Briefing on regional integration California greenhouse gas compliance

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Market Surveillance Committee Meeting

General Session

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Agenda

- Leakage

- Tracking transfers within a multi-state balancing authority area

- Treatment of intertie scheduling points at the new multi-state balancing authority area boundary

Energy imbalance market design recognizes only the ISO is subject to the California cap-and-trade program

- Energy generated and consumed outside of the ISO does not have a GHG compliance cost

- Energy generated outside of the ISO supporting an EIM transfer into the ISO has a GHG compliance cost
  - On an hourly basis, SC submits single MW quantity and price by resource that can receive GHG award
    - GHG MW quantity and price is independent of bid range
  - SC can opt <u>not</u> to be delivered to CA by bidding 0MW
    - If SC does not submit a GHG MW bid, the default will be zero
  - ISO will calculate a daily maximum bid price allowed

Leakage – Accounting for atmospheric effects of least cost dispatch

- Least cost dispatch can have effect of sending low emitting resources to the ISO, while not accounting for secondary dispatch of other resource to serve external demand.

- Least cost dispatch can result in avoided curtailment of ISO renewables by displacing emitting resource to serve external demand.

Several options have been considered to enable CARB to account for secondary dispatch

1. Calculate emissions of "secondary dispatch" effect outside of the market optimization

2. Modify optimization, but maintain resource specific cost and attribution

3. Modify optimization, create a residual hurdle rate to account for "secondary dispatch" for EIM transfers into the ISO

1. Calculate emissions of "secondary dispatch" effect outside of the market optimization

- What is the "secondary dispatch" effect?
  a. Counterfactual dispatch with a monthly balancing account,
  b. Counterfactual dispatch without transfers, or,
  c. Default rate less the EIM attribution.

- Who has the compliance obligation?
  a. CARB retires instruments,
  b. "EIM purchaser" surrenders instruments to CARB

No money is collected through the ISO market to cover cost of compliance obligations of secondary dispatch.

2. Modify optimization, but attempt to maintain resource specific cost and attribution

- **Several options have been considered**
  - EIM transfer only supported by incremental dispatch to base
  - Minimum GHG bid adder for green resources
    - Two pass run to get system emission rate to set bid floor
  - Two pass run to establish <u>economic dispatch outside the ISO prior</u> to allowing incremental transfers to the ISO
- **Negative side effects to changing the optimization**
  - Impact to external prices as low cost resources skipped to create incremental dispatch to support the ISO
  - Allocation to external resources at a rate different than the resource's emission rates
  - Allocation when EIM transfers occur because load dropped external to the ISO

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3. Create a residual hurdle rate using system emission rate for EIM transfers into the ISO

- Maintain existing resource specific cost, but also include a hurdle rate to reflect secondary dispatch emissions not captured by resource specific awards

- "EIM purchaser" is compensated at hurdle rate to then surrender compliance instruments

- The atmosphere isn't assured that it will feel the lowest carbon dispatch

> Money is collected through the ISO market to cover cost of compliance obligations for secondary dispatch.

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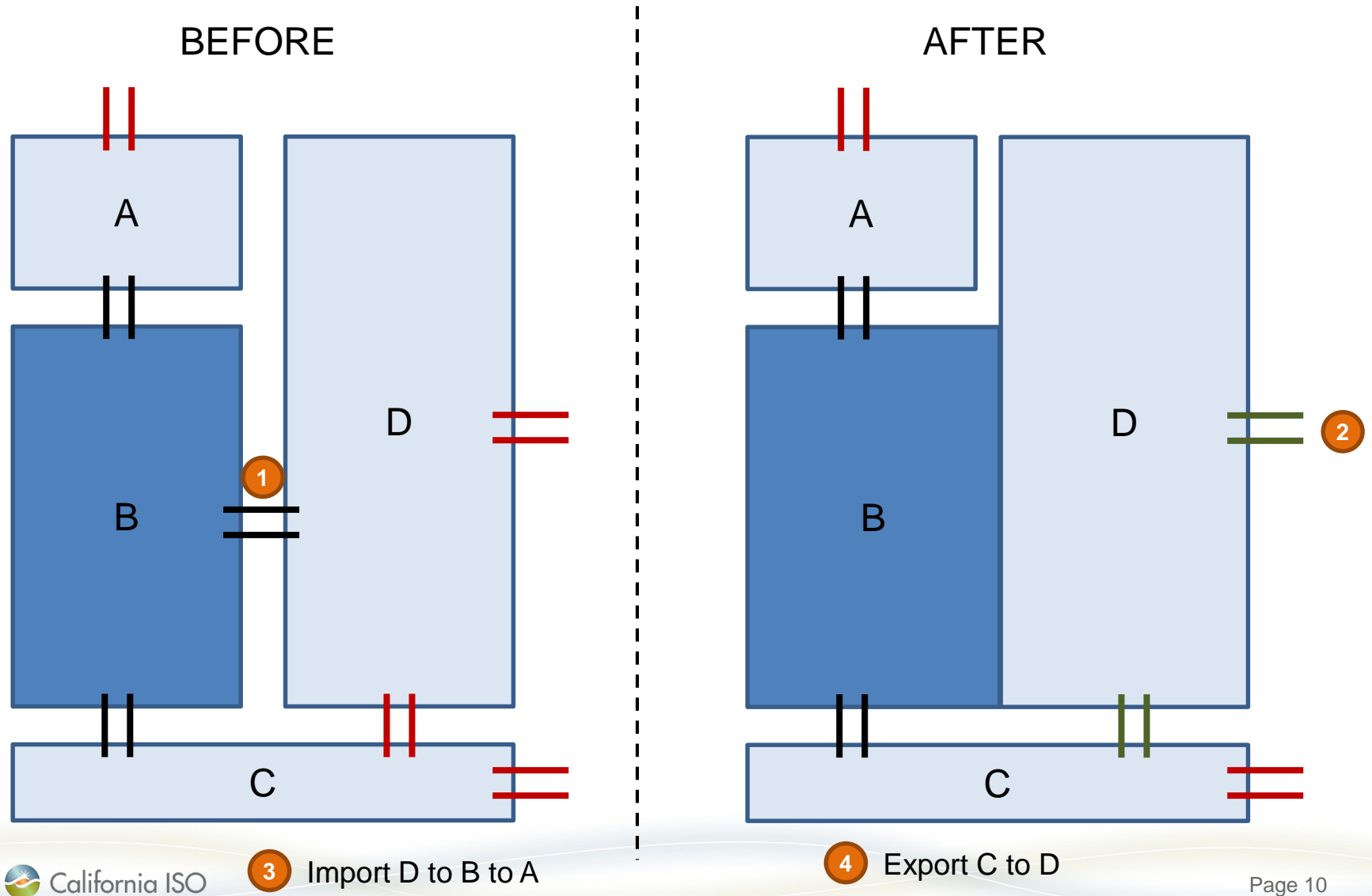# Need consider the following when evaluating the three approaches

Principles

- Participation outside the ISO is voluntary
- GHG costs cannot impact external prices when EIM transfers into the ISO
- Comparable compliance obligation for internal resources and voluntary external resources

Implementation

- Complexity, feasibility and timing
- Consistency between day-ahead and real-time market
- Scalability to multi-state balancing authority area
- Impact on carbon emissions of ISO dispatch

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Multi-state BAA must support both a region with GHG program and one without GHG program

BEFORE

AFTER

A

D

B

C

A

D

B

C

1
2

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3 Import D to B to A

4 Export C to D

Under a multi-state BAA, must be able to differentiate California load from other internal load

- Generation and imports serving California load have California cap-and-trade obligation

- Generation and imports serving non-California load do not have a California cap-and-trade obligation
  - But may have its own state's CPP program

- Generation and load nodes are located in a single state

- Imports and exports may or may not be delivered to/from a specific state

Additional rules to model energy transfers between states in a multi-state BAA to be considered?

- Ability for generation to opt out of supporting load in another state

- Load aggregation points cannot cross state boundaries

- Self-scheduled generation in one state cannot support load in another state

- Convergence bids only have energy bids with GHG cost embedded if placed inside California

- Others?

As balancing authority areas merge, intertie scheduling points change

- Schedules are not tagged within the multi-state balancing authority area

- Imports support load of entire balancing authority area

- Exports use generation of entire balancing authority area

- Need a new mechanism to determine which generation and imports support load and exports
  - May no longer use e-tags for all imports, the market will use attribution approach similar to EIM for imports

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Seeking stakeholder feedback on additional design element of multi-state BAA intertie scheduling points

- Additional bidding rules for imports
  - EIM imports: Voluntary, separate GHG bid from energy bid
  - Self-scheduling must identify sink state?

- Can imports be attributed to a specific state?
  - Do existing ISO interties remain in California cap-and-trade program?

- Can exports be attributed from a specific state?

- Others?

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