MARKET SURVEILLANCE COMMITTEE

ESDER 4  Discussion Examples

Scott Harvey
Member, California ISO Market Surveillance Committee
Folsom, California
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The treatment of storage in the CAISO models appears to have some design elements that need to be carefully considered in developing a market power mitigation design.
My Understanding of the storage optimization design is that for a charge and discharge cycle:

Actual Margin = Sales Price * (1-L%) – Purchase Price

Objection Function Cost = Offer Price * (1-L%) – Bid Price

L% = per cent losses
Example 1

Offer Price = $30
Bid price = $0
Spread = $30
Losses = 10%
Objective function cost = $27

Example 2

Offer Price = $30
Bid price = $0
Spread = $30
Losses = 25%
Objective function cost = $22.5

If these resources submit bids whose margin equals their O&M costs, $30, they could be scheduled at a loss.
Example 3

Offer price = $130
Bid Price = $30
Spread = $100
Losses = 10%
Objective function cost = $87

Example 4

Offer price = $0
Bid Price = -$100
Spread = 100
Losses = 10%
Objective Function Cost = $100

The same spread in bids and offers can result in different objective function costs.