

Discussion of the Procurement Process for Ancillary Services as Proposed by Desert Star

Scope

This memo discusses the procurement process for the Ancillary Services (AS) in Desert Star, as proposed in Appendices B, C and D of the Desert Star filing, in relation to the possible market designs for RTO West.

Two possible alternatives for the AS markets in RTO West hinge on the definition of supplier-of-last-resort and the amount of procurement for which the RTO should be responsible. On the one hand is the Desert Star model, which would require RTO West designing and managing a full procurement process, casting RTO West as the **default** supplier of AS and purchaser of AS resources. It is important to emphasize that in this vision, the RTO is more than the supplier of last resort. An alternative model (suggested by Brian Silverstein) would require the Scheduling Coordinators (SCs) to submit balanced schedules that include their required AS resources all the way through the scheduling adjustment period. In real time, the RTO could buy Balancing Energy and reserves from third parties on behalf of SCs, but would not develop or run its own market. This alternative model can be termed "RTO Ultra Lite", and reduces the RTO's role in the AS market to one of procuring Balancing Energy as the supplier of **last** resort.

To better understand the implications of this choice, this memo describes the AS procurement process described in the Desert Star Appendices. It is intended to provide background rather than advocate a particular position. It should be followed with description of the pros and cons of the alternative market designs. Kieran Connolly's recent note begins to lay out some of these issues.

Summary of the Desert Star AS Procurement Process

The major components in the Desert Star proposal are listed below. The Desert Star model incorporates the full-blown RTO-managed procurement auction for AS resources. This market design relies on two important assumptions: 1) there is a liquid market in transmission rights supported by giving rights holders money instead of physical rights; and 2) there is a small number of large zones.

1. The Desert Star proposal has specified the AS resources procurement process, including auction structure; bid selection objective or "scoring rule" that determines which bids are selected; the settlement rules that determine the compensation to providers of Ancillary Services resources; and the pricing of the AS products to buyers.
2. Desert Star has proposed that providers of Ancillary Service reserves are responsible for the acquisition and scheduling of the transmission rights required to make the capacity available when and where required.
3. Desert Star has proposed a process for relieving load pocket conditions that designates resources that are compelled to bid into an energy auction when local load pocket conditions exist. These resources are then paid the higher of their demonstrable costs or an energy index price, which Desert Star shall determine using an outside the Congestion Zone Energy index price for comparison to the Market Clearing Price for the LGR service auction within the Congestion Zone. This outside index shall be representative of the fair market price for Balancing Energy in an adjacent Congestion Zone where Load Pocket conditions do not exist.

Alternative Procurement Processes for Ancillary Services

Table 1 lists the Ancillary Services proposed by RTO West and Desert Star. The two alternative models for provision of AS resources in RTO West are labeled RTO "Ultra Lite" and RTO West AS Markets. As discussed in the paper developed by Kieran Connolly discussing the options for the RTO Provider of Last Resort role, the "Ultra Lite" model (Columns 2 and 3) requires that SCs either provide the AS resources from generation under their control or procure resources from a third party in the Ancillary Service Market or

bilaterally. RTO West then uses the SC provided resources for Balancing Energy Service, and will only procure additional resources in the event of unanticipated AS needs.

Alternatively, the RTO West AS Market model (Columns 4 and 5), as currently described in Appendix D, and Desert Star AS Market model (Columns 6 and 7) are very similar. The RTO runs daily auctions for procurement of AS resources not self provided by the SCs. The RTO provides Balancing Energy service through the coordinated use of AS Resources that include those providing: Regulation; Load Following Up; Load Following Down; Supplemental Energy; and, for the period of time during which these AS Resources are dispatched in response to a contingency, Spinning Reserve and Non-spinning Reserve.

Consistent across all three models is the procurement through forward contracts for Voltage Support and Black Start Service, and the provision of scheduling and dispatch services by the RTO.

In addition to the services proposed by RTO West, Desert Star provides Local Generation Resource Service, which is the process managed by Desert Star for alleviating load pocket conditions. Desert Star will designate Resources that are capable of alleviating load pocket conditions as LGRs. When Load Pocket conditions exist, the designated LGRs are obliged to offer all unscheduled energy into an auction to serve demand within the congestion zone for the settlement periods in which the Load Pocket conditions exist. The Desert Star Ancillary Services, listed in Table 1, are defined in the Ancillary Services Appendix D (draft dated February 9, 2001).

Table 1. Procurement Process and Provision of Ancillary Services under the RTO West Alternatives and Desert Star

Ancillary Service	RTO "Ultra Lite"		RTO West AS Markets		Desert Star AS Markets	
	Procurement of Resources	Provider	Procurement of Resources	Provider	Procurement of Resources	Provider
Regulation Load Following Up Load Following Down Spinning Reserve Non-Spinning Reserve Replacement Reserve Supplemental Energy	Contracts/ Daily Markets	SC	RTO's Daily Auctions	RTO West or self provision by SC or self tracking by SC	RTO's Daily Auctions	Desert Star or self provision by SC or self tracking by SC
Balancing Energy	SC supplied resources and spot markets for energy	RTO West	Uses procured AS resources	RTO West	Uses procured AS resources	Desert Star
Congestion Redispatch	SC supplied resources	RTO West	RTO's Daily Auctions	RTO West	RTO's Daily Auctions	Desert Star
Local Generation Resource					RTO's Daily Auctions	Desert Star
Voltage Support Black Start	Long term contracts	RTO West	Long term contracts	RTO West	Long term contracts	Desert Star
Scheduling and Dispatch	No procurement process	RTO West	No procurement process	RTO West	No procurement process	Desert Star

Scheduling of Transmission Rights for AS Capacity

Under the Desert Star proposal (Appendix D, Section D.9 Technical Requirements For Ancillary Service Providers) providers of AS resources are responsible for acquiring and scheduling the transmission rights required to make the capacity available when and where required. This has not been addressed as yet in the RTO West proposal. This requirement should encourage trading of transmission rights as providers try to secure the rights to trade in AS markets. However, under a generous allocation of physical transmission rights to incumbents, there is a danger this process would further encourage hoarding of rights and market power in the AS markets.

Ancillary Services Market Design

Table 2 summarizes the procurement processes, settlement rules and pricing mechanisms proposed by Desert Star. In summary Desert Star has adopted an RTO-managed Auction process, which relies on a liquid transmission rights market, as is supported by the Desert Star proposal to assign FTR auction proceeds to rights holders instead of physical rights, and large zones. The question for RTO West is whether this model will work in a physical transmission rights model with a large number of flowpaths. The large number of flowpaths with limited access to transmission rights across flowpaths could significantly limit the potential benefits of having a single stack of resources across a large area.

In the event that RTO West decides to develop and run AS procurement markets, the core goals of ancillary market design are efficient allocation of resources and competitive pricing. To date the restructured electricity markets have attempted to achieve these goals through procurement of ancillary service resources by auction. Properly designed and operating in a sufficiently **liquid** market, auctions can obtain efficient and low-cost service that is fair to all participants. However, even a good market design can be defeated by market power, capacity shortage and lack of demand response, which will result in noncompetitive pricing and inefficient allocation of resources.

The main components of the Ancillary Services market design are:

1. the auction type;
2. the bid selection objective or "scoring rule" that determines which bids are selected;
3. the settlement rules that determine the compensation to providers of Ancillary Services resources; and
4. the pricing of the AS products to buyers.

The Desert Star proposal has incorporated many of the lessons learned from California, and proposed simultaneous auctions in the day ahead markets, they have also proposed settlement rules that should go some way to relieving the regret factor of "should have held out till closer to real time to get higher market prices". Suppliers indicate the bid price for each of their resources and the AS markets they wish to bid into. Resources can be bid into as many markets as they are qualified for. Two-part bids are made for Regulation, Load Following and Reserves. Selection is made based on the capacity bid, except in the case of a tie in which case Desert Star shall choose the bid with the lowest average Energy bid price for the MW range of the Ancillary Service. Accepted bids are paid the Market Clearing Price (MCP) for the bid type. However, as the procurement process moves closer to real time, accepted bids are paid the bid price. Energy is dispatched based on the energy bids and dispatched energy is paid the MCP for balancing energy. One-part energy bids are made for the other AS resources, which are dispatched based on lowest energy cost.

Table 2: Components of the Desert Star Proposal.

AS Resource	Period and Procurement Process	Bid Selection	Compensation to AS Providers			Pricing of AS Products to Buyers
			Capacity Payment	Dispatch	Energy Payment	
<ul style="list-style-type: none"> • Regulation • Load Following Up • Load Following Down • Spinning Reserve • Non-Spinning Reserve 	Day Ahead Scheduling Process Simultaneous auction with 2-part bids for capacity and energy	Selection based on lowest capacity bids, except in case of a tie, when the average energy bid is calculated	Accepted bids are paid the MCP based on bid type	Resources are dispatched based on energy bid	Dispatched energy is paid the MCP for Balancing Energy	Differentiated by congestion zone and charged to SCs based on their pro-rata obligation, non-pro-rata obligation, and replacement capacity obligation, credited for self-provision Discussed in Section D.17 of Appendix D.
	Schedule Adjustment Process Ongoing procurement process with 2-part bids	Selection based on lowest capacity bids	Capacity bid price is the price paid for the resource			
<ul style="list-style-type: none"> • Supplemental Energy 	Ongoing procurement process from Day Ahead Scheduling Process through to 30 minutes prior to start of Settlement Period 1-part energy bid		None	Resources are dispatched based on energy bid	Resources dispatched for Balancing Energy Service are paid the MCP for Balancing Energy	
					Resources dispatched for Intra-Zonal Congestion Management are paid the higher of the MCP for Balancing Energy or the energy bid price of the resource dispatched by DStar.	
Congestion Redispatch	Auction during the Day Ahead Scheduling Process		None	Resources are dispatched based on energy bid	Resources dispatched for Intra-Zonal Congestion Management are paid the higher of the MCP for	Cost of Congestion Redispatch Service during the Day Ahead Process is spread to all SCs serving load in the Congestion Zone

AS Resource	Period and Procurement Process	Bid Selection	Compensation to AS Providers			Pricing of AS Products to Buyers
			Capacity Payment	Dispatch	Energy Payment	
	1-part energy bid				Balancing Energy or the energy bid price of the resource dispatched by DStar.	Cost of Congestion Redispatch Service during the Schedule Adjustment Process is charged to the SCs causing the intra-zonal congestion by their schedule adjustment
Local Generation Resource	Compulsory Auction for LGRs in Day Ahead Scheduling Process when Load Pocket Conditions exist		None		The higher of the: (demonstrable costs, or bid price if bid price is lower than demonstrable costs) vs. (the outside index price)	
Voltage Support Black Start	Long term contracts		Payment as provided for in the terms of the agreement.			Voltage Support Service is differentiated by congestion zone and is charged to SCs pro-rata based on demand and exports in MWh. Black Start Services are included in Desert Star's Administrative Charge