

Flexible Ramping Product

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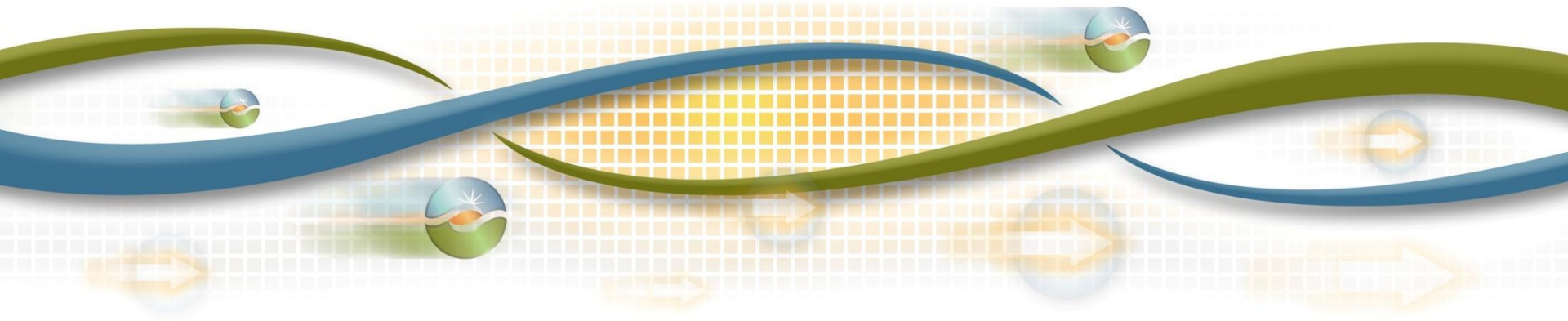
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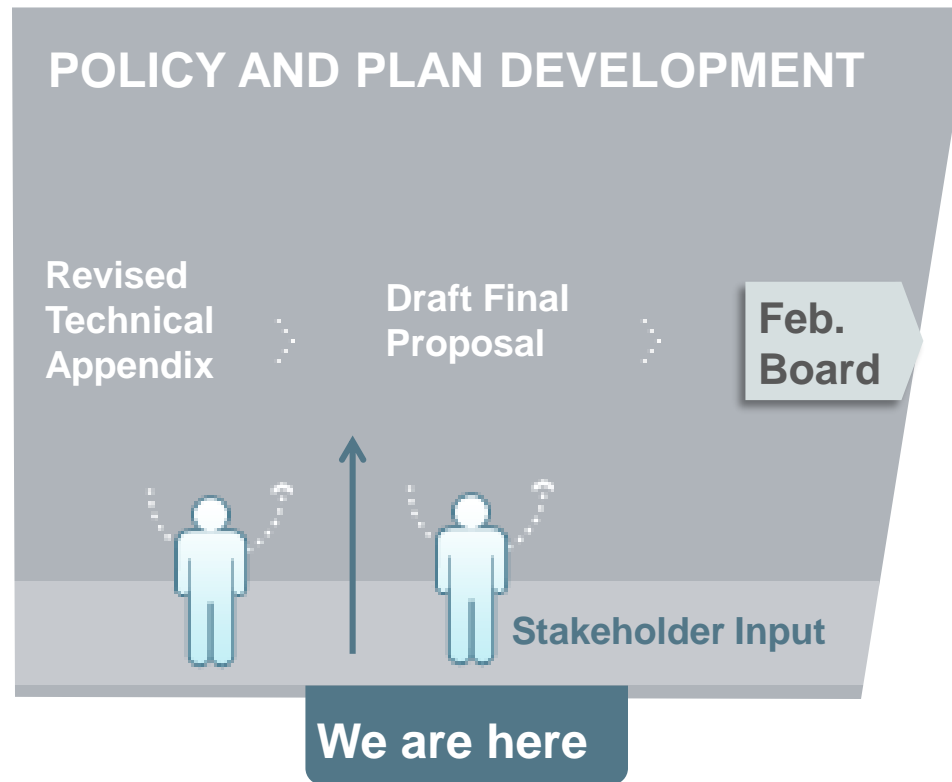
November 18, 2015



Stakeholder Working Group Agenda – 11/18/15

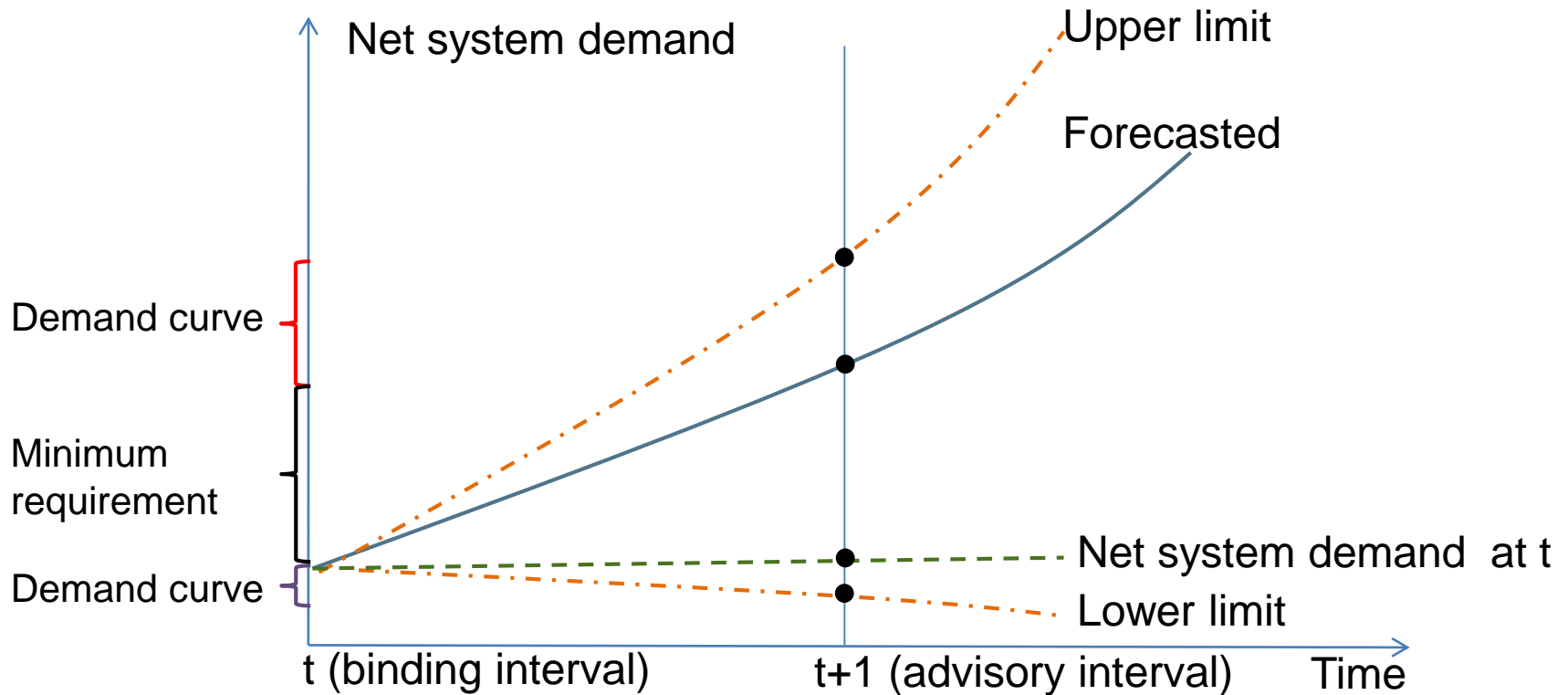
Time	Topic	Presenter
10:00 – 10:10	Introduction	Kristina Osborne
10:10 – 11:00	Changes to FRP design	Don Tretheway
11:00 – 12:00	Clarification to market formulation and demand curve	George Angelidis
12:00 – 1:00	Lunch	
1:00 – 2:00	Settlements and Cost Allocation	Don Tretheway
2:00 – 2:50	Data release overview	Eric Kim
2:50 – 3:00	Next steps	Kristina Osborne

ISO Policy Initiative Stakeholder Process



CHANGES FRP DESIGN

Fundamental FRP design is unchanged



Flexible Ramping Product to meet real ramping need

Update to Flexible Ramping Product

- Two separate settlement calculations
 1. Forecasted movement- each FMM interval and RTD interval
 2. Uncertainty- FMM and RTD will be settled at the end of the month
- FRP awards to interties and resources will be included in the real-time market bid cost recovery calculations
 - Clarify to include revenues/costs attributable to both increased and decreased FRP schedules in RTD relative to the FMM

Updates to Flexible Ramping Product

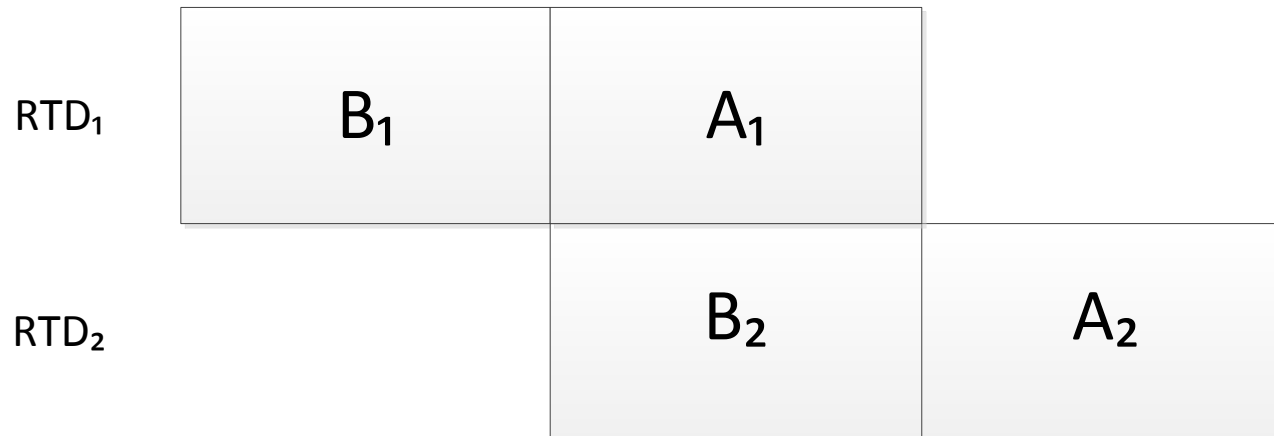
- No grid management charges for FRP awards
- There will not be “no pay” charges similar to that used for ancillary services for FRP.
 - Implementing a measure to prevent double payment that would otherwise result from a deviation from dispatch.
- Monthly uncertainty costs to be allocated by coincident and non-coincident peak hour, not hourly
- No minimum threshold used in allocating movement within the supply category

CLARIFICATION TO FORMULATION

Known discontinuous and non-reversible dispatch will be included in net demand

- Examples: startups, shutdowns, and MSG transitions, 15-min intertie schedules in RTD, exceptional/manual dispatch instructions
- Results in only reversible dispatch in the FRP uncertainty awards, thus can assume that flat net demand (including the new terms) can be attained
- Only the non-reversible dispatch known at application run time is included in the net demand
 - New commitment decisions taken in the current RTUC run are not yet known; however, these decisions mostly apply to a small set of fast-start resources with relatively small P_{min} .

Histogram construction unchanged - RTD



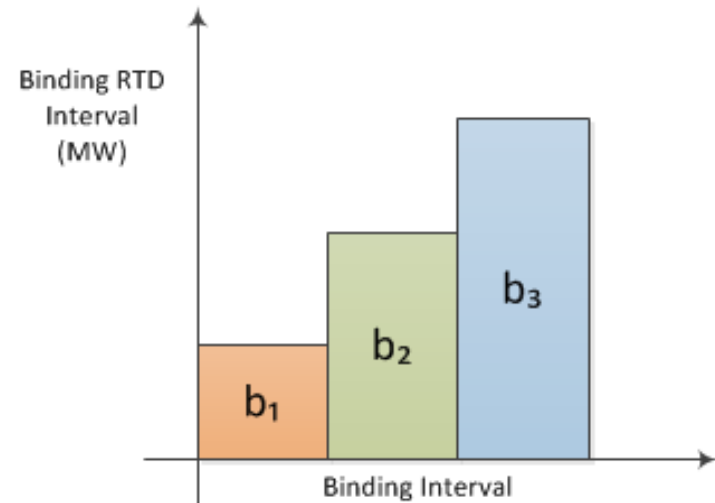
$$B_2 - A_1$$

The ISO will construct the histograms by subtracting the net demand the first market run used for the first advisory interval (A₁) from the net demand the second market run used for the binding interval (B₂).

Histogram construction unchanged - RTUC

RTUC	FMM	A		
RTD ₁		b ₁		
RTD ₂			b ₂	
RTD ₃				b ₃

$b_3 - A$



The FRU histogram will be constructed by comparing the net demand the FMM used for the first advisory RTUC interval to the maximum net demand the market used for the corresponding three RTD binding intervals (b_2, b_3, b_4)

Historical data is a baseline to forecast future uncertainty, but ...

- Operational experience will lead to improved forecasting of ramp uncertainty
- Forecast methodology will be included in business practice manual
 - Updates to methodology will follow the BPM change process
- Examples of potential improvements
 - Seasonal adjustments
 - Hours included in sample size
 - Correlation of net demand composition

Modified integration formula for the uncertainty surplus cost calculation

- The surplus cost is the expected cost of not procuring a portion of the uncertainty:

$$\left. \begin{aligned}
 CSU_t(FRUS_t) &= PC \int_{EU_t - FRUS_t}^{EU_t} (e - EU_t + FRUS_t) p_t(e) de, 0 \leq FRUS_t \leq FRUR_{Ut} \\
 CSD_t(FRDS_t) &= PF \int_{ED_t - FRDS_t}^{ED_t} (e - ED_t + FRDS_t) p_t(e) de, 0 \geq FRDS_t \geq FRDR_{Ut}
 \end{aligned} \right\},$$

$t = 1, 2, \dots, N - 1$

- The incremental surplus cost is the FRP demand curve:

$$\left. \begin{aligned}
 C\dot{S}U_t(FRUS_t) &= PC \int_{EU_t - FRUS_t}^{EU_t} p_t(e) de, 0 \leq FRUS_t \leq FRUR_{Ut} \\
 C\dot{S}D_t(FRDS_t) &= PF \int_{ED_t - FRDS_t}^{ED_t} p_t(e) de, 0 \geq FRDS_t \geq FRDR_{Ut}
 \end{aligned} \right\},$$

$t = 1, 2, \dots, N - 1$

Updated demand curve example

The power balance penalty cost function:

Power Balance Violation (MW)	Penalty Cost (\$/MWh)
-300 to 0	-155
0 to 400	1000

The net load forecast error probability distribution function:

Net Load Forecast Error MW bin	Probability
-300 to -200	1%
-200 to -100	2%
-100 to 0	44.8%
0 to 100	50%
100 to 200	1.4%
200 to 300	0.5%
300 to 400	0.3%

Net Demand Error (MW)		Surplus (MW)		Probability	Penalty Cost (\$/MWh)	Demand Curve (\$/MWh)
Start	End	Start	End			
-200	-300	0	-100	0.01	-155	$0.01 / 100 \times 50 \times (-155) = -0.775$
-100	-200	-100	-200	0.02	-155	$(0.01 / 100 \times 100 + 0.02 / 100 \times 50) \times (-155) = -3.10$
0	-100	-200	-300	0.448	-155	$(0.01 / 100 \times 100 + 0.02 / 100 \times 100 + 0.448 / 100 \times 50) \times (-155) = -39.37$
0	100	300	400	0.5	1,000	$(0.003 / 100 \times 100 + 0.005 / 100 \times 100 + 0.014 / 100 \times 100 + 0.5 / 100 \times 50) \times 1,000 = 272.00$
100	200	200	300	0.014	1,000	$(0.003 / 100 \times 100 + 0.005 / 100 \times 100 + 0.014 / 100 \times 50) \times 1,000 = 15.00$
200	300	100	200	0.005	1,000	$(0.003 / 100 \times 100 + 0.005 / 100 \times 50) \times 1,000 = 5.50$
300	400	0	100	0.003	1,000	$0.003 / 100 \times 50 \times 1,000 = 1.50$

Demand curve will be capped so FRP is relaxed prior to ancillary services

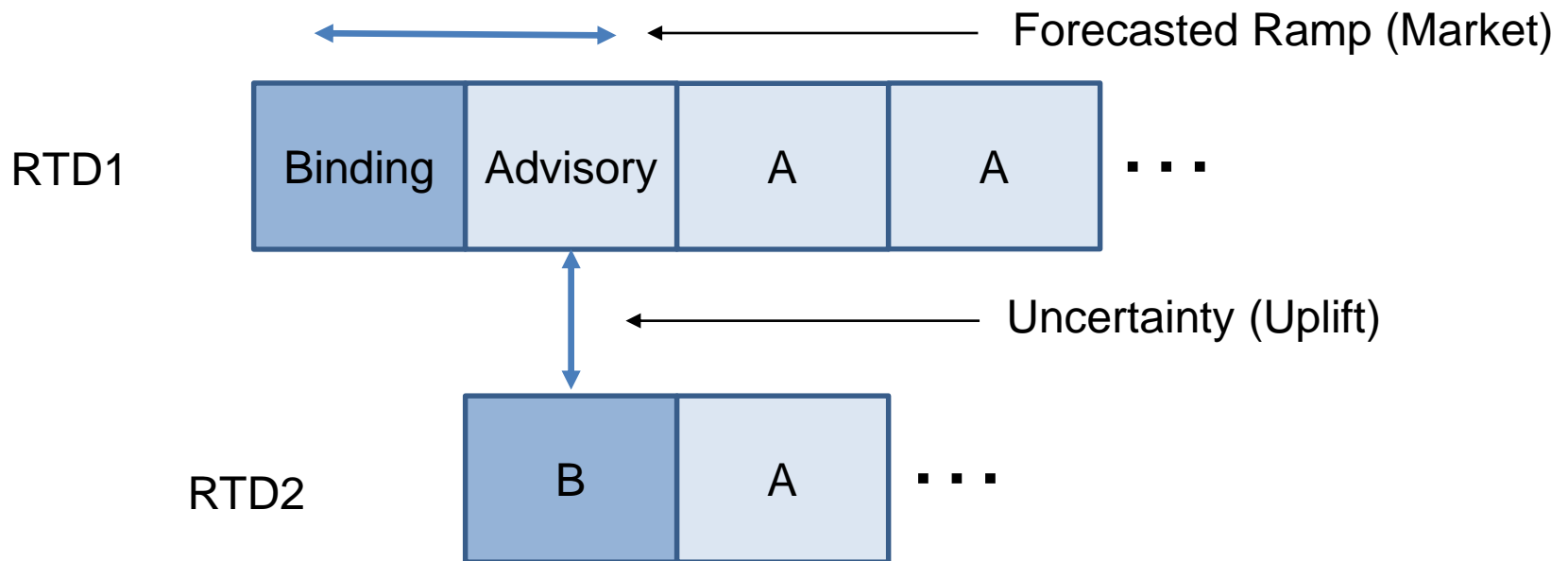
- Flexible ramping up cap at \$247
 - Spin relaxation parameter is \$250
- Flexible ramping down cap is (-\$152)
 - Regulation down relaxation parameter is (-\$155)
- Step constraint parameters stakeholder initiative planned
 - If bid floor is lowered, will result in regulation down parameter being reduced, FRD cap will also be reduced

SETTLEMENT

The updated proposal will split the settlement into two parts:

1. A direct settlement in the market for all forecasted movement
2. A separate calculation and settlement for uncertainty

Forecasted ramp is settled through the market, uncertainty is an uplift

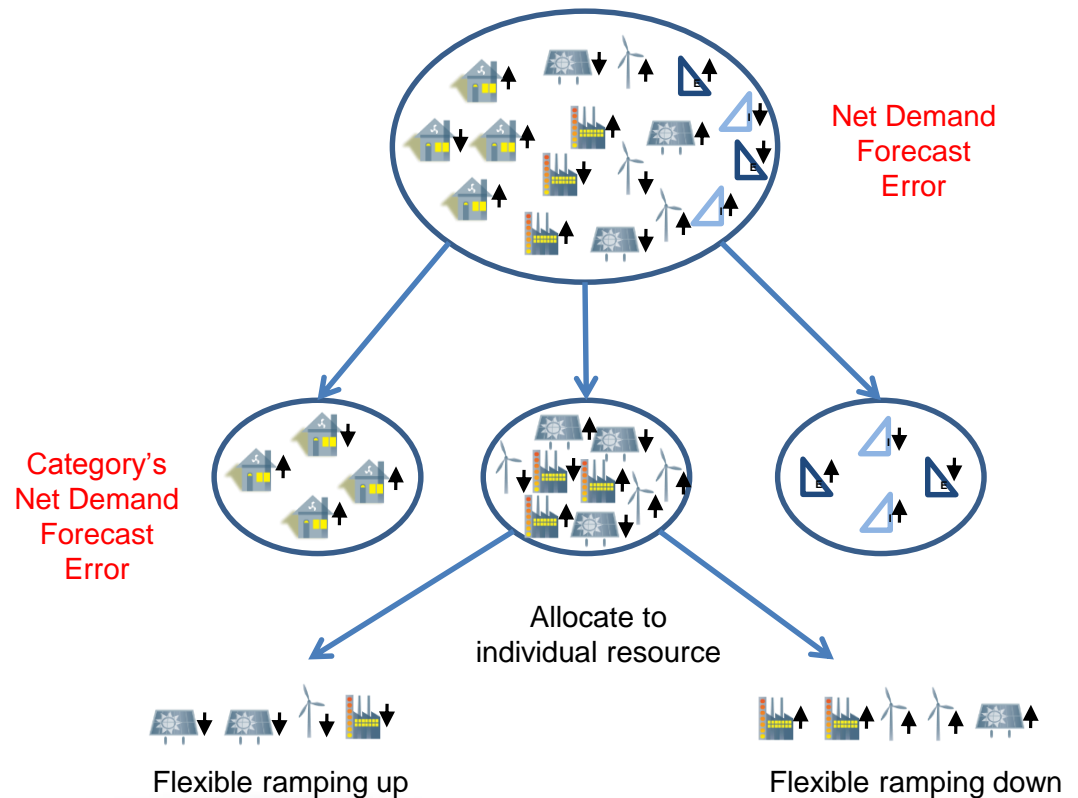


Under the updated proposal, forecasted ramp is settled in market, uncertainty is a monthly uplift

Forecasted

$$\begin{array}{c} \text{Load} \\ = \\ \text{Non-Dispatchable} \\ \text{Generation} \\ + \\ \text{Dispatchable} \\ \text{Generation} \end{array}$$

Uncertainty



Assumptions to illustrate difference between previous FRP proposal and updated proposal

- Load increasing 1000MW
- Non-dispatchable wind increasing 100MW
- No interval ramp for imports/exports
- Upward uncertainty 80MW

Previous vs. New Proposal

Previous

- Dispatchable generation paid 980MW FRU
- Cost of 980MW FRU allocated to upward movement

Updated

- Dispatchable generation paid 980MW FRU
- Wind paid 100MW FRU
- Load charged 1000MW FRU
- Uncertainty cost 80MW uplift to upward errors

Forecasted movement is settled in all FMM and RTD intervals

- Load (Hourly metered)
 - Load can result in a payment or a charge
 - Since the forecasted movement is the ISO forecast, propose allocating to metered demand by BAA
- Supply (5-minute metered)
 - Non-dispatchable movement can be paid or charged
 - Dispatchable resources are paid
- Interties (15-minute deemed delivered)
 - Hourly blocks non-dispatchable in FMM, can be paid or charged
 - 15-minute economic bids are dispatchable in FMM, so paid
 - Non-dispatchable in RTD, can be paid or charged

Ramp granularity can result in ramp deviations that are settled between FMM and RTD

	HE 02						HE 03					
	RTD 7	RTD 8	RTD 9	RTD 10	RTD 11	RTD 12	RTD 1	RTD2	RTD 3	RTD 4	RTD 5	RTD 6
Prescribed hourly ramp (MW)	100.00	100.00	100.00	100.00	110.00	120.00	130.00	140.00	150.00	150.00	150.00	150.00
	FMM 3			FMM 4			FMM 1			FMM 2		
FMM Non-Dispatchable Energy	100.00			110.00			140.00			150.00		
FMM Ramp Award (MW)	10.00			30.00			10.00			0.00		
FMM Ramp Award (MW)	3.33	3.33	3.33	10.00	10.00	10.00	3.33	3.33	3.33	0.00	0.00	0.00
RTD Incremental Ramp Award (MW)	-3.33	-3.33	-3.33	0.00	0.00	0.00	6.67	6.67	-3.33	0.00	0.00	0.00
Final Ramp	0.00	0.00	0.00	10.00	10.00	10.00	10.00	10.00	0.00	0.00	0.00	0.00

Hourly block import increasing from 100MW to 150MW

Uncertainty will be paid and allocated at the end of the month

- Propose to eliminate the monthly resettlement
 - Resources meeting uncertainty will be paid at the end of the month
- Costs aggregated by non-coincident peak and coincident peak, not hourly
- Costs divided between Load, Supply and Interties based upon the gross forecast error
 - Vertical Advisory - Binding
- Then allocate each category using its billing determinant

Uncertainty within each category is allocated pro-rata for upward and downward

- Load (Hourly metered)
 - Gross uninstructed imbalance energy (UIE) over the month
- Supply (5-minute metered)
 - Gross (Vertical Advisory – Binding - UIE)
- Interties (15-minute deemed delivered)
 - Gross operational adjustments

Deviations can cause double payment.

- For example, assume a resource bid \$30 and the LMP was \$40
- If the resource was awarded FRU, it would be paid the opportunity cost of \$10
- If the resource had UIE above its dispatch, it would be paid the LMP which results in a profit of \$10

Payment rescission for load, supply and interties when deviations result in a double payment (1 of 2)

- For each settlement interval, compare uninstructed deviations to FRP award
- If the UIE (or OA) overlaps the FRP award, this portion of the award will be rescinded
- Rescission quantity will be charged the 5-minute price
- Rescission quantity will apply first to uncertainty and then to movement

Payment rescission for load, supply and interties when deviations result in a double payment (2 of 2)

- Rescission of uncertainty
 - Will be charged at the end of the month
 - At the interval quantity and price
 - Will reduce the monthly costs to be allocated for uncertainty
- Rescission of movement
 - Will be charged in the settlement interval in which it occurred
 - Payment to all resources that procured FRP on a pro-rata basis in that settlement interval

DATA RELEASE

Operational data will be provided on movement and uncertainty

- CSV file on initiative website (moving to OASIS)
 - Total requirement
 - Demand curve

- CMRI for resource specific movement and uncertainty

RTPD Minimum Requirement

TRADE_DATE	BAA_NAME	TIME_INTERVAL	NSD_ADVISORY1	NSD_BINDING	MOVEMENT	MINIMUM_FRU	MINIMUM_FRD
20151027	CISO	20151027 07:00	7930.13	8126.61	196.48	196.48	0.00
20151027	CISO	20151027 07:15	7009.84	7417.18	407.34	407.34	0.00
20151027	CISO	20151027 07:30	6719.16	7265.74	546.58	546.58	0.00
20151027	CISO	20151027 07:45	6697.88	7009.95	312.07	312.07	0.00
20151027	CISO	20151027 08:00	7003.00	6533.25	-469.75	0.00	-469.75
20151027	CISO	20151027 08:15	6141.22	6296.84	155.63	155.63	0.00
20151027	CISO	20151027 08:30	5878.04	6145.40	267.36	267.36	0.00
20151027	CISO	20151027 08:45	5728.91	5896.54	167.63	167.63	0.00
20151027	CISO	20151027 09:00	6289.81	5575.15	-714.65	0.00	-714.65
20151027	CISO	20151027 09:15	5445.07	5581.28	136.21	136.21	0.00
20151027	CISO	20151027 09:30	5328.94	5674.30	345.35	345.35	0.00
20151027	CISO	20151027 09:45	5472.65	5626.18	153.54	153.54	0.00
20151027	CISO	20151027 10:00	6173.35	5473.64	-699.71	0.00	-699.71
20151027	CISO	20151027 10:15	5256.37	5419.96	163.59	163.59	0.00

Shows forecasted movement by interval

RTD Minimum Requirement

TRADE_DATE	BAA_NAME	TIME_INTERVAL	NSD_ADVISORY1	NSD_BINDING	MOVEMENT	MINIMUM_FRU	MINIMUM_FRD
20151027	CISO	20151027 07:00	7706.86	7886.75	179.89	179.89	0.00
20151027	CISO	20151027 07:05	7652.43	7800.05	147.63	147.63	0.00
20151027	CISO	20151027 07:10	7467.71	7605.82	138.11	138.11	0.00
20151027	CISO	20151027 07:15	7285.90	7730.67	444.77	444.77	0.00
20151027	CISO	20151027 07:20	7431.45	7577.33	145.88	145.88	0.00
20151027	CISO	20151027 07:25	7321.03	7444.47	123.44	123.44	0.00
20151027	CISO	20151027 07:30	7231.70	7307.77	76.07	76.07	0.00
20151027	CISO	20151027 07:35	7105.35	7203.35	98.00	98.00	0.00
20151027	CISO	20151027 07:40	7009.59	7047.62	38.04	38.04	0.00
20151027	CISO	20151027 07:45	6865.68	6941.67	75.99	75.99	0.00
20151027	CISO	20151027 07:50	6716.33	6793.52	77.19	77.19	0.00
20151027	CISO	20151027 07:55	6544.44	6669.46	125.02	125.02	0.00
20151027	CISO	20151027 08:00	6433.07	6502.20	69.13	69.13	0.00
20151027	CISO	20151027 08:05	6268.46	6287.42	18.96	18.96	0.00

Shows forecasted movement by interval

RTPD Maximum Requirement

TRADE_DATE	BAA_NAME	TIME_INTERVAL	MAXIMUM_FRU	MAXIMUM_FRD
20151027	CISO	20151027 07:00	1090.50	-358.50
20151027	CISO	20151027 07:15	906.00	-449.00
20151027	CISO	20151027 07:30	906.00	-449.00
20151027	CISO	20151027 07:45	906.00	-449.00
20151027	CISO	20151027 08:00	853.00	-403.50
20151027	CISO	20151027 08:15	800.00	-358.00
20151027	CISO	20151027 08:30	800.00	-358.00
20151027	CISO	20151027 08:45	800.00	-358.00
20151027	CISO	20151027 09:00	758.50	-400.50
20151027	CISO	20151027 09:15	717.00	-443.00
20151027	CISO	20151027 09:30	717.00	-443.00
20151027	CISO	20151027 09:45	717.00	-443.00
20151027	CISO	20151027 10:00	581.50	-486.00
20151027	CISO	20151027 10:15	446.00	-529.00

Uncertainty is the maximum minus the forecasted amount

RTD Maximum Requirement

TRADE_DATE	BAA_NAME	TIME_INTERVAL	MAXIMUM_FRU	MAXIMUM_FRD
20151027	CISO	20151027 07:00	325.00	41.50
20151027	CISO	20151027 07:05	313.50	44.75
20151027	CISO	20151027 07:10	302.00	48.00
20151027	CISO	20151027 07:15	302.00	48.00
20151027	CISO	20151027 07:20	302.00	48.00
20151027	CISO	20151027 07:25	302.00	48.00
20151027	CISO	20151027 07:30	302.00	48.00
20151027	CISO	20151027 07:35	302.00	48.00
20151027	CISO	20151027 07:40	302.00	48.00
20151027	CISO	20151027 07:45	302.00	48.00
20151027	CISO	20151027 07:50	302.00	48.00
20151027	CISO	20151027 07:55	281.50	39.50
20151027	CISO	20151027 08:00	261.00	31.00
20151027	CISO	20151027 08:05	240.50	22.50

Uncertainty is the maximum minus the forecasted amount

RTPD Demand Curve

TRADE_DATE	BAA_NAME	TIME_INTERVAL	TIER_LOW	TIER_HIGH	PROBABILITY	SURPLUS_COST	SURPLUS_INCREMENTAL_COST
20151027	CISO	20151027 07:00	0.00	-31.48	0.56	2011.17	-0.84
20151027	CISO	20151027 07:00	-31.48	-51.46	1.12	1927.37	-1.68
20151027	CISO	20151027 07:00	-51.46	-75.20	1.68	1759.78	-2.51
20151027	CISO	20151027 07:00	-75.20	-100.90	2.23	1508.38	-3.35
20151027	CISO	20151027 07:00	-100.90	-180.27	2.79	1173.18	-4.19
20151027	CISO	20151027 07:00	-180.27	-449.77	5.03	754.19	-7.54
20151027	CISO	20151027 07:00	0.00	906.92	82.12	6000.00	60.00
20151027	CISO	20151027 08:00	0.00	-2.50	0.54	2580.65	-0.81
20151027	CISO	20151027 08:00	-2.50	-7.68	1.08	2500.00	-1.61
20151027	CISO	20151027 08:00	-7.68	-13.53	1.61	2338.71	-2.42
20151027	CISO	20151027 08:00	-13.53	-45.73	2.15	2096.77	-3.23
20151027	CISO	20151027 08:00	-45.73	-89.67	2.69	1774.19	-4.03
20151027	CISO	20151027 08:00	-89.67	-149.27	3.23	1370.97	-4.84
20151027	CISO	20151027 08:00	-149.27	-358.22	5.91	887.10	-8.87

RTD Demand Curve

TRADE_DATE	BAA_NAME	TIME_INTERVAL	TIER_LOW	TIER_HIGH	PROBABILITY	SURPLUS_COST	SURPLUS_INCREMENTAL_COST
20151027	CISO	20151027 07:00	0.00	302.25	95.00	6000.00	60.00
20151027	CISO	20151027 08:00	0.00	220.00	95.00	6000.00	60.00
20151027	CISO	20151027 09:00	0.00	-2.36	0.38	750.00	-0.56
20151027	CISO	20151027 09:00	-2.36	-2.98	0.42	693.75	-0.63
20151027	CISO	20151027 09:00	-2.98	-4.44	0.46	631.25	-0.69
20151027	CISO	20151027 09:00	-4.44	-5.88	0.50	562.50	-0.75
20151027	CISO	20151027 09:00	-5.88	-8.78	0.54	487.50	-0.81
20151027	CISO	20151027 09:00	-8.78	-11.79	0.58	406.25	-0.87
20151027	CISO	20151027 09:00	-11.79	-16.47	0.63	318.75	-0.94
20151027	CISO	20151027 09:00	-16.47	-23.83	0.67	225.00	-1.00
20151027	CISO	20151027 09:00	-23.83	-25.53	0.83	125.00	-1.25
20151027	CISO	20151027 09:00	0.00	185.54	90.00	6000.00	60.00
20151027	CISO	20151027 10:00	0.00	-2.29	2.08	3968.75	-3.12
20151027	CISO	20151027 10:00	-2.29	-4.46	2.29	3656.25	-3.44

RTD Load Total Movement

TRADE_DATE	BAA_NAME	TIME_INTERVAL	MEASUREMENT_VALUE	MOVEMENT_DOWN	MOVEMENT_UP
20151027	CISO	20151027 07:00	22226.00	-162.00	0.00
20151027	CISO	20151027 07:05	22059.00	-167.00	0.00
20151027	CISO	20151027 07:10	21899.00	-160.00	0.00
20151027	CISO	20151027 07:15	21750.00	-149.00	0.00
20151027	CISO	20151027 07:20	21598.00	-152.00	0.00
20151027	CISO	20151027 07:25	21459.00	-139.00	0.00
20151027	CISO	20151027 07:30	21350.00	-109.00	0.00
20151027	CISO	20151027 07:35	21254.00	-96.00	0.00
20151027	CISO	20151027 07:40	21156.00	-98.00	0.00
20151027	CISO	20151027 07:45	21068.00	-88.00	0.00
20151027	CISO	20151027 07:50	20983.00	-85.00	0.00
20151027	CISO	20151027 07:55	20884.00	-99.00	0.00
20151027	CISO	20151027 08:00	20806.00	-78.00	0.00
20151027	CISO	20151027 08:05	20731.00	-75.00	0.00

Uncertainty tab will be added at a later date

RTD Intertie Movement

TRADE_DATE	BAA_NAME	TIME_INTERVAL	MEASUREMENT_VALUE	MOVEMENT_DOWN	MOVEMENT_UP
20151027	CISO	20151027 07:00	4200.77	-229.63	0.00
20151027	CISO	20151027 07:05	3979.02	-221.75	0.00
20151027	CISO	20151027 07:10	3875.00	-104.02	0.00
20151027	CISO	20151027 07:15	3618.00	-257.00	0.00
20151027	CISO	20151027 07:20	3618.00	0.00	0.00
20151027	CISO	20151027 07:25	3618.00	0.00	0.00
20151027	CISO	20151027 07:30	3618.00	0.00	0.00
20151027	CISO	20151027 07:35	3618.00	0.00	0.00
20151027	CISO	20151027 07:40	3618.00	0.00	0.00
20151027	CISO	20151027 07:45	3610.00	-8.00	0.00
20151027	CISO	20151027 07:50	3644.94	0.00	34.94
20151027	CISO	20151027 07:55	3679.07	0.00	34.13
20151027	CISO	20151027 08:00	3760.07	0.00	81.00
20151027	CISO	20151027 08:05	3846.07	0.00	86.00

Uncertainty tab will be added at a later date

RTD Supply Movement

TRADE_DATE	BAA_NAME	TIME_INTERVAL	MEASUREMENT_VALUE	MOVEMENT_DOWN	MOVEMENT_UP
20151027	CISO	20151027 07:00	10138.49	0.00	128.85
20151027	CISO	20151027 07:05	10279.93	0.00	141.44
20151027	CISO	20151027 07:10	10418.18	0.00	138.25
20151027	CISO	20151027 07:15	10401.33	-16.85	0.00
20151027	CISO	20151027 07:20	10402.67	0.00	1.34
20151027	CISO	20151027 07:25	10396.53	-6.14	0.00
20151027	CISO	20151027 07:30	10424.23	0.00	27.70
20151027	CISO	20151027 07:35	10432.65	0.00	8.42
20151027	CISO	20151027 07:40	10490.38	0.00	57.73
20151027	CISO	20151027 07:45	10516.33	0.00	25.95
20151027	CISO	20151027 07:50	10544.54	0.00	28.21
20151027	CISO	20151027 07:55	10535.47	-9.07	0.00
20151027	CISO	20151027 08:00	10543.73	0.00	8.27
20151027	CISO	20151027 08:05	10597.52	0.00	53.79

Uncertainty tab will be added at a later date

Resource Specific Movement in CMRI

California ISO Customer Market Results Interface

Day-Ahead Real-Time Post-Market Default Bids Convergence Bidding Load Forecast Reference

Trade Date: 11/16/2015 SC: Resource: 0 item(s) Hour: 11 Apply Reset

Product: [ALL]

Real-Time Dispatch (RTD) Resource Level Movement


1 - 20 of 992

Trade Date	SC ID	Resource	Product	Hour Ending	Interval IE:05 [MW]	Interval IE:10 [MW]	Interval IE:15 [MW]	Interval IE:20 [MW]	Interval IE:25 [MW]	Interval IE:30 [MW]
11/16/2015			Forecasted Movement Down	11	0.00	0.00	0.00	0.00	0.00	0.00
11/16/2015			Forecasted Movement Up	11	0.00	0.00	0.00	0.00	0.00	0.00
11/16/2015			Uncertainty Movement Down	11	0.00	0.00	0.00	0.00	0.00	0.00
11/16/2015			Uncertainty Movement Up	11	0.00	0.00	0.00	0.00	0.00	0.00
11/16/2015			Forecasted Movement Down	11	0.00	0.00	0.00	0.00	0.00	0.00
11/16/2015			Forecasted Movement Up	11	0.00	0.00	0.00	0.00	0.00	0.00
11/16/2015			Uncertainty Movement Down	11	0.10	0.00	0.00	0.00	0.00	0.10
11/16/2015			Uncertainty Movement Up	11	0.00	0.00	0.00	0.10	0.00	0.00
11/16/2015			Forecasted Movement Down	11	0.00	2.90	1.50	0.90	1.00	0.90
11/16/2015			Forecasted Movement Up	11	12.30	0.00	0.00	0.00	0.00	0.00
11/16/2015			Uncertainty Movement Down	11	0.00	0.00	3.10	0.50	2.20	0.00
11/16/2015			Uncertainty Movement Up	11	3.80	0.00	0.00	0.00	0.00	0.00
11/16/2015			Forecasted Movement Down	11	0.00	0.00	0.00	0.00	0.10	0.00
11/16/2015			Forecasted Movement Up	11	0.10	0.00	0.00	0.00	0.00	0.00
11/16/2015			Uncertainty Movement Down	11	0.00	0.00	0.00	0.00	0.00	0.00
11/16/2015			Uncertainty Movement Up	11	0.00	0.00	0.00	0.00	20.00	0.00
11/16/2015			Forecasted Movement Down	11	0.00	0.10	0.10	0.10	0.00	0.10
11/16/2015			Forecasted Movement Up	11	0.50	0.00	0.00	0.00	0.00	0.00
11/16/2015			Uncertainty Movement Down	11	0.00	0.00	0.00	0.00	0.00	0.00
11/16/2015			Uncertainty Movement Up	11	0.00	0.00	0.00	0.00	0.00	0.00

Uncertainty and forecasted movement are shown separately

NEXT STEPS

Next Steps



Item	Date
Post Revised Technical Appendix	November 11, 2015
Revised Technical Appendix Working Group	November 18, 2015
Stakeholder Comments	December 2, 2015
Revised Draft Final Proposal	December 17, 2015
Stakeholder Call for Revised Draft Final Proposal	January 5, 2016
Stakeholder Comments	January 12, 2016
Board of Governors Decision	February 11-12, 2016

Please submit written comments to initiativecomments@caiso.com by close of business December 2.

Materials related to this initiative are available on the ISO website at <http://www.caiso.com/informed/Pages/StakeholderProcesses/FlexibleRampingProduct.aspx>