maintenance/Repair Description

- Questions?

Emergency Operations

- Weather related outages
 - “War Room” activated
 - Outline areas affected
 - Communicate with media/regulators
 - Updates from Energy Control Center
 - Construction/Maintenance crews call out
 - Community APS leadership in contact with local public safety and government
 - Executive Management

Emergency Operations

- Equipment outages
 - “War Room” may be activated
 - Outline areas affected
 - Communicate with media/regulators
 - Updates from Energy Control Center
 - Construction/Maintenance crews call out
 - Operational Engineers review for any solutions outside of existing studies
 - Generation redispatch/Transmission resets

Emergency Operations

- Questions?

Operational Reliability and Stability

- Operations, Controls, Rules and Procedures
 - Continual monitoring of 2 major paths within WECC
 - Continual monitoring APS facilities to ensure within Operating Transfer Capability
 - This is done through the Energy Management System and the System Operators

Operational Reliability and Stability

- Operations, Controls, Rules and Procedures
 - Clearance (safety point) issue is from ECC System Operator to field personnel
 - Not returned until equipment is ready to energized
 - Three legged communications-State, Repeat back, Acknowledge

Operational Reliability and Stability

- Training and Tools
 - Operator simulator addition to EMS
 - NERC Certification training
 - WECC Operations training
 - System Dynamic training to supplement continuing education for certification
 - Transmission Operator step level responsibility (12kv, 69kv, EHV) – 3 yr process

Operational Reliability and Stability

- Training and Tools
 - Generally Transmission function only, not generation
 - Scheduling and Generation System Operator 6 month process, not transmission function capable

Operational Reliability and Stability

- Questions?