



Joint RPAC Modeling Committee Kickoff Meeting

June 13, 2023





Agenda

1. Introductions
2. Recap of TEP-RPAC modeling meeting
3. Scope and purpose of the joint RPAC Modeling Committee (RMC)
4. Status of model transfer and tech support
5. Demonstration: EnergyExemplar website and client portal
6. Demonstration: Aurora in action
7. Reference case scope and purpose
8. Next steps



Introductions

RPAC Modeling Committee

ACC		APS NDA?	TEP NDA?	Aurora License?
Luke Hutchison	lhutchison@azcc.gov	Y	Y	Later
Chaunce De Roos	cderoos@azcc.gov	Y	Y	Later
AriSEIA				
Autumn Johnson	autumn@tierrastrategy.com	Y	Y	Y
Tyler Fitch, RMI	tyler.fitch@rmi.org	Y	Y	Y
Sierra Club				
Sandy Bahr	sandy.bahr@sierraclub.org	Y	Y	Y
Devi Glick, Synapse	dglick@synapse-energy.com	Y	Y	Y
SWEEP				
Caryn Potter	cpotter@swenergy.org	Y	Y	N
WRA				
Alex Routhier	alex.routhier@westernresources.org	Y	Y	Y
Keegan Moyer, Energy Strategies	kmoyer@energystrat.com	Y	Y	Y
Alejandro (Alex) Palomino, Energy Strategies	apalomino@energystrat.com	Y	Y	Y
Taylor McNair, GridLabs	Taylor@gridlab.org	Y	Y	Y

Individuals at other organizations who signed NDAs

Kate Bowman, Vote Solar	Y	Y
Diane Brown, PIRG	Y	Y
Samuel Johnston, Interwest Energy Alliance	Y	Y
Adrian Keller, Solar United Neighbors	Under discussion	Y

Facilitators

Lee Alter, TEP
 Ilse Morales Duarte, TEP

Akhil Mandadi, APS
 Tara Beske, APS



Recap of TEP-RPAC Modeling Meeting

- Modeling objectives/questions
 - Utilities' major assumptions
 - “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 CO2 regulations
 - Contribution of EE to portfolio costs and resource adequacy
 - Electrification and supply chain issues, particularly with batteries
- Modeling experience
 - RPAC members themselves have no experience working directly with planning models, although some familiarity with them and with open source models
 - Consultants on RMC have experience with PLEXOS, Encompass, and other models but not Aurora



Recap of TEP-RPAC Modeling Meeting

- Implications for training
 - Coordinate with APS
 - Break into topical areas
 - Provide high-level overview for all and in-depth opportunities for those running models
 - Avail ourselves as much as possible of EnergyExemplar's expertise, including understanding IT requirements and trouble-shooting that doesn't involve TEP/APS data per se



Scope and Purpose of the RMC

APS and TEP/UNSE will

- Provide software, data, and support to RPAC members who intend to perform their own modeling in Aurora
- Help establish common vocabulary, definitions, and metrics of model performance and portfolio results
- Promote efficient use of resources among RPAC members, EnergyExemplar, APS, and TEP/UNSE
- Answer questions about their data and the settings in their models

9 IT IS FURTHER ORDERED that Arizona Public Service Company, Tucson Electric Power
10 Company, and UNS Electric, Inc. shall in future Integrated Resource Plans negotiate a project-based
11 licensing fee that permits up to 12 Resource Planning Advisory Council members and Staff the
12 ability to perform their own modeling runs in the same software package as these load serving
13 entities, and to provide all necessary data and support to fully utilize the models. The load serving
14 entities shall absorb the cost of the licensing fees.

ACC Decision Number 78499



Scope and Purpose of the RMC

The RMC “will”	The RMC “will not”	The RMC may
<ul style="list-style-type: none">• Collaborate to promote the efficient implementation and appropriate use of Aurora for IRP purposes• Discuss how Aurora can be used to design portfolios and test them against various scenarios• Strive for consistency in how Aurora is applied (e.g., ref case)<ul style="list-style-type: none">• Limit changes to items that are of primary interest and can have meaningful effects• Will facilitate any comparison of results in the future	<ul style="list-style-type: none">• Design specific portfolios• Substitute for discussions and activities intended for the full APS and TEP/UNS RPACs	<ul style="list-style-type: none">• Discuss how to design and apply sensitivity tests and alternative scenario conditions• Continue beyond July or reconvene at a later date if RPAC members and utilities agree



Status of Model Transfer and Tech Support

- All RMC members should have access to EE's Client Portal and should be able to download and install Aurora
- This week: EE hosting user conference in Nashville
- By June 19: EE will provide Aurora license keys and Gurobi license files
- Week of June 19: RMC members stand up models with help from EE, and when necessary from utilities
- By June 26: APS and TEP deliver their respective databases
- Week of June 26: Training #1 Production Cost Modeling
- Week of July 3: Training #2 Capacity Expansion Modeling

JUNE 2023

SUN	MON	TUE	WED	THU	FRI	SAT
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

JULY 2023

SUN	MON	TUE	WED	THU	FRI	SAT
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www.calendaroptions.com



Demo: EnergyExemplar Website and Client Portal



Demo: Aurora In Action

- Archiving and sharing an Aurora project
- Unarchiving and opening an Aurora project
- Navigating the user interface / getting help
- Creating and managing input and output databases
- Creating and managing change sets for scenario analysis
- Running simulations
- Viewing results



Reference Case Scope and Purpose

- Base case (TEP/UNSE)
 - Includes planned retirements and planned additions (contracts signed or under negotiation)
 - Will result in resource gap in future years and help identify future resource needs
- Reference case (TEP/UNSE)
 - On top of the base case, includes a set future resources sufficient to reliably meet all future resource needs
 - Provides basis for comparing results across users and portfolios
 - Not necessarily representative of business as usual, least-cost, or preferred portfolios
- APS and TEP will each develop its own reference case
 - TEP intends to base reference case on 2020 plan as starting point for 2023
 - APS intends to base reference case on outcome of capacity expansion modeling
 - Should stakeholders use or at least start with the same reference case?
 - If so, should results compared to those of APS and TEP? As part of RMC?
- Expectations around sharing any other results, bugs, or insights
- Expectations around common assumptions for the IRA, proposed EPA regs, regional haze, etc.
- Will any members be modeling utility data with other models (Encompass, PLEXOS, etc.)?



Next Steps

- Follow-up meetings to discuss the reference case, reporting metrics, preliminary results, etc.
 - Week of July 10
 - Week of July 24
- Parking lot items