Overview and Frequently Asked Questions

Agricultural Methane Offsets in Chicago Climate Exchange™

Agricultural Methane Projects Summary

- Methane is a high-potency greenhouse gas that is emitted by manure that is handled anaerobically.

- Collection and combustion of methane gas is a widely recognized greenhouse gas mitigation method.

- Methane collection/combustion projects placed into service on or after January 1, 1999 and not required by U.S. regulations may earn tradeable CCX Offsets.

- All CCX Agricultural methane projects must be independently verified by a CCX-approved verification firm.

- Under certain circumstances, Agricultural methane projects that use the methane to generate and sell electricity may also earn Offsets based on emissions displaced on the electricity grid.

- An entity that has significant direct GHG emissions at its facilities can register an Agricultural Methane Offset project in CCX only if it executes a legally binding commitment to manage its emissions under the CCX Emission Reduction Schedule.

Offsets Summary

- Inclusion of Offset projects in the CCX™ market helps foster a broad array of win-win and cost-effective climate solutions.

- In 2007 the Intergovernmental Panel on Climate Change ("IPCC") identified approximately three dozen currently viable GHG mitigation actions. A majority of these actions are appropriately implemented via a project-based Offsets approach.

- Every CCX offset project advances a mitigation action identified by the IPCC as currently viable.

- The following principles used to define eligible projects and determine the quantity of tradable Offsets issued:
    - To qualify, a projects must be beyond regulation, recently implemented, or as applicable, best-in-class
    - Conservative crediting
    - Independent verification by expert entities
    - Reserve pools for sequestration performance assurance
    - All Carbon Financial Instrument® contracts(i.e. CCX Allowances and CCX Offsets) are equivalent when surrendered for compliance

- The CCX principle of using standardized rules for defining eligible projects and quantifying project crediting is becoming widely adopted in programs across North America.

- To assure quality and legitimacy of Offsets transacted in CCX, CCX rules require an independent verification report on project eligibility and effectiveness before the exchange will issue Offsets to the Member's CCX Registry account.

- To ensure that Offset Projects enrolled in CCX have not "double sold" credits by selling in both CCX and elsewhere CCX uses a unique serial number system in the CCX Registry and requires appropriate contractual provisions for project enrolled in CCX.

- CCX rules are designed to assure overall environmental progress and prevent "cherry picking". Any entity that seeks to register CCX Offsets that also has significant GHG emissions at its own facilities can be eligible to earn Offsets only if makes the CCX legally binding commitment to manage its facility emissions under the CCX Emission Reduction Schedule.

CCX Overview

Chicago Climate Exchange ("CCX") is an international rules-based greenhouse gas emission reduction, audit, registry and trading program based in the U.S. Launched as a pilot program in 2003, the market now includes over 350 entities. CCX participants in the industrial,

governmental and academic sectors execute legally binding commitments to meet annual emission reduction goals of 4% below baseline for 2006 and 6% below baseline by 2010.[1] CCX rules require that all emission baselines, annual reduction commitments and Offset projects are annually subjected to independent audit by authorized experts.

As of this writing, the total included baseline emissions of Chicago Climate Exchange members is in excess of 500 million metric tons CO_2. No country in the world has as much industrial emissions under a legally binding GHG emission reduction commitment.

Every active or proposed GHG cap-and-trade program worldwide includes a role for project-based emission reduction credits - "Offsets". Offsets are tradable credits produced by implementing mitigation projects in sectors not covered by the emissions cap. Every GHG mitigation project enrolled in CCX must meet eligibility standards and undergo independent verification before it can be issued tradeable Offsets in the CCX Registry.

Achieving the goals of Chicago Climate Exchange on a scale with global significance meant it was necessary to move beyond debate and set credible and practical standards for project-based crediting. Offset projects enrolled in CCX produce multiple social, economic and ecological co-benefits. The participation of Offset providers in CCX broadens market participation, and the carbon price produced by the CCX market rewards innovation and efficiency, and encourages investment and risk taking that stimulates development of superior environmental technologies.

It is noteworthy that as various proposals to activate carbon markets emerge around North America, the CCX principle of applying standardized, predictable rules for defining Offsets, and, as well, the specific CCX definitions of eligible projects, are becoming widely accepted practice.

U.S. legislative proposals for limiting greenhouse gases call for major reductions in net emissions in the coming decades. The stringency of the proposed rules warrant the deployment of every possible mitigation option to achieve the legislated targets and to effect the needed scale of global emissions mitigation. Most of the currently viable GHG mitigation options identified by the Intergovernmental Panel on Climate Change can be fully implemented only if a robust and diverse program for engaging project-based mitigation is developed. CCX rules serve to proactively engage many of these diverse mitigation options, thereby advancing global environmental objectives.

The remainder of this document provides a description of the rules, rationale and experience with Offsets in CCX. Details on CCX rules for specific GHG mitigation projects are found elsewhere on this website.

[1] CCX core rules are found at: http://www.chicagoclimateexchange.com/about/pdf/ChicagoAccord_050623.pdf

Frequently asked questions about CCX Agricultural Methane Offsets

Q: What is methane? Why is methane capture and combustion beneficial for the climate?

A: Methane is a greenhouse gas that is approximately twenty-three times more powerful per unit at trapping heat than carbon dioxide. Methane can be released by human activities and natural sources. Methane is released due to economic activities such as coal mining, landfill, livestock operations (animal waste) and wastewater treatment facilities. As the principal component of natural gas, captured methane that is conditioned for use can be burned as fuel source, e.g. for electric power generation. In circumstances when use of captured methane as a fuel source is not viable, the thermal incineration of methane in a flare provides significant global warming benefits by converting units of a high-potency global warming gas (i.e. 23x) to a relatively lower potency global warming gas (carbon dioxide).

Q: What are CCX Agricultural Methane Offset Projects?

A: CCX Agricultural Methane Offsets are issued to owners of GHG emission reductions achieved by eligible Agricultural methane collection and combustion systems.

Q: What "additionality" rules are applied to define eligible projects?

A: Projects must be surplus to U.S. regulation and must be placed into operation on or after January 1, 1999. Projects are eligible only if in the baseline (or pre-project) scenario was one in which methane was being generated. Typically, this means the baseline manure management practices is one where manure is handled as a liquid and with significant methane emitting potential, including:

1. Liquid/slurry storage
2. Pit storage below animal confinements (for periods exceeding one month)
3. Uncovered anaerobic lagoons

Q: What is the emission baseline for these projects?

A: The emission baseline is the amount of methane that would have been vented to the atmosphere under the management practices that would have occurred had the project not been implemented. Offset issuance for agricultural methane capture projects is based on on the difference between with-project emissions and the emissions associated with the pre-existing practice. The without-project emissions calculation relies on animal counts, local weather climate conditions and management practices,

Q: How many Offsets are issued per metric ton of methane captured?

A: CCX Agricultural Methane Offsets are issued on the basis of the lesser of methane collected and destroyed as measured by the flow meter or an *ex ante* calculation of methane production based on manure management practice, climate and number of animals. The lesser of the measured or calculated amount is assumed to be the amount of methane that would have been emitted in the without project scenario and is credited at a rate of 21 metric tons CO_2 for each metric ton of methane avoided.

Q: How does CCX establish the standards, definitions and crediting rates for Agricultural Methane Offset projects?

A: Specific expertise that guides the rules for Agricultural Methane Offsets is assembled through direct interaction with experts, and through a Technical Advisory Committee comprised of experts who have detailed knowledge of the associated technologies. All recommended rule refinements are considered for approval by the standing CCX Committee on Offsets

Q: What is the role of an Independent third-party verifier?

At least once per year, gas flow measurements, records and procedures must be verified by a CCX-approved verifier in accordance with CCX protocols. CCX-approved verifiers provide independent third party review of project reports, maintenance of project activity, and attest to the accuracy of the data. CCX approves Agricultural methane verifiers if they meet specified criteria.[2] The protocols to be followed for verification of Agricultural gas methane Offset are provided in Appendix 2.

Q: Who are the entities that conduct project verification?

A: A diverse international group of entities has been authorized to provide verification services for CCX-enrolled projects. The list of eligible verifiers grows steadily and is posted at: http://www.chicagoclimateexchange.com/content.jsf?id=102

In order to be qualified by CCX to provide verification for a particular project type, an entity must: demonstrate professional capability in the project category (e.g. professional experience with agricultural systems); demonstrate its experience in conducting verification; provide evidence of commercial independence relative to those involved in project implementation; and must hold certain levels of professional liability insurance.

[2] To be a CCX-eligible Offset project verifier and entity must demonstrate technical competence, verification experience, independence, possession of professional liability insurance, among other requirements.

Q: Is a project still eligible for participation if it sells the energy created from agricultural gas to an outside party?

A: Yes. Projects that sell energy to a third party or use the gas to power their own operations are still eligible to earn Offsets provided that ownership of the project's greenhouse gas (GHG) mitigation rights of the project are legally retained by the project owner.

Q: What evidence must be provided in order to receive Offsets from CCX?

A: The project proponent must demonstrate the baseline manure management practice, average livestock populations, records of methane content of the recovered gas, total gas flows, records of metering calibrations, total electricity generation (if applicable) and the engine manufacturer's efficiency rating.

Q: Can large emitters that do not commit to the CCX emission reduction schedule register and sell Offsets in CCX? How does this rule differ from other offset initiatives?

A: No. An entity that has significant direct GHG emissions at its own facilities *cannot* register an Offset project in CCX unless it executes a legally binding commitment to manage its own emissions under the CCX Emission Reduction Schedule.

This important rule prevents "cherry picking" and maximizes the environmental integrity of the CCX system.

No entity is allowed to earn revenues through sales of Offsets unless it has an entity-wide CCX emission reduction commitment (meaning Offset sales would be made by an entity that in aggregate is accounting for its emissions). In contrast, private (non-CCX) vendors of carbon credits do not necessarily apply this same entity-wide standard. Therefore, some carbon credits in the open (non-CCX) market could be sourced from entities that in fact are emitting increasing amounts of GHGs to the atmosphere, not less.

Q: Are CCX rules for Agricultural methane projects comparable to other programs?

A: Yes. As indicated in the table below, CCX rules for Agricultural methane projects are comparable to those provided by the proposed Regional Greenhouse Gas Initiative ("RGGI"). An important difference is that CCX issues CO_2 Offsets for methane capture from agricultural sites at a rate of 21 metric tons of carbon dioxide for each metric ton of methane combusted, while RGGI issues at rate of 23 tons of CO_2 per ton of methane.[3] Further, CCX rules prohibit trading of Agricultural Offsets by owners of Agricultural Methane capture systems that have significant direct emissions but do not also take on the CCX emission reduction commitment for those emissions.

[3] The RGGI program quantifies emissions employs the US tons.

Program Comparison of CCX Agricultural Methane Offset Project Rules

Program	**Regional Greenhouse Gas Initiative**	**Chicago Climate Exchange**
Additionality Consideration	Projects capture and destroy methane generated from food waste and manure that would have been emitted to atmosphere.	Projects capture and destroy methane generated from manure that would have been emitted to atmosphere.
Eligible projects	Projects meeting above and commencing no more than 3 years 26 days prior to start of first compliance year (which is proposed to be 2009)	Projects meeting above and placed into service no more than 4 years prior to start of first compliance year (which was 2003)
Crediting rate	**23** tons of carbon dioxide credited for each ton of methane combusted (100% of higher methane global warming factor)	**21** metric tons of carbon dioxide credited for each metric ton of methane combusted (79.3% of higher methane global warming factor)
Are Agricultural owners with significant emissions required to also include those under the program's emission cap?	No	Yes
Independent verification required?	Yes	Yes

Q: What is an Offset Aggregator and what does one do?

A: An Offset Aggregator is a CCX-registered entity that serves as an administrative and trading representative on behalf of multiple project owners. Individual projects which may not generate enough offsets to overcome administrative costs may find it advantageous to work with an Aggregator in bringing a project to CCX. Aggregators are responsible for interaction with CCX, explain CCX rules and requirements to project owners and coordinate with CCX approved verifiers. In addition, the Aggregator is responsible for trading activities and the maintenance of the project owner's registry account.

Q: Is it possible to earn CCX Offsets from both the methane destruction and for CO_2 emissions displaced through sales of methane-fueled electric power generation?

A: Under certain circumstances, yes. Offsets based on displacement of emissions associated with grid electric power can be earned provided the associated environmental attributes are not used to meet obligations established by state or local mandates (e.g., renewable portfolio standards), the energy generated by the renewable energy system is not being sold as "green", and any renewable energy credits (RECs) generated by qualifying systems are surrendered for and retirement by CCX.