Modeling Offsets and Linkage in a California Cap and Trade Program

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Email questions to CCPlan@arb.ca.gov

Economic Analysis Stakeholder Meetings

January 28	Overview of modeling tools
February 6*	Policy scenarios to model
February 29	Energy 2020 inputs and outputs
March 17	Inputs for core measures
April 4	Modeling offsets
April 25	Non-economic analysis

May 5 Scenarios Workshop

Early May	Cost effectiveness
June 16	TBD

*Note: February 6 was a Program Design Stakeholder Meeting.

- Background
- Role of offsets
- Modeling offsets
- Offsets rules to model
- Stakeholder discussion

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- ## February 6 stakeholder meeting
  - Discussed modeling of policy scenarios for May 5 workshop; meeting handout stated:

    " … scenarios [will] not include the use of offsets as a possible policy tool. Evaluating the potential role of offsets is a high priority for the modeling work, but cannot be incorporated until after completion of the modeling of these initial scenarios."
    - http://www.arb.ca.gov/cc/scopingplan/pgmdesign-sp/meetings/020608/2_6_08_programdesign_handout.pdf

- ## Subsequent modeling will include offsets

Role of Offsets

- Offer sources under an emissions cap compliance options that may be lower cost

- Incentivize emissions reductions from "uncapped" sources

Options for Modeling Offsets

- ## Use cost curves
  - Advantage: Allows utilization of cost curves which have been developed
  - Disadvantage: Requires emissions sources providing offsets to have a cost curve for obtaining emission reductions that can be included within model
- ## Assume fixed price
  - Advantage: Emissions sources may be outside of model because of project type or project location
  - Disadvantage: Utilizes relatively little information from developed cost curves

Offsets Modeled with Cost Curves

- Which project types can be modeled within Energy 2020?
  - Sequestration
  - Agricultural methane
  - Landfill gas
  - Energy efficiency
- For which project types would additional effort to develop or improve cost curves be worthwhile and informative?

Project Types from Other Offset Programs

- Methane capture from manure management
- End-use energy efficiency projects (natural gas, heating oil, etc.)
- Landfill methane capture and destruction
- Reduction of SF_6 emission in electricity transmission
- Forestry

- Agricultural N_2O emissions
- Coal mine methane
- HFC reductions
- Destruction of CFCs and HCFCs
- Soil management
- Expanded oil recovery (sequestration)
- Renewable energy
- Transportation

Offsets Modeled with Fixed Price

- What price is assumed for these offsets?
  - Does this rely on carbon price in other cap-and-trade systems?
  - How should this price be justified?

- Linkage to other offsets or cap-and-trade programs (e.g., CDM or EU ETS) would be modeled as exogenous offsets

Modeling Limits on Offsets Use

- Which limits on offset usage should be modeled?
  - If a quantitative limit, which limit(s) are the most informative?
    - Should there be any limits specified by project type or by project location?
  - Is modeling a unit exchange/discount rate informative?

- Should any rules about the issuance of offset credits be issued?
  - E.g., project crediting period (5 years vs 10 years)

- Which offsets should be modeled endogenously, and which exogenously?
- What possible linkages should be modeled?
- What compliance limits should be modeled?

Stakeholder Discussion

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