

Illinois Climate Change Advisory Group

7/3/2007

Subgroup: CIA

Policy Name: Increase Traditional Recycling Diversion Rate with Municipal Goals and by Stimulating Demand for Recycled Materials

Policy Type: Legislative Change

Estimated 2020 Reductions Compared to BAU: 2.66 MMT CO₂E

Affected sectors, subsectors or entities (As the case may be)

Sector: Waste

Sub sectors: Recycling

Entities: Local governments; Illinois recycling infrastructure, Paper and Beverage Container Industries

Description

Summary: Increase recycling diversion goal from 25% to 50%, and significantly increase market development incentives to encourage recycled-feedstock paper producers to locate in Illinois.

Annually diverting additional volumes of relatively easy to recycle material (aluminum and steel cans, plastics, cardboard, magazines and “junk mail, newspaper, office paper and phonebooks, and electronic scrap) from being landfilled in Illinois would result in important environmental benefits, including reduced greenhouse gas emissions. Recycling and composting reduce greenhouse gas by (1) decreasing the energy needed to make products from raw materials, (2) reducing emissions from incinerators and landfills and (3) slowing the harvest of trees, thereby maintaining the carbon dioxide storage benefit provided by forests.

Of these three types of carbon reductions associated with recycling, however, the reductions associated with decreasing energy needed to make products from raw materials are assumed to account for the overwhelming majority. Note therefore that the overwhelming majority of such carbon reductions would not occur in Illinois, so if recycling measures were to be taken as a part of a climate change action plan, reductions occurring outside of Illinois would need to be accounted for.

Evaluation of secondary material markets indicates the desirability of increased market development for industries using recycled feedstocks within Illinois. According to the American Forest and Paper Association (2007), 32% of all paper recovered in the U.S. is exported, with 16% going to China—and with Chinese exports growing rapidly. Emissions reductions related to recycling in China might arguably need to be reduced due to offsetting emissions related to shipping. Furthermore, Illinois clearly foregoes the economic development benefits of the reprocessing industries when such feedstocks are exported.

Carbon emissions reductions resulting from recycling vary widely depending on feedstocks—from 3.7 MTCE per ton of aluminum to approximately 0.85 MTCE for paper/cardboard to 0.45MTCE for plastics to 0.08 for glass (according to US EPA WARM model). Of those, tons of paper/cardboard are available (not currently recycled) on a dramatically larger scale. Paper and Cardboard, along with metals, are therefore the most attractive targets.

The Illinois Solid Waste Planning and Recycling Act (415 ILCS 15/1, et. seq.) requires all Counties and the City of Chicago to develop comprehensive solid waste management plans. The law also stipulates that these plans must be approved by the Illinois EPA and must be updated every five years. Each plan must include provisions for the implementation of a recycling program designed to recycle 25 percent of the municipal waste generated in their jurisdiction. As an impetus to encouraging greater recycling in Illinois, this 25 percent goal could be increased a 50 percent recycling target for Illinois. A revised recycling goal could be ratcheted-up to different levels until finally reaching the 50 percent level. For example, it might be structured like this: 30% by 2010; 40% by 2012; and 50% by 2017.

Increased incentives would compliment the new statutory goals. Based on DCEO's prior experience with incentives for "both sides" of fiber recycling, i.e., for collection and processing as well as for market development for those collected feedstocks, DCEO's current financial resources are adequate to meet the 50% goal in terms of collection and processing but significantly inadequate to meet the goals in terms of market development. Based on the cost of past awards for the fiber sector, DCEO estimates an average cost of \$100/ton for paper/cardboard market development activities. With a foreseen increase of 622,000 tons of fiber for which to develop markets, \$62M of additional resources would be necessary over the next ten years.

Market development incentives would only be necessary in the fiber sector. The continued development of the recycling collection and processing infrastructure in the state necessitated by the higher diversion goal and by the new fiber markets would also succeed in capturing higher levels of metals (and other feedstocks) without the need for new incentive dollars for those areas.

Stimulation of recycled material markets removes ambiguities regarding the fate of recycled material and ensures that the desired impact on carbon footprint is achieved. In addition, it has a positive impact on the Illinois economy by providing new jobs and investments within the state, as opposed to out-of-state or foreign economies.

Modeling Assumptions: Assume current recycling rate is 25% and goal is 50% structured in increments (e.g.: 30% by 2010, 40% by 2012, and 50% by 2017); assume \$100/ton for paper/cardboard market development activities; assume potential increase of 622,000 tons of fiber for which to develop markets = \$62M additional resources over the next ten years.

Barriers to Implementation

Local governments would need to be involved in increasing the state's 25% recycling goal. Funding for the new incentives would need to be identified.

Some existing manufacturers of paper products will need to modify their processes to take advantage of these incentives; others would need to be attracted to the state. Capital investment will be required from private industry to increase recycled fiber plants.

The quality of data regarding the current solid waste and recycling baselines in Illinois is problematic. Recycling businesses are under no specific requirement to be registered in Illinois and are not mandated to report the results of their activities. Data reported to the IEPA by municipalities is not verified, and serious concerns have been raised about the quality of data from some municipalities (including Chicago).

Rough Estimate of reductions from BAU in 2020

Extrapolating from national waste generation figures published in the Federal EPA's most current (2003) *Waste Generation and Diversion Study*, it was assumed that a total of approximately 3.8 million tons of selected discarded material (aluminum and steel cans, cardboard, magazines and "junk mail, newspaper, office paper and phonebooks) is generated in Illinois each year. Assuming a current 25% recycling rate reveals that 665,000 tons of this material is recycled annually. Doubling the recycling rate for these materials to 50% would divert a total of about 1.33 million tons of material, thus (based on the WARM model below) reducing greenhouse gas emissions by approximately **2.66 MMtons** of carbon dioxide equivalents a year.

These benefit estimates were generated by using the Federal EPA's Waste Reduction Model (WARM). WARM was created by the U.S. Environmental Protection Agency (EPA) to help local solid waste planners estimate greenhouse gas (GHG) emission reductions from several different waste management practices. Although this tool was not designed for multi-state solid waste management decisions, providing recycling destinations in Illinois will make the model's results more realistic. WARM calculates GHG emissions for baseline and alternative waste management practices, including source reduction, recycling, combustion, composting, and landfilling. The model calculates emissions in metric tons of carbon equivalent (MMTCE) and metric tons of carbon dioxide equivalent (MMT CO₂E) across a wide range of material types commonly found in municipal solid waste (MSW). The specific factors used to generate our estimates are discussed on the Federal EPA's website at:

http://www.epa.gov/climatechange/wycd/waste/calculators/Warm_home.html

Timetables, duration and stringency

These incentives should be made available immediately.

Interstate Cooperation

N/A, though carbon reductions (source reductions) occurring in other states as a result of increased recycling diversion in Illinois would need to be accounted for.