IMM Reserve Market Proposal

MRC

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Consolidated Synchronized Reserve Market

- PJM and IMM share most aspects of the proposal to consolidate the synchronized reserve market.
- Strong must offer requirement enforced by PJM
  - IMM also includes must offer penalty
- Lower offer margin for cost-based reserve offers
  - IMM eliminates the offer margin altogether
- Penalties for nonperformance during reserve events
  - IMM penalty is stronger than status quo PJM penalty

IMM ORDC Proposal

- **Simple ORDC: vertical demand with penalty factor**
  - **Consistent with precedent of other RTOs**
  - **Used for both synchronized and primary reserve**
- **No sloped curve, no extension beyond MRR**
- **Identical curves in day ahead market**
- **Max price equal to energy offer cap**
  - **$1,000 per MWh, unless PJM has approved a higher cost-based offer, per FERC rules**
  - **Increases at $250 per MWh increments with higher approved cost-based offers, up to $2,000 per MWh**

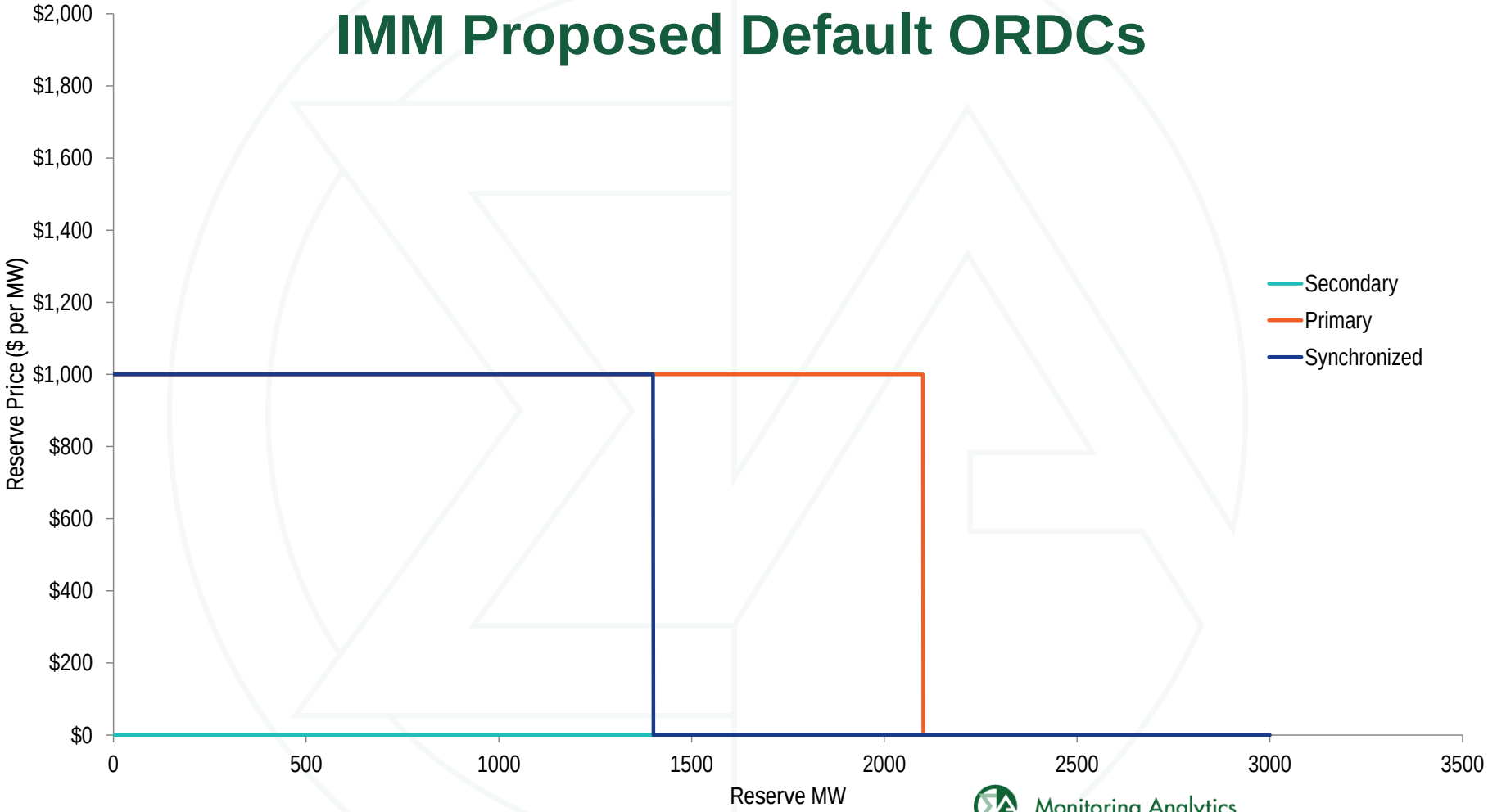
Operator Actions

- **Operators may increase the minimum reserve requirements under predefined conditions.**
  - **Change in the largest contingency (Synch., Primary)**
  - **Extreme weather (Synchronized, Primary)**
  - **Gas contingencies (Secondary)**
- **The increased requirements will have defined start and end times.**
- **PJM will post on its website:**
  - **The active minimum reserve requirements**
  - **The reason for any increased reserve requirements**
  - **The beginning and end times for the increased reserve requirements**

Secondary (30 Minute) Reserves

- Eliminate Day Ahead Schedule Reserves
- Default requirement is zero
  - Consistent with no NERC requirement
- Secondary reserves may be created with an ORDC based on a PJM defined contingency
  - such as a gas contingency
  - defined under the operator actions provisions for increasing a minimum reserve requirement
- Penalty factor is $1,000 to $2,000 per MWh, as with synchronized and primary reserves.

IMM Proposed Default ORDCs



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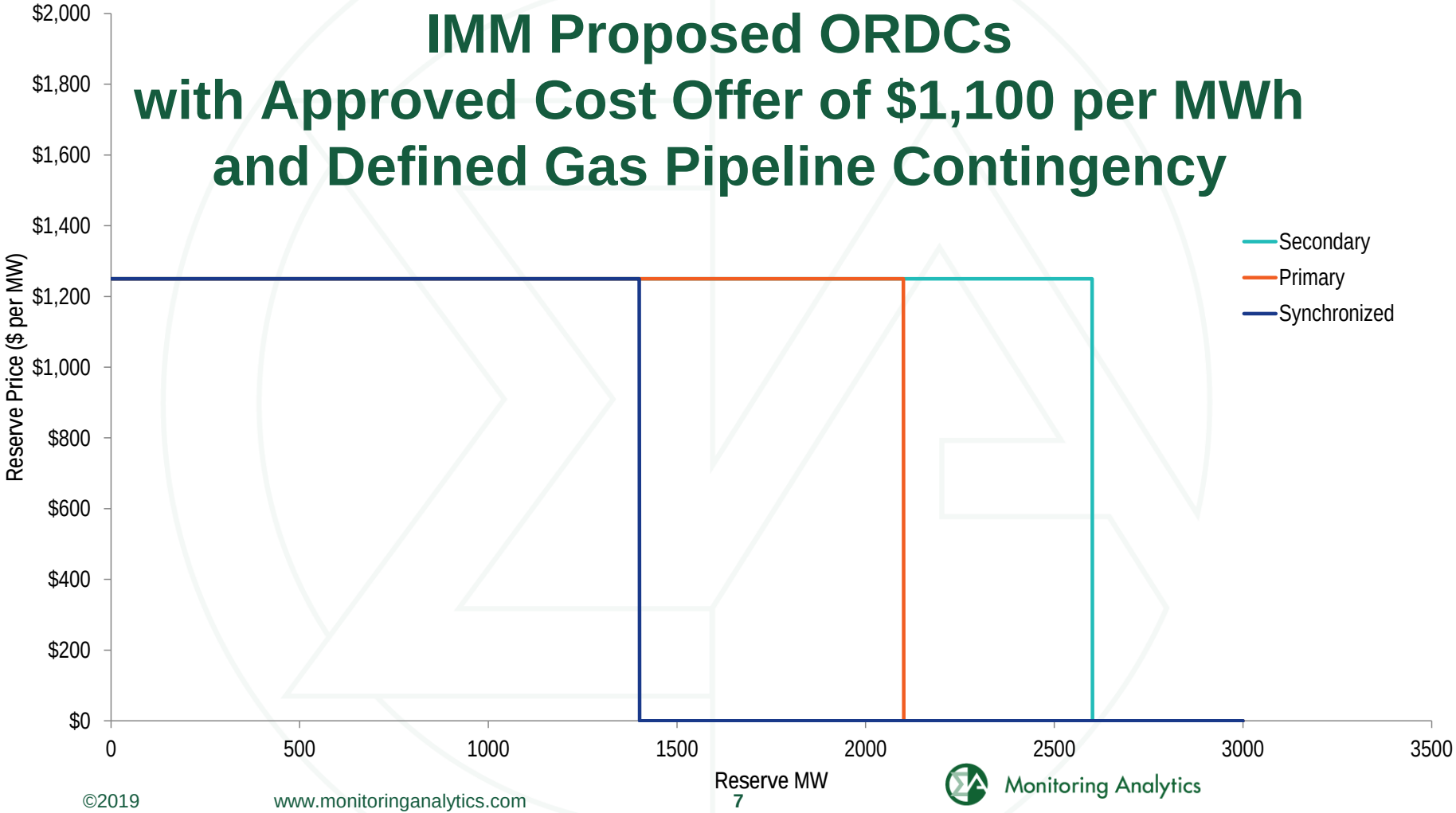
IMM Proposed ORDCs with Approved Cost Offer of $1,100 per MWh and Defined Gas Pipeline Contingency



Reserve Subzones

- **Additive reserve prices across products and zones, without a cap**
- **The IMM recommends multiple subzones, but PJM says it cannot model multiple subzones.**
- **The IMM proposal includes only one subzone.**
- **If PJM cannot model multiple subzones, it should not use a subzone for secondary reserves.**
  - **Secondary reserves only RTO wide**

Demand Response

- **Demand Response should participate under the same rules as generators.**
  - **Cost-based market**
  - **Must offer requirement for all cleared capacity (including pre-emergency and emergency DR)**
- **The current maximum DR strike price was designed to exceed the scarcity penalty factor. Instead of raising the penalty factor, the strike price should be removed.**

Scarcity Revenue True Up Mechanism

- **IMM proposed true up mechanism returns energy market scarcity rents to customers during the four transition years.**
- **The true up mechanism continues until adequate capacity market changes**
  - **VRR curve capped at Net CONE**
  - **Forward looking E&AS offset**
- **True up delivery year capacity payments by scarcity rents calculated for the reference CT using actual delivery year energy prices to determine the accurate E&AS offset.**

Settlement Rule Preventing Double Payment

- **The IMM proposes a new settlement rule that a resource cannot receive payment for reserve MW in excess of its applicable economic maximum output limit for the dispatch interval.**
- **Pay the full value for metered energy produced, but would cap the settlement of reserve MW so that payment does not exceed the resource's stated capability.**

$$\boldsymbol{Metered\ Energy\ MW + Reserve\ MW \leq Eco.Max.}$$

One Energy and Reserves Uplift Payment

- **Market incentives do not require a five minute negative balancing reserve uplift payment.**
- **The IMM proposes one daily uplift calculation that prevents resources that follow dispatch from operating at a loss without creating overcompensation.**
- **The calculation should include costs and revenues in all short term markets (energy, regulation, reserves).**
- **Incorporating reserves in the existing Balancing Operating Reserve Credit accomplishes this.**

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