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|  | NEPOOL Members |
|  | ISO New England |
|  | July 20, 2017 |
|  | 2017 - 2018 Winter Program Payment Rate |

Appendix K of Section III of the ISO New England Transmission, Markets and Services Tariff establishes a winter reliability program for each of the 2015-16, 2016-17 and 2017-18 winter periods. Section K.1(g) of the Tariff requires the ISO to determine a “Set Rate” for each of the winter periods. This calculation, to be established by July 15 for the upcoming winter, is initially set forth in $/bbl and represents partial compensation for the per-barrel carrying costs of stored fuel oil. Through conversion based on a fuel oil heat content of 6.0 MMBTU per barrel, the Set Rate is then translated into an equivalent rate for the other, non-oil services that are compensated through Appendix K.

In sum, the base Set Rate for the Winter Program 2017-2018 will be **$**10.33/bbl. The converted Set Rates for LNG is $1.72/MMBtu and the converted Set Rate for demand response is $1,033/MW-month.

**Determination of Set Rate**

The base Set Rate ($/bbl) is calculated as follows:

HC: Holding costs ($/bbl)

HC = (CC + OC + LC)

* CC: Carrying costs ($/bbl)

CC = Pf x rrf

*Where:*   
Pf is $63.13, and represents next October’s fuel price (Diesel, DFO) (Source: October 2017 NYMEX Futures, July 14, 2017 closing price)   
  
rrf is the risk-free return set at 0.73%

* OC: Put option premium, October 12-month option ($/bbl)

OC = $5.28/bbl, Put option premium calculated using K, S, σ

*Where:*   
K is Strike Price = PfS is $65.33, and represents price at expiry (*i.e.,* price 12-months from Pf) (Source: October 2018 NYMEX Futures, July 14, 2017 closing price)   
  
σ is 24.983%, and represents the implied volatility on fuel put options on futures contracts (Source: Bloomberg, July 14, 2017)

* LC: Liquidity risk cost ($/bbl)

LC = Pf x R

*Where:*  
R is 7.27%, and represents the implied risk premium on the after-tax weighted average cost of capital, ATWACC (*i.e.,*WACC – rrf) (Source: ISO New England Sloped Demand Curve filing)

**Conversions of Set Rate**

LNG Rate

The Set Rate is converted into MMBtu for LNG. This conversion uses New England’s average heat content for oil.

LNG Rate = R0 x (1 / Havg) ($/MMBtu)

*Where:*R0: Set Rate ($/bbl)   
Havg: MW-Weighted Average heat content of fuel oil = 6.0 MMBtu/bbl

Demand Response Monthly Payment Rate

The Set Rate is converted into a Demand Response Monthly Payment Rate, such that DR assets are compensated monthly for availability per MW capacity. The Set Rate is converted into dollars per MWh terms using a New England average heat content for oil and a generic heat rate. Each asset can be dispatched for a maximum of 180 hours, so the monthly rate compensates for 180 hours of availability per MW, spread out over 3 monthly payments.

DR Monthly Rate = R0 x [(1/Havg) x HRg x 100MW x 180 hours] / 100,000 kW x 3 months

*Where:*R0: Set Rate ($/bbl)   
Havg: MW-Weighted Average heat content of fuel oil = 6.0 MMBtu/bbl  
HRg: Generic heat rate = 10 MMBtu/MWh

This calculation simplifies to the following:

DR Monthly Rate = R0 x 100 bbl/MW-month ($/MW-month)