Update on CARB Consideration of GHG Accounting in EIM

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Recap of the Problem

- EIM treatment of GHG costs
  - Carbon in energy bids of all California resources
  - Non-California resources dispatched without carbon costs if assigned externally
    - GHG adder if willing to serve CAISO load
  - GHG Emissions obligation based on algorithm's deemed delivery of resource output to CAISO load

- EIM optimizes for least-cost
  - May assign zero emission non-California generation to CAISO load
  - Can dispatch higher emitting resources to serve external load ('secondary dispatch' or 'backfill emissions')
  - EIM does not account for these residual emissions

CAISO presentation from August 4th Regional Issues Forum: http://www.caiso.com/Documents/Presentation-CarbonAttribution-EIMDiscussion_EIMRegionalIssuesForum-Aug4_2016.pdf

CARB’s Perspective on GHG Accounting for Electricity Imports

- AB32 requires CARB to
  - Account for electricity generated and consumed in state
  - Minimize GHG leakage
- Tension between goal of accuracy & concern about resource shuffling & emissions leakage
  - Ability to specify imports provides opportunity to respond to carbon price signal, but also provides incentives and opportunity for shuffling of clean power
  - Application of uniform emission rate to all electricity imports would eliminate shuffling, but also eliminate carbon price signal for electricity imports
- Cap and trade program has already reduced emission intensity of electricity imported to California
  - Makes California emissions cap easier to achieve

GHG Accounting Options

- CARB's 45 day rule-making proposal
  - Calculate residual emissions and assign additional emission obligation to California load via cap and trade program
  - Exclude EIM resources from resource-shuffling exemption
  - ➢ Still formally on the table, but opposed by stakeholders

- Inter-temporal netting (CAISO)
  - Net emission reduction benefits during intervals that California exports against emission increases during import intervals
  - Do nothing if emission reductions greater than emissions increases due to EIM
  - Retire allowances if emission increases exceed external reductions
  - ➢ Unacceptable to CARB

- Hurdle rate (CAISO)
  - Uniform GHG hurdle based on residual emissions applied to all non-California resources, in addition to resource-specific GHG adder
  - Hurdle costs recovered from load; revenue used to purchase and retire allowances
  - ➢ Most stakeholders oppose as distortionary and discriminatory to non-California resources

Presentation from October 21st workshop at:
https://www.arb.ca.gov/cc/capandtrade/meetings/20161021/oct-21-workshop-slides.pdf

GHG Accounting Options

- Uniform, dynamic emission rate (CARB workshop proposal)
  - Same emission rate applied for all electricity assigned to California load
    - No resource-specific emission rates for EIM resources, with exception of contracted RPS power
  - System average emission rate calculated at 5 minute intervals
  - Hurdle costs recovered from load; revenue used to purchase and retire allowances?
  - ➢ Stakeholder concerns about distortionary impacts and elimination of carbon price signal

- Incremental Dispatch above economic base (CAISO straw proposal)
  - Maintain resource-specific attribution of EIM transfers to CAISO and associated emissions
  - Only incremental dispatch over economic base eligible to be deemed delivered for California load
  - Not implementable in short-term
  - ➢ Preferred approach, but many questions about assumptions for economic base case

Other Considerations

- Does quantity of residual emissions accounted justify added complexity in market design?
- If incremental dispatch solution pursued, what will CARB do to address EIM GHG accounting in the short-term?
- Consistency in GHG accounting rules for electricity imports to California across markets
  - Inconsistent rules affect incentives for participation in each market
  - Incentives/opportunities for zero emission imports and ‘secondary dispatch’ in all markets, not just EIM
- Process for CARB/CAISO collaboration
  - Solution must be acceptable to both, yet separate processes

Next Steps

- CAISO Stakeholder meeting on Straw Proposal on December 1st
- CARB amended regulation (15 day proposal) sometime this fall