



GREENHOUSE GAS OFFSET PROJECTS

UNDER SEC. 22a-174-31a

An overview of approved offset categories, standards, and steps necessary to register RGGI CO₂ emissions offset projects.

WHAT IS A CARBON OFFSET?



- “A ‘carbon offset’ is an emission reduction credit from another organization’s project that results in less carbon dioxide or other greenhouse gases in the atmosphere than would otherwise occur.” (David Suzuki Foundation)

1 CO₂ Offset Allowance = 1 ton of reduction of CO₂ or CO₂ equivalent or sequestration of CO₂.

- Under the Regional Greenhouse Gas Initiative (RGGI) CO₂ offset allowances can be obtained through projects or actions that reduce or avoid atmospheric loading of CO₂ or CO₂ equivalent or sequester carbon.



DOES MY PROJECT QUALIFY FOR CO₂ OFFSET ALLOWANCES?



- All offset projects must prove that the avoided or reduced emissions are: **Real, Additional, Verifiable, Enforceable,** and **Permanent** to attain a CO₂ offset allowance.
- Five types of projects are currently eligible for CO₂ offset allowances under RGGI:
 - Capture and destruction of *landfill methane (CH₄)*
 - Reductions of emissions of *sulfur hexafluoride (SF₆)*
 - Sequestration of carbon through *afforestation*
 - Reduction or avoidance of CO₂ emissions due to *End-Use Energy Efficiency*
 - Avoided *methane (CH₄)* emissions from agricultural manure management operations





PROJECTS THAT DO NOT QUALIFY FOR CO₂ OFFSET ALLOWANCES

- ❑ Offset projects that are required pursuant to any local, state, or federal law, regulation, or administrative or judicial order.
- ❑ An offset project that includes an electric generation component, unless the project sponsor transfers legal rights to all attribute credits (e.g. RECs) to the commissioner or commissioner's designee. *(Except for certain Agricultural Methane Projects)*
- ❑ An offset project that has received or will receive allowances under any other mandatory or voluntary GHG program.
- ❑ An offset project that receives funding or other incentives from any systems benefit fund, or funds or other incentives provided through the auction reserves described in Sec. 22a-174-31 (f)(5)(B)-(D).
(Except for certain Agricultural Methane Projects)



HOW LONG DOES AN OFFSET PROJECT RECEIVE ALLOWANCES ?



- All offset projects *except afforestation* (see below) receive allowance allocations for a period of 10 years max.
- At the end of the first 10-year period, the project sponsor may be awarded a second 10-year allocation period; assuming the project still meets all the applicable requirements.
- Afforestation offset projects receive allowance allocations for a period of 20 years.
- At the end of the initial 20-year period, the project sponsor may be awarded a second 20-year allocation period; assuming the project still meets all applicable requirements.
- Afforestation offset projects can receive allowances for a third 20-year allocation period, but *may not receive allowances for more than a total of 60 allocation years.*



TIME FRAME TO REGISTER CARBON OFFSET PROJECTS



- CO₂ offset allowances will only be awarded to projects that commenced on or after December 20, 2005.
- Sponsors of projects commenced prior to January 1, 2009 must submit a consistency application by June 30, 2009.
- For projects commenced after January 1, 2009, a consistency application must be submitted within six months after the commencement of the project.





LOCATION OF OFFSET PROJECTS

- RGGI offset projects may be located in any participating state or in any state or other U.S. jurisdiction that:
 - has established a cap-and-trade program with specific tonnage limits on GHG emissions
 - and/or*
 - has entered into a memorandum of understanding (MOU) with the commissioner and the appropriate regulatory agencies of all participating states to carry out certain objectives, including the auditing of offset project sites and reporting of violations.





WHO CAN SPONSOR AN ELIGIBLE CO₂ EMISSIONS OFFSET PROJECT?

- Owners & Operators designate a project sponsor. (The owner need not be the project sponsor.)
- Any person may act as a sponsor for a carbon offset project, provided the person follows the requirements of Section 22a-174-31a.
- The project sponsor:
 - ✓ Opens a general account
 - ✓ Completes & submits an offset consistency application
 - ✓ Signs a project sponsor agreement
 - ✓ Submits annual monitoring and verification reports
 - ✓ Provides any other documents/materials that might be required in the future





DETAILED CO₂ EMISSIONS OFFSET PROJECT CATEGORY INFORMATION



LANDFILL METHANE CAPTURE AND DESTRUCTION



CO₂ offset allowances may be awarded to projects that capture and destroy methane from landfills. (§22a-174-31a (d))

- Projects that occur at landfills subject to New Source Performance Standards (NSPS) for municipal solid waste landfills will not be eligible to receive offset allowances.
- To apply for allowances the project sponsor must submit a *consistency application* including:
 - A detailed description of the offset project containing the following information:
 - Owner and operator of the offset project and of the landfill
 - Location and specifications of the landfill where offset project will occur, including waste in place.
 - Specifications of the equipment to be installed and a technical schematic of the offset project



LANDFILL METHANE CAPTURE AND DESTRUCTION CONT.



- The project sponsor must establish an emissions baseline that represents what emissions would have occurred in the absence of the project.
- The baseline corresponds to the potential fugitive landfill emissions of methane(CH_4), as represented by the CH_4 collected and metered for thermal destruction as part of the project.
- Offset projects shall employ a landfill gas collection system that provides continuous metering and data computation of landfill gas volumetric flow rate and CH_4 concentration.
- **Sponsors must submit a monitoring & verification plan that includes:**
 - Quality assurance and quality control program for the equipment used for monitoring and measuring,
 - provisions for ensuring that measuring and monitoring equipment is maintained, operated, and calibrated,
 - certification by an independent verifier of the monitoring & verification plan.



SULFUR HEXAFLUORIDE (SF₆)



CO₂ offset allowances may be awarded to projects that prevent emissions of sulfur hexafluoride to the atmosphere from equipment in the electricity transmission and distribution sector, through capture and storage, recycling, or destruction. (§22a-174-31a (e))

- Eligible projects shall consist of incremental actions to be taken beyond those actions already employed at the time of the baseline year.
- The identified actions to be taken shall be in accordance with the guidance provide in *International Electrotechnical Commission(IEC) 1634* and by the *Electric Power Research Institute (EPRI)*.
- Eligible offset projects shall have an SF₆ entity-wide emissions rate for the baseline year that is less than the emissions rate requirement of 9.68% for CT (rates vary depending on the region).
- Projects that exceed the emissions rate requirement may still receive allowances if the project is located at a transmission or distribution entity serving a predominantly urban service territory, and the sponsor proves that several factors prevent optimal management of SF₆.

SULFUR HEXAFLUORIDE (SF₆) CONT.



- To apply for allowances the project sponsor must submit a *consistency application* including:
 - A detailed description of the project with supporting materials
 - Determine an emissions baseline based on annual entity-wide reporting of SF₆ emissions for the calendar year immediately preceding the calendar year in which the consistency application is filled and which shall be considered the baseline year.
 - Calculate emissions reductions based on reductions of SF₆ achieved relative to the emissions in the baseline year.
 - Provide a Monitoring & Verification plan, which shall include an SF₆ inventory management and auditing protocol and a process for quality assurance and quality control of inventory data.
 - The M & V plan must be certified by an independent verifier.



AFFORESTATION



CO₂ Offset projects that sequester carbon through the conversion of land from a non-forested to a forested state are eligible to receive CO₂ offset allowances. (§22a-174-31a(f))

- Eligible projects must have been in a non-forested state for at least 10 years preceding the commencement of the project.
- Eligible projects must be managed in accordance with environmentally sustainable forestry practices and designed to promote restoration of native forests, using mainly native species and avoiding the introduction of non-native species.
- If commercial timber harvest activities are to occur, certification must be obtained, prior to any harvest activities, through the Forest Stewardship Council (FSC), Sustainable Forestry Institute (SFI), American Tree Farm System (ATFS), or such other approved organizations.



AFFORESTATION CONT.

- To earn CO₂ offset allowances the project sponsor must submit a *consistency application* that includes:
 - An *offset project description* including: (1) a detailed description of actions to be taken, (2) a detailed map of the offset project land, (3) names and addresses of owner(s) of the land encompassed by the project, (4) a copy of the permanent conservation easement.
 - The *carbon sequestration baseline*, the baseline shall be determined prior to the commencement of the offset project and no more than 12 months prior to commencement.
 - A *calculation of sequestered carbon*, determined using a base year approach, where the amount of carbon sequestered is measured as a net increase in carbon relative to the base year measurement (Allowances will be based on the net carbon stock increase for each reporting period).
 - An explanation of quantifications and methods used to determine the baseline and to measure the data.
 - A *monitoring & verification* plan that includes, direct carbon measurement procedures, designation of sub-populations for sampling, and assessment of sustainable management practices.
 - The *M&V* plan must be certified by an independent verifier.





END-USE ENERGY EFFICIENCY

CO₂ offset allowances may be awarded to projects that reduce onsite combustion of natural gas, oil or propane for end-use in an existing or new commercial or residential building. (§22a-17431a(g))

- **Eligible buildings are limited to:**
 - New buildings that replace an existing building on the offset project site.
 - New buildings that are designed to be zero net energy buildings (buildings designed to produce as much energy as they are projected to use).
- **Eligible projects must employ one or more of the following energy conservation measures (ECMs):**
 - Improvements in the energy efficiency of combustion equipment that provide space heating and hot water, including a reduction of fossil fuel consumption through the use of renewable energy.
 - Improvements in the efficiency of heating distribution systems, including proper sizing and commissioning of heating system.
 - Installation or improvement of energy management systems.
 - Improvement in the efficiency of hot water distribution systems and reduction in demand.



END-USE ENERGY EFFICIENCY CONT.



- Measures that improve the thermal performance of the building envelope and/or reduce building envelope air leakage.
- Measures that improve the passive solar performance of buildings and utilization of active heating systems using renewable energy.
- Fuel switching to a less carbon-intensive fuel for use in combustion systems, including the use of liquid or gaseous renewable fuels, provided that conversions to electricity are not eligible.

- Projects employing one or more of the ECM's listed above must meet specified performance standards:
 - New commercial buildings and whole-building retrofits must exceed the energy performance requirements of ANSI/ASHRAE/ISNEA Standard 90.1-2004 by 30%
 - Multi-family residential buildings (classified as commercial under ANSI/ASHRAE/ISNEA Standard 90.1-2004) must exceed its requirements by 20%



END-USE ENERGY EFFICIENCY CONT.



- An emissions baseline based on historical fuel usage, and energy savings must be calculated for each ECM.
- Performance Standards will vary depending on whether the project initiated *before* or *after* January 1, 2009:
 - Projects initiated *after* Jan 1, 2009 must prove that they have a market penetration rate of less than 5%.
 - Projects initiated *before* Jan 1, 2009 must meet the applicable performance criteria specified under:
 - Energy Benchmark for High Performance Buildings, Version 1.1 or,
 - State Building Energy Codes or;
 - Whichever of the two results in better energy performance.
 - Boilers and combustion equipment shall follow the energy efficiency criteria set forth under Section 22a-174-31a (g)(3)(A) of the Regulations of Connecticut State Agencies.

AVOIDED METHANE (CH₄) FROM AGRICULTURAL MANURE



CO₂ offset projects that capture and destroy methane from animal manure and organic food waste using anaerobic digesters may qualify for CO₂ emissions offset allowances. (§22a-174-31a(h))

- Eligible offset projects shall only use manure-based anaerobic digester systems using livestock manure as the majority of digester feedstock, defined as 50% or more of the mass input into the digester on an annual basis.
- Only organic food waste that would have been stored in anaerobic conditions in the absence of the project may be used by the anaerobic digester.
- The provisions that normally restrict projects from receiving allowances (1) funding or incentives from a system benefit fund or consumer benefit or strategic energy purpose allocation and (2) an electric generation component; do not apply to certain agricultural manure methane offset projects.





AVOIDED METHANE FROM AGRICULTURAL MANURE CONT.

- **Offset projects exempt from the provision include:**
 - Projects located in a state that has a market penetration rate for anaerobic digesters projects of 5% or less.
 - Projects located on a farm with 4,000 or less head of dairy cows, or a farm with equivalent animal units (assuming an average live weight of 1,400 lbs per cow).
 - Regional-type digester projects designed to process an annual manure input less than the average annual manure produced by a farm with 4,000 or less head of dairy cows or equivalent animal units.
- **To apply for allowances the project sponsor must submit a *consistency application* including :**
 - *Detailed description* of the offset project actions to be taken, equipment to be installed, location of project and names of owners and operators of facilities.



AVOIDED METHANE FROM AGRICULTURAL MANURE CONT.



- An *emissions baseline determination* that quantifies the potential CH₄ emissions that would have been produced and released directly into the atmosphere under uncontrolled anaerobic storage.
- Calculation of emissions reduction based on the emissions (in tons of CO₂e) of CH₄ that would have been produced in the absence of the offset project under a baseline scenario.
- The emission reductions may not exceed the volume of CH₄ produced by the anaerobic digester.
- Regional-type digester projects must adjust their emissions reduction calculation to reflect the CO₂ created by transporting manure or organic food waste from off-site to the anaerobic digester.
- Project must employ a system that provides metering of biogas volumetric flow rate and determination of methane concentration.
- A *monitoring & verification* plan must be submitted that includes a quality assurance and quality control program associated with the equipment used, and with provisions for ensuring the equipment is maintained, operated, and calibrated.
- M & V plan must be certified by an independent verifier.



ACCREDITATION OF INDEPENDENT VERIFIERS



- Standards for accreditation: *Independent verifiers* may be accredited by the commissioner or the commissioner's designee to provide verification services as required of project sponsors under this section, provided that independent verifiers meet all of the requirements of this subsection:
 - Demonstrate knowledge.
 - Demonstrate no COI.
 - Employ right staff.
 - Minimum of one million US dollars of professional liability insurance.
- Pre-qualification of verifiers: The commissioner or the commissioner's designee may require prospective independent verifiers to successfully complete a training course, workshop or test developed by the commissioner or the commissioner's designee prior to submitting an application for accreditation.



NEXT STEPS:



- The Consistency Application Forms and the Monitoring & Verification Forms are currently being developed by the RGGI offset allowances subgroup.
- The forms can be expected to be completed before June 2009, giving project developers enough time to register projects commenced prior to January 1, 2009.



FOR MORE INFORMATION:



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