

SeTrans Market Design Issues

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This presentation will cover the following topics:

- Overview and Key Features of Proposed SeTrans Market Design
- Benefits of a Central Coordinated Day-Ahead Market
- Real Time Market Design- Benefits of an LMP-based market
- Congestion Management Options
- Other SeTrans Market Design Issues- Long-term Allocation of Financial Transmission Rights (FTRs)
- Summary of benefits of the SeTrans Market Model

Key Features of Proposed Market Design

- The SeTrans ISA will operate a regional, two-settlement market consisting of both day-ahead and real-time settlements. Using offers and bids into this market, the ISA will minimize the cost of energy in the Day-ahead Market and the cost of supplying energy imbalance in the Real-time Market across the region and will facilitate congestion management while keeping flows within all security limits.
- The Day-ahead and Real-time Markets will be optimized across the entire region.
- Clearing prices in both the Day-ahead and Real-time Markets will be visible to all. They will be based on the Locational Marginal Price (LMP) of energy at each location and reflect the impacts of congestion.

Key Features, continued

- The Day-ahead Market and settlement process will be purely financial, but will be evaluated using a security constrained economic dispatch routine considering congestion where applicable. The day-ahead settlement will be financially binding and will establish schedules for use in the real-time market.
- The Real-time Market will settle deviations against the day-ahead schedules at the real-time LMPs. If there are no deviations from the day-ahead schedule, then no additional charges will apply.
- There will be a long-term planning reserve requirement, known as an Installed Capacity (ICAP) requirement, applicable to all Load Serving Entities (LSEs).

Key Features, continued

- The ISA will conduct a Long-Term Allocation of FTRs to existing firm customers at the time of Day Two implementation. This allocation will reflect the full existing capability of the system as of Day Two implementation.
- Any remaining FTRs will be auctioned by the ISA. The ISA will also conduct periodic auctions to facilitate a secondary market in FTRs.

Benefits of Forward Markets

- Provides additional price certainty to Market Participants by allowing them to ...
 - commit and obtain commitments to energy prices & transmission congestion charges in advance of real-time dispatch
 - submit price sensitive demand bids
 - inform the RTO of maximum congestion charges it is willing to pay
 - submit increment offers and decrement bids
- Provides Market Participants with the option to lock-in day-ahead scheduled quantities at day-ahead prices
 - also adds flexibility to lock in a price or participate in the Real-time market dependent upon prices in the Day-ahead market

Benefits of a Single, RTO coordinated Day-ahead Market

- Over short horizons, there is no distinction between energy dispatch and transmission use
- A separate non-RTO Day-ahead market (aka CalPX) separates transmission and energy and leads to inconsistent prices in the Day-ahead and Real-time markets
- These inconsistencies can lead to infeasible schedules that require the RTO to do massive redispatch in real-time
- Non-centralized forward markets do a poor job in solving the Unit Commitment problem
- The RTO is best suited to coordinate the interactions of energy and transportation to ensure all schedules are feasible
- An RTO coordinated Day-ahead market will result in consistent bidding, market clearing and pricing rules

Real-time Market Design: Why We Need LMP to manage congestion and settle energy imbalances

- The SeTrans market design is needed for efficient wholesale competition
- IPPs have right to site anywhere, request transmission service
- We must send the right price signals
 - For siting new plants
 - For dispatching them relative to existing plants
 - For allocating transmission capacity among competing uses
 - For building new transmission
- The key building blocks – locational energy markets, congestion pricing, financial rights, participant funding – work together

LMP Settlement Prices Consistent with Reliability

- A key characteristic of LMP is that the prices used for balancing market settlements fully reflect the impact of congestion on:
 - The value of incremental generation at different locations.
 - The bid-based cost of serving incremental load at different locations.
 - The bid-based cost of the redispatch required to reliably accommodate an incremental transaction between two locations.
- Using LMP for balancing market settlements provides incentives for market participants to make voluntary decisions that are consistent with maintaining reliability. Thus, LMP is a way to use market prices, rather than administrative restrictions and balancing penalties, to manage transmission congestion and maintain reliability.

LMP Benefits, continued

- The LMP approach to providing real-time balancing markets and congestion management has some very important strengths:
 - Provides efficient short-run price signals to generators and loads and efficient long-run price signals for new investments.
 - Ensures non-discrimination.
 - Bilateral transmission customers and balancing market participants pay the same charge for transmission usage.
- Eliminates distinction between native loads (i.e. control areas) and other transmission customers with respect to imbalance energy treatment
- Expands open access without cost shifting- All bilateral transactions are accepted that agree to pay the congestion charge
- Supports reliable and efficient operation of the transmission grid.

Some proposed RTOs have considered balancing markets without LMP

- In practice, the Real-time Balancing Market cannot be separated from the market-based congestion management system
- The same units used to dispatch for balancing energy must also be used to manage congestion
- Congestion impacts the pricing of balancing energy
- Congestion does not simply divide the balancing energy bid stack in two
- There will always be residual congestion beyond forward market predictions due to changing shift factors, weather, forecast error, and facility outages
- In summary, phased approaches that implement real-time balancing markets without an LMP-based congestion management system are doomed to failure

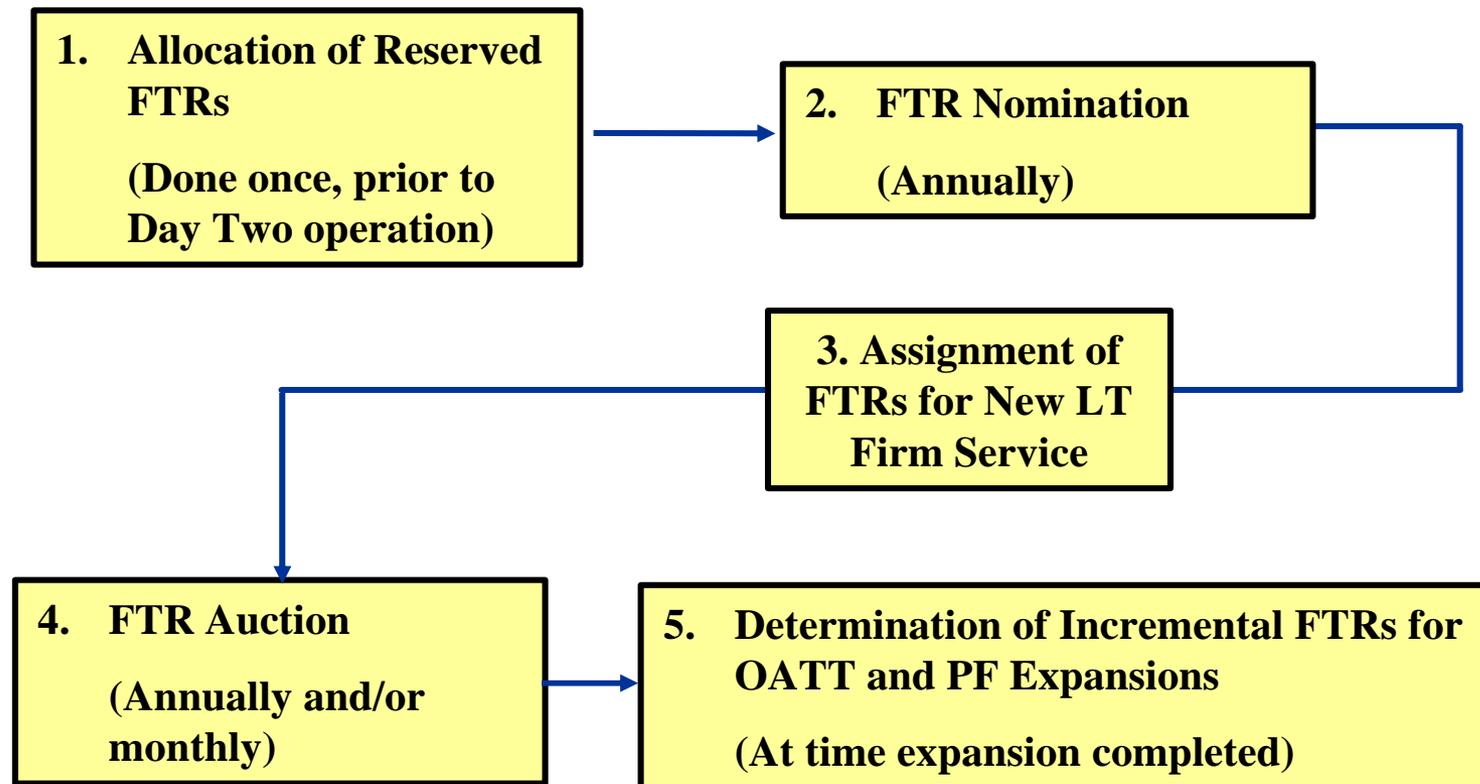
Congestion Management Options

- Experience in California and ERCOT versus PJM/NYISO has highlighted the advantages of nodal LMP models over zonal congestion management models.
- There are no ISOs or RTOs using congestion management systems based on Physical Rights, thus providing no experience and guidance on the implementation of these systems.
- As illustrated by the key features of the SeTrans Market Design, the SeTrans sponsors have chosen a congestion management system based on LMP and Financial Transmission Rights.

Other SeTrans Market Design Issues- Long-term Allocation of FTRs

- SeTrans will conduct a Long-Term Allocation of FTRs to existing firm customers at the time of Day Two implementation.
- This allocation will reflect the full existing capability of the system as of Day Two implementation. The purpose of this Long-Term Allocation is to ensure that those who are obligated to continue to pay the embedded cost of the transmission grid continue to receive the economic value of the transmission grid under the SeTrans structure.
- The general allocation approach will be to attempt to match as closely as possible the assignment of Financial Transmission Rights with both the current obligations of parties to support the embedded cost obligations of the transmission system, as well as those parties' current firm usage of the transmission system.

Steps in the FTR Allocation Process



Long-term Allocation of FTRs, continued

- The Long-term allocation of FTRs will allow native load customers to reserve FTRs for future reliability needs, consistent with their ability to do so today. The Long-Term Allocation will form the basis for annual nominations of FTRs by firm customers.
- FTRs that are not nominated in a given year will be auctioned in a residual auction(s). The Long-Term Allocation will provide the revenue allocation methodology for these auctions.
- The Long-Term Allocation process will also facilitate the determination of incremental FTRs associated with future system expansions, because it will help clarify which FTRs are associated with pre-existing system capacity and which FTRs are truly created by expansions.

Summary- Benefits of the SeTrans Market Model

- The SeTrans market model provides protection to native load from cost shifting and also provides the same or equivalent rights to use the transmission system as they do today through:
 - The Long-term allocation of FTRs
 - Providing the platform for Participant Funding
 - And the flexibility to aggregate loads into zones
 - Expands open access without cost shifting- All bilateral transactions are accepted that agree to pay the congestion charge
- The SeTrans Model provides efficient short-run price signals to generators and loads and efficient long-run price signals for new investments.
- The SeTrans Market Model is based on proven market design features in operation in the other markets