

MARKET SURVEILLANCE COMMITTEE

ESDER 4 Discussion Examples

Scott Harvey

Member, California ISO Market Surveillance Committee

Folsom, California

May 8, 2020



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.