MARCH 2025

AURORA

Release Notes

VERSION 16.0

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1 Introduction

Aurora 16.0 features powerful modeling improvements such as multi-dimensional ELCC surfaces, extended constraint options and fuel blending functionality. This release also boosts productivity and automation with enhanced scripting functionality and additional reporting features.

> ⚠️ During installation, register Aurora by logging in to our Central Licensing Manager, or using your company's registration credentials (for legacy licensees). Contact Energy Exemplar support at (208) 255-3993 or support@energyexemplar.com if you need assistance.

2 Productivity

2.1 Modify Parameter Sets Through Scripting

Scripting enhancements allow the user to modify Parameter Sets directly through scripting functions, enabling further automation and streamlined workflows. Aurora 16.0 introduces 11 new AC functions like `AC.GetParameterSets()`, `AC.UpdateParameterInParameterSet()`, and `AC.ApplyParameterSetToProject()`. Additionally, Aurora 16.0 users now have access to all parameter enums via the new function, `AC.WriteEnumsToTxtFile()`.

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3 Modeling

3.1 Reliable Capacity Groups

Aurora 16.0 now supports multidimensional Effective Load Carrying Capability (ELCC) curves with the introduction of Reliable Capacity Groups. This exciting new feature enhances the modeling of capacity contributions across various dimensions, delivering a more precise and reliable picture of resource adequacy.

3.2 Fuel Blending Constraints

Aurora 16.0 introduces a new feature that lets you apply annual and monthly fuel blending constraints directly through the Constraint Table. This means you can now target specific fuels for blending, eliminating the need to set ratios on individual resources.

To support this, the Constraint table has a new column, **Blend Fuel Constraint ID**, along with two new constraint types: **Fuel Min Blend** and **Fuel Max Blend.**

These constraints apply fuel blending between two fuels and must reference an appropriate existing Fuel type constraint -

1. **Fuel Min Blend** requires a reference to a Fuel Max type constraint.
2. **Fuel Max Blend** requires a reference to a Fuel Min type constraint.

The reference is provided via the **Blend Fuel Constraint ID** to ensure proper application of the blending constraints.

3.3 Max Up Time

We have introduced **Max Up Time** for commitment resources. Use this option to specify the maximum number of hours a resource can remain online once committed. No constraint will be enforced if the input is left blank.

3.4 More Options for Energy and LT Capacity Constraints

A new column, **Constraint Apply Option**, has been introduced in the Constraint Table. This column is applicable only for Energy-type constraints and LT Capacity Constraints.

This dropdown offers two options:

- **Individually** – Applies the constraint limit to each resource individually

- **Together** – Applies the constraint limit collectively to all resources (or all new resource builds).

This makes setting up LT Capacity limits a breeze. Plus, it offers the added advantage of individually capping energy for individual new resources as they're brought online, giving you more control and flexibility.

4 Supplemental Parameters

4.1 Include Resource Level Emission Price

This new parameter keeps your resource-level emission prices even when participating in an emission constraint. Instead of overriding them, the resource-specific prices are added to the emission cost from the constraint.

4.2 Final Energy Only Max Iterations

Customize the maximum number of Energy Only iterations for Aurora. Energy Only iterations help remove negatively valued resources. This can be used for both Energy Only and Reserve Margin Long Term studies.

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5 Reporting

5.1 Improved Reporting for Blended Fuels

We have modified the reporting for the following columns in the Resource Output Table when fuel blending is involved:

- Fuel_Cost
- Incr_Cost
- Dispatch_Cost
- Incr_Heat_Rate
- Full_Load_Heat_Rate
- Full_Load_Cost

These columns will now report values based on the fuel blend ratio, which is generally calculated based on fuel usage. In cases where resource segment output (or resource output) is zero, the reported values are determined using the blend ratio specified in input.

5.2 Write Input to Output

We have improved the Write Input to Output process to include table type prefixes in table names. This enhancement makes it easier to distinguish and process different output tables. A full list of table prefixes is available in the help system.

5.3 New Output Reporting

We have added the following Output columns for this release:

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OUTPUT TABLE(S)	COLUMN(S)
Pool	Dump_Cost_Total
	Dump_Energy
	Dump_Energy_Total
	Planning_Reserve_Requirement
	Act_Peak_DSM_Output
	Act_Peak_Input_Demand
	Total_Fuel_Cost
	Total_Variable_OM_Cost
	Reliable_Capacity_Group_Contribution
	**These columns were present in prior versions of Aurora and triggered using ORDC logic. The behavior has been modified so these columns will always be written.
	ORDC_Final_Price
	ORDC_Lamda
	ORDC_Mu
	ORDC_RTOFFCAP
	ORDC_RTOLCAP
	ORDC_RTOFFPA
	ORDC_RTORPA
	ORDC_Sigma
	ORDC_VOLL

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OUTPUT TABLE(S)	COLUMN(S)
Zone	Dump_Cost_Total
	Dump_Energy
	Dump_Energy_Total
	Planning_Reserve_Requirement
	Act_Peak_DSM_Output
	Act_Peak_Input_Demand
	Total_Fuel_Cost
	Total_Variable_OM_Cost
	Reliable_Capacity_Group_Contribution
Resource	Storage_Duration
	RTOLCAP_Contribution
	RTOFFCAP_Contribution
LTAvgPrice	Demand_Side_Output_Total
ResourceGroup	Peak_Capacity
	Marginal_Reliable_Capacity

6 Solvers

6.1 Gurobi

This release updates the Gurobi optimization engine to the version of Gurobi 12.0.1

6.2 Mosek

This release includes an update of the Mosek solver to version 11.0.4.

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7 Support Information

7.1 Updates on the Web

All updates to Aurora are available in the Client Portal,
[https://energyexemplar.com/client‑login/.](https://energyexemplar.com/client-login/)

Enter your username and password to select the desired update. Contact support@energyexemplar.com if you do not know the username and password. Be sure to review the Aurora Enhancement Log before downloading a new version of the software from the website.

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