Scope of Coverage and Point of Regulation for a Potential Greenhouse Gas Cap-and-Trade Program

Josh Bushinsky
Pew Center on Global Climate Change

Outline

- Definitions
- Scope
- Point of Regulation
- Other considerations

Scope of Coverage

- What GHG emissions are included in the cap and trade program?
  - What greenhouse gases?
  - What sectors?
  - What facilities? What types and thresholds?
  - What fuels?
  - Combustion emissions included? Process-related emissions?
  - Embodied emissions?

Point of Regulation

- Who has the obligation to surrender allowances to match emissions?
  - Upstream (where GHGs enter the economy, or close)
  - Downstream (where GHGs are emitted into the atmosphere)
  - Midstream (e.g. local distribution companies)
  - Other (e.g. vehicle manufacturers)
  - Hybrid (cover large sources downstream, address the rest of the economy at a different point of regulation or through other policy tools)

Criteria

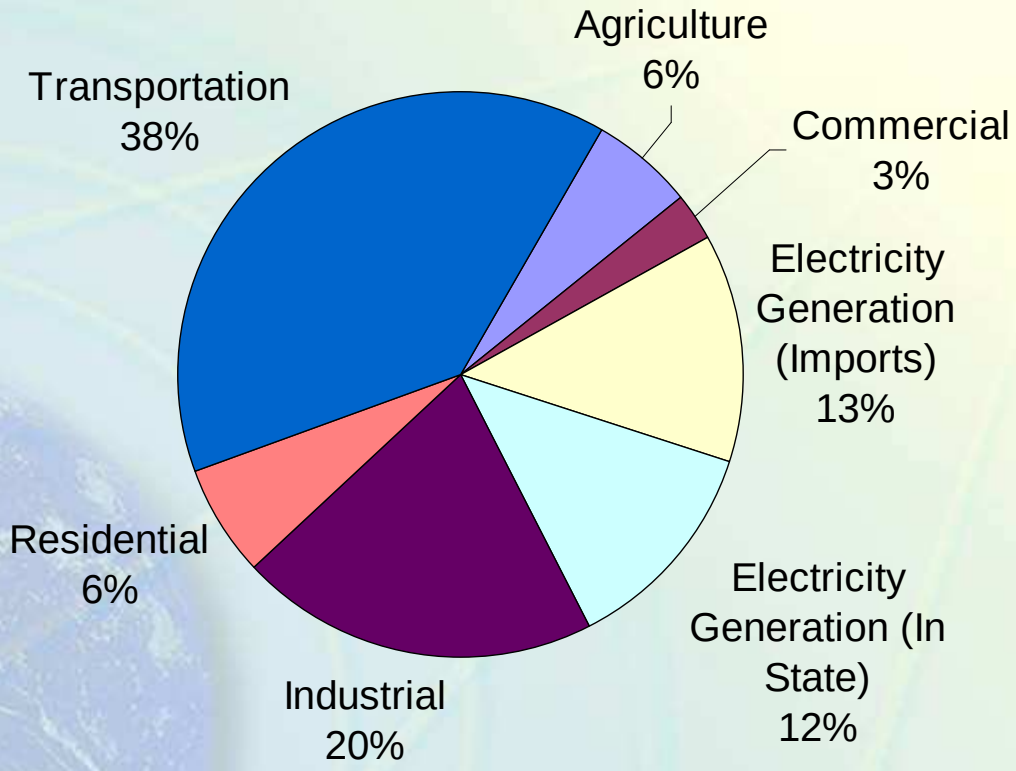
- **Integrity of emissions data**
  - Availability of data before setting baseline key consideration
  - Ability to measure, monitor & report emissions data at the point of regulation
- **AB 32 requirements**
  - Consider direct, indirect, cumulative and localized impacts
  - Prevent increase in toxic or criteria air pollutants
  - Maximize additional economic and environmental benefits for California

Criteria

- **Breadth of coverage**
  - Greater coverage increases availability of low-cost reductions
- **Number of covered sources**
  - Too large a number administratively complex
  - Too small a number threatens viability of emissions commodities market
- **Acceptable risk of leakage**
- **Interaction with existing and proposed policies**
  - Policies may be complimentary or may interfere

GHG Emissions Sources in California

2004 Emissions (480 MMT CO_2E)



Electricity

- CPUC/CEC Joint Proceeding Proposed Decision
  - Include electricity as part of a multi-sector cap-and-trade program.
  - Exclude residential and commercial natural gas.
  - First deliverer approach to point of regulation.

Large Industrial Point Sources

- Good candidates for inclusion in a market system
  - Significant amount of emissions from relatively few sources.
  - Accurate emissions monitoring methods for these facilities.
- How should imports be treated?
  - Deliver approach for all goods is conceivable but highly complex administratively, but may be workable for some goods.

Transportation Fuels

- ARB recognizes the importance of achieving reductions from this sector
  - What are the appropriate ways to achieve these reductions
- More than one tool will be necessary
- Existing programs:
  - Low Carbon Fuel Standard
  - Pavley Tailpipe Standards

Transportation Fuels

- Part of a cap-and-trade?
- Reductions depend in part on elasticity of demand for transportation fuels
- How would this affect the transition to low carbon electricity-based vehicles?

Agriculture and Forestry

- Many, many sources
- Often difficult to measure emissions, administer compliance
- Thus may not be appropriate for inclusion in a cap-and-trade program
- Potential offset opportunities
- Initial forestry sequestration protocol, which was adopted by CARB in 2007, applies to a portion of California's forest lands, provide potential approach

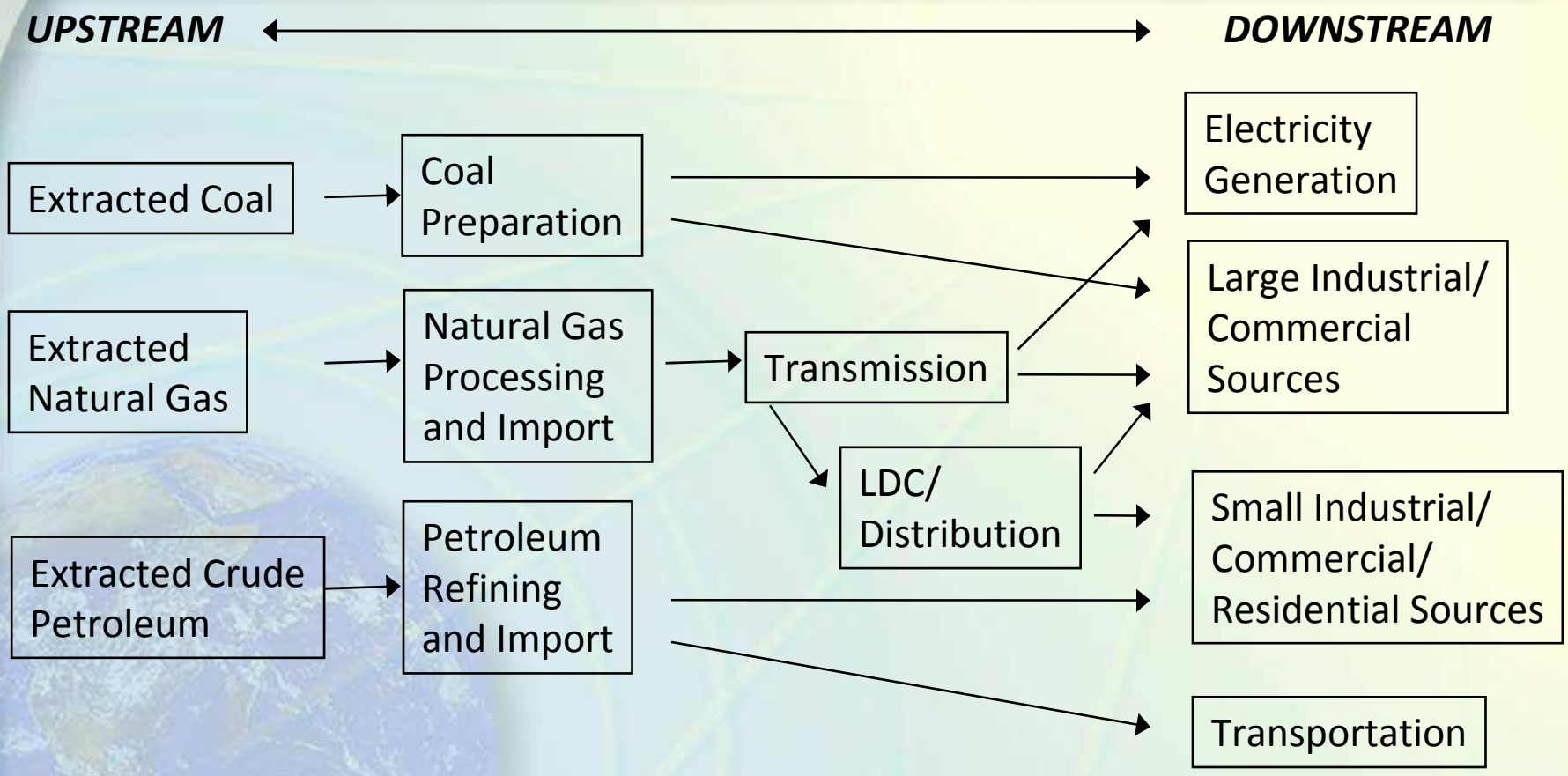
Point of Regulation: What are "Upstream" and "Downstream"?

- Refers to position of greenhouse gases as they move through the economy from production or introduction into commerce, to emission into the atmosphere

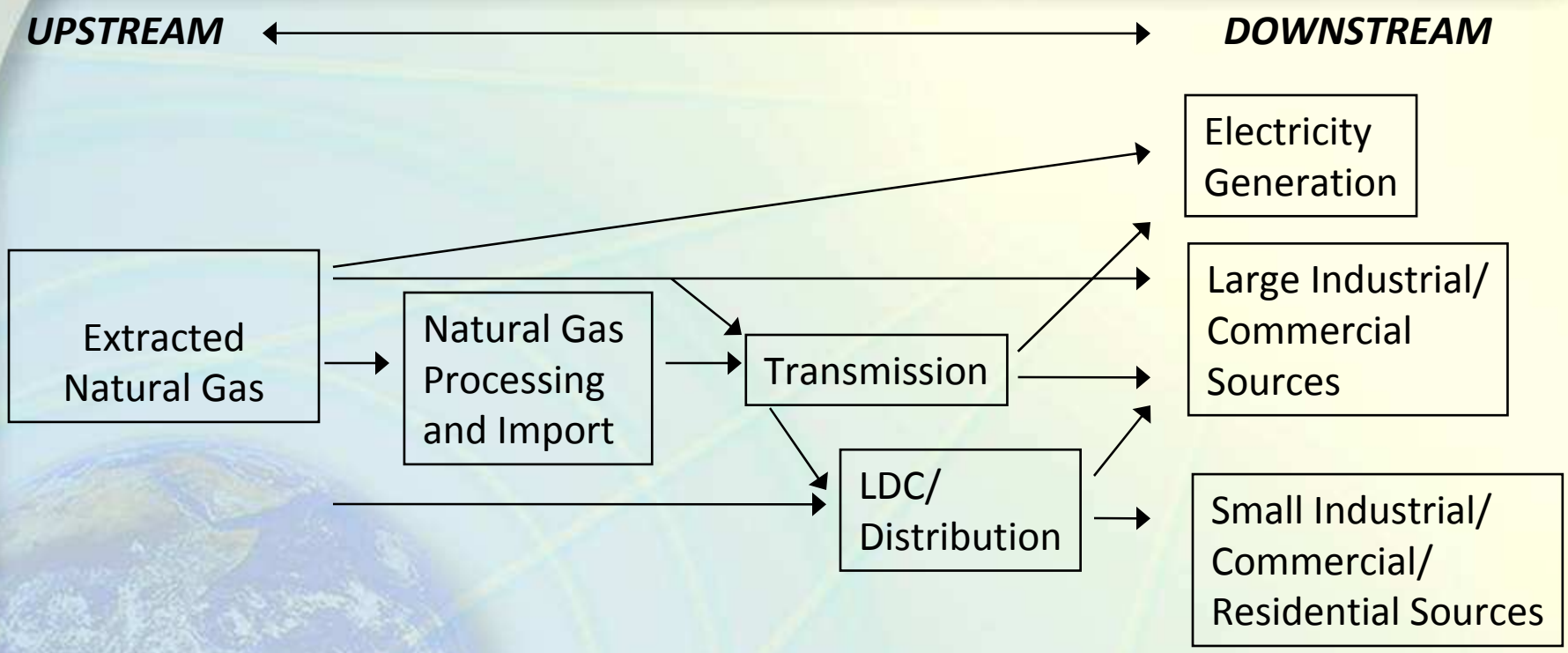
Point of Regulation: What are "Upstream" and "Downstream"?

- Downstream:
  - at the point of emission
- Upstream:
  - at choke points toward the upstream end of the spectrum (refiners, importers, natural gas processors, coal prep plants)
  - Most fuels move through these facilities
  - Generally not all the way upstream

Upstream/Downstream



Natural Gas


UPSTREAM
DOWNSTREAM
Extracted Natural Gas
Natural Gas Processing and Import
Transmission
LDC/ Distribution
Electricity Generation
Large Industrial/ Commercial Sources
Small Industrial/ Commercial/ Residential Sources

Why Upstream?

- Most comprehensive coverage at the smallest number of facilities
  - Greater coverage leads to lower costs
- Possibility of lower administrative costs
- View that response to price signal independent of point of regulation

Why Downstream?

- View that point of regulation does affect behavior; that emitters generally have more compliance options than fuel providers; and that it's appropriate for regulated entities to be the ones with options
- Most real-world experience is with downstream (acid rain, eastern NO_x program, EU ETS); or upstream where substitutes are available (lead in gasoline)

Why Downstream?

- Facility-level data availability (already reported for electric power plants; protocols and data collection easily expandable to other large stationary combustors)
- Automatically rewards CO_2 emissions-reducing technologies (CCS, etc.); not just technologies that reduce fuel C content

Additional Considerations

- Is there an in-state entity able to legally and effectively cover emissions?
- An upstream system at regional level requires covering imports into the region
- For electricity a key issue is how to deal with imports

Additional Considerations

- Thresholds
  - What size emissions source?
  - Implications for administrative costs and coverage
- Phasing
  - Could additional sectors or sources be included over time?
  - Under what conditions?

Western Climate Initiative Scope

- WCI is releasing draft recommendations on scope and the electricity sector next week
- WCI recommendations are being informed by ARB staff work
- Coordination efforts are ongoing

Questions?