Cap-and-Trade Regulation 2016
Amendments:
Staff Presentation on a Methodological Framework for Emissions Leakage Designation for 2018 and Beyond
May 18, 2016
Direct allocation was provided to minimize emissions leakage to provide transition assistance in the early years of the program; started with 100% assistance factor in 1st compliance period

100% assistance factor was extended through the 2nd compliance period as conservative measure

Likely exceeds compensation required for emissions leakage protection for most sectors

Direct allocation only maintained if needed to minimize leakage

Transition to more auctioning over time
Emissions Leakage Potential and International Climate Agreements

- Emissions leakage potential decreases when economic trading partners implement a carbon price for the same industrial sectors found in California


- China: Pilot programs covering ~20% of 2010 CO₂ (2013 to 2014), proposed national ETS covers some of same industrial sectors found in California (2017)

- Clean Power Plan (2022)

- Paris Agreement (2015) – signed by 177 countries
Updated Assistance Factors and Leakage Risk Methodology

- Product- and energy-based allocation will still be the primary mechanism by which sectors are protected from leakage
  - Assistance factors will be updated

- Replacing old metrics with new metrics:
  - Trade exposure $\rightarrow$ International market transfer
  - Emissions intensity $\rightarrow$ Domestic value-added loss

- New metrics resemble old metrics, but more precisely measure leakage

- Most assistance will be given to industrial sectors with the highest levels of emissions leakage
New vs. Old Metrics: Trade Exposure and Int’l Market Transfer

- Trade exposure metric measures how a compliance cost could induce a shift of California economic activity to international competitors.
- International market transfer measures the fraction of each dollar drop in U.S. production offset by a dollar increase in international production.
  - Fraction of each dollar drop is estimated for manufacturing sectors by UC Berkeley and CalPoly studies.
New vs. Old Metrics: Emissions Intensity and Domestic Value-Added Loss

- Emissions intensity metric measures impact on California value added of industry-specific levels of emissions.
- Domestic value-added loss measures the drop in California output that is picked up by increased out-of-State (non-international) industrial facilities.
  - International impact already accounted for by international market transfer.
- Key advantage over former approach—now have a measure of domestic leakage.
New vs. Old Metrics: International Market Transfer

- Sector-wide pattern that highly trade exposed and energy (≈emissions) intensive industries → larger market transfer

![Graph showing the relationship between Energy Intensity and ARB Trade Exposure, indicating higher international market transfer with higher energy intensity and lower ARB trade exposure.](image-url)
New Metrics Correlated with Old Metrics: Domestic Value-Added Loss

- Broad pattern: high energy (≈emissions) intensive industries generally had larger domestic value-added loss %

![Graph showing correlation between energy intensity and domestic value-added loss]
Staff Conceptual Proposal: New Metrics

International Market Transfer

Domestic Value-Added Loss

- More Assistance
- Less or No Assistance
- Most Assistance
- More Assistance
Non-Studied Sectors

- Contracted studies limited to manufacturing sectors only
- Key inputs to studies included each industry’s:
  - Energy cost intensity (closely related to emissions intensity)
  - Trade exposure
- Staff will match non-studied sectors (e.g., mining) to most-similar studied sectors based on:
  - U.S. Census energy cost intensity
  - Trade exposure
- Seeking stakeholder comments if ARB should also match based on labor intensity
ARB Proposal is Conservative Approach

- ARB proposal is conservative in its application of study results to leakage risk and assistance factors
- Proposal uses short-term domestic value-added loss
  - Greater than long-term leakage risk estimates for all manufacturing sectors
- Domestic value-added loss estimates assume 100 percent of calculated California decline offset by expanded out-of-state production to best identify California output drop
  - Upper bound of domestic leakage
- International market transfer is an upper bound assuming that changes in net exports one-for-one increase foreign production
Staff will propose updates to assistance factors in the initial regulatory change proposal to be released in July 2016.

Staff will present proposed changes to the Board at the September 2016 Board hearing.
Looking Toward Future

- Long-run international market transfer
  - The domestic study found that industries adjust over time
  - International study considered short term changes only
  - Revisiting assistance factors in future may be appropriate

- Change to domestic market transfer
  - Domestic value-added loss conservatively assumes 100 percent of calibrated California reduction offset by increased out-of-state production
  - For now, this allows for some continued transition assistance
  - This is an upper bound of possible leakage, revisit assumption in future

- Short- to long-term domestic market transfer
  - Well-identified long-term estimates may be appropriate in future
As international and regional climate regulations are put in place, more of industry competition also faces a carbon price

- This equalizes the playing field
- Declining need for leakage assistance for California industries

Help communicate opportunities for funding to spur industry research, development, and deployment (RD&D) to reduce emissions intensity

- RD&D may be more effective than output-based allocation to help reduce industry-wide emissions intensity
Questions and Comments

Email questions today to sierrarm@calepa.ca.gov

Informal written comments may be submitted until 5 pm (PDT) on Friday, June 10, 2016, at this site: http://www.arb.ca.gov/cc/capandtrade/meetings/meetings.htm

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