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Spring 2009

# ABCs of Carbon Markets



Prepared for

**Clients and Friends of Dickinson,  
Mackaman, Tyler & Hagen, P.C.**

**Including:**

- \* Introduction to carbon markets and frequently asked questions
- \* Descriptions of and terminology used by the major regional and voluntary emissions trading systems
- \* Glossary of carbon trading terms

## The Green Business & Sustainability Law Group

at Dickinson, Mackaman, Tyler & Hagen, P.C.

Environmental sustainability has become a major consideration for businesses. The public is increasingly demanding "green" business practices and products. Environmental laws and regulations are changing at an unprecedented pace. These changes present novel and complicated legal issues that require a merger of previously distinct legal areas, and that is precisely what has taken place at Dickinson, Mackaman, Tyler & Hagen, P.C.

The Green Business & Sustainability Law Group at Dickinson builds upon the Firm's established reputation in traditional practice areas such as real estate, construction, corporate, banking, commodities, securities, litigation, energy, utilities, and land use / planning / zoning law. Pooling the Firm's breadth of experience from an array of practice areas and industries strengthens our ability to help businesses navigate the ever-changing legal landscape to reach their sustainability requirements and goals. To date, Dickinson's attorneys have handled "green" legal issues in areas including renewable energy financing, green building ordinances, biofuels, wind energy development, environmental regulatory compliance, environmental litigation, the emerging carbon credit/offset markets and the tax implications of sustainability initiatives.

Unlike traditional law firm practice groups that focus on a particular industry or area of law, the Green Business & Sustainability Law Group revolves around a social commitment shared by the attorneys in the group. That commitment drives the group's attorneys to do all they can to keep clients informed about sustainability-related legal and regulatory developments and opportunities that will affect their businesses.

Members of the group find various ways to demonstrate their commitment to the sustainability cause. They actively participate in industry associations and organizations including the U.S. Green Building Council, the Energy Bar Association, the Urban Land Institute, the Iowa Wind Energy Association, the Iowa Renewable Energy Association, and the Associated Builders and Contractors of Iowa's Green Building Leadership Council. They donate legal services to the non-profit Green & Main organization, which seeks to revitalize communities through sustainable renovation. They provide a steady stream of sustainability-related substantive programs and articles for client and public consumption. One group member, Larry James, Jr., became Iowa's first attorney to earn the LEED (Leadership in Energy and Environmental Design) Accredited Professional designation.

Dickinson's attorneys understand that truly serving the "green" needs of businesses involves going beyond providing legal expertise to making our own business practices more sustainable. Dickinson attorneys have always strived to serve clients with excellence and integrity while having a positive impact on the Iowa community, and environmental stewardship is an important aspect of the firm's innovative and dedicated service. Dickinson was the first law firm in Iowa to enroll in the ABA's Law Office Climate Challenge and to be recognized as a partner in the Environmental Protection Agency's (EPA) WasteWise program, targeted at reducing paper waste. The firm's green initiatives, outlined in a document titled "The Dickinson Green Guide," include practices such as purchasing recycled or biodegradable paper and office supplies, reducing paper use by double-sided printing and electronically distributing and storing documents, recycling all paper waste, encouraging use of non-disposable tableware, programming energy-efficient modes on electronic equipment, and offering employees financial incentives to ride the bus, carpool, ride a bike, or walk to work. We view the steps we have taken towards sustainability as a good start, but we will continue to do more, amending the "The Dickinson Green Guide" as we discover and implement new ways to make our operation even more efficient and sustainable.

For additional information on Dickinson's Green Business & Sustainability Law Group or the Firm's green initiatives, contact attorney Jeff Andersen, chair of the Green Business & Sustainability Law Group.

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# Foreword

## and Legal Disclaimer

Carbon markets and emissions trading are gaining traction both internationally and in the United States. Although utilities and other large scale emitters are the primary participants, businesses, governmental agencies, and financial institutions of all sizes are increasingly participating in carbon markets. According to Point Carbon, a leading provider of carbon market news and analysis, in 2008 the combined total value of carbon markets worldwide was estimated at \$125 billion, an 83% increase over 2007. This growth has occurred without U.S. involvement in an international market and without a national U.S. carbon market. As one of the largest carbon emitters, a national emissions trading scheme in the U.S. as well as U.S. involvement in international markets would cause the size of carbon markets to increase exponentially.

Momentum is growing for a national U.S. carbon market as well as U.S. involvement in international carbon markets. As of the date of this guide, however, the system for accounting and trading carbon emissions in the U.S. remains fractured. In the absence of a national system, a patchwork of regional and voluntary systems has emerged. This conglomeration of systems seeking to create a platform for emissions trading has resulted in valuable innovation through trial and error. It can be difficult to navigate, however, and has resulted in confusing, often conflicting terminology. The goal of this guide is to resolve some of this confusion by introducing you to the various emissions trading schemes and their often distinct terminology.

*Disclaimer: This guide is intended to provide current information to our clients in various areas relating to green business and sustainability law. The information appearing in this guide is not intended as legal advice or opinion, which are provided by the Firm with respect to specific factual situations only upon engagement. We would be pleased to provide more information or specific advice on matters of interest to our clients.*

# Introduction to Carbon Markets

## What Is Being Traded?

Different trading platforms have different names and specifications for what is traded on that platform. Carbon credits, carbon offsets, allowances, verified emissions reductions—these and other terms are often used interchangeably, making it difficult to determine what is really being traded. Across all platforms, however, the offsets, credits, or allowances traded can simply be thought of as a new commodity. This commodity can take the form of either an emissions reduction (hereinafter referred to as “carbon offsets”) or an allowance to emit (“carbon allowances”).

Carbon offsets usually refer to reductions in greenhouse gases, including methane, carbon dioxide, nitrous oxide, and chlorofluorocarbon emissions. Most platforms trade carbon offsets in a set quantity, usually 100 metric tons of carbon dioxide equivalent. Carbon offsets can be tracked and traded like any other commodity.

In many proposed cap and trade platforms, the traded commodity is an allowance to emit a quantity of greenhouse gases, usually 100 metric tons of carbon dioxide equivalent. A cap is imposed by giving emitting entities a set quantity of carbon allowances, thereby permitting each entity to emit a certain quantity of greenhouse gases. If an entity foresees the need to emit more greenhouse gas than permitted by its allowances, it will need to purchase carbon allowances from other entities on the market. If an entity emits less greenhouse gas than permitted by its allowances, it can sell its carbon allowances on the market.

# Introduction to Carbon Markets

## How Are Carbon Offsets and Carbon Allowances Generated?

In a cap and trade setting, carbon allowances are distributed to emitting entities at the outset, effectively setting a maximum amount of emissions for those entities. These carbon allowances are distributed by the body that governs the market and sets the cap. An entity can make its allowances marketable by reducing its emissions below the amount distributed to it through allowances. For example, if for a given year an entity has 10 carbon allowances representing 1,000 metric tons of greenhouse gas, but through practice and technology reduces its emissions for that year to 700 metric tons of greenhouse gas, that entity will have three emissions allowances representing 300 metric tons of greenhouse gas it can sell on the market.

In a project-driven setting, carbon offsets are generated by adopting a practice or implementing a procedure or technology that reduces, sequesters, or destroys greenhouse gases. Depending on the platform, these emissions reduction projects can take many forms. Examples of common carbon offset generating projects include capture of agricultural methane, reforestation, afforestation, capture of landfill methane, adoption of renewable energy, and increased energy efficiency.

Cap and trade carbon allowances and project-driven carbon offsets are not mutually exclusive. Many cap and trade programs include a mechanism whereby emissions reduction projects can generate carbon offsets that can be used by capped entities to meet their cap.

# Introduction to Carbon Markets

## Carbon Tax v. Cap and Trade

There has been much debate in the U.S. over implementing a carbon tax versus implementing a cap and trade system. As with any legislation, the efficacy of either a carbon tax or a cap and trade system largely lies in the fine details. There have been many specific proposals for both, but they can be broadly described as follows. A carbon tax is simply a tax on greenhouse gas emissions. Carbon taxes are usually proposed only for large industrial emitters and utilities. Different proposals suggest different uses for the revenues from the carbon tax. Often revenue is targeted at reducing consumers' energy bills to offset the increased cost of renewable energy or to further invest in renewable energy. Generally, the perceived benefits of a carbon tax are cost certainty and simplicity. Since a carbon tax is not unlike any other tax, it can be administered and collected using already existing mechanisms. A carbon tax would also set a price on carbon that would not be as subject to market fluctuations as in a cap and trade system.

Cap and trade has been described above—carbon allowances are distributed to emitting entities at the outset, effectively setting a maximum amount of emissions for those entities. If an entity emits more than its allocation, it must go to the market to purchase carbon credits. If an entity emits less than its allocation, it may either bank the credits for future years or sell the credits on the market. As with carbon tax proposals, proposals for cap and trade systems have varied greatly. Some provide for distribution of credits via auction while others simply distribute allowances to emitters based on various attributes. Similar to carbon taxes, revenue from a cap and trade system—particularly if the credits are auctioned—often are targeted at reducing consumer's energy bills and investing in renewable energy. The primary perceived benefit of a cap and trade system is environmental certainty. Emissions are capped, and market forces are used to keep overall emissions at or below that cap. There is certainty, therefore, that emissions will reach only a certain level. Unlike a carbon tax, which provides cost certainty but not environmental certainty, a cap and trade system provides environmental certainty but not cost certainty.

As stated above, the details of a carbon tax or a cap and trade system—particularly the amount of the tax or the cap—will drive the effectiveness of the initiative. The descriptions above are merely a rudimentary outline of the basic differences between a carbon tax and a cap and trade system; there are many different proposals under consideration for both a carbon tax and a cap and trade system that differ greatly in characteristics and mechanisms.

# Introduction to Carbon Markets

## Mandatory v. Voluntary Markets

Carbon trading platforms can be either mandatory or voluntary. A mandatory system is generally implemented by a governmental authority. As of the date of this publication, the U.S. does not have a mandatory greenhouse gas emissions platform. The European Union Emissions Trading Scheme ("EU-ETS"), which is described below, is an example of a mandatory carbon trading platform. The EU-ETS is the system adopted by the EU to reduce emissions and ensure that EU countries meet their requirements under the Kyoto Protocol, which is also described below. The EU-ETS is a mandatory cap and trade system applicable to major emitters in the EU. The credits or allowances in a mandatory cap and trade platform are distributed and verified by the governing body.

In the absence of a mandatory carbon trading platform in the U.S., various voluntary platforms have arisen. Voluntary platforms generally draw on the framework of mandatory platforms, including carbon offset / carbon allowance verification methods. Participants in voluntary markets, however, are not required by any authority to participate. Voluntary markets can be either compliance markets or non-compliance markets. In voluntary compliance markets, no one is required to participate, but participation requires a binding contractual commitment to be subject to a cap on emissions. They are generally cap and trade systems where participation is voluntary, but within which participants are required to meet an emissions cap. The best example of a voluntary compliance market is the Chicago Climate Exchange, which is described in more detail below.

Voluntary non-compliance markets are not driven by a cap. Instead, voluntary non-compliance markets are project driven. Projects that sequester, avoid, or destroy greenhouse gases can be verified and registered by an organization that will verify the project is entitled to a certain number of carbon offsets. Another party can then purchase these carbon offsets in a bilateral, over-the-counter transaction. The idea is that the revenue from the sale of carbon offsets is used to put a project that sequesters or destroys carbon over the top. There are many platforms that provide carbon offset verification standards and methodologies, a few of which are described below. A key consideration in voluntary non-compliance markets is additionality. Additionality is a requirement that a given project or practice offset or reduce emissions beyond "business as usual." Additionality requires that the revenue from carbon offsets be instrumental in moving the project forward and actually reducing emissions. This provides the buyer with peace of mind in knowing that the purchase of carbon offsets truly reduced emissions beyond what would have occurred absent the purchase.



# Introduction to Carbon Markets

## Carbon Offsets v. Renewable Energy Certificates

Carbon offsets are often confused with renewable energy certificates. Carbon offsets represent a reduction in carbon emissions. A single carbon offset generally represents 100 metric tons of greenhouse gas that was previously emitted and will now be sequestered or avoided. A renewable energy certificate, or REC, is a commodity that represents one mega-watt hour of electricity generated from a renewable source, such as wind. When energy is produced by renewable sources, the energy is used and paid for by households and businesses in that area. The renewable aspects of the energy can be decoupled into the form of a REC, however, and sold to someone outside the renewable energy source's service area. The purchaser of RECs often cannot otherwise obtain energy from renewable sources. RECs allow individuals and entities to effectively purchase and invest in renewable energy no matter where they are located. RECs can often be instrumental in the financing of renewable energy projects.

# Guide to Emissions Trading Schemes

## Kyoto Protocol

In 1992 the United Nations Framework Convention on Climate Change (UNFCCC) was formed to explore possible ways to militate against the global warming problem. The Kyoto Protocol was adopted in 1997 and went into force in 2002. Approximately 170 countries have ratified the Protocol; as of the date of this publication the United States is not one of those countries. The Kyoto Protocol expires in 2012. The Kyoto Protocol is a compliance market that involves allowances based on entity-wide emissions as well as project-based credits.

The Kyoto Protocol separates countries into two categories: developed countries, which are referred to as Annex I countries, and developing countries, referred to as non-Annex I countries. Annex I countries are required to reduce their greenhouse gas ("GHG") emissions by a collective average of 5% below the 1990 baseline by 2012. Non-Annex I countries have no GHG emission reduction obligations but may participate by implementing GHG reduction projects that can generate carbon credits which can then be sold to Annex I buyers to meet their requirements. Annex I countries can acquire the right to pollute beyond their assigned limits through three mechanisms: Clean Development Mechanism ("CDM"), Joint Implementation ("JI"), and Emissions Trading.

CDM provides for Annex I Parties to implement projects that reduce emissions in non-Annex I countries in return for certified emission reductions ("CERs"). The CERs generated by such project activities can then be used by Annex I Parties to help meet their emissions targets under the Kyoto Protocol. CDM projects must be approved by a designated national authority (list available at <http://cdm.unfccc.int/DNA/index.html>).

Joint Implementation provides for an Annex I Party to implement an emission reducing project in another Annex I Party's territory and count the resulting Emission Reduction Unit ("ERU") towards its own requirements under Kyoto. All JI projects must have the approval of both Annex I Parties.

Under Emissions Trading, one Annex I polluting entity can trade with another Annex I polluting entity for their rights to pollute. Annex I countries can authorize businesses and other non-governmental entities to engage in Emissions Trading so long as the country has a national registry established to register emissions offsets and settle emissions trades.

In order for the Annex I countries that have ratified the Kyoto Protocol to meet their requirements, many have individually instituted GHG emission caps for the emitters within their borders. Each emitter is then allowed to utilize CDM, JI, and Emissions Trading to meet the requirements of the cap imposed by its home country. Thus, purchases of CERs and ERUs may be made between businesses within the same Annex I country or between businesses from different Annex I countries.

In order for countries or other entities to hold credits under Kyoto and transfer them to another party, registries must be in place that track the location and ownership of credits at all times. Most Annex I countries have implemented a national registry containing accounts within which Kyoto Units are held and may be traded from one account to another. The individual national registries, as connected through the international transaction log, form the backbone of the Kyoto carbon market.

# Guide to Emissions Trading Schemes

## Kyoto Protocol (Continued)

For example, the European Union Emission Trading Scheme ("EU-ETS") was formed to help EU states achieve compliance with their respective commitments under the Kyoto Protocol. Under the EU-ETS, a certain quantity of emissions is granted to EU companies in the form of EU Allowances. These EU Allowances can then be bought and sold by the companies. Since the EU Allowances are also Kyoto Units, however, transactions in EU Allowances are automatically recorded on the international transaction log in addition to the national registry of EU countries involved.

Because the United States did not ratify the Kyoto Protocol, projects within the U.S. will not generate CERs or ERUs. U.S. entities can buy and sell Kyoto Units but are unable to create them. U.S. companies could presumably buy Kyoto Units to meet a voluntary standard, but because of the uneven playing field inherent when other parties in the market require Kyoto Units to meet a mandatory requirement, the price could be prohibitive.

# Guide to Emissions Trading Schemes

## Chicago Climate Exchange

The Chicago Climate Exchange (“CCX”) is a voluntary, legally binding trading system for greenhouse gas (“GHG”) emission offsets. The CCX has both allowance-based and project-based aspects, but in order to trade on the CCX, an entity must become a Member of the CCX. Members of the exchange make a legally binding commitment to reduce GHG emissions as provided in the CCX Emission Reduction Schedule (“Schedule”) and have their emissions subject to independent third-party verification by the Financial Industry Regulatory Authority (“FINRA”). The commodity traded at the CCX is the Carbon Financial Instrument (“CFI”) contract, which represents 100 metric tons of carbon dioxide equivalent. CFI contracts can be Exchange Allowances or Exchange Offsets. Members are issued annual Exchange Allowances in accordance with the Emission Reduction Schedule. If Members reduce emissions beyond the target set by the Schedule, they will have extra Exchange Allowances to sell or bank. Members that exceed their emission target must buy CFI contracts to make up the difference. In sum, the CFI contracts generated by Exchange Allowances are the result of entity-wide emission reductions.

Exchange Offsets, on the other hand, are generated by qualifying offset projects in sectors not natural for inclusion in the “cap” portion of the cap and trade system. Exchange Offsets are project driven; CFI contracts are given to qualifying projects that sequester, destroy, or displace greenhouse gases. CCX rules require an independent verification report on project eligibility and effectiveness before the exchange will issue Exchange Offset generated CFI contracts to the Member’s account. Offset projects can be registered by Members, Offset Providers, and Offset Aggregators. Offset Providers are owners of a project that submit the project to CCX themselves. Offset Aggregators serve as a representative on behalf of offset project owners or multiple offset generating projects. Entities that have significant GHG emissions must become Members and commit to the entity-wide target set by the CCX Emission Reduction Schedule. This ensures that CCX Offsets are generated from entities that have an entity-wide emission reduction commitment. Entities with fewer than 10,000 metric tons of GHG emission in a given year must submit their offset projects through an Offset Aggregator. Thus, Project Offsets can generate CFI contracts for smaller projects and for projects that are truly additional by being outside of the “business as usual” of an entity that is adequately accounted for by Exchange Allowances.

The CCX has implemented standardized rules for issuing CFI contracts for the following types of projects:

- Methane capture and destruction at landfills and farms
- New renewable energy systems such as wind, solar, and renewable fuels
- Carbon sequestration in newly planted trees in North American farmlands
- Fuel switching and end-use energy efficiency
- Soil carbon capture through grazing land best management practices
- Destruction of ozone depleting gases
- Energy efficiency at best-in-class new and retrofitted warehouses

New project types may be submitted to the CCX for approval. Standard parameters are used to identify projects that are beyond the “business as usual” emission reductions reflected by Exchange Allowances. The CCX’s approved projects are also mitigation options and sectors cited by the UNFCCC and the Kyoto Protocol.

# Guide to Emissions Trading Schemes

## Voluntary Carbon Standard

The Voluntary Carbon Standard (“VCS”) Program provides a global approval standard and system for offset projects. The program seeks to standardize and provide transparency to the voluntary offset market, enhance public confidence in voluntary carbon offset projects, and create a tradable voluntary offset credit, the Voluntary Carbon Unit (“VCU”). The VCS Association oversees the VCS Program, and is responsible for setting the standard for GHG emission reduction projects, establishing the rules for validators and verifiers of VCU generating projects, supervising a VCS project database, and setting the conditions of approval of VCS registries.

Through the VCS program, owners of qualifying projects are able to earn VCUs, which can be sold on voluntary carbon credit markets. To qualify, a project owner is required to follow specific steps included in the VCS rules. After beginning an emissions reduction project, a project owner must have the project validated by a VCS-approved third-party validator. Once validated, the project owner is able to register the project on the VCS registry, and is awarded VCUs for emissions reductions earned by the project. The VCUs may in turn be sold in voluntary carbon markets.

The VCS is modeled after the Clean Development Mechanism and Joint Implementation aspects of the Kyoto Protocol. The VCS differs from the California Registry and the Climate Registry in that it provides both protocol and standards for measuring and accounting emissions as well as a program for awarding and registering carbon offsets.

# Guide to Emissions Trading Schemes

## California Climate Action Registry

The California Climate Action Registry (“California Registry”) is a non-profit organization originally formed by the State of California. The Registry was formed in 2001 when a group of CEOs who were investing in energy efficiency projects requested that the State create a place to report and document GHG emissions. Today, the California Registry serves as a voluntary registry to promote early action to reduce GHG emissions by organizations. The California Registry develops and promotes credible and consistent GHG reporting standards and tools to allow organizations to measure, monitor, verify, and reduce their GHG emissions. Registry members have committed to voluntarily measure, verify, and publicly report their GHG emissions. As a result of their commitment, they are recognized as leaders in their respective industry sectors.

In exchange for members’ voluntary commitment, the State of California offers its best efforts to ensure that California Registry members receive appropriate consideration for early actions in light of future state, federal or international GHG regulatory programs. Registry members are well prepared to participate in market based solutions and upcoming regulatory requirements because they already measure, monitor, verify and report their GHG emissions. More than 300 corporations, universities, cities and counties, government agencies, and environmental organizations have joined the Registry and committed to monitor, verify, and publicly report their GHG emissions pursuant to Registry protocols. The California Registry is a pioneer in the methodologies of measuring and verifying GHG emissions. The California Registry is not a cap and trade system; it is primarily intended to measure, verify, and register voluntary GHG reductions for bilateral, over-the-counter transactions.

# Guide to Emissions Trading Schemes

## Climate Registry

The Climate Registry is a non-profit organization arising from collaboration among 39 North American states, six provinces, and other jurisdictions that maintains and provides reliable information related to reducing GHG emissions. The organization establishes consistent, transparent standards throughout North America that businesses and governments can use for the purpose of calculating, verifying, and publicly reporting their carbon emissions in a unified registry. The members of the Climate Registry are corporations, government agencies, non-profits, and other organizations that voluntarily measure, verify, and publicly report their GHG emissions. The registry has more than 350 members including corporations such as Wal-Mart and Ford Motor Company, government agencies such as the U.S. Postal Service, and American cities including Seattle and Austin.

The Climate Registry seeks to establish a common database for emissions reporting programs, develop a platform for credible and consistent GHG emissions reporting, and promote full public disclosure of GHG emissions. The Registry accounting infrastructure supports a variety of GHG emissions programs including mandatory, voluntary, and market based programs. Members of the Registry agree to measure, verify and report their GHG emissions annually. They commit to identify all sources of GHG emissions, calculate their total GHG emissions pursuant to Climate Registry protocols, verify emissions with a Registry-approved verifier, and report verified, entity-wide emissions data to the public on the Climate Exchange's website. Entities gain several benefits from membership, including exclusive access to accounting software and technical support for GHG tracking, recognition as an environmental leader, and documented GHG emissions baseline and reduction activities providing increased readiness for future emissions trading programs and/or regulation.

The protocols and standards used by the Climate Registry are similar to those of the California Climate Action Registry. As with the California Registry, the Climate Registry is limited to accounting and registering emissions. It does not generate credits or offsets. Despite not generating carbon offsets, both the California Registry and the Climate Registry have significant value as a standard for accounting and registering emissions.

# Guide to Emissions Trading Schemes

## Gold Standard

The Gold Standard is a Swiss-based, non-profit foundation launched in 2003. The foundation provides a carbon project “best practices” methodology and carbon credit label. The foundation is not a platform for trading carbon credits, but rather acts as an organization that certifies carbon credits. Projects that are Gold Standard-certified earn Gold Standard carbon credits, which can be bought and sold on markets created for compliance with Kyoto Protocol-derived domestic carbon emissions caps, as well as in voluntary markets. The Gold Standard is officially endorsed by more than 40 non-governmental organizations including the Worldwide Fund for Nature and Greenpeace. Gold Standard-certified carbon credits are among the most marketable voluntary credits because the standards are so rigorous.

Carbon projects that comply with the Gold Standard methodology and requirements are awarded the Gold Standard label. Owners who seek Gold Standard certification for their projects must follow a number of steps during the project design, implementation, and operation periods. These steps include pre-approval of project design, implementation and registration, and third-party verification of the project’s emissions reductions. While the usual process involves project pre-approval, it is possible to be retroactively Green Standard certified.

The Gold Standard was developed in order to establish a standardized method of evaluating carbon emissions reduction projects. The Gold Standard’s specific requirements for carbon projects help to ensure that a project is achieving its emissions reductions, which in turn allows for public confidence in the carbon credit’s value. As a result, demand for Gold Standard carbon credits is high, and Gold Standard certification typically increases the value of the carbon credit.



# Guide to Emissions Trading Schemes

## Western Climate Initiative

The Western Climate Initiative ("WCI"), is an agreement among seven U.S. governors and four Canadian premiers to identify, evaluate, and implement a system for reducing GHG emissions in the region, with focus on a market-based cap and trade program. WCI members include Arizona, British Columbia, California, Manitoba, Montana, New Mexico, Ontario, Oregon, Quebec, Utah and Washington. In February 2009, WCI released its work plan for 2009-2010, which includes recommendations for a carbon cap and trade program that will reduce the region's GHG emissions to 15% below 2005 levels by 2020.

As proposed, the cap and trade program would be the most comprehensive carbon reduction program designed to date. The program would apply a cap to carbon emissions from sectors representing 90% of the region's emissions. Regulated sectors would include electricity, industry, transportation, and residential and commercial fuel use. The American states and Canadian provinces that are members of the WCI represent more than 70% of the Canadian economy and 20% of the U.S. economy.

The initial compliance period of WCI's cap and trade program will begin January 1, 2012, when the cap will be applied to the power sector and large industry. The second phase of compliance will begin January 1, 2015, when the cap will be expanded to apply to transportation fuel, residential and commercial fuel, and industrial fuels not already covered. Allowances will be auctioned off to regulated firms, and may be bought, sold, or banked for future use. In addition, firms will be allowed to meet at least a portion of their emissions obligations through the purchase of offsets from qualifying offset projects. The WCI is also committed to maintaining a cap and trade program that can be integrated with similar programs in other regions.

# Guide to Emissions Trading Schemes

## Regional Greenhouse Gas Initiative

The Regional Greenhouse Gas Initiative ("RGGI") is the first mandatory, market-based carbon emissions reduction scheme in the United States. The RGGI is an agreement between ten Northeastern and Mid-Atlantic states to reduce carbon emissions using a cap and trade system. Through the RGGI, states will cap carbon emissions from the power sector beginning in 2009 and require a 10% reduction in carbon emissions by 2018. The states of Connecticut, Delaware, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New York, Rhode Island, and Vermont are signatory states to the RGGI agreement.

RGGI's cap and trade program is implemented through regulation in each of the ten signatory states that creates ten individual carbon budget trading programs. The ten programs are linked by carbon allowance reciprocity. Through the system, regulated firms will be allowed to use an allowance issued by any other RGGI state to comply with the regulations of the state governing that regulated firm. Initial allowances are auctioned off by each state to regulated firms on a quarterly basis. The first pre-compliance auctions took place in September and December of 2008. The proceeds of those auctioned allowances are used to support low-carbon solutions such as solar and wind power.

In addition to the allowances that may be traded amongst firms in meeting their emissions reduction obligations, the program incorporates offsets from projects outside the power sector. The program identifies particular projects that will be recognized as offset generating practices. Examples of approved offsets include landfill gas recovery and agricultural methane recapture, which reduce GHGs. A regulated firm may purchase offsets of up to 3.3% of their compliance obligation in meeting the cap.

The program takes a phased approach to ensure clear market signals and regulatory certainty, and to avoid dramatic impacts on the price of electricity. To that end, the cap is intended to be rather modest in the beginning stages of the program, allowing the power sector to take necessary steps and make necessary investments to bring their emissions under the cap. From 2009-2013, the cap will remain constant. Then, from 2014 to 2018, the cap will be reduced by 2.5% each year, resulting in a 10% reduction in carbon emissions by 2018. The first compliance period of the RGGI began on January 1, 2009.

# Guide to Emissions Trading Schemes

## Midwestern Greenhouse Gas Reduction Accord

The Midwestern Greenhouse Gas Reduction Accord (“MGGRA”), is a regional agreement signed by nine Midwestern governors and two Canadian premiers in Milwaukee, Wisconsin, in 2007. The Accord established the Midwestern Greenhouse Gas Reduction Program, which is intended to establish greenhouse gas reduction targets and timeframes; develop a market-based cap and trade program; establish a system to track, manage, and credit entities that reduce GHG emissions; and develop and implement other steps as needed to meet GHG reduction goals. The members and observers of the Accord include Indiana, Iowa, Illinois, Kansas, Manitoba, Michigan, Minnesota, Ohio, Ontario, South Dakota, and Wisconsin.

The program’s timeframe for emissions reduction is consistent with the timeframes adopted by states that have already set their own emissions targets. The member jurisdictions are also committed under the Accord to participate in a GHG emissions registry that will ensure compliance, and have further agreed that the cap and trade system will enable linkage to similar programs in other states and regions. Though the cap and trade program has not yet been implemented, the MGGRA states that the design of the program will be completed in 2009.

## Glossary of Carbon Trading Terms

### **Additionality**

Additionality is the term used to describe a practice as providing an emissions reduction additional to what would have occurred under "business as usual." An emissions reduction is additional if the reduction occurs as a result of the emission reduction scheme. Additionality is often a requirement for a given practice to qualify as an emissions offsetting practice in voluntary carbon markets.

### **Afforestation**

Establishment of a new forest; conversion of bare or cultivated land into a forest.

### **Aggregator**

An entity that pools offsets from several carbon offset projects, representing the interests of the projects' various owners. For example, Iowa Farm Bureau serves as an aggregator for soil carbon sequestration projects on agricultural soils, pooling the projects of multiple farmers to create a larger, more marketable quantity of carbon offsets.

### **Allowance**

The right to emit a given amount of emissions or carbon dioxide equivalent under a cap and trade system.

### **Cap and Trade Program**

A program that places a cap on emissions from a sector of emitters and allows the trading of emissions offsets or allowances to meet the imposed emissions requirements. For example, if for a given year an entity has 10 carbon allowances representing 1,000 metric tons of greenhouse gas, but reduces its emissions for that year to 700 metric tons of greenhouse gas, that entity will have three emissions allowances representing 300 metric tons of greenhouse gas it can sell on the market. Conversely, if an entity has 10 carbon allowances representing 1,000 metric tons of greenhouse gas but emits 1300 tons, the entity will have to purchase three allowances on the market.

### **Carbon Dioxide Equivalent**

The weight of carbon dioxide having the same deleterious environmental effects as a given weight of another gas. For example, methane is estimated to be 21 times more harmful to the environment than carbon dioxide. Offsetting 1,000 metric tons of methane would thus qualify as 21 carbon offsets in a system in which 1,000 metric tons of carbon dioxide equivalent equals one carbon offset.

### **Carbon Neutral**

Where an entity or individual's carbon emissions are reduced to zero through energy efficiency, purchase of carbon offsets, and use of renewable energy.

### **Carbon Offsets**

The term used to describe a net reduction in carbon emissions created by a carbon emissions reduction project.

### **Carbon Sinks**

The term used to describe a process or activity that sequesters carbon, or the place where carbon is stored through sequestration. For example, the planting of trees provides a carbon sink, as the trees sequester carbon dioxide in the atmosphere.

### **Carbon Sequestration**

The capture and storage of carbon in carbon sinks. For example, adoption of no-till farming techniques on agricultural soils sequesters carbon in the soil.

## Glossary of Carbon Trading Terms

### **CCX**

Abbreviation commonly used for the Chicago Climate Exchange, a voluntary greenhouse gas registry and trading market. Members of the CCX enter into legally binding commitments to meet emission reduction targets and purchase or sell carbon offsets in meeting those targets.

### **CER**

Carbon Emission Reduction. One unit of greenhouse gas reductions under the Clean Development Mechanism of the Kyoto Protocol.

### **CFI**

Carbon Financial Instrument. The commodity traded on the CCX, which is a contract representing 100 metric tons of carbon dioxide equivalent. CFIs can represent either carbon allowances or offsets.

### **Clean Development Mechanism**

An offset project under the Kyoto Protocol that allows developing countries not subject to a cap to participate in reduction efforts. Developed countries can purchase offsets from CDM projects in developing countries.

### **Direct Seeding**

A system of planting crops that allows for little or no cultivation of the soil and retention of plant residue in the fields.

### **Designated Operational Entities**

Entities that are certified by the United Nations as qualified emissions offset project evaluators. The entities are responsible for design of emissions offset projects and measurement and verification of project emissions reductions.

### **Emissions Reduction**

The result achieved by decreasing the amount of emissions of one or more greenhouse gases.

### **European Union Emissions Allowance**

The term used to describe a unit of allowed emissions of one or more greenhouse gases under the EU-ETS system.

### **European Union Emissions Trading Scheme**

EU-ETS. The pilot carbon trading system under which European Union nations seek to meet Kyoto Protocol obligations with respect to greenhouse gas emissions. The EU-ETS is the largest greenhouse gas emissions trading scheme in the world.

### **Geological Carbon Sequestration**

A carbon sequestration practice that involves capturing carbon and pumping it into subterranean reservoirs.

### **GHG**

Abbreviation for Greenhouse Gas. Greenhouse gases are temperature-regulating gases that trap heat within the earth's atmosphere. Methane, Carbon Dioxide, Nitrous Oxide, and Chlorofluorocarbons are common GHGs. As larger concentrations of GHGs are trapped near the earth's surface, heat is trapped in lower layers of the atmosphere, causing an increase in global temperatures.

## Glossary of Carbon Trading Terms

### **Gold Standard**

A foundation based in Switzerland and the credit label given to GHG offset projects by the foundation. The Gold Standard uses some of the most stringent protocol and procedures for verifying carbon offsets. Also a manual developed at Duke University that provides rules for measuring and quantifying offsets generated through changing land uses and practices.

### **IPCC**

International Panel on Climate Change. An intergovernmental body created by the World Meteorological Organization and the United Nations Environment Program. The panel does no research or data collection of its own, but assesses on a comprehensive and objective basis the latest scientific literature related to the issue of climate change.

### **Joint Implementation**

Mechanism within the Kyoto Protocol in which a developed country can acquire Emission Reduction Units from another developed country by financing emission reduction projects in the other developed country.

### **Kyoto Protocol**

An agreement executed in Kyoto, Japan in 1997. The protocol included commitments from 38 countries to reduce GHG emissions, as well as requiring decreased fossil fuel consumption, and providing an emissions trading process for trading of emissions allowances between nations.

### **MMV**

Measurement, Monitoring and Verification. The process of measuring and monitoring carbon emissions offset projects and verifying their results through a variety of scientific methods.

### **No-Till Farming**

A system of crop farming that minimizes the amount of soil disturbance by requiring very limited cultivation of agricultural soils and the retention of crop and plant residue in the fields.

### **Offset Provider**

An owner of an offset project that registers the project on an exchange directly or through an aggregator.

### **Permanence**

The term used to describe the requirement that a given offset project produce benefits that are permanent in nature. For example, permanence is discussed in the context of sequestration practices. Because carbon is simply stored, abandoning the sequestration practice may result in the escape of carbon dioxide. Thus a given project may not meet the requisite level of permanence to be granted carbon offsets if the risk of escape of carbon dioxide is not adequately minimized.

### **Registry**

A source where buyers and sellers of carbon offsets register carbon offset transactions. Registries control the risk of double-counting of carbon offsets and give market participants the ability to track offsets. Many registries also provide the ability to make trades electronically.

### **Renewable Fuels**

Fuels generated through renewable resources such as wind, water, and grain.

## Glossary of Carbon Trading Terms

### **Reforestation**

Replanting a forest where a forest previously existed.

### **RGGI**

Regional Greenhouse Gas Initiative. A regional initiative composed of seven Northeastern states that seek to reduce carbon emissions from power plants by capping emissions beginning in 2009 and providing a cap and trade program to meet emissions reduction targets.

### **SCI**

Soil Condition Index. A term used by the NCRS to measure the impact of a farm's cropping systems on soil quality by considering tillage, rotation, soil types, climate, slope, and other considerations.

### **SOC**

Soil Organic Carbon. A measurement of the amount of soil carbon in a particular layer of soil.

### **Stover**

Term describing residue on agricultural fields in the form of biomass that can be used for animal feed and cellulosic ethanol.

### **Terrestrial Carbon Sequestration**

Carbon sequestration that stores carbon in plants, biomass, and soil structures.

### **VER**

Verified Emission Reduction. A VER is a measure of emissions reductions used in the EU-ETS system. The term VER is also used generically to refer to carbon offsets in a voluntary market.

### **XSD**

Exchange Soil Offset. An XSD is a unit of carbon offset traded on the CCX market.



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