



# Briefing on Energy Imbalance Market - Update on EIM Operations

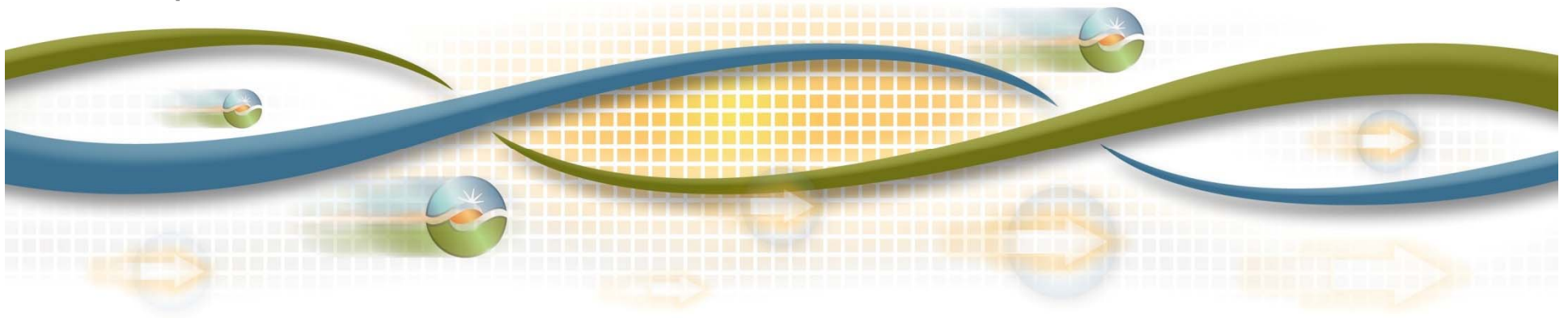
Mark Rothleder

Vice President, Market Quality and Renewable Integration

EIM Transitional Committee Meeting

General Session

April 30, 2015



## EIM Operations Update

- Benefits assessment for 2015-Q1 issued.
  - 2015-Q1 assessment expanded to include flexibility
  - 2015-Q2 will expand to include 5-minute
- Pricing discovery waiver update
  - FERC held technical conference on pricing
  - ISO filed proposal to automate recognition of capability available to EIM Entity
  - Infeasibilities improved in PACW but continue in PACE
- Transfers continue to reflect seasonal conditions
- Frequency of infeasibilities decrease in March and April

# Summary of EIM gross benefits for the 1st Quarter 2015

| BAA          | January       | February      | March         | Total         |
|--------------|---------------|---------------|---------------|---------------|
| ISO          | \$0.48        | \$0.49        | \$0.48        | \$1.44        |
| PACE         | \$0.88        | \$0.83        | \$0.91        | \$2.63        |
| PACW         | \$0.42        | \$0.49        | \$0.28        | \$1.19        |
| <b>Total</b> | <b>\$1.78</b> | <b>\$1.81</b> | <b>\$1.67</b> | <b>\$5.26</b> |

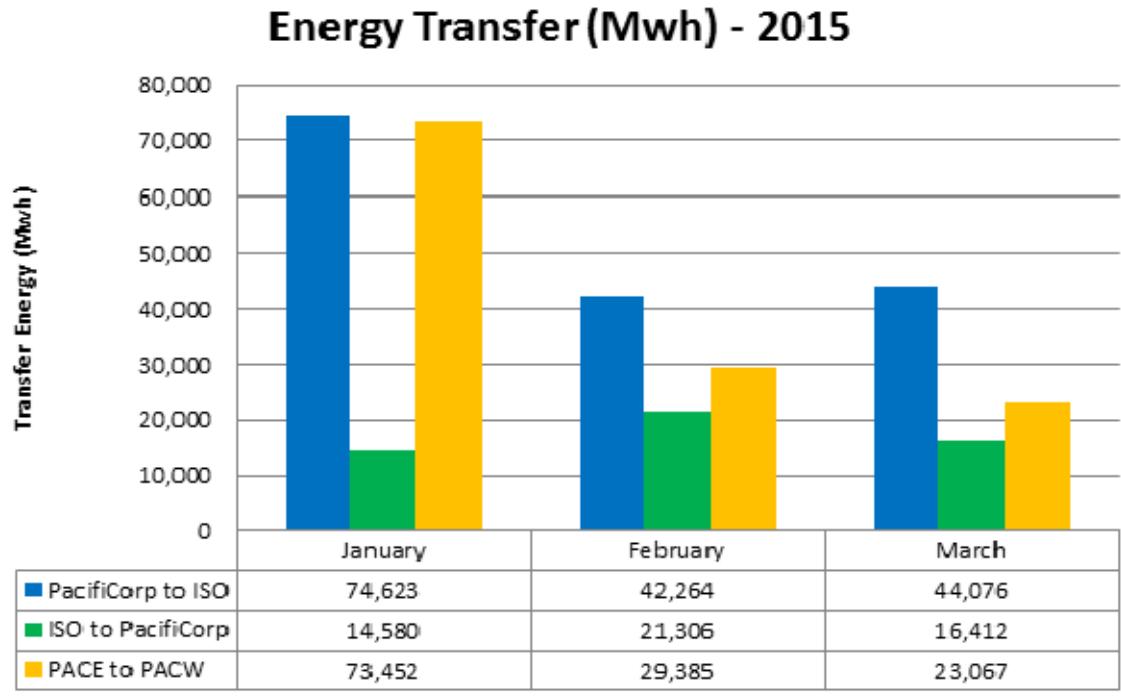
Benefits reflect:

- More efficient dispatch, both inter- and intra-regional
- Reduced renewable energy curtailment
- Reduced flexibility reserves needed in PacifiCorp BAAs

This report contains enhancements over the 2014 Q4 report:

- Benefit calculations include all fifteen minute market intervals
- Calculations used relevant prices including any corrections
- Calculations of avoided renewable curtailment

# Summary of EIM gross benefits for the 1st Quarter 2015



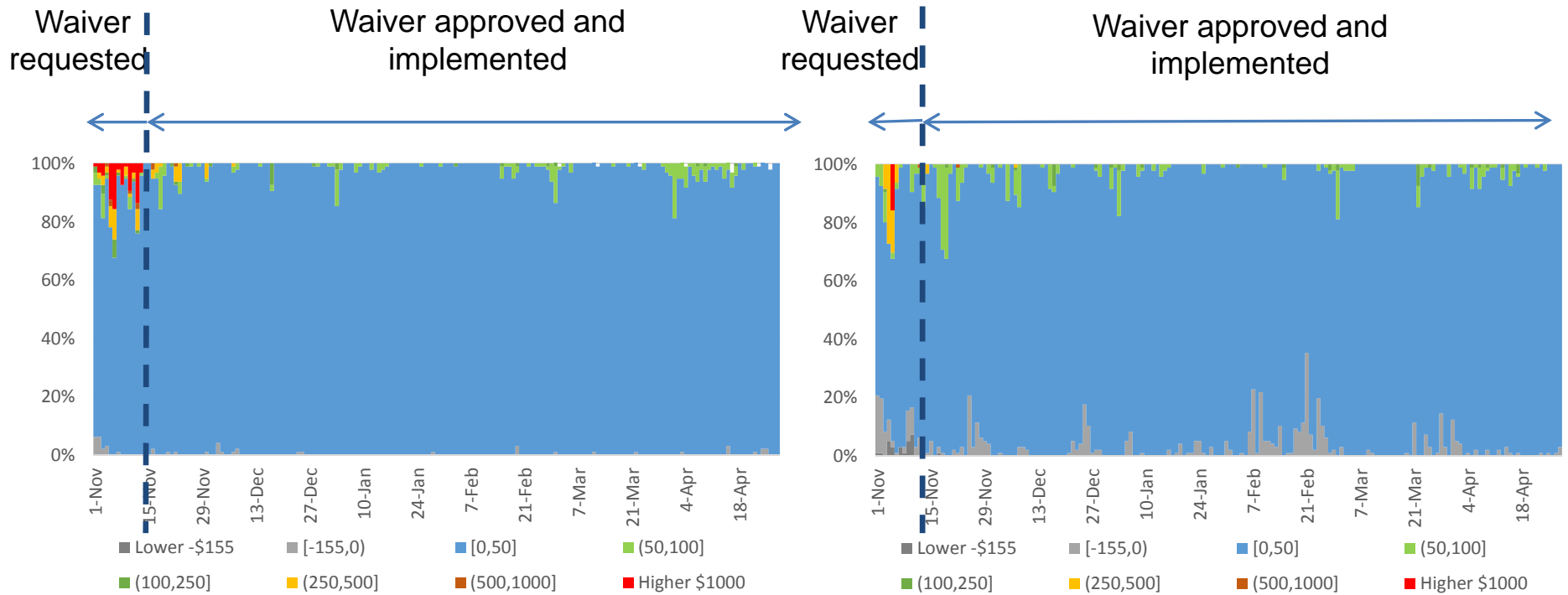
Highest levels of transfers in the 15-minute intervals:

- 421 MW PACW to ISO
- 321 MW ISO to PACW
- 200 MW PACE to PACW

# 15-Minute price frequency in PACE and PACW

## 15-minute PACE Aggregate Price

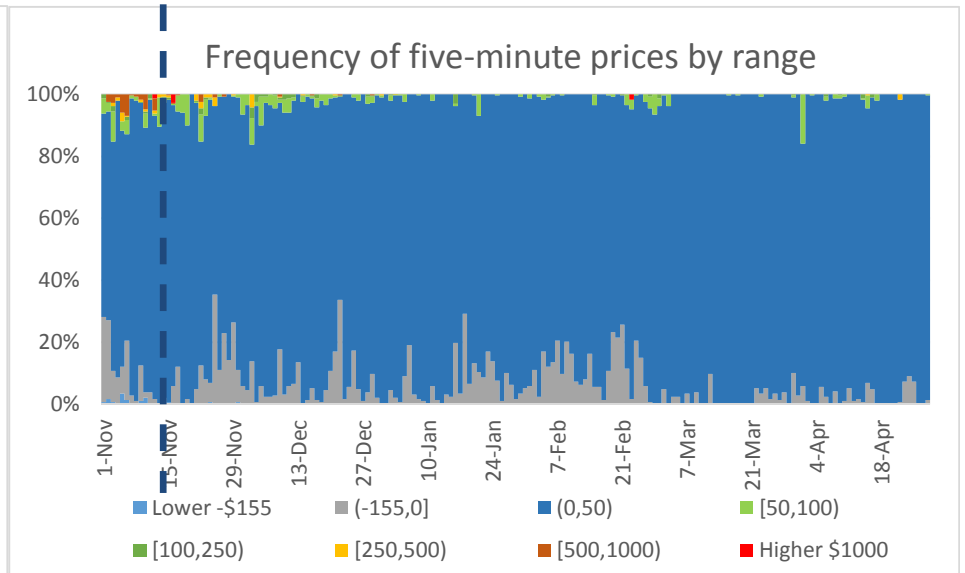
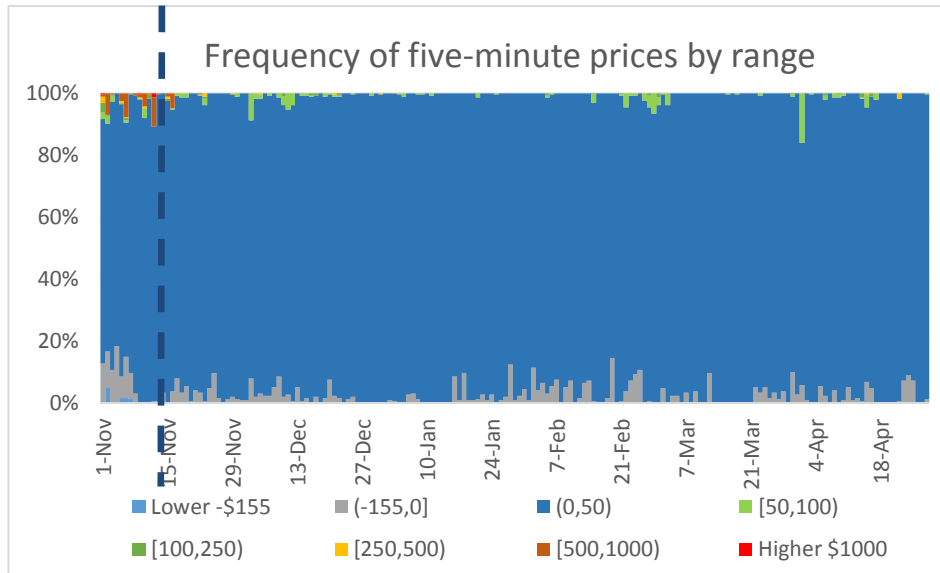
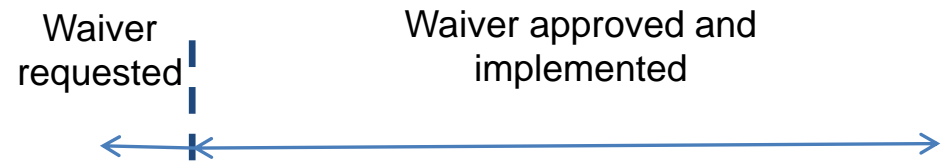
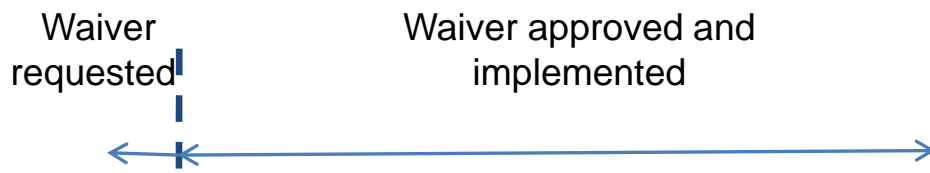
## 15-minute PACW Aggregate Price



# 5-Minute price frequency in PACE and PACW

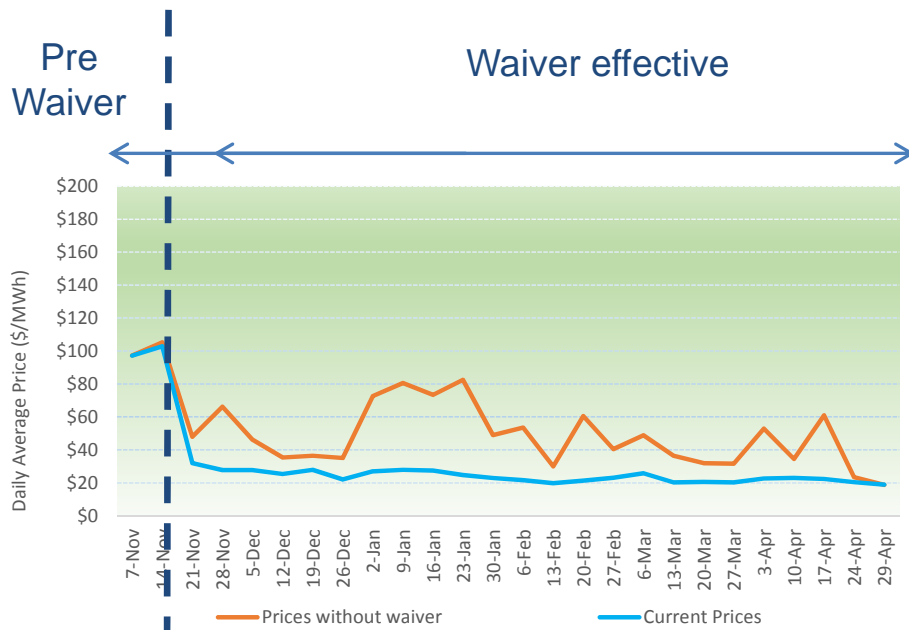
## 5-minute PACE Aggregate Price

## 5-minute PACW Aggregate Price

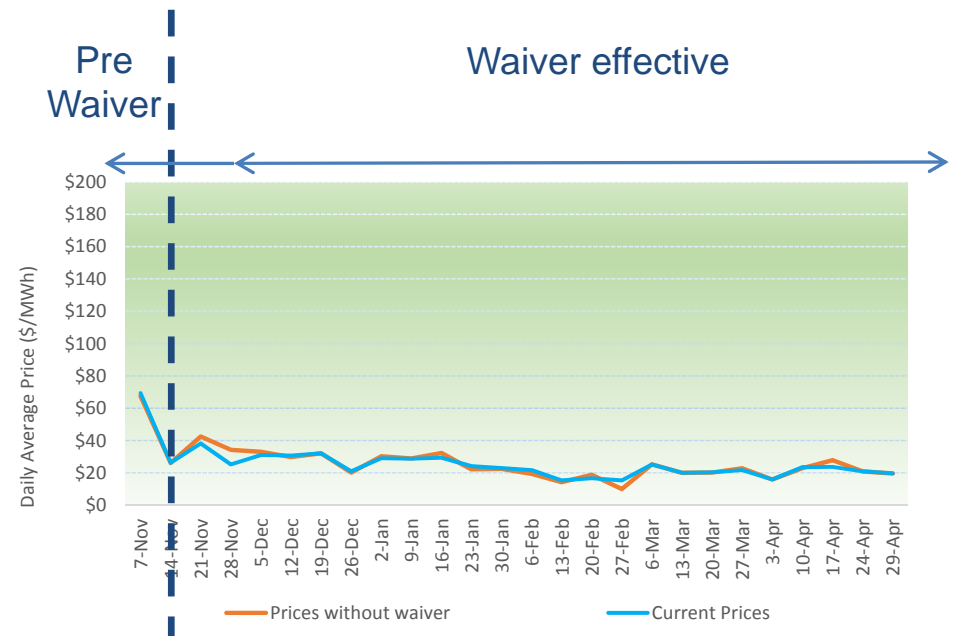


# Pricing performance improves in March and April

## 15-minute PACE Aggregate Price

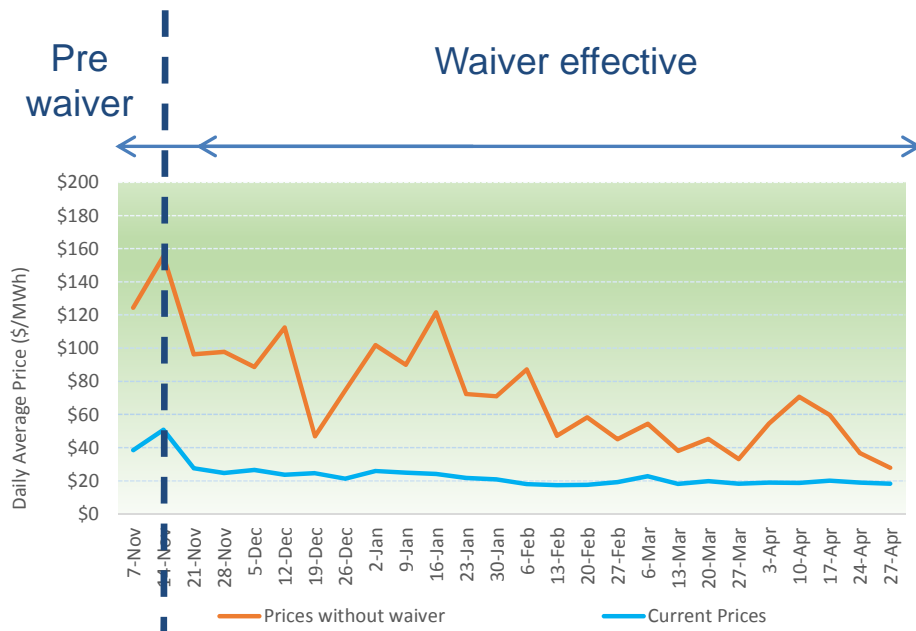


## 15-minute PACW Aggregate Price

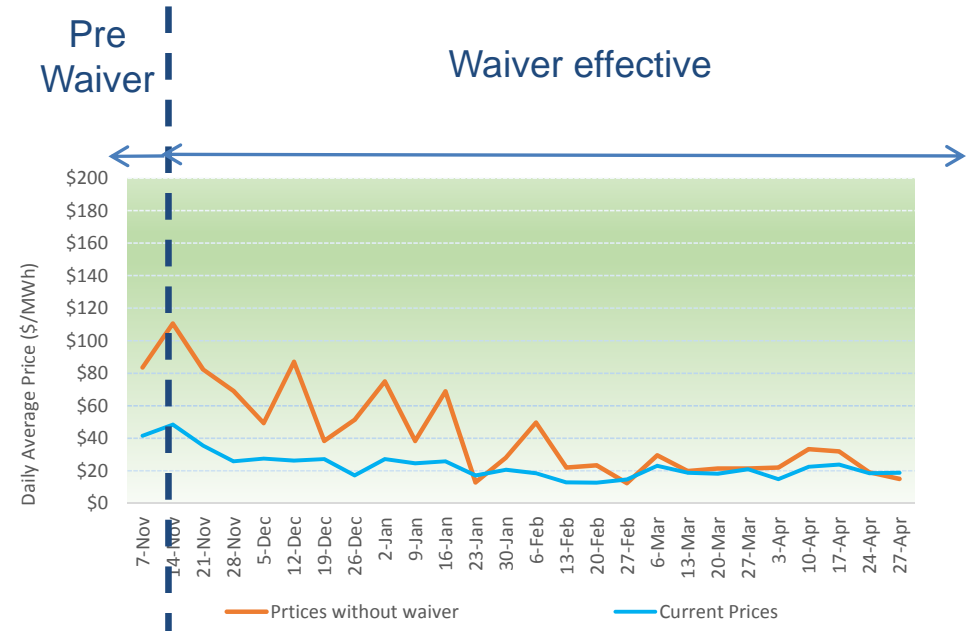


# Pricing performance improves in March and April

## 5-minute PACE Aggregate Price



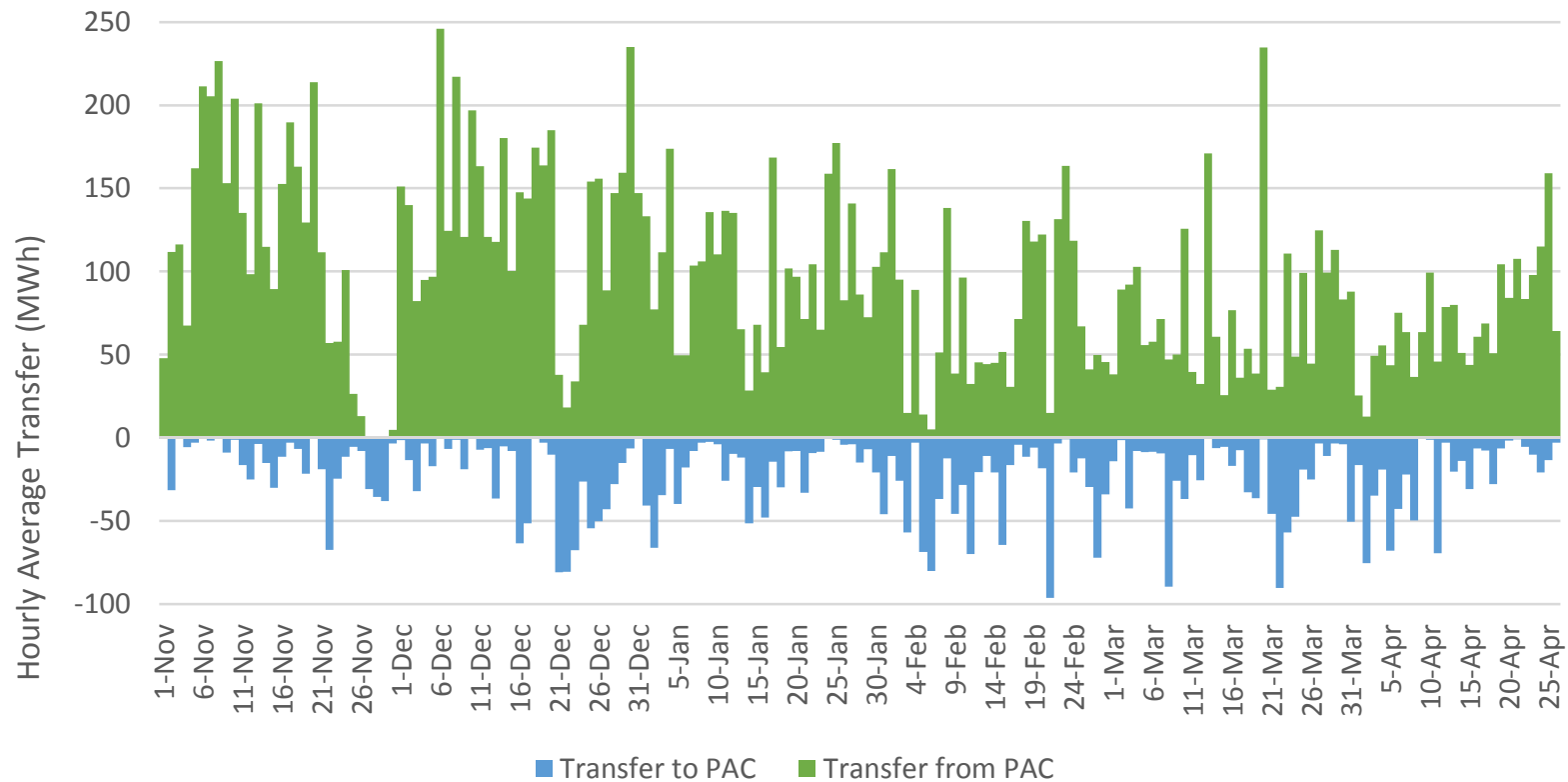
## 5-minute PACW Aggregate Price





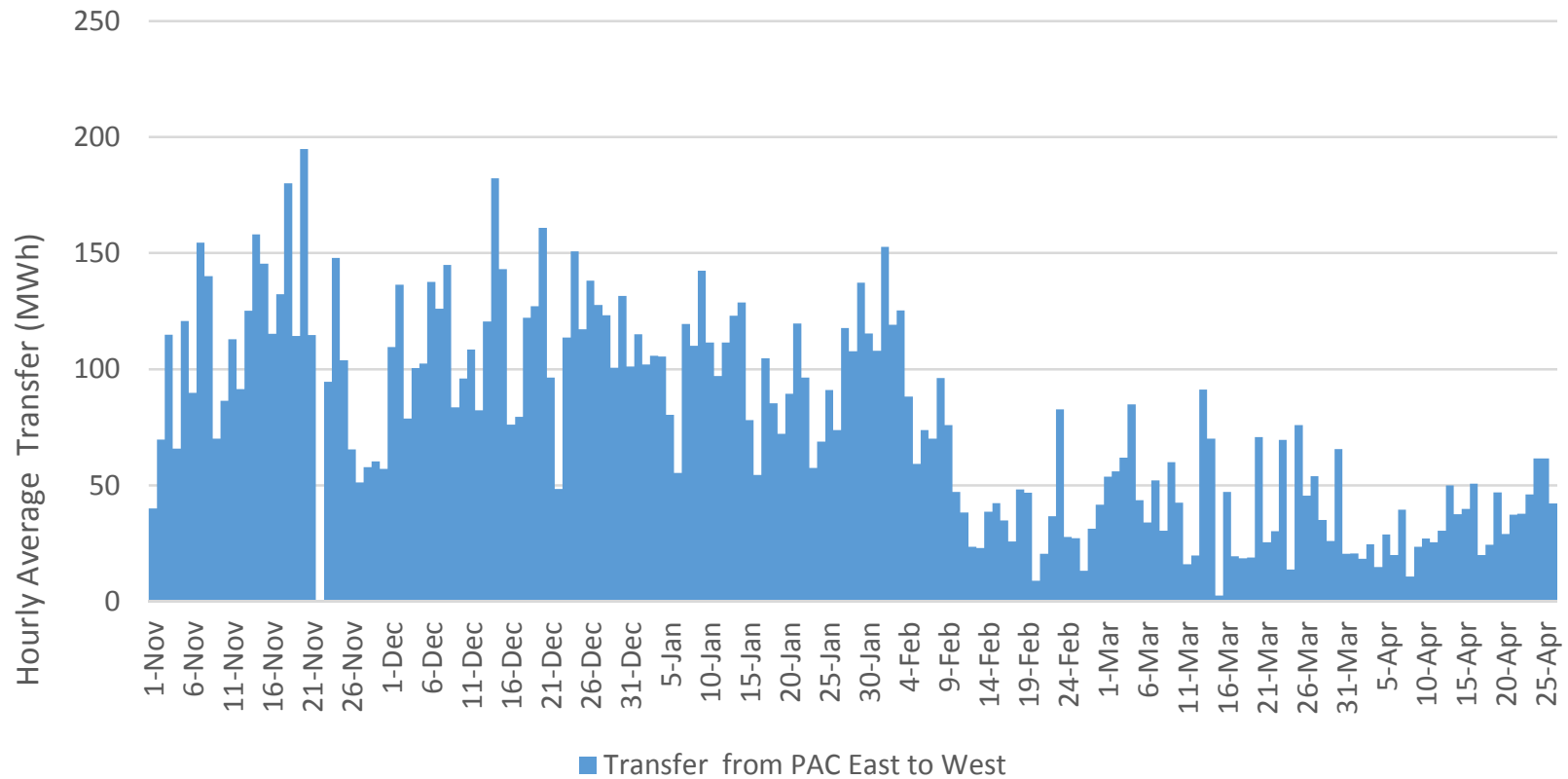
# Hourly average transfer from PacifiCorp and ISO

(+) PacifiCorp to ISO / (-) ISO to PacifiCorp

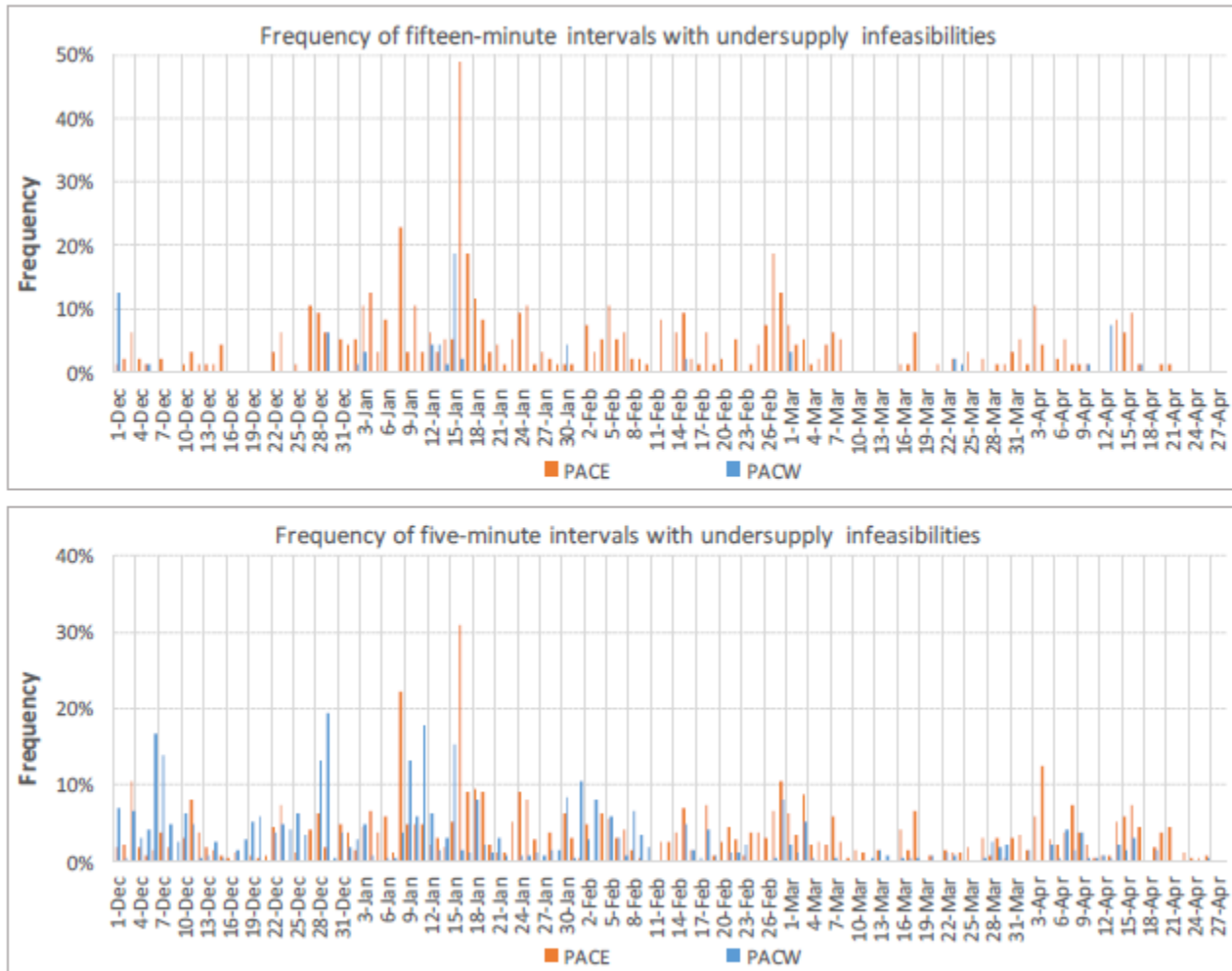


# Hourly average transfers between PACE and PACW decreased in February

(+) PacifiCorp East to PacifiCorp West



# Frequency of 5' and 15' intervals with MW undersupply infeasibilities





# Questions