

***Congestion Management Workshop  
Session Five:  
Evaluation of Different Approaches***

## ***Evaluation of Models***

Yesterday, we reviewed the types of decisions that must be made in developing procedures for managing and pricing congestion and in defining transmission rights.

This morning's speakers have described several types of market models that have been implemented in different areas.

Each of the areas that implemented one of these models made the choices that we described.

- **In future meetings of this Work Group, you will need to make similar decisions regarding the questions that we discussed.**
- **It is unlikely that the model you choose will look exactly like any of the other models, although it probably will tend to resemble some more strongly than others.**

## ***Evaluation of Models***

The decisions you make ought to be based the ability of a model that makes a particular decision to achieve objectives such as those discussed yesterday morning.

- **Using those objectives as a basis for making these decisions will ensure these decisions reflect the ability of the model chosen to provide benefits for market participants operating under the RTO.**
- **It is likely that you will develop additional objectives, but again these objectives should reflect market characteristics that market participants would find valuable.**

# ***Efficiency***

One of the criteria we stated was efficiency, which is desirable because markets that function efficiently will create the most value for market participants.

- **Markets should encourage efficiency in short-term operating decisions.**
  - *If it is easier for the most efficient set of available resources to be used to meet load, it will maximize gains to trade, and more value will be created in the short term.*
- **Markets should encourage efficiency in long-term capital investment decisions.**
  - *If incentives for market participants to fund investments that will alleviate transmission constraints are consistent with the congestion costs those constraints impose, those investments will create more value.*
- **Increased efficiency will occur in markets that achieve many of the other objectives described yesterday.**

# ***Reliability***

The RTO must ensure that the ability of system operators to meet reliability criteria is not compromised.

- **It should be in the economic interest of market participants to act in ways that support reliability, instead of undermining it.**
- **The market design should not simply assume that vital reliability functions will be performed by someone, without specifying:**
  - *Who will perform those functions.*
  - *Why they will perform them.*
- **It also should not complicate the the system operator's job to the extent that reliability is endangered.**

## ***Non-Discriminatory Access***

Another important factor is the degree to which the market facilitates comparable and non-discriminatory access.

- **The amount that each market participant is charged for use of the system or for a service, or the responsibilities placed upon a market participant, should not depend on who that market participant is.**
- **The ability of each market participant to schedule use of the transmission system should not depend on who that market participant is.**
- **Pricing should be as transparent as possible, and pertinent information (e.g., information on constraints) should be publicly posted.**
- **Participation by small entities should not be unnecessarily restricted.**
- **The market should not discourage entry of new competitors by treating entrants and incumbents differently.**

## ***Exposure to Unhedgeable Costs***

Market participants should not be exposed to unpredictable and unhedgeable costs.

- **It should permit market participants to lock in transmission costs in advance, using instruments that are not likely to be curtailed.**
- **It should incorporate mechanisms that will mitigate cost shifts.**
- **It should not expose market participants to any other significant costs that cannot be hedged, such as unreasonable uplift costs.**
- **It should not expose providers of last resort to unrecoverable costs.**

# *Liquidity*

The congestion management and imbalances markets that operate under the RTO should be liquid.

- **They should permit the establishment of mechanisms such as trading hubs that permit markets to be more thickly traded.**
- **They should permit transmission rights to be traded and reconfigured as easily as possible, so that market participants can be flexible in the transactions they undertake.**
- **The market should be as seamless as possible. Barriers to trading between control areas within the RTO, and between the RTO and adjoining regions, should be eliminated to the extent possible.**

# *Flexibility*

Markets should be sufficiently flexible to accommodate many forms of trading.

- **The participation of entities such as independent power exchanges should be accommodated.**
- **At the same time, however, market participants should not be forced to use intermediaries (unless there is an economic basis for such requirements).**
- **The market structure should neither drive participants toward nor away from participating in independent power exchanges or in other bilateral transactions.**

## ***Order 2000***

And an RTO must meet the requirements set forth in Order 2000, which include the following.

- **It must manage congestion through market-based mechanisms that ensure that those who value access to the system most highly receive access.**
- **It must operate a regional market. In other words, the scope of the area governed by the RTO must be sufficient so that it can effectively manage transmission within that area. Equally important, the RTO's congestion management procedures must manage congestion over the entire region.**
- **It should ensure that congestion is managed efficiently, and it should send efficient price signals to all market participants.**

## ***Order 2000***

- **It must provide tradable transmission rights that promote an efficient dispatch while hedging locational price differences.**
- **It must have the authority to order re-dispatch as necessary to ensure reliability.**
- **It should ensure that the generators dispatched are those that can serve loads at least cost**
- **It must ensure that a real-time balancing market is created, and that market participants have access to this market on a non-discriminatory basis.**

## ***Evaluation of Models***

The following slides describe our evaluation of the ability of each of the market models discussed earlier to comply with the requirements specified in Order 2000.

- **We envision similar discussions regarding the other objectives, and the ability of other proposals to achieve those objectives will occur in future meetings of the Work Group; there is not sufficient time to go through such a review today.**
- **These slides will present a starting point for discussion within the Work Group.**
- **Our comments are based on our understanding of each region's approach, some of which are still under development. We used proposals from Desert STAR as a proxy for a Physical Rights model.**

# Compliance with Order 2000

- **IndeGO**
  - *Efficiency may be harmed by: requirements for balanced schedules, possible restrictions on dispatch, and inefficient price signals regarding intra-zonal congestion.*
  - *Not clear whether it includes a real-time balancing market. Lack of a real-time physical market would impair efficiency.*
  - *These concerns aside, the proposal allocates rights/access to inter-zonal interfaces to those who value it most highly using bids in day-ahead market; manages inter-zonal congestion efficiently.*
  - *Unclear how easy it would be to match rights with changing trades.*
- **Physical Rights Model**
  - *Efficiency may be harmed by: requirements for balanced schedules, other restrictions on dispatch, inefficient price signals regarding intra-zonal congestion, requirement that entities must hold rights to schedule transactions, and lack of compensation for unused rights.*
  - *Not clear whether it includes a real-time balancing market. (Lack of real-time physical market would also impair efficiency.)*
  - *Unclear how easy it would be to match rights with changing trades.*

# ***Compliance with Order 2000***

- **Financial Rights/LMP Model**
  - *Allocates access to transmission system to those who value it most.*
  - *Manages all congestion efficiently over the region.*
  - *Sends efficient price signals and dispatches system efficiently.*
  - *Allocates tradable transmission rights.*
  - *Includes a real-time balancing market.*
- **California**
  - *Efficiency may be harmed by: requirements for balanced schedules, other restrictions on dispatch, and inefficient price signals regarding intra-zonal congestion.*
  - *These concerns aside, the proposal allocates access to inter-zonal interfaces to those who value it most highly using bids in day-ahead market and manages inter-zonal congestion efficiently over the region.*
  - *Allocates tradable transmission rights.*
  - *Includes a real-time balancing market.*