Summary of Synchronized Reserve Market Changes

The following is a summary of the latest proposal regarding changes to the Synchronized Reserve Market as of the last Energy Price Formation Senior Task Force Meeting on May 4, 2018.

Proposal Highlights

Consolidation of Tier 1 and Tier 2 reserves

- Unloaded capacity (currently referred to as Tier 1) will be treated similar to a Tier 2 product.
- All reserves will incur an obligation to perform and be compensated for assigned MW at the Synchronized Reserve Market Clearing Price.
- The Synchronized Reserve Must Offer requirement will remain unchanged and will be assessed for all applicable resources.
- All assigned synchronized reserve resources will be subject to non-compliance penalties.

Energy offer parameters will be used in place of synchronized reserve offer parameters

- Spin max will be set equal to or less than economic max
  - An exception request must be submitted to PJM in order to submit a spin max value that is less than economic max.
- Spin Ramp Rate will no longer be used
  - The energy ramp rate will be used in place of the spin ramp rate to calculate the reserve capability for resources that can reliably provide reserves.
- By default, a resource's submitted energy offer will be used to determine its offer in the reserve market. However, any energy resource that cannot reliably provide reserves will not be considered in synchronized reserve market clearing. Such resources include but are not limited to: nuclear, wind, solar, and energy storage. An exception can be requested if the resource indicates and demonstrates its ability to provide the service.

Availability	Capability	Price
In general, if a resource is a capacity resource that is online, scheduled by PJM, and available to provide energy, it will be considered available to provide reserves. There are a few exceptions, where resources may submit a change in their reserve availability. These exceptions include hydro units, units self-scheduled for energy, condensers that are offline or in condensing mode, Demand Resources, and any non-capacity resources.	The 10-minute capability (offer MW) will be automatically calculated for resources that are available for synchronized reserves based on the segmented energy ramp rate, limited by the economic max (or spin max if applicable). There are certain resources, on an exception basis, which will be allowed to submit an offer MW that may be different than the value calculated by PJM. These resources include hydro units, units self-scheduled for energy, condensers, Demand Resources, and any non-capacity resources.	An offer price will be allowed to be submitted for all resources, up to $7.50. The VOM costs will no longer be a component of the offer price. Any condenser-specific costs may be included in the offer price as it is today. The lost opportunity cost considered in the clearing and pricing will be calculated by PJM based on the submitted energy offer price.

Better modeling of resources with operational limitations

- Spin max will be allowed to be updated intra-hour to better reflect any changes to the reserve capability.
- Energy ramp rate will be allowed to be updated each hour of the operating day to better reflect any changes in the ramping capability of the resource.

Open Items

- Determine any validations to prevent misuse of intra-day ramp rate changes