

# Using a carbon price to cost-effectively meet clean generation goals in New England - Update

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## Carbon component to LMP enhances visibility of carbon price and provides settlement value for forward emission products

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- Under the carbon price proposal, every energy bid will have a carbon component determined by the carbon price (which is fixed for all resources) and the unique carbon emission rate of the resource in question
- Because the carbon component will be explicit in each bid, in determining the Locational Marginal Price of energy for each node on the system, the ISO can add a fourth component to the LMP
  - Currently,  $LMP = \text{Energy Component} + \text{Congestion Component} + \text{Loss Component}$
  - Which becomes,  $LMP = \text{Energy Component} + \text{Congestion Component} + \text{Loss Component} + \text{Carbon Component}$
  - Where the carbon component is the marginal cost of carbon emissions at the particular locational node in question
- Explicitly breaking out a carbon component to LMP is a useful enhancement because:
  - It makes visible the locational and time-varying cost of carbon emissions and thus provides a more precise signal for carbon reducing investments and behaviors
  - It can be used as a separate settlement price point for forward emission reduction products such as the Forward Clean Energy Market, should one be adopted

## Design principals for the Forward Clean Energy Market

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- A price on carbon is compatible with the Forward Clean Energy Market proposal
- There are a number of design principles that would enhance the efficiency and workability of the FCEM concept, particularly if combined with a price on carbon
- Specifically, the FCEM should:
  - Be structured as a single price clearing auction for a single ISO-wide product
  - Procure a clean-energy attribute product (similar to a REC) rather than an all-in energy product
    - Compensation for energy (including any carbon component in the energy price) should flow through the energy market as it does now and should not be part of the FCEM product
    - The attribute product should be denominated in MWhs, and payment should only be made if the resource actually produces
  - Not be time or location-differentiated – This is unnecessary if the FCEM product is an attribute product because the energy market will provide the necessary price signals to time/location differentiate resources
  - Be open to all new and existing zero-carbon resources, including nuclear, and should not discriminate between new and existing resources
  - Procure three-years forward for a one-year term, possibly with a multi-year price lock for new build resources, similar to the FCM
  - Procure a quantity of existing and new zero-carbon resources that is consistent with state carbon emission reduction goals