

# The Costs and Benefits of Cost-Benefit Studies - A Client's Perspective -

("To LMP or Not to LMP")

Steve Greenleaf

Director of Regulatory Policy

California ISO

Harvard Electricity Policy Group

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Cambridge, MA

## Background

#### <u>Update on Cal ISO LMP Cost-Benefit Analysis</u>

- On February 18th, 2003, California State Senators Burton, Bowen, Sher and Dunn requested that the ISO conduct a "peer reviewed" cost-benefit analysis regarding LMP.
- ISO Board committed to undertake such an analysis.
- ISO has drafted a preliminary scope-of-work. Team recommends that the C/B Study be structured so as to ascertain both the potential qualitative and quantitative costs and benefits of LMP.

# LMP CBA – Recent Activity

#### <u>Update on LMP Cost-Benefit Analysis</u>

- ISO has interviewed four nationally recognized consulting firms for purpose of conducting LMP cost-benefit analysis.
- Four consultants offer a mix of expertise both technical/modeling (quantitative) and market design (qualitative)
- ISO has identified preferred consultants and, once we have secured the go ahead, will work towards finalizing the business arrangements between the ISO and the consultants.

## What's The Question?

"If you don't know where you are going, all roads will get you there!"

Before embarking on any cost-benefit answer, it is critical that all involved (especially those requesting the analysis) have a clear idea of what they want answered? What are the *real* issues?

#### The Environment

#### Those in favor of LMP

- ....largely silent (or discredited i.e., see Gelinas Report).
- ....would rather not see study performed point to "obvious successes of eastern ISOs.

#### Those on the edge

....unwilling to commit, want to see larger picture (state procurement) clarified first.

#### Those opposed

....perceive that LMP-based congestion management regime will erode existing rights, create additional risks, or will highlight existing but non-transparent cost differentials (and therefore cross-subsidies).

#### The Environment

- What are the real issues?...LMP has become the catchword for the collective angst regarding restructuring...but the *real* issues vary by perspective
- Impact on Existing Transmission Rights
- Ability to "schedule my resources to serve my load" (i.e., I'm worried about central optimization)
- May increase costs of State contracts by subjecting them to congestion costs.
- ...you name it, I've just lost faith in the market.

### The Environment

One need is clear – everyone needs to understand what LMP is and what it is not

#### What it is:

- Transparent means to price and allocate the use of the transmission system
- A pricing regime that is aligned with the needs of system operators
- A tool that provides useful information to both policymakers and investors alike.

#### What it is not:

 A system under which transmission and generation will magically appear.



# The LMP Study...

# Ok...if we really have to....



# The DOE Study

DOE Report to Congress highlights both "costs" and "benefits" of such analyses and is instructive in its approach

- Highlighted need for both quantitative and qualitative analytic approaches
- Quantitative focused on:
  - 1. Impact of increased trading on wholesale and retail electricity prices
  - 2. Near-term changes in the use of the grid



# The DOE Study (Continued)

- Qualitative because quantitative analysis of all features "not feasible", study focused on the following qualitative analyses:
  - 1. Impact on electricity prices and the need for market power mitigation
  - 2. Impact on infrastructure development and investor confidence
  - 3. Impact on security and reliability of infrastructure
  - 4. Potential benefits of enhanced demand response

# The DOE Study (Continued)

Some observations on the DOE study:

- Assumed participants would bid cost perhaps a constraint of the GE MAPS model.
- Assumed local market power mitigation at costs + 10% - need clear direction from FERC.
- Unit commitment assumptions unclear...
- ....all part of "planner's paradox" need to characterize both direct and indirect as well as unintended consequences.



#### The Next Generation

Most studies to date have focused on the benefits of consolidated control-area operations. Thus, *easier* to quantify energy savings resulting from central dispatch and coordination. However, as usual, California is different...

- California already captured benefits of control-area operations (although not all economic efficiencies)
- As opposed to RTO formation or SMD, California study focused on LMP (MD02).

#### In Search of Hogan's Heroics

Frank Wolak (MSC) – "Just download all the stuff on Hogan's website"

- What have other CBAs/Studies revealed (RTO West, SETrans, New Zealand, NERTO, now DOE)?
- What has happened in other markets?
- The Benefits Reliability, Transparency,
   Price Signals (good information)
- Most Important for California "The Counterfactual" What happens if you don't redesign and, if not LMP, then what?

### The Counterfactual

#### Five years and counting...

The existing California zonal market design is inefficient and subject to manipulation:

- Existing congestion management system allocates and prices transmission based on an inaccurate (incomplete) representation of the grid...thus promoting manipulation.
- Existing design does not support reliable operation of the grid...lack of operating and price transparency, out-of-sequence, out-of-merit order,
- Ever increasing intra-zonal congestion due to new generation...

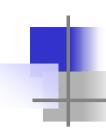


# Who cares about data, we just want to know whether our prices will go up!

- The need to manage expectations seek and you probably will not find!
- Simulation studies based on a myriad of assumptions will be of questionable value.
- An LMP study must include assumptions regarding bidding behavior, weather, fuel prices, hydrologic conditions, the economy (demand), overall market conditions (supply/revenue adequacy) ....



- ....other key assumptions (lessons learned from Path 15)
- New Generation/Transmission how much, where, and when.
- Existing Transmission Contracts conversions, usage, impact under a LMPbased regime.
- Congestion Revenue Right (CRR)
   Scheduling Priority How much will it be used? What will be the impact?



#### Two paths diverged in the woods...

#### Type A – Historical Analysis

 Use historic data to compare outcomes of different design scenarios against current market design outcomes (known costs)

#### Type B – Simulation

 Construct hypothetical test periods and cases to model and analyze overall market outcomes as well as isolated design features.

...and we, we took the one more traveled by...

#### Type A - Historical

- ↑ Pros
  - Uses actual bids (don't need to simulate bidding behavior)
  - Don't need to model existing design (rely on historic outcomes)

#### **↓** Cons

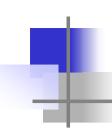
 Uses actual historical bids (bidding structure/behavior likely to change under new market design)



...and that will make all the difference.

#### Type B – Simulation

- ↑ Pros
  - Depending on inputs/assumptions, may be perceived as more realistic
  - Allows you to isolate the impact of specific design features.
- **↓** Cons
  - Depending on inputs/assumptions, may be perceived as more unrealistic



# In Summary

#### Costs:

- Study likely to be inconclusive and will surely be criticized as unrealistic;
- Cost of study likely to be significant (and since ISO funding, perception of bias will exist);
- Very real cost of continuing under current flawed design until study is completed.

#### **Benefits:**

- "Next generation" analysis may be helpful in future nationwide redesign efforts;
- Otherwise...unclear just another study that adds to the debate.