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## Centralized Resource Market Proposal

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### Background

The concept of a Centralized Resource Market (CRM) was developed through a collaborative effort by the Joint Capacity Adequacy Group (JCAG) now known as the Resource Adequacy Model Group (RAM). RAM is an interregional effort between PJM, NYISO, and ISO-NE to standardize regional reliability market designs, and minimize interface issues between the regions. The original CRM proposal was presented to the JCAG on April 30, 2002, and has gained overwhelming support as a workable market model for assuring regional resource adequacy while facilitating competitive retail markets. The next step in the development of the CRM is to have it reviewed by the Market Monitoring Units (MMU) of the three independent system operators and an independent market design consultant to identify and correct any potential gaming and market power issues.

### Purpose

The CRM proposal provides for each ISO to coordinate a forward commitment of generating or demand response resources to ensure that each ISO and its end-use customers have sufficient resources to maintain a desired level of reliability (typically measured as a Loss of Load Expectation (LOLE) of no less than 1 day in 10 years).

More specifically, the proposal attempts to do this by:

1. Developing a resource-based reliability model that can be applied consistently in each region through a single commodity (unforced resource), which potentially could be traded between the three regions;
2. Incorporating a planning horizon that is consistent with the lead-times needed for the development and construction of new generation and the development and implementation of demand response programs;
3. Creating a market process that will reveal long run marginal costs for market reliability; and
4. Accommodating market entry and retail load switching for Load Serving Entities (LSEs).

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Conceptually, the CRM proposes to separate supply and demand side issues and market risks. These issues and risks have long separated resource providers from load servers and have inhibited progress toward implementing a workable system for assuring resource adequacy in the regions. To do this, the CRM proposes to centralize the procurement (with each ISO acting as agent for LSEs) of resource commitments and to socialize the costs of those commitments among the LSEs. By doing so the CRM:

1. Reduces differences between the three regions and thereby increases interregional market activity, and creates markets within the regions that are similar enough to enhance trading among the regions.
2. Allows for the continued use of the existing procedures to allocate resource obligation to LSEs within each region.

## **Overview of the Proposal**

The proposal requires a forecast of future market resource requirements for a region to be developed by the responsible Independent System Operator (ISO). This eliminates the need for individual LSEs to make long-range forecasts of their load, a task that competitive LSEs have indicated is virtually impossible for periods more than a few months forward. Similarly, default supplier LSEs, who serve customers that do not choose a competitive supplier, are in no better position to forecast future residual load with any accuracy.

The commitment of unforced resources for a period two-to-five years in advance of obligation would then be coordinated by each ISO through a centralized auction. A series of "reconfiguration" auctions would be held between the time of the initial auction and the actual planning period to allow resource providers to cover changes in their positions that may result from unit cancellations, shutdown of existing facilities, variations in forced outage rates, etc.

The clearing price of the initial centralized auction would be the price charged to all LSEs serving load during the annual period covered by the auction, and would not be impacted by the reconfiguration auctions.

## **Auction Structure and Commitment Period**

An essential element of the CRM is a well-designed auction structure, since the centralized auction will provide market price discovery while minimizing potential market power concerns. The CRM as presently proposed would be a Descending Clock Auction. This type of auction reduces the price offered by the ISO in successive rounds with resource providers submitting the amount of

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resource they are willing to commit at a stated price until the offered resource equals the forecast obligation of the region.

The CRM model is flexible in that it can be implemented on a regional or multi-regional basis, and can include provisions for load pockets or locational requirements, as required by each ISO. It is recognized that specific auction activity rules governing the involvement of participants may be necessary to prevent potential gaming situations. Such rules would likely include controlling the rate at which auction prices would “tick down” (i.e., decrease) until the supply and demand are balanced, and rules controlling the quantity of resource that each supplier could submit in each round of the auction.

The Working Group consensus is that a two-year forward commitment balances the competing needs for longer-term commitment of resources with each ISO’s ability to accurately forecast resource requirements. The two-year forward load forecast would be prepared by the ISO several months ahead of the auction. In addition, the Working Group recognized that the two-year forward commitment period may limit new generation options to simple cycle combustion turbines if fully permitted development sites are not available at the time of an auction; however, the likelihood of limited permitted sites was considered to be low. Longer lead times would permit more resource options to be developed for the forward commitment planning period.

## **The Products**

Products that resource providers can bid into the CRM auction would include:

- Existing generation,
- Planned generation,
- Bilateral contracts for unit specific generation, and/or
- Load Management (LM) products provided by LSE or LM Aggregators.

Bilateral transactions and/or contracts for differences are intended to be an integral part of the market to permit LSEs to self-supply their own generation, or as a way for LSE’s to hedge against potentially higher market clearing prices. The design of the CRM requires that all resources to be committed to the ISO must be bid into the auction to assure market visibility and accurate price discovery.

The CRM uses Unforced Resource (UCAP) as the measure of resources required for reliability. UCAP has the benefit of being used in two of the three regions, with the expectation that, soon, it will be used in the third as well. The CRM also uses a three-year rolling average forced outage rate (i.e., EFORd), locked at the beginning of each planning period, as the basis for converting

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installed resource to unforced resource for each generating unit. This time frame permits recognition of unique outages that may not be representative of normal operation, but doesn't retain their effect for an extended period.

Both existing and planned generation can participate in the centralized auction, provided that its owners meet established ISO guidelines for testing and credit. LM could also be used as a reliability resource provided that it is treated consistently with generation. LM could be provided by LSEs based on their customers' contractual arrangements or by LM Aggregators.

Financially firm energy products, such as energy backed by "Liquidated Damages" and non-unit specific energy call options, cannot be claimed as resource products under this proposal, since the focus of this proposal is physical reliability of the system and not financial penalties. Failure on the part of the resource provider to make the necessary resources available exposes the provider to financial penalties, but leaves the region short of actual resource and, thereby, exposes end-use customers to outages.

## **Deficiency Charges**

While the intent of the CRM is to ensure that sufficient resources are committed to each ISO to ensure system reliability, deficiency charge provisions are still necessary in two situations:

1. A deficiency charge serves as a price cap for the centralized auction when the region is deficient of resources, and
2. A Resource Deficiency Charge (CDC) is assessed when a provider of resources fails to meet its commitment to the ISO in terms of actual availability of committed resources.

The price cap in a deficient market must be large enough to make new generation supply a viable and financially attractive option over failure to supply. Factors to be considered in setting the CDC should include the price of installing new generation, the life span of new generation, and return of and on the investment in new generation.

The CDC applied to resource providers that fail to meet their commitment to the ISO should be such that it discourages speculation. It may be appropriate to tie the CDC to a multiple of the clearing price of the market to reflect the availability of replacement resources, subject to a minimum price to prevent gaming. The existence of reconfiguration auctions should minimize the likelihood of resource providers failing to meet their obligation to the ISO. These auctions allow suppliers whose resource positions have changed between the initial auction and the planning period to cover their resource commitments to the ISO. Additionally,

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the resource providers can cover their positions by arranging bilateral transactions with other resource providers.

## **Meeting the Demand Side Requirement of LSEs**

LSEs will be billed for their Resource Obligations to the ISO based on:

- The average clearing price for resources in the initial forward centralized auction for the planning period, and
- The LSEs' peak load obligation for their aggregated customers' peak load responsibilities in the region.

The price is straightforward and is known by the LSEs at least two years before the planning period begins. Suppliers can commit their own resources through the auction as a hedge against higher prices. They would receive back equal credits for any charges from the ISO resulting in no incremental cost to them.

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## Proposal for an Independent Market Design Consultant

The RAM Group is requesting an Independent Market Design Consultant to conduct some analysis and to devise a gaming model from the proposed model to identify and suggest correction to any potential gaming and market power issues. The analysis should begin with the proposed model discussed above but should include variations in the model that may provide for better results and minimization of market power issues.

Variation to be considered by the consultant should include:

1. **Variations in the planning horizon** - The current proposal suggests a 3-year forward market for procuring 100% of the resource requirements. Can we identify an appropriate forward commitment time frame that satisfies the needs of the LSEs and resource providers without allowing for market manipulation?
2. **The amount of the Resource Obligation satisfied in various rounds of the auction** - The current proposal assumes that 100% of the resources are obtained in a single descending clock auction held 3 years prior the start of the planning period. Should the market be divided into several auctions? For example should 50% of the resources be required 3 years in advance and the other 50% 2 years in advance? Should it be spread over a five-year period?
3. **The Restructuring Auction** – Should the resource obligation be modified to reflect better market forecasts as the time of the planning period approaches? Should the obligation be based on the greater of the forward planned resources obligation or the updated resource obligation at the time of successive auction rounds? Would these additional rounds remove the need for the concept of a restructuring auction?
4. **The Supply Side Demand Curve** – The proposed model assumes a single resource obligations that results in a vertical demand curve. This curve assumes no elasticity in the demand for electric generating capability. This is recognized as an artificial construct based on the demand of electricity being relatively inelastic due to the lack of price knowledge and ability to control the level of electricity to be consumed. It has been proposed that an equally valid demand curve could be constructed that would assume some variation in the demand for electricity as price change. This concept has some merit and would be useful in dealing with the auction results when there is and inadequate supply for adequacy resources. However, the construction of such a demand curve that would yield reasonable market results is difficult. Can such a concept be developed and can it enhance the assurance of resource adequacy in the market place?