Market Renewal FACT SHEET
Energy Reference Price

#2

The single schedule market (SSM) is one initiative in the Market Renewal's Energy work stream. A SSM uses a Locational Marginal Price (LMP) for each time period at each location to operate the system. The Energy Reference Price is a component of the LMP.

What is the Energy Reference Price?

LMPs are calculated for each time period and at each location on the system as the sum of three components, the Energy Reference Price, the Energy Congestion Price, and the Energy Loss Price[1].

The Energy Reference Price is the cost of consuming one MW of electricity more than actual demand at a specific location on the transmission system known as the "Reference Location."[2] The same Reference Location is used to determine all LMPs on the system.

Differences in LMPs are the result of variation in the Energy Congestion Price (due to transmission system congestion) and the Energy Loss Price (due to transmission line losses). Congestion and losses are discussed in additional fact sheets.

Why is it important?

The Energy Reference Price is a necessary constant in the calculation of an LMP. Once computed for a specific time period, the same reference price is applied to all locations on the system. Losses and congestion are both equal to zero at the Reference Location meaning that the LMP at the Reference Location is equal to the Energy Reference Price. The Energy Congestion Price component of the LMP at any location can be either negative or positive, meaning the LMP at a specific location can be lower or higher than the LMP at the Reference Location.

[1] LMP = Energy Reference Price + Energy Congestion Price + Energy Loss Price
[2] Ontario's current Reference Location is the Richview Transformer Station in Toronto (Etobicoke).

To establish the Energy Reference Price, a single Reference Location must be used. While a change in reference price would mean that the breakdown of the LMP components at each location could change, the overall LMP at each location would remain the same. Since the LMPs do not change, neither do payments to generators or costs to load.

For example

In the example, Location A is the Reference Location and has an LMP of $10. The Energy Reference Price is $10.

The LMP at Location B is calculated by adding the Loss Price (-$2) and Congestion Price (-$1) to the Reference Price for an LMP value of $7.

Example - Energy Reference Price Example

If Location D was the Reference Location, the Reference Price would be $13. The LMP at Location B would be calculated by adding the Loss Price of (-$2) and Congestion Price of Location B which would now be (-$4) to get the same LMP value of $7.

More information

For more information about other LMP components, please see the Market Renewal Fact Sheets on Energy Price – Congestion Component (#1) and Energy Price – Loss Component (#3).