



# Proposed Changes in eMKT to Reflect Resource Capability

Tier 1 Compensation (MIC)

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Michael Olaleye

Senior Engineer, Real-Time Market Operations

Unit Schedules Dispatch Lambda Market Results Regulation Market **Synchronized Reserve Market** Nonsynchronized Reserve Market DA Scheduling Reserve Market Con Ed Parameter Limits Interface Pricing Opportunity Cost Calculator

Synchronized Reserve Offers **Synchronized Reserve Updates** Synchronized Reserve Bilaterals

**Synchronized Reserve Updates**

Portfolio: Gen Resources Unit: PJM XYZ Date: 05/11/2015  
 (mm/dd/yyyy)

Hourly Values Apply To: 08-23

Defaults Offer MW 30 Spin Max 580 Available Available Self Sched. MW 0.0

**Synchronized Reserve Update Results for PJM XYZ (12345678) on 05/11/2015**

Hour Ending	Offer MW	Spin Max	Available Status	Self Scheduled MW
01	0.0	0.0	Not Available	0.0
02	0.0	0.0	Not Available	0.0
03	0.0	0.0	Not Available	0.0
04	0.0	0.0	Not Available	0.0
05	0.0	0.0	Not Available	0.0
06	0.0	0.0	Not Available	0.0
07	0.0	0.0	Not Available	0.0
08	0.0	0.0	Not Available	0.0
09	0.0	0.0	Not Available	0.0
10	0.0	0.0	Not Available	0.0
11	0.0	0.0	Not Available	0.0
12	120.0	130.0	Available	0.0
13	120.0	160.0	Available	0.0
14	120.0	330.0	Available	0.0
15	120.0	340.0	Available	0.0
16	120.0	470.0	Available	0.0
17	120.0	565.0	Not Available	0.0
18	120.0	565.0	Not Available	0.0
19	120.0	565.0	Available	0.0
20	120.0	565.0	Available	0.0

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- Hourly update page is locked 2 hrs. ahead of the operating hour;
- ASO for Hour Ending 18 (17 – 18) runs at 1600;
- The only change after ASO case approval is the "Not Available"
  - "Not Available" status can be communicated only on the phone to PJM dispatcher

Closed

Unit Hourly Updates Search

Portfolio: Gen Resources Unit: PJM XYZ Date: 05/11/2015 (mm/dd/yyyy) Change Date

Hourly Values Apply To: 08-23 Apply Use Unit Defaults

Defaults 140.0 140.0 580.0 610.0 Economic No  
 Emergency Min 140.0 Economic Min 140.0 Economic Max 580.0 Emergency Max 610.0 Commit Status Economic Fixed Gen No

Last Updated Date/Time: 05/11/2015 05:04:54 PM

Unit Hourly Updates for PJM XYZ (12345678) on 05/11/2015

Hour Ending	Em. Min. Def.	Em. Min. MW	Ec. Min. Def.	Ec. Min. MW	CIR	Ec. Max. Def.	Ec. Max. MW	Em. Max. Def.	Em. Max. MW	Commit Status	Fixed Gen.	Notification Time.
01	140.0	0.0	140.0	0.0	(null)	565.0	0.0	583.0	0.0	Not Available	No	(null)
02	140.0	0.0	140.0	0.0	(null)	565.0	0.0	583.0	0.0	Not Available	No	(null)
03	140.0	0.0	140.0	0.0	(null)	565.0	0.0	583.0	0.0	Not Available	No	(null)
04	140.0	0.0	140.0	0.0	(null)	565.0	0.0	583.0	0.0	Not Available	No	(null)
05	140.0	0.0	140.0	0.0	(null)	565.0	0.0	583.0	0.0	Not Available	No	(null)
06	140.0	0.0	140.0	0.0	(null)	565.0	0.0	583.0	0.0	Not Available	No	(null)
07	140.0	0.0	140.0	0.0	(null)	565.0	0.0	583.0	0.0	Not Available	No	(null)
08	140.0	0.0	140.0	0.0	(null)	565.0	0.0	583.0	0.0	Not Available	No	(null)
09	140.0	0.0	140.0	0.0	(null)	565.0	0.0	583.0	0.0	Not Available	No	(null)
10	140.0	0.0	140.0	0.0	(null)	565.0	0.0	583.0	0.0	Not Available	No	(null)
11	140.0	0.0	140.0	0.0	(null)	565.0	0.0	583.0	0.0	Not Available	No	(null)
12	140.0	130.0	140.0	130.0	(null)	565.0	130.0	583.0	130.0	Not Available	No	(null)
13	140.0	160.0	140.0	160.0	(null)	565.0	160.0	583.0	160.0	Not Available	No	(null)
14	140.0	330.0	140.0	330.0	(null)	565.0	330.0	583.0	330.0	Not Available	No	(null)
15	140.0	340.0	140.0	340.0	(null)	565.0	340.0	583.0	340.0	Not Available	No	(null)
16	140.0	470.0	140.0	470.0	(null)	565.0	470.0	583.0	470.0	Not Available	No	(null)
17	140.0	300.0	140.0	300.0	(null)	565.0	560.0	583.0	565.0	MustRun	No	(null)
18	140.0	300.0	140.0	300.0	(null)	565.0	550.0	583.0	550.0	MustRun	No	(null)
19	140.0	304.0	140.0	304.0	(null)	565.0	560.0	583.0	565.0	MustRun	No	(null)
20	140.0	304.0	140.0	304.0	(null)	565.0	560.0	583.0	565.0	MustRun	No	(null)

Taskbar: 6:09 PM 5/11/2015

- Change Synchronized Reserve Updates page to behave similar to Unit Hourly Updates
  - Accept updates until the end of operating hour;
- Inflexible Tier2 committed in ASO are locked with resource parameters used in clearing;
- RTSCED will be able to use latest parameters from eMKT that reflects current capability of the resource in estimating Tier 1 MW and clearing flexible Tier 2 MW

Closed

- Opening up Synchronized Reserve Update page
  - Will allow Market Participant to accurately reflect resource capability in real-time via eMKT;
  - Will allow RTSCED to correctly evaluate Tier1 MW based on resource capability as submitted;
  - Will allow changes that affect ONLY reserve calculation and procurement;

# Example 1 – Modeling Mill-points on a Unit with Physical Limitation

## Unit Parameters

EcoMax = 500 MW

Mill-point 1 at 300 MW takes 20 minutes

Mill-point 2 at 400 MW takes 20 minutes

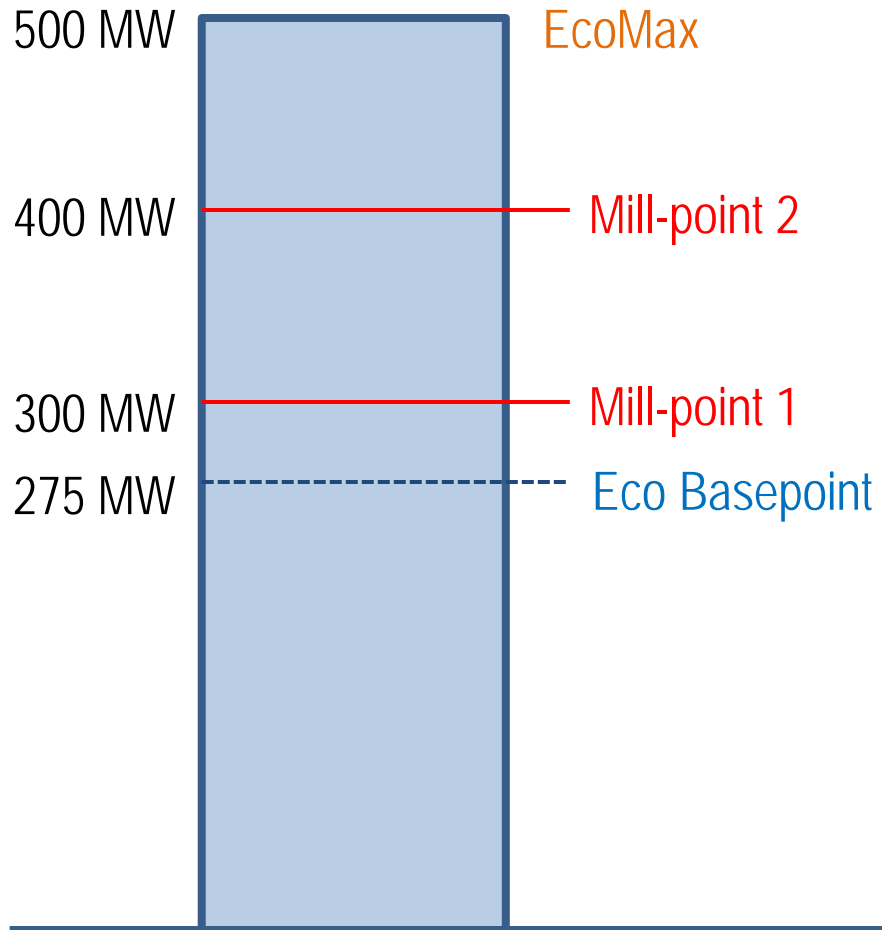
Ramp Rate = 5 MW/Min

No SpinMax value entered

*Exception to allow EcoMax > SpinMax*

$$\begin{aligned} \text{Tier 1 MW Estimate} &= \min(\text{EcoMax} - \text{EcoBP}, 10 * \text{RampRate}) \\ &= \min(500 - 275, 10 * 5) = \mathbf{50 \text{ MW}} \end{aligned}$$

*Realistically 50 MW of Tier 1 is not achievable in 10 minutes due to mill-point*



# Example 2 – Using SpinMax to Model Mill-points on a Unit with Physical Limitation

## Unit Parameters

EcoMax = 500 MW

Mill-point at 300 MW takes 20 minutes

Mill-point at 400 MW takes 20 minutes

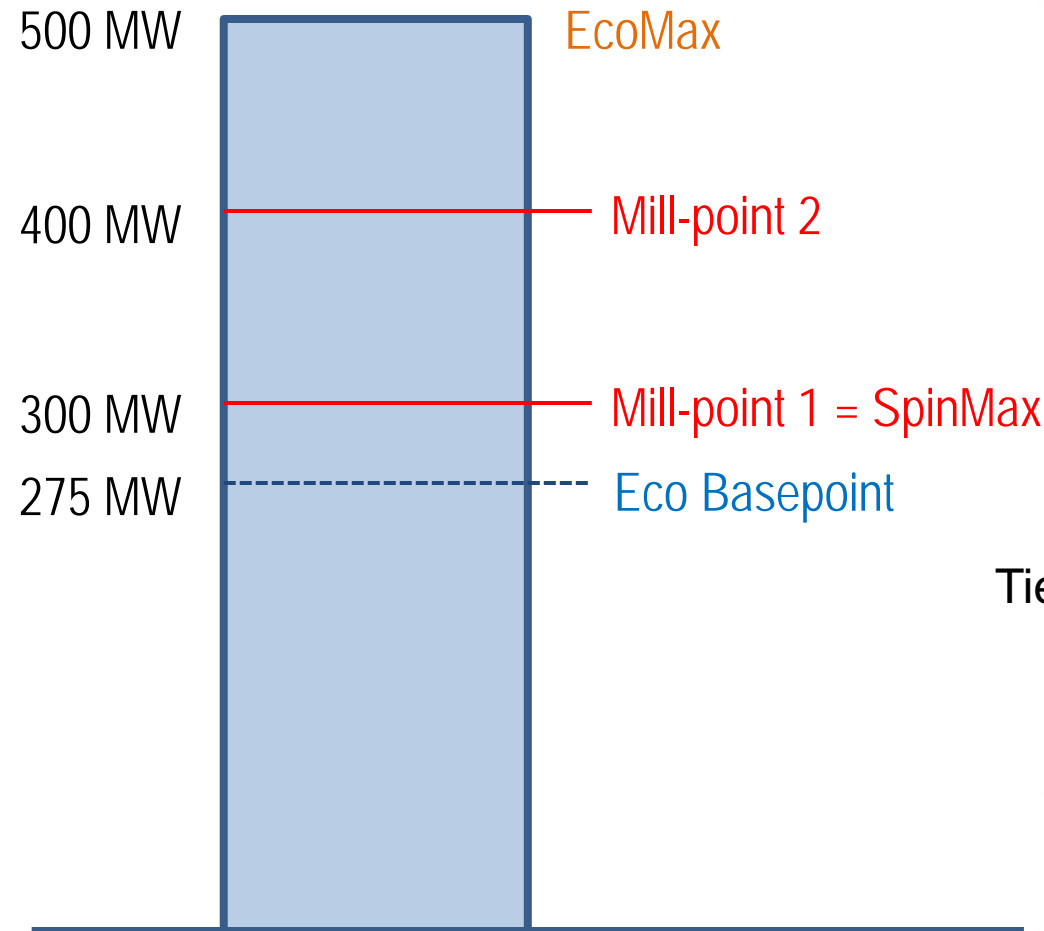
Ramp Rate = 5 MW/Min

Mill-point1 = SpinMax = 300 MW

*Exception to allow EcoMax > SpinMax*

$$\begin{aligned} \text{Tier 1 MW Estimate} &= \min (\text{SpinMax} - \text{EcoBP}, 10 * \text{RampRate}) \\ &= \min (300 - 275, 10 * 5) = \mathbf{25 \text{ MW}} \end{aligned}$$

A more realistic Tier 1 MW estimate when physical limitation is modeled  
- SpinMax used to model mill-point





# Example 3 – Using SpinMax to Model Mill-points on a Unit with Physical Limitation

## Unit Parameters

EcoMax = 500 MW

Mill-point 1 at 300 MW takes 20 minutes

Mill-point 2 at 400 MW takes 20 minutes

Ramp Rate = 5 MW/Min

Mill-point 2 = SpinMax = 400 MW ---- SpinMax updated to 400 MW

*Exception to allow EcoMax > SpinMax*

$$\begin{aligned} \text{Tier 1 MW Estimate} &= \min(\text{SpinMax} - \text{EcoBP}, 10 * \text{RampRate}) \\ &= \min(400 - 325, 10 * 5) = \mathbf{50 \text{ MW}} \end{aligned}$$

Ability to update SpinMax intra hourly allows unit's capability to be more accurately modeled as it approaches and passes each mill-points

