

Allowing Demand Reduction Providers in the Day-Ahead Demand Response Program

Overview

In May 2001, the Day-Ahead Demand Response Program was approved by the NYISO Management Committee, with subsequent approval by FERC of a revised Market Services Tariff reflecting the program provisions. Section 2.38d of the Tariff requires that “on and after January 1, 2002, Curtailment Services Providers may also qualify as Demand Reduction Providers”.

The Price-Responsive Load Working Group (PRLWG) has considered how the flow of payments will occur with Demand Reduction Providers (DRPs). The approach defined in this document has been reviewed by the PRLWG and represents the consensus view on the division of payments.

Flow of Payments

LSE

1. The load-serving entity pays for its day-ahead energy purchase at day-ahead zonal LBMPs. *(no change from current practice)*
2. The LSE receives a payment for demand reduction scheduled day-ahead (offered either through the LSE or through a DRP), amounting to the product of the MWh of demand reduction scheduled and the day-ahead LBMP at the demand reduction bus. *(no change from current practice in DADRP)*
3. If the actual real-time load reduction is less than the scheduled reduction, the LSE will pay back the difference ($MWh_{\text{scheduled}} - MWh_{\text{actual}}$) at day-ahead bus LBMP. *(new)*
4. LSEs will settle the real-time energy balancing as is done currently.
5. LSEs will receive an offsetting credit (debit) for load balancing equal to the sum of the real-time load reduction multiplied by the real-time zonal LBMP. *(no change from current practice in DADRP)*

DRP

1. The DRP is paid the lesser of the scheduled reduction or actual verified real-time load reduction at the day-ahead zonal LBMP. In addition, any Load Reduction Bid Guarantee would be paid to the DRP proportionate to performance. *(new – previously went to LSE)*
2. The DRP is responsible for the penalty payment (110 percent of the greater of day-ahead or real-time zonal LBMP multiplied by the difference between the scheduled and actual load reduction) less the amount paid by the LSE in item 3 above. *(new – previously combined with LSE penalty)*

The following four cases illustrate how the flow of payments would work under various price and performance scenarios. In Case 1, the various payment elements are noted as LSE-n and DRP-n, n corresponding to the items defined above.

Sample Payment Cases

Case 1 – Actual load reduction equals scheduled load reduction

	Day Ahead	Real Time	
$LBMP_{bus}$	\$250	\$300	assumed
$LBMP_{zonal}$	\$250	\$300	assumed
Fixed Load (MW) only	100	100	Real time fixed load is metered load plus measured DRP reduction
Load Reduction (MW)	10	10	Measured performance by DRP
Total DAM Load (MW)	90	90	Real time net load appearing on meters.
Shutdown duration (hrs)	1	1	assumed

Day-Ahead Settlement	DRP	LSE	
Day-Ahead Energy Purchase		-\$25,000	← LSE-1
Payment for Day-Ahead Schedule		\$2,500	← LSE-2
Real-Time Settlement			
Payment for Performance	\$2,500		← DRP-1
Nonperformance Penalty	\$0	\$0	← LSE-3
LSE Normal Load Balance Credit		\$3,000	← LSE-4
Debit		-\$3,000	← LSE-5
Total Received (Paid)	\$2,500	-\$22,500	

In this example, the LSE purchases 100 MWh in the day-ahead market; of that amount, 10 MWh has been scheduled by SCUC to be served by a demand reduction bid. The LSE's load obligation is reduced by the day-ahead payment schedule (LSE-2).

In real time, the DRP delivers 10 MW of load reduction, and is paid for performance (DRP-1); no nonperformance penalties are assessed. The LSE would receive its normal balancing credit $(100-90) \times \$300/\text{MWh}$ (LSE-4), and would have an offset payment equal to the demand reduction MWh actually realized multiplied by the real-time LBMP at the demand reduction bus (LSE-5).

Case 2 – Actual load reduction is less than schedule load reduction

	Day Ahead	Real Time	
<i>LBMP_{bus}</i>	\$250	\$300	assumed
<i>LBMP_{zonal}</i>	\$250	\$300	assumed
<i>Fixed Load (MW)only</i>	100	100	Real time fixed load is metered load plus measured DRP reduction
<i>Load Reduction (MW)</i>	10	2	Measured performance by DRP
<i>Total DAM Load (MW)</i>	90	98	Real time net load appearing on meters.
<i>Shutdown duration (hrs)</i>	1	1	assumed

Day-Ahead Settlement	DRP	LSE
Day-Ahead Energy Purchase		-\$25,000
Payment for Day-Ahead Schedule		\$2,500
Real-Time Settlement		
Payment for Performance	\$500	
Nonperformance Penalty	-\$640	-\$2,000
LSE Normal Load Balance Credit		\$600
Debit		-\$600
Total Received (Paid)	-\$140	-\$24,500

Here, only 2 of the 10 MWh scheduled load reduction is realized. The LSE will pay back 80% (LSE-3, \$2,000 in this example) of the day-ahead payment, and the DRP will cover the remainder of the penalty charge (DRP-2, \$640 in this example).

Case 3 – Real-time LBMP is much lower than Day-ahead LBMP

	Day Ahead	Real Time	
<i>LBMP_{bus}</i>	\$250	\$80	assumed
<i>LBMP_{zonal}</i>	\$250	\$80	assumed
<i>Fixed Load (MW)only</i>	100	100	Real time fixed load is metered load plus measured DRP reduction
<i>Load Reduction (MW)</i>	10	5	Measured performance by DRP
<i>Total DAM Load (MW)</i>	90	95	Real time net load appearing on meters.
<i>Shutdown duration (hrs)</i>	1	1	assumed

Day-Ahead Settlement	DRP	LSE
Day-Ahead Energy Purchase		-\$25,000
Payment for Day-Ahead Schedule		\$2,500
Real-Time Settlement		
Payment for Performance	\$1,250	
Nonperformance Penalty	-\$125	-\$1,250
LSE Normal Load Balance Credit		\$400
Debit		-\$400
Total Received (Paid)	\$1,125	-\$23,750

Case 4 – Real-time LBMP is much greater than Day-ahead LBMP

	Day Ahead	Real Time	
<i>LBMP_{bus}</i>	\$250	\$900	assumed
<i>LBMP_{zonal}</i>	\$250	\$900	assumed
<i>Fixed Load (MW)only</i>	100	100	Real time fixed load is metered load plus measured DRP reduction
<i>Load Reduction (MW)</i>	10	5	Measured performance by DRP
<i>Total DAM Load (MW)</i>	90	95	Real time net load appearing on meters.
<i>Shutdown duration (hrs)</i>	1	1	assumed

Day-Ahead Settlement	DRP	LSE
Day-Ahead Energy Purchase		-\$25,000
Payment for Day-Ahead Schedule		\$2,500
Real-Time Settlement		
Payment for Performance	\$1,250	
Nonperformance Penalty	-\$3,700	-\$1,250
LSE Normal Load		\$4,500
Balance Credit		
Debit		-\$4,500
Total Received (Paid)	-\$2,450	-\$23,750

Cases 3 and 4 illustrate that the DRP bears the risk of day-ahead to real-time price swings in situations where load reduction is less than scheduled. The LSE bottom line is affected by the level of nonperformance, but is not sensitive to price swings.

Demand Response Provider Registration

DRPs will be required to be full Customers of the NYISO, and will need to go through all of the creditworthiness checks presently in place for NYISO Customers.

Bid Slot Allocation

DRPs with clients in multiple LSE territories will require multiple bid slots, one for each group of clients in a given LSE's territory.

Non-Diesel Generator Participation

Since the benefit to on-site non-diesel generation of participating in DADRP is no different than those available through Zonal Price-Cap Load Bidding, on-site generation will not be allowed to participate in DADRP.