off-peak periods. EV_{SPeak}, EV_{Soff}, EV_{Wpeak} and EV_{Woff} represent the corresponding AESC DRIPE energy values per MWh.

Finally since the AESC DRIPE energy and capacity numbers are determined to be effective as of 2014, they will be escalated one year using the present study's escalation rate so as to be effective in 2015.

The DRIPE calculations will take into account Maine's hedged positions by assuming that Power Purchase Agreements and Long-Term Contracts for annual energy purchases will be about 8.5% of annual sales in the ISO-NE portion of Maine (CMP and EME-BHD).

Underlying assumptions

The market price response calculation methodology makes two key assumptions.

- Recent historical data have been used to build the LMP and capacity vs load models. This assumes that the relationships are not evolving so rapidly as to invalidate the assumption.
- The major portion of energy clearing price transactions occurs on the day-ahead market. The present methodology assumes that day-ahead exchange-wide solar production forecasts are accurate enough to capture day-ahead value without the risk of creating large spikes on the balancing real time market. Given the state of the art in current regional solar forecasting, this assumption appears reasonable.

Avoided Fuel Price Uncertainty

This value accounts for the fuel price volatility of natural gas generation that is not present for solar generation. To put these two generation alternatives on the same footing, we calculate the cost that would be incurred to remove the price uncertainty for the amount of energy associated with solar generation.

Note that price volatility is also mitigated by other sources (wind, nuclear, and hydro). Therefore, the methodology is designed to quantify the hedge associated only with the gas that is displaced by PV.

To eliminate the fuel price uncertainty in year *i*, one could enter into a futures contract for natural gas delivery in year *i*, and invest sufficient funds today in risk-free securities that mature in year *i*. The steps required are therefore as follows:

- Obtain the natural gas futures price for year *i*.
- Calculate the amount of avoided fuel based on an assumed heat rate and on the amount of anticipated plant degradation in year *i*, and calculate this future cost.
- Obtain the risk-free interest rate corresponding to maturation in year *i*.
- Discount the expense to obtain the present value using the risk-free discount rate.
- Subtract from this result the energy value, which is obtained by discounting the future expense at the utility discount rate. Note that this may not be equal to the energy value obtained through the use of electricity market values.
- The remaining value is the avoided risk.
- Levelize the avoided risk value using the risk-free discount rate.

- Repeat for all remaining years in the study period and sum.

There are a few practical difficulties with this method, requiring some simplifying assumptions. First, it is difficult to obtain futures prices for contracts as long as the assumed PV life. The most readily available public data is the NYMEX market prices, but these are available only for 12 years. As a simplification, the methodology assumes NYMEX prices for the first 12 years, and then escalated values as described in the Avoided Energy Cost section.

Second, while U.S. government securities provide a public source of effectively risk-free returns, these securities are only available for selected terms. For example, Treasury notes are available with maturities of 2, 3, 5, 7, and 10 years, but when it is necessary to have a yield corresponding to 6 years, there is no security available. To overcome this problem, linear interpolation is employed as required.

Finally, the selection of heat rate will be projected based on the declining trend of Locational Marginal Unit (LMU) heat rates as described in the ISO-NE Electric Generator Air Emissions Report.[31]

[31] 2012 ISO New England Electric Generator Air Emissions Report, found at http://www.iso-ne.com/genrtion_resrcs/reports/emission/2012_emissions_report_final_v2.pdf.