



FCM-C and Energy Market Design: Further Adjustments

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Three Major Concerns

- CLF has been working to address three major concerns we have heard from state representatives about our proposal:
 - States want to ensure that they are not forced to pay for other states' different approaches to carbon.
 - States want to avoid the risk of incurring costs in the markets without receiving corresponding benefits (i.e. paying more without attracting/retaining incremental clean energy investments).
 - States want to avoid providing a windfall to existing generation.
- We have also heard & have been working to address concerns from other stakeholders that are sometimes the same as the states and sometimes different.
 - States' ability to specify resource types.
 - The system's needs for flexibility & ancillary services.

Adjustments To Address All Concerns

- CLF's consultants have developed possible ways to address all of these concerns.
- However, CLF acknowledges:
 - Some of these “fixes” are in tension with other concerns. (There may be trade-offs.)
 - All of these fixes have advantages and disadvantages. (NEPOOL may need to make some hard choices.)
 - CLF remains flexible on developing these fixes (and believes that many other NEPOOL members are flexible as well).

Possible Adjustment for Concerns 1 & 2

(Not Forcing States To Pay For Others' Different Carbon Approaches, & Obtaining Incremental Clean Energy Benefits for Costs Incurred)

CO2 price in energy market can be set low – just large enough each year to undo the price suppression effect of the renewables on the system during the same year. No incremental costs would be incurred.

- Advantages
 - No Cross-Subsidization
 - State A never pays for the carbon mandate of State B.
 - State B does not pay for the price-suppression benefit to State A.
 - Retains a modest CO2 price in energy market affording flexibility to phase existing resources into FCM-C (discussed further below).
 - More likely to retain existing clean energy resources that may otherwise retire (which would undo the price suppression benefits and clean energy benefits).
 - Achieve some of the economic efficiency benefits of CO2 pricing as the “first best” solution (although full benefits not achieved at prices below the social cost of carbon).

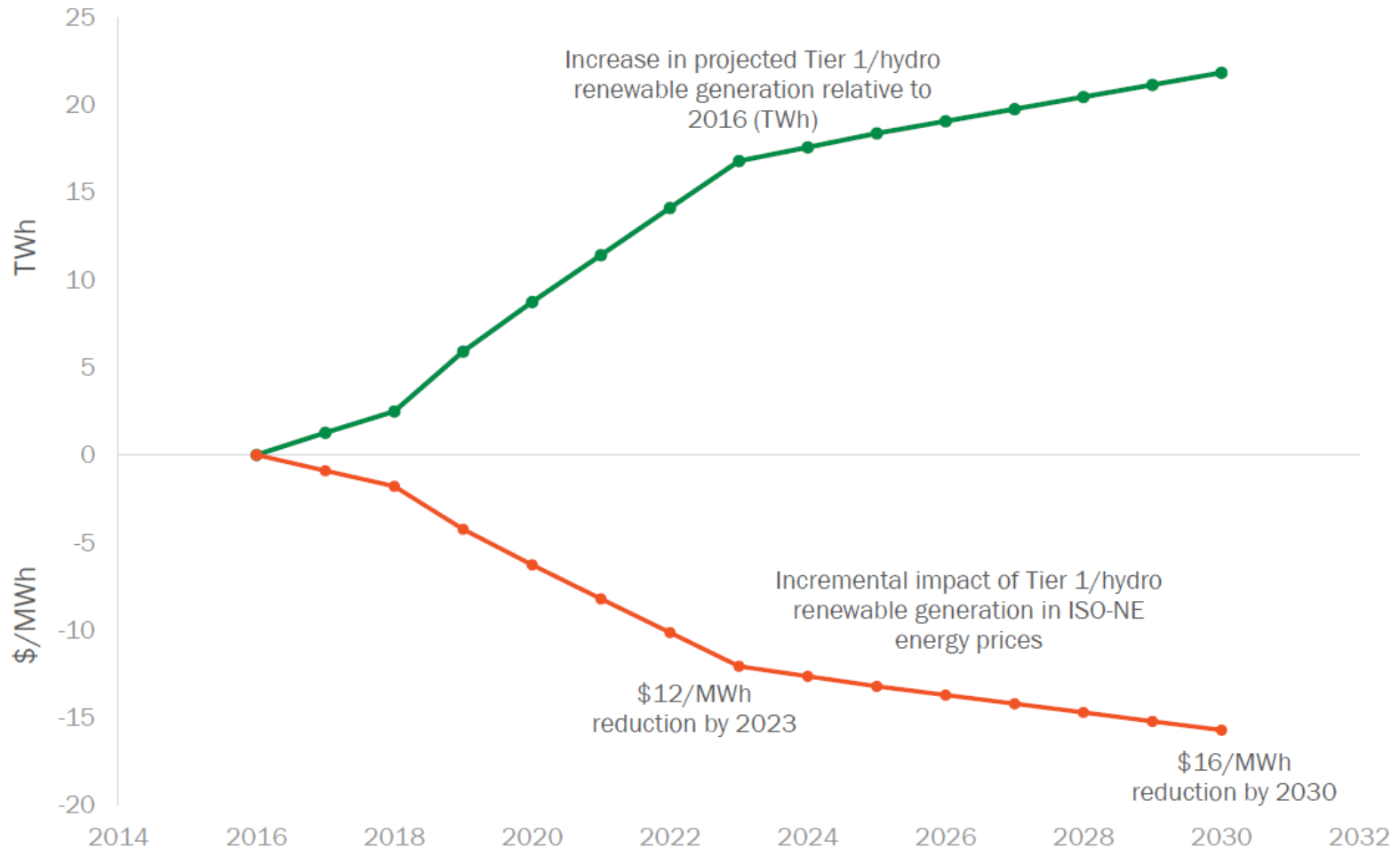
Possible Adjustment for Concerns 1 & 2 (cont.)

(Not Forcing States To Pay For Others' Different Carbon Approaches, & Obtaining Incremental Clean Energy Benefits for Costs Incurred)

CO2 price in energy market can be set low – just large enough each year to undo the price suppression effect of the renewables on the system during the same year. No incremental costs would be incurred.

- Disadvantages
 - The lower the carbon adder, the smaller its beneficial effects in the market will be.
 - Uncertainty and administrative judgment involved in calculating the CO2 price.

Increased Renewable Generation Will Have a Price Suppression Effect In the Energy Market



Possible Adjustment for Concern 3

(Avoiding Windfall For Incumbents)

Existing resources can be phased into FCM-C over time.

- Advantages
 - Avoids windfall as cost to maintain these resources is increasing over time.
 - If minimal CO2 price is retained in energy market, existing non-emitting resources may earn sufficient revenue from the carbon adder to carry them through the phase-in.
- Disadvantages
 - Energy revenues may not be sufficient to prevent premature retirement of existing non-emitting resources.
 - May not be sufficient to defuse political pressure for out-of-market solution for existing nuclear.

Potential Eligibility Phase-In

There is a variety of ways to structure a phase-in for existing resource eligibility. Some examples:

1) Phase-In Based on Age of Resource (Oldest First)

- Helps address the concern that ineligibility of incumbent, zero-emitting resources might prompt premature retirements.

2) Fleet-Wide Phase-In Term

- May provide administrative simplicity.

3) Eligibility Triggered By An Existing Resource's Economics

- An existing resource is FCM-C eligible only upon a showing of significant going-forward costs that would otherwise induce retirement.

Potential Compensation Structures for Eligible Existing Resources

There are also a variety of ways to structure appropriate compensation for existing resources that become eligible for FCM-C phase-in. For example:

- 1) Pay a set reference price to fleet-wide eligible existing resources. Reference price set to reflect fleet-wide economics.
- 2) Pay the difference between LMP and a reference price based on zero emission unit most likely to exit the market.
- 3) Set payment based on existing resource's economics. Easiest to implement when eligibility is tied to individual unit economics.

In all instances, compensation is paid for the unit's agreement to remain in the market (not retire & not export).

Adjustment for States to Specify Resource Types

- Raised by multiple stakeholders.
- Allows ISO-run markets to help states meet RPS goals.
- CLF agrees that the FCM-C (forward component of CLF proposal) should permit a state to specify technology; but
- That state should have to pay for said technology.

Adjustment for Flexibility Needs and Ancillary Services

- CLF deliberately omitted ancillary services from its original proposal.
 - We have been keeping the focus on the core issues of the IMAPP question.
 - Also out of a concern for simplicity.
- Many stakeholders have asked us about this omission.
 - CLF is open to having IMAPP address ancillary services, if it can be done in a timely fashion.
 - At the same time, we believe that flexibility needs can be & are likely to be addressed in other forums as the underlying reliability needs arise.