

# Load Management Task Force Follow up on proposed changes: GLD calculations

LMTF

March 26, 2010

# Impact of proposed changes on current rules

	Proposed changes	Rules impacted by change
2	M&V – clarify Guaranteed Load Drop methods	Manual 19, attachment A eLRS system

Stakeholders spent more than 1 year to develop

- Enhance existing rules & definitions
  1. Comparable Day
  2. Same Day
  3. Econ standard CBL
  4. Econ standard CBL with WSA
  5. Econ standard CBL with SSA
  6. Regression analysis
  7. Load Profile
  8. Generation Data
- Leverage economic CBL and associated alternatives:
  1. Standard CBL
  2. Standard CBL with Weather Sensitivity Adjustment
    1. Based on regression analysis
  3. Standard CBL with Symmetric Additive Adjustment
  4. Generation Data
  5. Alternative CBL if approved

Move toward less subjective and more objective calculations

# Load Management M&V proposed process changes

- CSP is responsible for selecting the most accurate method to determine what load would have been
- CSP selects appropriate M&V during the registration process and this remains in effect for delivery year and used for test, retest and emergency event compliance
  - firm service level (FSL) OR guaranteed load drop (GLD)
  - If GLD then CSP will select the specific method (*this is different from current practice*)
    - Capacity compliance over-performance for each end use customer may not exceed the PLC (*this is different from current practice*)
      - This is consistent with capacity nomination process and associated rules

## Should we maintain ability to utilize the following methods for capacity compliance?

type		
Comparable Day	Only need to pick one day – less data needed	One day may not easily represent the load (reason for multiple days in CBL)
Same Day	Very simple, little data needed	Does not account for typical change (either up or down) in hourly load
Regression	More robust	More complicated, more data, and additional admin/analysis/time
Load Profile	Based on EDC approach used for retail energy settlement	Not always transparent and has not been utilized

- Must be clear, objective and transparent
  - Easy to reproduce and audit
- Need options to ensure load can be effectively represented
  - There is no one size fits all
- Method should be best representation of load
  - Non-bias (just as likely to over-estimate as under-estimate)
- Participants must be able to administer
  - Do not build a barrier to entry

# GLD method (**adopt current economic methods**)

- The following would be the available choices under this approach:
  - Standard CBL
    - Good for most customers, may not be adequate for customers with large amount of weather sensitivity
  - Standard CBL with symmetric additive adjustment
    - Improvement to standard CBL for same day change in load patterns based on weather or operations
    - Simple & easy implicit weather adjustment
    - Empirical analysis indicates a significant improvement in accuracy over standard
  - Standard CBL with weather sensitivity adjustment
    - Regression analysis for each end use customer to determine sensitivity for different weather set points
    - More analysis & administration but may result in better estimate for certain loads
  - Generation Data
  - Alternative CBL with demonstrated ability to better estimate unique load patterns and as approved by PJM

This will operate similar to current registration process where economic CBL is used if registration exists otherwise CSP selects CBL method

- The following are currently available options:
  - Comparable Day
  - Same Day
  - Economic CBL
    - Standard CBL
    - Standard CBL with symmetric additive adjustment
    - Standard CBL with weather sensitivity adjustment
    - If alternative CBL is in place on economic registration it may be used
  - Regression
  - Load Profile
  - Generation Data

# Guaranteed Load Drop (**enhance existing rules approach**)

- Questions regarding most appropriate method to utilize - Comparable Day, Same Day, Economic CBL, Regression, Load Profile or Generation
- Comparable Day – Recommend the calculation be more clearly defined and ensure language is appropriate for test and event compliance scenarios. Consider if and how weather normalization may be utilized.
- Same Day – Recommend the calculation be more clearly defined. Determine whether appropriate to simply use metered load prior to the event. Ramp time period should be considered to avoid selection of a partially reduced hour.
- Economic Customer Baseline (CBL) – Recommend clarifying that this is the CBL currently effective for an active economic registration. Otherwise, it is the standard CBL method with standard adjustments.
- Load Profile - Recommend elimination of method due to lack of utilization.

# Guaranteed Load Drop (**enhance existing rules**)

- **Comparable Day (Proposed rules)**
  - Non-weather sensitive customer = The non PJM event (economic or emergency) and non-holiday weekday in closest proximity to the test or emergency event day.
  - Weather sensitive customer = The non PJM event (economic or emergency) and non-holiday weekday in closest proximity to the test or emergency event day where the difference in the average daily temperature is +/- 2 degrees.
    - If you can not find a day within +/- 2 degrees then use day with closest weather conditions
  - Comparable day must be from May through September of current calendar year – may not use information from prior year.
  - Closest proximity includes the evaluation of days before or after the event.
    - If there is a tie during the evaluation between day before and day after event/test the day before will be used.

Eliminate subjectivity which will allow PJM to perform the calculation and ensure calculation is consistent.

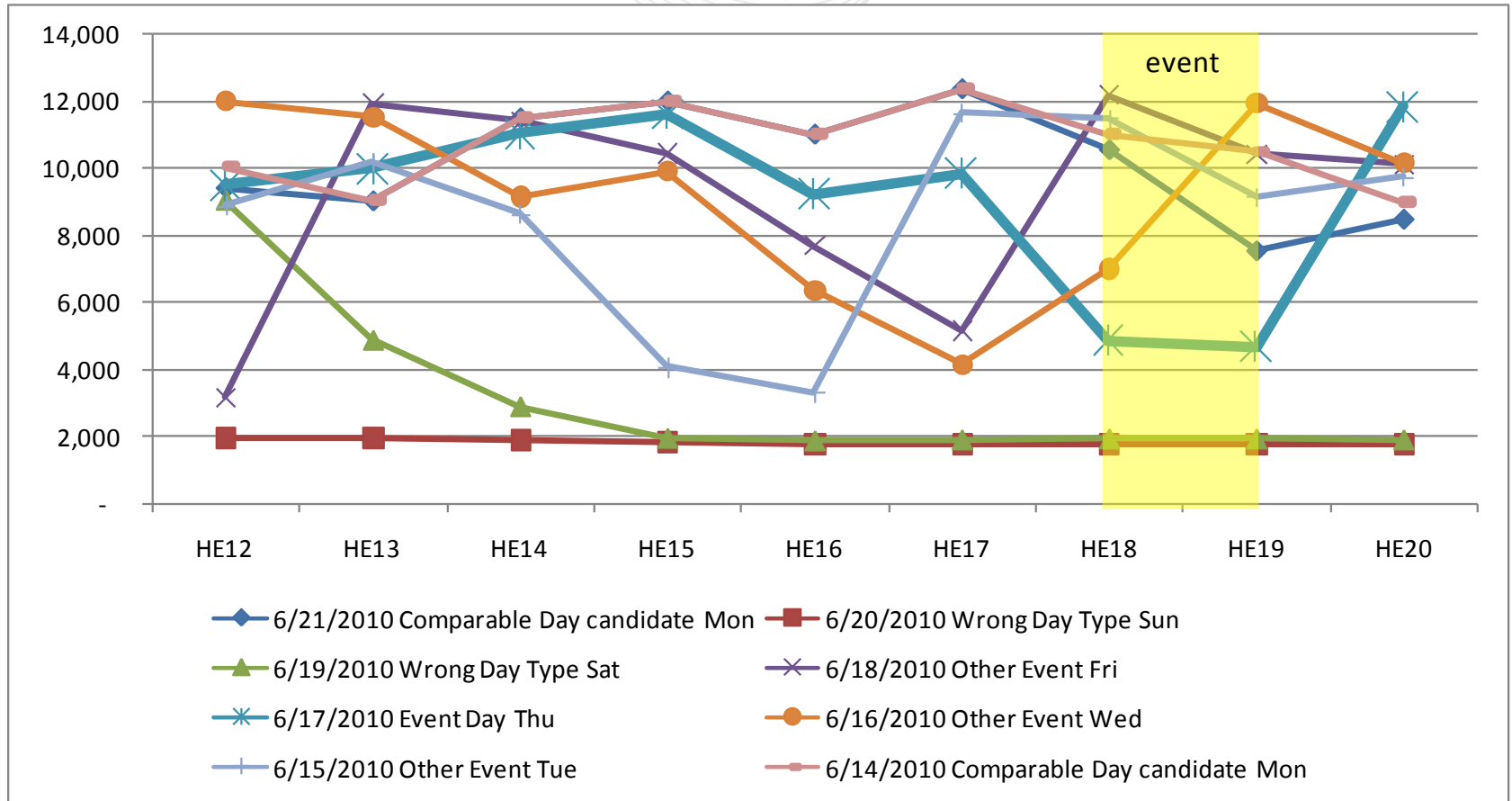
# Example: GLD|Comparable Day

6/14 in closer proximity to event day so 6/21 was not selected

Date	Note	Type	HE12	HE13	HE14	HE15	HE16	HE17	HE18	HE19	HE20
6/21/2010	Comparable Day candidate	Mon	9,427	9,043	11,500	12,000	11,020	12,364	10,560	7,564	8,500
6/20/2010	Wrong Day Type	Sun	1,958	1,929	1,881	1,814	1,776	1,756	1,756	1,776	1,785
6/19/2010	Wrong Day Type	Sat	9,052	4,886	2,908	1,968	1,891	1,920	1,948	1,948	1,920
6/18/2010	Other Event	Fri	3,187	11,894	11,395	10,435	7,689	5,164	12,163	10,416	10,108
6/17/2010	Event Day	Thu	9,500	10,000	11,040	11,625	9,244	9,859	4,857	4,675	11,865
6/16/2010	Other Event	Wed	11,980	11,520	9,139	9,888	6,355	4,156	6,998	11,923	10,156
6/15/2010	Other Event	Tue	8,880	10,176	8,649	4,080	3,312	11,654	11,500	9,158	9,744
6/14/2010	Comparable Day candidate	Mon	10,070	9,043	11,500	12,000	11,020	12,364	11,000	10,500	9,000

Event Hours

# Example: GLD|Comparable Day



## Guaranteed Load Drop (**enhance existing rules**)

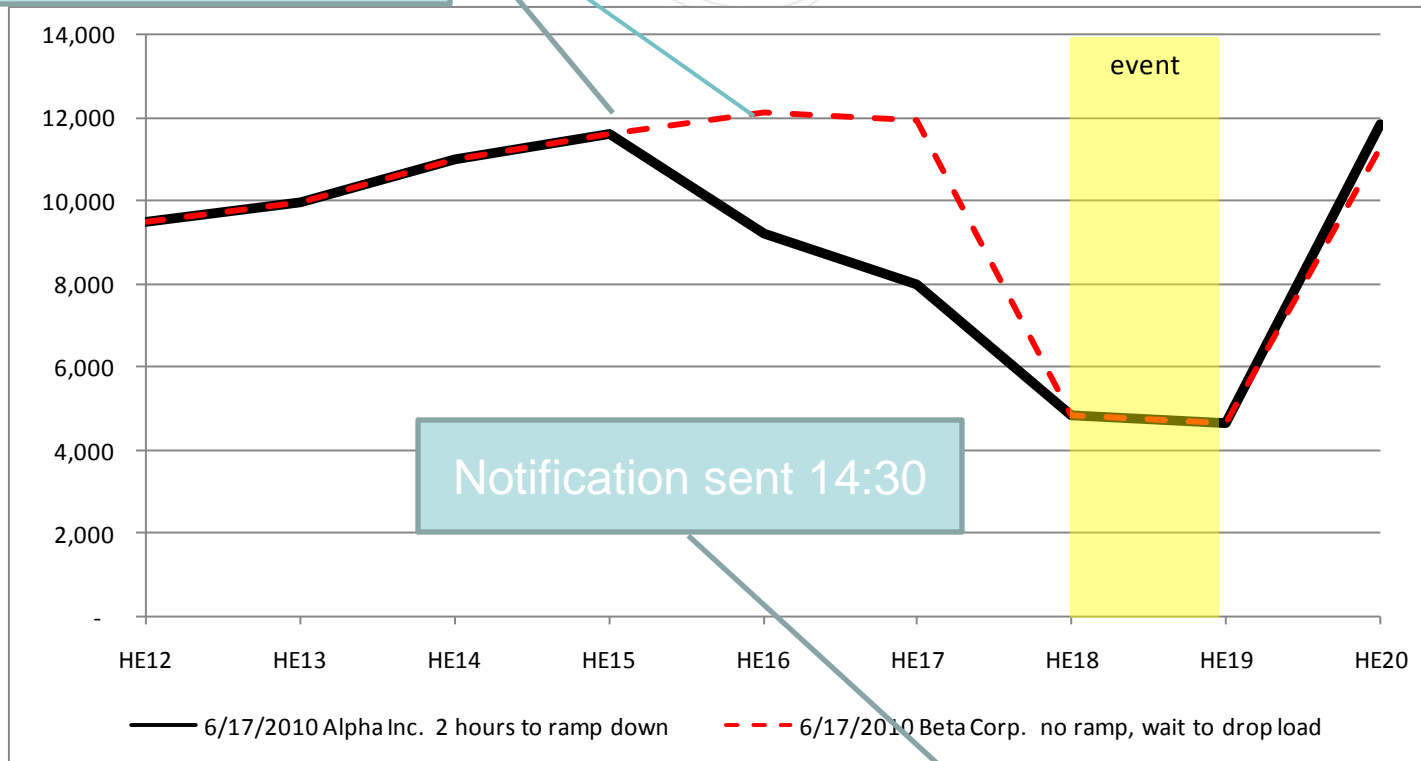
- Comparable Day (feasibility of weather adjustment for load drop result)
  - This was never an issue in the past because there were no tests – this is really only an issue if CSP tests during mild conditions and the resource is significantly weather sensitive.
  - Consider if and how weather normalization may be utilized for the actual Load Drop Amount (weather normalization for baseline day is already available) during a test.
    - Test Day = 5 MW, where temp = 80 degrees
    - Comparable Day = 7 MW, where temp = 80 degrees
    - Load Drop = 2 MWs
    - ***Is there a reasonable way to adjust 2 MWs based on weather conditions during CSP selected test day compared to expected weather conditions during an emergency?***

PJM not aware of solution without having several events for extrapolation.

# Guaranteed Load Drop (**enhance existing rules**)

- Same Day
  - Hourly integrated energy consumption for the greater of the first whole hour prior to start of emergency event or first whole hour prior to notification of the event. If resource already responded to event under economics then the hourly economic CBL will be used as appropriate.
  - Similar to current definition for Emergency Energy settlements except also ensures resources are not penalized during ramp down period (1 hour or 2 hour lead time)
- Example:
  - PJM notification 11:15, Resource has 2 hour lead or must be down by 13:15, therefore PJM will use higher of HE13, HE12, HE11.
  - PJM notification 11:15, Resource has 1 hour lead or must be down by 12:15, therefore PJM will use higher of HE12, HE11.

Alpha Inc use 11,635 kw  
Beta Corp use 12,150 kw



Date	Customer	Note	HE12	HE13	HE14	HE15	HE16	HE17	HE18	HE19	HE20
6/17/2010	Alpha Inc.	2 hours to ramp down	9,500	10,000	11,040	11,625	9,244	8,000	4,857	4,675	11,865
6/17/2010	Beta Corp.	no ramp, wait to drop load	9,500	10,000	11,040	11,625	12,150	11,965	4,857	4,675	11,300