SRP COMPANY OVERVIEW

SRP is an Arizona based public power serving 1.1 million customers in the Phoenix metro area

Service Area

Service Quality

Power and Financial Data

Power data FY21

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electric service area</td>
<td>2,800 sq mi</td>
</tr>
<tr>
<td>Electric customers, year-end</td>
<td>1,090,264</td>
</tr>
<tr>
<td>Peak - SRP retail customers</td>
<td>7,615,000 kWh</td>
</tr>
<tr>
<td>Total electric sales</td>
<td>41,433 GWh</td>
</tr>
</tbody>
</table>

Financial data FY21

<table>
<thead>
<tr>
<th>Metric</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total operating revenues</td>
<td>$1,475,507,000</td>
</tr>
<tr>
<td>Total operating expenses</td>
<td>$3,045,280,000</td>
</tr>
<tr>
<td>Net revenues for the year</td>
<td>$577,052,000</td>
</tr>
<tr>
<td>Net income plant gross</td>
<td>$17,303,702,000</td>
</tr>
<tr>
<td>Electric revenue contributions to support water operations</td>
<td>$65,202,000</td>
</tr>
<tr>
<td>Taxes &amp; tax equivalents</td>
<td>$170,610,000</td>
</tr>
<tr>
<td>Debt ratio</td>
<td>44.3</td>
</tr>
<tr>
<td>Debt service coverage ratio</td>
<td>4.0</td>
</tr>
<tr>
<td>Employees, year-end</td>
<td>4,846</td>
</tr>
</tbody>
</table>

SRP operates on a fiscal year of May 1 through April 30.
SRP SYNCHROPHASOR SYSTEM

- APPROXIMATELY 500 PMUS IN SERVICE
- CLOSE TO 900 PMUS AVAILABLE
- ONLY ONE PMU PER SYSTEM ELEMENT (MULTIPLE AVAILABLE)
- PMU DEVICES
  - SEL411L
  - SEL735
  - GE L90
  - Tesla DFR
- SYSTEM COVERAGE
  - 90% OF 500KV
  - 70% OF 230KV
  - 30% OF 115KV
  - 30% OF 69KV
  - <10% OF 12KV DISTRIBUTION
- GENERATION PMU

PMU INSTALLATIONS DRIVEN BY FIELD DEVICE UPGRADES.

©Salt River Project, 2022. All rights reserved. FOR INTERNAL USE ONLY. DO NOT DISTRIBUTE.
SRP REAL-TIME OPERATIONS TOOLS

SYNCHROWAVE OPERATIONS (NO REAL-TIME DECISIONS ALLOWED)
- Transmission Operator system awareness
- Transmission Engineer offline analysis and data extraction
- Distribution pilot to realize initial value of substation distribution PMUs
- **Driver**: Gap of real-time control room system dynamics situational awareness
- *Part of SRP Synchrophasor Roadmap*

BIGWOOD TSA/VSA AND NON-LINEAR STATE ESTIMATOR
- Real-time Operator transient and voltage stability assessments
- RTCA backup/validation
- PMU-based state estimator for backup/validation
- **Driver**: Gap of real-time voltage and transient stability assessment
SRP REAL-TIME OPERATIONS TOOLS

MANTRA OSCILLATION ANALYSIS TOOL
• Transmission Engineer online oscillation monitoring
• Transmission Engineer offline oscillation analysis
• Driver: Gap of system dynamic oscillatory mode monitoring
• Part of SRP Synchrophasor Roadmap
OBSTACLES TO DEPLOYMENT/LESSONS LEARNED

• Building the case for discovering system anomalies/issues that are not apparent. You don’t know what you don’t know.
  • Solution: Diligence, diligence, diligence

• Operator acceptance (still slow going, but that is natural)
  • Solution: Technology and tool incremental training

• CIP concerns present on use of any real-time tool. No SOPs developed and system architecture improvements not planned unless desire for real-time is established.
  • Solution: Instruction to system operators that situational awareness tools are to be used for situational awareness only.
thank you!