Market Power Mitigation Issues

Energy Imbalance Market Offer Rules
Technical Workshop
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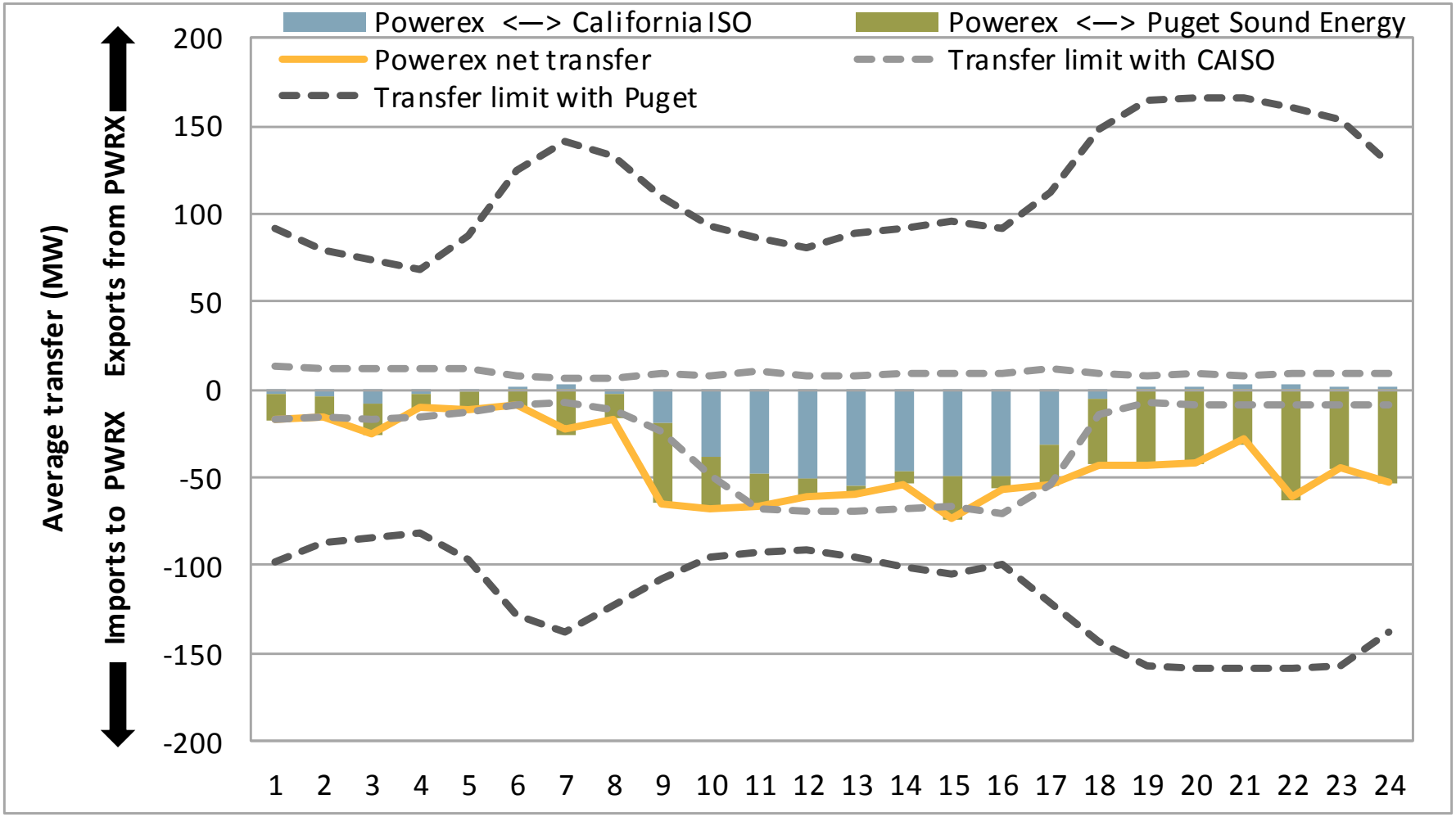
Recommendations on EIM-related issues

- Expand *EIM Offer Rules Initiative* to include changes to mitigation being cited by Powerex as reasons for needing extremely high hydro DEB option.
- Revise CCDEBE proposal to allow *reasonableness thresholds* to be adjusted during operating day.
  - This can be important for gas and hydro resources in EIM.
- Do not allow import bids up to $2,000/MWh to set LMPs without cost verification (FERC Order 831).
  - Allowing imports bid on CAISO interties up to $2,000/MWh without cost-verification could undermine incentive to offer supply in EIM and bilateral markets.

Average EIM transfers for Powerex (15 –minute market, Q2 2018)



Areas for improvement of mitigation suggested by Powerex (April 30 Workshop).

1. "Flow reversal"
   - Flow changes from import to export after bid mitigation triggered by import congestion.
2. "Extension" of mitigation to subsequent intervals.
   - Bids mitigated in 15-min interval mitigated during rest of hour.
   - Bids mitigated in 15-min interval mitigated during corresponding three 5-min intervals.
3. "Misapplication" of mitigation
   - Is it appropriate to apply mitigation into area where not potential for market power? (i.e. no customers exposed to LMPs)
   - Mitigation would still apply if triggered by congestion on other paths (i.e. multiple EIM BAAs separated from rest of EIM).
4. "Inaccurate DEB"

Frequency and impacts of mitigation on Powerex transfer constraints in 15-minute market (April-July)

- Mitigation triggered 35% of 15-min intervals
  - 26% of intervals due to congestion into Powerex only
  - 9% of intervals due to congestion into multiple BAAs
  - 20% of mitigated intervals due to “extension” of mitigation from prior interval
- Flow reversal during mitigated 15-min intervals
  - Exports were limited to zero about 54% of 15-min intervals mitigated (no flow reversal possible).
  - During the 30% of mitigated intervals by “extension” (with exports allowed), net exports occurred in 16% of time.
  - During other 16% of intervals mitigated (not by extension), “flow reversal” occurred 2% of time.

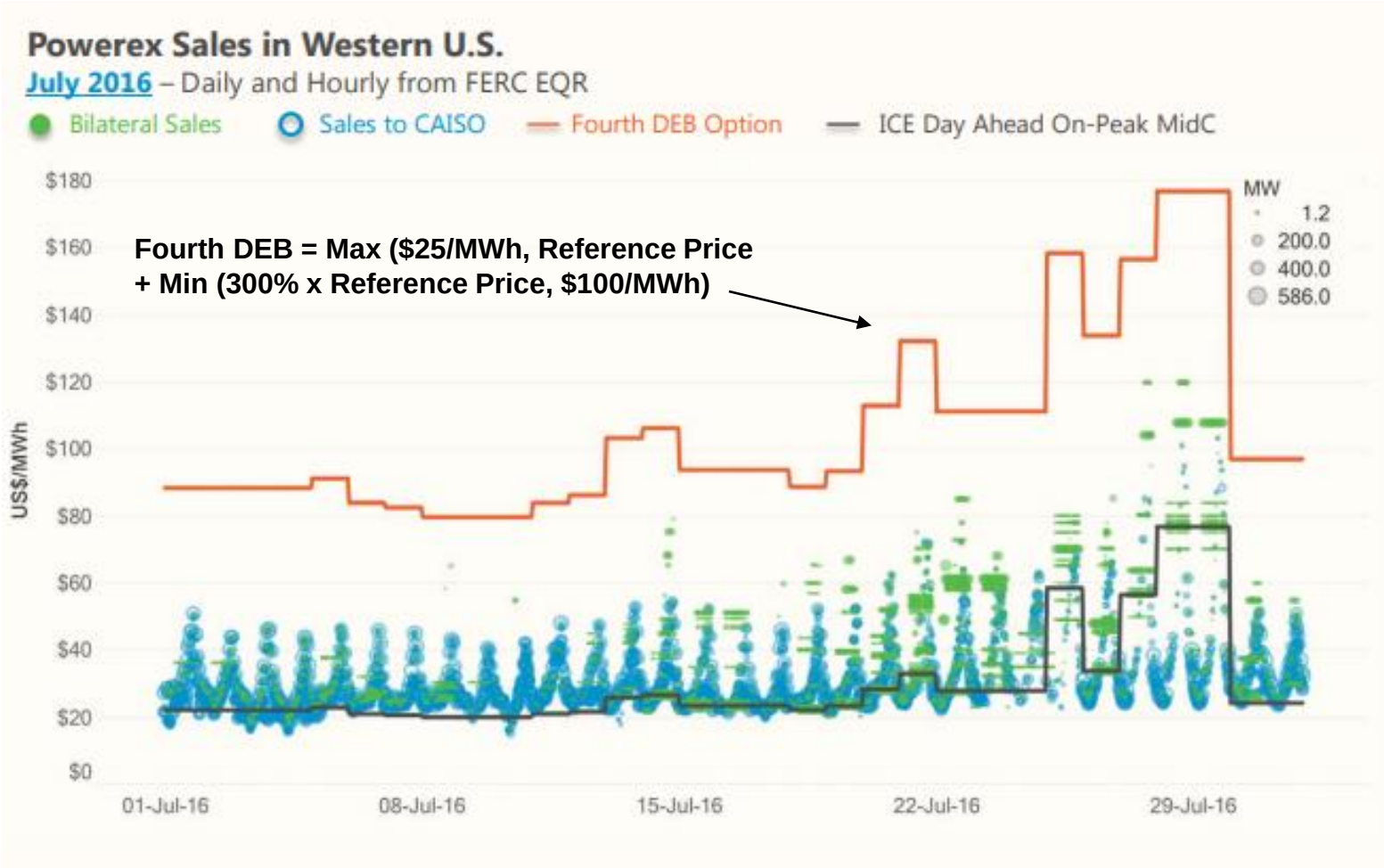
Total potential “flow reversal” up to 2% of all 15-minute intervals.

Frequency and impacts of mitigation on Powerex transfer constraints in 5-minute market (April-July)

- Mitigation triggered 24% of 5-min intervals
  - 16% of intervals due to congestion into Powerex only
  - 8% of intervals due to congestion into multiple BAAs
  - 14% of mitigated intervals caused by “extension” of mitigation from prior interval
- Flow reversal during mitigated 5-min intervals
  - Exports were limited to zero about 49% of 15-min intervals mitigated (no flow reversal possible).
  - During the 31% of mitigated intervals by “extension” (with exports allowed), net exports occurred in 5% of time.
  - During other 20% of intervals mitigated (not by extension), “flow reversal” occurred 5% of time.

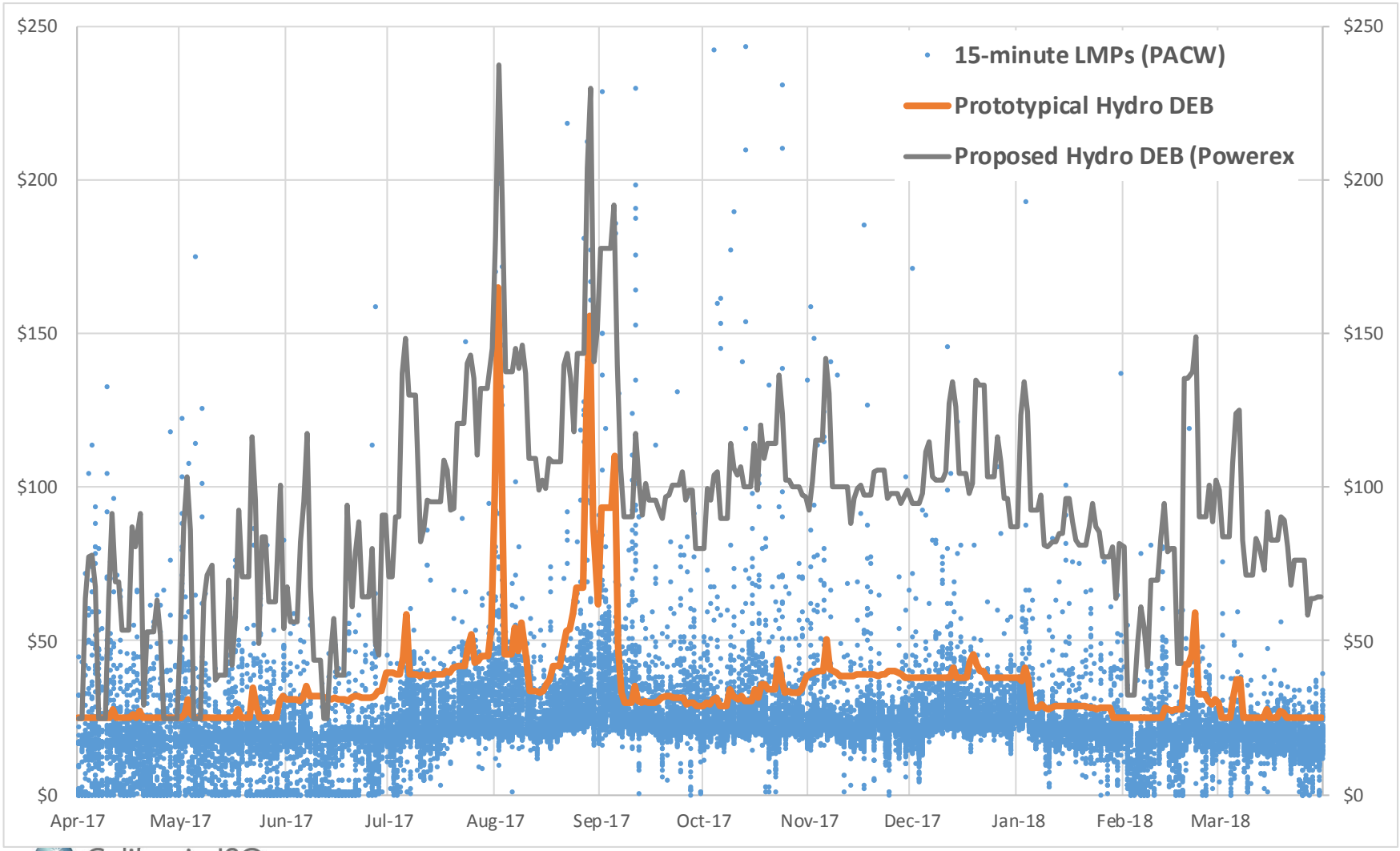
Total potential “flow reversal” up to .4% of all 5-minute intervals.

DEB for EIM hydro proposed by Powerex much higher than EIM/CAISO market prices >99% of intervals.



Source: *Addressing LMPM/DEB Challenges for Energy-Limited EIM Participating Resources*, CAISO April 30 Workshop, Powerex, p.19
http://www.caiso.com/Documents/PowerexDefaultEnergyBidPresentation-EnergyImbalanceMarketofferRulesTechnicalWorkshop.pdf

Potential DEBs for EIM hydro using current methods higher than LMP <90% of intervals.



Discussion of Market Power Mitigation at EIM Regional Issues Forum (June 6)

- Main difference between CAISO/EIM and some other RTOs is the threshold used for determining if bids have “significant” impact on prices/costs.
  - Similar methods used to calculate marginal or opportunity costs.
- Some other RTOs use much higher conduct/impact thresholds in mitigation:
  - Cost + $100/MWh for constraints that are “not chronic”
  - Cost + $10 to $100/MWh for “chronically constrained”
- Other ISOs have thresholds more like CAISOs (PJM, SPP)
- CAISO/EIM uses dynamic vs static approach used by other RTOs for determining if potential market power exists.
  - With dynamic approach, bids only mitigated when congestion and structural market power occur.