

A PRIMER ON THE GLOBAL CARBON MARKETS

At the Carbon Expo on June 1, 2011 in Barcelona, Spain, the World Bank released a report (The State and Trends of the Carbon Market, 2011) indicating that in 2010 the annual value of worldwide carbon markets was estimated to be \$142 billion, of which 84% was attributed to the European Union's Emission Trading System (EU-ETS).¹ The value of worldwide carbon markets grew by 3% to \$70 billion (50 billion euros) during the first six months of 2011.² The background of this system is as follows. In December 1997, members of the United Nations Framework Convention on Climate Change (UNFCCC) negotiated the Kyoto Protocol that established emissions reductions for the developed and developing nations that ratified the Protocol.³ The Protocol went into force in February 2005 after Russia ratified it in November 2004. The U.S. did not ratify the Protocol because it set no emission limits for China or India.

In the absence of U.S. federal cap-and-trade systems, a range of voluntary and state initiatives have emerged. These include: a pact among ten northeastern states called the Regional Greenhouse Gas Initiative (RGGI); a California statute based program called AB 32; and the Western Climate Initiative set up by seven U.S. states and four Canadian provinces. The voluntary Chicago Climate Exchange (the principal effort at a voluntary program in the U.S.) saw its prices collapse from a high of \$7.40 per ton in May of 2008 and to about \$0.10 per ton November 2009 and finally closed in January 2011 – illustrating that absent government mandates there is little demand for carbon emission allowances. EPA's efforts at controlling Greenhouse gas emissions do not involve the creation of carbon markets and are covered separately in a memorandum on EPA's 2010 – 2011 rulemaking activities.

¹ "Growth in Global Carbon Market Pauses Amid Uncertainty". Carbon Finance at the World Bank. Washington DC, June 1, 2011.

<http://web.worldbank.org/WBSITE/EXTERNAL/NEWS/0,,contentMDK:22928671~pagePK:64257043~piPK:437376~theSitePK:4607,00.html?cid=3001_2>.

² "Global Carbon Market H1 Value up 3 Percent to 50 bln Euros." A Thomson Reuters Company. 20 July 2011. <<http://www.reuters.com/article/2011/07/20/us-value-carbon-idUSTRE76J3Z620110720>>.

³ The developed countries that did ratify the Protocol, called Annex I Countries, are committed to reducing Greenhouse Gases during the period 2008 to 2012 to levels 5% below 1990 levels. Developing countries, called Annex II Countries, are not committed to reduction targets.

The basics of a “cap-and-trade” and a “baseline-and-credit” system are summarized below. Those summaries are followed by detailed descriptions of the EU-ETS and of the CDM. This memorandum then summarizes the U.S regional efforts at climate regulation, the outcome of the Copenhagen Climate Conference in December 2009 and the most recent climate talks in Cancun, Mexico.⁴ A glossary of terms is at the back of this memorandum.

Background

The Kyoto Protocol covers the six main greenhouse gases.⁵ Today’s global carbon markets include compliance markets based on a “cap-and-trade” system whereby emissions are “capped” and then emission rights are freely “traded”, a related but separate emission credit creation system (sometimes called a “baseline-and-credit system”) whereby reductions achieved in third-world countries are available for sale under the EU “cap-and-trade” system, and a much smaller voluntary system. The principal example of the cap-and-trade system is the EU-ETS. The principal examples of the baseline-and-credit system are the Clean Development Mechanism (CDM) used for voluntary projects in China, India, and Africa, and the Joint Implementation (JI) system, used primarily in Eastern Europe and the countries of the former Soviet Union.

At the Copenhagen Climate Conference in December 2009, and in a written submission in January 2010, the United States committed in a non-legally binding way to an emission reduction in the range of 17% by 2020, based on the anticipated passage of legislation. At the most recent climate talks in Cancun, Mexico that took place from November 29, 2009 to December 10, 2009, a package which has been dubbed the “Cancun Agreements” was reached that focuses on aiding poor and developing nations in building a more sustainable future.⁶

An Overview of How the Carbon Markets Work

Cap-and-Trade

Under a cap-and-trade system, an overall cap is set on carbon dioxide emissions and a finite amount of emission allowances are either auctioned off or handed out by governments starting from an agreed base.⁷ Each year fewer allowances are available and thus over time carbon emissions are reduced. As discussed in more detail below, the goal of the EU-ETS is a 20% reduction by 2020 from 1990 levels.

⁴ Since this memorandum focuses on carbon markets, it will not address U.S EPA’s recent effort at regulating greenhouse gases (GHGs) by command and control – the establishing of legally enforceable GHG regulatory requirements without establishing any market mechanism.

⁵ The Kyoto Protocol covers emissions of carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

⁶ “UN Climate Change Conference in Cancun delivers balanced package of decisions, restores faith in multilateral process.” UN press release, 11 December 2009. Accessed 14 December 2009. <<http://unfccc.int/2860.php>>.

⁷ In addition to the EU-ETS, other examples of cap-and-trade systems include the New South Wales GHG Abatement Scheme, the Regional Greenhouse Gas Initiative (RGGI), and the Chicago Climate Exchange.

In such a system, carbon emission allowances are freely tradable until they are turned over by a company to the government to cover the company's carbon emissions for a given year. Companies not achieving sufficient emission reductions in any one year (i.e., needing credits) can buy emission credits from companies that exceed required reductions or from brokers or others on the open market. Conversely, companies exceeding emission reduction targets can sell the credits directly to those needing them or to brokers or others on the open market. The largest such market presently is London's European Climate Exchange (ECX).

Baseline-and-Credit

Under the baseline-and-credit system, credits are generated by new construction or a carbon emission control project in a developing country that achieves an emissions reduction that would not have happened otherwise. This reduction is known as additionality. The host country in which the project is carried out must support the claim and an independent third party must verify the additionality of the emission reduction. The reduction is then certified to by a U.N. body.

The baseline-and-credit system can be used in connection with a cap-and-trade system. For example, the CDM mechanism which was established under the Kyoto Protocol allows companies to implement projects in developing countries (e.g., China, India, etc.) that emit less than would otherwise be the case under local law. The sponsor must also show that the project would not have been built "but for" the credits. When the additionality has been certified to, the sponsor (or any buyer of the credits) may sell the carbon credits in the EU-ETS. The CDM mechanism is discussed in more detail below.

The idea behind the CDM is that emission reductions achieved in China, India, etc. benefit the global environment as much as emission reductions in Europe and may be cheaper to implement. As also discussed below, there are significant risks associated with these projects, and at present the EU-ETS limits certified emission credits to 14% of the total.

The EU-ETS

Under the EU-ETS, the European Union (EU) is committed to achieving a reduction in greenhouse gas (GHG) emissions of 20% relative to 1990 levels by 2020 as well as achieving a 20% improvement in energy efficiency and consuming 20% of all primary energy in 2020 from renewable resources. (These goals are collectively known as the 20-20-20 targets.) The EU has offered to increase its reductions to 30% relative to 1990 levels by 2020 if other major emitting countries make commitments to lower emissions under future climate agreements.

The EU-ETS is divided into three allocation phases: Phase I began in 2005 and ended in 2007, Phase II started January 1, 2008 and continues through 2012, and Phase III begins in 2013 and continues through 2020. According to the European Commission, approximately 10,000 installations are covered by the EU-ETS and account for approximately half of the EU's carbon dioxide emissions. They include power generation plants using fossil fuels, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, brick, ceramics and pulp and paper. Over the next several years (2012 and beyond), several new sectors are expected to

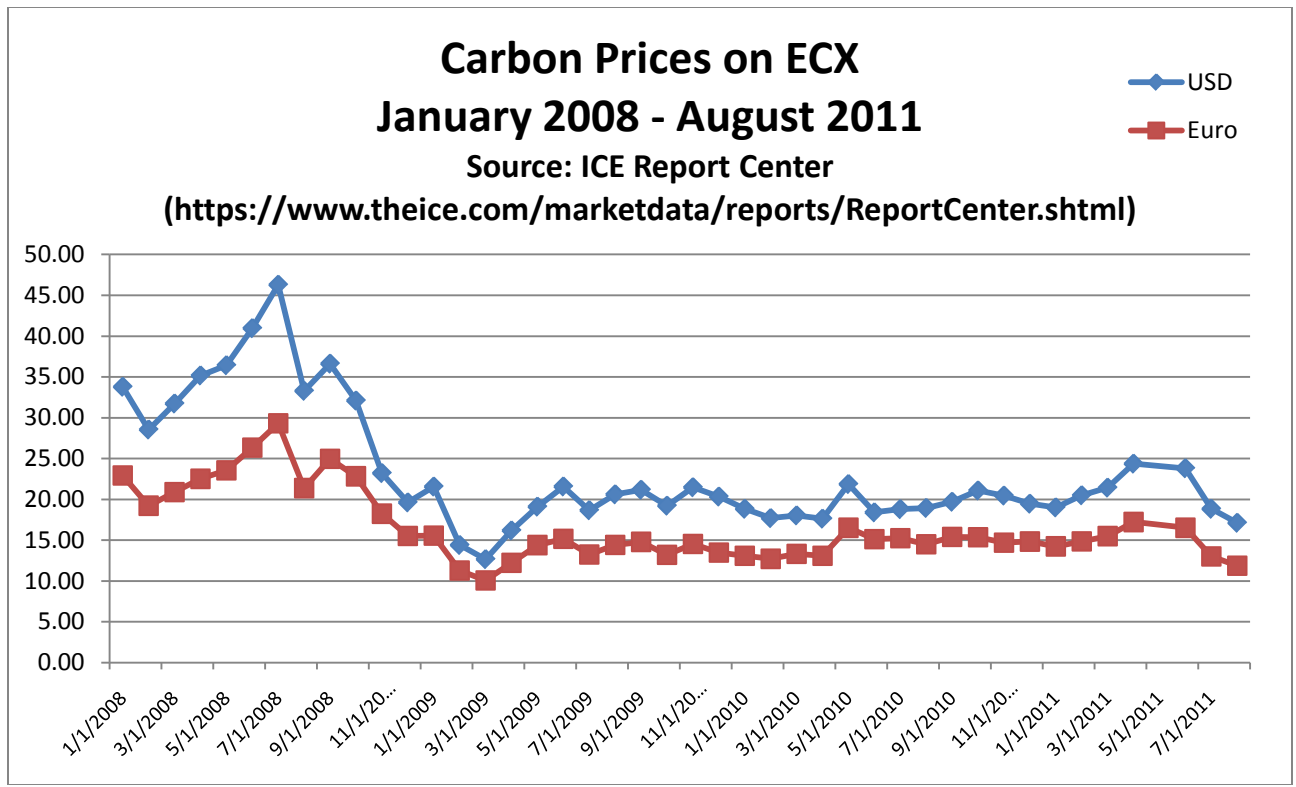
be covered by the EU-ETS. An important sector to be added is the aviation sector. Beginning January 1, 2012, all airlines that use airports in the EU will have to have allowances covering their carbon emissions for flights to, from, or between airports in the EU.⁸ The EU expects approximately 4,000 aircraft operators to be covered. It also expects that 82% of the allowances that are allocated to the aircraft operators will be awarded without charge, 15% will be auctioned, and the remaining 3% will be allocated to a special reserve for later distribution to fast growing airlines and new entrants into the market.

The Air Transport Association of America (ATA), United Airlines and American Airlines have brought suit to invalidate the application of the EU-ETS to non-EU based carriers. The litigation is pending in the European Court of Justice in Luxembourg. The European Commission, European Parliament, and a number of Member States have made submissions to the Court. The EU expects the airlines involved to comply with the requirements pending resolution of the judicial challenge. The EU is also expected to add the maritime sector in the future.

For all sectors, trade is done in carbon dioxide emissions EU allowances (EUAs) and also in Certified Emission Reductions (CERs) from CDM projects and Emission Reduction Units (ERUs) from JI projects. Each EUA or CER equals one metric ton of carbon dioxide (or its equivalent). The price of EUAs traded on the ECX has varied over time. In June of 2008, EUAs briefly exceeded \$45 per metric ton. However, with slow down in the economy beginning in July 2008, prices plunged to about \$13 per ton in March of 2009.⁹ Since that time there has been some recovery with the prices fluctuating between about \$17 and \$24 per ton. Some of the recent increase is apparently due to the decline of the dollar against the euro but the price in euros has also increased. (See the below graph which tracks prices for the first trading day of each month from January 2008 to April 2011.) It is likely that as economic activity in the EU increases, demand over time will increase. There will also be fewer EUAs available each year. However, at the Fourth Annual Carbon Trading Summit in New York in January 2010 it was reported that approximately 400 million tons had been banked and were thus hanging over the market, making a recovery in prices to the 2008 level unlikely in the near term.

⁸ The following categories of flights will be exempt: very light aircraft, military, police, customs, rescue, training, testing, and state and governmental business.

⁹ Prices given are the month end average for December 2008 futures (the 2008 prices), and for December 2009 futures (the March 2009 price).



Because of the complex nature of EU governance, under the EU-ETS, each Member State establishes a National Allocation Plan (NAP) to determine the total quantity of carbon dioxide allowances for each phase.¹⁰ The European Commission then has to evaluate the NAPs based on criteria laid out in Annex III to the Emission Trading Directive.¹¹ These criteria include ensuring that the proposed total quantity of allowances meets with Member States’ Kyoto targets and that Member States have assessed the potential for emissions reductions in all sectors. After NAPs are approved by the European Commission, Member States can make final allocation decisions.

During Phase I of the EU-ETS, Member States allocated 95% of the allowances free of charge. The penalty for non-compliance in Phase I was \$62 per excess ton. In Phase II, 90% of allowances are allocated free of charge. The remainder of allowances (i.e., 10%) may be

¹⁰ In the European Union each Member State has incentive to misrepresent the number of carbon dioxide credits needed. By April 2006, it was clear that companies had been over-allocated carbon credits by each country attempting to protect local industry. Over-allocation resulted in a temporary collapse of prices in Leipzig’s spot market (EEX) in December 2007. As a result of observations of Phase I of the EU-ETS, the European Commission (EC) has created stricter guidelines for how to monitor and report emissions reductions as the complexities of the carbon market are better understood. During Phase II, companies face new rules in the EC’s “Guidelines for Monitoring and Reporting of Greenhouse Gas Emissions Decision 2007/589/EC.” More specifically, there will be a shift from “grandfathering” as a basis for allocation to benchmarking. Instead of allocating certificates to industrial plants, etc. based on their past emissions, benchmarks are to be established for each type of emission-generating unit.

¹¹ Six Member States are suing the European Commission over the decisions regarding their NAPs. As noted below, in September 2009 Poland and Estonia won.

auctioned off by the Member State. Registries keep track of the issuance of the allowances, as well as the holding, transfer, and cancellation of allowances. The penalty for non-compliance in Phase II is \$155 per excess ton. Also in Phase II, companies are able to bank EUA's for future compliance periods.

On December 17, 2008, the EU revised the Emissions Trading System. The revised EU-ETS calls for a reduction in emissions of at least 20% in Phase III relative to 1990 emissions. However, if other industrialized countries commit to comparable efforts post-2012, then the goal would be to reduce emissions by 30% from 1990 levels. Also, during Phase III (2013-2020), there will be one EU-wide cap on emission allowances, instead of 27 national caps, so NAPs will no longer be needed. Additionally, the proportion of allowances auctioned will increase in subsequent years to 70% in 2020 with a view of reaching 100% by 2027. Ten percent of auction allowances will be redistributed from the Member States with high per capita income to those with low per capita income.¹²

Further changes were made in July 2010¹³ and again in October 2010.¹⁴ The European Commission made additional adjustments concerning the third trading period. Some of the most important include:

- The overall carbon cap for 2013 is now set at just under 2.04 billion allowances. The initial cap set in July was 1.926 billion allowances. However, developments under the National Allocation Plans, the opt-ins and the increased scope of the EU ETS caused the cap to increase by about 113 million allowances.¹⁵
- More than half of the total volume of allowances will be auctioned.¹⁶
- In the aviation sector 15% of the EUAAs will be auctioned from 2012.¹⁷

¹² Initially, the NAP process was abused by individual countries to protect local industry (as was the case when individual states could print money under the U.S.'s Articles of Confederation). The EU largely corrected that problem by tightening the review of NAP issued credits and the price of those credits rebounded in 2007. The Lieberman-Warner-Boxer bill and the Waxman-Markey bill avoid the problem by centralizing the issuance of credits in EPA and legislatively mandating exactly how many credits are to be issued by EPA in the U.S. in each year between 2012 and 2050.

¹³“Emissions trading: Member States back unanimously Commission proposed rules for auctioning of allowances.” EUROPA – Press Releases. 14 July 2010. Accessed 5 October 2010.

¹⁴ “Emissions trading: Questions and Answers concerning the second Commission Decision on the EU ETS cap for 2013.” Memo 10/513. 22 October 2010. Accessed 14 December 2010. <http://ec.europa.eu/clima/policies/ets/docs/questions_second_cap_en.pdf>.

¹⁵ “Emissions trading: Questions and Answers concerning the second Commission Decision on the EU ETS cap for 2013.” Memo 10/513. 22 October 2010. Accessed 14 December 2010. <http://ec.europa.eu/clima/policies/ets/docs/questions_second_cap_en.pdf>.

¹⁶“Emissions trading: Questions and Answers on the EU ETS Auctioning Regulation.” EUROPA – Press Release. 16 July 2010. Accessed 5 October 2010.

¹⁷“Emissions trading: Member States back unanimously Commission proposed rules for auctioning of allowances.” EUROPA – Press Releases. 14 July 2010. Accessed 5 October 2010.

- At this stage, the annual cap will continue to decrease along a linear trend line of 1.74% per year.¹⁸

The European Commission expects further revisions to be made up until 2013.¹⁹

On September 23, 2009, the second highest tribunal in the EU ruled that the European Commission had failed to prove that Poland and Estonia had been too generous in issuing allowances and that the European Commission had “very restricted” power to review national allocation plans (NAPs). The court rejected the Commission’s decision to compel Poland to cut its allowances by nearly 27% and Estonia by nearly 48%. The decision should not be relevant after Phase III begins in 2013 (when the European Commission has the right to decide on the allocation of carbon allowances for each industry sector across the EU). The European Commission filed an appeal on December 3, 2009. Additionally, on December 11, 2009, the European Commission yet again rejected Poland and Estonia’s NAPs on the basis that the quantity of allowances those countries proposed to allocate was too high.

As noted above, besides EU allowances, certified emissions credits from the baseline-and-credit systems (i.e., CERs from the CDM mechanism and ERUs from the JI mechanism) are also traded under the EU-ETS. During Phase II, these credits are limited to 14% of aggregate allocations. In Phase III, the amount of additional credits is limited to no more than 50% of the reduction in emissions from 2008-2020. (This figure is based on a 20% emissions reduction by 2020 – if the reduction becomes more stringent, as now seems unlikely, the European Commission could allow more access to CERs and ERUs.) Fifty percent of twenty percent is only ten percent. This implies a reduction in the available credits from CDM projects from 14% in Phase II to only 10% in Phase III. We are advised by EU counsel that such an outcome is unlikely because it would reduce the ability of European industry to be able to buy credits from developing world projects. It is clear that only credits from project types eligible for use during 2008 to 2012 can be used from 2013 to 2020, however, the exact number of credits that will be available in Phase III is apparently uncertain at this time.²⁰ See below for a further discussion of CERs.

¹⁸ “Tighter cap fails to lift EU carbon.” Carbon Positive. 12 July 2010. Accessed 5 October 2010. <<http://www.carbonpositive.net/viewarticle.aspx?articleID=2047>>.

¹⁹ “Tighter cap fails to lift EU carbon.” Carbon Positive. 12 July 2010. Accessed 5 October 2010. <<http://www.carbonpositive.net/viewarticle.aspx?articleID=2047>>.

²⁰ EC’s “Questions and Answers on the Commission’s proposal to revise the EU Emissions Trading System”, January 23, 2008.

The CDM Baseline-and-Credit System

The Clean Development Mechanism offers a way for companies subject to EU-ETS to earn CERs for projects implemented in developing countries. At the end of November 2010, CERs were selling for around \$15.67.²¹ There are several types of projects that can generate CERs including biological sequestration, destruction of industrial gases with high global warming potentials, methane capture, projects that increase energy efficiency, and renewable energy projects. However, not all types of projects are accepted in each trading system. For example, nuclear and forestry projects, as well as some hydropower projects are not eligible for EU-ETS compliance credits. Companies that finance the projects take on risk, because approval of the projects can be denied by the UN's CDM Executive Board, or when the project is completed it may not achieve the emissions reductions called for in the planning documents.

During the planning phase of a project a feasibility study is conducted and a methodology is established to determine a project's baseline and additionality. A Project Design Document is completed that describes the project in detail. The project then must be validated by an independent UN-approved third-party auditor, called Designated Operational Entities (DOEs). Currently, three auditors dominate the business: Det Norske Veritas, based in Norway; TÜV Süd AG, based in Germany; and SGS Group, based in Switzerland. After a project is validated by a DOE, it must be approved by the host country as well as by the CDM Executive Board. According to the UNEP Risoe Centre, there are currently 4,823 CDM projects in the pipeline. An additional 45 projects have withdrawn from the process and 683 projects have been rejected. After a CDM project is approved, it is implemented and monitored. Once a project is completed, verification is required to confirm that the planned carbon emissions reductions are taking place. This verification is done by a different DOE than the one that conducted project validation. If it is clear that emissions were reduced, then CERs are issued.²²

Under the CDM mechanism, there may be a failure to deliver purchased carbon credits. The risk of failure to deliver credits is typically allocated by contract. Some contracts relate to credits already generated, others relate to credits expected to be generated and may be either "guaranteed" (i.e., risk to the seller) or not guaranteed (i.e., some element of risk to the buyer). Although some effort is being made to develop more uniform contracting, wide variations exist in contracts as to the allocation of risk, including the risk of project failure (i.e., the project does not get built, fails once built to produce the required additionality to justify certification of the carbon credits, or it produces certifiable credits but fewer than expected) and the credit risk that the seller becomes insolvent before the date of delivery or otherwise defaults in the delivery of certified credits in the agreed quantity when due.

Generally, contracts fall into one of three categories: immediate delivery of existing credits, future delivery at a pre-determined price and time of credits from an existing project that

²¹ Prices given are the average of the last three reporting days for a month for December 2010 futures. ICE Report Center. Accessed 14 December 2010.
<<https://www.theice.com/marketdata/reports/ReportCenter/shtml?reportId=10>>.

²² U.N. officials are concerned with whether the auditors have been tough enough. The tightening of standards is said to be underway. "Two Carbon-Market Millionaires Take Hit As U.N. Clamps Down," *The Wall Street Journal*, April 14, 2008.

is already producing certifiable credits, and future delivery of credits that do not yet exist that are expected to be produced from a specified project or projects that is or are to be built. The first category of contracts are the least risky, the last the most risky. A buyer therefore needs to examine closely the exact terms on which a specific set of CDM credits are being offered. There are also various non-contractual ways of managing risk. These include having a portfolio of projects, employing independent experts to oversee projects, buying more credits than are actually needed on the assumption that the delivery of some will fail, and taking out an insurance policy. Each of these ways of managing risk involves additional cost.

Challenges Facing the EU Carbon Markets

We are advised by our European colleagues that the EU carbon markets face a number of challenges to carbon emission reductions, including those noted below.

- The Kyoto Protocol uses 1990 as its base year from which reductions are measured. The carbon emission reductions that the EU has thus far achieved since that base year have been largely due to deindustrialization in the countries of the former Soviet Union (including what was formerly East Germany). As a result, further emission reductions in the EU as a whole, and in those countries in particular, will be more difficult to achieve in the future.
- Companies seeking to determine the number of carbon emission credits they need to hold or apply for typically hire private engineering firms to quantify their emissions and make the related calculations regarding the credits they will need. There is, however, relatively weak oversight by governmental bodies of this process. As a result, oversight of the process needs to be strengthened to better assure the integrity of emissions computations.
- Currently, when a purchase and sale transaction takes place, it must be reported at multiple levels, including to registries maintained at the EU and at each of the member states where the buyer and seller are located. Additionally, each cross-border transaction must be reported to a United Nations body that converts EUAs into Assigned Allowance Units (AAUs). AAUs are the international mechanism used to track the emission balances of the respective Kyoto states. As a result, these databases need to be better integrated in order to provide increased assurance that the transaction reporting system is running properly (for example, that the same credit is not sold more than once by an originating company).

U.S. State and Regional Efforts at Carbon Market Creation

RGGI

The RGGI was originally organized by a compact among: Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New York, New Jersey, Delaware, and Maryland. Notably, the industrial state of Pennsylvania declined to participate and on May 26, 2011, Governor Chris Christie withdrew New Jersey from the program. Participating states have

implemented a market based mandatory cap-and-trade system but it is applicable only to fossil fuel-fired electric generating units (EGUs) operating in each state.²³

The RGGI participating states have agreed to stabilize carbon dioxide emissions from power plants from 2009 to 2014 at 188 million short tons per year and then to reduce emissions by 2.5% per year during the next four years (i.e., a 10% total reduction by 2018). Each regulated EGU must hold and surrender allowances equal to its emissions in the prior year.²⁴ The RGGI held its twelfth auction of carbon dioxide emissions allowances on June 8, 2011. According to RGGI, the price of the winning allowance bids in that auction for the current control period of 2009-2011 was \$1.89 per ton. A small number of allowances for a control period with a 2014 vintage year were also offered for sale. The winning bids for those allowances were \$1.89 per ton.

California's AB 32 Program

Beginning in 2012, California by statute will implement a program requiring certain emitters of GHGs to obtain and surrender at the end of each year permits covering the GHGs emitted in the preceding year. The program will first apply to EGUs, imports of electricity, and large industrial facilities emitting greater than 25,000 metric tons carbon dioxide equivalent per year. Each allowance will cover one metric ton of carbon dioxide emission equivalent. Starting in 2015, distributors of transportation fuels, natural gas and other fuels will be required to have GHGs allowances. These sources are said to account in total for 80% of GHG emissions in the state.²⁵

The permits may be obtained from state awarded allowances or may be purchased at state conducted quarterly auctions or in a market to be established. Award of emission allowances will focus on EGUs and industrial sources. EGUs will be required to sell awarded allowances for the benefit of rate-payers (thereby reducing the impact of the cap and trade system on the price for electricity). The total number of emission permits issued each year will decline with a goal of reducing emissions by 2020 to what they were in 1990.²⁶ Only 8% percent of an entity's obligations may be fulfilled by offsets (such as forestry and agricultural emission reduction or sequestration projects) under regulations to be established. The agricultural industry (a major emitter of GHGs, including methane) is exempt from the regulations.²⁷ On December 16, 2010,

²³ "Program Overview." RGGI, Inc. <<http://www.rggi.org/design/overview>>.

²⁴ *Ibid.*

²⁵ "Cap-and Trade." California Environmental Protection Agency – Air Resources Board. <<http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>>, updated 20 December 2010.

²⁶ CARB estimates this will amount to a 15% reduction from current emissions. The regulations cover emissions of carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, sulfur hexafluoride, and nitrogen trifluoride.

²⁷ "ARB Emissions Trading Program Overview." California Environmental Protection Agency – Air Resources Board. <http://www.arb.ca.gov/cc/factsheets/emissions_trading_program.pdf>, revised 27 October 2010.

the California Air Resources Board (CARB) approved draft AB 32 regulations to be implemented beginning in 2012, subject to public notice and comment and a hearing on staff proposed modifications to the program.²⁸

On March 18, 2011, the San Francisco Superior Court issued an injunction prohibiting CARB from further rulemaking under AB 32 because CARB failed to consider alternatives to a cap-and-trade system (for example, a carbon tax) or allow public comment on such alternatives.²⁹ CARB appealed the injunction and the First Appellate District of the California Court of Appeal stayed the lower court's decision on June 3, 2011. In accordance with the rulemaking process, CARB must finalize the regulation by October 28, 2011.

The Western Climate Initiative (WCI)

The states of Arizona, California, Montana, New Mexico, Oregon, Utah and Washington and the Canadian Provinces of British Columbia, Manitoba, Ontario and Quebec have established a regional cap and trade program to be phased in like the California program beginning in 2012 with the goal of reducing GHG gas emissions by 15% by 2020. Allowance budgets are to be established in the autumn of 2011. Before the WCI can become operative, each state must separately adopt empowering legislation and enter into cooperative agreements.³⁰

Additionally, observers to the program that are supportive of its goals but not now member states consist of fourteen additional jurisdictions, including six western states, six Mexican states, and two Canadian provinces.

The Future

The Kyoto Protocol by its terms ends in 2012. A plan adopted at the Bali conference set out procedures to be implemented to achieve a post-Kyoto agreement. The plan anticipated a new agreement being reached in Copenhagen in December 2009. However, the result of the 2009 conference in Copenhagen was a document drafted by the United States, China, India, Brazil, and South Africa called the Copenhagen Accord. The Accord's goal is to keep global temperatures from increasing by more than 2 degrees Celsius over pre-industrial times. Additionally, developed countries will jointly raise \$100 billion a year by 2020 to address the needs of developing countries. The Conference of the Parties to the United Nations Framework Convention on Climate Change "takes note" of the Copenhagen Accord. The Accord endorses the continuation of the Kyoto Protocol. On January 25, 2010, the U.N.'s Executive Secretary issued a clarification that the Accord's provisions "do not have any legal standing."

²⁸ "Cap-and Trade." California Environmental Protection Agency – Air Resources Board. <<http://www.arb.ca.gov/cc/capandtrade/capandtrade.htm>>, updated 20 December 2010.

²⁹ "California's Climate Change Law Suffers Legal Setback." Georgetown International Environmental Law Review. <<http://gielr.wordpress.com/2011/03/25/californias-climate-change-law-suffers-legal-setback/>>.

³⁰ "Program Design." Western Climate Initiative. <<http://www.westernclimateinitiative.org/designing-the-program>>.

According to the UNFCCC, as of mid-May 2010 sixteen Annex 1 parties have associated themselves with the Accord. Those parties are Australia, Belarus, Canada, Croatia, the European Union (and each of its member states), Iceland, Japan, Kazakhstan, Liechtenstein, Monaco, New Zealand, Norway, the Russian Federation, Switzerland, Ukraine and the United States.

Thirty-six non-Annex I parties have associated themselves with the Accord. These countries must specify mitigation actions, but do not have to commit to reduction targets. The non-Annex I parties are Afghanistan, Armenia, Benin, Bhutan, Botswana, Brazil, Central African Republic, China, Congo, Costa Rica, Cote d'Ivoire, Ethiopia, Eritrea, Gabon, Georgia, Ghana, India, Indonesia, Israel, Jordan, Madagascar, the Maldives, the Marshall Islands, Mauritania, Mexico, Mongolia, Morocco, Papua New Guinea, Republic of Korea, Republic of Moldova, San Marino, Singapore, Sierra Leone, South Africa, the former Yugoslav Republic of Macedonia, and Togo.

The most recent round of climate talks took place in Cancun, Mexico from November 29 to December 10, 2010. The adopted package, dubbed the "Cancun Agreements" is very similar to the Copenhagen Accord. It launched a set of initiatives and institutions to protect poor and developing nations from climate change and provide money to these nations so that they can plan and build sustainable futures.³¹ Plans for a \$100 billion fund to help developing nations, again similar to the Copenhagen Accord, is also included in the agreements.³² Protecting forests in developing nations was also part of the package as was a commitment to work to stay below a two degree Celsius temperature rise.³³ The agreement did not address what will happen once the Kyoto Protocol expires in 2012. Instead, that debate was postponed until the next round of climate talks which are scheduled for November 28 – December 9, 2011 in Durban, South Africa.³⁴

³¹ "UN Climate Change Conference in Cancun delivers balanced package of decisions, restores faith in multilateral process." UN press release, 11December 2010. Accessed 14 December 2010. <<http://unfccc.int/2860.php>>.

³² CNN Wire Staff. "Cancun delegates reach climate change deal." CNN. 11 December 2010. Accessed 14 December 2010. <<http://www.cnn.com/2010/WORLD/americas/12/11/mexico.climate.summit/index.html?iref=allsearch>>.

³³ "UN Climate Change Conference in Cancun delivers balanced package of decisions, restores faith in multilateral process." UN press release, 11December 2010. Accessed 14 December 2010. <<http://unfccc.int/2860.php>>.

³⁴ CNN Wire Staff. "Cancun delegates reach climate change deal." CNN. 11 December 2010. Accessed 14 December 2010. <<http://www.cnn.com/2010/WORLD/americas/12/11/mexico.climate.summit/index.html?iref=allsearch>>.

GLOSSARY OF KEY TERMS

AB 32 Program – A program beginning in 2012 by statute that will require certain emitters of GHGs to obtain and surrender at the end of each year permits covering the GHGs emitted in the preceding year.

Additionality – The extent to which reductions or avoidance of greenhouse gas emissions would not have occurred anyway.

AAUs – Assigned Allowance Units are the international mechanism used to track the emission balances of the respective Kyoto Protocol states

Baseline-and-credit – A system in which greenhouse gas reductions achieved in third-world countries are available for sale under the EU’s cap-and-trade system.

Cap-and-trade – A system in which greenhouse gas emissions are “capped” and then emission rights are freely “traded.”

Carbon dioxide equivalent – A measure for describing how much global warming a given type and amount of greenhouse gas may cause, using the functionally equivalent amount or concentration of carbon dioxide as a reference.

Carbon shares – Under the CLEAR Act, a carbon share is a permit required to accompany each ton of fossil carbon in the fuel of an upstream fossil fuel producer or importer.

Covered entities – Sources of greenhouse gases under the Waxman-Markey bill required to hold credits for their greenhouse gas emissions. Each year a covered entity must prove that it holds a sufficient number of emission allowances to cover its emissions.

CDM – The Clean Development Mechanism is a system for allowing companies under the EU-ETS the possibility of earning CERs for projects implemented in developing countries which reduce greenhouse gases.

CERs – Certified Emissions Reductions are a form of carbon dioxide emissions from CDM projects that are traded on the open market.

Emission Allowances – Under the Waxman-Markey and Kerry-Boxer bills, emission allowances are carbon dioxide equivalent allowances, or credits. Each allowance gives an entity the right to emit one metric ton of CO₂ equivalent. They will be distributed by EPA for grant or auction for each year between 2012 and 2050.

EPA – The Environmental Protection Agency is the U.S. government agency whose mission is to protect human health and the environment.

EU-ETS – The European Union Emissions Trading Scheme is a cap-and-trade system in the EU.

EUAs – European Union Allowances are a form of carbon dioxide emissions traded on the open market.

ERUs – Emission Reduction Units are a form of carbon dioxide emissions from Joint Implementation (JI) system projects traded on the open market.

ECX – The European Climate Exchange in London is currently the largest carbon market where emission credits can be traded.

Greenhouse gases (GHG) – Greenhouse gases are gases that trap heat in the atmosphere. The six main greenhouse gases are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride.

JI – The Joint Implementation System is a type of baseline-and-credit system used primarily in Eastern Europe and the countries of the former Soviet Union.

Kyoto Protocol – An international agreement (under the UNFCCC) that sets targets for thirty-seven industrialized countries and the European community for reducing GHG emissions.

NAP – A National Allocation Plan must be established by each EU member state to determine the total number of allowances that will be allocated in each phase. NAPs are then evaluated by the European Commission.

RGGI – The Regional Greenhouse Gas Initiative is a voluntary cap-and-trade system in the U.S. applicable only to electric generating units (EGUs). The participating states are Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, New York, New Jersey, Delaware, and Maryland.

UNFCCC – The United Nations Framework Convention on Climate Change is a treaty which sets an overall framework for governments to address the issue of climate change. It was entered into force in 1994 and has been ratified by 192 countries.

Western Climate Initiative (WCI) - A regional cap and trade program to be phased in beginning in 2012. Participating states are Arizona, California, Montana, New Mexico, Oregon, Utah and Washington and the Canadian Provinces of British Columbia, Manitoba, Ontario and Quebec.