

Recommendations to RGGI for Including New Forest Offset Categories: A Summary

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Background

The Regional Greenhouse Gas Initiative¹ (RGGI) is a cap-and-trade system designed to limit the emissions of greenhouse gases (GHGs) from electricity generation in 10 northeastern states starting in 2009. Power plants seeking to meet their RGGI obligations have the option to **offset** a portion of their emissions (up to 3.3%) through projects that reduce emissions or sequester carbon in other sectors (such as the forestry sector).

The Maine Forest Service and its partners, Environment Northeast (ENE), Manomet Center for Conservation Sciences, and the Maine Department of Environmental Protection, have been asked by the RGGI Staff Working Group to propose recommendations for possibly expanding forest carbon offset project types in RGGI. This document represents a brief summary of our recommendations at this time. As we have worked to develop these recommendations, it became apparent to us that projects under a cap-and-trade program cannot address all that is needed to capitalize on the full potential forests have to reduce atmospheric GHGs; therefore, we recommend a two-pronged strategy which goes beyond these recommendations for expanding the range of carbon offset projects which are eligible. The second prong is to support programs which help keep forests as forests and maintain current management because these efforts too benefit carbon storage even though they cannot meet RGGI's requirements for offsets.

In general, forest offset projects can reduce emissions or sequester carbon in three main ways²:

1. **Afforestation** (planting trees on currently non-forested land).
2. **Avoided deforestation** (preventing or reducing conversion of a forest to non-forest, thereby avoiding emissions from existing stored carbon and preserving future sequestration capacity).
3. **Active Forest Management** (changing management practices to sequester additional carbon in the forest or in wood products, or using wood to displace products with higher life-cycle emissions).

Currently, **afforestation projects** are the only forest projects that qualify to offset GHG emissions in the proposed RGGI rule. There is limited opportunity for afforestation to play a role in offsetting emissions in the Northeast because so much of the region is already forested. Until now, RGGI has excluded *existing* forest from being eligible in the offset program in part because no one had demonstrated how they could meet the RGGI 5-part offset project criteria (offsets must be *real, additional, verifiable, enforceable, and permanent*¹).

We believe that these recommendations demonstrate how such a showing is possible. We are proposing that RGGI include **active forest management** as an offset category in the RGGI system. We are further proposing that RGGI consider afforestation on **urban and community lands, reduced impact development, and biomass plantations** used to displace heating with fossil fuels. While the opportunity for these other three project types may be more limited, we believe they provide a valid offset mechanism, and

¹ www.rggi.org.

² Different offset systems have different names for types of forest projects.

hence, should be included. Below is a brief summary of our recommendations. We anticipate that a more detailed document will be available by the end of June 2008.

I. Active Forest Management (Draft Recommendation)

1. Using the FIA³ (federal forest inventory dataset) mean stocking level for a given forest class as a benchmark for defining “business as usual”⁴, forest landowners can get carbon credit for new carbon growth and/or preserving existing carbon stocks according to the criteria below.

- a. The landowner must measure baseline carbon levels in all the required pools.⁵
- b. In order to prevent gaming the system (harvesting large volumes prior to enrolling in a carbon project), landowners must use their highest inventory levels within the past 5 years as a project baseline.
- c. If the current stocking level is below the FIA mean, a landowner can get 50% credit for new growth after the project start date (Figure 1A). The landowner must agree to reach the FIA mean level in order to receive credits. If the mean is never reached, credits must be replaced.
- d. If the current stocking level is above the FIA mean (Figure 1B), a landowner can get 75% credit for preserving existing carbon above the FIA mean, and 100% credit for any additional carbon sequestered after the project start date. Landowners can get credit for existing carbon stocks above the mean (at 75% of current carbon value). Periodic payments (e.g., 5 yr intervals) are recommended for new growth.

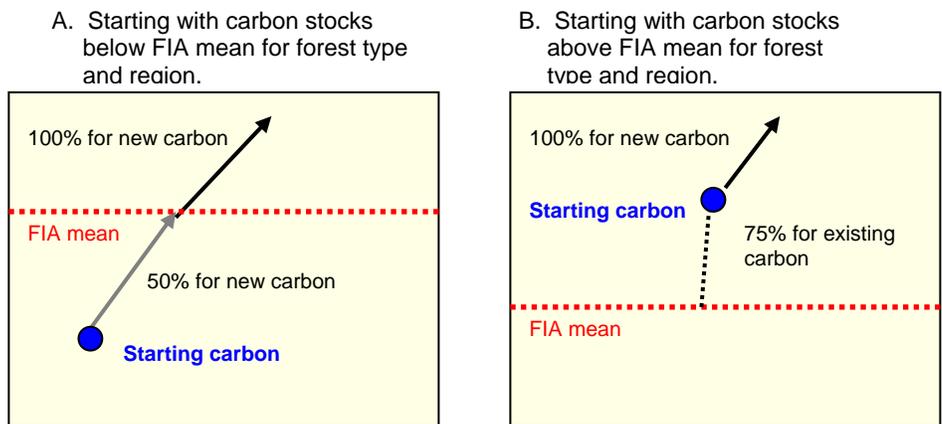


Figure 1. Recommended carbon credit for projects that start (A) **below** the FIA mean carbon stocking level for the forest type and region, and (B) **above** the FIA mean.

- e. A reserve pool of carbon, insurance or discounting credits will be required to guard against unforeseen loss during the project lifetime. Carbon stocks must be maintained at contracted levels for 99 years⁶.
- f. Development rights would not be completely extinguished with this recommendation, but if changes in land use reduce carbon stocks on a portion of the ownership, this must be made up for with long-term increases elsewhere. At the end of the project crediting period⁷, an additional long-term contract

³ <http://fia.fs.fed.us/>

⁴ Analysis is underway to determine the appropriate categories and geographic regions to use when calculating FIA means. These may include state boundaries, ecoregion and ownership class.

⁵ Required pools include live and standing dead trees. Optional pools include coarse woody debris and belowground live biomass. Understory vegetation, forest floor and soil carbon may be included in the future when better data is available to establish an accurate performance standard. Measurement protocols will be described in more detail in the longer recommendations.

⁶ While carbon offsets should be permanent to be equivalent to capped power sector allowances, it is impossible to know what circumstances might exist in future centuries. Therefore we recommend that landowners be released from the commitment in 99 years.

⁷ The RGGI project crediting period is 20 years, renewable up to 60 years.

may be required to ensure a majority of the property remains forested over the remainder of the 99 years. If a landowner wishes to withdraw from contracted commitments prior to 99 years, all offset credits must be replaced with an equivalent number of offsets or allowances.⁸

- g. To guard against leakage (carbon loss in areas outside of the of the project area caused by displacement of harvest activities), landowners must commit to actively manage the forest for forest products. Landowners must document that they are managing their forest in one of two ways:
 - i. Be certified sustainable by a third-party under a generally accepted certification system that requires long-term management plans (e.g., SFI, FSC, American Tree Farm), or
 - ii. Verify that they are harvesting at a rate that approximates the business-as-usual harvest rate for the appropriate geographic area⁹.

2. Landowners may receive extra credit for carbon stored in enduring wood products or for displacement of fossil fuel energy (i.e., biomass), but only for production in excess of business-as-usual production levels for the appropriate geographic area (i.e., the mean production level per acre of forestland). For harvest above BAU rates:

- a. Actual harvested volumes of softwood and hardwood sawtimber and pulp will be multiplied by factors developed by the U.S. Forest Service to determine residual carbon stored in product and landfills 100 years after harvest.
- b. Displacement of fossil fuel energy will be credited based on the amount of biomass (in excess of the mean biomass harvested per acre for the forest class) delivered to a heating facility.
- c. Crediting of the substitution benefit of using wood in the place of products with higher life-cycle emissions, such as concrete, shows promise. However, more research is needed in order to accurately measure this benefit – we are working on this research.

II. Avoided Deforestation (Draft Recommendation)

- 1. At the present time, we do not recommend that RGGI give offset credit for avoided deforestation projects that simply involve permanently protecting forestland on which no residential or commercial development will be allowed. We feel the potential problem with quantifying leakage (displacement of development), as well as the timing and amount of potential development undermines the credibility of using this to offset emissions in the power sector on a one-to-one basis. This difficulty may be overcome with further research which is already underway into econometric methods for quantifying leakage based on the relationships between supply and demand curves. Further, because avoiding deforestation is an important climate strategy, we recommend that RGGI states should explore mechanisms other than offsets for providing financial incentives to conserve forest land.**
- 2. On the other hand, we recommend that development projects which reduce the amount of forestland (carbon) lost per housing unit should be eligible to receive credit based on the difference between total land clearing; and hence, carbon loss in traditional development projects and “clustered” development.**
 - a. Projects are eligible in areas where clustered development falls below a certain market penetration rate (to be calculated).
 - b. Lot size and total housing units on a particular property under standard development should be based on maximum buildout under current state and local land use regulations.
 - c. Additional field research is necessary to determine the relationship between lot size and disturbance area, as well as carbon sequestered in typical residential and commercial developments.
 - d. Areas that remain forested within the development must be permanently protected with an easement.

⁸ Note – This could be the responsibility of the purchaser of the offset.

⁹ Average harvesting rates may be determined using FIA removal rates or other state-level data. There will be some margin of flexibility, e.g. harvesting rates should not be more than 15% lower than average rates. At a future date, leakage analyses of the regional timber market may be developed enough to allow any level of harvesting, with a leakage rate applied to any change vis-à-vis the regional average.

III. Urban and Community Forestry (Draft Recommendation)

1. Communities should be eligible to receive credit for afforestation of urban areas through planting of street trees and park trees.

- a. Currently, afforestation credits are restricted to converting non-forest land to forest land. Planting street trees would not be eligible, as these areas would continue to be classified as non-forest. The RGGI afforestation category should be expanded to include planting trees in urban areas.
- b. An inventory of street and/or park trees is made at the start of the project, and credit is given for carbon stored in any additional trees planted.
- c. Measurement protocols should be based on specific equations derived for use on street trees.
- d. The community must commit to maintaining this increased inventory of street or park trees over 99 years.

IV. Biomass Plantations (Draft Recommendation)

1. Newly established biomass plantations (using woody species or other energy crops, such as switchgrass) can receive credit for displacement of fossil fuels¹⁰ used for residential and commercial heating. Because RGGI caps emissions in the electricity sector, increased efficiency and renewable energy in the electricity sector are, by definition, not eligible as offsets – they are instead direct reductions in emissions.

- a. Plantations that are established on non-forest or poorly-stocked land can receive credit for permanent increases in carbon stored in the root system, in addition to credit from production of wood chips and pellets used for heating.
- b. If plantations are established on forested land after December 31st, 2007, they cannot begin receiving credits until onsite carbon stocks are equal to or greater than carbon stocks prior to establishment of the plantation.
- c. Credits will be based on the net emissions of generating a unit of energy from biomass¹¹ vs. the fossil fuel it is displacing.
- d. A project must be able to prove that the biomass is being used to displace fossil fuel, through fuel switching or new capacity in residential and commercial heating.¹²
- e. A project must demonstrate that the end user of the biomass energy is not claiming credit for the same fossil fuel displacement in any other state, regional or federal climate change program.

¹⁰ The climate benefit of using biomass in the place of fossil fuels is based on the assumption that biomass is carbon neutral (i.e. emissions can be considered to approach zero, because regrowth balances out the CO₂ emissions from combusting biomass). This is dependent on forests being managed for sustained yield.

¹¹ If the biomass comes from a forest where carbon stocks are being maintained or are increasing, the net emissions from burning it are zero.

¹² Inclusion of this category in final recommendations is dependent upon further development of appropriate protocols.