FirstLight Power Resources Responses to:
FOLLOW-UP QUESTIONS ON AUGUST 11 PRESENTATIONS
(RECEIVED AS OF AUGUST 23, 2016)

Questions on Forward Clean Energy Market (FCEM) Construct

1) How would FCEM impact existing REC market? Would REC markets be needed under this concept? If not, does that imply that REC trading and long-term transactions are no longer needed? Please explain.

Ans. The FirstLight FCEM proposal does not require any changes to the existing REC market. The REC market as currently administered could continue to exist to support compliance with states' RPS requirements.

2) Bilateral markets complement centralized markets. Long-term PPAs as well as trading of products are used to transfer risk from those that are risk averse to those that have an appetite to manage risk. How would your proposal ensure that these activities still continue and complement the FCEM?

Ans. FCEM does not preclude bilateral market activity of any term and would likely encourage bilateral trades of FCEM obligations.

3) Can you please explain how an LSE would be able to hedge in this market?

Ans. Much like other existing competitive wholesale markets in New England, LSEs could either seek to hedge by virtue of bundled products (e.g., buyer transfers all or part of its load responsibility in ISO settlement to another party) or specific hedges against FCEM charges (possibly a transfer of responsibility of the LSEs FCEM obligation, much like the Capacity Load Obligation mechanism in the Forward Capacity Market).

- If this is an energy payment, is the difference paid out as up-lift?

Ans. Under the FirstLight FCEM proposal, the FCEM settlement is a payment for the clean energy carbon reduction services and is independent of, and separate, from the ISO New England financial settlement of day ahead and real time energy markets. A megawatt-hour delivered under an FCEM obligation would be paid the FCEM clearing price and the applicable day-ahead or real-time energy clearing price.

- What if a generator over or under performs after clearing in the Forward Clean Energy Market?

Ans. An FCEM seller anticipating under-performance from its own resources could contract with over-performing clean energy resources (including those that did not clear in the FCEM) to satisfy FCEM obligations. There would be demand for over-performance of clean energy resources depending on the degree to which it is needed to meet FCEM megawatt-hour delivery requirements.

- How will this provide accurate market signals that LSEs can use to hedge their load?

Ans. The FCEM megawatt-hour obligations and clearing price will be known after the FCEM auction occurs. This would be the maximum aggregate charges to all LSEs that are subject to FCEM charges. Based on forecasted levels of the allocator metric (e.g., load in states with carbon reduction mandates driving FCEM requirements), the LSEs could estimate their future charges and hedge accordingly. It may even be possible to set up a settlement structure similar to Capacity Load Obligations mechanism under the Forward Capacity Market (i.e., permit LSE transfer of its FCEM charge obligations without transferring other load obligations).

4) If the FCEM would create an annual product, would you contemplate having some set of common operational parameters around the delivery of the procured MWhs that would be settled in the auction, such that the product being sold in the market is consistent?

Ans. Yes. Under the FirstLight proposal, all sellers of off-peak, midday peak and late-day peak clean energy would be obligated to deliver the obligated level of clean megawatt-hours in the respective off-peak, midday peak or late-day peak period of each day, else be subject to non-performance charges.

5) If one FCEM auction is held and all are paid the clearing price, won't states with low need for clean energy be paying much more than they should? Example: If state A needs 10 units of clean power and B needs 100. The clearing price of the auction will be based on 110 units. This price will be drastically higher than the clearing price for 10 units meaning A will be paying a much higher price than they should, based on their needs. Can you please react/explain?

Ans. The competitive market price for clean energy will reflect the total supply and total demand in the relevant trading area (e.g., New England) whether the purchases are made through an FCEM auction or separate state procurements. Holding separate state procurements that segment regional demand may work more like as-bid markets where sellers must estimate the lost opportunity of selling in the first of such procurements versus latter auctions. Separating procurements into several smaller (state) auctions does not change the supply and demand conditions in the market. A regional market, like FCEM, provides for more efficient procurement as sellers compete to receive the same clearing price and need not estimate it.

6) If the resources clearing the clean energy auction are not obligated to enter the FCM, will this not result in double payment? Wouldn't ratepayers have to pay someone else to provide the capacity that the clean energy resources who don't participate could have provided at a potentially higher price?

Ans. While there would be a strong incentive for resources to participate in the FCM, participation in the FCEM would be independent of the FCM much like the Forward Reserve Market is today. FCEM would provide an additional revenue component for the carbon reduction contributions of these resources and those revenues would be considered in-market (i.e., competitive) revenue streams for purposes of supporting new resource offer prices into the FCM.

7) What would be purchased in FCEM?

a. Does the FCEM only procure 100% zero-carbon MWs? For example, if there is a technology that can deliver, say MWhs with 10% of the carbon intensity of gas, does it qualify? Or does it have to be truly 0-carbon?

Ans. The FirstLight FCEM proposal defines clean energy as generation from emission-free resources, including release of stored clean energy from pumped storage hydro and other electric storage resources.

b. How would biomass be treated as far as 0-carbon characteristics? Just the burning of the fuel, or life-cycle?

Ans. This would need to be determined by the New England states. If considered emission-free by New England states based on life-cycle considerations, it could be included in FCEM.

c. How would municipal solid waste be treated? Is carbon avoidance a consideration?

Ans. Same as above.

8) What could the role of Energy Efficiency (EE) be in a Forward Clean Energy Market?

Ans. Energy efficiency (EE) reduces the electric demand on the system and reduces the amount of clean energy needed to achieve targeted carbon reductions. These load reductions would be factored into the FCEM clean energy requirements needed to achieve the targeted carbon reduction. In order to consider EE on the supply side of FCEM, it would require the electric demand used for purposes of developing FCEM requirements to be increased to remove its load reduction impacts.

9) The presentations from August 11th seemed to have focused largely on the world of utility-scale generators. How might the FCEM concept being discussed in IMAPP include customer-sited generation? How might customer-generation be spurred on if they were able to participate in an organized market? Would this be an effective way to reduce escalating transmission costs by avoiding the need to move large amounts of clean energy across long distances to population centers?

Ans. Nothing in the FCEM design itself would preclude wholesale market participation by generators connected at distribution-level (including at the customer site); however, additional metering may be required and the ISO may need visibility into the anticipated schedule of the clean energy resource and timing of actual deliveries in order to account for that in its day-ahead energy market unit commitment step. There may be other considerations that ISO New England would need to identify.

General Questions

1) What public policy is it that we are trying to integrate in this process? The terms “no carbon” and “renewable” were used interchangeably at the August 11 IMAPP meeting.

Not clear if the goal is to change the markets to better accommodate the various public policies on increasing the use of renewable generation or reducing CO_2 emissions or both? This needs to be defined upfront as some of the proposals addressed only reducing CO_2 emissions and some addressed obtaining RPS and CO_2 reduction goals.

Ans. FirstLight's FCEM is designed to efficiently achieve two goals: (i) reducing carbon emissions involved in meeting wholesale electricity demand, and (ii) accomplishing that through a competitive wholesale market. Focus on the desired end point, lower carbon emissions, permits all technologies and vintages to compete and facilitates efficient competition. Focuses on subsets of the universe of clean energy resources decreases competition and may lead to higher costs.

2) What are the implications of the Massachusetts' clean energy bill, *An Act to Promote Energy Diversity* (**H4568**), on the efforts underway in the NEPOOL IMAPP Process? How would the various market-based concepts/design proposals interact or be impacted by the Massachusetts' legislation?

Ans. The first question is better answered by representatives of the state of Massachusetts. However, the emission-free resources that would be eligible for procurement under the recently passed legislation would be eligible to sell into the proposed FCEM.