

Market Bulletin #28 – November 3, 2005

Settlement Implications of the Revision to Local Balancing Energy Project

Introduction

PRR 485, which was approved by the ERCOT Board in April 2004 and implemented with EMMS Release 4 on October 5th, 2005, establishes Resource-specific bid limits based on a modified generic cost structure. QSEs must use these bid limits in supplying Resource-specific bids via the Resource Plan. Resource-specific deployments and their corresponding payments are based on the submitted bids. The calculation of the Resource-specific bid limits, effective for the current Operating Day, uses the fuel index from the previous Operating Day. Since the fuel index can fluctuate daily, this Protocol revision modifies the payment for Resource-specific deployments to use the fuel index for the current Operating Day. This change, therefore, should increase the accuracy in the payment for Resource-specific deployments.

PRR 569 modifies the settlement calculations so that the payment to the QSE will be based on the bid premium supplied by the QSE adjusted for the difference in the Fuel Index for the day before the Operating Day and the Fuel Index for the day the service was provided. This results in a normalized FIP being used for Local Balancing Energy payments. This includes both Aggregated and non-Aggregated resources that are Gas Fired as well as LaaRs.

Assumptions

Audience are expected to be familiar with the Settlement of the following Market Services

- Local Congestion Cost (ERCOT Protocol Section 7.4.3)

New Bill Determinants/ Recorder

N/A

Existing Bill Determinants Impacted

LBEUPAMT
LBEDNAMT
LBEUPAGGAMT
OOMLEUPBPAGG
LBEDNAGGAMT
OOMLEDNBPAGG

Impacted Settlement Payment calculation (Gas-Fired Resources Only)

Settlement of Local Congestion Cost for Bidding Units

These changes only apply to Gas Fired Resources. Gas Fired Resources are defined as those having a Fuel Index Price in their Resource Category Generic Fuel Cost. These resources include the following:

- CCGT90
- CCLE90
- GSNONR
- GSSUPR
- GSREH

- SCGT90
- SCLE90
- DSL
- LAAR

All other Resources are classified as non-Gas Fired and are not affected by these formula changes.

- **Balancing Energy Up from a Specific Resource (LBEUPAMT)**
Under the current Local Balancing Energy Up formula (7.4.3.1), the Price portion of the Amount formula takes the Maximum of the OOMLEUPBP and MCPER and then subtracts the MCPER. The new formula will alter the OOMLEUPBP portion. Instead of just having the OOMLEUPBP, the new formula will take the $(OOMLEUPBP/FIP_{d-1}) * FIP_d$. In this formula, FIP_{d-1} is equal to the Fuel Index Price for the Day prior to the Operating Day and FIP_d is equal to the Fuel Index Price for the current Operating Day.
 - FIP_{d-1} stands for the FIP price for the previous Operating Day. For example, let's say that today is Friday August 12, 2005. This Operating Day currently will be settled 15 days from now on the 27th. When we're talking about FIP_{d-1} in this instance, we are talking about the FIP for Thursday August 11, 2005.
 - FIP_d stands for the FIP price for the current Operating Day. For example, let's say that today is Friday August 12, 2005. This Operating Day currently will be settled 15 days from now on the 27th. When we're talking about FIP_d in this instance, we are talking about the FIP for Friday August 12, 2005.
- **Balancing Energy Down from a Specific Resource (LBEDNAMT)**
Under the current Local Balancing Energy Down formula (7.4.3.2), the Price portion of the Amount formula takes the Maximum of the 0 or the MCPER - OOMLEDNBP. The new formula will alter the OOMLEDNBP portion. Instead of just having the OOMLEDNBP, the new formula will take the $(OOMLEDNBP/FIP_{d-1}) * FIP_d$.

Settlement of Local Congestion Cost for Aggregated Bidding Units

All Aggregate Resources are classified as Combined Cycle Resources and thus all are Gas Fired. All Aggregated Resources are affected by this formula change.

- **Balancing Energy Up from an Aggregated Resource (LBEUPAGGAMT)**
Under the current Lodestar formula, the Price portion of the Amount formula takes the $OOMLEUPBPAGG - MCPER$. The $OOMLEUPBPAGG$ is calculated by taking the MINIMUM Bid Premium of all the units that make up the aggregated site. Remember that the Bid Premium for each individual unit is currently calculated by taking the Maximum of the OOMLEUPBP and MCPER which is shown in the bullet above for LBEUP. Remember that the logic for this is changing such that the OOMLEUPBP portion will now be $(OOMLEUPBP/FIP_{d-1}) * FIP_d$ and this is how the LBEUPAGG formula is affected. The $OOMLEUPBPAGG$ will still take the Minimum Bid Premium of all the units that make up the aggregated site but now how the individual units calculate that premium will change under the new formula.
- **Balancing Energy Down from an Aggregated Resource (LBEDNAGGAMT)**
Under the current Lodestar formula, the Price portion of the Amount formula takes the Maximum of 0 and the MCPER - $OOMLEDNBPAGG$. The $OOMLEDNBPAGG$ is calculated by taking the MAXIMUM Bid Premium of all the units that make up the aggregated site. Remember that the Bid Premium for each individual unit is currently calculated by taking the OOMLEDNBP which is shown in the bullet above for LBEDN. Remember that the logic for this is changing such that the OOMLEDNBP portion will now be $(OOMLEDNBP/FIP_{d-1}) * FIP_d$ and this is how the LBEDNAGG formula is affected. The $OOMLEDNBPAGG$ will still take the Maximum Bid Premium of all the units that make up the aggregated site but now how the individual units calculate that premium will change under the new formula.

Appendix A – Formulations

LBEUP - Generators

- Change the calculation of LBEUP (Current calculation)

$$\text{LBEUPAMT} = -1 * [(\text{MAX}(\text{OOMLEUPBP}, \text{MCPER}) - \text{MCPER}) * \text{MAX}(0, \text{MIN}((\text{GSITETOT} - \text{RP}), \text{LBEUQ})) + \text{LBEUPADJ}]$$

- Calculation of LBEUP (New Calculation)

$$\text{LBEUPAMT} = -1 * [(\text{MAX}(((\text{OOMLEUPBP}/\text{FIP}_{d-1}) * \text{FIP}_d), \text{MCPER}) - \text{MCPER}) * \text{MAX}(0, \text{MIN}((\text{GSITETOT} - \text{RP}), \text{LBEUQ})) + \text{LBEUPADJ}]$$

Where

FIP_{d-1} = Fuel Index Price for the day prior to the Operating Day

FIP_d = Fuel Index of the Operating Day

LBEUP – LaaRs (only applicable charge is for LaaR is LBEUP)

- Change the calculation of LBEUP (Current calculation)

$$\text{LBEUPAMT} = -1 * [(\text{MAX}(\text{OOMLEUPBP}, \text{MCPER}) - \text{MCPER}) * \text{MAX}(0, \text{MIN}((\text{RP} - \text{LAARTOT}), \text{LBEUQ})) + \text{LBEUPADJ}]$$

- Calculation of LBEUP (New Calculation)

$$\text{LBEUPAMT} = -1 * [(\text{MAX}(((\text{OOMLEUPBP}/\text{FIP}_{d-1}) * \text{FIP}_d), \text{MCPER}) - \text{MCPER}) * \text{MAX}(0, \text{MIN}((\text{RP} - \text{LAARTOT}), \text{LBEUQ})) + \text{LBEUPADJ}]$$

Where

FIP_{d-1} = Fuel Index Price for the day prior to the Operating Day

FIP_d = Fuel Index of the Operating Day

LBEDN - Generators

- Change the calculation of LBEDN (Current calculation)

$$\text{LBEDNAMT} = -1 * \Sigma [(\text{MAX}(0, (\text{MCPER} - \text{OOMLEDNBP})) * \text{Max}(0, \text{Min}((\text{RP} - \text{GSITETOT}), \text{LBEDQ}))) + \text{LBEDNADJ}]$$

- Calculation of LBEDN (New Calculation)

$$\text{LBEDNAMT} = -1 * \Sigma [(\text{MAX}(0, (\text{MCPER} - ((\text{OOMLEDNBP}/\text{FIP}_{d-1}) * \text{FIP}_d))) * \text{Max}(0, \text{Min}((\text{RP} - \text{GSITETOT}), \text{LBEDQ}))) + \text{LBEDNADJ}]$$

Where

FIP_{d-1} = Fuel Index Price for the day prior to the Operating Day

FIP_d = Fuel Index of the Operating Day

LBEUPAGG - Generators

- Change the calculation of LBEUP (Current calculation)

$$\text{LBEUPAGGAMT} = -1 * [(\text{OOMLEUPBPAGG} - \text{MCPER}) * [\text{MAX}(0, \text{MIN}((\text{GSITETOTAGG} - \text{RPAGG}), \text{NETUEQ})) * \text{LBEAGGRATIO}] + \text{LBEUPAGGADJ}]$$

- Calculation of LBEUP (New Calculation)

$$\text{LBEUPAGGAMT} = -1 * [(\text{OOMLEUPBPAGG} - \text{MCPER}) * [\text{MAX}(0, \text{MIN}((\text{GSITETOTAGG} - \text{RPAGG}), \text{NETUEQ})) * \text{LBEAGGRATIO}] + \text{LBEUPAGGADJ}]$$

OOMLEUPBPAGG used to equal = Min (Bid Premium of all units in the aggregated site)
Where
Bid Premium = Max (OOMLEUPBP, MCPER)

Now

OOMLEUPBPAGG now will equal = Min (Bid Premium of all units in the aggregated site)
Where
Bid Premium = Max [((OOMLEUPBP/FIP_{d-1})*FIP_d), MCPER]

Where

FIP_{d-1} = Fuel Index Price for the day prior to the Operating Day

FIP_d = Fuel Index of the Operating Day

LBEDNAGG - Generators

- Change the calculation of LBEDN (Current calculation)

$$\text{LBEDNAGGAMT} = -1 * [(\text{MAX}(0, (\text{MCPER} - \text{OOMLEDNBPAGG})) * [\text{Max}(0, \text{Min}(\text{RPAGG} - \text{GSITETOTAGG}, \text{NETDEQ})) * \text{LBEAGGRATIO}] + \text{LBEDNAGGADJ}]$$

- Calculation of LBEDN (New Calculation)

$$\text{LBEDNAGGAMT} = -1 * [(\text{MAX}(0, (\text{MCPER} - \text{OOMLEDNBPAGG})) * [\text{Max}(0, \text{Min}(\text{RPAGG} - \text{GSITETOTAGG}, \text{NETDEQ})) * \text{LBEAGGRATIO}] + \text{LBEDNAGGADJ}]$$

OOMLEDNBPAGG used to equal = Max (OOMLEDNBP of all units in the aggregated site)

Now

OOMLEDNBPAGG should equal = Max ((OOMLEUPBP/FIP_{d-1})*FIP_d) of all units in the aggregated site

Where

FIP_{d-1} = Fuel Index Price for the day prior to the Operating Day

FIP_d = Fuel Index of the Operating Day