Regional Integration California Greenhouse Gas Compliance

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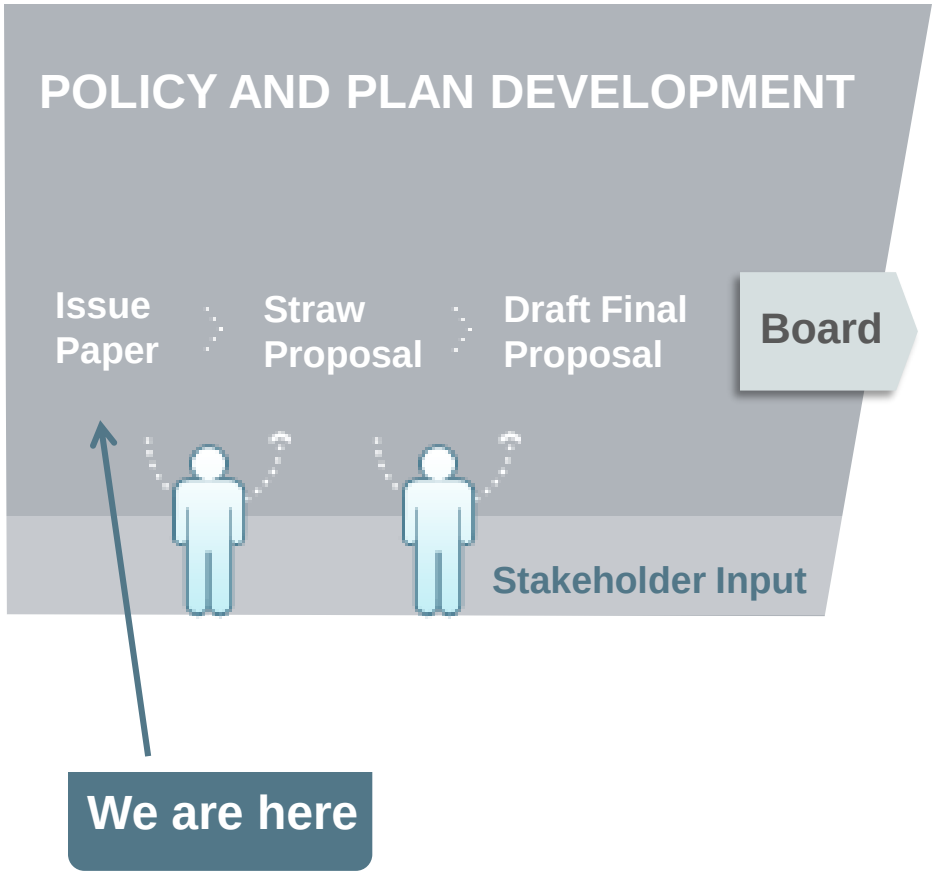
Stakeholder Conference Call
September 6, 2016

Agenda

Time	Topic	Presenter
10:00 – 10:10	Introduction	Tom Cuccia
10:10 – 11:50	Review Issue Paper	Don Tretheway
11:50 – 12:00	Next Steps	Tom Cuccia

ISO Policy Initiative Stakeholder Process



California Cap-and-Trade program places compliance obligation on supply serving California load

- Generators inside California have a Cap-and-Trade obligation
- Importers to California have a Cap-and-Trade obligation
- Compliance costs are reflected in the energy bids of generators and importers
- Compliance costs are covered through energy payments by load and exporters

Applies to both the day-ahead and real-time market

Energy imbalance market design recognizes only ISO is subject to the California Cap-and-Trade program

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

- Energy generated outside of ISO as supporting the EIM transfer into 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 not 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

Addressing CARB's leakage concerns to account for atmospheric effects of EIM's least cost dispatch (1 of 2)

- Least cost dispatch can have effect of sending low emitting resources to 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

Addressing CARB's leakage concerns to account for atmospheric effects of EIM's least cost dispatch (2 of 2)

- ISO is working with CARB through its stakeholder process to address leakage concerns of current EIM design

- Must assess if the EIM solution is scalable to day-ahead for a multi-state balancing authority area

ISO currently assumes that ISO boundary and California boundary are the same

- Generators in ISO has a California Cap-and-Trade obligation
- Importers to ISO have a California Cap-and-Trade obligation
- Compliance costs are reflected in the energy bids of generators and importers
  - EIM participating resources submit a separate GHG bid
- Compliance costs are covered through energy payments by load and exporters in ISO

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

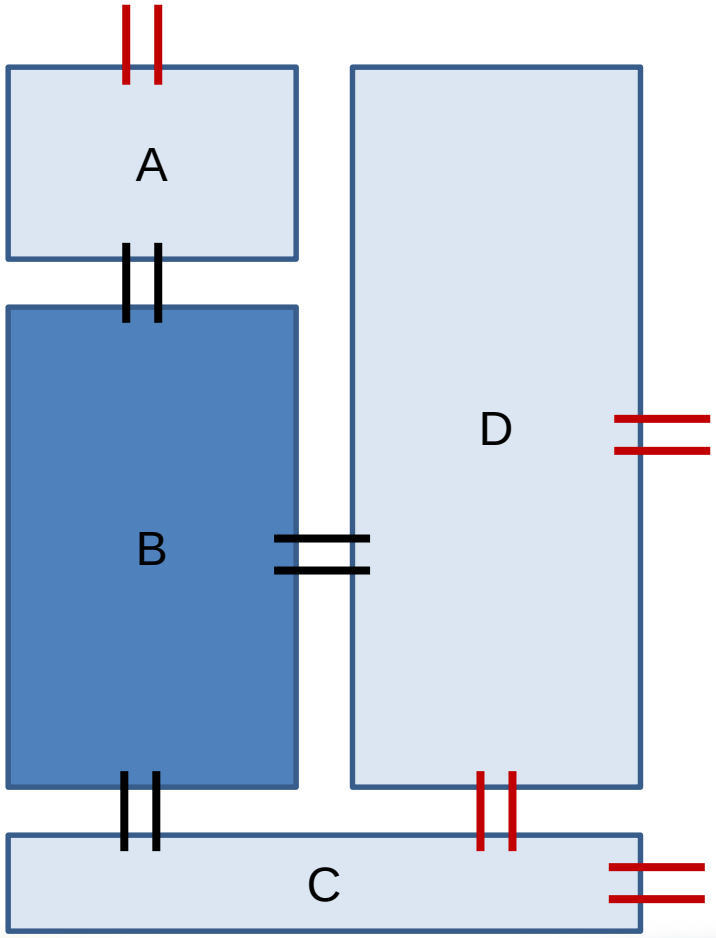
Additional rules to model energy transfers between states in a multi-state BAA to be considered?

- Load aggregation points cannot cross state boundaries
- Self-scheduled generation in one state cannot support load in another state
- Ability for generation to opt out of supporting load in another state
- 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

Assume each box represents a BAA aligned with a state boundary



GHG Program

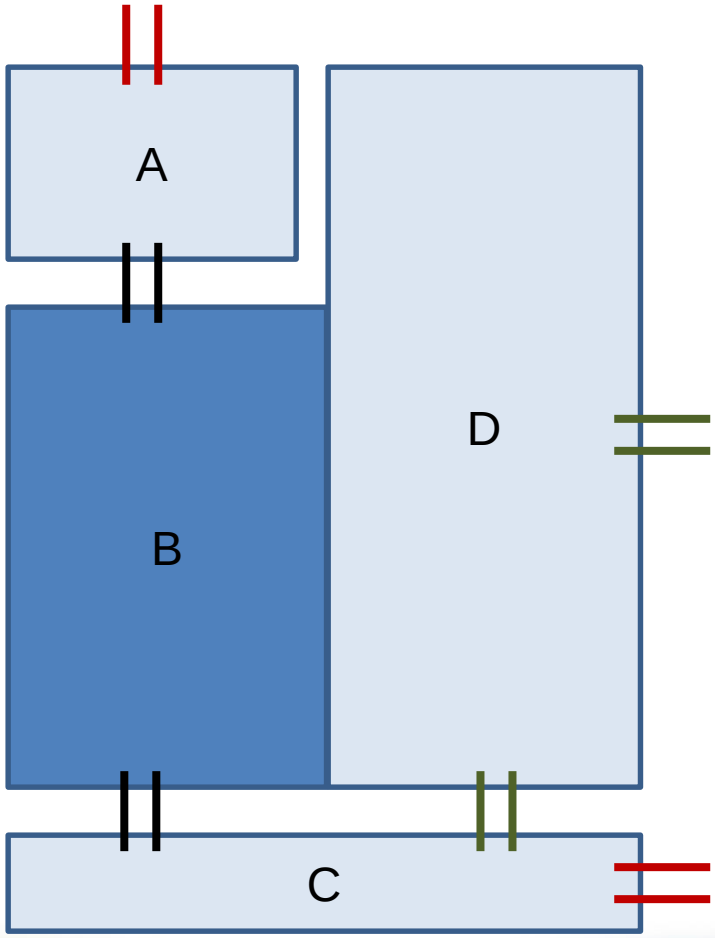
No GHG Program

Interties w/ GHG cost

Interties w/o GHG cost

Alternate GHG program

Combine a BAA with GHG program and BAA without GHG program



GHG Program

No GHG Program

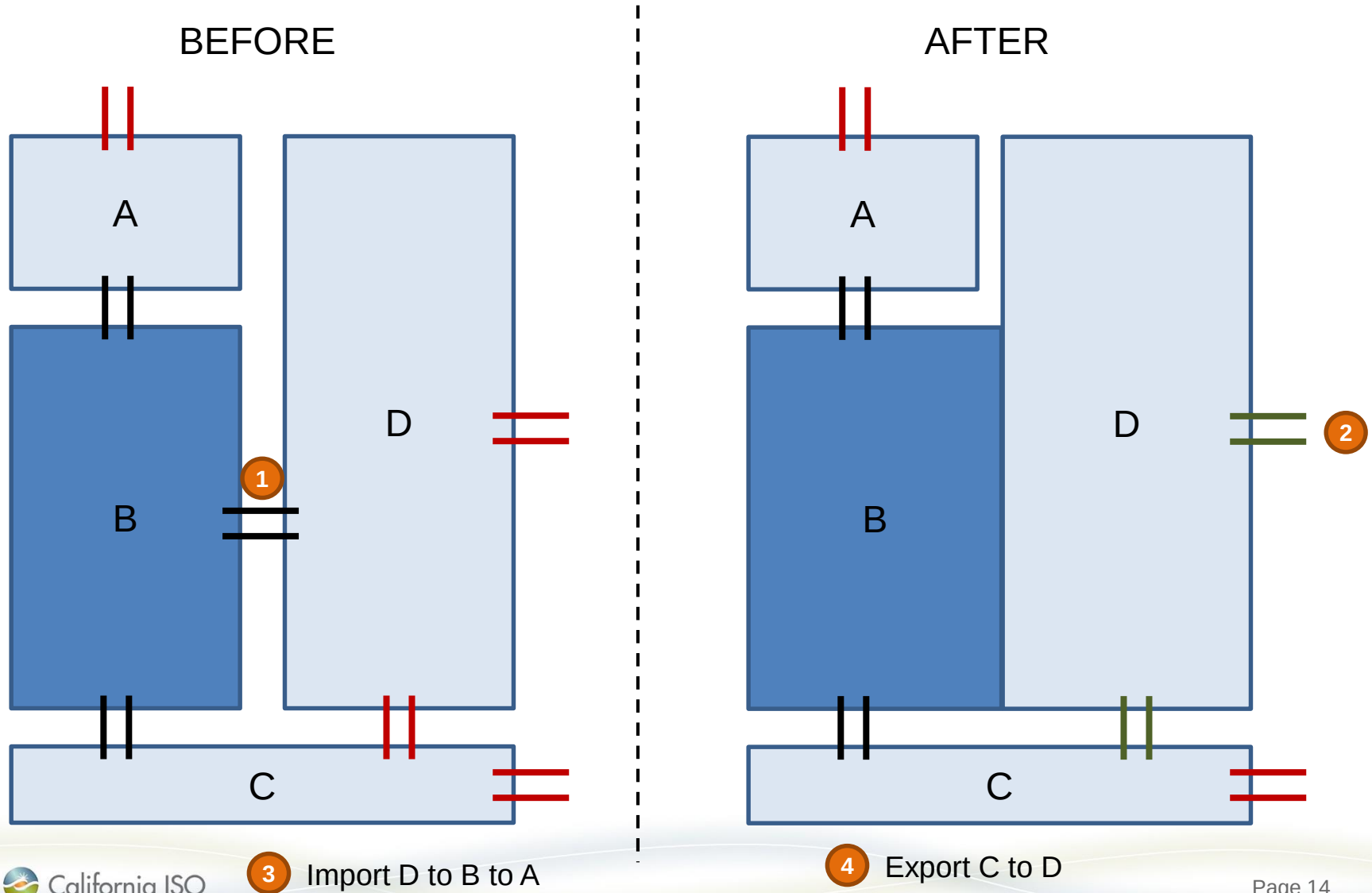
Intertie w/ GHG cost

Intertie w/o GHG cost

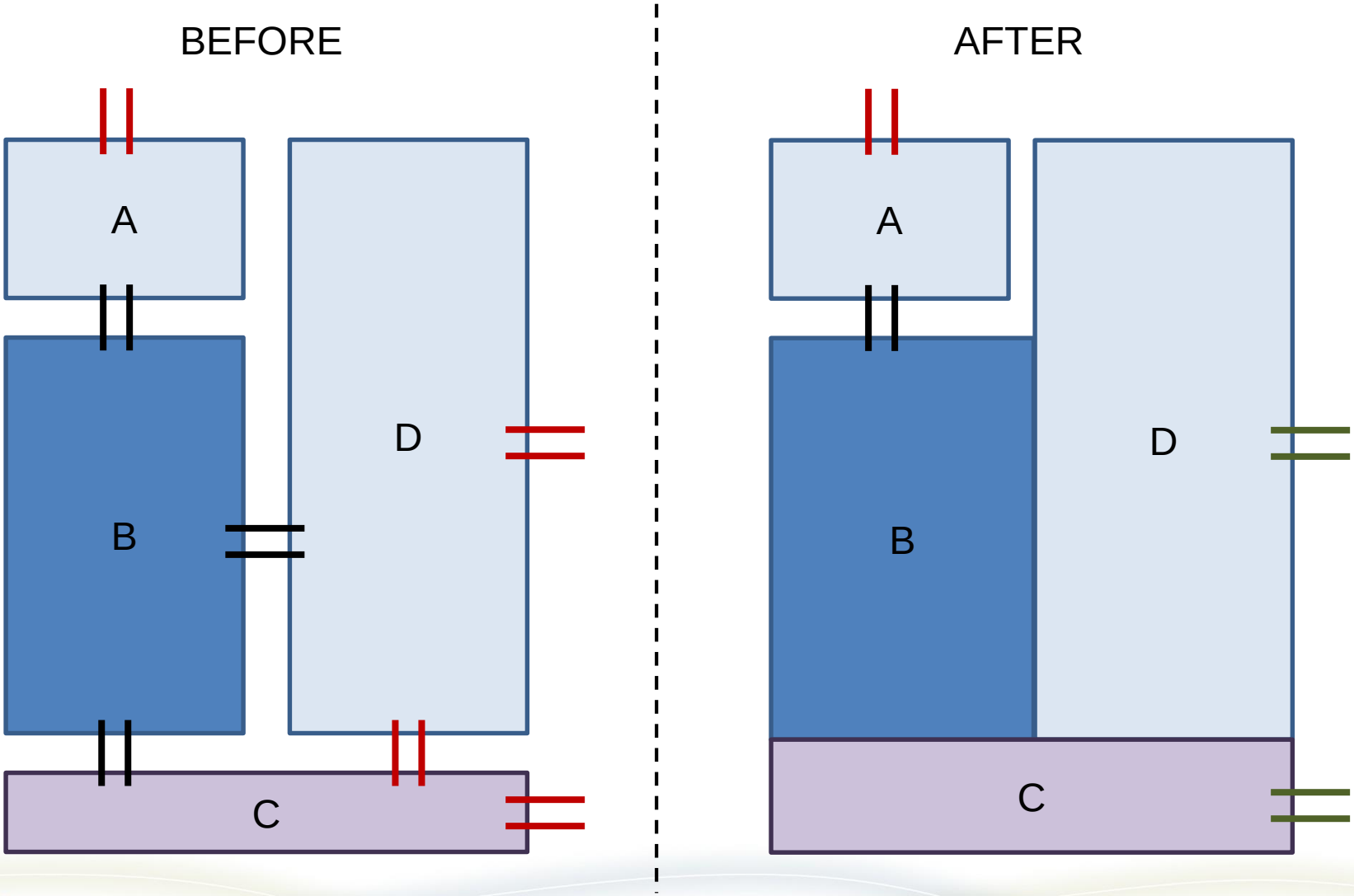
Intertie GHG change

Alternate GHG program

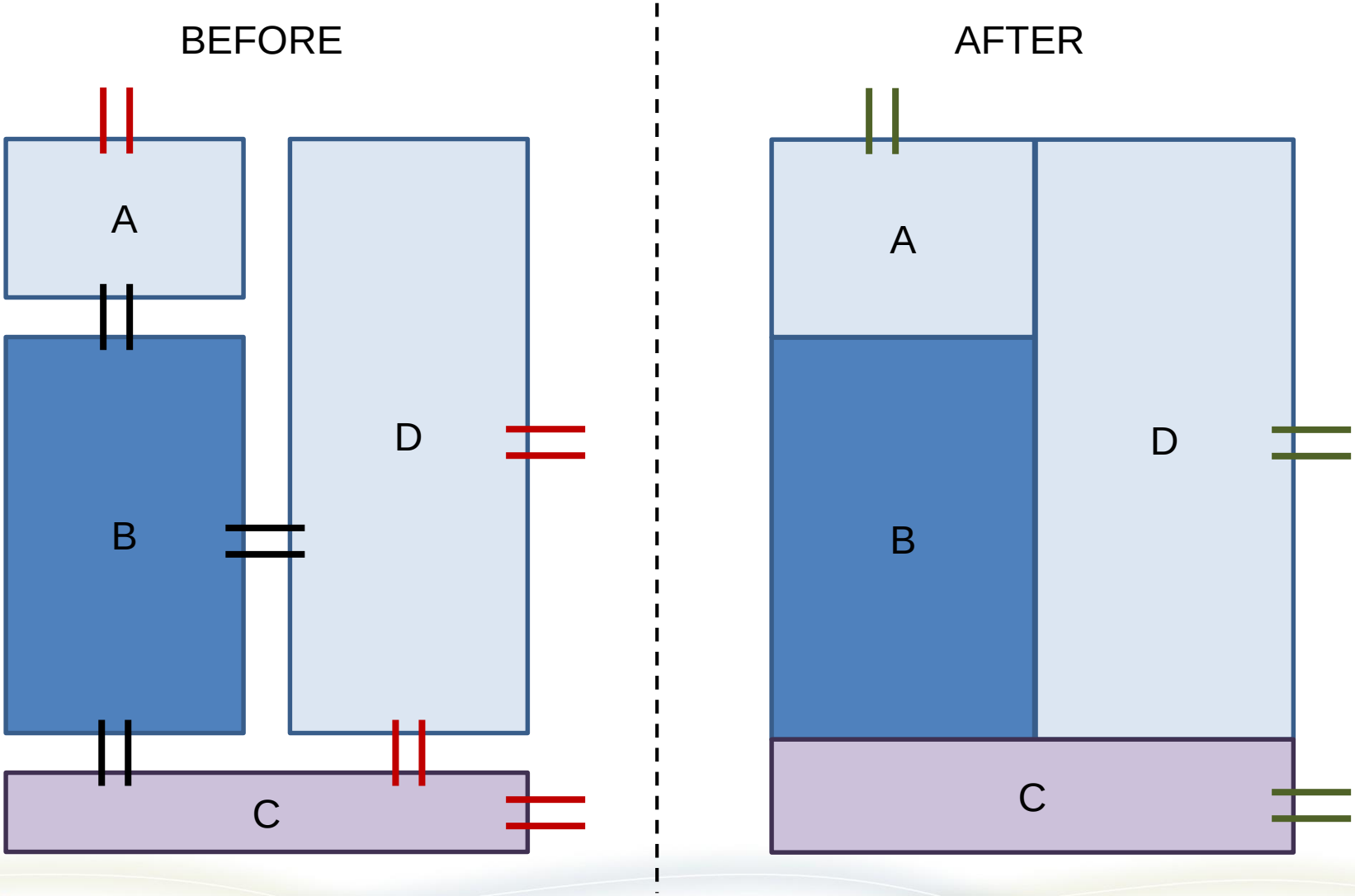
Combined BAA must support both a region with GHG program and one without GHG program



Under Clean Power Plan (CPP), states may adopt different GHG programs



Under CPP states may adopt different GHG programs or join in similar programs



Regional solutions to Clean Power Plan (CPP) can maximize market efficiency and minimize complexity

- State implements economy wide, mass based program
  - Include in zone with CA
- State implements a CPP mass based program
  - Include in zone of mass states
- State implement a CPP rate based program
  - Include in zone of rate states

- Assumes tradable compliance instruments and can be in multiple programs w/o double compliance
- NOTE: each variant may result in new component to LMP

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 to a specific state?
- Others???

Next Steps

Item	Date
Post Issue Paper	August 29, 2016
Stakeholder Conference Call	September 6, 2016
Stakeholder Comments Due	September 20, 2016
Post Straw Proposal	October 6, 2016
Stakeholder Conference Call	October 13, 2016
Stakeholder Comments Due	October 27, 2016
Post Revised Straw Proposal	November 10, 2016
Stakeholder Conference Call	November 17, 2016
Stakeholder Comments Due	December 8, 2016
Post Draft Final Proposal	December 22, 2016
Stakeholder Conference Call	January 5, 2017
Stakeholder Comments Due	January 19, 2017

Please submit comments and questions to InitiativeComments@caiso.com.