Establishing the CBL for NYISO PRL Programs

Payment to participants under PRL programs are based on the amount of load each participant (or aggregation thereof) is deemed to have curtailed during an event. For the purpose of the PRL programs, the CBL defines the level of load that is deemed to have been the usage the customer would have consumed during the specific hours for which a PRL program event is declared, had the event not been declared. Customers are deemed to have curtailed usage during each hour of each event in the amount defined by the difference between the CBL and the actual metered usage in that hour. Payments apply only to positive values resulting from that calculation.

The CBL currently used for the NYISO PRL program is described in Table 1. The program designers (PRL WG) considered it critical that a participant would be able to unambiguously determine the level of curtailment it was accomplishing, for the purposes of program payments, during an event.

Because it involves only historical data, the current CBL formulation allows a participant to calculate its CBL for any event prior to the commencement of the event, provided that it has:

- Access to the CBL formula provisions
- Ready and reliable access to its historical hourly usage data on a timely (but not necessarily real-time) basis,
- Knowledge of which days are considered holidays, and therefore is excluded and
- Knowledge of which days are considered event days, and therefore is excluded.

For the purposes of making program payments to participants, CBLs are calculated from meter read data collected and evaluated by the meter data service provider and subsequently reviewed and approved by the NYISO.

The existing CBL formulation has been characterized by some as a reasonable means for determining PRL program performance, including;

- It can be unambiguously developed prior to the time a participant actually curtails in response to an event
- It uses available metering and meter reading technology
- The averaging of 10 prior days, combined with the exclusions, balance dampening windfall opportunities with creating a fair representation of what each the participant's average consumption level otherwise would have been.

Others have found fault with it, to wit:

- The use of a 10-day Window is arbitrary
- Weather cycles are much shorter (fronts last for a few days) or much longer (season lasts weeks) than the 10-day cycle and therefore are never properly reflected. Businesses tend to show persistent weekly cycles that result in the CBL based on a two-week average almost always being biased[1].
- Cutting off the usage history at 30 days could result in disqualifying customers that are active participants in the DADRP
- Using the highest five days of the ten days in the window for the basis tends to bias the CBL upward, with no rationale for doing so except it favors participants

[1] These impacts were illustrated in previous discussions of the CBL held by the PRL WG.

- This formulation is open to EDRP and DADRP windfalls from plant shut downs
- The use of an average of the prior days results in a downward bias in the CBL for some customers, especially those whose usage is highly weather sensitive.

Recommendations for Changes to CBL Formulation

I. The Average Day CBL is established for each customer for each event is determined as follows:

Average Day formula for Weekday CBLs

A. Establish the CBL Window.

- The CBL Window is comprised of the most recent 10 days, beginning with the day prior to the event, excluding the following day-types:
  Holidays, as specified by the NYISO
  Event days, days on which either:
  - NYISO declared an EDRP event for which the participant was eligible for payment for a curtailment, or
  - Days on which the participant's DADRP curtailment bid was accepted in the DAM, regardless of whether or not the customer actually curtailed.
- The window must contain 10 days. As days are eliminated under the two provisions above, they are replaced with the most recent day not yet included and subsequently excluded.

B. Establish the CBL Basis

1. Identify the five days used to develop CBL values for each hour of the event.
2. For each day in the window, create the average usage over the event period, using the consecutive hours that define the event for which the CBL is being developed.
3. Eliminate low usage days: if the average usage over the event period for any day in the 10-day window is less than 25% of the simple average event period usage over the event period in all 10 days, eliminate that day, and return to (A) and add a day to restore the 10 day window
4. Order the days according to their average event period usage level, and eliminate the five days with the lowest average usage over the event hours.
5. The remaining five days constitute the CBL Basis.

C. **Calculate Average Day CBL values for the event**.

- For each hour of the event, the CBL is average of usage in that hour in the five days that comprise the CBL basis.

Average Day CBL formula for weekends

A. Establish the CBL Window – The CBL Window is comprised of the most recent three like (Saturday or Sunday) weekend days. No exclusions for Holidays of event days.
B. Establish the CBL Basis – calculate the average usage value over the CBL event period for each of the three days in the CBL Window.
Eliminate the day with the lowest average value
C. Calculate Average Day CBL values for the event -- for each hour of the event, the CBL is average of usage in that hour in the two days that comprise the CBL basis.

Advantages of the Streamlined Average CBL Day Formulation

- Requiring that the Window contain 10 days eliminates the 30- day end-point problem. High/low day elimination is more straightforward.
- Retains existing 5-highest day averaging
- CBL formula focused only on the load during the event hours.

II. Add an elective Weather-sensitive CBL formulation

- **The Average Day CBL values for each hour of the event period are calculated as described in (I) above**.
- **Each hour of the Average Day CBL is adjusted according to the ratio of:**
  1) the average usage during the two hours proceeding first hour of the event and
  2) the Average Day CBL value for that hour, but
  3) Subject to the condition that no hourly Average Day CBL value can be adjusted upward by a proportion greater than 1.15

Advantages of the Elective CBL Option

- **As the adjustment factor approaches one, the two methods converge**
- **Each hour is adjusted, which preserves the underlying CBL load shape based on normal days' usage**
- **The adjustment is for in-day shifts in usage from the 5-day average, which is likely to cover most weather sensitive conditions**
- **Using the two hours prior corresponds to the EDRP notice, which makes it hard to game the provision**
- **The limit (15%) in the weather adjustment reflects the likely true weather effect and prevents windfalls for excessive pre-cooling or other pre-performed operations under DADRP**

Additional CBL Provisions

- Selecting a CBL method
  - Participants may elect either CBL Method I or CBL Method II
  - The CBL Method to be used may be changed by the participant 30 days prior to the beginning of each Capability Period or for new participants, upon registration.

Table 1. Current CBL Formulation		
Feature	**Definition**	**Description**
CBL Window	The period preceding the event from which days are selected for subsequent use in establishing a CBL value for each hour of the event. Certain exclusions apply to determining the days that comprise the window for each event.	Weekday window is initially comprised of comprised of the 10 days preceding the day that is two days prior to the event for which the CBL is being calculated. Exclusions extend the window to up to 30 days in length. Weekend window for each weekend day kind (Saturday, Sunday) is comprised of the three previous weekend days of the same kind. Exclusions do not extend the weekend window.
Window Exclusions	Certain days are excluded from comprising the weekday window. Exclusions require that prior days be added beginning with the 11th prior weekday day, and proceeding back in time as needed until the window contains 10, but subject to the condition that last day that can be included is the 30th prior day.	Event days - day on which the NYISO had declared an event Holidays – days deemed by the NYISO to be holidays
CBL Basis	The five days out of the Window, after exclusions, are selected to be the basis for calculating the CBL values. The basis selection is made on the total usage for each day in the Window during the hours for which the event has been declared. If the basis does not contain at least one day, then the customer is not eligible for payments under the program until such time as it contains one or more days, after exclusions.	For **weekdays**, the five highest days of the window form the basis For **weekends**, the two the two highest day in the window form the basis
Basis Low Usage Day Exclusions	The selection of CBL Basis days is provisional. Days that are determined to be low usage days are excluded from the basis and require that the Window be extended and CBL basis calculation be preformed again.	The average basis usage is calculated as the simple average of the usage during the event window. Any day in the basis for which the level of usage each of for four consecutives hours is 25% or less than the average usage for the five day, then that day is excluded from the five days and an additional day must be added to the window and all exclusion testing and averaging tests repeated.
Formula	Using the five CBL Basis days, after exclusions, a CBL value for each hour of the event is calculated.	The CBL in each hour of the event is the simple average of the values of the same hours in the CBL Basis days.