

## **Proposed Future Economic DSR Structure** — (In accordance with MIC direction)

### **1. Allocation of Cost Payment for Participation – Both Dispatchable and Self Scheduled load reduction will be paid LMP minus G&T.**

#### **a) Real Time Operation**

- ~~i. Customer reduces load thus reducing their LSE's load.~~
- ~~ii. The LSE or their generation supplier either sells the MW into the market or does not purchase the MW at the market price.~~
- ~~iii. Any market participant that is short in the applicable market during that hour pays the prevailing LMP for their energy purchases.~~

#### **b) After the Fact True-Up**

- ~~i. PJM will gross up the load to the LSE of record, by the amount of the load reduction.~~
- ~~ii. The LSE or their generation supplier that has the additional MW of load will reimburse the market LMP for the MW it previously received or pay for the MW it didn't consume during the real time operation at the real time LMP.~~
- ~~iii. Market participants that were net buyers in the applicable market at the time of the load reduction will pay PJM the MWs of load reduction times the applicable G&T rate based on their load ratio share in the applicable market.~~
- ~~iv. PJM will pay G&T to the LSE of record who will pay to their supplier if applicable.~~
- ~~v. PJM will pay LMP to the CSP for both self-scheduled and dispatched load response.~~

### **2. Dispatchable Participation - Day Ahead and Real Time Dispatched By PJM**

- ~~a) Pay full LMP to all dispatchable resources when LMP exceeds the point at which PJM has determined that the reduction in LMP creates a benefit in the form of transfer payments that are lower than the amount of load payments at that load level.~~

- a) ~~This threshold shall initially be set at \$58/MWh for day ahead and \$124/MWh for real time.~~ The load reduction offer price for real time dispatch or in day ahead will not be less than the site's G+T.
- c) ~~This threshold will be subject to a one time first review six months after each, day ahead and real time, goes into effect.~~
- d) ~~This threshold will be subject to analysis by PJM staff every other year. PJM staff will provide the analysis and a recommendation to the DSRWG no later than November 1. Any change in the threshold will be implemented effective June 1 of the following calendar year.~~
- e)b)** Bidding into the Day Ahead and Real Time markets will be scheduled as a normal part of the existing Scheduling System and shall include.
- i. Minimum dispatch rates and reduction amounts at each rate
  - ii. Fixed shut down costs at each rate/reduction amount, if any
  - iii. Minimum down time at each rate/reduction amount
  - iv. PJM will develop systems to allow flexibility in real time scheduling similar to the current Synchronous Reserve Program.
- f)c)** PJM will not dispatch a resource that has already self scheduled. Until the required system changes have been implemented, when an end user is both self scheduled and dispatched by PJM the CSP will continue to be paid as self scheduled consistent with existing protocols.
- g)d)** Sites that have day ahead or real time LMP retail contracts can participate according to the current rules for LMP based customers.
- h)e)** When an end user with a cleared day ahead load reduction under or over performs in real time, then the load reduction variance from the day ahead commitment will be settled at the real time LMP minus G&T and will pay the BOR. This payment for the over performance will be applicable to 100% of the load reduction that cleared day ahead. If, for example, a CSP clears a 5 MW load reduction on behalf of a site and the site actually reduces 7 MW in the real time, then the CSP will pay BOR on 2 MW.
- i)f)** Registration as a dispatchable resource at PJM must be done through PJM's regular process at the time the participant elects to become a dispatchable resource.
- j)g)** Demand Responder must:
- i. Actively respond to dispatch instructions by reducing load at least 80% of the times occasions when dispatched. PJM will monitor the performance of

the site on a rolling event basis during each three calendar month period of the year beginning on June 1.

- ii. When actively responding to dispatch instructions, the demand response provider is responsible for actual physical control of its resource and must reduce load in an amount equal to at least of 50% of its bid amount over the hours of the event.

~~k)h)~~ Failure to meet the response criteria as a dispatchable resource shall result in payments based on the payment structure for self scheduled participants until such time as the performance criteria is met.

~~i)~~ In order to qualify for settlement, a dispatch customer shall reduce load in a measurable amount at least equal to 50% of the amount scheduled.

~~j)~~ A dispatch participant will be eligible for compensation for load reductions up to 200% of the amount in the notification unless the LMP exceeds \$200. There will be no limit on over reduction compensation when the LMP is more than \$200.

### **3. Self Scheduled Participation**

~~a)~~ There has been a concern that DR settlements have been the result of free ridership and gaming and therefore self scheduled participation will be scheduled to expire at the end of 2008. PJM staff will evaluate the benefit of self scheduled DR and report to the DSRWG who will make a recommendation to the MIC whether or not to continue self scheduled participation after that date. The MIC will take further action as appropriate.

~~a)b)~~ Self scheduled will pay BOR deviation charges similar to generators. ~~No later than the second November 1 after the compensation provided for herein goes into effect, PJM staff will initiate discussions within the DSRWG regarding the effectiveness, and the appropriate level of compensation for self-scheduled participation.~~

~~b)c)~~ Self scheduled load reduction will not be eligible for compensation when the LMP is less than \$ \_\_\_\_\_ [Threshold value to be determined by the MIC.] Additionally, the load reduction offer price for real time dispatch or in day ahead shall not be less than the site's G+T, a price level determined as set forth in 2. b) above for scheduling of demand resources by PJM except as follows: PJM will pay the GSP LMP—G+T for the event when the LMP is no more than 5% below the threshold. PJM will collect the payment from the site's LSE of record. PJM will monitor settlements for self scheduled load reductions to ensure that LMP is greater than the G+T.

e)d) Self-scheduled resources must notify PJM at least 10 minutes prior to beginning a load reduction event but notice may be provided at any time up to 7 days prior. Events may begin intra-hour provided that notice above is provided. Notice may be withdrawn or adjusted downward during an event for any reason.

- i. The load reduction notification must include the beginning and ending times of the event, and the anticipated load reduction.
- ii. If notification and settlement hours do not match it will automatically trigger review of potential free-ridership of the CSP's filed settlements for prior 12 months. PJM will take necessary action to ensure market integrity is maintained.
- iii. In the event the customer fails to reduce load and does not submit a settlement request, no payment or debit will be assessed.

d)e) In order to qualify for settlement, a self scheduled customer shall reduce load in a measurable amount at least equal to 50% of the amount scheduled.

e)f) A self scheduled participant will be eligible for compensation for load reductions up to 200% of the amount in the notification unless the LMP exceeds \$200. There will be no limit on over reduction compensation when the LMP is more than \$200.

#### **4. CBL Methodology For Estimation Of Load**

**a)** Calculation Methodology (substantially more conservative than current CBL)

i. Weekdays - Use High 4 of 5 eligible weekdays days less exclusions

1. Weekday Exclusions

- a. Previous event days including event days that are not settled because the LMP fell below the threshold or the site's G+T
- b. Low usage days (below 25% of average)
- c. Anomalous days identified by the CSP (plant maintenance, power outages, for example)

ii. Eligible day look-back period for Weekdays

1. 45 calendar days with extensions to 60 days as follows

- a. holidays
- b. Any event day in which at least 4 hours exceed the threshold determined above
- c. Days on which the site responds to PJM dispatch

2. In the event there are not 5 eligible days in the period, the CBL will be based on the average of 4
  3. If there are not 4 eligible days, then event days will be used. The event days with the highest loads will be used.
- iii. Saturdays - Use the 2 highest of the 3 most recent Saturdays
1. Saturday Exclusions
    - a. Previous event days including event days that are not settled because the LMP fell below the threshold or the site's G+T
    - b. Low usage days (below 25% of average)
    - c. Anomalous days identified by the CSP (plant maintenance, power outages, for example)
- iv. Sunday/Holidays – use the 2 highest of the 3 most recent Sundays/Holidays
1. Sunday/Holiday Exclusions
    - a. Previous event days including event days that are not settled because the LMP fell below the threshold or the site's G+T
    - b. Low usage days (below 25% of average)
    - c. Anomalous days identified by the CSP (plant maintenance, power outages, for example)
- v. Eligible day look-back period for Saturdays, Sundays/Holidays
1. 45 calendar days with extensions as follows
    - a. Any event day in which at least 4 hours exceed the threshold determined above
    - b. Days on which the site responds to PJM dispatch
    - c. In the event there are not 3 eligible days in the period, the CBL will be based on the average of 2
    - d. If there are not 2 eligible days, then event days will be used. The event days with the highest loads will be used.

**b) An event day is defined as a day in which the participant meets the requirements for settlement.**

**b)c)** At the time of registration or re-registration, the CSP, EDC, LSE or PJM may perform analysis on the customer's historical load to determine the suitability of the standard CBL methodology above.

- i. In the event the CSP, EDC, LSE or PJM does not believe that the standard CBL methodology is appropriate based on supporting analysis, that party

may propose during the registration or re-registration process an alternate CBL calculation that more accurately reflects the customer's consumption pattern.

1. The LSE and CSP shall notify PJM of such and shall enter into discussions between the CSP and LSE to develop a mutually agreeable CBL.
  2. If after 30 days there is no agreement between the LSE and CSP regarding a suitable CBL methodology, the CSP and LSE shall notify PJM and request PJM staff involvement
  3. PJM staff shall have 20 days to either mediate a mutually agreeable CBL methodology or PJM staff shall determine a suitable methodology that will be binding upon the CSP and LSE unless they mutually agree upon some alternative CBL methodology.
  4. Registration and re-registration will not be held up during the process for establishing the CBL that is provided for above with the understanding that the CBL used for settlement will be unknown until a final decision on the alternative CBL is determined
- ii. Alternative CBL methodologies with associated analysis, along with their associated load characteristics, will be collected by PJM to build a library of alternative CBL methods applied in the market. The intention of having such a library is to make available to interested parties alternative CBL methods to the standard method found in the load response program documentation. See Appendix A for an illustration of analysis tools and alternative CBL methodologies.

e)d) Generation Data - Behind the meter generation data may be used to determine the load reduction instead of the difference between the CBL and meter load subject to the following:

- i. Generation is used solely for PJM demand side response, or
- ii. If generation is used on a regular basis for normal operations or peak shaving, then generation data can be used as long as the amount of generation run for demand side response activity can be quantified.
- iii. All parties agree that if a customer has a 5 MW generator where 3 MW are run during normal operations the customer should be able to claim 2MW of demand side response activity if the generator is ramped up in response to expected wholesale prices.

## 5. Commitment to address other identified barriers to demand response

The Demand Side Response Working Group in keeping with its charter will identify and address barriers to market participation by demand resources on an ongoing basis.

## 6. Ensure market integrity

- a) A major tenet of the Demand Response Program is the concept that the Markets will pay for value received when a demand responder reduces their electricity consumption and makes that power available for use by the market. Key to this happening is making sure that the demand responder actually does something to cause a reduction in their electricity consumption. Examples of free-ridership include:
  - i. Having a highly variable load that will allow for settlements in the program when the end user is operating in their normal daily manor.
  - ii. Doing nothing, but putting in a settlement for a reduction when the actual load just happens to be less than the CBL for that hour.
  - iii. Putting in settlements every day to lock in an old CBL that no longer represents the actual load of the end user.
  - iv. Using generator meter data to imply a demand response during a high cost hour when the generation is really the same all of the time.
- b) Arbitrage – Customers should not be permitted to arbitrage between two sites at the same time in the PJM footprint unless there is a clear benefit that alleviates a congestion problem.
- c) If any EDC or LSE disputes the use of the CBL or registration or settlements more than 10% of the time or a CSP is denied submitted settlements or registrations more than 10% of the time then PJM staff will broadly review that entity's overall activity for appropriateness. The 10% threshold is only used for initiating the staff review. It will not be used as a determinative factor in the results of the review. PJM staff will determine if it is necessary to refer said entity to MMU or FERC/OMOI. PJM has 30 days to evaluate and escalate as necessary.
- d) PJM and the DSRWG will develop ~~New~~ market rules either included above or additional rules to be added to DSR business rules or Attachment M (PJM Market Monitoring Plan) to reduce free-ridership as much as practical while not unduly burdening real demand response include:
  - i. Create a process by which PJM reviews settlements for events that indicate no action on the part of the curtailer. If a suitable explanation is not given, disallow the settlement. For additional violations assess more punitive

consequences up to removal from the program for a period of time and referral to FERC OMOI for additional penalties allowed under federal law.

ii Confirm that the PJM Market Monitoring Plan mandates and authorizes investigation of market activity by demand resources to ensure compliance with market rules.

## EXAMPLES OF SCREENING TOOLS & ALTERNATIVE CBL METHODOLOGIES

### Alternative CBL Methodologies

#### ~~Appendix A (alternative CBL examples)~~

Analysis	Alternative CBL	Notes
Average daily kwh for a non-holiday Monday is 40% Average daily kwh for non-holiday weekdays. Ratio of Monday daily kwh to Weekday daily kwh is consistent across the year.	Use high 4 of 5 for Tues/Wed/Thu/Fri daytype but high 3 of 4 for Mondays and allow lookback period go back 90 days for Mondays.	Ensure CBL actually captures different load conditions on different days.
Generation Data where generator is used on a normal basis for peak shaving but is also used for curtailments in response to price (see Generation Data example in doc above)	Use Generation data where max qualified reduction will be limited to the difference between metered load during the event hours and max metered load for same hours and daytypes during previous 30 days	Allow use generation data but ensure normal peak shaving activity has been stripped out of the load reduction

## EXAMPLES OF SCREENING TOOLS & ALTERNATIVE CBL METHODOLOGIES

### Screening Tools

**A) Standard Deviation Analysis** – Generally be applicable to Customers with highly variable load patterns.

The intent of the screening process is not to limit participation under any standard CBL calculation but, rather to eliminate any subjectivity as to what magnitude of load reductions are acceptable under any standard CBL calculation. Also, it provides the participant the opportunity to propose a CBL calculation that best serves the participant's needs.

1. At the time of registration or re-registration, the LSE and/or CSP will perform a Standard Deviation analysis on the customer's historical load.
  - a. For customers whose loads do not change seasonally the analysis will be done for a period of six months to 1 year
  - b. For customers whose loads do change seasonally, there will be three analyses done, one each for the previous summer, winter, and spring/fall
  - c. As an alternative, other analyses may be appropriate based on the specific circumstances of the customer.

The CSP is encouraged to perform this analysis and review it with the customer prior to registering the customer.

2. The analysis will produce an anticipated average CBL and range plus or minus for each hour of the day.
  - a. The analysis will, at a minimum, be performed on non-event, non-holiday week days.
  - b. For those customers who may shed load on a weekend or holiday, an analysis will also be performed as appropriate. Saturdays may need to be analyzed separately from Sundays which may need to be analyzed separately from holidays depending on the nature of the customer's operation.
3. For each hour, a maximum load reduction settlement value will be established by subtracting the range value for the hour from the average CBL value for the same hour.
4. In order to qualify for the standard CBL calculation or any pre-established optional CBL calculation, the Customer/CSP must agree that load reduction settlement requests may only be submitted for load reductions for consecutive hours when the customer's recorded load is less than the maximum hourly values established in the previous step.
5. In the event the Customer/CSP, does not believe this methodology best serves the customer's interest, the CSP may propose an alternate CBL calculation that more accurately reflects the customer's consumption pattern.

6. The parties will act in good faith to develop a mutually acceptable methodology. In the event the parties cannot reach a mutually agreeable methodology the parties may request PJM mediation in accordance with the program rules.
7. In the event the Customer's load or load pattern changes making the application of the maximum hourly values impractical from either party's perspective, either party may request that the maximum hourly load values be recalculated.