



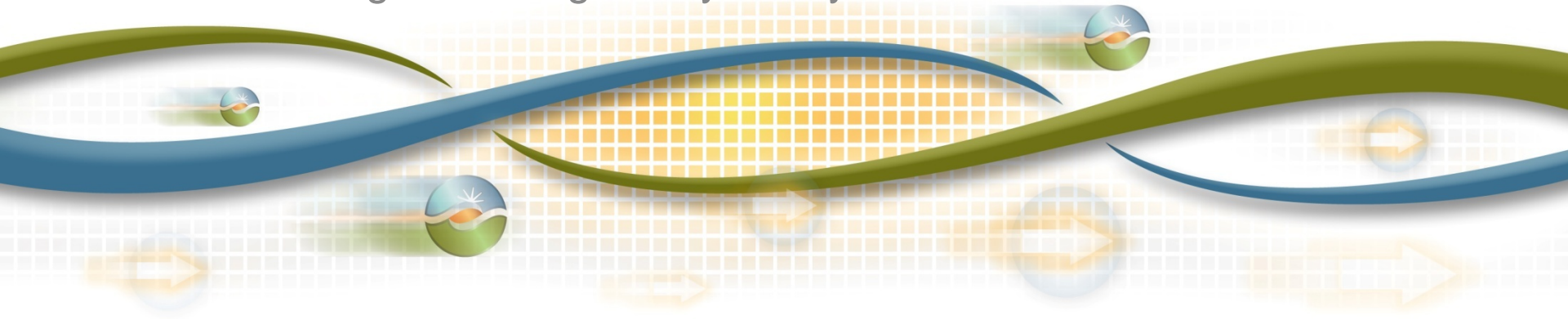
# Bid Cost Recovery Enhancements Straw Proposal

Stakeholder Conference Call

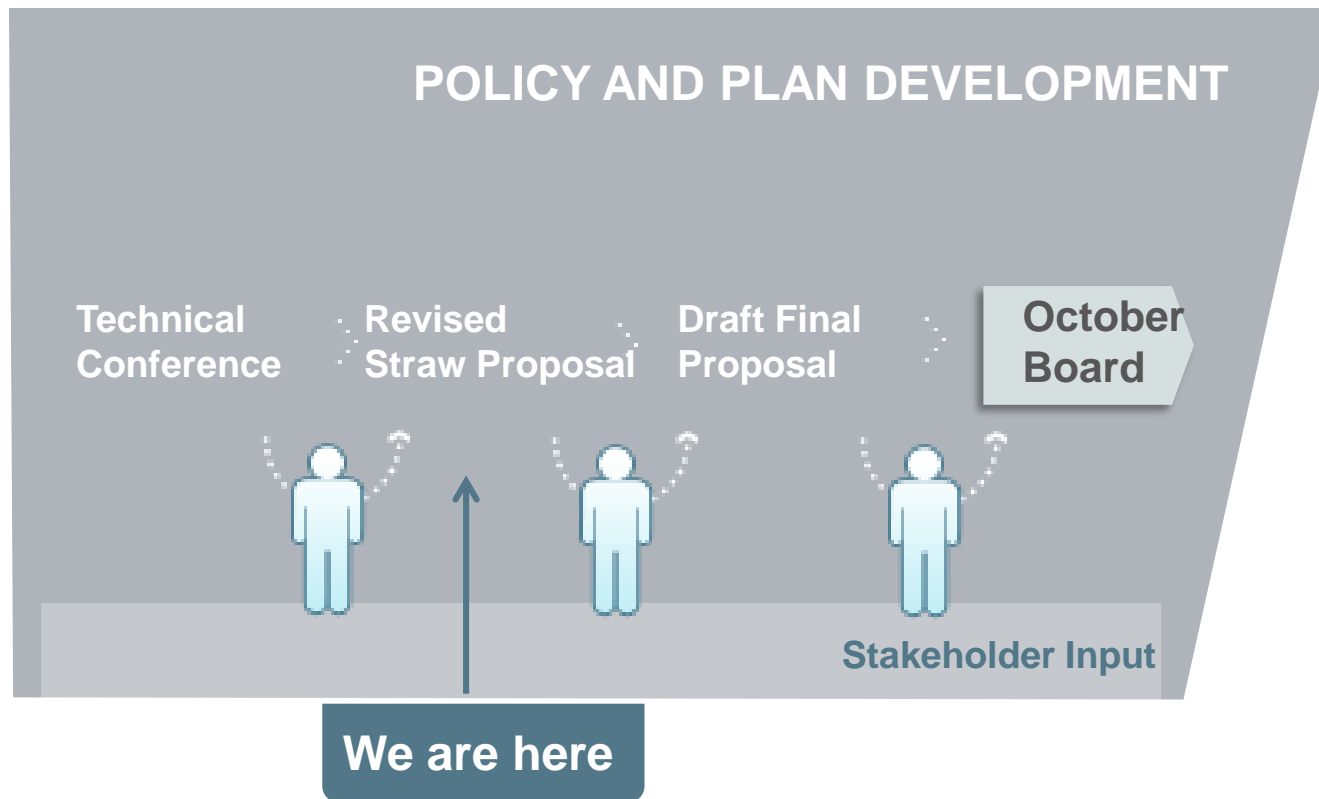
June 21, 2016

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Market Design and Regulatory Policy



# ISO Policy Initiative Stakeholder Process



# Background

- FERC 2006 order on the nodal market design directed the CAISO to implement specific enhancements related to bid cost recovery within three years of implementation.
  - Two-tiered real-time BCR uplift cost allocation
  - Accounting of start-up costs in BCR calculation for resources operating across trade dates
- FERC granted the ISO extension of time in 2012 and 2014.
- Initiative started with an Issue Paper posted in November 2015.

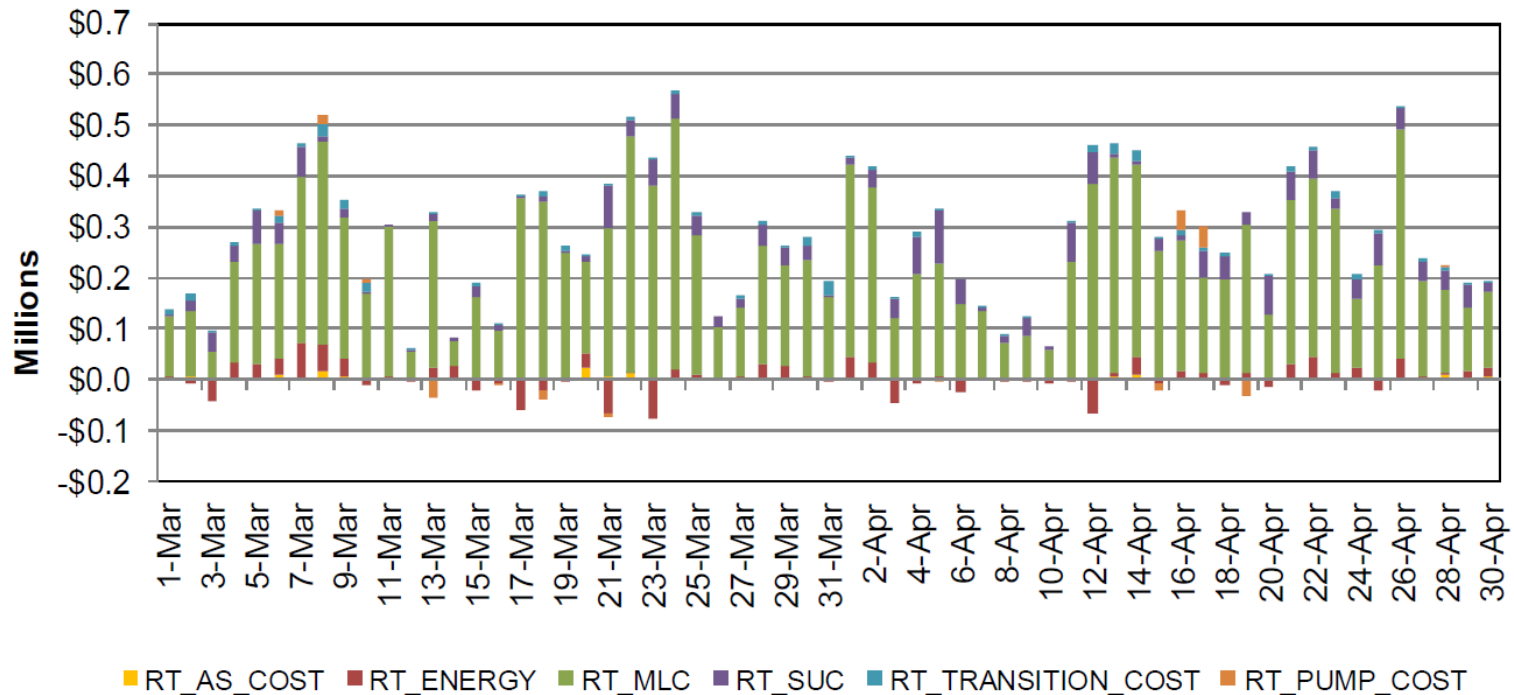
# Scope of Initiative

- Two-tier real-time BCR uplift cost allocation
  - FERC directed via 2006 Order
  - Potential methodology and consideration of maintaining status quo
- Accounting of start-up costs in BCR payment calculation for resources operating across two trade dates.
  - FERC directed via 2006 Order
  - Potential methodology and consideration of maintaining status quo
- Modify IFM BCR uplift cost allocation methodology
  - Identified via stakeholder comments on Issue Paper

# Real-time BCR uplift cost allocation

- Currently the ISO allocates real-time uplift costs in one tier to measured demand.
  - IFM and RUC both have a two-tiered approach where the first tier allocates to those entities driving BCR costs.
  - Challenging to accurately identify the cause of real-time BCR uplift costs.
- Approximately \$50 million per year in real-time BCR uplift costs.
  - May be reduced post FRP implementation
  - Potential benefits of a two-tiered approach difficult to assess as they would be based on changed behavior.

# Real-time BCR uplift costs

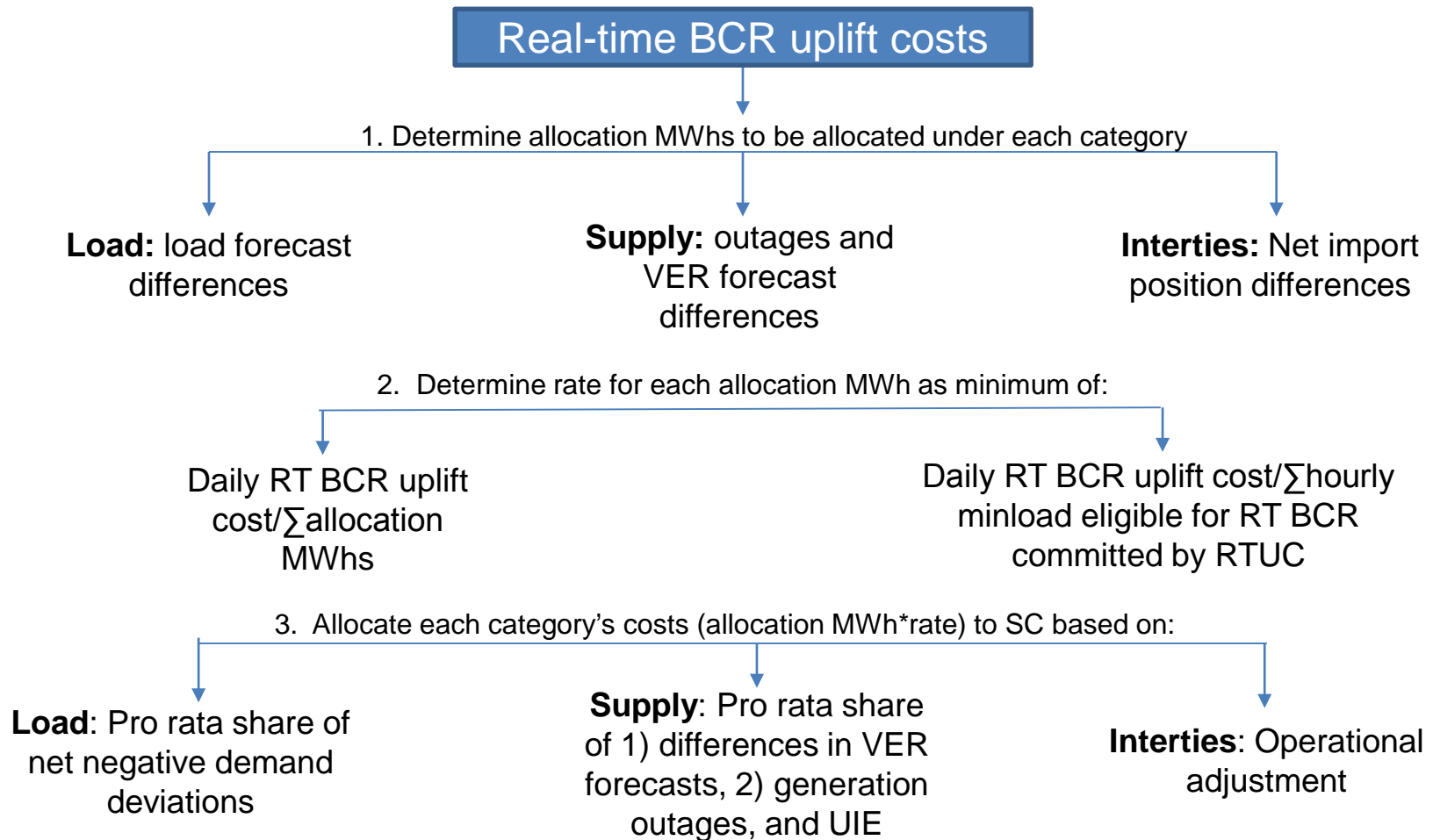


- Commitment costs comprise majority of real-time BCR
  - Identify reasons for unit commitment and allocate accordingly
- Continuing to analyze additional data

# Real-time BCR uplift costs

- Real-time unit commitments occur due to differences between two consecutive RT unit commitment runs (RTUC) that was not reflected in the day-ahead markets.
  - Similar to FRP uncertainty movement
- Causes of real-time unit commitments
  - Changes in load forecast between two RTUC market runs that was not reflected in the day-ahead market.
  - Changes in VER forecasts between two RTUC market runs that was not reflected in the day-ahead market.
  - Outages of resources with a day-ahead schedule that was not reflected in the previous RTUC market run.
  - Changes in net import positions between the two hour-ahead scheduling processes that was not reflected in the day-ahead market.
- Analysis showed uninstructed deviations and net negative demand deviations do not have a significant correlation with real-time BCR.

# Two-tier real-time BCR uplift cost allocation



\*Any remaining BCR costs will be allocated under tier 2, using current RT allocation methodology



# Two-tier real-time BCR uplift cost allocation – allocation MWhs

- Load
  - Daily summation of increases in load forecast between two consecutive RTUC market runs that was not reflected in the day-ahead.
- Supply
  - Daily summation of decreases in VER forecasts between two consecutive RTUC market runs that was not reflected in the day-ahead.
  - Total daily generation outages not reflected in day-ahead that are below the resource's previous RTUC schedule.
- Interties
  - Daily summation of decreases in net import position between two HASP market runs that was not reflected in the day-ahead market.

## Two-tier real-time BCR uplift cost allocation – rate

- Determine the \$/MWh rate to apply to each allocation MWh as the minimum of:
  - Daily RT BCR uplift cost (\$) /  $\sum$  load, supply, and inertia allocation quantity (MWh)
  - Daily RT BCR uplift cost (\$) /  $\sum$  hourly minimum load from resources committed through RTUC and eligible for BCR (MWh).
- Total cost to be allocated under each category is the product of
  - 1) allocation quantity from previous slide, and
  - 2) rate

## Two-tier real-time BCR uplift cost allocation – cost allocation

- Daily allocation of category costs
- Load: SC pro rata share of net negative demand deviations, not netted across intervals.
- Supply: SC pro rata share of 1) decreases in VER forecasts between two RTUC market runs, and 2) generation outages below previous RTUC schedule not reflected in day-ahead.
- Interties: Gross operation adjustment

# Real-time BCR uplift costs allocation – status quo

- Cost causation:
  - Challenging to directly identify cause for each commitment.
  - FRP could be considered a “pseudo” tier 1 allocation.
- Rational:
  - Implementation costs may exceed potential benefits, but difficult to assess as benefits, in part, will depend on changed behavior.
  - Magnitude of RT BCR uplift costs could be reduced with FRP implementation, which may further dilute potential benefits.
  - Load may continue to pay majority of costs under two-tiered approach, further dilute potential benefits
  - Supply bids may increase to reflect risk of uplift cost, increasing cost to load.
- Therefore, the ISO is considering maintaining status quo.

# Accounting of start-up costs in BCR calculation

- FERC directive via 2006 Order
- BCR payments for resources accounts for costs and revenues incurred on a given trade date by market.
- Start-up costs are included in BCR calculation on the trade date for which the resource started.
  - When a resource operates across trade days, surplus revenues on the second day are not used to offset start-up costs incurred on the first trade day.
  - Increased BCR uplift costs

# Accounting of start-up costs in BCR calculation

Row #	Trade Day				
	1		2		
1	Trade hour	23	24	1	2
2	Revenue	\$ 4,000	\$ 3,500	\$ 3,000	\$ 2,500
3	Daily Revenue	\$ 7,500		\$ 5,500	
4	Total Revenue	\$ 13,000			
<b>Current cost consideration and BCR calculation</b>					
5	Minload cost	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000
6	Start-up cost	\$ 6,000			
7	Daily Cost	\$ 10,000		\$ 4,000	
8	Daily BCR	\$ 2,500		\$ -	
<b>Potential cost consideration and BCR calculation</b>					
9	Minload cost	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000
10	Start-up cost	\$ 1,500	\$ 1,500	\$ 1,500	\$ 1,500
11	Daily Cost	\$ 7,000		\$ 7,000	
12	Daily BCR	\$ -		\$ 1,500	
<b>Commitment period based BCR calculation</b>					
13	Minload cost	\$ 2,000	\$ 2,000	\$ 2,000	\$ 2,000
14	Start-up cost	\$ 6,000			
15	Total Cost	\$ 14,000			
16	Total Revenue	\$ 13,000			
17	BCR	\$ 1,000			

- Current method: \$6,000 start-up cost included in Trade Day 1
- Potential solution: \$6,000 start-up cost converted to hourly cost, based on hours in commitment period (4 hours). Continue with daily BCR calculation.
- Commitment period based BCR calculation is not implementable given daily settlement systems.

## Accounting of start-up costs – status quo

- Only 4% of total IFM and RT BCR payments between May 2014 and April 2016 were made to resources operating across trade dates.
  - Historically been why ISO and stakeholders alike have ranked this a lower priority item.

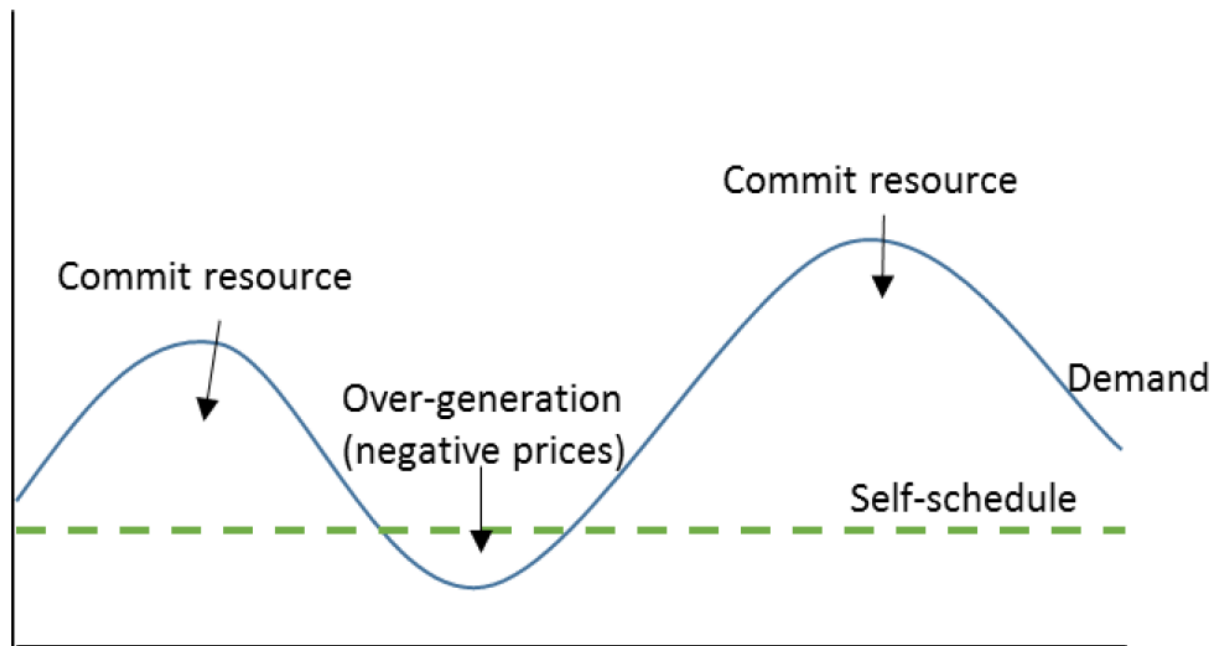
# IFM BCR uplift allocation modification

- SCE comments on the Issue Paper identified a misalignment of incentives with current IFM BCR allocation methodology and other policies.
  - ISO continues to strive for policies which incentivize economic participation in the markets.
- IFM BCR allocation based on SC's cleared demand minus self scheduled generation and imports, plus/minus inter-SC trades of load obligation.
  - SC with 5,000MWh load and economically bids 5,000MWh generation will be allocated IFM BCR costs
  - SC with 5,000MWh load and 5,000MWh self scheduled generation will not be allocated IFM BCR costs



# IFM BCR uplift allocation modification

- ISO proposing to modify tier 1 allocation for IFM BCR uplift costs by removing the adjustment for self scheduled generation and imports.
- Self schedules may actually contribute to BCR costs.



- Current adjustment for self schedules provides a disincentive for economic bidding.

# Next Steps

- Please submit written comments by June 28<sup>th</sup> to [initiativecomments@caiso.com](mailto:initiativecomments@caiso.com)
- Revised Straw Proposal to be posted late July.