



**California ISO**  
Shaping a Renewed Future

# **Ancillary Services Forced Buy Back**

## **Addendum Draft Final Proposal**

**June 11, 2012**

**Ancillary Services Forced Buy Back**  
**Final Proposal**  
***Table of Contents***

1	Introduction .....	3
2	Plan for Stakeholder Engagement .....	3
3	Responses to Market Participant Comments .....	4
4	Changes from Straw Proposal .....	5
5	AS Buy Back Issue .....	5
5.1	ISO’s Current Rescission Rules .....	6
6	Historical Ancillary Services Buy-back costs .....	9
7	Proposed Solution.....	11
7.1	The proposal.....	11
7.2	Definition of AS Forced Buy Back .....	11
7.3	Forced AS Buy Back and AS self-provision.....	11
7.4	AS No Pay Mechanism .....	11
7.5	Fast Start Units Providing Non-spinning Reserves.....	11
8	Next Steps .....	12

## 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.

Ancillary services forced buy back can be initiated by operators or the ISO's market systems, through the use of the ancillary services buy back tool, and the real-time pre-dispatch market optimization. Under the ISO's existing tariff, resources with ancillary service capacity awards determined to be unavailable, undispatchable, or undelivered have their capacity payments rescinded. The current ancillary services rescission rules, however, do not extend to include ancillary services capacity subject to from ancillary service forced buy back, which by definition is unavailable.

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
Addendum Draft Final Proposal	June 11, 2012
Stakeholder Conference Call	June 18, 2012
Stakeholder Comments Due	June 25, 2012
Board Meeting	July 12/13, 2012

### 3 Addendum changes to draft final proposal issued May 23, 2012

In response to market participants' comments regarding the draft final proposal, the ISO has made addendum changes to the proposal to not rescind capacity payments for ancillary services that are subject to a forced buyback after the close of the day-ahead market because of an internal transmission constraint. Several participants raised concerns that the draft final proposal modified the compliance rules to rescind capacity payments for transmission outage events that are outside the control of resources' control. Based on these comments, the ISO conducted an additional review of its compliance rules for rescission of ancillary services payments. Currently, the ISO only applies these rules to intertie resources, system and dynamic resources, when intertie transmission constraints limit the ability of these resources to provide ancillary service capacity. Additional data provided in section 7 reflects the impact of ancillary services buy backs resulting from transmission constraints.

### 4 Responses to Market Participant Comments

The following ISO responses address concerns raised by stakeholders. A complete set of responses is available on the ISO's stakeholder initiative website under ancillary services forced buy back.<sup>1</sup>

#### Rescission due to a transmission constraint

Several stakeholders support the rescission of capacity payments when AS capacity is not provided because of a resource constraint. However, they oppose rescission for conditions that are outside the control of the resource, i.e., if a buy-back was due to the modeling of a transmission constraint.

An intertie outage that occurs after the close of the day-ahead and before real-time results in all capacity associated with that intertie to become unavailable in the trade hour. Under the ISO's current compliance rules for ancillary service capacity payments, the ISO rescinds capacity payments to intertie resources with ancillary service awards impacted by the intertie outage. The ISO is proposing to apply the same rule to internal resources when their capacity becomes unavailable. The ISO, however, will not rescind capacity payments when ancillary service awards when an internal transmission constraint arising after the close of the day-ahead market prevents deliverability of ancillary service awards.

#### Modeling of constraints in the integrated forward market

Some stakeholders 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 backs.

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 ISO cannot mitigate the need to buy back and procure incremental ancillary service capacity for this reason, regardless of what model method the ISO utilizes in the day-ahead market.

---

<sup>1</sup> <http://www.caiso.com/Documents/ISOResponses-AncillaryServicesForcedBuyBackStakeholderComments.pdf>

### **Rescission due to economic dispatch**

Several stakeholders commented that they do not support the rescission of AS capacity payments resulting from economic dispatch. These stakeholders believe generators should keep their capacity payments when a buy back occurs due to an economic dispatch. Additionally, some stakeholders expressed concern 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.

The ISO agrees that generation resources with day ahead market ancillary services awards which remain available in real-time to fulfill their ancillary service obligation should not lose their day-ahead payments because a more economic resource now available in real-time.

It is important to point out that the co-optimization of energy and ancillary service bids in the real-time market system determines incremental awards and that ancillary services buy back occurs only if the ancillary service capacity is not 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. For purposes of applying the ISO's compliance rules for rescission of ancillary services to day-ahead awards that are subject to a forced buy-back because of a resource constraint, the ISO is proposing to rescind the payment based on the day-ahead ancillary services market price. This approach will ensure a resource does not have to pay additional sums in addition to having its capacity payment rescinded.

## **5 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 ancillary service 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.
- Clarified that resources subject to a forced buy back as a result of an internal transmission constraint will not have their day-ahead capacity payments rescinded.

## **6 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 to resources with day-ahead awards or self-schedules that are subject to forced buy-backs.

## **6.1 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.<sup>2</sup>

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 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.<sup>3</sup>

---

<sup>2</sup> ISO tariff section 11.10.9.

<sup>3</sup> ISO tariff section 11.10.2.

### 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.

**California ISO**

	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
<b>Total Payment (M) = (C) + (G)</b>	<b>\$300.00</b>	<b>\$300.00</b>	<b>\$300.00</b>	<b>\$300.00</b>	<b>\$800.00</b>
<b>No Pay Rescission (N) = (L)</b>	<b>\$300.00</b>	<b>\$240.00</b>	<b>\$150.00</b>	<b>\$0.00</b>	<b>\$433.33</b>
<b>Net Settlement (O) = (M) - (N)</b>	<b>\$0.00</b>	<b>\$60.00</b>	<b>\$150.00</b>	<b>\$300.00</b>	<b>\$366.67</b>

**Table 1**

## 7 Historical Ancillary Services Buy-back costs

The following data summarizes ancillary service costs for 2010 and 2011. Table 2 identifies the cost reduction 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%
<b>Grand Total</b>	<b>\$ 165,795,282.80</b>	<b>\$ 17,487,541.90</b>	<b>\$ 8,497,644.07</b>	<b>5.13%</b>

**Table 2**

Table 3 reflects the settlement values for buy backs separated by transmission and resource constraints. Under this proposal, the ISO will not rescind capacity payments to resource's that are subject to a forced buy back after the close of the day ahead market that results from an internal transmission constraint.

Year	AS Buy Back Reason		Grand Total
	Transmission Constraint	Resource Constraint	
<b>2010</b>	<b>\$13,469.98</b>	<b>\$2,560,473.86</b>	<b>\$2,573,943.84</b>
NSPN	\$0.00	\$262,708.88	\$262,708.88
REGD	\$47.55	\$615,019.02	\$615,066.57
REGU	\$469.45	\$645,093.48	\$645,562.93
SPIN	\$12,952.98	\$1,037,652.48	\$1,050,605.46
<b>2011</b>	<b>\$328,159.41</b>	<b>\$5,595,540.82</b>	<b>\$5,923,700.23</b>
NSPN	\$2,708.75	\$313,519.39	\$316,228.15
REGD	\$118,271.81	\$780,205.30	\$898,477.10
REGU	\$159,076.98	\$1,148,974.60	\$1,308,051.58
SPIN	\$48,101.87	\$3,352,841.53	\$3,400,943.40
<b>Grand Total</b>	<b>\$341,629.39</b>	<b>\$8,156,014.68</b>	<b>\$8,497,644.07</b>

**Table 3**

	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 4**

## 8 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.

### 8.1 The proposal

The ISO proposes to modify its tariff to state that ancillary services capacity awarded or self-provided in the day-ahead market, hour-ahead scheduling process and real-time unit commitment process shall be subject to the rule for compliance verification. Ancillary Services procurement through the market system will remain unchanged. The ISO proposes to include the new calculation in the next applicable settlement project release cycle, with the calculation being effective on the implementation of the next trade date.

### 8.2 Definition of AS Forced Buy Back

The ISO proposes to define forced buy-back capacity to mean any day-ahead awarded or 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 or 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. Consistent with existing compliance rules, resources will keep their day-ahead capacity payments in this situation.

**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. The ISO will rescind day-ahead capacity payments in this situation.

### 8.3 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 this benefit from the self-provision of ancillary services.

### 8.4 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.

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

## **9 Next Steps**

The ISO plans to present this final proposal to the ISO's Board of Governors in July 2012. Thereafter, the ISO will conduct a stakeholder process to review draft tariff language.