

Illinois Climate Change Advisory Group

Subgroup: Commercial, Industrial and Agriculture

Policy Name: #11 Encourage or require methane capture from coal mines, landfills, livestock operations and wastewater treatment plants.*

Policy Type: Financial incentive

Estimated 2020 Reductions Compared to BAU: 2.56 MM tons CO₂e

5/17/07

Affected sectors, subsectors or entities

For example:

Sector: Fugitive emissions / Waste

Subsector: Coal mines, landfills, livestock operations, wastewater treatment plants

Entities: Relevant operators of sites within the subsectors listed above.

Description

This straw proposal would provide financial incentives in the form of project rebates and/or grants to the owners of projects that capture and combust methane from wastewater treatment plants and livestock operations (through anaerobic digestion), coal mines and landfills. These projects capture methane, a greenhouse gas that's 20 times more potent than CO₂, which would otherwise be vented to the atmosphere. The captured methane then must be cleaned up and sold into the natural gas distribution system, to a third party or combusted on site to generate heat, steam and/or electricity. The resulting CO₂ emissions from combustion of the captured methane have far less of an impact on the climate than the methane itself.

Project developers would be able to receive a subsidy for each energy unit generated (approximately 1¢ /kw-hr or \$2.96/MMBTU). This amount will generally cover the gap between the cost of collection/conversion and the market price for energy. It also represents the differential in Section 45 tax credits between wind/solar derived energy and energy from methane.

Project developers would only be allowed to qualify and receive one type of state incentive per project. For example, a CHP project running on wastewater treatment plant gas could not receive an incentive under this proposal while also receiving an incentive for CHP as described in Options 4 and 14. Project developers could receive additional incentives provided by local utilities or the federal government. Installation must comply with all federal, state, and local codes

Rough estimate of reductions from BAU in 2020

Note that the calculations below do take into account some emission reductions at landfills due to the RPS proposal in the Governor's Energy Independence Plan.

Under business as usual, it is projected that in 2020 methane emissions from wastewater treatment plants, landfills and coal mines in Illinois will be approximately 6 MM tons of

CO₂ equivalent (from Illinois GHG inventory and projections calculations). In order to estimate achievable GHG reductions from this straw man proposal, assume that these incentives succeed in making enough projects economically viable to cover 50 percent of all methane emissions from these sources. Also assume that all of these projects take full advantage of the incentive program and that all projects are operational by 2020. Finally, assume that all projects succeed in capturing and combusting 90 percent of the associated methane.

Based on these assumptions 50 percent of projected methane emissions in these sectors is subject to the incentives and 90 percent of these emissions are captured and combusted. Therefore methane reductions are calculated as follows:

6 MM tons CO₂E of methane X 0.50 = 3 MM tons CO₂E of methane covered by incentives

3 MM tons CO₂E methane X 0.90 (amount captured and combusted) = 2.7 MM tons CO₂E destroyed.

The CO₂ by product of methane combustion must then be added to the remaining methane emissions as it is emitted into the atmosphere and has an impact on climate change. CO₂ is generated on a 1 to 1 basis to the amount of methane combusted. Thus dividing the amount of combusted methane by it's global warming potential relative to CO₂ or 20 will estimate the amount of CO₂ emitted due to this straw man proposal:

2.7 MM Tons CO₂E of methane / 20 = 0.135 MM tons of CO₂.

Therefore the total GHG reduction achieved by this straw proposal is 2.7 MM tons - 0.135 MM tons or approximately 2.56 MM tons of CO₂E.

Timetables, duration and stringency

2009 - Incentive program is implemented.

2010 – First projects qualify for incentives.

2011-2020 – Projects are completed throughout the decade ultimately covering 50p percent of methane emissions in this sector.

Barriers to implementation

New resources would need to be allocated to fund and implement these incentives. Resources could be derived from the CAIR NO_x set-aside, from the auctioning of allowances through a cap-and-trade system or other sources.

* Incorporates revisions submitted by Waste Management.