UNS Energy Corporation
A Fortis Company

Tucson Electric Power | Unisource Energy

Meeting Minutes

Resource Planning Advisory Council Joint Modeling Committee – Virtual Meeting

Date Thursday, June 29, 2023
Time 11:00 AM – 2:00 PM MST
Location Online

Agenda

11:00	Welcome & Introductions
11:10	AURORA Modeling Capability Overview
11:20	AURORA Model Logistics
12:30	Break
12:40	AURORA Model Logistics (continued)
1:15	APS Specific Database Overview
1:30	TEP Specific Database Overview
1:45	Stakeholder Additional Questions
1:55	Action Items Review and Next Meeting Setup

Attendees	Organization
Alex Routhier	Western Resource Advocates
Alejandro Palomino	Energy Strategy
Autumn Johnson	Arizona Solar Energy Industries Association
Tara Beske	APS
Caryn Potter	SWEEP
Chaunce De Roos	Arizona Corporation Commission
Devi Glick	Synapse
Luke Hutchinson	Arizona Corporation Commission
Sandy Bahr	Sierra Club
Sabine Chavin	Synapse
Taylor McNair	GridLab
Deborah Austin-Smith	Energy Exemplar
Michael Eugenis	APS
Kendall Wimsett	Energy Exemplar
Steven Olson	Energy Exemplar
Akhil Mandadi	APS
Todd Komaromy	APS
Nicholas	
Tyler Fitch	RMI
Ilse Morales Duarte	TEP
Lee Alter	TEP

AURORA Model Logistics (Utility responses provided in bold print)

RMC members expressed:

- Clarification for two sections - baseload vs commitment resources, with must-run after nuclear. Only base load resources can be considered must-run?
  Must-run can be applied to anything, including renewables.

- How AURORA defines base load vs commitment?
  Commitment decisions are based on units themselves.

- Structuring for how APS and TEP do things specifically for each utility in the AURORA model. DSM as a dispatchable resource instead of being a pre-set, given load modifier at the front end of the modeling.

- Interested to hear about how model commitment modes (and/or LT sampling chronologies) impact battery build/dispatch decisions. Something we've wrestled with in PLEXOS.

- How must-run can be triggered based on the most least-cost resources to reduce load pocket congestion on the distribution system.

- Four-year reserves in the in the modeling, calculating reserves needed - as a percentage of total system load or largest n -1 loss possibility?

  The two options currently being used are either the load for a specified set of zones, or a MW value. It's probably associated with the largest single resource in the system. AURORA models loss of load probability or energy studies. Risk type of analysis with hundreds of runs, lots of variability on the performance of the resources and the system as well as variability around the transmission capacity using the risk functionality.

- AC feasibility of linearized solution created from the model.
  Model is a zonal model especially for APS without transmission assets, or power flow. Option for optimal power flow being done. Not a transmission-based model.

- Study types and simulation options settings defined in the database provided by APS/TEP.
  Yes, APS will speak to some of the key settings and rationale.

- Inquiries about the Gurobi License not being installed, Gurobi Licenses were associated with TEP licenses, but not with APS licenses.

- Resource properties, constraints in the test case, annotation documented.

Technically, these units in other situations could be run more dynamically and more flexibly, but limited to utility own operations, representing the system as it is currently operated. Condition in which the data/project files are set up is how the resources are operated.

- Help PDF file to search through vs. the AURORA program help function.
- Resource properties, constraints in the test case, annotation documented.
- Questions on the new resource tab and capital costs input, resources in the external region, set dispatch pricing, definition of external resources.
  Fixed costs are capital expenses depending on the types of resources and categorization. The naming conventions are self-documenting. All the data here is the fixed cost for all the new resource alternatives.
- The MW-week metric.
  System memory requirements for AURORA runs. Run time depends on the type of run, number of constraints. Generally speaking, runtime is provided in the AURORA study log at the bottom. Unit commitment has the most impact on runtime, so commitment is not a small consideration ever.
- Storage space requirements for the output databases after each reference case run.
  APS' default settings output databases are about 9 GB.
- Inquiries about change sets that were shown for APS project file.
  Purely for demonstration purposes, not real change sets.

RMC members offered the following goals and objectives of modeling TEP/UNSE's data:

- Utilities' major assumptions (generation profiles, capacity contributions, etc.
- "Levers" in the model.
- Sensitivity of results to fuel prices and other major assumptions.
- Timing/impact of plant closures and seasonal operations.
- Impact of technology and performance on portfolio costs (and reliability).
- Impact of EPA's proposed CO_2 regulations
- Contribution of EE to portfolio costs and resource adequacy.
- Electrification and supply chain issues, particularly with batteries.

APS-Specific Database Overview

- Need Gurobi optimizer license.
- Operating reserves hardwired into the demand. Users important for reliability, load shed kind of determinations and putting them as a firm obligation. Gross load, historical and future DG included.
- Demand response modelling more challenging in production cost models. Represented as capacity resources. Better represented as emergency purchases and sales, otherwise production cost is very close to expected results. Explicitly modeled in provided database and impacts are taken into account.
- Difference between embedded and incremental DG.
- DSM including DR programs or EE as well.
- Modeling DSM and breaking up DG into historic and future (controllable) components.
- Derivation of components like reserve margin and capital costs.

TEP-Specific Database Overview

- Response to study request email.
- Planning Reserve, Reliability assessment, ELCCs and application to model.
- ELCC study to be presented at next RPAC meeting.
- ACC view on stakeholder input.
- Impact of code enhancements and developments as relates to DSM.
- Impact of time of use rates on the model.
- Possible need for portfolio that stresses a system on DSM or shows the improvements of the DSM.

Additional RMC Feedback

- Access to APS & TEP presentation slides afterward.
- Portfolio dashboards from prior IRP were helpful, could be improved.
- RPAC members themselves have no experience working directly with planning models, although some are familiar with them and with open-source models.

- Consultants on the RMC have experience with PLEXOS, Encompass, and other models but not AURORA.

Action Items Review and Next Meeting Setup

- Next week.