Ancillary Services Forced Buy Back

Draft Final Proposal

May 23, 2012

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1 Introduction

Since initiating its new markets, the ISO has worked to enhance the efficiency of its ancillary services markets, including the real-time ancillary service qualification method. Last year, for example, the ISO introduced the use of a dynamic ramp rate in ancillary services procurement. This feature provides greater assurance that ancillary services awarded to a resource are deliverable in real time. In connection with these efforts, this draft final proposal addresses a gap in how the ISO market systems settle ancillary service awards that are subject to a forced buy back.

There are two types of forced buy backs, one type is initiated by operators through the use of the ancillary services buy back tool, and the other is made by the market optimization based on economical and physical conditions of the unit. In both cases, capacity subject to ancillary services forced buy backs, are not subject to ancillary services rescission rules.

The ISO seeks stakeholder input regarding this issue, including the need to provide tariff language to address how the market systems settle forced buy backs of ancillary services. The ISO's has identified the following objectives for this effort: (1) ensure consistent settlement treatment for the rescission of ancillary services capacity; (2) lower the overall cost of ancillary services procurement; and (3) eliminate the possibility of manipulation resulting from the identified gap in how market systems settle ancillary service awards that are subject to a forced buy back.

2 Plan for Stakeholder Engagement

Item	Date
Post Straw Proposal	April 18, 2012
Stakeholder Conference Call	April 25, 2012
Stakeholder Comments Due	May 2, 2012
Post Draft Final Proposal	May 23, 2012
Stakeholder Conference Call	May 30, 2012
Stakeholder Comments Due	June 6, 2012
Board Meeting	July 12/13, 2012

3 Responses to Market Participant Comments

The following ISO responses are to address concerns raised by several participants in their comments. A complete set of responses can be located on the ISO's web page under ancillary services forced buy back.[1]

[1] http://www.caiso.com/Documents/ISOResponses-AncillaryServicesForcedBuyBackStakeholderComments.pdf

Rescission due to transmission constraint

Several market participants supported the rescission of capacity payments when AS capacity is not provided when the resource was not available. However, they were not in favor of rescission for conditions that were outside the control of the resource, i.e., if a buy-back was due to the modeling of a transmission constraint.

The ISO believes it is consistent to rescind unavailable capacity when a unit is negatively affected by a line outage. An intertie outage that occurs after the day-ahead and real-time markets, will result in all capacity associated with that intertie to become unavailable in the trade hour. Under the ISO's current compliance rules for rescission of ancillary service capacity payments, resources would not receive capacity payments if the resource's capacity is unavailable in real-time. The ISO is proposing to apply the same rule to instances in which it has determined in advance of real time that the day-ahead ancillary service capacity will be unavailable.

Modeling of constraints in the integrated forward market

Some participants commented that the ISO should focus on improving the modeling of the integrated forward market in order to reduce the need for ancillary service buy back.

Grid conditions between the day-ahead and real-time market often change and can potentially decrease the capability of resources to provide previously awarded capacity. The need to buy back and procure incremental ancillary service capacity will not be mitigated by improved modeling, regardless of what model method the ISO utilizes in the day-ahead market.

Rescission due to economic dispatch

Several participants commented that they did not support the rescission of AS capacity payments due to economic dispatch. Similar to the objections of a transmission constraint buy back, participants believed generators should keep their capacity payments when a buy back occurred due to an economic dispatch. Additionally, some participants are concerned that the ISO's market optimization in the hour ahead scheduling process and real time unit commitment process are not honoring the ancillary service awards in the day-ahead market, by forcing the buy-back of costlier day-ahead capacity, in order to substitute less expensive real-time capacity.

The ISO's market systems protect day-ahead ancillary service awards with self-provision priorities in real-time to prevent economic ancillary services buy-back. This same mechanism is used to protect energy self schedules.

ISO agrees that generation resources which remain available in real-time to fulfill their ancillary service obligation from day-ahead market should not forfeit their day-ahead payments because of a more economic resource now available in real-time. However, this will not be the case in which a day-ahead ancillary service capacity gets curtailed. All ancillary service curtailments are due to physical reasons that lead to the unavailability of the capacities.

It is important to point out that the co-optimization of energy and AS bids in the real-time market system is used to determine incremental awards and that the reason for ancillary buy back is solely based on if the ancillary service capacity will be available.

Buy back at the day-ahead price

When a unit is not physically capable of delivering the day-ahead energy that is self scheduled in real-time, the decremental energy will be charged back with the real-time LMP. The AS treatment proposed here is similar in that context. However, ISO understands that there is no mechanism for economic AS buy-back in real-time and hence the AS payment is only taken back using the day-ahead ASMP.

4 Changes from Straw Proposal

- Clarified the definition of forced ancillary service buy backs as capacity determined to be unavailable during the hour-ahead scheduling process or real-time unit commitment process.
- Removed economic dispatch as a reason for ancillary service buy backs.
- Clarified that the no pay calculation uses the final AS schedule communicated to the ISO's automated dispatch system, ADS.
- Clarified that fast start units providing non-spinning reserve capacity shall not have their capacity payments rescinded when those reserves are converted into energy.

5 AS Buy Back Issue

Tariff section 8.3.1 provides that the amount of additional ancillary services procured in the hour ahead scheduling process or real-time market is based in part on available awarded Day-Ahead Ancillary Services. The ISO uses a procedure known as forced buy-back of ancillary services, when ancillary services awarded or self-provided in the day-ahead market are not available because of a transmission constraint, resource outage, or ramping constraint in real-time. This tool allows the ISO to procure additional ancillary services in the hour-ahead scheduling process and the real-time unit commitment process.

By forcing the buy-back of day-ahead awarded or self provided ancillary services, the ISO's market software may procure incremental ancillary services from other resources in order to meet ancillary services needs. Without a forced buy-back of unavailable ancillary services capacity, a resource keeps its day-ahead award subject to rescission of its capacity payment under applicable criteria. In contrast, the ISO's market systems do not rescind capacity payments for resources with day-ahead awards or self-schedules subject to forced buy-backs of ancillary services.

5.1 ISO's Current Rescission Rules

The ISO uses the ancillary services no pay compliance charge code to evaluate a resource's ancillary services schedule to determine whether to rescind any capacity payments. The calculation implements the ISO's tariff provisions regarding rescission of ancillary services capacity payments, if the capacity is undispatchable, unavailable, or undelivered.[2]

In practice, the no pay calculation uses the final ancillary services schedule received by the ISO's automated dispatch (ADS) system to determine any rescission quantity. This quantity is a

[2] ISO tariff section 11.10.9.

total value made up of self-provided and awarded capacity cleared in the day-ahead market, hour ahead scheduling process, and real-time market. But a forced ancillary services buy back has the effect of clearing a resource's ancillary services capacity below the quantity awarded in the day-ahead market.

As a result of current practices, resources with forced ancillary service are not subject to rescission of their capacity payments. These resources retain their day-ahead capacity payment. Under the ISO's tariff, the costs of these payments are allocated to market participants with ancillary services obligations.[3]

Examples of Current Settlement Practices

The following conceptual examples reflect how the ISO's market systems currently settle ancillary service award capacity. The example reflects only one ancillary service with a day-ahead price of $3 and a real-time price of $10. Examples 1 & 2 compare the settlement treatment between two resources that have all their capacity rescinded. Examples 3 & 4 compare two resources where a portion of AS capacity is rescinded. And example 5 shows the no pay price calculation when a resource initially receives DA and RT ancillary service awards. These examples demonstrate how similar units can receive different payments due to a forced buy back of ancillary services.

Example 1: A resource receives an ancillary services award of 100 MW in the day-ahead market, 0 MW of additional capacity in the real-time market, and provides 0 MW of available ancillary service capacity during the trade hour.

Example 2: A resource receives an ancillary services award of 100 MW in the day-ahead market, 0 MW of additional capacity in the real-time market, and provides 0 MW of available ancillary service capacity during the trade hour. In this example, the ISO forced an ancillary service buy back of 20MW, which reduced the resource's final ancillary services award to 80MW.

Example 3: A resource receives an ancillary services award of 100 MW in the day-ahead market, 0 MW of additional capacity in the real-time market, and provides 50 MW of available ancillary service capacity during the trade hour.

Example 4: A resource receives an ancillary services award of 100 MW in the day-ahead market, 0 MW of additional capacity in the real-time market, and provides 50 MW of available ancillary service capacity during the trade hour. In this example, the ISO forced an ancillary service buy back of 50 MW, which reduced the resource's final ancillary services award to 50MW.

Example 5: A resource receives an ancillary services award of 100 MW in the day-ahead market, an additional 50 MW award in the real-time market, and provides 100 MW of available ancillary service capacity during the trade hour.

Example 5 demonstrates the weighted average calculation of the no pay calculation price when ancillary services capacity is procured in the day-ahead and real-time markets.

[3] ISO tariff section 11.10.2.

	Example 1	Example 2	Example 3	Example 4	Example 5
DA AS Capacity Award (MW) (A)	100	100	100	100	100
DA AS Capacity Price ($/MW) (B)	$3.00	$3.00	$3.00	$3.00	$3.00
DA AS Settlement ($) (C) = (A) * (B)	$300.00	$300.00	$300.00	$300.00	$300.00
RT AS Incremental Award (MW) (D)	0	0	0	0	50
AS Forced Buy Back (MW) (E)	0	20	0	50	0
RT AS Price ($/MW) (F)	$10.00	$10.00	$10.00	$10.00	$10.00
RT AS Settlement ($) (G) = (D) * (F)	$0.00	$0.00	$0.00	$0.00	$500.00
Final AS Award (MW) (H) = (A) + (D) – (E)	100	80	100	50	150
Available AS Capacity (I)	0	0	50	50	100
No Pay Quantity (MW) (J) = - [(I) – (H)]	100	80	50	0	50
No Pay Price ($/MW) (K) = [(A) / [(A) + (D)]] * (B) + [(D) / [(A) + (D)]] * (F)	$3.00	$3.00	$3.00	$3.00	$8.67
No Pay Rescission (L) = (J) * (K)	$300.00	$240.00	$150.00	$0.00	$433.33
Total Payment (M) = (C) + (G)	$300.00	$300.00	$300.00	$300.00	$800.00
No Pay Rescission (N) = (L)	$300.00	$240.00	$150.00	$0.00	$433.33
Net Settlement (O) = (M) – (N)	$0.00	$60.00	$150.00	$300.00	$366.67

Table 1

6 Historical Ancillary Services Buy-back costs

The following data summarizes ancillary service costs for 2010 and 2011. The ISO has also identified cost reductions had the ISO not allocated the cost of capacity payments associated with forced buy-backs of ancillary services to scheduling coordinators with ancillary services obligations.

Year	AS Cost		AS Buy Back	% Reduction of DA AS Cost
	DA	RT		
2010	$ 67,983,905.30	$ 7,827,432.20	$ 2,573,943.84	3.79%
2011	$ 97,811,377.50	$ 9,660,109.69	$ 5,923,700.23	6.06%
Grand Total	$ 165,795,282.80	$ 17,487,541.90	$ 8,497,644.07	5.13%

Table 2

	DA				RT				Grand Total
	REGU	SPIN	NSPN	REGD	REGU	SPIN	NSPN	REGD	
2010	20,129,016.91	29,271,999.79	3,094,124.07	15,488,764.52	1,637,942.24	3,036,325.42	2,526,618.45	626,546.09	75,811,337.50
1	1,620,901.67	1,860,587.79	238,111.52	1,342,653.74	118,231.41	29,277.46	10,214.75	45,547.73	5,265,526.07
2	1,369,484.29	1,376,211.10	171,125.52	1,481,815.44	24,719.98	7,271.95	5,177.85	15,449.14	4,451,255.28
3	2,139,502.96	1,506,448.07	211,396.24	1,653,504.72	129,772.22	31,185.53	3,470.77	114,917.15	5,790,197.67
4	1,353,912.13	2,170,689.91	129,794.36	898,888.00	29,547.22	43,833.36	6,851.74	24,762.57	4,658,279.30
5	2,214,370.54	4,103,130.00	101,299.68	1,212,539.58	114,117.66	127,746.20	2,035.13	32,060.77	7,907,299.56
6	3,153,355.05	5,682,408.66	113,255.14	2,068,177.65	162,067.93	187,218.33	2,445.97	123,539.10	11,492,467.82
7	1,885,341.43	3,513,302.80	389,779.01	1,678,651.32	303,308.66	249,602.44	112,673.09	45,019.00	8,177,677.75
8	1,266,063.43	2,443,452.07	685,370.56	1,125,823.37	36,915.90	85,569.47	15,088.66	26,728.41	5,685,011.89
9	911,986.98	1,523,447.80	544,569.52	1,241,111.96	55,706.58	530,199.12	308,989.51	21,418.44	5,137,429.91
10	1,137,752.85	1,555,038.73	225,255.24	907,666.32	49,445.31	97,238.95	9,743.47	7,420.84	3,989,561.72
11	1,318,650.00	1,192,590.31	145,356.41	727,998.77	184,993.59	484,758.20	207,656.74	87,593.38	4,349,597.39
12	1,757,695.57	2,344,692.55	138,810.86	1,149,933.65	429,115.78	1,162,424.41	1,842,270.76	82,089.56	8,907,033.16
2011	23,955,107.11	49,739,531.28	5,621,459.07	18,495,280.03	3,409,088.37	4,278,030.64	421,969.55	1,551,021.13	107,471,487.19
1	2,254,823.77	3,787,509.69	199,098.32	538,403.83	511,275.56	196,647.01	32,542.03	35,302.26	7,555,602.48
2	836,235.99	2,084,356.80	173,340.16	409,913.44	605,381.90	287,686.96	8,642.80	475,685.79	4,881,243.83
3	3,389,220.81	5,070,088.56	121,485.96	986,316.33	106,895.81	90,633.77	5,347.52	63,041.46	9,833,030.22
4	5,532,652.90	7,682,880.02	130,421.10	2,513,471.54	395,432.71	692,478.66	26,029.97	348,430.67	17,321,797.57
5	2,926,414.35	5,780,232.48	241,181.39	2,606,421.94	517,411.26	865,956.16	9,745.09	168,854.51	13,116,217.18
6	2,533,207.53	5,868,833.89	435,495.68	1,805,844.17	644,671.38	888,167.60	193,182.24	129,161.65	12,498,564.15
7	2,189,299.13	5,723,050.12	1,112,922.80	2,457,913.99	243,495.97	558,393.58	40,017.83	114,824.85	12,439,918.27
8	1,416,576.80	3,915,214.04	1,206,859.97	1,428,494.71	82,670.09	95,654.62	9,881.78	69,307.19	8,224,659.20
9	587,099.25	2,374,020.50	618,961.15	1,428,771.02	31,072.81	157,751.77	51,644.71	25,847.57	5,275,168.80
10	773,652.92	2,585,691.82	437,385.13	1,622,099.99	43,848.71	104,149.93	5,602.08	36,548.62	5,608,979.19
11	895,806.79	3,046,149.40	608,139.23	1,439,572.99	127,837.69	174,827.98	31,512.74	61,443.91	6,385,290.73
12	620,116.87	1,821,503.95	336,168.17	1,258,056.09	99,094.49	165,682.61	7,820.77	22,572.63	4,331,015.58
Grand Total	44,084,124.03	79,011,531.08	8,715,583.14	33,984,044.55	5,047,030.62	7,314,356.06	2,948,588.00	2,177,567.22	183,282,824.69

Table 3

7 Proposed Solution

This section outlines the ISO's proposal to address the gap in how the ISO's market systems settle forced buy-backs of ancillary service.

7.1 The proposal

The ISO proposes to modify its tariff to state that ancillary services capacity determined to be unavailable prior to the hour-ahead scheduling process and real-time unit commitment process shall have its payment be subject to rescission at the applicable day-ahead price. Ancillary Services procurement through the market system will remain unchanged. The ISO would, however, calculate forced buy-back quantities and rescind any payments under the ancillary services no pay settlement charge codes. The new calculation would be included in the next applicable settlement project release cycle, with the calculation being effective on the implementation trade date moving forward.

7.2 Definition of AS Forced Buy Back

The ISO proposes to define forced buy-back capacity to mean any day-ahead awarded of self-provided ancillary services capacity that is determined to be unavailable during the hour ahead scheduling process or real-time unit commitment process. Reduction of awarded of self-provided ancillary services capacity will only be subject to a forced buy-back for the following reasons.

Physical transmission constraint: The ISO may force the buy-back of ancillary services capacity from a resource when energy from that capacity cannot be delivered due to a transmission constraint.

Resource constraint: The ISO may force the buy-back of ancillary services capacity if a change to a resource's operating characteristics results in the unavailability of that capacity. . Examples include de-rates to a resource's operating capacity, a re-rate of the resource's ramping capability, and/or the crossing of a resource's forbidden region.

7.3 Forced AS Buy Back and AS self-provision

In addition to being awarded AS capacity, market participants have the ability to self-provide ancillary services capacity in order to lower their allocation of ancillary services costs. Unlike other capacity awards, the ISO does not pay participants for self provided capacity, but reduces a participant's ancillary services obligation by the self-provided capacity. A forced buy-back of self-provided ancillary services reduces the self provision benefit.

7.4 AS No Pay Mechanism

In the event that a resource with self-provided and awarded ancillary services is subject to a forced buy-back of capacity, the ISO shall prioritize the unit's self provision and reduce any ancillary service awards before modifying a resource's self provision.

7.5 Fast Start Units Providing Non-spinning Reserves

Fast start units that follow ISO instructions to convert non-spinning reserve capacity into energy shall not have their capacity payments rescinded. However, a buy-back of non-spinning reserve

capacity may still occur if the ISO determines the resource's capacity is unavailable due to a resource limitation or transmission constraint, prior to the real-time market.

8 Next Steps

The ISO plans to discuss this draft final proposal with stakeholders during a conference call to be held on May 30th. The ISO requests comments from stakeholders on the proposals described in this final draft proposal. Stakeholders should submit written comments by June 6th to jwong@caiso.com.