

Policy: #12 - Carbon Offset for Electric Generation

Illinois Climate Change Advisory Group

Subgroup: Cap and Trade

Policy Name: #12 Carbon offset requirements for existing and/or new large stationary combustion sources

Policy Type: Regulatory standard

Estimated 2020 Reductions Compared to BAU: 5.20 MMTons CO2
May 7, 2007

Potentially affected sectors, subsectors or entities

Sector: Electric, Industry

Subsector: Power plants, industries with large boilers

Description

Note: The subgroup will need to assess how this proposal overlaps with others designed to reduce fossil fuel GHG emissions from stationary sources.

This straw man proposal is based on the State of Washington's requirement that new and expanding fossil fuel power plants offset 20 percent of their carbon dioxide emissions. <http://www.ecy.wa.gov/pubs/0502032.pdf>.

During the first Cap and Trade Group call, it was suggested that 100% of new emissions should be offset. An emission estimate is provided for this approach below. Some commented that offset requirements are a disincentive to new, cleaner power plants and an incentive to keep running older, dirtier power plants. It was also noted that a Cap and Trade program would make an offset program unnecessary.

The offset requirement could be applied to industrial boilers and generators, but with very little growth projected in this sector (roughly 0.6 MMTons CO2 growth between 2010 and 2020) the amount of GHGs offset would be very low. Therefore, it is excluded from this straw man proposal.

Applicability:

New electric generating facilities

- Any new facility for which a Construction Permit application is submitted on or after July 1 of the year in which the law/regulation is adopted.
- Any new facility with:
 - a station generating capacity of at least 25 megawatts of electricity (MWe)
 - At least one generating unit
 - Fossil fuel as all or part of its fuel
 - Some or all of its electricity for sale

Modifications to existing electric generating facilities

- Any existing facility modified on or after July 1 of the year in which the law/regulation is adopted.
- Any existing facility with:
 - Generating capacity of at least 25 MWe
 - At least one generating unit
 - Fossil fuel as all or part of its fuel
 - Some or all of its electricity for sale
 - Changes resulting in an increase of at least:
 - 25 MWe, or
 - 15% in annual CO₂ emissions from fossil fuels

Allowable Offsets

Regulated entities could earn offsets by:

1. Purchasing them from an organization approved by IEPA to sell offsets.
2. Designing and implementing an offset plan approved by IEPA.

What type of offset are allowed, steps to verify the offset credits, and similar implementation details can be sorted out at a later date.

Rough estimate of reductions from BAU in 2020

Assume implementation January 1, 2010.

126,888 MMTons in 2020 - 100,885 MMtons in 2010 (WRI projections) = 26,003 MMTons
CO₂ power plant emissions growth from 2010 through 2020

26,003 MMtons CO₂ X 0.20 (offset requirement) = 5.20 MMTons CO₂

100% offset requirement: 26 MMTons CO₂.

Timetables

Implementation: January 1, 2010.

Barriers to implementation

The state will require additional resources to manage and enforce the offset requirements.

Policy: #12 - Carbon Offset for Electric Generation - Modeler Comments:

- 1) Any new generation must purchase an offset.
- 2) Existing generation which increases their generation (above a specific level) is required to purchase an offset
- 3) Offsets may be purchased from an approved offset program
- 4) Can the electric sector generate offsets by reducing generation?
- 5) We will simulate an emissions offset market where
 - a. The existing generators are given gratis offsets at 115% of their current emissions. This will enable the old generators to shut down and sell to the new more efficient generators.
 - b. New generation receives no gratis offsets. They must buy from existing generators or from outside.
 - c. Offsets may be purchased from outside the electric sector.
- 6) Data required
 - a. Starting year for program – 2010
 - b. Base year for emissions – 2010
 - c. Offset requirement for new capacity – 100%
 - d. Gratis offsets for existing capacity – 115%
 - e. Coverage – electric generation only (no industrial generation)
 - f. Price of outside offsets - \$35/tonne
 - g. Limit (tones) of outside offsets – none
- 7) Expectations
 - a. Shift to out of state generation to limit of transmission
 - b. Shift to renewable generation
 - c. Shift to industrial self-generation
 - d. Purchase price will tend to international price. Price cannot rise above international price or Illinois generators would buy from international market.
 - e. If transmission constrains electric flows, then Illinois wholesale and retail electric prices will increase.
 - f. Economic growth slows from reduction in electric production, electric construction, and electric prices. Economic growth increases due to increase in renewable construction.