



Carbon Emissions Legislation

European Union • Australia • Brazil • Canada (Alberta and British Columbia)
China • Colombia • France • Germany • Israel • Japan • Mexico
New Zealand • South Africa • South Korea
Sweden • United Kingdom

March 2014

LL File No. 2014-010386
LRA-D-PUB-000011

This report is provided for reference purposes only.
It does not constitute legal advice and does not represent the official
opinion of the United States Government. The information provided
reflects research undertaken as of the date of writing.
It has not been updated.

Contents

Comparative Summary	1
European Union	7
Australia	22
Brazil	31
Canada, Alberta	36
Canada, British Columbia	42
China	46
Colombia	55
France	63
Germany	69
Israel	75
Japan	82
Mexico	92
New Zealand	96
South Africa	105
South Korea	111
Sweden	118
United Kingdom	128
International Law	136
<i>Bibliography</i>	142

Comparative Summary

Nicolas Boring
Foreign Law Specialist

This report examines the ways in which a number of countries are attempting to reduce their greenhouse gas (GHG) emissions. A particular emphasis is put on emissions trading schemes (ETS), but other emissions-reduction policies are examined as well. Indeed, many countries do not participate in any ETS, and instead aim to reduce GHG emissions through other means.

I. Definition

It is important to note that, although the term “carbon” is often used, the policies discussed in this report actually go beyond a reduction of carbon dioxide (CO₂) to include other GHGs. The European Union ETS, for example, applies to carbon dioxide and “other gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation,”¹ which would include (but not be limited to) methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride in addition to carbon dioxide. Australia’s ETS is meant to cover carbon dioxide, methane, nitrous oxide, and specified perfluorocarbons attributable to aluminum production—a list that appears somewhat narrower than the EU scheme but one which nonetheless goes well beyond carbon dioxide.

II. Global Concern over Greenhouse Gas Emissions

Global warming appears to be generally considered a major environmental concern in the jurisdictions discussed in this report. Most Britons, for example, seem to believe that a series of floods that have recently affected the United Kingdom are attributable to global warming. Similarly, recent polls find that a large majority of the French public believes that climate change will adversely affect their daily lives, and over half of the Mexican public sees global warming as a major threat. In Sweden, concerns over global warming have helped turn the Green Party into the country’s third largest political party.

All of the jurisdictions discussed here have adopted the position that greenhouse gas emissions constitute an important environmental issue. However, there is no general consensus over the best policies to reduce these emissions. As illustrated by the chart below, several countries (as well as the EU and the Canadian province of British Columbia) either already have an ETS, or are developing one. Yet others, such as Israel and South Africa, have not adopted any sort of

¹ Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 Establishing a Scheme for Greenhouse Gas Emissions Allowance Trading Within the Community and Amending Council Directive 96/61/EC art. 3(c), 2003 O.J. (L 275) 32, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:275:0032:0032:EN:PDF>, as amended by Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emissions Allowance Trading Scheme of the Community, 2009 O.J. (L 140) 63, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0063:0087:en:PDF>.

cap-and-trade mechanism, and Australia appears set to dismantle its existing ETS in the near future.

Table: ETS Status by Jurisdiction

Jurisdiction	ETS in Operation	ETS Under Development	No ETS
European Union	✓		
Australia	✓		
Brazil			✓
Canada – Alberta			✓
Canada – British Columbia		✓	
China		✓	
Colombia			✓
France	✓*		
Germany	✓*		
Israel			✓
Japan		✓	
Mexico			✓
New Zealand	✓		
South Africa			✓
South Korea		✓	
Sweden	✓*		
United Kingdom	✓*		

* Participates in the European Union ETS.

III. Cap-and-Trade Schemes

The current ETSs operate on the same basic principles. The government issues allowances that permit a certain amount of GHG emission. Entities that operate within certain legally-determined sectors of activity, or which release a certain amount of emissions, must obtain enough of these allowances to cover their emissions every year. These entities must then surrender their allowances back to the government at the end of the year, at which time their levels of emissions are compared to the number of allowances they hold. An operator emitting more GHG than its number of allowances permitted has to pay a penalty—typically a forced purchase of its missing allowances, and/or a fine. One of the defining aspects of this type of scheme is that, after the allowances have been sold or otherwise distributed by the government to private operators, these entities may trade these allowances among themselves, thereby creating a market. The ultimate goal is to create a strong incentive for polluting industries to find ways to reduce their GHG emissions.

The government's initial distribution of allowances to the polluting entities is typically a sale—either at a fixed price or through an auction. However, in most cases, the practice has been to begin implementing an ETS with an introductory period during which allowances are distributed for free.

The various ETSs discussed in this report cover different ranges of activity. Most focus on industrial activity (particularly heavy industry) and on the energy sector. The biggest existing ETS, the EU's, originally only applied to operators in the energy sector, the production and processing of ferrous metals, the mineral industry, and large-scale pulp production. Since 2009, it also covers oil refinery; the production of coke, lime, cement, paper and cardboard, carbon black, nitric acid, and ammonia; and the manufacturing of glass, ceramics, and mineral wool. Australia's ETS covers electricity generation, stationary energy, industrial processes, fugitive emissions from coal and gas, and emissions from waste deposited in landfills. Even though agriculture can be an important source of GHG emissions, it appears that this sector is generally not included when the ETS apply to specifically defined activities. New Zealand is an exception, however, as forestry is currently covered by that country's ETS, and pastoral agriculture will be covered beginning in 2015.

Chinese cap-and-trade programs appear to take a slightly different approach, as participation in these programs is based on the operators' volume of emissions. Shanghai's ETS, for example, applies to enterprises within listed industrial sectors (steel, petroleum, chemicals, etc.) emitting 20,000 metric tons of CO₂ or more annually during any year between 2010 and 2011. Enterprises in nonindustrial sectors (transportation, commerce, hotels, and financial services) emitting 10,000 metric tons or more of CO₂ in the same period are also covered. Guangdong's ETS covers all enterprises in industrial sectors emitting 10,000 metric tons of CO₂ annually and nonindustrial sector enterprises emitting at least 5,000 metric tons annually. Similarly, South Korea's ETS will apply to business entities that produce an average total amount of 125,000 metric tons of CO₂ equivalents (CO₂eq) during the preceding three years, and to business entities owning a place of business that produced 25,000 metric tons of CO₂eq during the preceding three years.

As this report illustrates, an ETS can be set up at various territorial or administrative levels. Australia and New Zealand each have an ETS at the national level. The EU's ETS operates at a supranational level, while Canada and China have various cap-and-trade schemes at the subnational level. Japan has taken an innovative approach, combining both national and subnational ETSs. As a first, tentative step in establishing a national ETS, Japan has made participation in it voluntary. However, two Japanese regions (Tokyo and Saitama) each operate a mandatory ETS at the local level.

IV. Economic Impact

The economic impact of ETSs has often been an important concern. The main idea behind an ETS is to impose a cost on polluters, to provide them with an incentive to reduce their pollution. However, some fear that this cost could have a negative impact on economic growth. This appears to be a very complex economic question, with many variables, and there is no consensus on what the answers are. A British report found that

there is no conclusive evidence on how the EU ETS affected the economic performance of regulated firms. Some studies found negative effects on employment, profits, or productivity, but these findings were not confirmed in other studies that relied on different statistical models. One study found evidence that the EU ETS increased profits as firms priced in the opportunity costs of permits they had obtained for free.

Furthermore, the review did not identify any convincing evidence that the EU ETS adversely affected the competitiveness of regulated firms. Some studies tested whether the introduction of the EU ETS weakened net exports of goods into non-regulated countries, with ambiguous findings.²

This issue has also led to considerable debate in New Zealand and Australia, and a number of studies and reports have been completed in relation to different areas and impacts. In seeking to repeal the mechanism and replace it with its Direct Action Plan, the current Australian government considers that the price on carbon “indisputably adds to the cost of living.”³ On the other hand, some commentators argue that “the economy is still growing, creating jobs and registering a quite stunning lift in wealth in the period since carbon was priced.”⁴ The Australian Competition and Consumer Commission (ACCC) recently announced that the government has asked it to monitor prices, costs, and profits of various entities in order to assess the impact of the carbon tax both before and after the anticipated repeal.⁵ Economic modeling conducted in New Zealand prior to the commencement of that nation’s ETS found that, in the longer term to 2025, “if the rest of the world takes steps to price carbon, and technological change is induced by this pricing, then a broad-based domestic carbon pricing scheme is the least costly way to meet New Zealand’s international obligations.”⁶ In 2011, the first review of the ETS found that “it is in New Zealand’s long-term economic interests to continue to change behaviour and that the incentives to do so should continue to increase through a cost on greenhouse gas emissions.”⁷ However, the review noted that the ETS “will increase the cost imposed on the economy in the short term.”⁸ Following the review, the government enacted legislative changes in order to further slow the implementation of the scheme. The amendments were considered by the government to strike “the right balance between continuing to do our fair share and ensuring the cost of the ETS does not impact unreasonably on New Zealanders.”⁹

² Ralf Martin et al., DEPARTMENT OF ENERGY & CLIMATE CHANGE (U.K.), An Evidence Review of the EU Emissions Trading System, Focusing on Effectiveness of the System in Driving Industrial Abatement 24 (July 10, 2012), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48449/5725-an-evidence-review-of-the-eu-emissions-trading-sys.pdf.

³ *Scrapping the Carbon Tax and Reducing the Cost of Living*, LIBERAL PARTY, <http://www.liberal.org.au/scrapping-carbon-tax-and-reducing-cost-living> (last visited Mar. 28, 2014).

⁴ Stephen Koukoulas, *Our Wealth Has Only Grown Since the Carbon Tax*, THE DRUM (July 26, 2013), <http://www.abc.net.au/news/2013-07-26/koukoulas-our-wealth-has-only-grown-since-the-carbon-tax/4846060>.

⁵ Press Release, Australian Competition and Consumer Commission, ACCC to Adopt Price Monitoring Role on Carbon Tax Repeal (Feb. 24, 2014), <http://www.accc.gov.au/media-release/accc-to-adopt-price-monitoring-role-on-carbon-tax-repeal>.

⁶ NZIER, ECONOMIC MODELLING OF NEW ZEALAND CLIMATE CHANGE POLICY: REPORT TO MINISTRY FOR THE ENVIRONMENT at v (May 20, 2009), <http://www.climatechange.govt.nz/emissions-trading-scheme/building/reports/economic-modelling/economic-modelling-of-new-zealand-climate-change-policy.pdf>.

⁷ MINISTRY FOR THE ENVIRONMENT, EMISSIONS TRADING SCHEME REVIEW PANEL, DOING NEW ZEALAND’S FAIR SHARE: EMISSIONS TRADING SCHEME REVIEW 2011: FINAL REPORT at 6 (June 30, 2011), <http://www.climatechange.govt.nz/emissions-trading-scheme/ets-review-2011/review-report.pdf>.

⁸ *Id.* at 7.

⁹ Press Release, Hon. Tim Groser, ETS Amendment Bill Passes Third Reading (Nov. 8, 2012), <http://www.beehive.govt.nz/release/ets-amendment-bill-passes-third-reading>.

One of the more specific concerns has to do with the concept of “carbon leakage,” which describes a situation where certain businesses decide to transfer their activities to other countries that do not impose costs on greenhouse gas emissions. A 2009 report from New Zealand noted that “until there is clearer evidence about the actions of the rest of the world and the nature of technological improvements, our modelling shows that there is value in designing any pricing scheme with some flexibility to prevent significant leakage or damage to key industries.”¹⁰ The EU’s response to that challenge has been to allow Member States to provide financial assistance to those sectors or subsectors that are likely to be exposed to a large risk of carbon leakage. The United Kingdom, for example, provides additional free emissions allowances to companies that may be inclined to shift production or investment overseas to avoid the increased costs associated with complying with the EU ETS.

V. Other Emissions-Reducing Measures

Cap-and-trade programs are only one of several policy tools available to countries aiming to reduce GHG emissions. The countries discussed in this report have also implemented other measures—either instead of, or in addition to, an ETS. Fiscal measures such as the “carbon tax” seem fairly common. South Africa does not have an ETS, but it imposes a carbon tax. Australia, Mexico, Sweden, Japan, and the Canadian province of British Columbia all have some form of carbon tax as well, and one is under discussion in China and Colombia. Some countries do not have a carbon tax per se, but take carbon emissions into consideration for certain taxes. France and Germany, for example, take such emissions as factors in calculating the tax rate on individual motor vehicles. Furthermore, gasoline purchases are often taxed heavily.

Another option is to encourage emissions reductions through subsidies or other financial benefits. In Australia, the current ruling coalition intends to repeal both that country’s ETS and its carbon tax, and instead encourage emissions reductions through targeted funding for urban tree planting and solar energy programs.

Countries that contain large forested areas, such as Brazil and Colombia, have particular challenges and opportunities. Brazil is among the top global emitters of GHG, mainly due to land use and deforestation. Consequently, the Brazilian government seeks to curb emissions by reducing deforestation—an effort that appears to have had inconsistent results. Contrary to Brazil, Colombia’s current emissions are relatively low, but they are nevertheless projected to grow significantly absent any mitigating action. This has prompted Colombia to adopt several emissions-reducing policies, including important forest preservation measures.

Another option is simply to mandate that certain entities or facilities reduce their emissions. That is essentially the road taken by the Canadian province of Alberta, which requires that facilities emitting more than 100,000 metric tons of GHG per year reduce their emissions intensity (emissions per unit of production) by 12% from baseline levels.

Many countries, including France, Germany, Israel, Sweden, and the United Kingdom, have also adopted various policies to encourage energy efficiency, such as measures to promote public

¹⁰ NZIER, *supra* note 6, at vi.

transportation, energy-efficient construction and housing, energy-efficient infrastructure, and environment-friendly innovation. These policies are typically based on combinations of incentives such as subsidies, tax breaks, or low-interest loans, and regulatory mandates such as compulsory standards or tax penalties. Germany appears to have been particularly successful in promoting green innovation, as it now is a world leader in energy-saving and electricity-cogenerating technology.

European Union

Theresa Papademetriou
Senior Foreign Law Specialist

SUMMARY The European Union’s cornerstone mechanism to reduce greenhouse gas emissions is the Emissions Trading Scheme (ETS), which came into force in 2005 and is currently in its third period. Participants in the ETS include the twenty-eight EU Members and Iceland, Liechtenstein and Norway. The ETS is mandatory for companies engaged in certain sectors and is based on a cap-and-trade principle. A single EU-wide ETS registry to record, trade, and surrender allowances has replaced national registries. As of 2013, auctioning began to gradually replace the free allocation of allowances.

The ETS also applies to commercial aviation. However, the EU’s step to include international aviation in the ETS as of 2012 generated widespread controversy and was opposed by several third countries, including the United States. It also led to litigation before the European Court of Justice, which upheld the validity of the EU legislation establishing the ETS/aviation. Following the Civil International Aviation Organization’s resolution in October 2013 to draft a global, market-based agreement on international aviation emissions by 2016, the EU reached a compromise by limiting the ETS to aviation emissions generated within the European Regional Airspace. A pending Directive to this effect is expected to be adopted before April 2014.

I. Introduction

The 2009 Treaty of Lisbon mandates that the European Union (EU) protect and improve the environment and promote measures adopted at the international level dealing with climate change.¹ Both the EU and its twenty-eight Member States share competence in the environmental area and may enact legislation and adopt their own policies.² Under obligations arising from the Kyoto Protocol, the EU and its Member States have undertaken a joint commitment to meet the target of cutting greenhouse gas emissions by 20% below 1990 levels by 2020.³

¹ Consolidated Version of the Treaty of the European Union (TEU) and the Treaty on the Functioning of the European Union (TFEU), art. 191, 2012 O.J. (C 326) 01, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2012:326:FULL:EN:PDF>.

² *Id.*, TFEU art. 4 (dealing with shared areas of competence).

³ Decision No. 2002/358/EC Concerning the Approval on Behalf of the European Community of the Kyoto Protocol to the United Nations Framework Convention on Climate Change and the Joint Fulfillment of Commitments Thereunder art. 2, 2002 O.J. (L 130) 1, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32002D0358:EN:NOT>. Subsequently, in November 2013, the Commission proposed a Ratification Decision of the Doha Agreement, which deals with the second phase of the Kyoto Protocol for the period of 2013–2020. Press, Release, European Commission, Climate Action: Commission Proposes Ratification of Second Phase of Kyoto Protocol (Nov. 6, 2013), http://europa.eu/rapid/press-release_IP-13-1035_en.htm.

At the EU level, the Emission's Trading Scheme (EU ETS), adopted in 2003, represents the EU's key measure to reduce greenhouse gas emissions. Approximately 11% of the greenhouse gases emitted worldwide annually are generated within the European Union (EU).⁴ The EU ETS, the largest multisector scheme worldwide, became operational in 2005 and is based on the cap-and-trade principle. Participants include the twenty-eight EU Members, and the European Economic Area (EEA) members, Iceland, Liechtenstein, and Norway. Currently, the scheme includes more than 11,000 power stations and factories.⁵ EU Members are required to use a certain amount of the funds accrued from auctioning allowances for programs to reduce greenhouse gas emissions or to develop renewable energies.

The EU's move in 2008 to expand the ETS to include regional aviation emissions and, as of 2012, to apply the ETS to international aviation proved to be controversial from its inception. A number of nations, including the United States,⁶ Canada, China, Brazil, and Russia,⁷ strongly criticized the EU's unilateral application of ETS rules on aviation emissions and lobbied hard against the measure. Eventually, the legality of the EU legislation on ETS/aviation was challenged in court and in 2011, the European Court of Justice⁸ upheld the validity of the EU legislation and found that it to be in compliance with international law.

In April 2013, the EU decided to suspend temporarily application of ETS requirements for flights from or to non-EU/EEA countries for the period 2010–2012, while flights within the EU continue to be subjected to ETS rules.⁹ The compromise was reached due in part to international pressure, and because of the EU's commitment to give the International Civil Aviation Organization (ICAO) Assembly an opportunity to negotiate an international agreement on aviation emissions. In October 2013, the ICAO agreed to draft a global, market-based mechanism (MBM) to deal with international aviation emissions by 2016, allowing ICAO

⁴ *EU Greenhouse Gas Emissions and Targets*, EUROPEAN COMMISSION, CLIMATE ACTION, http://ec.europa.eu/clima/policies/g-gas/index_en.htm (last updated Mar. 12, 2014).

⁵ *Id.*; *The EU Emissions Trading System (EU ETS)*, EUROPEAN COMMISSION, CLIMATE ACTION, http://ec.europa.eu/clima/policies/ets/index_en.htm (last updated Mar. 12, 2014).

⁶ The United States enacted legislation prohibiting its air carriers from participating in the EU ETS. European Union Emissions Trading Scheme Prohibition Act of 2011, P.L. 112-200, 126 Stat. 1477 (2012), [http://www.gpo.gov/fdsys/search/pagedetails.action?browsePath=112%2FPUBLIC%2F\[200%3B\]&granuleId=&packageId=PLAW-112publ200&fromBrowse=true](http://www.gpo.gov/fdsys/search/pagedetails.action?browsePath=112%2FPUBLIC%2F[200%3B]&granuleId=&packageId=PLAW-112publ200&fromBrowse=true).

⁷ Stephenson Harwood LLP, *EU-ETS Special Report*, LEXOLOGY (Dec. 2013), <http://www.lexology.com/library/detail.aspx?g=407ce776-235c-484d-a69a-13bb41b38271>.

⁸ Case C-366-10, *Air Transport Association of America and Others v. Secretary of State for Energy and Climate Change*, Judgment of the Grand Chamber of the European Court of Justice (Dec. 21, 2011), <http://curia.europa.eu/juris/document/document.jsf?jsessionid=9ea7d2dc30db8b2e0dd7f48c48d8a9fc9f8dcfc27cc0.e34KaxiLc3qMb40Rch0SaxuMbNb0?text=&docid=119054&pageIndex=0&doclang=EN&mode=req&dir=&occ=first&part=1&cid=296016>.

⁹ Decision No. 377/2013/EU of the European Parliament and of the Council of 24 April 2013 Derogating Temporarily from Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community, 2013 (L 113) 1, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:113:0001:0004:EN:PDF>.

members to include aviation emissions in ETS schemes, subject to bilateral/multilateral agreements.¹⁰

Following the ICAO's decision, the Commission proposed a new Directive¹¹ with the objective to create a European Regional Air Space and to limit its application to international aviation emissions so that only the part of a flight that occurs in European regional airspace will be subject to the EU ETS.¹² This proposal is expected to be endorsed by the Council and the Parliament by April 2014 and, if approved, would be in force until a new agreement on an MBM comes into being. On March 4, 2014, the EU reached a preliminary agreement on the pending Directive. The European Green Party and key environmentalists have called on the European Parliament not to endorse the proposal, in the absence of an immediate global agreement by the ICAO.¹³

The EU legislation on ETS permits the conclusion of agreements for mutual recognition of trading emissions schemes established in third countries.¹⁴ There are plans for linking the EU ETS to the Australian ETS by July 2018. Once the two ETS systems are linked, businesses will be allowed to use carbon emission allowances under either system.¹⁵ The Commission is also working on linking Switzerland to the EU ETS.

¹⁰ Resolution 17/2 of the International Civil Aviation Organization (ICAO) (Oct. 3, 2013), http://ec.europa.eu/clima/policies/transport/aviation/docs/a38_wp_430_en.pdf (scroll to PDF page 10).

¹¹ Proposal for a Directive of the European Parliament and of the Council Amending Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community, in View of the Implementation by 2020 of an International Agreement Applying a Single Global Market-based Measure to International Aviation Emissions, COM (2013) 722 final (Oct. 16, 2013), <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0722:FIN:EN:PDF>.

¹² The European Low Fares Airline Association (ELFAA) opposed the amendment because of its adverse effect on competition and urged Parliament to reject the Commission proposal to weaken effectiveness of the EU ETS. Press Release, ELFAA, Dec. 2, 2013, http://www.elfaa.com/131202_ELFAA_PressRelease_ETS.pdf.

¹³ *EU Reaches Tentative Deal on Aviation Emissions*, CHICAGO TRIBUNE (Mar. 4, 2014), http://articles.chicagotribune.com/2014-03-04/news/sns-rt-eu-aviation--20140304_1_aviation-emissions-eu-airports-intercontinental-flights.

¹⁴ Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 Establishing a Scheme for Greenhouse Gas Emissions Allowance Trading Within the Community and Amending Council Directive 96/61/EC, 2003, art. 3, O.J. (L 275) 32, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2003:275:0032:0032:EN:PDF>. Subsequently, it was amended by Directive 2004/101/EC of the European Parliament and of the Council of 27 October Amending Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community, in Respect of the Kyoto Protocol's Project Mechanisms, 2004 (L 338) 18, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:338:0018:0018:EN:PDF>.

¹⁵ *Australia and European Commission Agree on Pathway Towards Fully Linking Emissions Trading Systems*, EUROPEAN COMMISSION, CLIMATE ACTION (Aug. 28, 2012), http://ec.europa.eu/clima/news/articles/news_201208_2801_en.htm.

II. Cap-and-Trade Scheme

A. European Union Legislation

1. General Overview

The principal piece of legislation that established the EU ETS is Directive 2003/87/EC.¹⁶ It was subsequently amended: (a) by Directive 2008/101/EC,¹⁷ which expanded the scope of the ETS to include aviation; and (b) by Directive 2009/29/EC,¹⁸ which broadened the scope of Directive 2003/87/EC even further and improved its application. A number of implementing Regulations were also adopted, which are cited in the appropriate sections below.

The ETS's main objective is to reduce greenhouse gases in a cost-effective manner. The list of greenhouse gases was expanded by Directive 2009/29/EC to include—in addition to carbon dioxide (CO₂), methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride—“other gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation.”¹⁹ Altogether, the EU ETS covers approximately 45% of total greenhouse gas emissions from the twenty-eight EU countries.²⁰

The basic principle underlying the ETS is the cap-and-trade system, which places a limit on the total greenhouse gas emissions permitted to all participants under the ETS. The limit is converted into emission allowances that can be traded between companies. It is also possible for companies to buy a limited amount of international credits from other countries with similar schemes in place. The ETS applies to emissions from activities listed in Annex I and greenhouse gases listed in Annex II of Directive 2003/87/EC, as amended.²¹ Each allowance gives the holder the right to emit one metric ton of carbon dioxide (CO₂), the main greenhouse gas, or the equivalent amount of two more powerful greenhouse gases, nitrous oxide (NO₂) and perfluorocarbons (PFCs). Revenues accruing from the auctioning of aviation allowances should be used to deal with climate change in the EU and third countries.²² EU Members must report back to the Commission on measures taken regarding the use of revenues.

¹⁶ Directive 2003/87/EC, *supra* note 14.

¹⁷ Directive 2008/101/EC of the European Parliament and of the Council of 19 November 2009 Amending Directive 2003/87/EC so as to Include Aviation Activities in the Scheme for Greenhouse Gas Emissions Allowance Trading Within the Community, 2009 O.J. (L 8) 3, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:008:0003:0021:en:PDF>.

¹⁸ Directive 2009/29/EC of the European Parliament and of the Council of 23 April 2009 Amending Directive 2003/87/EC so as to Improve and Extend the Greenhouse Gas Emissions Allowance Trading Scheme of the Community, 2009 O.J. (L 140) 63, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0063:0087:en:PDF>.

¹⁹ Directive 2003/87/EC, as amended, *supra* note 14, art. 3(c).

²⁰ *The EU Emissions Trading System (EU ETS)*, *supra* note 5.

²¹ Directive 2003/87/EC, *supra* note 14, art. 2.

²² *Id.*, as amended, *supra* note 14, art. 10, para. 3.

Directive 2003/87/EC gives some discretionary power to EU Members to apply emission allowances trading to activities, installations, and greenhouse gas emissions not listed in Annex I, provided that such measures are approved by the Commission.²³

2. *Types of Installations Under the ETS & Exemptions*

Under Directive 2003/87/EC, as first enacted, installations that engage in the following activities fell within the ETS:

- Energy
- Production and processing of ferrous metals
- Mineral industry
- Industrial plants for the production of pulp from timber, paper, and board with a production capacity of more than 20 metric tons annually.²⁴

Aviation emissions were added by Directive 2008/101/EC, which explicitly stated that, “[f]rom 1 January 2012, all flights which arrive at or depart from an aerodrome situated in the territory of a Member State to which the Treaty applies shall be included.”²⁵ Some exemptions apply to flights on official missions, military flights, and those flights related to rescue. Moreover, air carriers with fewer than 243 flights per period for three consecutive four-month periods and flights with total annual emissions lower than 10,000 metric tons annually are exempt.²⁶

Directive 2009/29/EC imposed the ETS on the following additional industries: combustion of fuels, refining of mineral oil, production of coke, metal ore, production of steel, aluminum, production or processing of nonferrous metals, lime, cement, manufacturing of glass, ceramic products, mineral wool, production of pulp from timber, production of paper or cardboard, carbon black, nitric acid, ammonia, and others. All of these activities generate carbon dioxide.²⁷

3. *Exclusions*

Installations or parts of installations that are used for research, development, and testing of new products and processes are exempted.²⁸ Member States may also exclude from the ETS any installations with emissions less than 250,000 metric tons of carbon dioxide equivalent, provided that they meet other conditions. In addition, hospitals are excluded, provided that they take equivalent measures.²⁹

²³ *Id.* art. 24

²⁴ Directive 2003/87/EC, *supra* note 14, Annex I.

²⁵ Directive 2008/101/EC, *supra* note 17, Annex I.

²⁶ *Id.*, Annex I para. 6(j), *as amended by* Directive 2009/29/EC, *supra* note 18.

²⁷ *Id.*,

²⁸ *Id.*

²⁹ Directive 2003/87/EC, *as amended*, *supra* note 14, art. 27, para. 1.

B. Permits

Before initiating any of the activities listed in Annex I, operators of installations are required to apply for a greenhouse gas emissions permit. The permit application must include information on the installation and its activities, the materials to be used that will emit gases, sources of emissions gases, and a monitoring and reporting plan.³⁰ Upon fulfilling the requirements, the designated competent authority will issue an authorization permit addressed specifically to the operator of the installations, which will also state the monitoring and reporting requirements. Moreover, each operator is required to surrender allowances equal to the total emissions allowed in each calendar year, within four months of the end of the year.³¹

C. Authorities

Pursuant to the Commission, the effectiveness of the ETS system depends on detailed monitoring and reporting of greenhouse gas emissions by industrial installations and aircraft operators.³² Two implementing regulations were adopted to cover monitoring of and reporting of emissions for the third period.

As of January 2013,³³ monitoring and reporting requirements are harmonized throughout the EU on the basis of Commission Regulation (EU) No. 601/2012 of 21 June 2012 on the Monitoring and Reporting of Greenhouse Gas Emissions.³⁴ The installations and aircraft operators are required to have in place an approved monitoring plan in which they report their emissions annually. The plan must be verified by an accredited verifier by the end of March of the following year. Once reviewed and confirmed, the operators are obliged to surrender the equivalent number of allowances by the end of April of that year.

Moreover, the Regulation on the Verification of Greenhouse Gas Emissions and Ton-kilometer Reports and the Accreditation of Verifiers³⁵ contains provisions for the mutual recognition of verifiers and peer-evaluation of national accreditation bodies. Such bodies must be given authority to accredit and issue an authoritative statement regarding the competence of the verifier

³⁰ Directive 2003/87/EC, *supra* note 14, art. 5.

³¹ *Id.* art. 6.

³² *Monitoring, Reporting and Verification of EU ETS Emissions*, EUROPEAN COMMISSION, CLIMATE CHANGE, http://ec.europa.eu/clima/policies/ets/monitoring/index_en.htm (last updated Mar. 12, 2014).

³³ Prior to 2013, monitoring and reporting rules were specified in Commission Decision of 18 July 2007 No. 2007/589/EC Establishing Guidelines for the Monitoring and Reporting of Greenhouse Gas Emissions Pursuant to Directive 2003/87/EC of the European Parliament and of the Council, 2007 O.J. (L 229) 1, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2007:229:0001:0085:en:PDF>.

³⁴ Commission Regulation (EU) No. 601/2012 of 21 June 2012 on the Monitoring and Reporting of Greenhouse Gas Emissions Pursuant to Directive 2003/87/EC of the European Parliament and of the Council, 2012 O.J. (L 181) 30, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:181:0030:0104:EN:PDF>.

³⁵ Commission Regulation (EU) No. 600/2012 of 21 June 2012, on the Verification of Greenhouse Gas Emission Reports and Tonne-kilometre Reports and the Accreditation of Verifiers Pursuant to Directive 2003/87/EC of the European Parliament and of the Council, 2012 O.J. (L 181) 1, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:181:0001:0029:en:PDF>.

to carry out the verification activities and prepare a report. The verification report must confirm with “reasonable assurance” that the operator’s report or that of an aircraft operator does not contain any “material misstatement.”³⁶

D. Allocation and Transfer of Allowances

During the first and second period of the ETS, EU Members were required to develop objective and transparent national plans stating the overall quantity of allowances they intended to allocate and the method of allocation.³⁷ The total quantity of allowances to be allocated had to be consistent with each Member State’s plan to limit its emissions, in compliance with Decision 2002/358/EC and the Kyoto Protocol.³⁸

Directive 2003/87/EC determined the method for allocating allowances as follows:

- During the first period, 2005-2008, EU Members had to allocate at least 95 % of allowances free of charge.
- In the second period, beginning in 2008, they had to allocate at least 90% of allowances free of charge.³⁹
- From 2005 to 2008, each Member State had to decide on the total quantity of allowances it would allocate for that period and the allocation of allowances for each operator.
- For the next five-year period, beginning in 2008 onwards, and for the subsequent five-year periods, each Member had to decide on the total quantity of allowances and allocate the allowances to each operator, twelve months prior to the relevant period.⁴⁰

A basic feature of allowances is that they can be transferred between persons within the EU and also between persons within the EU and persons in third countries. Operators of each installation must surrender a number of allowances equal to the total emissions from that installation during the preceding calendar year.⁴¹

The 2013 cap for emissions from power stations and other fixed installations in the twenty-eight EU Member States and the three EEA-EFTA states was established at 2,084,301,856 allowances. During phase three of the EU ETS (2013–2020), this cap will decrease annually by 1.74% of the average total quantity of allowances issued annually in 2008–2012.⁴² In absolute terms this means the number of general allowances will be reduced annually by 38,264,246.

³⁶ *Id.*

³⁷ *Id.* art. 9.

³⁸ Directive 2003/87/EC, *supra* note 14, Annex III.

³⁹ *Id.* art. 10.

⁴⁰ *Id.* art. 11.

⁴¹ *Id.* art. 12.

⁴² Directive 2003/87/EC, as amended, *supra* note 14, art. 9.

Aviation emissions are subject to a different regime. Free aviation allowances are allocated to more than 900 aircraft operators who applied for free allocation by reporting their verified ton-km data for 2010.⁴³ The cap on total allowances during the third phase has been set at 10,349,264 per year. This is equivalent to 95% of historical emissions,⁴⁴ as established in Directive 2008/101/EC. This cap is expected to be adjusted to include additional aviation activities arising from Croatia's full integration into the aviation part of the EU ETS on January 1, 2014.⁴⁵

Eighty-two percent of the allowances are granted for free to aircraft operators and 15% are auctioned. The balance of 3% is held in a special reserve for later distribution to fast-growing aircraft operators and new entrants in the market.

The free allocation is calculated on the basis of benchmark values established in European Commission and EEA Joint Committee decisions taken in 2011.⁴⁶ In phase three, an airline receives 0.6422 allowances per 1,000 ton-kilometers flown.⁴⁷

Initially, EU Members had to keep their own registries to ensure that allowances were accurately recorded, transferred, or cancelled.⁴⁸ As of January 1, 2013, allowances are held in the EU registry.⁴⁹ Commission Regulation (EU) No. 389/2013 of 2 May 2013 on establishing a Union Registry⁵⁰ establishes the operational and maintenance criteria.

E. Market Stability Reserve

At the beginning of the third trading period (2013–2020), the ETS experienced a surplus of close to two billion allowances. The Commission estimates that it is anticipated to continue growing to more than 2.6 billion allowances by 2020.⁵¹ Therefore, as a short-term measure, the

⁴³ *Allocation of Aviation Allowances in an EEA-wide Emissions Trading System*, EUROPEAN COMMISSION, CLIMATE ACTION, http://ec.europa.eu/clima/policies/transport/aviation/allowances/index_en.htm (last updated Mar. 12, 2014).

⁴⁴ “Historical emissions” refer to the average emissions during the years 2004, 2005, and 2006. *Id.*

⁴⁵ *Id.*

⁴⁶ Commission Decision 2011/278/EU of 27 April 2011 Determining Transitional Union-wide Rules for Harmonised Free Allocation of Emission Allowances Pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council, 2011 O.J. (L 130) 1, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:130:0001:0045:EN:PDF>.

⁴⁷ *Allocation of Aviation Allowances in an EEA-wide Emissions Trading System*, *supra* note 43.

⁴⁸ Directive 2003/87/EC, *supra* note 14, art. 19.

⁴⁹ *Id.*, as amended, *supra* note 14, art. 19, para. 1.

⁵⁰ Commission Regulation (EU) No. 389/2013 of 2 May 2013, Establishing a Union Registry Pursuant to Directive 2003/87/EC of the European Parliament and of the Council, Decisions No. 280/2004/EC and No. 406/2009/EC of the European Parliament and of the Council and Repealing Commission Regulations (EU) No. 920/2010 and No. 1193/2011, 2013 O.J. (L 122) 1, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:122:0001:0059:EN:PDF>.

⁵¹ *Proposal for a Decision of the European Parliament and of the Council Concerning the Establishment and Operation of a Market Stability Reserve for the Union Greenhouse Gas Emission Trading Scheme and Amending Directive 2003/87/EC*, COM (2014) 20/2, http://ec.europa.eu/clima/policies/ets/reform/docs/com_2014_20_en.pdf.

Commission decided to postpone the auctioning of 900 million allowances. Moreover, the Commission came up with a proposal to deal with the surplus problem more efficiently by establishing a market stability reserve for the next ETS trading period beginning in 2021.⁵² The reserve's purpose would be to deal with the surplus of emission allowances that has built up and improve the system's reaction by automatically adjusting the supply of allowances to be auctioned.

F. Remedies and Penalties

Remedies and penalties fall within the jurisdiction of the EU Members. With regard to penalties, the general requirement is that EU Members are bound to adopt “effective, proportionate and dissuasive” penalties and to inform the Commission on such penalties and any subsequent amendment.⁵³ In addition, EU Members are required to hold responsible any operator who does not surrender sufficient allowances by April 30 of each year to cover its emissions for the preceding year. The operator must pay an excess emissions penalty of up to €100 (about US\$ 139) for each metric ton of carbon dioxide equivalent emitted by that installation for which the operator has not surrendered the required allowances.⁵⁴ As of January 1, 2013, the excess emissions penalty was increased in accordance with the European index of consumer prices.⁵⁵ EU Members are also required to keep a list of operators who violated the requirement to surrender sufficient allowances.⁵⁶

G. Carbon Leakage

The term “carbon leakage” is used to describe a situation where certain businesses, due to measures taken because of climate policies, may decide to transfer their business to other countries that are financially preferable due to the lack of requirements on greenhouse gas emissions in those countries.⁵⁷ EU Members may adopt financial measures to assist those sectors or subsectors that are likely to be exposed to a large risk of carbon leakage because of costs associated with greenhouse gas emissions. Any financial assistance needs to be in compliance with state aid rules, however.⁵⁸ The sectors must meet certain criteria as established in paragraphs 15 and 16 of article 10a of Directive 2003/27/EC, as amended by Directive No. 2009/29/EC.

⁵² *Id.* at 2.

⁵³ Directive 2003/87/EC, *supra* note 14, art. 16, para. 1.

⁵⁴ *Id.* art. 16, para. 3.

⁵⁵ *Id.* art. 16, para. 4, amended by Directive No. 2009/29/EC, art. 20.

⁵⁶ *Id.* art. 16, para. 2.

⁵⁷ *Carbon Leakage*, EUROPEAN COMMISSION, CLIMATE CHANGE, http://ec.europa.eu/clima/policies/ets/cap/leakage/index_en.htm (last updated Mar. 12, 2014).

⁵⁸ Directive 2003/87/EC, as amended, *supra* note 14, art. 10a, para. 6.

A list of such sectors was prepared in 2009 and is included in the Annex of a 2009 Commission Decision.⁵⁹ The list, which has been amended three times so far, ranges from mining companies to leather businesses, and from manufacturers of wine or crude oil and fats to carpets and textiles.⁶⁰

III. The EU ETS in Practice

A. Phased Approach to Implementation

The first two phases of the ETS have been completed and the third phase is currently underway. Each phase is distinguished by its own special features:

- The First Phase (January 1, 2005, to December 31, 2007), otherwise known as the pilot phase, has come to an end.
- The Second Phase (January 1, 2008, to December 31, 2012), focused on enlarging the scope of the ETS to cover additional emissions, including those from aviation. EU Members had to establish a national allocation plan containing the total number of allowances to be used and distribution of allowances to operators. A single, EU-wide registry replaced the national registries.
- The Third Phase (January 1, 2013, to December 31, 2020) involves the creation of community-wide caps on the number of available allowances, which will be reduced by 1.74% each year, and an increase in auctioning of allowances.

In 2003, two other major changes occurred: (a) the European Union registry replaced the national registries and became the online tool to register, trade, and surrender allowances; and (b) auctioning gradually replaced the free allocation of allowances. Auctioning is regulated by Auctioning Regulation No. 1031/2010.⁶¹ The manufacturing industry will continue to receive free allowances until 2020.⁶²

Two auction platforms exist and serve the countries that participate in the EU ETS: (a) the European Energy Exchange (EEX), which is located in Germany, is used as the common platform for most of the countries that are part of the EU ETS, and also serves as the platform for

⁵⁹ Commission Decision of 24 December 2009 Determining, Pursuant to Directive 2003/87/EC of the European Parliament and of the Council, a List of Sectors and Subsectors Which are Deemed to be Exposed to a Significant Risk of Carbon Leakage, 2010 O.J. (L 1) 10, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:001:0010:0018:EN:PDF>.

⁶⁰ *Id.*

⁶¹ Commission Regulation (EU) No. 1031/2010 of 12 November 2010 on the Timing Administration and Other Aspects of Auctioning of Greenhouse Gas Emissions Pursuant to Directive 2003/87/EC of the European Parliament and of the Council Establishing a Scheme for Greenhouse Gas Emission Allowances Trading Within the Community, 2010 O.J. (L 302) 1, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:302:0001:0041:EN:PDF>.

⁶² *Free Allocation Based on Benchmarks*, EUROPEAN COMMISSION, CLIMATE ACTION, http://ec.europa.eu/clima/policies/ets/cap/allocation/index_en.htm (last updated Mar. 12, 2014).

Germany; and (b) the ICE Futures Europe (CE) in London, which acts as the platform for the United Kingdom.

B. ETS and Aviation

The most controversial aspect of the EU's attempts to reduce greenhouse gas emissions was its move to include international aviation in the ETS. Several countries, including Brazil, Canada, China, India, Russia, and the United States strongly resisted the EU's efforts to implement this measure on their carriers. The main objection raised had to do with the fact that part of the emissions were emitted outside the EU/EEA's territory, either on the high seas or in third countries that were neither points of destination nor origin, and therefore the EU had no authority to legislate over such a matter. Countries also claimed that the extraterritorial application of the ETS to aviation violated their sovereignty. Some countries also argued that the measure undermined the role of the ICAO, which they view as the proper forum for dealing with issues related to greenhouse gas emissions.⁶³

For its part, the EU contended that the ICAO's 2004 decision against adoption of a global emissions trading scheme prompted the EU to proceed with its own legislation; and that the Kyoto Protocol did not grant exclusivity to the ICAO to deal with international emissions.

Eventually, the controversy reached the European Court of Justice through a preliminary reference by the English High Court in December 2009. The Air Transport Association of America (ATA), the International Air Transport Association (IATA), and the National Airlines Council of Canada, which intervened in 2010 in support of ATA, instituted legal proceedings in the United Kingdom and challenged the validity of Directive 2008/101/EC, which had incorporated aviation emissions into the EU ETS.⁶⁴ They claimed that by enacting Directive 2008/101/E, the EU infringed a number of international law rules, including the Chicago Convention, the Kyoto Protocol, and the Open Skies Agreement.

The Court of Justice, in its judgment of December 21, 2011, upheld the validity of Directive 2008/101/EC. It stated that the EU is not bound by the Chicago Convention because it is not a party to it. As far as customary international law, the Court observed that the Directive is not applicable to aircraft flying over the high seas or territory outside the EU. It applies only when such aircrafts arrive or depart from an airport that is located within the EU territory. Therefore, the Court concluded that based on customary international law the EU had competence to adopt Directive 2008/101/EC extending the allowance trading scheme to all flights that arrive at or depart from an airport located in the territory of a Member State.⁶⁵ The Court said that EU legislation may be applied "to an aircraft operator when its aircraft is in the territory of one of the Member States and, more specifically, of an aerodrome situated in such territory, since, in such a case, that aircraft is subject to the unlimited jurisdiction of that Member State and the European

⁶³ Stephenson Harwood LLP, *supra* note 7.

⁶⁴ Case C-366-10, *supra* note 8.

⁶⁵ *Id.* para. 130.

Union.”⁶⁶ In this matter, the Court held that Directive 2008/101, which extends application of the scheme to aviation,

does not infringe the principle of territoriality or the sovereignty which the third States from or to which such flights are performed have over the airspace above their territory, since those aircraft are physically in the territory of one of the Member States of the European Union and are thus subject on that basis to the unlimited jurisdiction of the European Union.⁶⁷

As far as the validity of Directive 2008/101/EC in light of the Open Skies Agreement signed between the United States and the EU and the claim that the ETS constitutes a tax, fee, or charge on fuel, which is in contravention of that agreement, the Court determined that the Directive does not violate the obligation to exempt fuel from taxes, duties, or fees.⁶⁸

The Court’s decision, which is final and not subject to appeal, fueled the opposition of those involved. The Director of IATA warned the EU that it may face more legal challenges, if it does not discontinue the scheme, and suggested that the EU allow the ICAO to take the lead through a global approach.⁶⁹

Meanwhile, the ICAO, in an October 2013 resolution, agreed to draft an international, market-based mechanism to reduce aviation emissions at the next general meeting in 2016. The agreement would become effective by 2020.⁷⁰ The resolution includes a provision stating in effect that no country or organization has the right to impose requirements on another country’s airline carriers unless the two countries have agreed to it. The EU submitted a reservation stating that the Chicago Convention expressly recognizes the right of each Contracting State to apply its laws and regulations on a nondiscriminatory basis to the aircraft of all States, and that the twenty-eight EU Members and fourteen other Members of the ECAC, although they are committed to multilateral action to deal with the effects of aviation emissions, would like to remind the ICAO that its Assembly resolutions may not diminish these rights or add to the obligations of the ICAO contracting States.⁷¹

Subsequently, in 2013, in order to facilitate the ICAO’s efforts to adopt an international agreement on a framework for emissions concerning the application of market-based measures to

⁶⁶ *Id.* part. 124.

⁶⁷ *Id.* para. 125.

⁶⁸ See Press Release, Court of Justice of the European Union, The Directive Including Aviation Activities in the EU’s Emissions Trading Scheme is Valid (Dec. 21, 2011), <http://curia.europa.eu/jcms/upload/docs/application/pdf/2011-12/cp110139en.pdf>.

⁶⁹ K.C. Lye, Norton Rose Fulbright LLP, *ICAO Assembly Deals Blow to EU Compromise*, LEXOLOGY (Nov. 13, 2013), <http://www.lexology.com/library/detail.aspx?g=5cd6970b-87e2-4d03-bada-c76a7b55e5c4>.

⁷⁰ Resolution 17/2 of the ICAO, *supra* note 10.

⁷¹ Written Statement of Reservation by Lithuania on behalf of the Member States of the European Union and 14 Other Member States of the European Civil Aviation Conference (ECAC) with Regard to ICAO Assembly Resolution A38-18, http://ec.europa.eu/clima/policies/transport/aviation/docs/st_15605_13_en.pdf.

emissions from international aviation,⁷² the EU adopted Decision No. 377/2013/EU, otherwise known as the “Stop the Clock Decision,” which allows EU Members to delay application of the ETS on aviation. It specifically calls on EU Members not to take any action against aircraft operators who have not complied with the emissions for the years 2010, 2011, and 2012 regarding activities to and from airports in countries outside the EU that are not members of the EU ETS.⁷³ EU Members must cancel all 2012 allowances that have been issued or if issued have been returned to them.⁷⁴

In the aftermath of the ICAO’s decision to move forward with a global agreement on an MBM by 2016, the European Commission proposed a new Directive⁷⁵ with the objective of creating a European Regional Air Space and limiting the application of international aviation emissions so that only the part of a flight that occurs in European regional airspace will be subject to the EU ETS.⁷⁶ This proposal is expected to be endorsed by the Council and the Parliament by April 2014 and to be in force until a new agreement on an MBM comes into being.

The major elements of the proposed Directive include the following:

- Flights between airports within the EU and EEA will be covered, as previously provided for in Directive 2008/101/EC and Decision No. 377/2013/EU.
- Flights from and to third countries will be subject to ETS for emissions occurring within the EU/EEA space, beginning in 2014.
- Emissions from flights between airports in third countries and EEA airports concerning European dependencies and territories, and flights to and from EEA airports and such territories, will be covered.
- Flights to and from third underdeveloped countries that emit less than 1% of global aviation emissions will be exempt.

Once this Directive is approved by the Parliament and the Council, the EU expects that the ETS will move towards achieving its goal to reduce emissions by up to 250 million metric tons of CO₂ during the period of 2013–2020.⁷⁷

⁷² *Id.*, Preamble (5).

⁷³ Decision No. 377/2013/EU, *supra* note 9.

⁷⁴ *Id.* art. 1.

⁷⁵ COM (2013) 722 final, *supra* note 11.

⁷⁶ The European Low Fares Airline Association (ELFAA) opposed the amendment because of its adverse effect on competition and urged Parliament to reject Commission proposal to weaken effectiveness of EU ETS. Press Release, ELFAA, *supra* note 12.

⁷⁷ *Id.* at 4.

IV. Legislation on Energy Efficiency and/or the Use of Renewable Sources

A. Climate and Energy Package

The Climate and Energy Package for 2020 contains legislation to ensure that the EU meet its objective on climate and energy targets by 2020. The targets, known as the “20-20-20” targets, set three key objectives for 2020:

- a 20% reduction in EU greenhouse gas emissions from 1990 levels;
- raising the share of EU energy consumption produced from renewable resources to 20%; and
- a 20% improvement in the EU’s energy efficiency.

In addition, in January 2014 the Commission unveiled the new Framework on Climate and Energy for 2030.⁷⁸ Its basic elements include a reduction in greenhouse gases by 40% below the 1990 level, reform of the EU ETS, and an EU-wide binding target for renewable energy of at least 27%, among other things.⁷⁹

B. Effort Sharing Decision

The EU holds the view that all sectors of the economy should contribute to emission reductions in order to cost-effectively achieve the objective of a 20% reduction of greenhouse gas emissions by 2020 compared to 1990 levels.⁸⁰

The Effort Sharing Decision⁸¹ is part of the Climate and Energy Package,⁸² and operates outside the scope of the ETS scheme in order to help the EU achieve its twin goals of a low-carbon economy and improvements to energy security.⁸³ The Decision is legally binding on the Member States and requires them to achieve annual greenhouse gas emissions targets during the period 2013–2020 from sectors excluded from the EU ETS. Each Member State must, by 2020, limit its greenhouse gas emissions at least by the percentage set for that Member State in Annex II to this Decision in relation to its emissions in 2005.⁸⁴

⁷⁸ *European Commission Green Paper, A 2030 Framework for Climate and Energy Policies*, COM (2013) 169 final, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2013:0169:FIN:EN:PDF>.

⁷⁹ Press Release, European Commission, 2030 Climate and Energy Goals for a Competitive, Secure and Low-Carbon EU Economy (Jan. 22, 2014), http://europa.eu/rapid/press-release_IP-14-54_en.htm.

⁸⁰ Decision No. 406/2009/EC of the European Parliament and of the Council of 23 April 2009 on the Effort of Member States to Reduce Their Greenhouse Gas Emissions to Meet the Community’s Greenhouse Gas Emission Reduction Commitments up to 2020, Preamble para. 6, 2009 O.J. (L 14) 136, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2009:140:0136:0148:EN:PDF>.

⁸¹ *Id.* art. 3, para. 1 in conjunction with art. 2, para. 1.

⁸² *The 2020 Climate and Energy Package*, EUROPEAN COMMISSION, CLIMATE ACTION, http://ec.europa.eu/clima/policies/package/index_en.htm (last updated Mar. 12, 2014).

⁸³ *Effort Sharing Decision*, EUROPEAN COMMISSION, CLIMATE ACTION (last updated Mar. 12, 2014), http://ec.europa.eu/clima/policies/effort/index_en.htm.

⁸⁴ Decision No. 406/2009/EC, *supra* note 80, art. 3

The fields targeted include transport (except aviation and international maritime shipping), buildings, agriculture, and waste. EU Members have the discretion to shape and implement national policies to reduce emissions from sectors excluded from the ETS. Such policies may include promotion of public transport, more efficient heating systems, renewable energy for heating, and others. On the other hand, emissions from land use, land use change, forestry, and international shipping are not included.⁸⁵

The national emissions targets for 2020 are based on the wealth of each EU Member State. The Gross Domestic Product is used as an indicator of relative wealth. The targets vary from a 20% emissions reductions for the wealthiest Member States to a 20% increase for Bulgaria, as the least wealthy. Croatia, which recently joined the EU, has been given permission to increase emissions by 11%.⁸⁶

⁸⁵ *Id.* art. 9.

⁸⁶ *Id.* Annex II.

Australia

Kelly Buchanan
Chief, Foreign, Comparative, and
International Law Division I

SUMMARY A requirement for Australia's largest polluters to pay a price for carbon emissions came into force in July 2012. The system covers about 60% of Australia's carbon emissions. For the first three years there will be a fixed price for carbon units and no limit on the number of units available from the government. From 2015, there will be a flexible price cap-and-trade system under which the government will auction carbon units up to a regulated pollution cap. Different forms of assistance are available to some emitters and households affected by increased costs resulting from the price on carbon.

The current government, elected in September 2013, has introduced bills to repeal the carbon pricing mechanism and associated measures and intends to replace these with a Direct Action plan that would involve government purchasing of abatement measures through an Emissions Reduction Fund. The repeal bills are likely to pass in mid-2014.

I. Introduction

In November 2011, the Australian Parliament passed a package of legislation that implemented the Clean Energy Future plan developed by the center-left Labor Party Government.¹ The legislation introduced a carbon pricing mechanism that began with a fixed price on carbon effective from July 1, 2012, and provides for a move to a flexible price cap-and-trade system linked to international markets in July 2015.² The reforms were opposed by the Coalition (a formal coalition of center-right parties), which in the lead-up to the September 2013 federal election campaigned on a platform of taking immediate action to repeal the carbon tax.³

The Coalition won the election and subsequently introduced a suite of bills to repeal the carbon pricing mechanism and related reforms in November 2013.⁴ The bills were passed by the House of Representatives, but the first of the bills debated by the Senate was voted down in December

¹ For an overview of the Clean Energy Future plan, see Budget 2012–13, Statement by Hon. Greg Combet – Securing a Clean Energy Future: Implementing the Australian Government's Climate Change Plan (May 8, 2012), http://www.budget.gov.au/2012-13/content/ministerial_statements/climate/html/index_climate_change.htm. For background information on the history of climate change policy in Australia, see Anita Talberg et al., Timeline of Australian Climate Change Policy (Australian Parliamentary Library, Dec. 2, 2013), http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1314/ClimateChangeTimeline.

² See Kelly Buchanan, *Australia: Climate Change Reforms Passed, Price on Carbon to Apply from July 2012*, GLOBAL LEGAL MONITOR (Nov. 15, 2011), http://www.loc.gov/lawweb/servlet/lloc_news?disp1_1205402883_text.

³ See Press Release, Tony Abbott, The Coalition's Plan to Abolish the Carbon Tax (June 29, 2012), <http://www.liberal.org.au/our-plan-abolish-carbon-tax>.

⁴ *Repealing the Carbon Tax*, DEPARTMENT OF THE ENVIRONMENT, <http://www.environment.gov.au/topics/cleaner-environment/clean-air/repealing-carbon-tax> (last visited Feb. 11, 2014).

2013. The extent of the controversy over the approach to reducing carbon emissions in Australia is such that there have been discussions about the possibility that, should the bills fail two votes in the Senate, a double dissolution of the two Houses of Parliament could be triggered.⁵ This would lead to an election and possible joint session of the Houses to try to pass the legislation.⁶

In December 2013, the Coalition Government released a Green Paper setting out its proposals for an Emissions Reduction Fund (ERF) to provide financial incentives for emission abatement activities. The ERF is at the center of the government's Direct Action plan to reduce emissions.⁷ In the Green Paper, the government stated that it "acknowledges the science of climate change and supports national and global efforts to reduce greenhouse gas emissions" and confirmed that it remains committed to reducing Australia's emissions to 5% below 2000 levels by 2020, and to reviewing this target in 2015 as part of international climate change negotiations.⁸ The Climate Change Authority (which would be abolished under the bills currently before the Senate) was expected to deliver a report by the end of February 2014 on a review of emissions reduction targets and progress towards meeting them.⁹

II. Clean Energy Reforms

The Clean Energy reforms involved the passage of the Clean Energy Act 2011 (Cth)¹⁰ and seventeen related pieces of legislation.¹¹ The Clean Energy Act 2011 established the carbon pricing mechanism and provides for industry assistance programs. It also "contains rules for

⁵ The current Prime Minister, Tony Abbott, raised the possibility of double dissolution prior to the election. See Press Release, Tony Abbott, *supra* note 3. The Environment Minister said in October 2013 that "all options are on the table." Judith Ireland, *Coalition Stands Firm on Carbon Tax Double Dissolution Threat*, THE SYDNEY MORNING HERALD (Oct. 14, 2013), <http://www.smh.com.au/federal-politics/political-news/coalition-stands-firm-on-carbon-tax-double-dissolution-threat-20131014-2vhtw.html>. While the Prime Minister did not repeat the threat at that time, some in the media speculated that a double dissolution could still occur. Mark Kenny, *Tony Abbott Primed for Double Dissolution on Carbon Pricing*, THE SYDNEY MORNING HERALD (Oct. 16, 2013), <http://www.smh.com.au/federal-politics/political-news/tony-abbott-primed-for-a-double-dissolution-on-carbon-pricing-20131015-2vkvj.html>.

⁶ For information on double dissolution under the Australian Constitution, see AUSTRALIAN PARLIAMENTARY LIBRARY, INFOSHEET 18 – DOUBLE DISSOLUTION, http://www.aph.gov.au/About_Parliament/House_of_Representatives/Powers_practice_and_procedure/00_-_Infosheets/Infosheet_18_-_Double_dissolution (last visited Feb. 11, 2014).

⁷ *Repeal of the Carbon Tax and Introduction of the Direct Action Plan*, DEPARTMENT OF THE ENVIRONMENT (Sept. 29, 2013), <http://climatechange.gov.au/reducing-carbon/news-article/repeal-carbon-tax-and-introduction-direct-action-plan>.

⁸ DEPARTMENT OF THE ENVIRONMENT, EMISSIONS REDUCTION FUND GREEN PAPER 1 (Dec. 2013), http://www.environment.gov.au/system/files/resources/66237232-3042-4cd8-99a3-040705fead3b/files/erf-green-paper_1.pdf.

⁹ *Targets and Progress Review*, CLIMATE CHANGE AUTHORITY, <http://climatechangeauthority.gov.au/caps> (last visited Feb. 12, 2014).

¹⁰ Clean Energy Act 2011 (Cth), <http://www.comlaw.gov.au/Details/C2013C00372>; Clean Energy Regulations 2011 (Cth), <http://www.comlaw.gov.au/Details/F2013C00938>.

¹¹ Information on the package of bills is provided in Kai Swoboda et al., *Clean Energy Bill 2011* (Australian Parliamentary Library Bills Digest No. 68 2011–12, Oct. 28, 2011), http://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/bd/bd1112a/12bd068.

who is covered by the carbon pricing mechanism, what sources of carbon pollution are included, the surrender of emissions units, caps on the amount of carbon pollution from 1 July 2015, international linking, monitoring, enforcement, and appeal and review provisions.”¹² Other legislation in the package implemented initiatives such as a household assistance program to assist with the forecasted increase in living costs as a result of the carbon pricing mechanism, and established new entities to administer the mechanism and provide advice to the government on climate change matters.

The following entities were established as a result of the reforms:

- Clean Energy Regulator (responsible for administering legislation to reduce carbon emissions and increase the use of clean energy, including the carbon pricing mechanism);¹³
- Climate Change Authority (an independent statutory body established to provide expert advice on a range of climate change issues);¹⁴
- Clean Energy Finance Corporation (manages “a legislated fund dedicated to investing in clean energy” and aims to “mobilise capital investment in renewable energy, low-emission technology and energy efficiency in Australia.”).¹⁵

A. Carbon Pricing Mechanism

1. Overview

Under the Clean Energy Act 2011, Australia’s biggest carbon emitters (called liable entities) must pay a price for every ton of carbon pollution they produce each year. They do so by purchasing from the government a carbon unit (i.e., emission permit) for each ton of carbon pollution emitted. Units must then be surrendered back to the government by an annual deadline.¹⁶ Emitters can also purchase credits, called Australian Carbon Credit Units (ACCUs),

¹² *Legislation and Regulations*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/Legislation-and-regulations/Pages/default.aspx> (last updated Apr. 23, 2013).

¹³ *About the Clean Energy Regulator*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/About-us/Pages/default.aspx> (last updated Jan. 15, 2014). The Clean Energy Regulator was established by the Clean Energy Regulator Act 2011 (Cth), <http://www.comlaw.gov.au/Details/C2011A00163>.

¹⁴ *About the CCA*, CLIMATE CHANGE AUTHORITY, <http://climatechangeauthority.gov.au/about> (last visited Feb. 11, 2014). The Authority was established by the Climate Change Authority Act 2011 (Cth), <http://www.comlaw.gov.au/Details/C2011A00143>.

¹⁵ *About Us*, CLEAN ENERGY FINANCE CORPORATION, <http://www.cleanenergyfinancecorp.com.au/about-us.aspx> (last visited Feb. 11, 2014). The Corporation was established by the Clean Energy Finance Corporation Bill 2012 (Cth), <http://www.comlaw.gov.au/Details/C2012A00104>.

¹⁶ *About the Carbon Pricing Mechanism*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/About-the-Mechanism/Pages/default.aspx> (last updated Jan. 15, 2013). For detailed information on the mechanism and related reforms, see Clean Energy Bill 2011: Explanatory Memorandum, <http://www.comlaw.gov.au/Details/C2011B00166/Explanatory%20Memorandum/>.

earned by others through the Carbon Farming Initiative, which enables farmers and landowners to receive financial benefits for activities that store carbon or reduce greenhouse gas emissions.¹⁷

During the first stage of the mechanism, from July 1, 2012, to June 30, 2015, the government will sell an unlimited number of carbon units each year at a specified fixed price, starting at AU\$23 per unit in FY 2012–13, then increasing by 2.5% in real terms per year for each of the remaining two fiscal years (i.e., AU\$24.15 in 2013–14 and AU\$25.40 in 2014–15). During this period, purchased units cannot be traded or banked for use in future years, and there is no international linking to other emissions trading schemes.¹⁸

From July 1, 2015, the carbon pricing mechanism is set to move to a “flexible approach where the carbon price is set by the market.”¹⁹ The number of units auctioned and issued each year will be limited by a pollution cap. Liable entities “will compete to buy the number of carbon units they need to meet their obligations.”²⁰ A price ceiling will be built into the system for the first three years of the flexible price period in order to reduce risks. In addition, under the system, entities will be able to bank an unlimited number of units, meaning that they can surrender the units in later years to cover their liabilities. They will also be able to purchase eligible international carbon units and use these to cover a portion of the entity’s annual liability.²¹ Limited borrowing of units from the upcoming year will also be possible.

During both the fixed price and flexible price periods, if an entity does not surrender enough units to cover its total emissions liability for the year it must pay a “unit shortfall charge,” which will be much higher than the fixed price or the average auction price.²²

2. Liable Entities

The carbon pricing mechanism applies to a number of industry sectors, including electricity generation, stationary energy, industrial processes, fugitive emissions from coal and gas (excluding those from decommissioned coal mines), and emissions from waste deposited in landfills after the scheme starts. The emissions covered by the mechanism are carbon dioxide,

¹⁷ *Carbon Farming Initiative*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Farming-Initiative/Pages/default.aspx> (last updated Jan. 7, 2014). The Carbon Farming Initiative was established by the Carbon Credits (Carbon Farming Initiative) Act 2011 (Cth), <http://www.comlaw.gov.au/Details/C2013C00497>.

¹⁸ *Fixed Price 2012–2015*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/About-the-Mechanism/Fixed-Price-2012-15/Pages/default.aspx> (last updated Jan. 15, 2013).

¹⁹ *Flexible Price Period From 2015*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/About-the-Mechanism/Flexible-Price-from-2015/Pages/default.aspx> (last updated Jan. 15, 2013).

²⁰ *Id.*

²¹ *Eligible Emissions Units*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/About-the-Mechanism/Emissions-units/Pages/default.aspx>.

²² *About the Carbon Pricing Mechanism*, *supra* note 16.

methane, nitrous oxide, and specified perfluorocarbons attributable to aluminum production.²³ Other synthetic greenhouse gases are excluded and are instead subject to an equivalent carbon price through levies imposed under the Ozone Protection and Synthetic Greenhouse Gas Management legislation.²⁴ The carbon price also does not apply to household transport fuels, fuel for light on-road commercial vehicles, or fuel used by the agriculture, forestry, and fishing industries.²⁵

Under the Clean Energy Act 2011, any facility within the relevant sectors that produces more than 25,000 tons of carbon dioxide emissions (or other covered greenhouse gas emissions, measured in carbon dioxide equivalence) each year is liable to pay for each ton of pollution that it emits.²⁶ The National Greenhouse Gas and Energy Reporting Act 2007 (Cth) contains the mechanisms for assessing liability under the carbon pricing mechanism.²⁷

The Clean Energy Regulator maintains a database of liable entities. For FY 2012–13, this database shows that 348 entities were potentially liable to pay the carbon tax.²⁸ The carbon pricing mechanism covers about 60% of Australia’s carbon emissions.²⁹

B. Industry and Household Assistance Programs

1. Industry Assistance

The Clean Energy reforms made provision for two main industry assistance programs. Both are administered by the Clean Energy Regulator:

²³ *What Emission Types Are In and Out?*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/About-the-Mechanism/What-emission-types-are-in-and-out/Pages/default.aspx> (last updated Apr. 23, 2013).

²⁴ Ozone Protection and Synthetic Greenhouse Gas Management Act 1989 (Cth); <http://www.comlaw.gov.au/Details/C2013C00235>; Ozone Protection and Synthetic Greenhouse Gas (Import Levy) Act 1995 (Cth), <http://www.comlaw.gov.au/Details/C2012C00927>; Ozone Protection and Synthetic Greenhouse Gas (Manufacture Levy) Act 1995 (Cth), <http://www.comlaw.gov.au/Details/C2012C00926>. See generally, *Synthetic Greenhouse Gases*, DEPARTMENT OF THE ENVIRONMENT, <http://www.environment.gov.au/topics/environment-protection/ozone/synthetic-greenhouse-gases> (last visited Feb. 11, 2014).

²⁵ *Treatment of Fuel Used for Transport and Non-transport Purposes*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/Liable-entities/Treatment-fuel-transport/Pages/default.aspx> (last updated Apr. 23, 2013).

²⁶ *Liable Entities*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/Liable-entities/Pages/default.aspx> (last updated July 16, 2013).

²⁷ *National Greenhouse Gas and Energy Reporting*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/National-Greenhouse-and-Energy-Reporting/Pages/default.aspx> (last updated Oct. 16, 2013); *Steps for Liable Entities*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/steps-for-liable-entities/Pages/default.aspx> (last updated Mar. 28, 2013); National Greenhouse and Energy Reporting Act 2007 (Cth), <http://www.comlaw.gov.au/Details/C2013C00521>.

²⁸ *LEPID for 2012–13 Financial Year*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/Liable-Entities-Public-Information-Database/LEPID-for-2012-13-Financial-year/Pages/default.aspx> (last updated Jan. 31, 2014).

²⁹ *What Emission Types Are In and Out?*, *supra* note 23.

- The Jobs and Competitiveness Program is targeted at companies that conduct “emissions-intensive and trade-exposed activities.”³⁰ These companies face high carbon costs that they may have difficulty recouping through passing on costs in global markets. Under the program, free carbon units are issued to eligible applicants.³¹
- The coal-fired generation assistance program provides free carbon units to eligible coal-fired electricity generators. The aim of the program is to “help affected coal-fired electricity generators adjust to the carbon price and move to cleaner technologies, while maintaining energy security in Australia.”³² In order to remain eligible for the assistance the entities must pass an annual power system reliability test and prepare a Clean Energy Investment Plan.³³

In addition to these programs, the Department of Industry administers the Steel Transformation Plan that involves direct payments to entities that satisfy certain eligibility requirements. This program “aims to encourage investment, innovation and competitiveness in the Australian steel manufacturing industry in order to assist the industry to transform into an efficient and economically sustainable industry in a low carbon economy.”³⁴

Two further programs are the Clean Technology Investment Program and the Clean Technology Food and Foundries Investment Program, which provide grants to Australian manufacturers for “investments in energy efficient capital equipment and low emission technologies, processes and products.”³⁵ These programs are currently closed to new applicants and the government has announced its intention to discontinue them when the carbon tax is repealed, as discussed below.³⁶

³⁰ *Industry Assistance*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/Industry-Assistance/Pages/default.aspx> (last updated Oct. 3, 2013).

³¹ *Jobs and Competitiveness Program*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/Industry-Assistance/jobs-and-competitiveness-program/Pages/default.aspx> (last updated Dec. 2, 2013). This program is governed by Part 7 of the Clean Energy Act 2011 (Cth) and the Clean Energy Regulations 2011 (Cth).

³² *Coal-fired Generation Assistance*, CLEAN ENERGY REGULATOR, <http://www.cleanenergyregulator.gov.au/Carbon-Pricing-Mechanism/Industry-Assistance/coal-fired-generators/Pages/default.aspx> (last updated Feb. 7, 2014). This program is governed by Part 8 of the Clean Energy Act 2011 (Cth) and the Clean Energy Regulations 2011 (Cth).

³³ *Id.*

³⁴ *Steel Transformation Plan*, DEPARTMENT OF INDUSTRY, <http://www.innovation.gov.au/industry/cleanenergyfuture/Pages/SteelTransformationPlan.aspx> (last visited Feb. 12, 2014). The program is governed by the Steel Transformation Plan Act 2011 (Cth), <http://www.comlaw.gov.au/Details/C2011A00133>.

³⁵ *Clean Technology Investment Program*, AUSINDUSTRY, <http://www.ausindustry.gov.au/programs/clean-technology/cleantechnologyinvestment/Pages/default.aspx>; *Clean Technology Food and Foundries Investment Program*, AUSINDUSTRY, <http://www.ausindustry.gov.au/programs/cleantechnology/ctffip/Pages/default.aspx> (both last visited Feb. 11, 2014).

³⁶ *Id.*

2. Household Assistance

In developing the carbon pricing mechanism, the Labor Party Government also formulated the Household Assistance Package in order to address concerns about the potential impact of higher costs being passed onto consumers by entities that are subject to the carbon tax. The package involves the government administering supplements and payments to eligible households in order to assist with increases in living costs.³⁷ The tax-free income threshold was also tripled, meaning that many Australians with taxable income up to AU\$80,000 have received a tax cut.³⁸

C. Repeal of the Carbon Pricing Mechanism

The Coalition Government's package of seven bills that seek to remove the carbon pricing mechanism, along with related bills to abolish the Climate Change Authority and Clean Energy Finance Corporation and to remove certain income tax cuts, were introduced in the federal Parliament and passed by the House of Representatives in November 2013.³⁹ The relevant Senate committee completed a report endorsing the legislation on December 2, 2013, with the Labor Party and Green Party committee members including dissenting chapters.⁴⁰ These two parties currently hold the balance of power in the Senate and will do so until July 2014 when the numbers in the Senate will change as a result of the September 2013 election.⁴¹

On December 10, 2013, the Senate voted 38 to 29 against further debate on one of the relevant bills, the Clean Energy Finance Corporation (Abolition) Bill 2013.⁴² Voting on the seven carbon tax repeal bills was delayed and the debate continued in the Senate when it resumed for the year on February 10, 2014, with the government indicating that it wanted the bills to be passed as a

³⁷ *Household Assistance Package*, DEPARTMENT OF HUMAN SERVICES, <http://www.humanservices.gov.au/customer/subjects/clean-energy-future> (last updated July 11, 2013); *Household Assistance Package*, DEPARTMENT OF SOCIAL SERVICES, <http://www.dss.gov.au/household-assistance-package> (last updated Oct. 25, 2013). The package was implemented as a result of the Clean Energy (Household Assistance Amendments) Act 2011 (Cth), <http://www.comlaw.gov.au/Details/C2013C00026>.

³⁸ *Household Assistance Package – Tax Reforms*, AUSTRALIAN TAXATION OFFICE, <http://www.ato.gov.au/Rates/Household-Assistance-Package---tax-reforms/> (last updated Sept. 20, 2013).

³⁹ See generally Kate Loynes, Carbon Price Repeal Bills: Quick Guide (Australian Parliamentary Library, Nov. 20, 2013), http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1314/QG/CarbonPriceRepealBills; *Repealing the Carbon Tax*, DEPARTMENT OF THE ENVIRONMENT, <http://www.environment.gov.au/topics/cleaner-environment/clean-air/repealing-carbon-tax> (last visited Feb. 12, 2014). The government is also seeking to repeal the equivalent carbon price on synthetic greenhouse gases.

⁴⁰ SENATE ENVIRONMENT AND COMMUNICATIONS LEGISLATION COMMITTEE, CLEAN ENERGY LEGISLATION (CARBON TAX REPEAL) BILL 2013 [PROVISIONS] AND RELATED BILLS (Dec. 2, 2013), http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Clean_Energy_Legislation/report/index.

⁴¹ See *Senate Composition*, PARLIAMENT OF AUSTRALIA, http://www.aph.gov.au/Senators_and_Members/Senators/Senate_composition (last visited Feb. 12, 2014).

⁴² *Clean Energy Finance Corporation (Abolition) Bill*, PARLIAMENT OF AUSTRALIA, http://www.aph.gov.au/Parliamentary_Business/Bills_Legislation/Bills_Search_Results/Result?bId=r5138 (last visited Feb. 12, 2014). See also *Senate Vote Gives Clean Energy Finance Corp a Reprieve*, THE SYDNEY MORNING HERALD (Dec. 10, 2013), <http://www.smh.com.au/environment/senate-vote-gives-clean-energy-finance-corp-a-reprieve-20131210-2z3ce.html>.

matter of priority.⁴³ However, media reports at that time stated that “no speedy resolution is likely” and referred to comments by Environment Minister Greg Hunt that he was confident of the carbon tax being repealed in the first two weeks of the new Senate in July.⁴⁴

III. Proposed Direct Action Plan

The Coalition’s Direct Action plan was first set out in a policy paper released in 2010.⁴⁵ At its center is the proposed Emissions Reduction Fund (ERF), which would build on the existing market-based approaches in the Carbon Farming Initiative and is intended to “create positive incentives for industry to innovate and invest in new technologies to reduce their emissions.”⁴⁶ Over the next three fiscal years, the government has allocated AU\$300 million, \$500 million, and \$750 million for the ERF to directly purchase abatement through a competitive process.⁴⁷

Under the Direct Action plan, the ERF would be accompanied by targeted funding for urban trees (called the 20 Million Trees program) as well as for three new solar energy programs: One Million Solar Roofs, Solar Towns, and Solar Schools.⁴⁸ In addition to the plan, the Coalition Government has also confirmed its support for existing Renewable Energy Target programs, which “create a financial incentive for investment in renewable energy sources through the creation and sale of certificates.”⁴⁹

The Coalition Government released the terms of reference for the design of the ERF in November 2013 for consultation.⁵⁰ Then, on December 20, 2013, it released its Green Paper on the government’s preferred options.⁵¹ Public submissions on the Green Paper were due by

⁴³ *Carbon Tax Top Priority for Parliament*, 9NEWS (Feb. 7, 2014), <http://news.ninemsn.com.au/national/2014/02/07/11/43/carbon-tax-top-priority-for-parliament>.

⁴⁴ *Carbon Tax Debate to Drag on in Senate*, THE AUSTRALIAN (Feb. 10, 2014), <http://www.theaustralian.com.au/news/latest-news/carbon-tax-debate-to-drag-on-in-senate/story-fn3dxiwe-1226822697799>.

⁴⁵ THE COALITION’S DIRECT ACTION PLAN (2010), available at <http://www.greghunt.com.au/Portals/0/PDF/TheCoalitionsDirectActionPlanPolicy2010.pdf>.

⁴⁶ Speech, Hon. Greg Hunt, The Coalition Government’s Plan to Repeal the Carbon Tax and Tackle Climate Change (Clean Energy Council National Conference, Melbourne, Dec. 3, 2013), <http://www.environment.gov.au/minister/hunt/2013/sp20131203.html>.

⁴⁷ DEPARTMENT OF THE ENVIRONMENT, EMISSIONS REDUCTION FUND UPDATE 1 (Feb. 2014), <http://www.environment.gov.au/system/files/resources/5e2fe53b-9eae-4d9c-8851-80c32de9387d/files/erf-update-feb-2014.pdf>.

⁴⁸ Speech, Hon. Greg Hunt, *supra* note 46.

⁴⁹ *Renewable Energy Target – About the Schemes*, CLEAN ENERGY REGULATOR, <http://ret.cleanenergyregulator.gov.au/About-the-Schemes/about-schemes> (last updated Jan. 3, 2014).

⁵⁰ *Emissions Reduction Fund – Terms of Reference*, DEPARTMENT OF THE ENVIRONMENT, <http://www.environment.gov.au/topics/cleaner-environment/clean-air/emissions-reduction-fund/terms-reference> (last visited Feb. 12, 2014).

⁵¹ *Emissions Reduction Fund – Green Paper*, DEPARTMENT OF THE ENVIRONMENT, <http://www.environment.gov.au/topics/cleaner-environment/clean-air/emissions-reduction-fund/green-paper> (last visited Feb. 12, 2014).

February 21, 2014, after which time a White Paper will be developed that sets out the final design of the ERF.⁵²

The Senate Environment and Communications References Committee is currently examining the Coalition Government's Direct Action plan, as well as the potential impact of the repeal of the carbon pricing mechanism on Australia's ability to meet its reduction targets, and is scheduled to report its findings on March 24, 2014.⁵³

⁵² See Daniel Miller, *What is the Coalition's Direct Action Climate Change Policy?*, ABC NEWS (Dec. 20, 2013), <http://www.abc.net.au/news/2013-12-20/coalition-climate-change-direct-action-policy-explained/5067188>.

⁵³ *The Government's Direct Action Plan*, SENATE ENVIRONMENT AND COMMUNICATIONS REFERENCES COMMITTEE, http://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Environment_and_Communications/Direct_Action_Plan (last visited Feb. 12, 2014).

Brazil

Eduardo Soares
Senior Foreign Law Specialist

SUMMARY Brazil is in the process of creating a national cap-and-trade system through various national programs. In the meantime, it is possible that initiatives taken by Brazilian states, either in the form of legislation or a cooperation agreement, may lead to the creation of a national emissions trade market. Rio de Janeiro has been active in the development of a state-wide program.

In the climate change arena, in 2009 the country created a national climate change policy designed to implement a voluntary reduction target for greenhouse gas emissions. The policy also provides mitigation and adaptation plans designed to consolidate a low-carbon economy.

I. Introduction

Brazil currently does not have a cap-and-trade system, but a technical cooperation agreement signed in 2013 may help develop a carbon market in the country.¹

At the state level, in 2012, the governor of the State of Rio de Janeiro intended to sign a decree that would launch the first emissions trading system in Latin America. However, the decree was not signed and the governor is reassessing the situation for the enactment of the decree.²

On December 29, 2009, Brazil promulgated Law No. 12,187, which established the National Climate Change Policy (Política Nacional sobre Mudança do Clima, PNMC) with its principles, objectives, directives, and instruments.³

II. Cap-and-Trade System

A. Technical Cooperation Agreement of 2013

A technical cooperation agreement was signed on March 21, 2013, between the National Bank for Economic and Social Development (Banco Nacional de Desenvolvimento Econômico e Social, BNDES), the State of Rio de Janeiro, and the Acre Institute for Climate Change and Regulation of Environmental Services for the purpose of encouraging the development of a

¹ Press Release, BNDES, BNDES e Governos do Acre e RJ Assinam Acordo para Estimular Mercado de Ativos Ambientais (Mar. 21, 2013), http://www.bndes.gov.br/SiteBNDES/bndes/bndes_pt/Institucional/Sala_de_Imprensa/Noticias/2013/Todas/20130321_acre_rj.html.

² *Brazil, The World's Carbon Markets: A Case Study Guide to Emissions Trading*, EDF & IETA, May 2013, at 2, http://www.edf.org/sites/default/files/EDF_IETA_Brazil_Case_Study_May_2013.pdf (last visited Feb. 11, 2014).

³ Lei No. 12.187, de 29 de Dezembro de 2009, art. 1, http://www.planalto.gov.br/ccivil_03/_Ato2007-2010/2009/Lei/L12187.htm.

market for environmental assets. The agreement includes the creation of a market for emissions trading.⁴

The agreement will enable the creation of a knowledge network; the exchange of experiences; and training to help companies measure, manage, and reduce their emissions of greenhouse gases.⁵ It also fosters the creation of carbon inventories of companies, which is a necessary step for the companies to trade carbon credits in a future permissions market. The setting of emission reduction targets and determination of how permissions for carbon emissions will be distributed among market participants are also part of the agreement.⁶

B. Emissions Trading System in the State of Rio de Janeiro

According to an international study, if the decree for the implementation of the emissions trading system in the State of Rio de Janeiro had been signed, the system would have launched in January 2013.⁷ The proposed decree detailed the system's target and the rules on offsets, and was divided into three phases.⁸

In the first phase (2013–2015), the government would have distributed allowances, almost all free of charge, to the covered entities; in the second phase (2016–2020), the distribution of allowances would have been reduced annually; and in the third phase (2021–2030) allowances would no longer have been distributed for free—instead, a regime of annual auctions would have been implemented.⁹

C. National Climate Change Policy

1. Law No. 12,187 of December 29, 2009

On December 29, 2009, Brazil established a National Climate Change Policy (Política Nacional sobre Mudança do Clima, PNMC) through Law No. 12,187.¹⁰ Article 12 sets a voluntary commitment to reduce, by 2020, between 36.1% and 38.9% of the projected emissions of greenhouse gases.¹¹ Among other things, the PNMC calls for measures to prevent, avoid, or minimize identified causes of climate change with anthropogenic origin within the national territory.¹²

⁴ Press Release, BNDES, *supra* note 1.

⁵ *Id.*

⁶ *Id.*

⁷ EDF & IETA, *supra* note 2, at 3.

⁸ *Id.*

⁹ *Id.*

¹⁰ Lei No. 12.187, de 29 de Dezembro de 2009, art. 1, http://www.planalto.gov.br/ccivil_03/_Ato2007-2010/2009/Lei/L12187.htm.

¹¹ *Id.* art. 12.

¹² *Id.* art. 3(II).

To help achieve the reduction target, Law No. 12,187 created a Brazilian Emissions Reduction Market (Mercado Brasileiro de Redução de Emissões) that must function in the commodities and future exchanges markets (*bolsas de mercadorias e futuros*), stock exchanges (*bolsa de valores*), and entities authorized to work by the Brazilian Securities Commission (Comissão de Valores Mobiliários), where the trading of securities, representing certified titles of reduced emissions of greenhouse gases, occur.¹³

The sole paragraph of article 11 of Law No. 12,187 determines that a federal decree would establish, in agreement with the PNMC, sectoral climate change mitigation and adaptation plans designed to consolidate a low-carbon economy in the areas of generation and distribution of electricity; urban public transportation and standard systems for interstate transportation of cargo and passengers; manufacturing and durable consumer goods industries; chemical industries (*final e de base*); paper industries (*papel e celulose*); mining; the civil construction industry; the health industry; and agriculture and cattle farming (*agropecuária*).¹⁴

In order to meet incremental targets of quantifiable and verifiable emissions reduction related to human activity, considering the specificities of each sector, Clean Development Mechanisms (Mecanismo de Desenvolvimento Limpo) and Nationally Appropriate Mitigation Actions (Ações de Mitigação Nacionalmente Apropriadas) may also be used.¹⁵

2. Decree No. 7,390 of December 9, 2010

Pursuant to the mandate of the sole paragraph of article 11 of Law No. 12,187, Decree No. 7,390 was issued on December 9, 2010. It implements article 6 of Law No. 12,187, which establishes the instruments of the PNMC; article 11, which determines that the principles, objectives, guidelines, and instruments of public policy and government programs should be compatible with the principles, objectives, guidelines, and instruments of the PNMC; and article 12, which establishes a voluntary commitment to reduce emissions of greenhouse gases.¹⁶

To achieve the voluntary commitment to which article 12 of Law No. 12,187 makes reference, article 6 of Decree No. 7,390 lists the actions that must be implemented to reduce between 1,168 million tonCO₂eq (metric tons of CO₂ equivalent) and 1,259 million tonCO₂eq of the total estimated emissions provided for in article 5 of Decree No. 7,390.¹⁷ So far, no limits have been established. The actions initially considered include the following:

- I. 80% reduction of the annual deforestation rates in the Legal Amazon in relation to the average verified between 1996 and 2005;

¹³ *Id.* art. 9.

¹⁴ *Id.* art. 11 (sole para.).

¹⁵ *Id.*

¹⁶ Decreto No. 7.390, de 9 de Dezembro de 2010, http://www.planalto.gov.br/ccivil_03/ Ato2007-2010/2010/Decreto/D7390.htm.

¹⁷ *Id.* art. 6. Article 5 states that the projection of national emissions of greenhouse gases for the year 2020 is 3,236 million tonCO₂eq, according to details described in the Annex to Decree No. 7,390.

- II. 40% reduction of the annual deforestation rates in the Cerrado Biome in relation to the average verified between 1999 and 2008;
- III. expansion of the supply from hydroelectric power, alternative renewable sources, especially wind farms, small hydroelectric and bioelectric farms, biofuel, and increased energy efficiency;
- IV. recovery of 15 million hectares [ha] of degraded pasture land;
- V. expansion of the integrated crop-livestock-forest system by 4 million ha;
- VI. expansion of direct planting practices to 8 million ha;
- VII. increase of biological nitrogen fixation in 5.5 million ha of cultivated areas to replace the use of nitrogenous fertilizers;
- VIII. expansion of forest planting by 3 million ha;
- IX. extended use of technologies for the treatment of 4.4 million m³ of animal waste;
- X. increase in the use of charcoal from planted forests and improvements in carbonization process efficiency in the steel industry.¹⁸

III. Other Measures to Control Climate Change—Controlling the Deforestation of the Amazon

According to the Institute of Environmental Research of the Amazon (Instituto de Pesquisa Ambiental da Amazônia), Brazil is among the top global emitters of greenhouse gases, with 61% of its emissions resulting from changes in land use and deforestation.¹⁹

To reduce the effects of deforestation, one of the actions being considered by the PNMC to achieve the country's voluntary commitment is a significant reduction of the annual deforestation rates in the Legal Amazon.²⁰

In 2013, after four years of decline, deforestation in the Amazon reportedly rose 28% (between August 2012 and July 2013) compared to the previous period.²¹ Some of the causes for the increase include a decrease in state and municipal supervision and the consequent lack of inspectors, and the approval of the new Forestry Code, which, for some, was a step backwards because it reduced the number of protected areas.²²

¹⁸ *Id.* art. 6(§ 1) (translation by author).

¹⁹ *Qual é a contribuição do Brasil nas emissões de gases de efeito estufa via desmatamento?*, INSTITUTO DE PESQUISA AMBIENTAL DA AMAZÔNIA, <http://www.ipam.org.br/saiba-mais/abc/mudancaspergunta/Qual-e-a-contribuicao-do-Brasil-nas-emissoes-de-gases-de-efeito-estufa-via-desmatamento-30/20> (last visited Feb. 25, 2013).

²⁰ The Legal Amazon is composed of the States of Acre, Amapá, Amazonas, Mato Grosso, Pará, Rondônia, Roraima, Tocantins, and part of the State of Maranhão. *Legislação*, SUDAM, <http://www.sudam.gov.br/amazonia-legal> (last visited Mar. 4, 2014) (scroll down to “Estados que Compõem a Amazônia Legal”).

²¹ Johanna Nublat & Giuliana Miranda, *Desmatamento na Amazônia Sobe 28% em 2013*, FOLHA DE SÃO PAULO (Nov. 14, 2013), <http://www1.folha.uol.com.br/ambiente/2013/11/1371434-desmatamento-na-amazonia-sobe-28-em-2013.shtml>.

²² *Id.*

IV. Conclusion

While a national cap-and-trade system is still a work in progress in the country, different initiatives are being tried to fill the gap. The Technical Cooperation Agreement of 2013 is the latest example in this regard. As stated in BNDES's press release, the purpose of the agreement is to encourage the development of a market for environmental assets, which may lead to a national system.

In 2012 the State of Rio de Janeiro also attempted to launch Latin America's first emissions trading system. The initiative was unsuccessful, apparently because the high thresholds established by the Rio government led to severe resistance from the affected industries. As a result, the Rio government is currently reassessing the initiative.

With the PNMC, Brazil sets an ambitious agenda for the country to meet. Hopefully, the legal framework for the mitigation and adaptation plans provided by the PNMC will enable the country to reach its targets. Still, the size of the challenge Brazil faces with regard to climate change and its attempt to reduce emissions while creating an emissions trade market can be measured by the deforestation data provided for the Amazon region, which shows a recent increase of 28% in the face of the PNMC's reduction target of 80%.

Alberta, Canada

Tariq Ahmad
Legal Research Analyst

SUMMARY Alberta has an intensity-based greenhouse gas emissions reduction program rather than a cap-and-trade program. Facilities that emit more than 100,000 metric tons of greenhouse gases a year are required to reduce emissions intensity (the quantum of emissions per unit of production) by 12% from baseline levels. If the facilities cannot do so, they have recourse to three alternative options: purchasing Alberta-based offset credits, contributing to the Climate Change and Emissions Management Fund, or purchasing or using Emission Performance Credits.

In addition to its greenhouse gas emissions reduction program, Alberta is developing and implementing carbon capture and storage.

I. Introduction

In 2011, Alberta emitted 242.4 million metric tons of greenhouse gases (GHGs),¹ the highest amount of all the Canadian provinces.² This amounts to around one-third of Canada's total emissions of 702 million metric tons.³ Alberta also has “the second highest per-capita level of emissions in Canada, behind Saskatchewan.”⁴ According to a case study by the International Emissions Trading Association (IETA),

[t]his high level of emissions is not only indicative of Alberta's reliance on coal-fired electricity, but also Alberta's role as a global energy supplier. Alberta has the world's third largest supply of proven crude oil reserves, behind Saudi Arabia and Venezuela. Because of this role, Alberta's emissions profile is dominated by industrial activity and its economy has grown more rapidly than that of any other province.⁵

In 2002, Alberta published a comprehensive climate change action plan that set out a framework for reducing GHG emissions.⁶ The plan also outlined “commitments to action, including

¹ *Greenhouse Gas Emissions Data*, ENVIRONMENT CANADA, <https://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=en&n=BFB1B398-1#ghg4> (last updated July 11, 2013). In the tables on this website, GHG emissions are measured in megatonnes of carbon dioxide equivalent (MtCO₂e).

² *Id.*

³ ENVIRONMENTAL DEFENSE FUND (EDF) & INTERNATIONAL EMISSIONS TRADING ASSOCIATION (IETA), ALBERTA – THE WORLD'S CARBON MARKETS: A CASE STUDY GUIDE TO EMISSIONS TRADING I (May 2013), http://www.edf.org/sites/default/files/EDF_IETA_Alberta_Case_Study_May_2013.pdf.

⁴ *Id.*

⁵ *Id.*

⁶ GOVERNMENT OF ALBERTA, ALBERTANS & CLIMATE CHANGE: TAKING ACTION (Oct. 2002), <http://environment.gov.ab.ca/info/library/6123.pdf>.

regulation of industrial emitters.”⁷ In 2003, Alberta passed the Climate Change and Emissions Management Act,⁸ which established a GHG emission reduction target (relative to Gross Domestic Product) that will be equal to or less than 50% of 1990 levels by December 31, 2020.⁹

A regulation made under the Act, the 2003 Specified Gas Reporting Regulation,¹⁰ established a mandatory reporting program, commencing in 2004, for facilities in Alberta emitting over 100,000 metric tons of carbon dioxide.¹¹ The emissions threshold was subsequently reduced to 50,000 metric tons starting from the 2010 reporting period.¹²

In January 2008, the Alberta government published a new Climate Change Strategy,¹³ which builds on the 2002 climate-change action plan. The strategy states that actions will focus on three areas:

- Implementing carbon capture and storage;
- Greening energy production; and
- Conserving and using energy efficiently.¹⁴

II. Greenhouse Gas Emissions Reduction Program

A. Overview

Alberta’s GHG reduction program is governed by the 2007 Specified Gas Emitters Regulation (SGER),¹⁵ which was made pursuant to the Climate Change and Emissions Management Act of 2003. The program is regarded as an emissions-intensity trading scheme and does not include a hard cap on total emissions.¹⁶ The program requires facilities¹⁷ that emit more than 100,000

⁷ EDF & IETA, *supra* note 3, at 1.

⁸ Climate Change and Emissions Management Act, Statutes of Alberta, 2003, c. C-16.7, <http://www.qp.alberta.ca/documents/Acts/C16P7.pdf>.

⁹ *Id.* § 3(1).

¹⁰ Specified Gas Reporting Regulation, Alta. Reg. 251/2004, § 3(1), http://www.qp.alberta.ca/documents/Regs/2004_251.pdf

¹¹ EDF & IETA, *supra* note 3, at 1.

¹² Specified Gas Reporting Standard (March 2013), § 2(1), <http://environment.gov.ab.ca/info/library/7759.pdf>. See also *Facts and Statistics*, GOVERNMENT OF ALBERTA, <http://www.energy.alberta.ca/oilsands/791.asp> (last visited Feb. 25, 2014).

¹³ GOVERNMENT OF ALBERTA, ALBERTA’S 2008 CLIMATE CHANGE STRATEGY (Jan. 2008), <http://environment.alberta.ca/01757.html> (click on “PDF Download”).

¹⁴ *Climate Change*, GOVERNMENT OF ALBERTA, <http://www.environment.alberta.ca/01855.html> (last visited Feb. 25, 2014).

¹⁵ Specified Gas Emitters Regulation (SGER), Alta. Reg. 139/2007, http://www.qp.alberta.ca/1266.cfm?page=2007_139.cfm&leg_type=Regs&isbncln=9780779738151.

¹⁶ Jacob A. Sadikman, *Market-Based Mechanisms for GHG Reductions Gaining Momentum Across Canada*, OSLER (Dec. 2009), <http://www.osler.com/NewsResources/Default.aspx?id=1323>.

metric tons of GHGs a year to reduce emissions intensity¹⁸ by 12% from baseline levels. According to the IETA,

[f]or facilities existing in 2000, the goal is to reduce annual emissions intensity 12% below a baseline established using 2003–2005 averages for emissions and production. The baseline for new facilities is established during its first three years of commercial operation. The compliance obligation for these facilities begins at 2% per year, starting in the fourth year of commercial operation, and ramps up 2% each year until a 12% target is reached.¹⁹

Importantly, “Alberta’s SGER does not have a declining target for facilities over time, but instead requires facilities to meet a constant emissions intensity target each year.”²⁰

It is also important to note that an intensity-based system “allows GHG emissions to increase from year to year as production expands, as long as a facility can reduce the amount of GHGs emitted per unit of production.”²¹ Emitting facilities are required to make improvements in their operations in order to enhance their emissions performance. If they are unable to do so, they can achieve compliance through three alternative options: purchasing Alberta-based offset credits, contributing to the Climate Change and Emissions Management Fund, or purchasing or using Emission Performance Credits (EPCs).

1. Alberta-Based Offset Credits

One compliance option for large industrial emitters under Alberta’s GHG emissions reduction program “is to purchase offset credits from other sectors that have voluntarily reduced their emissions in Alberta.”²²

Under the SGER, offset credits must be real, demonstrable, quantifiable, and measurable,²³ and the reduction in emissions must result from actions taken on or after January 1, 2002.²⁴

¹⁷ “Alberta’s program covers any industrial facility—including emissions from: chemical and fertilizer manufacturers; coal mines; forest product producers; gas plants; mineral processors; oil sand miners, upgraders and extractors; petroleum refiners; pipeline transportation; power plants; and, waste management—that has emitted over 100,000 tons [metric tons] of carbon dioxide equivalent in 2003 or any subsequent year.” EDF & IETA, *supra* note 3, at 2.

¹⁸ Emissions intensity is the quantum of emissions per unit of production.

¹⁹ EDF & IETA, *supra* note 3, at 1.

²⁰ *Id.*

²¹ Ana Maria Radu, *Alberta Reviews Compliance with the Specified Gas Emitters Regulation*, ABLAWG.CA (Jan. 15, 2014), <http://ablawg.ca/2014/01/15/alberta-reviews-compliance-with-the-specified-gas-emitters-regulation/>.

²² *Alberta-Based Offset Credit System*, GOVERNMENT OF ALBERTA, <http://environment.alberta.ca/0923.html> (last visited Feb. 25, 2014).

²³ SGER, § 7(1)(d)–(e).

²⁴ *Id.* § 7(1)(c).

Credits must also be created using protocols approved by the Alberta government. The protocols “outline how to quantify and verify emission reductions for different types of projects (e.g. no or reduced tillage, biomass and biofuels).”²⁵ In addition, all credits used to meet reduction targets must be verified by an independent third party,²⁶ and offset credit projects must be registered and serialized with Alberta’s Offset Registry in order to use and/or generate offset credits.²⁷ Credits used for compliance purposes can only be generated in Alberta.²⁸ The SGER also restricts the projects that are able to generate credits to those that are not required by law.²⁹

In 2012, important changes were made to the offset credit system to improve “verification guidelines and standards for offset credits and some existing protocols.”³⁰

2. *Climate Change and Emissions Management Fund*

The Climate Change and Emissions Management Fund (CCEMF) is another compliance option under Alberta’s emissions reduction program. According to an Alberta government website, “[c]ompanies that are required to meet the provincial reduction target for greenhouse gas emissions can choose to pay \$15 a tonne [metric ton] into the Fund for emissions over the target. The Alberta government is responsible for collecting this money for each compliance year.”³¹

Credits received from funds paid to the CCEMF cannot be banked for future use. According to the IETA, “a technology fund credit obtained before the annual compliance deadline (on March 31st) can only be used in meeting a facility’s net emissions intensity limit for the previous year. Similarly, a fund credit obtained after the annual compliance deadline can only be used for compliance in that year.”³²

²⁵ *Alberta-Based Offset Credit System*, *supra* note 22.

²⁶ *Id.* See also *Carbon Contracting: 2012 Changes to the Alberta Carbon Market*, GOVERNMENT OF ALBERTA, [http://www1.agric.gov.ab.ca/\\$department/deptdocs.nsf/all/ofa13483](http://www1.agric.gov.ab.ca/$department/deptdocs.nsf/all/ofa13483) (last updated May 8, 2013).

²⁷ *Offset Registry*, CARBON OFFSET SOLUTIONS, <http://carbonoffsetsolutions.climatechangecentral.com/offset-registry> (last visited Feb. 25, 2014). See also *Alberta Offset System*, CARBON OFFSET SOLUTIONS, <http://carbonoffsetsolutions.climatechangecentral.com/policy-regulation/alberta-offset-system> (last visited Feb. 25, 2014).

²⁸ Gray Taylor, *Canada: Alberta’s GHG Emissions Control System: A Model For Others?*, MONDAQ (Oct. 18, 2012), <http://www.mondaq.com/canada/x/202178/Clean+Air+Pollution/Albertas+GHG+Emissions+Control+System+A+Model+for+Others>.

²⁹ *Id.* The additionality requirement is defined under section 7(1)(b) of the SGER which states, “the specified gas emissions reduction must be from an action taken that is not otherwise required by law at the time the action is initiated.”

³⁰ For a complete overview of changes, see Martin Ignasiak & Sander Duncanson, *Changes to Alberta’s Offset Credit Regime*, OSLER (Feb. 3, 2011), <http://www.osler.com/newsresources/details.aspx?id=3104&langtype=4105>.

³¹ *Climate Change and Emissions Management Fund*, GOVERNMENT OF ALBERTA, <http://environment.alberta.ca/02486.html> (last updated Jan. 2, 2014).

³² EDF & IETA, *supra* note 3, at 3.

The CCEMF was created to help meet the goals of Alberta's Climate Change Strategy "to support the development and application of transformative technologies, as well as improving Alberta's ability to adapt to climate change."³³

3. *Purchasing or Using Emission Performance Credits*

Large emitters whose emissions-intensity reductions surpass the 12% target level are eligible to generate Emission Performance Credits.³⁴ Those credits can be banked to offset emissions in future years or can be sold to other emitters. However, if sold to another facility, the purchasing facility must use the EPCs for compliance in that same compliance year.³⁵

B. The Program in Practice

According to a 2012 government report on the Greenhouse Gas Emission Reduction Program, Alberta reduced GHG emissions by 7.5 million metric tons from its emitting facilities. Direct improvements to operations led to a reduction of 1.66 million metric tons in 2012, while 2.63 million metric tons came from offset credits, and a further 3.25 million metric tons were reduced by "recognition of cogeneration."³⁶ Companies paid roughly CA\$86 million into the CCEMF, which "covers ~5.7 MT [million metric tons] of reductions required based on the current rate of \$15 per tonne [metric ton]."³⁷ Some commentators have noted that compared to 2011, these results show a dramatic decrease in actual reductions.³⁸

Several problems have been noted concerning Alberta's emissions trading program. Some consider the threshold of 100,000 metric tons of carbon dioxide equivalent as being very high compared to other emissions trading programs in jurisdictions like California and Quebec. In addition, some criticize the fact that the 12% obligation becomes "less onerous" as facilities become "more energy efficient over time."³⁹

Other criticisms of Alberta's emissions-intensity scheme are that the "province's GHG emissions can continue to increase as long as the carbon footprint per unit of production is diminished," and that the compliance options might be too flexible. For example, emitting facilities can continue to emit without an incentive to make "improvements to their installations as long as they pay a comfortable price of \$15 per tonne [metric ton] of CO₂e."⁴⁰ One other element of the

³³ *Climate Change and Emissions Management Fund*, *supra* note 31.

³⁴ *2010 Greenhouse Gas Emission Reduction Program Results*, GOVERNMENT OF ALBERTA, <http://environment.alberta.ca/03501.html> (last visited Feb. 25, 2014).

³⁵ EDF & IETA, *supra* note 3, at 3.

³⁶ *2012 Greenhouse Gas Emission Reduction Program Results*, GOVERNMENT OF ALBERTA, <http://environment.alberta.ca/04220.html> (last visited Feb. 14, 2014).

³⁷ *Id.*

³⁸ Radu, *supra* note 21.

³⁹ Taylor, *supra* note 28.

⁴⁰ Radu, *supra* note 21.

system that has come under criticism is the absence of limits on the use of fund credits and offset credits.⁴¹

According to Canadian environmental lawyer Gray Taylor, despite the problems and issues facing Alberta's emissions reduction system, the program still successfully

- Imposes costs on larger scale industrial GHG emissions,
- Creates market incentives to reduce or sequester GHGs,
- Directs funds into critical new low-carbon technologies, and
- Is likely capable of accommodating much more stringent targets without wholesale redesign.⁴²

Some also praise Alberta for being the first Canadian jurisdiction to implement GHG reporting and reduction regulations.

III. Other Measures

As part of Alberta's 2008 Climate Change Strategy, the government of Alberta called for the development and implementation of carbon capture and storage (CCS).⁴³ Pursuant to this strategy, in April 2008, the government established the Carbon Capture and Storage Development Council⁴⁴ to administer funding for CCS projects. According to an Alberta government website, "Alberta has committed a total of \$1.3 billion over 15 years to fund two large-scale CCS projects."⁴⁵

The 2008 strategy also set two other goals of "greening energy production"⁴⁶ and "conserving and using energy efficiently."⁴⁷ Alberta had a provincial energy efficiency rebate program that ended on March 31, 2012.⁴⁸

⁴¹ *Id.*

⁴² Taylor, *supra* note 28.

⁴³ ALBERTA'S 2008 CLIMATE CHANGE STRATEGY, *supra* note 13, at 17.

⁴⁴ Rob Bioletti, *Innovation and Leadership: Alberta's Carbon Capture and Storage Program*, GLOBAL CCS INSTITUTE (Oct. 28, 2013), <http://www.globalccsinstitute.com/insights/authors/robbioletti/2013/10/28/innovation-and-leadership-alberta%E2%80%99s-carbon-capture-and>.

⁴⁵ *Carbon Capture and Storage*, GOVERNMENT OF ALBERTA, <http://www.energy.alberta.ca/Initiatives/1438.asp> (last visited Feb. 25, 2014).

⁴⁶ *Greening Energy Production*, GOVERNMENT OF ALBERTA, <http://environment.alberta.ca/02255.html> (last visited Feb. 25, 2014).

⁴⁷ *Conserving and Using Energy Efficiently*, GOVERNMENT OF ALBERTA, <http://environment.alberta.ca/02250.html> (last visited Feb. 25, 2014).

⁴⁸ *Alberta's Energy Efficiency Rebate Program*, GOVERNMENT OF ALBERTA, <http://environment.alberta.ca/0920.html> (last visited Feb. 25, 2014).

British Columbia, Canada

Tariq Ahmad
Legal Research Analyst

SUMMARY British Columbia had aimed to establish a cap-and-trade emissions reduction program pursuant to guidelines and recommendations made by the Western Climate Initiative but decided instead to enact a revenue-neutral carbon tax. Currently, there do not appear to be any plans to fully implement a cap-and-trade system pursuant to the mandate established in the Greenhouse Gas Reduction (Cap and Trade) Act.

I. Introduction

In 2011, British Columbia (BC) produced 59.1 million metric tons of carbon dioxide equivalent emissions,¹ the fifth highest greenhouse gas (GHG) emission level among Canada's provinces.²

Pursuant to the Greenhouse Gas Reduction Targets Act of 2007,³ BC aims to reduce its carbon emissions to 33% below 2007 levels by 2020.⁴ The BC Ministry of Environment has announced interim reduction targets of 6% by 2012 and 18% by 2016.⁵ Additionally, "a further emission-reduction target of 80 per cent below 2007 levels is required for 2050."⁶ The Climate Action Secretariat, which works under the Ministry of Environment, has the mandate to develop policies and coordinate climate action activities "across Government and with stakeholders" in order to meet legislated targets.⁷

In June 2008, BC published a Climate Action Plan, which outlines strategies and initiatives "to take B.C. approximately 73 per cent towards meeting the goal of reducing GHG emissions by 33 per cent by 2020."⁸ A progress report published in 2012 stated that, based on 2010 data,

¹ *Greenhouse Gas Emissions Data*, ENVIRONMENT CANADA, <https://www.ec.gc.ca/indicateurs-indicators/default.asp?lang=en&n=BFB1B398-1#ghg4> (last updated July 11, 2013).

² *Id.*

³ Greenhouse Gas Reduction Targets Act, S.B.C. 2007, c. 42, http://www.bclaws.ca/EPLibraries/bclaws_new/document/ID/freeside/00_07042_01.

⁴ Andrew MacLeod, *BC Minister Lake on Missed Cap and Trade Deadline: "We're Not Quite There Yet,"* TYEE (Feb. 20, 2012), <http://theyee.ca/Blogs/TheHook/BC-Politics/2012/02/20/CapTrade/>.

⁵ *Legislation & Regulations*, BC MINISTRY OF ENVIRONMENT, <http://www.env.gov.bc.ca/cas/legislation/> (last visited Mar. 6, 2014) (scroll down to "Greenhouse Gas Reduction Targets Act").

⁶ *Id.*

⁷ *Climate Action Secretariat*, BC MINISTRY OF ENVIRONMENT, <http://www.env.gov.bc.ca/cas/index.html> (last visited Mar. 6, 2014).

⁸ *Climate Action Policy & Programs in B.C.*, BC MINISTRY OF ENVIRONMENT, <http://www.env.gov.bc.ca/cas/programs.html> (last visited Mar. 6, 2014).

“indicators do suggest that B.C. is within reach of meeting its 2012 interim GHG target of 6% below 2007 levels.”⁹ However, there are concerns that BC’s current development of its liquefied natural gas (LNG) industry may threaten its ability to meet the above statutory targets.¹⁰

BC is part of the Western Climate Initiative (WCI). The WCI, which was formed in 2007, included seven western US states and three Canadian provinces (BC being the first Canadian province to join).¹¹ The purpose of the Initiative was to adopt a “long-term commitment to reduce regional GHGs and fight climate change by focusing on a market-based cap and trade system.”¹²

In September 2008, the WCI released its proposed design for a comprehensive regional cap-and-trade program to reduce GHG emissions by 15% below 2005 levels. Partners in the WCI were to implement regulations based on these recommendations. However, the Initiative appears to have stalled when most US states, apart from California, withdrew from the Initiative.¹³

BC is also a party to of the recent Pacific Coast Action Plan,¹⁴ under which it agreed to maintain its existing carbon pricing programs, which include the carbon tax and low-carbon fuel standards.¹⁵

II. Cap-and-Trade Scheme

In 2008, BC enacted the Greenhouse Gas Reduction (Cap and Trade) Act¹⁶ (Cap and Trade Act), which provides “the statutory basis for setting up a market-based cap and trade framework to reduce greenhouse gas emissions.”¹⁷ However, it is yet to enact two essential regulations, the emissions trading regulation¹⁸ and the emissions offset regulation,¹⁹ to implement a cap-and-trade program. The Act also authorizes the following:

⁹ *Id.*

¹⁰ *LNG Threatens B.C.’s Greenhouse-gas Goals, Internal Notes Warn*, GLOBE AND MAIL (Nov. 12, 2013), <http://www.theglobeandmail.com/news/british-columbia/lng-threatens-provinces-greenhouse-gas-goals-internal-notes-warn/article15405912/>.

¹¹ *Western Climate Initiative*, BC MINISTRY OF ENVIRONMENT, <http://www.env.gov.bc.ca/cas/mitigation/igr.html#wci> (last visited Mar. 6, 2014).

¹² *Id.*

¹³ Michael A. Nesteroff, *The Western Climate Initiative Is Dead, Long Live the WCI*, LEXOLOGY (Nov. 23, 2011), <http://www.lexology.com/library/detail.aspx?g=16aa30c5-63ab-406c-a3f7-100b3eaae557>.

¹⁴ Pacific Coast Action Plan on Climate and Energy, BC-CA-OR-WA, Oct. 28, 2013, <http://www.pacificcoastcollaborative.org/Documents/Pacific%20Coast%20Climate%20Action%20Plan.pdf>.

¹⁵ *Id.*

¹⁶ Greenhouse Gas Reduction (Cap and Trade) Act, S.B.C. 2008, c. 32, http://www.bclaws.ca/Recon/document/ID/freeside/00_08032_01.

¹⁷ *Greenhouse Gas Reduction (Cap and Trade) Act*, BC MINISTRY OF ENVIRONMENT, <http://www.env.gov.bc.ca/cas/mitigation/ggrcta/> (last visited Mar. 6, 2014).

¹⁸ *Consultation for a Proposed Emissions Trading Regulation*, BC MINISTRY OF ENVIRONMENT, <http://www.env.gov.bc.ca/cas/mitigation/ggrcta/emissions-trading-regulation/> (last visited Mar. 6, 2014).

- the development, approval, and procurement of offsets
- the creation of a compliance and enforcement system
- the participation of BC in regional cap-and-trade systems²⁰

To date, pursuant to the Cap and Trade Act, BC has only enacted a reporting regulation, which provides that, from January 1, 2010, BC facilities emitting 10,000 metric tons or more of carbon dioxide equivalent per year must report their emissions. Those facilities emitting 25,000 metric tons or more are required to submit emissions reports verified by a third party.²¹

Instead of establishing emissions trading regulations, BC at present seems committed to using a carbon tax as a pricing mechanism for carbon emissions and does not appear to have made a final decision on whether to move forward with a cap-and-trade scheme.²² Previously, it had been in the process of developing its program on the basis of the 2008 Design Recommendations for the WCI Regional Cap and Trade Program and the 2010 Design for the WCI Regional Program, which serve to guide WCI Partner jurisdictions in their implementation of the cap-and-trade program.²³

III. Other Measures for Energy Efficiency and/or Use of Renewable Sources

In 2008, BC instituted a revenue-neutral carbon tax, meaning all revenue produced by the tax is returned to British Columbians through other tax reductions.²⁴ According to the BC Ministry of Finance, “[t]ax cut measures include income tax credits for low income individuals, cutting the first two personal income tax rates by 5 per cent, providing northern and rural homeowners a benefit of up to \$200 annually, and reducing the business taxes.”²⁵

The initial tax rate of C\$10 (about US\$9.03) per metric ton of carbon dioxide equivalent was increased by C\$5 (about US\$4.51) annually until 2012, when it reached a final price of C\$30

¹⁹ *Consultation for a Proposed Offsets Regulation*, BC MINISTRY OF ENVIRONMENT, <http://www.env.gov.bc.ca/cas/mitigation/ggrcta/offsets-regulation/index.html> (last visited Mar. 6, 2014).

²⁰ BC MINISTRY OF ENVIRONMENT, CAP AND TRADE OFFSETS REGULATION UNDER THE GREENHOUSE GAS REDUCTION (CAP AND TRADE) ACT – CONSULTATION PAPER 4 (Dec. 2010), <http://www.env.gov.bc.ca/cas/mitigation/ggrcta/pdf/ctor-consultation-paper.pdf>.

²¹ *Reporting Regulation – Greenhouse Gas Reduction (Cap and Trade) Act*, BC MINISTRY OF ENVIRONMENT, <http://www.env.gov.bc.ca/cas/mitigation/ggrcta/reporting-regulation/index.html> (last visited Mar. 6, 2014).

²² Christopher Pollon, *Why BC Isn't Rushing to "Cap and Trade" Carbon*, TYEE (Nov. 28, 2011), <http://thetyee.ca/News/2011/11/28/BC-Cap-And-Trade/>.

²³ *Program Design*, WESTERN CLIMATE INITIATIVE, INC., <http://www.wci-inc.org/program-design.php> (last visited Mar. 6, 2014).

²⁴ *Carbon Tax Review, and Carbon Tax Overview*, BC MINISTRY OF FINANCE, http://www.fin.gov.bc.ca/tbs/tp/climate/carbon_tax.htm (last visited Mar. 6, 2014). For information on the impact of the carbon tax on fuel consumption see *BC's Carbon Tax Shift After Five Years*, SUSTAINABLE PROSPERITY (July 24, 2013), <http://www.sustainableprosperity.ca/article3685>.

²⁵ *Carbon Tax Review, and Carbon Tax Overview*, *supra* note 24.

(about US\$27.08) per metric ton of emissions. The gradual increase was to allow families and businesses time to reduce their emissions.²⁶

The BC government has also adopted a program aimed at achieving a carbon-neutral public sector.²⁷ Although the government now claims that such neutrality has been achieved,²⁸ various experts and BC's Auditor General have challenged the claim's validity.²⁹

In 2008, BC enacted an Emissions Offset Regulation pursuant to an entirely different statute—the Greenhouse Gas Reduction Targets Act, which establishes requirements for recognizing offsets for “greenhouse gas reductions and removals from projects or actions . . . [for the purposes of] fulfilling the provincial government’s commitment to a carbon-neutral public sector.”³⁰

BC has also adopted low-carbon fuel standards. Gasoline and diesel fuel suppliers “must ensure they supply the required minimum renewable fuel content,”³¹ (5% for gasoline and 4% for diesel) on a provincial annual average basis in the fuel they supply in BC.

²⁶ *Id.*

²⁷ *Carbon Neutral Public Sector*, BC MINISTRY OF ENVIRONMENT, http://www.env.gov.bc.ca/cas/mitigation/carbon_neutral.html (last visited Mar. 6, 2014).

²⁸ *Id.*

²⁹ OFFICE OF THE AUDITOR GENERAL OF BRITISH COLUMBIA, AN AUDIT OF CARBON NEUTRAL GOVERNMENT, REPORT 14, at 3 (March 2013), <http://www.bcauditor.com/pubs/2013/report14/audit-carbon-neutral-government>.

³⁰ *Emissions Offsets Regulation*, BC MINISTRY OF ENVIRONMENT, http://www.env.gov.bc.ca/cas/mitigation/ggrta/offsets_reg.html (last visited Mar. 6, 2014).

³¹ *Renewable & Low Carbon Fuel Requirements Regulation*, BC MINISTRY OF ENERGY & MINES, <http://www.empr.gov.bc.ca/RET/RLCFRR/FAQ/Pages/default.aspx#1b> (last updated July 2013).

People's Republic of China

Laney Zhang

Senior Foreign Law Specialist*

SUMMARY China aims to “gradually” establish a national carbon trading market. Seven provinces and cities were designated to launch emissions trading scheme (ETS) pilots in 2011. Currently, there is no law at the national level specifically regulating emissions trading. The seven pilots are mainly based on local rules as the source of legal enforcement. Very recently, Guangdong and Shanghai promulgated their local emissions management measures, which came into effect in January 2013 and March 2014, respectively. Meanwhile, a carbon tax is under discussion.

In 2012, a specific offset mechanism was introduced, under which the Chinese Certified Emission Reduction (CCER) was created to be used as credits offsetting carbon emissions. Both the Shanghai and Guangdong ETS pilots allow offsetting a certain percentage of the emissions with CCERs but limit their use.

I. Introduction

On December 1, 2011, the State Council of the People's Republic of China (PRC or China) issued a plan outlining the targets and policies for controlling greenhouse gas (GHG) emissions for the five-year period from 2011 to 2015 (GHG Control Plan).¹ By 2015, the country aims to “effectively control” emissions of greenhouse gases including CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆. A target to reduce carbon intensity (carbon emissions per unit of gross domestic product) by 17% by 2015, relative to 2010 levels, has been established.²

The government considers that market-based instruments such as carbon emissions trading and carbon taxation are useful tools to meet the carbon intensity target.³ It was first announced by the overarching national 12th five-year plan that China would “gradually” establish a carbon trading market.⁴ The GHG Control Plan further laid out a plan for launching carbon emissions trading pilots and promulgating relevant laws, regulations, and administrative measures within the five years.

* Law Library intern Bing Jia contributed to this report.

¹ “十二五”控制温室气体排放工作方案 [12th Five Year Plan for Controlling Greenhouse Gases Emission] (issued by the State Council on Dec. 1, 2011), http://www.gov.cn/zwqk/2012-01/13/content_2043645.htm (hereinafter GHG Control Plan).

² *Id.*

³ GUOYI HAN ET AL., CHINA'S CARBON EMISSION TRADING: AN OVERVIEW OF CURRENT DEVELOPMENT 5 (2012), <http://www.sei-international.org/mediamanager/documents/Publications/china-cluster/SEI-FORES-2012-China-Carbon-Emissions.pdf>.

⁴ 国民经济和社会发展第十二个五年规划纲要 [Twelfth National Five-Year Plan on Economic and Social Development] (promulgated by National People's Congress of the People's Republic of China (NPC) on Mar. 14, 2011), STANDING COMM. NPC GAZ., Apr. 15, 2011, 190.

The GHG Control Plan sets up targets for reducing carbon intensity for each locality. By 2015, Shanghai is required to reduce carbon intensity by 19% of 2010 levels, and the same target applies to Tianjin, Jiangsu, and Zhejiang. The reduction target for Beijing is 18%, Guangdong 19.5%, and Chongqing 17%.⁵

II. Emerging Emission Trading Scheme

A. Legislation and Administrative Measures

China's approach to controlling carbon emissions, as well as other GHG emissions, has mainly been based on a direct regulatory system through administrative and political measures but not through legislation.⁶ Currently, there is no law at the national level specifically regulating carbon emissions trading. Instead, there are now seven emissions trading scheme (ETS) pilots that are mainly based on local rules as the source of legal enforcement..

1. National Rules

On June 13, 2012, the National Development and Reform Commission (NDRC), a department under the State Council that manages the implementation of climate change policies in China, issued a set of Interim Measures on China's Voluntary Emission Reductions Trading. The measures provided a specific offset mechanism by creating the Chinese Certified Emission Reduction (CCER).⁷

On October 29, 2011, the NDRC issued a circular to launch carbon emissions trading pilots in seven provinces and cities: Beijing, Tianjin, Shanghai, Chongqing, Hubei, Guangdong, and Shenzhen.⁸ The pilots include all four provincial-level municipalities, which report directly to the central government (Beijing, Tianjin, Shanghai, and Chongqing); two provinces (Hubei and Guangdong); and one special economic zone (Shenzhen), a "comparatively large city" under Chinese law.⁹

⁵ GHG Control Plan, *supra* note 1.

⁶ See discussion in HAN ET AL., *supra* note 3.

⁷ 温室气体自愿减排交易管理暂行办法 [Interim Measures on China's Voluntary Emission Reductions Trading] (issued by the NDRC on June 13, 2012), http://qhs.ndrc.gov.cn/zcfg/t20120621_487133.htm.

⁸ 国家发展改革委办公厅关于开展碳排放权交易试点工作的通知 [General Office of the National Development and Reform Commission Notice on Launching Carbon Emissions Trading Pilots] (Fa Gai Ban Qi Hou [2011] No. 2601, Oct. 29, 2011), http://www.sdpc.gov.cn/zcfb/zcfbtz/2011tz/t20120113_456506.htm.

⁹ 立法法 [Law on Legislation] (promulgated by the NPC Standing Committee on Mar. 15, 2000, effective July 1, 2000), art. 63, 1 XIN FAGUI HUIBIAN (2000), English translation available at http://www.gov.cn/english/laws/2005-08/20/content_29724.htm.

2. Local Rules

The provinces and cities designated to launch ETS pilots have begun issuing local rules applicable in their jurisdictions with regard to carbon emissions trading. The following table lists the primary local rules that are publicly available:

Table: Local Carbon Emissions Rules

Pilots	Rules
Beijing	Decision of Standing Committee of Beijing Municipal People's Congress on Launching Carbon Emissions Rights Trading Pilot Provided Total Carbon Emissions Are Strictly Controlled (December 2013) (Beijing Decision). ¹⁰
	Notice of Beijing Municipal Development and Reform Commission on Launching Pilot Trading of Carbon Emissions Rights (November 2013). ¹¹
Tianjin	Tianjin Municipality Interim Administrative Measures on Trading the Right of Carbon Emissions (December 2013). ¹²
	Tianjin Municipality Implementing Plan on Carbon Emissions Rights Trading Pilot (February 5, 2013). ¹³
Shanghai	Shanghai Municipality Interim Measures on Carbon Emissions Management (November 2013) (Shanghai Emissions Measures). ¹⁴
	Implementing Opinions of Shanghai Municipal People's Government on Carbon Emissions Rights Trading Pilot in Shanghai (July 3, 2012) (Shanghai Implementing Opinions). ¹⁵
Hubei	Hubei Province Carbon Emissions Rights Trading Pilot Implementing Plan (February 18, 2013). ¹⁶

¹⁰ 北京市在严格控制碳排放总量前提下开展碳排放权交易试点工作的决定 (issued by Standing Committee of Beijing People's Congress, Dec. 27, 2013), <http://zhengwu.beijing.gov.cn/gzdt/gggs/t1336104.htm> (Beijing People's Government website).

¹¹ 北京市发展和改革委员会关于开展碳排放权交易试点工作的通知 (issued by the Beijing Development and Reform Commission, Nov. 20, 2013), available at <http://cdm.ccchina.gov.cn/Detail.aspx?newsId=42620&Tid=3>.

¹² 天津市碳排放权交易管理暂行办法 (issued by the Office of General Affairs of Tianjin People's Government, Dec. 20, 2013), http://www.tj.gov.cn/zwgk/wjgz/szfbgtwj/201312/t20131224_227448.htm (Tianjin People's Government website).

¹³ 天津市碳排放权交易试点工作实施方案 (issued by the Office of General Affairs of Tianjin People's Government, Feb. 5, 2013), http://www.tj.gov.cn/zwgk/wjgz/szfbgtwj/201303/t20130304_188946.htm.

¹⁴ 上海市碳排放管理试行办法 (promulgated Nov. 18, 2013, effective Nov. 20, 2013), <http://www.shanghai.gov.cn/shanghai/node2314/node2319/node12344/u26ai37414.html> (Shanghai People's Government website).

¹⁵ 上海市人民政府关于本市开展碳排放交易试点工作的实施意见 (issued by Shanghai People's Government, July 3, 2012), <http://www.shanghai.gov.cn/shanghai/node2314/node2319/node12344/u26ai32789.html>.

Pilots	Rules
Guangdong	Guangdong Province Interim Measures on Carbon Emissions Management (January 2014) (Guangdong Emissions Measures). ¹⁷
	Guangdong Province Implementing Plan on Carbon Emissions Rights Trading Pilot (September 2012) (Guangdong Implementing Plan). ¹⁸
Shenzhen	Certain Provisions of Shenzhen Special Economic Zone for Carbon Emissions Management (October 2012) (Shenzhen Provisions). ¹⁹

Among these rules, the pilot implementing plans issued by the local governments or their development and reform departments are generally not in the form of local regulations or administrative rules within the meaning of the Law on Legislation, and therefore are not legislation.²⁰ The Shenzhen Provisions were promulgated by the People's Congress, and may be deemed a local administrative regulation. The Municipal People's Congress of Beijing also made a decision regarding the carbon emissions trading pilot in Beijing. The two local People's Congress documents, however, are short and general, leaving the making of detailed rules to the government.²¹

Very recently, some ETS pilots have been drafting their own local emissions management measures, and two of these measures have been signed into formal administrative rules by the heads of the governments: the Shanghai Measures, promulgated on November 18, 2013, and currently effective; and the Guangdong Measures, promulgated on January 15, 2014, and effective on March 1, 2014.

B. Offset Mechanism

After much anticipation, on June 13, 2012, the NDRC issued the Interim Measures on China's Voluntary Emission Reductions Trading (VER Measures) as an effort to explore a Chinese

¹⁶湖北省碳排放权交易试点工作实施方案 (issued by the General Affairs Office of Hubei People's Government Feb. 18, 2013), http://www.hbepb.gov.cn/zwgk/zcwj/szfwj/201303/t20130304_59436.html (Hubei Environmental Protection Bureau website).

¹⁷广东省碳排放管理试行办法 (promulgated by Guangdong People's Government Jan. 15, 2014, effective Mar. 1, 2014), http://zwgk.gd.gov.cn/006939748/201401/t20140117_462131.html (Guangdong People's Government website).

¹⁸广东省碳排放权交易试点工作实施方案 (issued by Guangdong People's Government, Sept. 7, 2012), http://zwgk.gd.gov.cn/006939748/201209/t20120914_343489.html.

¹⁹深圳经济特区碳排放管理若干规定 (promulgated by Standing Committee of Shenzhen People's Congress, Oct. 30, 2012), http://www.sz.gov.cn/zfgb/2013/gb817/201301/t20130110_2099860.htm (Shenzhen People's Government website).

²⁰ According to the Law on Legislation, the people's congresses and their standing committees of the provinces and municipalities report directly to the central government, and cities where special economic zone are located may make local regulations; their government may make local administrative rules. Law on Legislation arts. 63 & 73.

²¹ Shenzhen Provisions art. 9; Beijing Decision art. 5.

offsetting mechanism based on the Clean Development Mechanism (CDM) under the Kyoto Protocol, by using credits produced through certified Chinese projects.²²

The credits under the VER Measures, the CCERs,²³ may come from emissions reductions of six GHGs, including CO₂, CH₄, N₂O, HFCs, PFCs, and SF₆.²⁴ The participating projects and their emission reductions are recorded in a national registry maintained by the NDRC.²⁵ Before being recorded in the national registry as CCERs, the emission reductions must be certified and verified by qualified certification organizations designated by the NDRC.²⁶ After being recorded, the CCERs may be traded in exchanges certified by the NDRC and used to offset carbon emissions.²⁷

Only enterprises registered in China may qualify to apply for recording their projects and reductions.²⁸ Both domestic and international organizations, enterprises, and individuals may participate in trading.²⁹

C. ETS Pilots

Both the Shanghai and Guangdong ETS pilots allow for offsetting a certain percentage of the emissions with CCERs but limit their use.³⁰ The Guangdong Measures, for example, allow emitters to use CCERs in offsetting their actual emissions, but in doing so they may not exceed 10% of the prior year's emissions, and more than 70% of the CCERs must be generated by local projects.³¹

1. Types of GHGs

The Shanghai and Guangdong ETS pilots mainly trade allowances of emitting CO₂, which, according to their emissions management measures, may be supplemented by emission reductions for other GHGs. Such supplemental reductions are project-based and must be certified by relevant national or local authorities.³²

²²温室气体自愿减排交易管理暂行办法 [Interim Measures on China's Voluntary Emissions Reductions Trading] (issued by the NDRC on June 13, 2012), <http://cdm.ccchina.gov.cn/WebSite/CDM/UpFile/File2894.pdf>.

²³ *Id.* art. 21.

²⁴ *Id.* art. 2.

²⁵ *Id.* art. 7.

²⁶ *Id.* art. 18.

²⁷ *Id.* art. 22.

²⁸ *Id.* art. 6.

²⁹ *Id.* art. 5.

³⁰ Shanghai Emissions Measures art. 17; Guangdong Emissions Measures art. 19.

³¹ Guangdong Emissions Measures art. 19.

³² Shanghai Pilot Opinions art. 3(4); Guangdong Pilot Plan art. 2(1).

2. Covered Sectors

Enterprises currently subject to emission limits are determined on the basis of both the sector involved and emission volumes. Under the Shanghai ETS pilot, the following enterprises within the Shanghai municipality are included during the pilot period of 2013–2015, and are therefore subject to emission limits:

- Enterprises in the steel, petroleum, chemicals, ferrous metals, power, construction materials, textiles, papermaking, rubber, and chemical fibers industries, and emitting 20,000 metric tons of CO₂ or more (including direct and indirect emissions) annually during any year between 2010 and 2011; and
- Enterprises in the nonindustrial sectors such as aviation, ports, airports, railways, commerce, hotels, and finance, and emitting 10,000 metric tons or more of CO₂ in the same period.³³

The Guangdong Measures include all enterprises in industrial sectors annually emitting 10,000 metric tons of CO₂ and nonindustrial sector enterprises and organizations including hotels, restaurants, finance, commerce, and public entities annually emitting 5,000 metric tons or more. Industrial enterprises whose annual emissions are over 5,000 but less than 10,000 metric tons are subject to the reporting requirements.³⁴ During the pilot period (2012–2015), only enterprises in industrial sectors—including power, cement, steel, ceramics, petroleum, textiles, ferrous metals, plastics, and papermaking—and emitting 20,000 metric tons of CO₂ or more annually during any year between 2011 and 2014 are subject to the emissions limit.³⁵

3. Competent Departments

The local counterparts of the NDRC are the competent departments for managing carbon emissions trading in their jurisdictions. For example, the competent department of the Shanghai ETS is the Shanghai Municipal Development and Reform Department, Shanghai DRC.³⁶ Similarly in the Guangdong ETS, the provincial DRC, Guangdong DRC, is in charge.³⁷

4. Allocation of Allowances

Shanghai DRC is to formulate the work plan of allocating the allowances and determine the quota for each emitter, considering the historical levels of carbon emission, industry characteristics, and their previous actions of energy conservation and emissions reduction.³⁸

³³ Shanghai Pilot Opinions art. 3(1).

³⁴ Guangdong Emissions Measures art. 6.

³⁵ Guangdong Pilot Plan art 5(2).

³⁶ Shanghai Emissions Measures art. 3.

³⁷ Guangdong Emissions Measures art. 4.

³⁸ Shanghai Emissions Measures arts. 7 & 8.

During the pilot period, the initial allowances are distributed at no cost. Other means of distribution with a cost, such as auction, will be adopted in due time.³⁹

The Guangdong Measures provide that the annual allowances will be distributed on July 1 of each year, and that those allowances will be “partly free and partly with cost, and the percentage of free allowances will be gradually reduced.”⁴⁰

If emitters emit less than the allowances, they may sell the allowances in certified exchanges.⁴¹ Both the Shanghai ETS and the Guangdong ETS allow allowances left over from one year to be carried forward to the next year.⁴²

5. Punishments

Under the Shanghai Measures, if an emitter fails to surrender enough permits to cover its actual emissions, the Shanghai DRC may order it to surrender the short amount and may impose a fine in the range of RMB50,000–100,000 (about US\$8,000–16,000).⁴³

Under the Guangdong Measures, if an emitter fails to surrender enough permits, the Guangdong DRC may order it to surrender the short amount. For those refusing to comply, the Guangdong DRC will deduct twice that short amount from the next year’s allowances, and impose a fine of RMB50,000.⁴⁴

D. ETS Pilots In Practice

The Shenzhen ETS first started trading in June 2013. As of November 2013, more than 130,000 metric tons of CO₂ had been traded, with transactions totaling over RMB8.5 million completed. The Shanghai ETS and Beijing ETS started trading in November 2013,⁴⁵ and the Tianjin ETS started trading in December 2013.⁴⁶

³⁹ Shanghai Pilot Opinions art. 3(5).

⁴⁰ Guangdong Emissions Measures art. 14.

⁴¹ Shanghai Emissions Measures art. 16; Guangdong Emissions Measures art. 18.

⁴² *Id.*

⁴³ Shanghai Emissions Measures art. 39.

⁴⁴ Guangdong Emissions Measures art. 37.

⁴⁵ 发改委：将研究建立全国碳排放权交易市场 [NDRC: To Research for Establishing National Carbon Emissions Rights Trading Market], CHINA ECONOMIC NET (Feb. 14, 2014), http://www.ce.cn/xwzx/gnsz/gdxw/201402/14/t20140214_2303399.shtml.

⁴⁶ 天津正式启动碳排放权交易 [Carbon Emissions Rights Trading Formally Started in Tianjin], PEOPLE.COM (Dec. 27, 2013), <http://energy.people.com.cn/n/2013/1227/c71890-23959959.html>.

III. Clean Development Mechanism

China is a dominant CDM carbon credit supplier. In 2005, the NDRC and several other ministries jointly issued the Administrative Measures for the Operation of Clean Development Mechanism Projects, which was revised in 2011 (CDM Measures).⁴⁷

According to the CDM Measures, the NDRC is the competent department in charge of China's CDM projects. All projects in China must be approved by the NDRC.⁴⁸ As of February 24, 2014, the NDRC had approved 5,007 CDM projects.⁴⁹

IV. Proposed Carbon Tax and Other Relevant Legislation

A. Carbon Tax

Although it is unclear how carbon taxation and emissions trading schemes would work simultaneously, China is considering a carbon tax concurrent with launching the ETS pilots. As of July 2013, a carbon tax plan had reportedly been formulated, under which a carbon tax would be incorporated into the draft environmental protection tax law.⁵⁰

B. Environment-Related Taxes and Subsidies

Although China has not yet imposed a specific environment tax, some taxes and fees may be indirectly related to environmental protection and energy efficiency. Effective January 1, 2009, the State Council raised the rate of the consumption tax on oil products in the fuel tax reform, in response to the demand for “saving energy and reducing emissions.”⁵¹ Gasoline, diesel, and airplane kerosene, all of which contribute to the greenhouse effect, are subject to the tax.⁵²

Meanwhile, the state provides subsidies to participants of low-carbon transportation, such as energy efficient cars,⁵³ and low-carbon agricultural production.⁵⁴

⁴⁷清洁发展机制项目运行管理办法 [Administrative Measures for the Operation of Clean Development Mechanism Projects] (issued by the NDRC, the Ministry of Science and Technology, the Ministry of Foreign Affairs, and the Ministry of Finance on Aug. 3, 2011), http://www.ndrc.gov.cn/zcfb/zcfbl/2011ling/t20110922_435078.htm.

⁴⁸ CDM Measures art. 9.

⁴⁹国家发展改革委批准的CDM项目(5007个) [CDM Projects Certified by the NDRC (5007 Items)] (Feb. 24, 2014), Clean Development Mechanism in China, <http://cdm.ccchina.gov.cn/NewItemAll0.aspx>.

⁵⁰我国碳税方案已完成, 将择物价低点退出 [The State Has Finished the Plan on Carbon Tax, Which Will Be Promulgated When Commodity Price Falls], XINHUANET (July 8, 2013), http://news.xinhuanet.com/fortune/2013-07/08/c_124971374.htm.

⁵¹ 国务院关于实施成品油价格和税费改革的通知 [Circular of State Council on Price and Tax Reform of Product Oil] (promulgated by State Council Dec. 18, 2008) art. 1, http://www.gov.cn/zwggk/2008-12/19/content_1182128.htm.

⁵² *Id.* art. 2.

⁵³ See, e.g., 交通运输部节能减排专项资金管理暂行办法 [Interim Measures on Administering Special Funds for Energy Saving and Emission Reducing in Transportation] (jointly promulgated by Ministry of Finance and Ministry of Transportation on June 20, 2011), <http://jjs.mof.gov.cn/zhengwuxinxi/tongzhigonggao/201107/>

C. Legislation on Energy Efficiency and Renewable Sources

China had already adopted an Energy Conservation Law as early as 1997, and adopted a Renewable Energy Law in 2005.⁵⁵ Other environmental legislation, such as the PRC Law on Environmental Protection, PRC Law on the Prevention and Control of Air Pollution, PRC Law on Promoting Circular Economy, PRC Law on Promoting Clean Production, and the regulation on the natural resources tax also endorse the low-carbon policy by facilitating environment-friendly production.⁵⁶

[t20110704_570700.html](http://www.mof.gov.cn/jijinhuanbao/20110704_570700.html) (MOF website); 关于调整节能汽车推广补贴政策的通知 [Circular on Adjusting Policies of Subsidizing Energy-Saving Automobiles] (jointly promulgated by MOF, NDRC and MIIT on Sept. 7, 2011), http://www.gov.cn/zwggk/2011-09/16/content_1948812.htm (Central Government website).

⁵⁴ NDRC, CHINA'S POLICIES AND ACTIONS FOR ADDRESSING CLIMATE CHANGE 25 (2013), NDRC website, <http://en.ndrc.gov.cn/newsrelease/P020131108611533042884.pdf> (last visited Feb. 24, 2014) (stating that in 2012, the central government allocated RMB700 million in special funds to support 2,463 fertilizer projects, in order to reduce greenhouse gas emissions from agriculture).

⁵⁵ 中华人民共和国节约能源法 [PRC Law on Energy Conservation] (promulgated by Standing Committee of NPC Nov. 1, 1997, effective Jan. 1, 1998, rev'd Oct. 28, 2007, effective Apr. 1, 2008) art. 1; 中华人民共和国可再生能源法 [PRC Law on Renewable Energy] (promulgated by Standing Committee of NPC Feb. 28, 2005, Jan. 1, 2006, rev'd Dec. 26, 2009, effective Apr. 1, 2010), art. 1.

⁵⁶ 中华人民共和国环境保护法 (promulgated by Standing Committee of NPC Dec. 26, 1989), art. 1; 中华人民共和国大气污染防治法 (promulgated by the NPC Standing Committee on Sept. 5, 1987, rev'd Apr. 29, 2000, effective Sept. 1, 2000), art. 1; 中华人民共和国循环经济促进法 (promulgated by the NPC Standing Committee on Aug. 29, 2008, effective Jan. 1, 2009), art. 1; 中华人民共和国清洁生产促进法 (promulgated by the NPC Standing Committee on Feb. 29, 2012, effective July 1, 2012), art. 1; 中华人民共和国资源税暂行条例 [Interim Regulations of the People's Republic of China on Natural Resource Tax] (promulgated by the State Council Dec. 25, 1993, effective Jan. 1, 1994, rev'd Sept. 30, 2011, effective Nov. 1, 2011).

Colombia

*Graciela Rodriguez-Ferrand
Senior Foreign Law Specialist*

SUMMARY Colombia is a party to the United Nations Framework Convention on Climate Change and the Kyoto Protocol. It has been very active in pursuing climate change policies to reduce carbon emissions through its Low Carbon Emissions Development Strategy, part of its National Climate Change Adaptation Plan. As a developing country with a wealth of natural resources, Colombia has not undertaken any specific emissions-reduction commitment under the Protocol, since its carbon emissions are low compared to those of developed countries; nevertheless, it is likely that Colombia would benefit from carbon trading in that Colombia would receive foreign investment in low carbon initiatives while contributing to carbon reduction and mitigation mechanisms.

I. Introduction

Colombia has been very active in adopting conservation initiatives to protect the environment.¹ The basic principles of environmental law are provided for in the 1991 National Constitution,² which requires the state to protect the country's natural resources and wealth. To further this constitutional mandate, the Colombian Congress enacted Law 99/1993, which created the Ministry of the Environment, Housing and Territorial Development (Ministerio de Ambiente, Vivienda y Desarrollo Territorial, MAVDT) and restructured the public sector in charge of managing and preserving the environment.³ The Congress also enacted the National Code of Renewable Natural Resources and the Environment⁴ to provide guidance for national environmental policy.

¹ OSCAR DAVID ACOSTA, DERECHO AMBIENTAL: MANUAL PRÁCTICO SOBRE LICENCIAS, Y ALGUNOS PERMISOS, AUTORIZACIONES Y CONCESIONES DE CARÁCTER AMBIENTA, Presentation [Introduction] (Bogotá, Cámara de Comercio de Bogotá 2000).

² CONSTITUCIÓN POLÍTICA DE LA REPÚBLICA DE COLOMBIA, July 20 1991, art. 8, <http://www.secretariasenado.gov.co/index.php/leyes-y-antecedentes/constitucion-y-sus-reformas>.

³ Ley 99/1993 Crea el Ministerio del Medio Ambiente, se Reordena el Sector Público Encargado de la Gestión y Conservación del Medio Ambiente y los Recursos Naturales Renovables, se Organiza el Sistema Nacional Ambiental, SINA y se Dictan otras Disposiciones [Law 99/1993 Creating the Ministry of the Environment, and Restructuring the Public Sector in Charge of the Management and Conservation of the Environment and Renewable Natural Resources, Organizing the Environmental National System (SINA), and Issuing Other Provisions], Dec. 22, 1993, DIARIO OFICIAL [D.O.] No. 41.146, <http://www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=297>, as amended by Decreto 3570/2011, Sept. 27, 2011, D.O. No. 48.205, art. 38, http://www.minambiente.gov.co/documentos/normativa/ambiente/decreto/dec_3570_270911.pdf.

⁴ Decreto 2811/1974 Código Nacional de Recursos Naturales Renovables y de Protección al Medio Ambiente [Decree 2811/1974 National Code of Renewable Natural Resources and Environmental Protection], Dec. 18, 1974, D.O. No. 34.243, <http://www.secretariasenado.gov.co/index.php/leyes-y-antecedentes/vigencia-expresa-y-sentencias-de-constitucionalidad> (click on “Códigos y Estatutos Nacionales” and scroll down to “Código de Recursos Naturales Renovables y de Protección del Medio Ambiente”).

These statutes give the state an effective role in controlling and managing natural resources, taking responsibility for determining the real environmental effects of projects, and imposing corresponding measures.⁵

Regarding climate change, Colombia approved the United Nations Framework Convention on Climate Change (UNFCCC) in 1994⁶ and adopted the Kyoto Protocol (KP) in 2000.⁷ Since then, the country has developed an effective climate change policy, which in 2012 culminated in a comprehensive national plan, the Plan Nacional de Adaptación al Cambio Climático (the National Climate Change Adaptation Plan, NCCAP).⁸ This Plan includes the Estrategia Colombiana de Desarrollo Bajo en Carbono (Colombian Low Carbon Emissions Development Strategy, CLCDS)⁹ as part of the Colombian National Development Plan 2010–2014 (NDP).¹⁰

The CLCDS was launched in 2012¹¹ with the recognition that although Colombia's carbon emissions are low compared to those of developed countries, without mitigative actions they might well increase significantly considering the country's projected economic growth. The CLCDS mainly determines that Colombia should contemplate international financial incentives for the promotion of sustainable growth and prepare the country's economy for a future carbon-conscious global economy.¹²

⁵ ACOSTA, *supra* note 1.

⁶ Ley 164/1994 Aprueba la “Convención Marco de las Naciones Unidas sobre el Cambio Climático,” hecha en Nueva York el 9 de mayo de 1992 [Law 164/1994 Approving the “United Nations Framework Convention on Climate Change,” Signed in New York on May 9, 1992], Oct. 27, 1994, D.O. No. 41.575, <http://www.alcaldia bogota.gov.co/sisjur/normas/Normal.jsp?i=21970>.

⁷ Ley 629/2000 Aprueba el Protocolo de Kyoto de la Convención Marco de las Naciones Unidas sobre el Cambio Climático, hecho en Kyoto el 11 de Diciembre de 1997 [Law 629/2000 Approving the Kyoto Protocol to the United Nations Framework Convention on Climate Change, Signed in Kyoto on December 11, 1997], D.O. No. 44.272, <http://www.alcaldiabogota.gov.co/sisjur/normas/Normal.jsp?i=21971>.

⁸ DEPARTAMENTO NACIONAL DE PLANEACIÓN, PLAN NACIONAL DE ADAPTACIÓN AL CAMBIO CLIMÁTICO [NATIONAL CLIMATE CHANGE ADAPTATION PLAN] (undated), http://www.minambiente.gov.co/documentos/DocumentosGestion/cambio_climatico/publicaciones/120413_plan_nal_adaptacion_cambio_clima.pdf (last visited Mar. 20, 2014).

⁹ MINISTERIO DE AMBIENTE Y DESARROLLO SOSTENIBLE – MINAMBIENTE, ESTRATEGIA COLOMBIANA DE DESARROLLO BAJO EN CARBONO [COLOMBIAN LOW CARBON EMISSIONS DEVELOPMENT STRATEGY] (undated), http://www.minambiente.gov.co/documentos/DocumentosGestion/cambio_climatico/estrategia_bajo_carbono/100713_cartilla_ecdbd.pdf (last visited Mar. 20, 2014).

¹⁰ DEPARTAMENTO NACIONAL DE PLANEACIÓN, PLAN NACIONAL DE DESARROLLO 2010–2014 [NATIONAL DEVELOPMENT PLAN 2010–2014] (June 2011), <https://www.dnp.gov.co/LinkClick.aspx?fileticket=4-J9V-FE2pI%3d&tabid=1238>.

¹¹ *Colombia en camino de implementar Estrategia de Desarrollo Bajo en Carbono*, INTERNATIONAL CENTRE FOR TRADE AND SUSTAINABLE DEVELOPMENT (Mar. 2012), <http://ictsd.org/i/news/puentesquincenal/127117/>.

¹² DIEGO RODRÍGUEZ PANQUEVA, FINANCIAMIENTO CLIMÁTICO EN COLOMBIA 66–67 (Dec. 2011).

The general objectives of the CLCDS are to

- take actions to prevent the growth of greenhouse gas (GHG) emissions;
- develop mitigation plans; and
- promote implementation tools, including monitoring and reporting methods.¹³

II. Carbon Market Mechanisms

The KP created the “carbon market,” which is based on the commitments undertaken by the developed countries (listed in Annex B to the KP) that were party to the Protocol to limit carbon emissions over the 2008–12 period,¹⁴ and developing countries like Colombia (non-Annex B) that have not undertaken any specific emissions reduction commitment under the Protocol, but would become beneficiaries and contributors to carbon reduction mechanisms.¹⁵

A. Regulated Market

As a developing country, Colombia may participate only in Clean Development Mechanism (CDM) projects. Each CDM project generates tradable offset credits, known as Certified Emissions Reductions (CERs), which developed nations and companies can purchase to help meet their emissions reduction commitments under the KP while helping developing countries meet their sustainable development goals.¹⁶

Resolution 2733/2010 of the MAVDT¹⁷ provides the requirements for authorizations of national CDM programs and requisites to be met by CDM coordination entities, while Resolution 2734/2010 of the MAVDT¹⁸ establishes the procedure for having a CDM project approved at a national level.

¹³ ESTRATEGIA COLOMBIANA DE DESARROLLO BAJO EN CARBONO, *supra* note 9, at 3

¹⁴ *International Emissions Trading*, UN FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/mechanisms/emissions_trading/items/2731.php (last visited Mar. 20, 2014).

¹⁵ Adriana Cuevas, *El Mercado de Carbono y la Política Económica y Social del País*, INSTITUTO DE ESTUDIOS Y SERVICIOS AMBIENTALES: OBSERVATORIO AMBIENTAL, <http://www.usergioarboleda.edu.co/observatorio-medio-ambiente/columnas2-medio-ambiente.htm> (last visited Mar. 20, 2014).

¹⁶ *Id.*

¹⁷ Resolución 2733 del Ministerio de Ambiente, Vivienda y Desarrollo Territorial, Por la Cual se Adoptan los Requisitos y Evidencias de Contribución al Desarrollo Sostenible del País, se Establece el Procedimiento para la Aprobación Nacional de Programas de Actividades bajo el Mecanismo de Desarrollo Limpio (MDL) y se Reglamenta la Autorización de las Entidades Coordinadoras [Resolution 2733 of the Ministry of the Environment, Housing and Territorial Development, Adopting Contribution Requisites for and Evidence of the Sustainable Development of the Country, Establishing the Procedure for National Approval of a Program of Activities Under the Clean Development Mechanism (CDM), and Regulating the Authorization of Coordinating Entities], Dec. 29, 2010, http://www.minambiente.gov.co/documentos/normativa/ambiente/resolucion/res_2733_291210.pdf.

¹⁸ Resolución 2734 del Ministerio de Ambiente, Vivienda y Desarrollo Territorial, Por la Cual se Adoptan los Requisitos y Evidencias de Contribución al Desarrollo Sostenible del País y se Establece el Procedimiento para la Aprobación Nacional de Proyectos de reducción de Emisiones de gases de Efecto Invernadero que optan al

The basic process to request the issuance of CERs under the CDM is as follows:

- (1) Documenting the project design
- (2) Approval by the national authority
- (3) Corroboration of the approved project by the proposing business or entity
- (4) Request for project registration
- (5) Reporting and monitoring of the project's emissions reductions by the project manager
- (6) Certification of the emission reductions by the national authority
- (7) Issuance of CERs by the MAVDT, the designated authority for Colombia's CDM¹⁹

Projects under the CDM need to show real, measurable, and long-term benefits toward the mitigation of GHG emissions while at the same time contributing to the sustainable development of the country.²⁰

As of February 2014, Colombia had only 7% of the total number of CDM projects in Latin America.²¹ The current 197 CDM projects are distributed according to sectors as follows: energy (56 projects), transportation (13 projects), forestry (24 projects), industry (69 projects), and waste (35 projects).²² Colombia ranks fourth in Latin America and twelfth in the world in terms of the number of CDM projects.²³

Emissions reductions derived from CDM projects in the national portfolio could amount to about 9,968.879 metric tons of CO₂.²⁴

In order to increase awareness, promote interest in emissions trading, and identify programs or activities in Colombia and Latin America that are eligible under the CDM, in 2013 the UN opened a carbon-trading office in Bogotá. According to UNFCCC executive secretary

Mecanismo de Desarrollo Limpio (MDL) y se Dictan otras Disposiciones [Resolution 2734 of the Ministry of the Environment, Housing and Territorial Development, Adopting Contribution Requisites for and Evidence of the Sustainable Development of the Country, and Establishing the Procedure for the National Approval of Greenhouse Gases (GHG) Emissions Reduction Projects That Choose Clean Development Mechanisms (CDM), and Issuing Other Norms], Dec. 29, 2010, http://www.minambiente.gov.co/documentos/normativa/ambiente/resolucion/res_2734_291210.pdf.

¹⁹ *Ciclo de Proyectos [Project Cycle]*, MINAMBIENTE, <http://www.minambiente.gov.co//contenido/contenido.aspx?catID=1266&conID=7716> (last visited Mar. 20, 2014).

²⁰ ALFREDO MENDIOLA ET AL., NIVEL DE ATRACCIÓN DE INVERSIÓN EN GENERACIÓN HIDROELÉCTRICA-ANÁLISIS COMPARATIVO ENTRE EL PERÚ Y COLOMBIA 96 (Lima, Universidad ESAN 2012), http://www.esan.edu.pe/publicaciones/2012/05/28/inversiones_hidroelectrica_peru_colombia.pdf.

²¹ *CDM Projects by Host Region*, UNEP RISO CENTRE, <http://www.cdmpipeline.org/cdm-projects-region.htm#4> (last updated Mar. 1, 2014).

²² *Portafolio MDL en Colombia*, MINAMBIENTE, <http://www.minambiente.gov.co//contenido/contenido.aspx?catID=1267&conID=7717> (last visited Mar. 20, 2014).

²³ *Id.*

²⁴ *Id.*

Christiana Figueres, the office “will help tap the potential for CDM projects in Latin America and serve as a working example of the kind of inter-agency cooperation necessary to tackle climate change.”²⁵

In April 2013, the UN Environment Program (UNEP) bought 50,000 CERs to meet the UNEP’s emissions goals for 2010–13. The CERs were issued from a landfill-gas management project in Colombia. According to the UNEP, the Colombian project includes the installation of a controlled methane capture and flaring system at the Curva de Rodas and Pradera landfills to reduce GHG emissions. In addition, the project has other sustainable development benefits, because it would improve the landfills’ sanitary conditions and reduce the risk of landslides owing to the decrease of internal pressure in the landfills.²⁶

Currently, the Colombian Mercantile Exchange is developing a transactional platform for CERs, which is expected to be in operation in 2015.²⁷

B. Voluntary Market

While the CDM projects are executed within the framework of the KP in a “regulated market,” Colombia is also participating in projects that are executed outside the KP in the “voluntary market.”²⁸ In the voluntary market, verified emission reductions (VERs) certificates are issued according to the amount of emissions reduction that may be traded or sold to companies that want to “neutralize” their emissions.²⁹

The demand for VERs in the voluntary market is not driven by the need of Annex B developed countries to meet KP reduction commitments (because VERs cannot be counted towards meeting them), but for other reasons, such as a company’s meeting the demands of clients or stockholders, engaging in philanthropy, enhancing its “green” business reputation, or adopting a financial strategy to sell emission credits for profit.³⁰

²⁵ *UN Opens Carbon Trading Office in Bogota*, RTCC (Aug. 22, 2013), <http://www.rtcc.org/2013/08/22/un-opens-carbon-trading-office-in-bogota/>.

²⁶ *UNEP, UNOPS Partner to Purchase Carbon Offsets*, INTERNATIONAL INSTITUTE OF SUSTAINABLE DEVELOPMENT: CLIMATE CHANGE POLICY AND PRACTICE (Apr. 5, 2013), <http://climate-1.iisd.org/news/unep-unops-partner-to-purchase-carbon-offsets/>.

²⁷ Luis Fernando Macias Gomez & Lina Puerto Chaves, *Colombia*, in INTERNATIONAL COMPARATIVE LEGAL GUIDE TO ENVIRONMENT AND CLIMATE CHANGE LAW 2013, ch. 9 (Daniel Lawrence & John Blain eds., Global Legal Group, 10th ed. 2013), <http://www.iclg.co.uk/practice-areas/environment-and-climate-change-law/environment-and-climate-change-law-2013/colombia>.

²⁸ Cuevas, *supra* note 15.

²⁹ *Id.*

³⁰ *Comparación entre MDL y Mercados Voluntarios*, FINANZAS CARBONO, <http://finanzascarbono.org/mercados/acerca/comparacion-entre-mdl-y-mercados-voluntarios/> (last visited Mar. 20, 2014).

The Institutional Strategy for the Sale of Environmental Services Related to Climate Change Mitigation adopted under Document Conpes 3242 of 2003³¹ creates the framework for the development of emissions reduction activities, the sale of verified emission reductions (VERs), and guidelines for the development of related CDM projects.³² The Strategy also provides for the identification of GHG emissions and the formulation and implementation of low carbon development plans in energy, mining, agriculture, transportation, waste, and construction.³³

III. Other Measures for Energy Efficiency and/or Use of Renewable Sources

Developing countries have voluntarily agreed, within the UNFCCC, to contribute toward the reduction of global warming by executing mitigative actions, known as National Mitigation Actions (NAMAs).³⁴

In January 2014, Colombia submitted its mitigation programs to the UNFCCC. The country has focused on transportation, agriculture, energy, mining, and waste projects, and is planning to implement approximately four to five NAMA projects per sector. According to the government, NAMAs in the transport and solid waste sectors are in the most advanced state of development.³⁵

On November 15, 2013, the first Transit Oriented Development (TOD) NAMA financed by British and German funds in partnership with the Colombian Development Bank was launched. The goals of this program were to transform urban development in Colombia, and to increase the environmental, economic, and social return on the investments in mass transit and social housing made by Colombia.³⁶

The TOD NAMA was created within the framework of the Colombian Low Carbon Development Strategy (CLCDS). This project will lead Colombia toward its goals of efficiency, competitiveness, and environmental performance in urban areas by improving public-space utilization and transit, pedestrian, and bicycle infrastructure in Colombia's major cities.³⁷ This

³¹ ESTRATEGIA INSTITUCIONAL PARA LA VENTA DE SERVICIOS AMBIENTALES DE MITIGACIÓN DEL CAMBIO CLIMÁTICO – DOCUMENTO CONPES 3242 (Consejo Nacional de Política Económica y Social, Aug. 25, 2003), <https://www.dnp.gov.co/Portals/0/archivos/documentos/Subdireccion/Conpes/3242.pdf>.

³² *Id.* at 6; GLOBE INTERNATIONAL, GLOBE CLIMATE LEGISLATION STUDY: A REVIEW OF CLIMATE CHANGE LEGISLATION IN 33 COUNTRIES 112 (Terry Townshend et al. eds., Grantham Research Institute, 3d ed. 2013), http://www.academia.edu/2428598/GLOBE_International_2013_Climate_Legislation_Study_A_Review_of_Climate_Change_Legislation_in_33_Countries_Third_Edition_Edited_by_Terry_Townshend_Sam_Fankhauser_Rafael_Aybar_Murray_Collins_Tucker_Landesman_Michal_Nachmany_and_Carolina_Pavese.

³³ *Id.*

³⁴ *Nuevos Mecanismos de Mitigación*, FINANZAS CARBONO, <http://finanzascarbono.org/nuevos-mecanismos-de-mitigacion/> (last visited Mar. 20, 2014).

³⁵ Report on the First Workshop Under the Work Programme to Further the Understanding of the Diversity of Nationally Appropriate Mitigation Actions by Developing Country Parties, Nov. 11–12, 2013, FCCC/SBI/2014/INF.1 (Jan. 17, 2014), <http://unfccc.int/resource/docs/2014/sbi/eng/inf01.pdf>.

³⁶ Steve Winkelman & Chuck Kooshian, *Colombia Transit Oriented Development NAMA Selected for Funding*, CENTER FOR CLEAN AIR POLICY (Nov. 15, 2013), <http://ccap.org/colombia-transit-oriented-development-nama-selected-for-funding/>.

³⁷ *Id.*

project is based on more efficient use of land and changes in travel patterns in order to maintain low carbon standards, improve quality of life, and achieve energy security.³⁸

Under a TOD standard, Colombians moving into urban areas will be able to enjoy a comfortable lifestyle without the need for excessive private motor vehicle travel. The motorization growth rate will be reduced, thereby helping to achieve GHG emissions reduction targets, reduce traffic, and improve air quality.³⁹

IV. Reduction of Emissions from Deforestation and Forest Degradation (REDD)

The Mechanism of Reduction of Emissions from Deforestation and Forest Degradation (REDD+) under the UNFCCC includes a set of programs and policy developments designed to combat climate change by creating incentives for conservation of forest land in developing countries. This program has great potential in Colombia, considering that Colombia is one of the “megadiverse” countries of the world, with almost 14% of the biodiversity of the planet and 61% of its territory covered with forests, of which 53% are natural forests.⁴⁰

Colombia has included REDD+ initiatives in its 2010–14 NDP to improve forest management and climate-change mitigation actions.⁴¹

The MAVDT has identified about fifty REDD+ initiatives in Colombia, mostly in their early stages of planning. There is only one REDD+ project, the Chocó-Darién Conservation Corridor,⁴² that is currently underway in the voluntary market, while another seven projects in the Pacific and Amazon regions are in the advanced implementation stage.⁴³

The Chocó-Darién Conservation REDD+ project has already prevented the deforestation of more than two hundred fifty hectares of forest between 2010 and 2012 in one of the most biodiverse ecosystems in the world.⁴⁴ The carbon market is a good opportunity for indigenous and Afro-Colombian groups in the Chocó-Darién region to produce income out of reforestation and conservation projects while at the same time preserving their own traditional lifestyle and habitat in one of the poorest regions of Colombia.⁴⁵ The project aims at reducing carbon emissions by

³⁸ *Id.*

³⁹ *Id.*

⁴⁰ Daniela Carrion, *Colombia*, UN-REDD PROGRAMME, <http://www.un-redd.org/Colombia/tabid/130314/Default.aspx> (last visited Mar. 20, 2014).

⁴¹ DEFORESTACIÓN EVITADA: UNA GUÍA REDD + COLOMBIA 43 (Andrea García-Guerrero et al. eds., 2010), available at http://www.minambiente.gov.co/documentos/documentosGestion/cambio_climatico/publicaciones/230812_cartilla_redd.pdf.

⁴² Oscar Andrés Sánchez, *En Chocó Cuidan Bosques con Bonos de Carbono*, ELTIEMPO.COM (Jan. 4, 2013), http://www.eltiempo.com/colombia/medellin/ARTICULO-WEB-NEW_NOTA_INTERIOR-12491648.html.

⁴³ *REDD in Colombia*, REDD DESK (Sept. 2013), <http://theredddesk.org/countries/colombia>.

⁴⁴ *Independence Presenta Logros en el Control de la Contaminación*, AGENDA PETROHÍDRICA, <http://www.agendapetrohidrica.com/2013/12/05/independence-presenta-logros-en-el-control-de-la-contaminacion/> (last visited Mar. 20, 2014).

⁴⁵ *Id.*

preserving forests through surveillance by special forest patrols; protecting the watershed; restoring degraded lands; and promoting integrated management of forest resources through rotating harvests, improving permit-issuance procedures, and minimizing logging impacts.⁴⁶

As of July 2013, the Chocó-Darién Conservation Corridor was the only Colombian REDD+ project to have carbon credits on the market. It is also the first REDD+ project in Latin America to be implemented on collectively owned land.⁴⁷

V. Carbon Tax

Colombia is considering the adoption of a “green tax” on carbon emissions. Law 1607 on Tax Reform⁴⁸ mandated the Colombian government to carry out a prefeasibility study on GHG emission taxes. This study was concluded in June 2013, but the green tax is still under consideration.⁴⁹

VI. Conclusion

Considering its immense wealth in natural resources, energy, agriculture, and natural forests, Colombia may become a very important provider of environmental services and an active participant in carbon trading markets. Despite the government having taken very important steps toward adopting national climate change and carbon emission reduction policies, the carbon market in Colombia is still in its developmental stage. The carbon emission market has great potential for a positive economic impact in Colombia, considering that the annual reduction in GHG emissions derived only from CDM projects as of 2011 was approximately 16.4 million metric tons of CO₂, which might well generate about US\$152 million for the country.⁵⁰

⁴⁶ *Chocó-Darién Conservation Corridor*, REDD DESK (July 2013), <http://theredddesk.org/countries/initiatives/choc%C3%B3-darien-conservation-corridor>.

⁴⁷ *Id.*

⁴⁸ Ley 1607 de Reforma Tributaria [Law 1607 on Tax Reform] art. 184, Dec. 26, 2012, D.O. No. 48.655, <http://www.alcaldiabogota.gov.co/sisjur/normas/Norma1.jsp?i=51040>.

⁴⁹ Yhony Alberto Lee Yara, *Espaldarazo a los Impuestos Verdes en Colombia*, GERENCIE.COM (Aug. 1, 2013), <http://www.gerencie.com/espaldarazo-a-los-impuestos-verdes-en-colombia.html>.

⁵⁰ Juan Andrés López, *Colombia: País Bien Posicionado en los Mercados de Carbono*, in MECANISMOS E INSTRUMENTOS FINANCIEROS PARA PROYECTOS DE EFICIENCIA ENERGÉTICA EN COLOMBIA 55 (Elkin Eduardo Ramírez Prieto ed., 2011), <http://www.si3ea.gov.co/LinkClick.aspx?fileticket=8%2BgUyAt%2BRXA%3D&tabid=110&mid=449&language=es-ES>.

France

Nicolas Boring
Foreign Law Specialist

SUMMARY Climate change is considered a very important issue in France, and successive French governments have adopted various measures in an effort to fight global warming. As a European Union (EU) Member State, France participates in the EU cap-and-trade scheme and has taken certain measures at the national level in furtherance of the scheme's implementation. France has also taken some additional measures towards reducing greenhouse gas emissions at the national level through infrastructure investments, regulations, and financial incentives. These efforts have primarily focused on transportation, building construction, and industry.

I. Introduction

Climate change is among the top issues of concern in France. Indeed, a 2010 poll found that global warming was among the French public's top four concerns.¹ Another poll, from 2012, shows that climate change is the top environmental concern for the French public, and that 70% of responders thought that it would have a negative impact on their daily lives.² An overwhelming majority (79%) of those polled believed that human activity is a factor in global warming.³ An even more recent poll confirmed that a majority of the French public fears that global warming will have an impact on their lives, and feels that governments are not doing enough to fight it.⁴ Because of such public concerns, successive governments have endeavored to be increasingly proactive on these and other environmental issues over the years.⁵

France has had an active role in shaping European Union (EU) environmental regulations, and has integrated these regulations into its national legislation.⁶ Additionally, France has taken some significant initiatives at the national level, particularly as the result of high-level

¹ I.F.O.P. & LE MONDE, LES FRANÇAIS ET LE CLIMATO-SCEPTICISME [THE FRENCH AND CLIMATE SCEPTICISM] 5 (Nov. 15, 2010), http://www.ifop.com/media/poll/1321-1-study_file.pdf.

² I.F.O.P. & W.W.F., LES FRANÇAIS ET LE CHANGEMENT CLIMATIQUE [THE FRENCH AND CLIMATE CHANGE] 4–5 (Mar. 2012), http://www.ifop.com/media/poll/1821-1-study_file.pdf.

³ *Id.* at 8.

⁴ Laurence Caramel, *La majorité des français estime que le réchauffement climatique aura un impact sur leur vie* [The Majority of the French Believe That Global Warming Will Have an Impact on Their Life], LE MONDE (Feb. 19, 2014), http://www.lemonde.fr/planete/article/2014/02/19/une-majorite-de-francais-veut-une-action-plus-ambitieuse-contre-le-rechauffement_4368923_3244.html.

⁵ ROLAND SÉROUSSI, DROIT INTERNATIONAL DE L'ENVIRONNEMENT [INTERNATIONAL ENVIRONMENTAL LAW] 107 (Paris 2012).

⁶ *Id.* at 108.

environmental discussions dubbed the “Grenelle de l’environnement” (Grenelle Environment Forum), which took place in 2007.⁷

II. Cap-and-Trade Scheme

A. Relevant Legislation/Regulation

As France is a Member State of the EU, it participates in the EU Emissions Trading Scheme (ETS). Directives 2003/87/EC and 2009/29/EC of the European Parliament and of the Council form the basis for the European ETS,⁸ and these texts have been transposed into French law by a 2012 executive ordinance.⁹

French law often refers directly to European regulations. Article L229-5 of the Code de l’environnement (Environmental Code), for example, defines greenhouse gases as “the gases enumerated in Annex I of [European] Directive 2003/87/CE of October 13, 2003 and other gaseous components of the atmosphere, natural or anthropogenic, which absorb and refract infrared radiation.”¹⁰

B. Allocation of Allowances

The types of installations and activities that require emissions allowances are determined by the government,¹¹ and are currently listed under article R229-5 of the Code de l’environnement.¹² Health-care facilities such as hospitals can be exempt from the emissions quota system if they adopt measures to reduce their emissions to a level equivalent to what they would be under that system.¹³

France is to transition from the free distribution of allowances to allocation by auction.¹⁴ The government will use the proceeds of these auctions to help fund a national housing thermal

⁷ *Id.*

⁸ See EU survey, *supra*.

⁹ Ordonnance no. 2012-827 du 28 juin 2012 relative au système d’échange de quotas d’émission de gaz à effet de serre [Ordinance No. 2012-827 of June 28, 2012, Regarding the Trading System for Greenhouse Gas Emissions Quotas] (June 28, 2012), <http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000026083548&dateTexte&categorieLien=id>.

¹⁰ CODE DE L’ENVIRONNEMENT [ENVIRONMENTAL CODE] art. L229-5.

¹¹ *Id.*

¹² CODE DE L’ENVIRONNEMENT art. R229-5.

¹³ *Id.* art. L229-5-1.

¹⁴ *Système d’échange de quotas d’émission de gaz à effet de serre (période 2013–2020)* [Greenhouse Gas Emissions Allowance Exchange System (2013–2020 period)], MINISTÈRE DE L’ÉCOLOGIE, DU DÉVELOPPEMENT DURABLE ET DE L’ÉNERGIE [MINISTRY FOR THE ENVIRONMENT, SUSTAINABLE DEVELOPMENT AND ENERGY] (Sept. 21, 2012), <http://www.developpement-durable.gouv.fr/Systeme-d-echange-de-quotas-d-29551.html>.

renovation plan as a step towards a 40% reduction of French greenhouse gas emission (from 1990 levels) by 2030, and 60% reductions by 2040.¹⁵

C. Supervision and Enforcement

The trading of carbon allowances is likened to financial instruments and largely falls under the jurisdiction of the same authorities that regulate financial markets.¹⁶ Individuals or institutions that wish to bid on carbon allowances must first obtain an authorization from the Autorité des marchés financiers (Financial Markets Authority).¹⁷ Financial institutions wishing to bid on carbon allowances on behalf of their clients must also obtain authorization from the Autorité de contrôle prudentiel (Prudential Supervisory Authority).¹⁸

The enforcement of quotas falls primarily within the authority of local prefects, who are the main representatives of the central government at the level of the *départements*.¹⁹ Operators of installations subject to emissions quotas must submit yearly independently certified declarations of emissions to the prefect of their locality.²⁰ The prefects notify operators who are found to have emitted more greenhouse gases than allowed, and order these operators to obtain the necessary allowance amounts to cover the emissions overage.²¹ Contravening operators who fail to rectify their situation are subject to a fine of €100 (about US\$143.43) per missing allowance.²²

III. Other Measures for Energy Efficiency and/or Use of Renewable Sources

In addition to participating in and implementing EU-led programs, France has adopted various measures to decrease greenhouse gas emissions at the national level. As early as 2000, the French government adopted the Programme national d'amélioration de l'efficacité énergétique (PNAEE) (National Program for the Improvement of Energy Efficiency), which details several measures to lower carbon emissions through increased energy efficiency.²³ Another important program was launched in 2006, when France adopted measures to limit greenhouse gas

¹⁵ *Id.*

¹⁶ August & Debouzy, *Climate Issues: France is Getting Ready for the Third Stage of the European CO₂ Allowance Trading Scheme*, ENVIRONMENT LAW NEWS FLASH (Aug. 2012), [http://www.august-debouzy.com/sites/www.august-debouzy.com/files/flash%20PR%2026%20\(ENG\).pdf](http://www.august-debouzy.com/sites/www.august-debouzy.com/files/flash%20PR%2026%20(ENG).pdf).

¹⁷ CODE MONÉTAIRE ET FINANCIER [MONETARY AND FINANCIAL CODE] art. L621-18-5.

¹⁸ *Id.* art. L613-35.

¹⁹ The *départements*, which are governed by an elected general council, are the main territorial and administrative subdivisions of France. *Département*, in ENCYCLOPÆDIA BRITANNICA ONLINE ACADEMIC EDITION, <http://www.britannica.com/EBchecked/topic/158208/departement>.

²⁰ CODE DE L'ENVIRONNEMENT art. R229-20.

²¹ *Id.* art. R229-31.

²² *Id.* arts. R229-18 & R229-31.

²³ *Le Programme d'Amélioration de l'Efficacité Énergétique [The Program for the Improvement of Energy Efficiency]*, AGENCE DE L'ENVIRONNEMENT ET DE LA MAÎTRISE DE L'ÉNERGIE [AGENCY FOR THE ENVIRONMENT AND ENERGY CONTROL], <http://www.ademe.fr/htdocs/actualite/dossier/pnaee.htm> (last visited Mar. 6, 2014).

emissions through the Joint Implementation mechanism provided by the Kyoto Protocol.²⁴ The aim of these measures is to encourage reductions in greenhouse gas emissions in areas not covered by the European cap-and-trade system.²⁵ Most of France's current environmental policies, however, were decided in 2007. Starting in July of that year, the French government organized extensive negotiations and consultations with representatives of all concerned actors of French society, in order to establish a coherent and comprehensive environmental program.²⁶ These discussions, called the "Grenelle de l'environnement" (Grenelle Environment Forum), led to a number of measures that were translated into law over the following three years.²⁷

With regard to reducing greenhouse gas emissions, many of the measures adopted following the Grenelle de l'environnement focused on energy efficiency. This put emphasis on the PNAEE, the last version of which (2011) was submitted to the European Commission for approval under EU Directive 2006/32/CE.²⁸ The PNAEE details several measures to increase energy efficiency by decreasing energy demand, with a particular focus on transportation, construction, and industry.²⁹

A. Transportation

1. Infrastructure Investments

The PNAEE and the Grenelle de l'environnement program aim to both reduce carbon emissions from transportation through infrastructure investments meant to increase transportation efficiency and, particularly, encourage the development of nonroad and nonair transportation.³⁰ For example, the French government intends to increase rail access to major ports with the goal of doubling the market share of railroads for freight transportation to and from these ports.³¹

²⁴ *MOC en France: le dispositif des "projets domestiques"* [Joint Implementation in France: the "Domestic Projects" Plan], MINISTÈRE DE L'ÉCOLOGIE, DU DÉVELOPPEMENT DURABLE ET DE L'ÉNERGIE (Jan. 25, 2010), <http://www.developpement-durable.gouv.fr/Procedure-de-referencement-des.html>.

²⁵ *Id.*

²⁶ *Grenelle Environnement: Présentation* [The Grenelle Environment Forum: Presentation], AGENCE DE L'ENVIRONNEMENT ET DE LA MAITRISE DE L'ÉNERGIE, <http://www2.ademe.fr/servlet/KBaseShow?sort=-1&cid=96&m=3&catid=22682> (last visited Mar. 6, 2014).

²⁷ *Id.*

²⁸ PLAN D'ACTION DE LA FRANCE EN MATIÈRE D'EFFICACITÉ ÉNERGÉTIQUE [ACTION PLAN OF FRANCE REGARDING ENERGY EFFICIENCY], MINISTÈRE DE L'ÉCOLOGIE, DU DÉVELOPPEMENT DURABLE ET DE L'ÉNERGIE, http://www.developpement-durable.gouv.fr/IMG/pdf/110619_PNAEE.pdf (last visited Mar. 6, 2014); Directive 2006/32/EC of the European Parliament and of the Council of 5 April 2006 on Energy End-Use Efficiency and Energy Services and Repealing Council Directive 93/76/EEC, Apr. 5, 2006 O.J. (L114/64), <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:114:0064:0064:en:pdf>.

²⁹ ACTION PLAN OF FRANCE, *supra* note 28, at 7–8.

³⁰ *Id.* at 42.

³¹ *Id.* at 43.

Similarly, one of the laws implementing the Grenelle de l'environnement program calls for extensive, further development of public transportation.³²

2. Financial Incentives

Since 2006 France has implemented an annual tax on company vehicles based on their emission levels.³³ Furthermore, France has an incentive program called “Bonus-Malus” to encourage the purchase of low-pollution vehicles and penalize the purchase of high-pollution vehicles. Buyers of low-emission vehicles receive a government-financed rebate on their purchase, based on the level of emission (the lower the emissions level, the higher the rebate), while buyers of high-emission vehicles have to pay an additional tax on their purchase, also based on the level of emission (the higher the emissions level, the higher the tax).³⁴

The French government also intends to impose a per-kilometer tax on heavy trucks (weighing at least 1.5 metric tons) that use the national road network. This tax, commonly referred to as the *écotaxe*, is primarily meant to contribute to the financing of transportation infrastructures,³⁵ but it is clearly structured to encourage emission reductions. Indeed, this tax is to be calculated on a per-kilometer basis, based on the vehicle's size and age, and modified according to its level of polluting emissions.³⁶ The government had initially planned to begin implementing this *écotaxe* on January 1, 2014,³⁷ but the plans triggered significant demonstrations, some of them violent, particularly in the region of Brittany.³⁸ This resistance eventually led the government to postpone the implementation of this tax,³⁹ perhaps until 2015.⁴⁰

³² Loi No. 2009-967 du 3 août 2009 de programmation relative à la mise en œuvre du Grenelle de l'environnement 1 [Law No. 2009-967 of August 3, 2009, Planning the Implementation of the Grenelle Environment Agreement 1], Aug. 3, 2009, art. 13, <http://www.legifrance.gouv.fr/affichTexte.do?cidTexte=JORFTEXT000020949548>.

³³ ACTION PLAN OF FRANCE, *supra* note 28, at 46.

³⁴ *Bonus-Malus 2014*, MINISTÈRE DE L'ÉCOLOGIE, DU DÉVELOPPEMENT DURABLE ET DE L'ÉNERGIE (Jan. 7, 2014), <http://www.developpement-durable.gouv.fr/Bonus-Malus-2014>.

³⁵ *Taxe poids lourds (TPL ou écotaxe) [Heavy Truck Tax (TPL or Ecotax)]*, SERVICE-PUBLIC.FR (Dec. 12, 2013), <http://vosdroits.service-public.fr/professionnels-entreprises/F31213.xhtml>.

³⁶ *Id.*

³⁷ *Id.*

³⁸ Stanislas du Guerny, *La Bretagne reste vent debout contre l'écotaxe pour les poids lourds* [Brittany Remains Up in Arms Against the Ecotax on Heavy Trucks], LES ECHOS (Oct. 27, 2013), <http://www.lesechos.fr/> (paste French title of article in “Recherche” window to search for the article, then scroll down and click on the title).

³⁹ Jean-Marc Ayrault, Prime Minister of France, Déclaration à l'issue de la réunion avec les élus Bretons [Declaration After Meeting with Breton Elected Officials], Address at the Hôtel de Matignon (Oct. 29, 2013), http://www.gouvernement.fr/sites/default/files/interventions/10.29_discours_de_jean-marc_ayrault_premier_ministre_a_lissue_de_la_reunion_avec_les_elus_bretons.pdf.

⁴⁰ Cyrille Pluyette, *L'écotaxe devrait être décalée d'un an* [The Ecotax Will Probably Be Pushed Back One Year], LE FIGARO (Nov. 29, 2013), <http://www.lefigaro.fr/conjoncture/2013/11/29/20002-20131129ARTFIG00572-l-ecotaxe-devrait-etre-decalee-d-un-an.php>.

B. Construction

Construction and buildings account for 44% of the final energy consumption in France.⁴¹ The French government has therefore taken measures to improve energy efficiency in buildings. Regulations on new building construction place limits on these buildings' allowable energy consumption, therefore requiring them to use energy-efficient systems for heating, water heating, lighting, air conditioning, ventilation, etc.⁴² These limits vary according to several factors, including the building's geographical location, altitude, size, and purpose.⁴³ In addition, there exist tax incentives for individuals to buy energy-efficient equipment and building materials, as well as zero-interest "ecoloans" for individual homeowners to upgrade the energy efficiency of existing homes.⁴⁴

C. Industry

The main policy instrument to reduce industrial greenhouse gas emissions in France is the European Emissions Trading Scheme (discussed in Part II, above). However, the PNAEE also provides for other measures to help reduce industrial emissions. Of particular note is a program referred to as *prêts verts* (green loans), which gives loan guarantees and low-interest loans to small and medium-sized industrial businesses to enable them to increase their energy efficiency and environmental performance.⁴⁵ Furthermore, an agency called the Agence de l'Environnement et de la Maîtrise de l'Énergie (ADEME) (Agency for the Environment and Energy Control) provides technical and financial assistance to businesses that want to reduce their emissions.⁴⁶ For example, the ADEME can conduct individualized diagnostics and analysis of a business's greenhouse gases emissions, and provide recommendations on how to decrease these emissions through more efficient energy usage.⁴⁷

⁴¹ ACTION PLAN OF FRANCE, *supra* note 28, at 7.

⁴² MINISTÈRE DE L'ÉCOLOGIE, DU DÉVELOPPEMENT DURABLE ET DE L'ÉNERGIE, POLITIQUES CLIMAT ET EFFICACITÉ ÉNERGÉTIQUE [CLIMATE POLICIES AND ENERGY EFFICIENCY] 15, http://www.developpement-durable.gouv.fr/IMG/pdf/Climat_et_PNAEE.pdf (last visited Mar. 6, 2014).

⁴³ *Id.*

⁴⁴ *Id.* at 15–16.

⁴⁵ ACTION PLAN OF FRANCE, *supra* note 28, at 76.

⁴⁶ *Id.*

⁴⁷ *Id.*

Germany

Edith Palmer

*Chief, Foreign, Comparative, and
International Law Division II*

SUMMARY In 2013 Germany transposed changes in the European Union (EU) emissions trading scheme for the period through 2020; these changes have left Germany little leeway to pursue its own policy on greenhouse gases in affected industries, which have expanded to encompass virtually all manufacturing and inter-European aviation. In Germany the emissions trading scheme is implemented in part by the German states and in part by the Federal Environmental Office. The latter interacts with European authorities.

Germany has a long tradition of aiming to mitigate climate change through its energy and environmental policies. German official policy favors the strengthening of the European emissions trading scheme through a reduction of the available allowances. Nevertheless, some voices in German industry have expressed apprehension about German competitiveness under the recently proposed EU-wide reduction of available emission allowances.

In sectors not part of the emissions trading scheme, Germany has enacted many measures to lower greenhouse gas emissions. In particular, Germany promotes renewable energy and aims at increasing energy efficiency in all sectors, including those concerned with transportation, buildings, and private households. The country has a thriving industry in energy-saving and greenhouse-gas-preventing technologies, and exports many of these products.

I. Introduction

Germany has participated in the European Union (EU) Emissions Trading Scheme (ETS) since 2005, when the first version of the German Greenhouse Gas Emissions Trading Act became effective.¹ At that time Germany transposed the original EU Directive 2003/87² and provided a transition regime from the former German regulatory emissions control system to the EU-wide market-based trade in emission allowances. Since then Germany has kept abreast of the frequently changed EU law³ by adjusting to the increasingly EU-regulated ETS.⁴

¹ Treibhausgas-Emissionshandelsgesetz [Greenhouse Gas Emissions Trading Act], July 8, 2004, BUNDESGESETZBLATT [BGBl.] I at 578.

² Directive 2003/87/EC. *See* EU survey, *supra*.

³ WALTER FRENZ, EMISSIONSHANDELSRECHT 90 (2012).

⁴ Various enactments in 2010–11 and Directive 2003/87/EC as amended by Directive 2009/29/EC. *See* EU survey, *supra*.

Germany has also lived up to the goals of the Kyoto Protocol.⁵ The country has reduced greenhouse gas emissions beyond the stipulated level,⁶ submits annual reports to the Protocol,⁷ and participates in the Kyoto-based Joint Implementation Program. The latter allows German firms to invest in emissions-reduction projects in developing countries and convert the resulting earned emissions reductions into EU-tradable emissions allowances. These allowances can then be used to fulfill allowance-submission obligations for German greenhouse-gas-emitting facilities. This, however, is permissible only within certain EU-wide limits and as implemented by the German Federal Environmental Office.⁸

Germany is aiming for a 40% reduction in greenhouse gas emissions by 2020, as compared to the base volume of 1990, and a reduction of 80% by 2050, also as compared to the 1990 volume.⁹ Until recently Germany was successful in reducing greenhouse gas emissions in all sectors of the economy.¹⁰ In 2013, however, Germany experienced a 1.2% increase in carbon dioxide emissions. This was caused in part by the phasing out of nuclear power that had commenced in 2011¹¹ (which led to more power generation from coal), and also possibly by the EU-wide large volume of available emission allowances that reduced their price.¹² German official policy encourages the EU to proceed with the installation of mechanisms to reduce this oversupply of allowances.¹³

Despite official German policy in support of the EU ETS, some criticism has been registered over the years. In Germany, the ETS replaced a well-functioning emissions control program that

⁵ Kyoto Protocol to the United Nations Framework Convention on Climate Change. See International Law Survey, *infra*.

⁶ *Hendricks Strives for More Ambitious Climate Targets*, UMWELTBUNDESAMT (Jan. 16, 2014), <http://www.umweltbundesamt.de/en/press/pressinformation/hendricks-strives-for-more-ambitious-climate>.

⁷ *Emission von Luftschadstoffen*, UMWELTBUNDESAMT (July 31, 2013), <http://www.umweltbundesamt.de/themen/luft/emissionen-von-luftschadstoffen>.

⁸ Projekt-Mechanismen Gesetz [Project Mechanisms Act], Nov. 22, 2005, BGBl I at 2826, *as amended*, implementing the “Linking Directive,” i.e., Directive 2004/101/EC of the European Parliament and of the Council of 27 October Amending Directive 2003/87/EC Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community, in Respect of the Kyoto Protocol’s Project Mechanisms, 2004 (L 338) 18, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2004:338:0018:0023:EN:PDF>, as well as the “RICE Regulation,” i.e. Commission Regulation No. 1123/2013, Nov. 8, 2013, on Determining International Credit Entitlements Pursuant to Directive 2003/87/EC of the European Parliament and the Council, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:299:0032:0033:EN:PDF>.

⁹ BUNDESMINISTERIUM FÜR UMWELT, NATURSCHUTZ UND REAKTORSICHERHEIT DAS ENERGIEKONZEPT DER BUNDESREGIERUNG 2010 UND DIE ENERGIEWENDE 2011, at 5, (Sept. 28, 2010), http://www.bmub.bund.de/fileadmin/bmu-import/files/pdfs/allgemein/application/pdf/energiekonzept_bundesregierung.pdf.

¹⁰ *Development of Greenhouse Gas Emissions in Germany per Sector*, UMWELTBUNDESAMT, http://www.umweltbundesamt.de/sites/default/files/medien/376/bilder/dateien/entwicklung_der_treibhausgasemissionen_in_deutschland_nach_sektoren_1990bis2012_pi-2014-03_anlage_e.pdf (last visited Mar. 21, 2014).

¹¹ Dreizehntes Gesetz zur Änderung des Atomgesetzes [Thirteenth Amending Act to the Nuclear Act], July 31, 2011, BGBl I at 1704.

¹² Andreas Kögler, *Deutscher CO₂ Ausstoss gestiegen*, ENERGIE & MANAGEMENT (Mar. 10, 2014), *available at* <http://www.lexis.com> (by subscription).

¹³ *Id.*

provided oversight at the power-plant or factory level, and some scholars felt that the EU subsidiarity principle should have been applied by letting Germany continue on its chosen path.¹⁴

At times German industry has also expressed apprehension about the impact of the ETS on Germany's competitiveness. After the EU Member States decided on January 8, 2014, to reduce the volume of available emission allowances during the 2013–20 trading period to increase the price of the certificates and thereby encourage industry to reduce emissions, German experts opined that this was a violation of the reasonable expectancies and vested rights of German industry, which had formulated its plans and competitive strategies based on the larger cap. In this context, German industry interests have questioned EU policy on emission reductions, especially considering that China allegedly increased its carbon dioxide emissions by 274% in the period from 1990 through 2012.¹⁵

II. Cap-and-Trade System

A new Emissions Trading Act became effective in Germany on January 1, 2013.¹⁶ It transposes the third stage of the EU ETS for the period 2013–20. In keeping with EU mandates, Germany extended the application of the ETS to additional industries, including the chemical industry, after having already included inter-European aviation emissions in 2012.¹⁷

The greenhouse gases to which the ETS applies in Germany and overall in the EU are carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. All these requirements have been transposed directly from EU Directive 2003/87 as originally enacted. Not mentioned in the current German Act, however, is the amended Directive's¹⁸ inclusion of "other gaseous constituents of the atmosphere, both natural and anthropogenic, that absorb and re-emit infrared radiation" in the definition of greenhouse gases.¹⁹ The German justification was that this clause has no practical importance until emissions of such gases are described as applying to a particular industry in Annex 1 of the Directive.²⁰ Currently this Annex (and its German transposition) subjects power plants and most industrial installations to the ETS only for their carbon dioxide emissions, with the exceptions that aluminum production is subject to the ETS for perfluorocarbon emissions and some chemical industries are subject to ETS for nitrous oxide emissions.

¹⁴ FRENZ, *supra* note 3, at 92.

¹⁵ Walter Frenz, *Vertrauensbruch im Immissionshandel*, 25 EUROPÄISCHE ZEITSCHRIFT FÜR WIRTSCHAFTSRECHT 81, 81 (2014).

¹⁶ Treibhausgas-Emissionshandelsgesetz [TEHG] [Greenhouse Gas Emissions Trading Act], July 21, 2011, BGBl I at 1475, *as amended*, http://www.gesetze-im-internet.de/bundesrecht/tehg_2011/gesamt.pdf.

¹⁷ TEHG Anhang [Appendix] 1.

¹⁸ Directive 2003/87/EC as amended by Directive 2009/29/EC. *See* EU survey, *supra*.

¹⁹ TEHG § 2.

²⁰ Gesetzesentwurf [Draft Legislation], Mar. 28, 2011, DEUTSCHER BUNDESTAG: DRUCKSACHEN UN PROTOKOLLE [BT] 17/5296 (hereinafter BT 17/5296) 45, <http://dipbt.bundestag.de/dip21/btd/18/006/1800651.pdf>.

The German Emissions Trading Act is implemented by the environmental authorities of the German states and by the Federal Environmental Office (Umweltbundesamt),²¹ with responsibilities being divided between the states, Federal Office, and EU authorities. The licensing of installations falls within the executive power of the states, yet the approval and monitoring of each facility's emissions plan is carried out by the Federal Office.²² For aviation, the Federal Aviation Office shares in the implementation of the Act.²³

The German Act defines emission allowances and clarifies that they can be traded by private parties, yet the transactions are effected through entry in the EU Emissions Trading Register and various EU rules pertaining to this process.²⁴ According to German law, emission allowances are not securities within the meaning of the financial markets laws,²⁵ and it appears that this rule also applies to derivatives whose underlying value is the market price of emission allowances.²⁶ It appears that the purpose of this provision is to ensure that trading, allocating, or auctioning emission allowances are not activities that require a banking license or oversight by the financial market authorities.²⁷

Since 2013 power plants have been required to obtain all their needed allowances at auction.²⁸ Industrial installations still receive a considerable amount of emission allowances free of cost,²⁹ yet these allowances are allocated according to harmonized measures at the EU level.³⁰ In earlier phases of the ETS, when the German authorities decided how to allocate the allowances, there was much litigation and even some constitutional challenges of the allocation rules.³¹ Germany may still allocate additional allowances to industries that would otherwise be ruined by their obligation to submit the required allowances. The European Commission, however, can overrule such individual awards.³²

²¹ UMWELTBUNDESAMT [FEDERAL ENVIRONMENTAL OFFICE], <http://www.umweltbundesamt.de/en> (last visited Mar. 21, 2014).

²² FRENZ, *supra* note 3, at 388.

²³ TEHG § 19.

²⁴ *See* EU survey, *supra*.

²⁵ TEHG § 7, referring to Wertpapierhandelsgesetz [Securities Trading Act], *repromulgated* Sept. 9, 1998, BGBl I at 2708, *as amended*, § 2, <http://www.gesetze-im-internet.de/wphg/index.html>, and Kredithandelsgesetz [Banking Act], *repromulgated* Sept. 9, 1998, BGBl I at 2776, *as amended*, § 1(11), <http://www.gesetze-im-internet.de/kredwg/index.html>.

²⁶ FRENZ, *supra* note 3, at 219.

²⁷ *Id.*

²⁸ TEHG § 8.

²⁹ FRENZ, *supra* note 3, at 95.

³⁰ *Id.* at 255.

³¹ Bundesverfassungsgericht [Federal Constitutional Court], Dec. 10, 2009, 1 BvR 3151/07.

³² TEHG § 9(5); FRENZ, *supra* note 3, at 267–69.

The practical aspects of allowance allocations and auctioning are carried out by the German Emissions Trading Authority (Deutsche Emissionshandelsstelle),³³ an agency under the supervision of the Federal Environmental Office. The Emissions Trading Authority distributes allocated allowances and parcels out the allowances granted to Germany by the EU for the weekly auctions that are held at the European Energy Exchange.

III. Alternative Means

ETS governance of power plants and industrial installations largely precludes alternative emissions controls. Local authorities may impose additional emissions controls only to address a local situation. If in a particular locality emissions are too concentrated, the authorities can require a facility to reduce emissions for local environmental reasons.³⁴

Germany does not have a carbon dioxide minimum price rule³⁵ to counteract the inefficiencies of the current ETS, which does not offer much incentive to industry owing to the low price of the allowances. In 2011 the Green Party introduced in Parliament draft legislation for a minimum price rule, but it has yet to be enacted.³⁶

For activities that cause emissions but are not part of the ETS, the federal government has devised an ambitious energy concept aimed at reducing greenhouse gas emissions.³⁷ The concept's main components are the increased reliance on renewable energy and the encouragement of energy efficiency in industrial processes, buildings, consumer appliances, and transportation. These outcomes are encouraged in various ways, including subsidies and preferential tax treatment.³⁸ Germany also promotes research in green technologies, and German industry is a market leader in energy-saving and electricity-cogenerating technologies.³⁹

Germany has for many years now encouraged cogeneration of solar and wind-generated electricity through subsidized pricing.⁴⁰ By 2010, however, Germany had felt the need to change course and scale back the subsidies for cogenerated electricity, because electricity had become too expensive under this system.⁴¹ Germany taxes gasoline consumption within the framework

³³ DEUTSCHE EMISSIONSHANDELSTELLE [GERMAN EMISSIONS TRADING AUTHORITY], <http://www.dehst.de/SharedDocs/Kurzmeldungen/DE/Ausgabe.html> (last visited Mar. 21, 2014).

³⁴ Bundesimmissionsschutzgesetz [Federal Emissions Act], *repromulgated* Sept. 26, 2002, BGBl I at 3830, *as amended*, §5.

³⁵ *See* the UK survey for the UK system, *infra*.

³⁶ Gesetzesentwurf [Draft Law], Mar. 28, 2011, BT 17/5296, <http://dipbt.bundestag.de/dip21/btd/18/006/1800651.pdf>.

³⁷ *Klimaschutz- und Energiepolitik in Deutschland*, UMWELTBUNDESAMT (Apr. 6, 2013), <http://www.umweltbundesamt.de/themen/klima-energie/klimaschutz-energiepolitik-in-deutschland>.

³⁸ [DAS ENERGIEKONZEPT](#), *supra* note 9, at 7–9.

³⁹ *Id.*

⁴⁰ Erneuerbares Energiengesetz [Renewable Energy Act], Oct. 25, 2008, BGBl I at 2074, *as amended*, §§ 5–35.

⁴¹ [DAS ENERGIEKONZEPT](#), *supra* note 9, at 9.

of an energy tax⁴² and the operation of motor vehicles through a motor vehicle tax,⁴³ which for passenger vehicles takes carbon dioxide emissions into consideration in establishing the tax rate.

⁴² Energiesteuergesetz [Energy Tax Act], July 15, 2006, BGBl I at 1534, *as amended*, § 2.

⁴³ Kraftfahrzeugsteuergesetz [Motor Vehicle Tax Act], *repromulgated* Sept. 26, 2002, BGBl I at 3818, *as amended*, <http://www.gesetze-im-internet.de/kraftstg/BJNR005090927.html>.

Israel

Ruth Levush
Senior Foreign Law Specialist

SUMMARY Israel has adopted several measures to reduce carbon emissions. They include pollution reduction, promotion of energy efficiency, lowering resource consumption, greenhouse gas (GHG) emissions reporting and monitoring, and the development of renewable energy sources. While a national plan for the reduction of GHG emissions by 20% by 2020 is currently frozen for budgetary reasons, several GHG mitigation schemes are in place.

Israeli law applies a regulatory licensing approach that currently involves various pieces of legislation. In an effort to centralize the licensing process related to emissions control, Israel's Ministry of Environmental Protection has reportedly been developing draft legislation on integrated environmental licensing (the "Green Licensing Law").

I. Introduction

Israel is a "a relatively low emitter of GHGs in absolute terms."¹ According to Israel's Ministry of Environmental Protection (MoEP) the country, "has joined much of the rest of the world in the global effort to reduce greenhouse gases, taking on measure [sic] such as: pollution-reducing programs, promotion of energy efficiency in various sectors, [and] lowering resource consumption."² Currently there is no cap-and-trade system in place. A national plan for the 20% reduction of GHG emissions by 2020 was adopted by the government in 2010 but is temporarily frozen in accordance with domestic fiscal legislation.³

Several draft private member bills were submitted in recent years to the Knesset (Israel's parliament) regarding the reduction of GHG emissions. The latest one, submitted on April 22, 2013, called for setting GHG reduction goals that would be "significant but workable [and] reduce GHG emissions by 25% by 2020 and by 50% by 2050."⁴

While GHG emissions reduction has enjoyed the support of Israel's President,⁵ members of the Knesset, and the former Israeli government, some social activists have argued that instead of making efforts to reduce GHG emissions, Israel must prepare itself for the impact of climate change on its disadvantaged communities. An Israeli social and political activist has opined that,

¹ *GHG Emissions in Israel: Facts & Figures*, MOEP, http://www.sviva.gov.il/English/env_topics/climatechange/Pages/GreenhouseGasEmissionsinIsrael.aspx (last updated Jan. 8, 2014).

² *Id.*

³ *National Plan for the Reduction of GHG Emissions*, MOEP, http://www.sviva.gov.il/English/env_topics/climatechange/Mitigation/NatlEmissionsReductionPlan/Pages/default.aspx (last updated Jan. 8, 2014).

⁴ Draft Bill for Reduction of GHG Emissions, 5773-2013 (Apr. 4, 2013), KNESSET, http://www.knesset.gov.il/privatelaw/search/private_laws_by_knesset.aspx?KnsID=19 (in Hebrew; scroll down to text).

⁵ MOEP, CLIMATE CHANGE POLICY IN ISRAEL 2 (Nov. 2011), <http://www.sviva.gov.il/InfoServices/ReservoirInfo/DocLib2/Publications/P0601-P0700/p0618.pdf>.

[b]ecause Israel's emissions are negligible, they cannot affect global emission levels. Thus, it would be best if it were to focus solely on adapting to the repercussions of climate change. Of course, one of the major problems will be the difficulty of food production, which will inevitably lead to a rise in food prices, and will impact the disadvantaged communities of Israel. An additional problem caused by climate change is a potential rise in morbidity, which will also mostly affect the disadvantaged. The same can be said regarding a host of problems stemming from climate change.

Therefore, if the Israeli government is concerned with climate change and its consequences for humankind, the most logical outcome would be for us to prepare as a country for the difficulties ahead, and focus less (or not at all) on reducing Israel's inconsequential emissions. Furthermore, Israel's civil society should undoubtedly join the effort to pressure Western countries into significantly reducing their emissions. Israeli citizens must demand that their government invest in strengthening the disadvantaged population by ensuring both food security and the ability to make a living. This must be done so that on the day that climate change forces additional communities into poverty and hunger, the country will already be equipped to better face the challenge.⁶

A study conducted by the Association of Environmental Justice in Israel, however, concluded that Israel could pursue a climate policy that would have positive social implications. The study proposed that the promotion of a just policy for GHG emissions reduction could be advanced by using a number of measures in sectors such as electricity, transportation, construction, and waste management.⁷

This report provides information on GHG emissions reduction programs and relevant legislation in Israel.

II. National Plan for the Reduction of GHG Emissions

In November 2009, Israeli President Shimon Peres declared that Israel would reduce GHG emissions 20% by 2020, an amount equivalent to approximately 20 MtCO₂e (million metric tons of carbon dioxide equivalent).⁸ Peres's declaration was followed by a governmental decision in March 2010 to appoint an interministerial committee that would develop a plan to reduce emissions to that level.⁹ An action plan for the reduction of GHG emissions over the next ten

⁶ Yossi Loss, Op-ed., *Reducing Greenhouse Gas Won't Change a Thing for Israel's Citizens* 972 (Maya Naveh trans., May 25, 2013), <http://972mag.com/reducing-greenhouse-gas-wont-change-a-thing-for-israels-citizens/72112/> (translation of Loss's article first published in Hebrew in *Haokets*).

⁷ ROI LEVI, ASSOCIATION OF ENVIRONMENTAL JUSTICE IN ISRAEL, ANALYSIS OF THE POLICY FOR GHG REDUCTION THROUGH SOCIAL LENSES AND RECOMMENDATIONS FOR THE PROMOTION OF CLIMATE JUSTICE IN ISRAEL (2011–2012) at 22–24 http://www.aeji.org.il/sites/default/files/2012_story_files/climate_justice_and_economic_policy_analysis_2012.pdf (in Hebrew).

⁸ *National Plan for the Reduction of GHG Emissions*, *supra* note 3.

⁹ Formulation of a National Plan for the Reduction of Greenhouse Gases, Gov't Decision No. 1504 (Mar. 14, 2010), <http://www.pmo.gov.il/Secretary/GovDecisions/2010/Pages/des1504.aspx> (in Hebrew).

years was proposed by the committee and approved by the Israeli government in November 2010.¹⁰

According to the plan, Israel's mitigation target would be primarily achieved through the implementation of two existing government decisions, the first calling for a 20% reduction in electricity consumption by 2020 and the second calling for the generation of 10% of Israel's electricity from renewable sources by 2020.¹¹ The plan specified a series of budgeted and nonbudgeted tasks for the reduction of GHG emissions and divided them between various ministries in accordance with the following list:

- Reducing residential energy consumption (responsibility of Ministry of Energy and Water Resources)
- Support for investment in GHG emissions reductions (responsibility of Ministry of Environmental Protection)
- Support for Israeli technologies and green innovation (responsibility of Ministry of Economy)
- Green building (responsibility of Ministry of Environmental Protection)
- Education and awareness (responsibility of Ministries of Environmental Protection and Transportation)
- Promotion of energy efficiency (responsibility of Ministries of Environmental Protection and Economy)
- Setting standards for energy efficiency (responsibility of Ministry of Energy and Water Resources)
- Transportation (responsibility of Transportation Ministry).¹²

Funding for the implementation of the national plan, however, is currently frozen for three years in accordance with Israel's 2013 state budget law.¹³ This delay in the full implementation of the plan is expected to negatively affect Israel's ability to reach its 20% reduction target by 2020.¹⁴

III. GHG Emissions Reporting

Israel launched a voluntary national GHG registry in July 2010. More than forty-five companies and organizations had joined the registry as of mid-2013.¹⁵ In addition, MoEP has reportedly

¹⁰ Formulation of a National Plan for the Reduction of Greenhouse Gas Emissions in Israel, Gov't Resolution No. 2508 (Nov. 28, 2010), http://www.sviva.gov.il/English/env_topics/climatechange/Mitigation/Documents/GovtDecision2508-FormulationOfANatlPlanForGHGEmissionsReduction.pdf.

¹¹ MOEP, CLIMATE CHANGE POLICY IN ISRAEL, *supra* note 5, at 2.

¹² *National Plan for the Reduction of GHG Emissions*, *supra* note 3.

¹³ *Id.*

¹⁴ *Id.*

¹⁵ *GHG Emissions Reporting*, MOEP, http://www.sviva.gov.il/English/env_topics/climatechange/GHGEmissionsReportingInIsrael/Pages/default.aspx (last updated Feb. 19, 2014).

been engaged in the establishment of a national Monitoring, Reporting and Verification (MRV) system that would monitor the implementation of government measures for GHG reduction and review the necessity of additional policy and abatement measures to meet Israel's emissions reduction target. According to the MoEP website,

While the MRV system is being designed by Israel for national use, the idea is part of an international idea that is being developed by Parties to the United Nations Framework Convention on Climate Change [UNFCCC]. Although each country will have its own MRV mechanism, general MRV guidelines were adopted at the UNFCCC Conference of the Parties in November 2013.¹⁶

IV. GHG Abatement Subsidies

In 2011 and 2012 Israel's MoEP and the Ministry of Economy operated a program for the provision of funding of projects that promoted GHG reduction and energy efficiency. According to information posted by MoEP,

[t]he projects were wide ranging – with nearly half the projects submitted in 2012 dealing with upgrades of air conditioning systems and others focusing on energy efficient street and building lighting, upgrades of water heating systems, recovery and use of residual heat, upgrades of production processes, use of hybrid heat pumps and switches to electric scooters and hybrid vehicles.

A mandatory requirement for all projects is the submission of a verified annual emissions reduction report to the Ministry of Environmental Protection in order to allow the government to follow up on emissions reductions on a year by year basis, and to assess the efficacy of different reduction measures.¹⁷

The subsidies program was frozen in July 2013 based on the 2013 Budget Law.¹⁸

V. Licensing Requirements for GHG Emitters

Israeli law currently contains several pieces of legislation aimed at protecting the environment from pollutants by requiring emissions permits.

The main law that sets standards for licensing of GHG emissions is the Clean Air Law 5768-2008,¹⁹ which was passed by the Knesset (Israel's Parliament) on July 22, 2008, and came into effect in January 2011.²⁰

¹⁶ *Id.*

¹⁷ *GHG Abatement Subsidies*, MOEP, http://www.sviva.gov.il/English/env_topics/climatechange/Mitigation/NatEmissionsReductionPlan/Pages/GHGAbatementSubsidies.aspx (last updated Oct. 14, 2013).

¹⁸ *Id.*

¹⁹ Clean Air Law, 5768-2008, § 1, SEFER HA-HUKIM [SH] 5768 No. 2174, p. 752, *as amended*, unofficial English translation available at <http://www.sviva.gov.il/English/Legislation/Documents/Clean%20Air%20Laws%20and%20Regulations/CleanAirLaw2008.pdf>.

The Law introduces a comprehensive framework for the reduction and prevention of air pollution by imposing obligations for the reduction and control of emissions on the government, local authorities, and the industrial sector. Among other things, the law requires operators of emission sources from which pollutants are emitted into the air to obtain emissions permits.²¹ The Law's definition of a "pollutant" includes materials

whose presence in the air causes or is liable to cause –

- (a) danger or injury to human life, health or quality of life, to property or to the environment, including the soil, water, flora and fauna;
- (b) changes in climate, weather or visibility²²

Emissions permits issued under this Law are generally nontransferable in the absence of prior authorization.²³ In determining the rules and criteria for the granting of emissions permits, consideration is given to "acceptable practices in developed countries worldwide and the recommendations and guidelines published on these matters by international organizations, including the European Union."²⁴

Additional licensing requirements exist under the Licensing of Businesses Law 5728-1968. Business licenses are granted by the Ministry of the Interior in consultation with the relevant ministries, including MoEP.²⁵ License conditions stipulated by the Minister of the Environment may relate to both infrastructure and operation, with regard to air quality, solid waste, hazardous substances, and water and sewage (including industrial effluents).²⁶

VI. Green Licensing Reform

Israel's MoEP, in cooperation with the EU, is currently working on draft legislation that will integrate and unify environmental licensing procedures, including the issuance of emissions permits to industrial businesses. The new law is expected to facilitate industrial development while minimizing environmental impacts and to provide more transparency by regularly updating the public on industrial emissions.²⁷ According to an EU-Israel Twinning Project²⁸

²⁰ For a discussion of the application of the Clean Air Law on GHGs, see Merav Ankori & Eidit Ryter, *Israel Surpasses the USA by the Clean Air Law*, GLOBES (Sept. 17, 2009), <http://www.globes.co.il/news/article.aspx?did=1000499222> (in Hebrew).

²¹ Clean Air Law § 2.

²² *Id.*

²³ *Id.* § 22(e).

²⁴ *Id.* § 19(c).

²⁵ Licensing of Businesses Law, 5728-1968, §§ 1(b)(1) & 6(a), 22 LAWS OF THE STATE OF ISRAEL [LSI] 232 (5728-1967/68).

²⁶ *General Provisions*, MOEP, <http://www.sviva.gov.il/English/Legislation/Pages/GeneralProvisions.aspx> (last visited Feb. 18, 2014).

²⁷ DELEGATION OF THE EUROPEAN UNION TO ISRAEL, EU-ISRAEL TWINNING PROJECT ON IMPLEMENTATION OF THE INTEGRATED POLLUTION PREVENTION AND CONTROL DIRECTIVE AND THE POLLUTANT RELEASE AND TRANSFER

policy paper, the new Israeli legislation will “promote innovative green production technologies.”²⁹

VII. Other Measures for Energy Efficiency and for the Use of Renewable Sources

A. Energy Efficiency Programs

In July 2010 the Israeli government assigned the preparation of a plan for identifying national energy efficiency measures to the Minister of National Infrastructure, in consultation with the Minister of Environmental Protection.³⁰ Measures proposed by the Minister, accordingly, were incorporated into the 2011 amendment³¹ of the Energy Sources Law, 5750-1989³² and into new regulations on energy ratings, energy performance labels, solar installations for large buildings, etc.³³

B. Special Subsidies for Development of Renewable Energy

The production of electricity via renewable energy has been the subject of several government decisions. In January 2009 the government adopted a decision that determined the goals for utilizing renewable sources at a rate of 5% of Israel’s total electricity consumption by 2014 and 10% by 2020.³⁴ The utilization plan has reportedly involved a subsidy derived from preset tariffs paid by Israel’s government-owned electricity company (the Israel Electric Corporation) to renewable energy manufacturers, in an amount exceeding the price paid by consumers for electricity. According to a study prepared by the Knesset Information and Research Center (KIRK), the objective of the subsidy was to support the renewable energy industry and enable it to develop at a time when it could not yet compete with conventional energy sources.³⁵

The proportion of electricity derived from renewable energy sources in Israel has risen steadily since 2008. As of 2012 the production of electricity from renewable energy sources in Israel had

REGISTER PROTOCOL 3 (June 11, 2013), <http://www.sviva.gov.il/InfoServices/ReservoirInfo/DocLib2/Publications/P0701-P0800/P0708Eng.pdf>.

²⁸ “The Twinning project is a European Union initiative to help countries acquire the necessary skills and experience to adopt, implement and enforce EU legislation.” *Id.*

²⁹ *Id.*

³⁰ Gov’t Decision No. 1977, July 15, 2010, *discussed in Energy Efficiency*, MOEP, http://www.sviva.gov.il/English/env_topics/energy/EnergyEfficiency/Pages/default.aspx (last visited Mar. 4, 2014).

³¹ Energy Sources (Amendment) Law, 5771-2011, SH No. 2284, p. 651.

³² Energy Sources Law, 5750-1989, SH No. 1296, p. 28.

³³ *Energy Efficiency*, MoEP, http://www.sviva.gov.il/English/env_topics/energy/EnergyEfficiency/Pages/default.aspx (last visited Mar. 4, 2014).

³⁴ YANIV RONEN, KNESSET INFORMATION AND RESEARCH CENTER, ENERGY PRODUCTION VIA RENEWABLE ENERGY IN ISRAEL – TRACKING IMPLEMENTATION OF GOVERNMENT DECISION NO. 4450 at 3 (Mar. 3, 2013), <http://www.knesset.gov.il/mmm/data/pdf/m03182.pdf> (in Hebrew).

³⁵ *Id.* at 4.

reached 0.7% of total electricity consumption.³⁶ The KIRK report estimates, however, that Israel will not meet its interim goal of 5% by 2014.³⁷ Most renewable energy installations in Israel are solar based, with other types of technologies also being used.³⁸

³⁶ *Id.*

³⁷ *Id.* at 20.

³⁸ *Id.* at 5. For a list of other types of renewable energy technologies, see *id.* at 6.

Japan

Sayuri Umeda
Foreign Law Specialist

SUMMARY Although Japan does not have mandatory, national cap-and-trade system, two prefectures have created such systems. The national government explored emissions trading systems, and introduced voluntary emissions trading systems in 2005. Business organizations have had voluntary action plans, and these plans were incorporated into the national government's trial run of the emissions trading system. New systems to recognize credit from various sources were created.

While Japan did not join the second period of the Kyoto Protocol, Japan has developed a bilateral credit mechanism and proposed the mechanism to the Ad Hoc Working Group on Long-term Cooperative Action under the UN Framework Convention.

I. Introduction

A. General Overview

Most Japanese people believe that global warming is real.¹ The Ministry of Environment informs Japanese people about the global warming caused by greenhouse gases as a scientific fact.²

Japan ratified the 1997 Kyoto Protocol³ in June 2002.⁴ While generally supporting the Kyoto Protocol, the Japanese people believe that the target assigned to Japan was disproportionately disadvantageous.⁵ Japan was already highly carbon efficient and the most energy efficient

¹ *Chikyū ondanka eikyō ni kansuru ankēto chōsa o jissai* [Survey Concerning the Effect of Global Warming], MIZUHO INFORMATION & RESEARCH INSTITUTE (Sept. 5, 2013), <http://www.mizuho-ir.co.jp/company/release/2013/ondanka0905.html>.

² The MOE publishes pamphlets that explain the causes and effects of, and countermeasures against, global warming. *Chikyū ondanka no kagakuteki chiken* [Scientific Knowledge of Global Warming], MOE, <http://www.env.go.jp/earth/ondanka/knowledge.html> (last visited Mar. 18, 2014).

³ The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change, which commits its Parties by setting internationally binding emissions reduction targets. The Kyoto Protocol was adopted in Kyoto, Japan, on December 11, 1997, and entered into force on February 16, 2005. *Kyoto Protocol*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (UNFCCC), https://unfccc.int/kyoto_protocol/items/2830.php.

⁴ *Status of Ratification of the Kyoto Protocol*, UNFCCC, https://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php (last visited Mar. 18, 2014).

⁵ TAKATOSHI ITO, HAISHUTSURYŌ TORIHIKI NO KANGAE KATA, KYOTO GITEISHO TO POSUTO KYOTO [POLICIES AND IDEAS OF EMISSION TRADING, KYOTO PROTOCOL PERIOD AND POST-KYOTO] 3 (submitted to the Global Environment Sub-Committee, Central Environment Council, Third Meeting, 2007), <https://www.env.go.jp/council/06earth/y060-kondan03/mat02.pdf>.

country as of 1990, making it difficult to reduce emission further by improving efficiency.⁶ Japan needed to plan to buy emissions credits to meet the Kyoto Protocol requirements retroactive to the first Kyoto Protocol period.⁷ In November 2013, at the United Nations Climate Change Conference in Warsaw, Poland (COP19), Japan reported that it had met its Kyoto obligations by planting trees and buying credits.⁸ In addition to the difficulties in meeting these obligations, the earthquake and tsunami of March 2011 and the resulting Fukushima nuclear power plant disaster caused Japan to review its climate and energy policies. Japan did not join the second Kyoto commitment period,⁹ but rather set its own goals, announcing a new 2020 emission reduction target of 3.8% from the 2005 level at COP19.¹⁰

B. Emissions Trading Overview

Though the Japanese national government has not introduced a mandatory cap-and-trade system, a voluntary emissions trading system was introduced in 2005. A trial of the emissions trading system was introduced in 2008. In December 2010, the Domestic Emissions Trading Subcommittee of the Central Environment Council, under the jurisdiction of the Ministry of Environment (MOE), released an interim report on the domestic emissions trading system, which it considered could start in fiscal year 2013.¹¹ In the same month, the Japanese government announced the following three major policies to counter climate change:

- Introduction of a tax for climate change countermeasures
- Expansion of a feed-in tariff for renewable energy
- Consideration of a domestic emissions trading scheme¹²

⁶ Devin T. Stewart & Warren Wilczewski, *How Japan Became an Efficiency Superpower: Lessons for U.S. Energy Policy Under Obama*, POLICY INNOVATIONS (Feb. 3, 2009), <http://www.policyinnovations.org/ideas/briefings/data/000102>.

⁷ David Pilling & Fiona Harvey, *Japan to Start Buying Cheap Carbon Credits*, FINANCIAL TIMES (Nov. 23, 2007), <http://www.ft.com/cms/s/0/d04dce36-9965-11dc-bb45-0000779fd2ac.html#axzz2uXERKS56>.

⁸ Ida Torres, *Japan Says It Met Kyoto Protocol Goals Through Tree-planting and Buying Carbon Credits*, JDP (Nov. 18, 2013), <http://japandailynews.com/japan-says-it-met-kyoto-protocol-goals-through-tree-planting-and-buying-carbon-credits-1839575/>.

⁹ Summary of the 7th Session of the Conference of the Parties Serving as the Meeting of the Parties to the Kyoto Protocol (CMP 7), COP17, Government of Japan (Dec. 11, 2011), http://www.env.go.jp/press/file_view.php?serial=18814&hou_id=14577 (in Japanese).

¹⁰ *Warsaw Climate Change Conference, November 2013*, MOE, <https://www.env.go.jp/en/earth/cc/cop19/summary.html>.

¹¹ DOMESTIC EMISSIONS TRADING SUBCOMMITTEE, GLOBAL ENVIRONMENT COMMITTEE, CENTRAL ENVIRONMENT COUNCIL, WAGA KUNI NI OKERU KOKUNAI HAISHUTSURYŌ TORIHIKI SEIDO NO ARIKATA NI TSUITE (CHŪKAN SEIRI) [REGARDING DOMESTIC EMISSIONS TRADING SCHEME (INTERIM REPORT)] (Dec. 2010), <http://www.env.go.jp/council/06earth/y060-91/mat01.pdf>. Key features of the report were translated in OFFICE OF MARKET MECHANISMS, MOE, CURRENT STATUS OF MARKET MECHANISMS IN JAPAN 6 (Aug. 2012), <http://www.env.go.jp/en/focus/docs/files/20120801-25.pdf>.

¹² Chikyū ondanka taisaku no shuyō 3 sesaku ni tsuite [Three Major Policies to Counter Climate Change], Ministerial Committee on the Climate Change Issue (Dec. 28, 2010), http://www.meti.go.jp/committee/summary/0003930/067_04_00.pdf.

Business organizations were skeptical about emissions trading because they considered that it could result in excessive interference with corporate management, investment deterrence to growing sectors, and over-speculative trading. Therefore, the government decided to carefully consider this scheme, evaluating the burden on Japanese industry, associated impacts on employment, developments and effects of emissions trading schemes in other countries, and global warming countermeasures already implemented in Japan.¹³ However, after the earthquake in March 2011, anti-global warming measures were reviewed, and the report on post-Kyoto Protocol measures by the Global Environment Committee of the Central Environment Council did not mention domestic emissions trading schemes. On the other hand, the report was favorable to a bilateral offset credit system in which Japan can utilize its advanced technologies and measure the reduction of emissions appropriately.¹⁴

II. Voluntary Emissions Trading Scheme (J-VETS)

The MOE launched the Voluntary Emissions Trading Scheme (J-VETS) in 2005.¹⁵ Companies that voluntarily participate in the scheme set their own targets and receive subsidies to finance abatement technology. Subsidies are granted to entities that install equipment or facilities that can reduce carbon dioxide emissions by making energy consumption more efficient or using alternatives to fossil oil energy.

Three billion yen (about US\$30 million) was appropriated for the subsidy.¹⁶ The subsidy can constitute up to one-third of an emissions improvement project or 200 million yen (about US\$2 million), whichever is lower. Applicants must submit average emissions amounts over the previous three years, estimates of emissions reductions for the coming applicable year, and total reductions over the entire year for the remaining life of the equipment or facility.¹⁷ The result of emissions reductions is verified by a third party approved by the MOE.¹⁸ The cap on emissions and the transfer of the credit is recorded in a register maintained by the MOE.¹⁹ If targets are not met or the result cannot be examined, part or all of the subsidy must be reimbursed. Alternatively, participating companies can buy credits from other companies and satisfy the

¹³ *Id.* at 2, translated in OFFICE OF MARKET MECHANISMS, MOE, *supra* note 11, at 5.

¹⁴ GLOBAL ENVIRONMENT COMMITTEE, CENTRAL ENVIRONMENT COUNCIL, 2013NEN IKŌ NO TAISAKU/SESAKU NI KANSURU HŌKOKUSHO [REPORT ON MEASURES AND POLICY AFTER 2013], (June 2012), available at <http://www.env.go.jp/earth/report/h24-03/index.html>.

¹⁵ Press Release, MOE, Jishu sankagata kokunai haishutsu ryō torihiki seido no sankasha no kōbo ni tsuite [Regarding Open Call for Participants in Voluntary Domestic Emissions Trading Scheme] (Feb. 21, 2005), <http://www.env.go.jp/press/press.php?serial=5733>.

¹⁶ MOE, Jishu sankagata kokunai haishutsu ryō torihiki seido no jisshi rūru [Rules on Implementation of Voluntary Domestic Emissions Trading Scheme] § 1.2 (Feb. 21, 2005), http://www.env.go.jp/press/file_view.php?serial=6410&hou_id=5733.

¹⁷ *Id.* § 1.3.

¹⁸ *Id.* § 4.2.

¹⁹ *Id.* § 5.1.

requirements under the scheme.²⁰ In 2007, the scheme added participants who did not receive subsidies but promised to reduce carbon dioxide emissions by 1%.²¹

This scheme became part of the trial of the domestic emissions trading system (see next section) in 2008. The scheme ended after its seventh year, following completion of the process by the 2011 participants. Three hundred eighty-nine entities had participated since 2005.²² The 360 participants who had chosen to participate by the scheme's sixth year reduced carbon dioxide emissions by a total of 2,158,000 metric tons (an average 25.2% reduction per participant), which was more than the estimated 1,114,000 metric tons (an average 13.4% reduction), compared with the base year. One hundred twenty-six of the 360 participants could not achieve the emissions target by reductions, but achieved the target by buying credits from other participants.²³

III. Trial of Domestic Emissions Trading

Japanese businesses prefer voluntary measures to address global warming as opposed to government regulations. While Keidanren (the Japan Business Federation)²⁴ has opposed government regulations, it made a commitment to counter global warming in 1996 and implemented a voluntary environmental action plan in 1997.²⁵ The results of these voluntary environmental action plans were reviewed by the government councils relating to environmental issues. Some other businesses that did not participate with Keidanren established similar voluntary plans. The national government's Kyoto Protocol Achievement Plan, which was established in March 2008, recognized these businesses and encouraged industries that did not have similar voluntary plans to develop them. The Kyoto Protocol Plan even pressured industries that have not had voluntary plans, such as gaming parlors and hospitals, to develop

²⁰ *Id.* § 5.

²¹ MOE, Kankyōshō jishu sankagata kokunai haishutsu ryō torihiki seido dai3 ki jisshi rūru [Rules on Implementation of MOE Voluntary Domestic Emissions Trading Scheme], ver. 1.0, § 1.2 (July 26, 2007), http://www.jvets.go.jp/jvets/files/2007/rules2007_v10.pdf.

²² Press Release, MOE, Jishu sankagata kokunai haishutsu ryō torihiki seido (J-VETS) dai7 ki (2011 nendo saitaku/2012 nendo haishutsu sakugen jisshi) no haishutsu sakugen jisseki to torihiki kekka ni tsuite (oshirase) [Regarding Emission Reduction and Trading Results of Voluntary Domestic Emission Trading Scheme (J-VETS) 7th Term (adopted in 2011/implemented in 2012) (Notification)] (Jan. 16, 2014), <https://www.env.go.jp/press/press.php?serial=17616>.

²³ MOE, KANKYŌSHŌ JISHU SANKAGATA KOKUNAI HAISHUTSURYŌ TORIHIKI SEIDO SOKATSU HŌKOKUSHO GENAN [DRAFT OF COMPREHENSIVE REPORT ON J-VETS] 14, http://www.env.go.jp/earth/ondanka/det/jvets/summary_draft.pdf.

²⁴ “KEIDANREN (Japan Business Federation) is a comprehensive economic organization with a membership comprised of 1,300 representative companies of Japan, 121 nationwide industrial associations and 47 regional economic organizations (as of July 1, 2013).” *About Keidanren*, KEIDANREN, <http://www.keidanren.or.jp/en/profile/pro001.html> (last visited Mar. 10, 2014).

²⁵ (Sankō) Ondanka taisaku kankyō jishu kōdō keikaku sakutei no keii to nerai [(Reference) Anti-global Warming Measures, Environment Voluntary Action, Its History and Purpose], *attached to* Kankyō Jishu kōdō keikaku [Ondanka taisaku hen] 2012 nendo forōappu kekka [Environment Voluntary Action Plan [Anti-global Warming Sec.] Results from 2012 Follow-up], Keidanren, at 43 (Nov. 20, 2012), http://www.keidanren.or.jp/policy/2012/084_sankou.pdf.

some kind of plans.²⁶ The Kyoto Protocol Plan also recommended the introduction of a domestic emissions trading scheme.²⁷

On October 21, 2008, the government decided to carry out a trial run of a domestic emissions trading scheme.²⁸ Participation is voluntary. The participants of Keidanren's or other voluntary action plans could participate in the scheme at the same time. Participating entities set their own reduction targets for carbon dioxide emissions from fuel. To exclude entities that intend to earn credits without effort by setting very easy targets, targets were reviewed by the government.²⁹ If an applicant participated in Keidanren's or other voluntary action plans, the carbon dioxide emissions reduction target of the entity must be set based on such plans. Other applicants followed the implementation manual that was established by the Voluntary Emissions Trading Scheme Management Office when they set the targets.³⁰ Participants could choose a target year between 2008 and 2012.³¹

Participants reported targets and results to the governments.³² Participants might create accounts for credits. Entities that fell short of their targets could acquire credits from other entities that reduced emissions more than their targets and thereby fill the shortfall. In addition, credits based on the Kyoto Protocol scheme and other credits that the government manages, such as biomass credits, could be used.³³

IV. Domestic Credit System

The government launched a domestic credit system when it started the trial of an emissions trading scheme in October 2008.³⁴ The Domestic Credit System made it possible for small and medium-sized companies that often do not participate in Keidanren voluntary action plans to become involved. The system certifies emissions reductions by small and medium-sized companies that reduce emissions with the technical and financial assistance of larger

²⁶ Kyoto giteisho mokuhyō tassei keikaku [Kyoto Protocol Achievement Plan], Apr. 28, 1995, *wholly amended* Mar. 28, 2008, at 29–31, <http://www.env.go.jp/earth/ondanka/kptap/plan080328/d-01.pdf>.

²⁷ *Id.* at 59.

²⁸ Haishutsu ryō torihiki no kokunai tōgō shijō no shikōteki jisshi ni tsuite [Regarding Trial of Integrated Domestic Market of Emissions Trading], Global Warming Countermeasures Headquarters Decision, Oct. 21, 2008, <http://www.kantei.go.jp/jp/singi/ondanka/2008/1021.pdf>.

²⁹ VOLUNTARY EMISSIONS TRADING SCHEME MANAGEMENT OFFICE, SHIKŌ HAISHUTSU RYŌ TORIHIKI SUKĪMU JISSHI YŌRYŌ [VOLUNTARY EMISSIONS TRADING SCHEME IMPLEMENTATION MANUAL] 11 (Oct 21, 2008, *amended* Mar. 26, 2009), <http://www.env.go.jp/earth/ondanka/det/dim/trial/ts-01yoryo.pdf>.

³⁰ *Id.* at 3, 11, 13 & 14.

³¹ *Id.* at 4.

³² *Id.*

³³ Global Environment Dept., MOE Kokunai haishutsu ryō torihiki seido nit suite [Regarding Domestic Emissions Trading System] 17 (July 2013), <http://www.env.go.jp/earth/ondanka/det/capandtrade/about1003.pdf>.

³⁴ *Kokunai kurejitto seido* [Domestic Credit System], METI, <http://jcdm.jp/outline/index.html> (last visited Mar. 19, 2014).

companies.³⁵ This system adopts a “baseline system”³⁶ that sets a baseline level of emissions for each party and credit reductions below that level. Larger companies that contributed to the reduction can obtain credits.³⁷

Agricultural farms can be eligible. For example, if a farm switches from a fossil fuel-derived energy source to biomass for a heat source with the assistance of a large company and reduces greenhouse gas generation, it can receive credits.³⁸

V. Regional Emissions Trading Systems

Two Japanese regions have operational mandatory emissions trading systems in place: Tokyo and Saitama.

A. Tokyo Cap-and-Trade Program

The Tokyo Cap-and-Trade Program was launched in April 2010 based on the Tokyo Metropolitan Environmental Security Ordinance.³⁹ It introduced mandatory targets for the reduction in overall greenhouse gas emissions for large-scale emitters, as follows:

The cap applies to large-scale facilities (buildings/factories) that have total consumption of fuels, heating and electricity of at least 1,500 kiloliters per year (crude oil equivalent).

These facilities include large CO₂ emitters such as office buildings and factories. About 1,400 facilities in Tokyo come under this classification. (This figure is based on the number of sites rather than the number of companies.)⁴⁰

The cap is “placed on CO₂ emissions resulting from fuel consumption and the use of electricity and heat from the point at which the cap-and-trade program is launched.”⁴¹ Greenhouse gases (GHGs) other than energy-related carbon dioxide are not subject to the program. The Tokyo

³⁵ Norichika Ando, *Nōrin suisan bunya no haishutsuryō torihiki no genjō to kadai* [Current Status and Challenges of Emissions Trading in the Agriculture and Fishery Area], NŌRIN KINYŪ 2010-10, 571, at 576 (Oct. 2010), <http://www.nochuri.co.jp/report/pdf/n1010re2.pdf>.

³⁶ *Definition: Baseline and Credit*, GOVERNMENT OF ALBERTA, http://environment.alberta.ca/ETG_Definition.aspx?Term=7 (last visited Feb. 24, 2014).

³⁷ *Domestic Credit System*, *supra* note 34.

³⁸ METI, HAISHUTSU RYŌ TORIHIKI SEIDO NI TSUITE [CONCERNING EMISSIONS TRADING SYSTEM] 23, http://www.meti.go.jp/policy/energy_environment/global_warming/pdf/credit_001.pdf (last visited Mar. 24, 2014).

³⁹ *Tomin no kenkō to anzen o kakuho suru kankyō ni kansuru jōrei* [Ordinance on Environment Securing Health and Safety of Tokyo Metropolitan Resident], Tokyo Metropolitan Government (TMG) Ordinance No. 215 of 2000, *last amended by* TMG Ordinance No. 44 of 2009; *see also* BUREAU OF ENVIRONMENT, TMG, “TOKYO CAP-AND-TRADE PROGRAM” FOR LARGE FACILITIES: DETAILED DOCUMENTS 9 (Mar. 30, 2012), http://www.kankyo.metro.tokyo.jp/en/climate/attachement/Tokyo_Cap-and-Trade_Program_detailed_version.pdf.

⁴⁰ BUREAU OF THE ENVIRONMENT, TMG, TOKYO CAP-AND-TRADE PROGRAM: JAPAN’S FIRST MANDATORY EMISSIONS TRADING SCHEME 11 (Mar. 2010), https://www.kankyo.metro.tokyo.jp/en/attachement/Tokyo-cap_and_trade_program-march_2010_TMG.pdf.

⁴¹ *Id.* at 12.

Metropolitan Government (TMG) plans to add other greenhouse gases to be capped in the future.⁴² If the facilities have a track record of total emissions reductions for gases other than energy-related carbon dioxide, they may use a certain amount of these reductions that have been verified by a registered verification agency to fulfill their overall reduction obligations.⁴³

The cap was studied and set from the viewpoint of achieving the overall reduction target for Tokyo of reducing GHG emissions to 25% below 2000 levels by 2020. During the first five-year compliance period (from fiscal year [FY] 2010 to FY 2014), the total reduction target (cap for emissions) was set to reduce the emissions of large emitters by 6% or 8% from base-year levels.⁴⁴ Base-year emissions are calculated on the basis of the average of actual emissions of the facilities over the past three years.⁴⁵

The facilities that are covered by the program are obligated to submit and make public their annual emissions reports and emissions reduction plans. The emissions must be examined by a registered verification agency. The covered facilities are permitted to bank the surplus when their emissions during a compliance period are less than the emissions allowances. So-called borrowing, which is the use of emissions allowances for the following compliance period during the current compliance period, is not permitted.⁴⁶

After the first compliance period of five years, a compliance assessment will be made in FY 2015. The covered facilities will report their total emissions for five years to the TMG. The covered facilities must procure credits for any reduction shortfall through emissions trading within FY 2015.⁴⁷ All covered facilities must open accounts for emissions trading. Credits are available from various sources, including

- credits from the surplus of other covered facilities in the same program,
- Small and Medium-sized Installation Credits Within the Tokyo Area,
- Renewable Energy Certificates,
- Outside Tokyo Credits, and
- Saitama program credits.⁴⁸

⁴² *Id.* at 13.

⁴³ *Id.* at 14.

⁴⁴ BUREAU OF THE ENVIRONMENT, TMG, DAIKIBO JIGYŌSHO E NO ONSHITSU KŌKA GASU HAISHUTSU SŌRYŌ SAKUGEN GIMU TO HAISHUTSURYŌ TORIHIKI SEIDO (GAIYO) [LARGE BUSINESS' OBLIGATION TO REDUCE TOTAL EMISSION OF GREENHOUSE GASES AND EMISSION TRADING SYSTEM (SUMMARY)] 33 (June 2013), http://www.kankyo.metro.tokyo.jp/climate/large_scale/attachement/%E2%91%A0%E3%80%90%E4%BF%AE%E6%AD%A3%E5%BE%8C%E3%80%91%E5%88%B6%E5%BA%A6%E6%A6%82%E8%A6%81.pdf.

⁴⁵ TOKYO CAP-AND-TRADE PROGRAM, *supra* note 40, at 19.

⁴⁶ *Id.* at 12.

⁴⁷ *Id.* at 23.

⁴⁸ Ordinance on Environment Securing Health and Safety of Tokyo Metropolitan Resident, art. 5-11, para. 1; *see also* BUREAU OF ENVIRONMENT, TMG, HAISHUTURYO TORIHIKI NYUMON [EMISSIONS TRADING INTRODUCTORY GUIDE] 8 (Dec. 2013), https://www.kankyo.metro.tokyo.jp/climate/large_scale/torihiki_booklet_A4.pdf.

The covered facilities are obliged to keep their emissions below the caps. If they fail to do so, penalties apply. The penalties consist of fines of up to 500,000 yen (about US\$5,000), publication of the breach, and a surcharge collected in proportion to the failure to fulfill the obligation.⁴⁹

The TMG has reported that emissions in 2010 from 1,159 covered facilities were reduced by 13% in comparison to base-year emissions,⁵⁰ and that emissions of the covered facilities for 2011 were reduced by 23% from base-year emissions, a ten-point further reduction from the results achieved in 2010.⁵¹

B. Saitama Cap-and-Trade Program

Saitama prefecture, located next to Tokyo and Japan's fifth most populous prefecture,⁵² followed Tokyo one year later by setting up its own cap-and-trade program.⁵³ The Saitama program uses the same compliance periods, emissions baseline, and thresholds for inclusion as the Tokyo program. During the first four-year compliance period (from FY 2011 to FY 2014), the total reduction target (cap for emissions) was set to reduce the emissions of large emitters by 6% or 8%.⁵⁴

VI. Bilateral Offset Credit Mechanism

In August 2012, Japan submitted a proposal on the Bilateral Offset Credit Mechanism (BOCM) to the Ad Hoc Working Group on Long-term Cooperative Action under the UN Framework Convention (AWG-LCA).⁵⁵ BOCM works as a new mechanism that complements the clean development mechanism (CDM). BOCM introduces leading low-carbon technologies and products in developing countries. Emissions reductions resulting from those technologies and products are properly evaluated in a quantitative manner, by applying measurement, reporting,

⁴⁹ TOKYO CAP-AND-TRADE PROGRAM, *supra* note 40, at 23.

⁵⁰ The Tokyo Cap-and-Trade Program, Results of the First Fiscal Year of Operation (Provisional Results), Bureau of Environment, TMG, at 1 (May 21, 2012), https://www.kankyo.metro.tokyo.jp/en/climate/attachement/Result%20of%20the%20First%20FY%20of%20the%20Tokyo%20CT%20Program_final.pdf.

⁵¹ Press Release, Urban and Global Environmental Division, Bureau of Environment, TMG, The Tokyo Cap-and-Trade Program Achieved 23% Reduction in the 2nd Year at 1 (Jan. 21, 2013), <https://www.kankyo.metro.tokyo.jp/en/climate/attachement/The%202nd%20Year%20Result%20of%20the%20Tokyo%20Cap-and-Trade%20Program.pdf>.

⁵² The population of Saitama was estimated to be 7,194,556 in the October 2010 national census. *Saitama ken no tōkei kihon dēta* [Basic Data on Saitama Prefecture], SAITAMA PREFECTURE, <http://www.pref.saitama.lg.jp/page/kihondeta.html> (last visited Mar. 19, 2014).

⁵³ Saitama ken chikyū ondanka taisaku suishin jōrei [Saitama Prefecture Ordinance on Global Warming Countermeasures], Saitama Ordinance No. 9 of 2009 (Mar. 31, 2009), *last amended* Mar 18, 2011.

⁵⁴ SAITAMA PREFECTURE, SAITAMA KEN CHIKYŪ ONDANKA TAISAKU NI KAKARU JIGYŌ KATSUDŌ TAISAKU SUISHIN [GUIDELINES ON BUSINESS ACTIVITIES CONCERNING SAITAMA PREFECTURE GLOBAL WARMING COUNTERMEASURES], <http://www.pref.saitama.lg.jp/uploaded/attachment/493008.pdf> (last visited Mar. 24, 2014).

⁵⁵ Announcement of the Open Seminar on Japan's Proposal on Bilateral Offset Credit Mechanism, MOE (Aug. 9, 2012), <http://www.env.go.jp/en/headline/headline.php?serial=1829>.

and verification (MRV) methodologies.⁵⁶ While CDM “carries out every process under the supervision of the CDM Executive Board (centralized structure), . . . BOCM carries out most of the processes according to what is agreed between two countries concerned (decentralized structure).”⁵⁷ The Joint Committee that consists of representatives from both governments develops rules and guidelines necessary for the implementation of the Joint Credit Mechanism.⁵⁸ The amount of GHG emissions reductions or removals is verified by third-party entities.⁵⁹ Each government establishes and maintains a registry. On the basis of notification for issuance of credits by the Joint Committee, each government issues the notified amount of credits to its registry.⁶⁰

Japan has held consultations for the JCM with developing countries since 2011 and signed bilateral documents for the joint crediting mechanism with ten countries—Mongolia, Bangladesh, Ethiopia, Kenya, Maldives, Vietnam, Laos, Indonesia, Costa Rica, and Palau.⁶¹ Joint Committees were established for each of the bilateral agreements. The Joint Committee will decide the rules and guidelines of the BOCM, taking into account the national circumstances of each country.⁶²

VII. Other Measures for Energy Efficiency and/or Use of Renewable Sources

A. J-VER Scheme

The J-VER scheme was established by the MOE in November 2008. The scheme is a verification scheme for credits generated through the reduction or removal by “sinks”⁶³ of greenhouse gases carried out via domestic projects and is compatible with international standards.⁶⁴

After an entity submits an application with the GHG emissions reductions/sink plan report and monitoring plan report, an accredited validator examines whether the contents of these comply with the

⁵⁶ GOVERNMENT OF JAPAN, RECENT DEVELOPMENT OF THE JOINT CREDITING MECHANISM (JCM) 3 (Jan. 2014), http://www.mmechanisms.org/document/20140122_JCM_goj.pdf.

⁵⁷ Yasuki Shirakawa, *JCM/BOCM: Japan's Proposal on New Credit Mechanism*, GLOBAL CCS INSTITUTE (June 20, 2013), <http://www.globalccsinstitute.com/insights/authors/yasuki/2013/06/20/jcmbocm-japan%E2%80%99s-proposal-new-credit-mechanism>.

⁵⁸ RECENT DEVELOPMENT OF THE JOINT CREDITING MECHANISM (JCM), *supra* note 56, at 5.

⁵⁹ *Id.* at 4.

⁶⁰ *Id.* at 5.

⁶¹ *Id.* at 11.

⁶² Submission by Japan on various approaches, including opportunities for using markets, to enhance the cost-effectiveness of, and to promote, mitigation actions, at 5, http://www.mmechanisms.org/document/130423_submission_japan.pdf.

⁶³ A sink is “[a]ny process, activity or mechanism which removes a greenhouse gas, an aerosol or a precursor of a greenhouse gas or aerosol from the atmosphere.” IPCC THIRD ASSESSMENT REPORT WORKING GROUP I: THE SCIENTIFIC BASIS, App. I – Glossary, http://www.grida.no/publications/other/ipcc_tar/?src=/climate/ipcc_tar/wg1/518.htm (last visited Mar. 24, 2014).

⁶⁴ *Japan's Offset Credit (J-VER) Scheme*, MOE, http://www.j-ver.go.jp/e/about_jver.html (last visited Mar. 11, 2014).

code of practice, positive list, eligibility criteria, methodologies, monitoring guidelines, and other requirements of the J-VER scheme. If the application is approved, the project is registered by the MOE. During the project implementation phase, an accredited verifier verifies the amount of emissions reduction. After the credit is issued, the entity can sell it. The participants in J-VER and buyers must have accounts for credits with the MOE.⁶⁵

The J-VER scheme issued credits for GHG reduction until the end of 2013. At that time, 250 projects had been registered. A total of 71,672 metric tons of CO₂ was cancelled under the J-VER scheme as of December 2013.⁶⁶

B. Feed-in Tariff

A feed-in tariff for renewable energy sources system was introduced in Japan in July 2012.⁶⁷

C. Anti-global Warming Tax

An anti-global warming tax (carbon tax) was introduced in October 2012.⁶⁸

⁶⁵ *Id.*; see also *Validation and Verification Under the J-VER Scheme*, MOE, <http://www.j-ver.go.jp/e/validation.html> (last visited Mar. 11, 2014).

⁶⁶ MOE, REVIEW OF THE OFFSET CREDIT(J-VER) SCHEME (2008–2013) (Dec. 2013), http://www.j-ver.go.jp/document/e/j-ver_generalization_eng.pdf.

⁶⁷ *Denki jigyōsha ni yoru saisei kanou enerugī denki no chōtatsu ni kansuru tokubetsu sochi hō* [Special Act on Electric Power Company's Procurement of Electric Power Generated by Renewable Source], Act No. 108 of 2011.

⁶⁸ Amendment to Tax Special Measures Law, Act No. 16 of 2012 (adding arts. 90-3-2 to 90-3-4).

Mexico

Gustavo Guerra
Senior Foreign Law Specialist

SUMMARY Mexico does not currently have a mandatory cap-and-trade system. However, a voluntary scheme for emissions trading called the Mexican Carbon Platform was launched in November 2013. The Platform offers Certified Emissions Reductions derived from projects located in Mexico that have been certified by the Clean Development Mechanism and other similar standards. In addition, the Platform allows investments in projects developed outside of the Kyoto Protocol called Eco-Social Campaigns aimed at promoting sustainable development. Mexico enacted a fossil-fuel tax in January 2014 applicable to the sale and importation of fossil fuels in order to foster the use of clean technologies and disincentivize gas emissions.

I. Introduction

A. Overview of Current Programs

Currently, Mexico does not have a mandatory cap-and-trade system. However, Mexican law provides for other mechanisms aimed at mitigating emissions of greenhouse gases. Specifically, Mexico's General Law on Climate Change provides that the Department of Environment and Natural Resources (DENR) may establish a voluntary emissions trading system aimed at promoting the reduction of emissions of greenhouse gases.¹

A voluntary scheme for emissions trading called the Mexican Carbon Platform was launched in November 2013 and a fossil fuel tax was enacted in January 2014. Furthermore, Mexico is currently the fifth highest country in terms of both the number of registered projects under the Clean Development Mechanism (CDM) and the reduction of emissions derived from such projects.

B. Public Opinion on Climate Change

A survey published in 2013 by the Pew Research Center showed that 52% of surveyed individuals in Mexico view climate change as a major threat.² Similarly, a 2012 survey on Individual Perceptions of Climate Risks revealed that 98% of Mexicans polled are convinced

¹ Ley General de Cambio Climático [General Law on Climate Change] arts. 3 (XI), 94, DIARIO OFICIAL DE LA FEDERACIÓN [D.O.], June 6, 2012, available on the website of Mexico's House of Representatives, <http://www.diputados.gob.mx/LeyesBiblio/pdf/LGCC.pdf>.

² PEW RESEARCH GLOBAL ATTITUDES PROJECT, CLIMATE CHANGE AND FINANCIAL INSTABILITY SEEN AS TOP GLOBAL THREATS: SURVEY REPORT (June 24, 2013), <http://www.pewglobal.org/2013/06/24/climate-change-and-financial-instability-seen-as-top-global-threats/#global-climate-change-is-the-top-concern-in-latin-america> (scroll to "Global Climate Change is the Top Concern in Latin America").

that climate change is a reality but that solutions to the problem exist; 92% responded that human activity is the cause of this phenomenon.³

II. Relevant Legislation and Regulations

A. Voluntary Emissions Trading System

As stated above, Mexico does not have a mandatory cap-and-trade system. However, Mexico's General Law on Climate Change provides that the DENR may establish a voluntary emissions trading system aimed at promoting the reduction of emissions of greenhouse gases.⁴

In November 2013, a voluntary scheme for emissions trading called the Mexican Carbon Platform was launched by Mexico's Stock Exchange in collaboration with the DENR, the United Nations Environment Programme, and the Embassy of the United Kingdom in Mexico.⁵ These entities are part of a Technical Committee that selects the projects and programs that are eligible to participate in the Platform.⁶

The Platform offers Certified Emissions Reductions (CERs) derived from projects located in Mexico that have been certified by the CDM⁷ and other environmental standards in strategic areas such as forestry, transportation, methane production, and energy efficiency.⁸ Reportedly, taxpayers that are subject to a fossil fuel tax enacted in Mexico in January 2014 (explained below) will be allowed to offset this tax by purchasing CERs sold by the Mexican Carbon Platform.⁹

In addition, the Platform allows investments in projects developed outside of the Kyoto Protocol, called Eco-Social Campaigns, which are aimed at promoting sustainable development in a number of categories, including the following:

³ SURVEY AXA/IPSOS 2012: INDIVIDUAL PERCEPTIONS OF CLIMATE RISKS 6, 12 (Oct. 2012), http://www.axa.com/lib/axa/uploads/cahiersaxa/Survey-AXA-Ipsos_climate-risks.pdf.

⁴ General Law on Climate Change, arts. 3 (XI), 94.

⁵ Press Release, UNEP, Regional Office for Latin America and the Caribbean, el PNUMA, la BMV, la Embajada del Reino Unido y la SEMARNAT crean un mecanismo financiero para apoyar proyectos de cambio climático: la Plataforma Mexicana de Carbono [The UNEP, Mexico's Stock Exchange, the United Kingdom Embassy and Mexico's Department of Environment Create a Financial Mechanism to Support Climate Change Projects: The Mexican Carbon Platform], <http://www.pnuma.org/informacion/comunicados/2013/20131126bis/> (Nov. 26, 2013).

⁶ *Id.*

⁷ The CDM is a mechanism under the Kyoto Protocol whereby Annex I countries may acquire greenhouse gas offsets to meet their obligations from certified emissions reduction projects in developing countries. For more information on the CDM, see Part III(A)(1) of the International Law survey, *infra*.

⁸ Press Release, UNEP, *supra* note 5. See also *Nosotros* [About], PLATAFORMA MEXICANA DE CARBONO, MÉXICO2 [MEXICAN CARBON PLATFORM, MEXICO2], <http://www.mexico2.com.mx/about> (last visited Mar. 20, 2014).

⁹ Press Release, UNEP, *supra* note 5.

- Mitigation and adaptation to climate change
- Conservation of Mexican ecosystems
- Sustainable consumption of renewable resources
- Protection of biodiversity
- Protection of water resources
- Improvement of disadvantaged communities
- Environmental education and awareness¹⁰

These projects offer a conduit for Mexican corporations and investors to finance eco-social projects that contribute directly to the development, implementation, maintenance, and expansion of initiatives that support communities and the environment.¹¹

B. The System in Practice

Because the system was just launched, no information is yet available concerning how Mexico's voluntary emissions trading system is working in practice. The Carbon Platform was announced in November 2013 and its website was not accessible until late February 2014.

III. Other Measures for Energy Efficiency and/or Use of Renewable Sources

A. Fossil Fuels Tax

Under the principle that “polluters must pay,” Mexico enacted a fossil-fuel tax in January 2014 applicable to the sale and importation of fossil fuels.¹² This measure was adopted in order to foster the use of clean technologies and disincentivize gas emission, as follows:

- Propane: 5.91 Mexican cents per liter (approximately US\$0.0045) per one thousand cubic meters
- Butane: 7.66 Mexican cents per liter (approximately US\$0.0058)
- Gasoline and aviation gas: 10.38 Mexican cents per liter (approximately US\$0.0079)
- Turbosine and other kerosenes: 12.40 Mexican cents per liter (approximately US\$0.0094)
- Diesel: 12.59 Mexican cents per liter (approximately US\$0.0096)
- Fuel oil: 13.45 Mexican cents per liter (approximately US\$0.0102)

¹⁰ PLATAFORMA MEXICANA DE CARBONO, MÉXICO2, *supra* note 8.

¹¹ *Id.*

¹² Ley del Impuesto Especial sobre Producción y Servicios [Law on the Tax Imposed on Production and Services], *as amended*, art. 2(I-H), D.O., Dec. 30, 1980, <http://www.diputados.gob.mx/LeyesBiblio/pdf/78.pdf>. See also *Impuesto a los combustibles fósiles* [Fossil Fuel Tax], SERVICIO DE ADMINISTRACIÓN TRIBUTARIA [MEXICO'S INTERNAL REVENUE SERVICE], <http://www2.sat.gob.mx/ReformaFiscal/09.htm> (last visited Mar. 20, 2014).

- Petroleum coke: 15.60 pesos per ton (approximately US\$1.18)
- Coal coke: 36.57 pesos per ton (approximately US\$2.78)
- Mineral coal: 27.54 pesos per ton (approximately US\$2.09)
- Other fossil fuels: 39.80 pesos per ton (approximately US\$3.02)¹³

B. Clean Development Mechanism

According to Mexico's Department of Environment, as of 2013, Mexico was the country with the fifth highest number of registered projects under the system of the Clean Development Mechanism (CDM) and in terms of the reduction of emissions derived from such projects.¹⁴ From December 1, 2012, to June 30, 2013, 3,620,010 CERs were granted to a number of Mexican projects, which brings the total number of CERs issued to projects in Mexico to 20,898,655, equivalent to the same number of reduced CO₂ metric tons.¹⁵ In the same period, thirty-five new projects were registered in sectors such as transportation, energy efficiency, and landfills, bringing the total number of CDM projects to 191.¹⁶

¹³ *Id.* These tax rates will be updated annually.

¹⁴ SECRETARÍA DE MEDIO AMBIENTE Y RECURSOS NATURALES [MEXICO'S DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES], PRIMER INFORME DE LABORES 2012–2013 [FIRST WORK REPORT 2012–2103 (to Mexico's Congress)] 29 (Sept. 2013), <http://www.semarnat.gob.mx/archivosanteriores/programas/informes/Documents/2012-2018/1er%20Informe%20de%20Labores%20Completo.pdf>.

¹⁵ *Id.*

¹⁶ *Id.*

New Zealand

Kelly Buchanan
Chief, Foreign, Comparative, and
International Law Division I

SUMMARY Since its establishment in 2008, New Zealand’s Emission’s Trading Scheme (ETS) has been phased in to apply to all relevant sectors except agriculture and horticulture. Emissions from pastoral agriculture make up around 50% of greenhouse gas emissions in the country; however, there is currently no date set for when this sector will enter the ETS. The government allocates free emission units to eligible entities, and some forest owners can also earn units. Units can be traded between entities. Some types of international units can also be purchased from overseas in order to cover an entity’s surrender obligations; however, their use will be restricted beginning in 2015. Under transitional measures currently in effect, units can be purchased from the government for a fixed price, and entities only need to surrender one unit for every two tons of carbon emissions they produce. There is currently no emissions cap in place. The government has a range of further initiatives related to reducing emissions in different sectors, including energy, transport, waste, and agriculture.

I. Introduction

New Zealand’s Emissions Trading Scheme (ETS) was established following the passage of the Climate Change Response (Emissions Trading) Amendment Act 2008¹ and is the government’s “primary tool” to reduce carbon emissions.² The legislation was enacted under the center-left Labour Party-led government, with the center-right National Party subsequently including policies related to amending the ETS as part of its 2008 election campaign. Aspects of the relevant legislation, the Climate Change Response Act 2002,³ were then significantly revised through amending legislation passed in 2009⁴ and 2012⁵ under the National Party-led

¹ Climate Change Response (Emissions Trading) Amendment Act 2008, <http://www.legislation.govt.nz/act/public/2008/0085/latest/DLM1130932.html>. For information on the original ETS proposals, see the Explanatory Note to the Climate Change (Emissions Trading and Renewable Preference Bill, at <http://legislation.govt.nz/bill/government/2007/0187/3.0/DLM1130901.html>.

² *Why We Have the NZ ETS*, CLIMATE CHANGE INFORMATION, <https://www.climatechange.govt.nz/emissions-trading-scheme/about/why.html> (last updated Apr. 19, 2013). See generally, *Reducing Greenhouse Gas Emissions*, MINISTRY FOR THE ENVIRONMENT, <http://www.mfe.govt.nz/issues/climate/policies-initiatives/> (last updated Dec. 17, 2013).

³ Climate Change Response Act 2002, <http://www.legislation.govt.nz/act/public/2002/0040/latest/DLM158584.html>.

⁴ Climate Change Response (Moderated Emissions Trading) Act 2009, <http://legislation.govt.nz/act/public/2009/0057/latest/DLM2381636.html>. For information on the amendments, see the Explanatory Note to the Climate Change Response (Moderated Emissions Trading) Amendment Bill, at <http://legislation.govt.nz/bill/government/2009/0085/latest/DLM2381601.html>. See also Speech, Hon. Nick Smith, Climate Change Response (Moderated Emissions Trading) Bill 2009: Third Reading (Nov. 25, 2009), <http://www.beehive.govt.nz/speech/climate-change-response-moderated-emissions-trading-amendment-bill-2009>.

government. The most recent changes followed an independent review of the ETS in 2011⁶ and were aimed at ensuring the ETS “more effectively supports the Government’s economic growth objectives and is flexible enough to cater for a range of future international outcomes in the period 2013 to 2020.”⁷

In general, the ETS was designed to place a price on greenhouse gas emissions in order to provide financial incentives to “reduce emissions in New Zealand or by overseas purchasing,” “invest in clean technology and renewable power generation,” and “invest in forests.”⁸ The original goal for the ETS was for it to cover all sectors and all of the greenhouse gases included in the Kyoto Protocol by 2013.⁹

The Environmental Protection Authority, established in 2011, administers the ETS with respect to non-forestry aspects.¹⁰ The Ministry for the Environment is the primary and coordinating agency for the provision of advice to Ministers on climate change policies and relevant legislation and has been designated as the inventory agency with responsibilities for “recording and reporting information related to greenhouse gas emissions in accordance with international requirements.”¹¹ Several other agencies have roles related to climate change policy development and implementation, including the Ministry for Primary Industries¹² (in relation to agriculture

⁵ Climate Change Response (Emissions Trading and Other Matters) Amendment Act 2012, <http://www.legislation.govt.nz/act/public/2012/0089/latest/DLM4676517.html>. For information on the amendments see the Explanatory Note to the Climate Change Response (Emissions Trading and Other Matters) Amendment Bill, at <http://legislation.govt.nz/bill/government/2012/0052/9.0/DLM4676512.html>. See also *Legislative Changes to the New Zealand Emissions Trading Scheme (NZ ETS)*, CLIMATE CHANGE INFORMATION, <http://www.climatechange.govt.nz/emissions-trading-scheme/ets-amendments/> (last updated Nov. 13, 2013).

⁶ *NZ ETS Review 2011*, CLIMATE CHANGE INFORMATION, <http://www.climatechange.govt.nz/emissions-trading-scheme/ets-review-2011/> (last updated Oct. 28, 2011).

⁷ MINISTRY FOR THE ENVIRONMENT, NEW ZEALAND’S FIRST BIENNIAL REPORT UNDER THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE (FIRST BIENNIAL REPORT) 48 (Dec. 2013), <http://www.mfe.govt.nz/publications/climate/nz-first-biennial-report/first-biennial-report.pdf>.

⁸ *Id.* at 47.

⁹ For information on the original design and objectives of the ETS, see MINISTRY FOR THE ENVIRONMENT, THE FRAMEWORK FOR A NEW ZEALAND EMISSIONS TRADING SCHEME (Sept. 2007), <http://www.mfe.govt.nz/publications/climate/framework-emissions-trading-scheme-sep07/html/index.html>. For information on current policies and broader context, see MINISTRY FOR THE ENVIRONMENT, NEW ZEALAND’S SIXTH NATIONAL COMMUNICATION UNDER THE UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE AND THE KYOTO PROTOCOL (SIXTH NATIONAL COMMUNICATION) (Dec. 2013), <http://www.mfe.govt.nz/publications/climate/nz-sixth-national-communication/sixth-national-communication.pdf>.

¹⁰ Environmental Protection Authority Act 2011, <http://www.legislation.govt.nz/act/public/2011/0014/latest/DLM3366813.html>.

¹¹ FIRST BIENNIAL REPORT, *supra* note 7, at 48. See also *About the Ministry for the Environment*, MINISTRY FOR THE ENVIRONMENT, <http://www.mfe.govt.nz/about/about.html> (last updated Mar. 26, 2010).

¹² *Climate Change*, MINISTRY FOR PRIMARY INDUSTRIES, <http://www.mpi.govt.nz/environment-natural-resources/climate-change> (last updated May 1, 2012).

and forestry) and the Ministry for Business, Innovation and Employment (in relation to energy).¹³

At the international level, in 2012, New Zealand decided not to sign up for the new targets associated with the second commitment period of the Kyoto Protocol, which runs from 2013 to 2020, although it will use the broad rules applicable under the Protocol for this period. The government decided instead to make its next commitment under the UN Framework Convention on Climate Change.¹⁴ The government subsequently announced an unconditional emissions reduction target of 5% below 1990 emissions levels by 2020,¹⁵ having previously indicated a long-term target of a 50% reduction below 1990 levels by 2050. The country also has a “conditional target range” of 10% to 20% below 1990 levels by 2020, dependent on there being a comprehensive global agreement.¹⁶

II. Emissions Trading Scheme

A. Acquiring and Surrendering Units

The ETS involves entities in various sectors acquiring and then surrendering New Zealand Units (NZUs) or other eligible emission units, representing a ton of carbon dioxide equivalent, to the government to cover their emissions liability.¹⁷ The methodologies and formulas that entities must use in calculating their emissions are prescribed in regulations that apply to the different sectors.¹⁸ They must retain sufficient records to allow verification of these calculations and must report their level of emissions and emission units surrendered in an annual return.¹⁹

¹³ See *Energy Efficiency and the Environment*, MINISTRY OF BUSINESS, INNOVATION AND EMPLOYMENT, <http://www.med.govt.nz/sectors-industries/energy/energy-environment> (last updated Oct. 20, 2012). See generally *Government – Who Does What?*, CLIMATE CHANGE INFORMATION, <http://climatechange.govt.nz/reducing-our-emissions/who-does-what.html> (last updated Aug. 9, 2012).

¹⁴ Press Release, Hon. Tim Groser, New Zealand Commits to UN Framework Convention (Nov. 9, 2012), <http://beehive.govt.nz/release/new-zealand-commits-un-framework-convention>; *Environment – Shaping the Global Response to Climate Change*, MINISTRY OF FOREIGN AFFAIRS AND TRADE, <http://www.mfat.govt.nz/Foreign-Relations/1-Global-Issues/Environment/2-Climate-Change/index.php> (last updated Jan. 13, 2014).

¹⁵ *New Zealand’s Emissions Reduction Targets*, CLIMATE CHANGE INFORMATION, <https://www.climatechange.govt.nz/reducing-our-emissions/targets.html> (last updated Sept. 18, 2013). See also Press Release, Hon. Tim Groser, New Zealand Commits to 2020 Climate Change Target (Aug. 16, 2013), <http://www.beehive.govt.nz/release/new-zealand-commits-2020-climate-change-target>.

¹⁶ *New Zealand’s Emissions Reduction Targets*, *supra* note 15. See also Press Release, Hon. Nick Smith & Hon. Tim Groser, NZ Joins Copenhagen Accord on Climate Change (Feb. 1, 2010), <http://www.beehive.govt.nz/release/nz-joins-copenhagen-accord-climate-change>; *Questions and Answers on New Zealand’s 2020 Emissions Reduction Target*, MINISTRY FOR THE ENVIRONMENT, <http://www.mfe.govt.nz/issues/climate/emissions-target-2020/questions-answers.html> (last updated Aug. 10, 2009).

¹⁷ See generally, *Surrendering Carbon Units*, CLIMATE CHANGE INFORMATION, <http://www.climatechange.govt.nz/emissions-trading-scheme/obligations/surrendering-units.html>.

¹⁸ Climate Change Response Act 2002 s 62. For a list of regulations, see *Climate Change Regulations*, CLIMATE CHANGE INFORMATION, <http://www.climatechange.govt.nz/emissions-trading-scheme/building/policy-and-legislation/regulations.html> (last updated Apr. 1, 2011).

¹⁹ Climate Change Response Act 2002 ss 65 & 67.

As discussed further below, some participants are allocated a number of free NZUs by the government, and some can earn them where their activities result in carbon dioxide being stored or removed from the atmosphere.²⁰ Participants who do not hold sufficient emission units to cover their liabilities may acquire NZUs or other eligible units from other ETS participants. Eligible international units can also be acquired from approved overseas sources (however, NZUs cannot be traded overseas²¹). Brokers can hold and trade emission units.²² Emission units can be “banked” or carried over for surrender in a future compliance period. Borrowing emission units is not permitted under the ETS.²³ At the end of October 2013, the market price for NZUs was NZ\$3.65 per unit, having risen from just \$0.24 in May of that year.²⁴

Under transitional arrangements that are currently in effect, discussed further below, participants in the ETS may buy NZUs from the New Zealand government for a fixed price of NZ\$25. In addition, participants in most sectors only need to surrender one eligible emission unit for every two tons of carbon dioxide emitted during the transitional period.

The ETS does not cap the number of emission units permitted to be used in New Zealand: free NZUs are allocated to certain participants based on the volume of production of an entity (a method referred to as “intensity-based allocation”);²⁵ an unlimited number of NZUs can be sold by the government at the fixed price under the transitional measures; and there is currently no limit on the number of international carbon emission units that can be imported and surrendered (although there are restrictions on the type of units that are eligible for use). As a result of the 2012 amendments, there is a requirement in the legislation for a cap to be set before any emission units can be auctioned by the government. However, this requirement has not yet been activated.²⁶

Failure to surrender enough emission units to cover an entity’s obligations by the May 31 annual deadline can result in a penalty of NZ\$30 for each unit. This can be avoided if the entity reports voluntarily that it failed to surrender the required number of units or made a mistake in its return before being sent a penalty notice or being visited by an enforcement officer.²⁷

²⁰ *Emissions Trading Scheme Basics*, CLIMATE CHANGE INFORMATION, <https://www.climatechange.govt.nz/emissions-trading-scheme/about/basics.html> (last updated Nov. 19, 2013).

²¹ Climate Change Response Act 2002 s 178C.

²² *Questions and Answers About the Emissions Trading Scheme: The Carbon Market*, CLIMATE CHANGE INFORMATION, <http://www.climatechange.govt.nz/emissions-trading-scheme/about/questions-and-answers.html#carbon> (last updated Nov. 19, 2012).

²³ *Surrendering Carbon Units*, *supra* note 17.

²⁴ *NZ ETS to Restrict Kyoto Protocol Units from 2015*, THE NATIONAL BUSINESS REVIEW (Dec. 6, 2013), <http://www.nbr.co.nz/article/nz-ets-restrict-kyoto-protocol-units-2015-bd-149726>.

²⁵ *How Does Industrial Allocation Work?*, CLIMATE CHANGE INFORMATION, <https://www.climatechange.govt.nz/emissions-trading-scheme/participating/industry/allocation/how-it-works/> (last updated Dec. 3, 2012).

²⁶ FIRST BIENNIAL REPORT, *supra* note 7, at 104. The mechanism is contained in the Climate Change Response Act 2002 ss 6A, 30G(1)(p), & 30GA.

²⁷ *Questions and Answers About the Emissions Trading Scheme: Penalties*, CLIMATE CHANGE INFORMATION, <http://www.climatechange.govt.nz/emissions-trading-scheme/about/questions-and-answers.html#penalties> (last updated Nov. 19, 2012).

The Environmental Protection Authority administers the New Zealand Emission Unit Register (NZEUR), which is similar to an online banking system and records who holds emission units and in what number, transfers of units between holders, and units surrendered by participants.²⁸

B. Participants

When the ETS commenced in 2008 it only covered the forestry sector. It was then phased in for other sectors in 2010 and 2013. Entities in the following sectors must now report their emissions and surrender emission units to cover their liabilities:²⁹ forestry (i.e., for deforestation activities),³⁰ stationary energy, industrial processes, liquid fossil fuel suppliers, importers of synthetic greenhouse gases, and waste (i.e., landfill operators). Horticultural and agricultural activities are not currently subject to surrender obligations under the ETS.³¹ In addition, as a result of the 2012 amendments, the ETS obligations related to the importation of synthetic greenhouse gases in goods and motor vehicles were removed and replaced with a levy that is linked to the carbon price and the transitional measures.³²

Methane and nitrous oxide emissions from pastoral agriculture made up around half of New Zealand's total greenhouse gas emissions in 2011.³³ Since 2012, the agricultural sector has had obligations to report on these emissions³⁴ and, following an extension under the 2009 amendments, the sector was scheduled to begin facing obligations to surrender units beginning January 1, 2015. This date was later removed as a result of the 2012 amendments and the government has stated that surrender obligations will only be imposed on the sector when “there

²⁸ *About the NZEUR*, NEW ZEALAND EMISSION UNIT REGISTER, <http://www.eur.govt.nz/about-us> (last visited Feb. 20, 2014). Procedures and requirements for the NZEUR are prescribed in the Climate Change (Unit Register) Regulations 2008, <http://legislation.govt.nz/regulation/public/2008/0357/latest/DLM1634227.html>.

²⁹ See Climate Change Response Act 2002 sch 3; *About Obligations*, CLIMATE CHANGE INFORMATION, <https://www.climatechange.govt.nz/emissions-trading-scheme/obligations/index.html> (last updated Apr. 19, 2013). For information on the participation of different sectors in the ETS, see generally *Participating in the New Zealand Emissions Trading Scheme (NZ ETS)*, CLIMATE CHANGE INFORMATION, <https://www.climatechange.govt.nz/emissions-trading-scheme/participating/> (last updated Jan. 14, 2014).

³⁰ *Forestry and the Emissions Trading Scheme*, MINISTRY FOR PRIMARY INDUSTRIES, <http://www.mpi.govt.nz/forestry/forestry-in-the-ets> (last updated Feb. 21, 2014).

³¹ *Agriculture in the Emissions Trading Scheme*, CLIMATE CHANGE INFORMATION, <https://www.climatechange.govt.nz/emissions-trading-scheme/participating/agriculture/> (last updated Apr. 19, 2013); *Horticulture in the Emissions Trading Scheme*, CLIMATE CHANGE INFORMATION, <https://www.climatechange.govt.nz/emissions-trading-scheme/participating/horticulture/> (last updated May 1, 2013).

³² See MINISTRY FOR THE ENVIRONMENT, ETS 2012 AMENDMENTS: SYNTHETIC GREENHOUSE GASES (Nov. 2012), <https://www.climatechange.govt.nz/emissions-trading-scheme/ets-amendments/ets-2012-amendments-ssg.pdf>. The levy is imposed under part 7 of the Climate Change Response Act 2002.

³³ *New Zealand's Greenhouse Gas Inventory 1990–2011 and Net Position: Snapshot April 2013*, MINISTRY FOR THE ENVIRONMENT, <http://www.mfe.govt.nz/publications/climate/greenhouse-gas-inventory-2013-snapshot/> (last updated May 27, 2013).

³⁴ See *Recent Changes to the Regulations for Agriculture in the ETS*, MINISTRY FOR PRIMARY INDUSTRIES, <http://www.mpi.govt.nz/agriculture/agriculture-ets/recent-changes-to-regulations-for-agriculture> (last updated Feb. 7, 2013).

are economically viable and practical technologies available to reduce emissions” and the country’s trading partners “make more progress on tackling their emissions in general.”³⁵

Entities in the following three areas may be allocated free units if they meet the relevant eligibility criteria:³⁶

- Entities involved in certain industrial activities that are emissions intensive and trade exposed can receive free NZUs from the government in order to “protect their competitiveness against producers that do not face equivalent costs for emissions.”³⁷ This is referred to as the “industrial allocation.”
- Fishing quota owners were given a one-off allocation of NZUs “to compensate for the effect of increased fuel costs from the NZ ETS on the value of quota.”³⁸
- Owners of pre-1990 forests can receive NZUs in compensation for the impacts on land values as a result of the ETS. These impacts arise due to the fact that forest owners face ETS obligations if the land use is changed from forestry.³⁹

Owners of post-1989 forests are able to enter the ETS voluntarily and can earn NZUs for increasing the carbon stock of their forests.⁴⁰

As at June 30, 2013, there were 300 mandatory ETS participants in New Zealand and 2,580 voluntary participants, of which 2,449 were owners of post-1989 forests.⁴¹

³⁵ *Agriculture & the Emissions Trading Scheme*, MINISTRY FOR PRIMARY INDUSTRIES, <http://www.mpi.govt.nz/agriculture/agriculture-ets> (last updated June 25, 2013).

³⁶ *See generally, About Allocations*, CLIMATE CHANGE INFORMATION, <https://www.climatechange.govt.nz/emissions-trading-scheme/allocations/> (last updated Nov. 16, 2012).

³⁷ *Id.* Industrial allocation is governed by sections 80 to 86E of the Climate Change Response Act 2002 and in the Climate Change (Eligible Industrial Activities) Regulations 2010, <http://legislation.govt.nz/regulation/public/2010/0189/latest/DLM3075101.html>.

³⁸ *About Allocations, supra* note 36. The fisheries allocation is governed by section 74 of the Climate Change Response Act 2002 and the Climate Change (Fishing Allocation Plan) Order 2010, <http://legislation.govt.nz/regulation/public/2010/0134/latest/DLM3000223.html>.

³⁹ *About Allocations, supra* note 36. The forestry allocation is governed by section 72 of the Climate Change Response Act 2002 and the Climate Change (Pre-1990 Forest Land Allocation Plan) Order 2010, <http://legislation.govt.nz/regulation/public/2010/0190/latest/DLM3074901.html>. In addition to the allocation, forestry offsetting provisions, which allow pre-1990 forest owners to convert their land to other users without incurring deforestation liabilities if they plant an equivalent new forest elsewhere, were included in the 2012 amendments to the Climate Change Response Act 2002. *See Legislative Changes to the New Zealand Emissions Trading Scheme (NZ ETS), supra* note 5. “Pre-1990 forests” are areas that were forested as of December 31, 1989, and remained forested on December 31, 2007.

⁴⁰ *Voluntary Participation for Forestry: Earning NZUs*, CLIMATE CHANGE INFORMATION, <https://www.climatechange.govt.nz/emissions-trading-scheme/participating/forestry/voluntary-participation.html> (last updated Aug. 2, 2012). “Post-1989 forests” are forests established on land that was not forest land as of December 31, 1989, or was forest land at that date but was deforested between January 1, 1990, and December 31, 2007.

⁴¹ ENVIRONMENTAL PROTECTION AUTHORITY, CLIMATE CHANGE RESPONSE ACT 2002: 2012 REPORT at 5–7 (2013), http://www.epa.govt.nz/Publications/2012-13_Section_89_Report.pdf.

C. Transitional Measures

Transitional measures aimed at easing the economic burden on ETS participants were added to the Climate Change Response Act 2002 through the 2009 amendments and were originally scheduled to operate until December 31, 2012.⁴² However, this end date was removed through the 2012 amendments.⁴³ As a result, the transitional measures currently do not have an expiry date. The government has indicated that the next review of the ETS will take place in 2015, after which decisions will be made regarding the transitional measures and other aspects of the ETS.⁴⁴ Further amending legislation will be needed to end the transitional measures, as well as to apply ETS surrender obligations on the agricultural sector.

As indicated above, under the measures, participants have the option of meeting their ETS obligations by paying the government NZ\$25 per NZU (also referred to as the “fixed-price option”).⁴⁵ In addition, throughout the transitional phase, there is a “one-for-two” (or 50%) emission unit surrender obligation for non-forestry sectors.⁴⁶ The 2012 amendments also suspended the planned phasing out of the allocation of free NZUs to emissions-intensive, trade-exposed industrial activities until the other transitional measures end.⁴⁷

D. International Linking

When it was established, the New Zealand ETS was designed to operate within a broader global emissions market, with emission units generated overseas in line with Kyoto Protocol rules able to be held in the NZEUR and some of these units used meet the surrender obligations of ETS participants.⁴⁸ For the 2012 calendar year, 95% of surrendered units under the ETS were international units. The majority of the units used were Emission Reduction Units (ERUs),

⁴² See Climate Change Response (Moderated Emissions Trading) Amendment Bill: Explanatory Note, <http://legislation.govt.nz/bill/government/2009/0085/latest/DLM2381601.html>.

⁴³ See Climate Change Response (Emissions Trading and Other Matters) Amendment Bill: Explanatory Note, <http://legislation.govt.nz/bill/government/2012/0052/9.0/DLM4676512.html>.

⁴⁴ See *2012 Amendments to the New Zealand Emissions Trading Scheme (NZ ETS): Questions and Answers*, CLIMATE CHANGE INFORMATION, <http://www.climatechange.govt.nz/emissions-trading-scheme/ets-amendments/questions-answers.html> (scroll to “Future NZ ETS Reviews”) (last updated Nov. 16, 2012). Independent reviews of the operation of the ETS may be initiated under section 160 of the Climate Change Response Act 2002.

⁴⁵ Climate Change Response Act 2002 ss 178A & 178B.

⁴⁶ *Id.* s 63A.

⁴⁷ *Id.* s 85A.

⁴⁸ See NEW ZEALAND EMISSION UNIT REGISTER, GUIDE TO KYOTO UNITS AND RULES (Dec. 2011), <http://www.eur.govt.nz/how-to/guides-hmtl/guide-to-kyoto-units-and-rules>; *Emission Units*, NEW ZEALAND EMISSION UNIT REGISTER, <http://www.eur.govt.nz/about-us/emission-units> (last visited Feb. 21, 2014). The government has prohibited the use of certain units, including units generated through nuclear energy projects and particular international units seen as lacking environmental integrity. See, e.g., *Regulations Banning the Use of Certain International Units in the ETS*, CLIMATE CHANGE INFORMATION, <http://www.climatechange.govt.nz/emissions-trading-scheme/building/regulatory-updates/restricting-cers.html> (last updated Dec. 17, 2012).

which are tradable credits generated by overseas Joint Implementation projects under the Kyoto Protocol.⁴⁹

Following New Zealand's decision not to sign on to the second commitment period of the Kyoto Protocol, and subsequent stalled international negotiations, New Zealand entities will be restricted in their ability to trade certain international Kyoto units beginning in 2015. Participants will be able to continue to use certain Kyoto first commitment period units to cover their emission liabilities until May 2015.⁵⁰ After that time, entities will need to surrender NZUs to meet their obligations. The government stated in December 2013 that it “considers international markets an important component of the Emissions Trading Scheme, and intends to review the level of access to international markets within it when international market conditions are better suited to New Zealand's domestic circumstances.”⁵¹

III. Other Initiatives

In addition to the ETS, New Zealand has undertaken a range of activities aimed at reducing greenhouse gas emissions in different sectors, including the following:⁵²

- Leading the establishment of the Global Research Alliance on Agricultural Greenhouse Gases in 2009. This initiative aims to increase international cooperation, collaboration, and investment in the development of technologies and practices that help to deliver ways to grow more food without increasing emissions.⁵³
- Establishing the New Zealand Agricultural Greenhouse Gas Research Centre in 2010, which focuses on ways to “reduce methane and nitrous oxide emissions from pastoral livestock systems while improving productivity.”⁵⁴

⁴⁹ MINISTRY FOR THE ENVIRONMENT, THE NEW ZEALAND EMISSIONS TRADING SCHEME: ETS 2012 – FACTS AND FIGURES 2, <http://www.climatechange.govt.nz/emissions-trading-scheme/building/reports/ets-report/ets-2012-facts-and-figures.pdf>. See *Joint Implementation (JI)*, UNITED NATIONS FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/mechanisms/joint_implementation/items/1674.php (last visited Feb. 21, 2014).

⁵⁰ See *Surrendering Carbon Units*, *supra* note 17 (click on “What sorts of emission units can be surrendered to comply with the ETS”); Brian Fallow, *Government Confirms 2015 ETS Use-by Date*, THE NEW ZEALAND HERALD (Dec. 6, 2013), http://www.nzherald.co.nz/business/news/article.cfm?c_id=3&objectid=11168312.

⁵¹ Press Release, Hon. Simon Bridges, Decisions on Kyoto Protocol Emissions Units (Dec. 6, 2013), <http://www.beehive.govt.nz/release/decisions-kyoto-protocol-emission-units>.

⁵² Detailed information on the various measures is provided in the SIXTH NATIONAL COMMUNICATION, *supra* note 9, at 60–96. See also *Other Government Policies and Measures*, CLIMATE CHANGE INFORMATION, <http://climatechange.govt.nz/reducing-our-emissions/government-policies.html> (last updated June 6, 2013).

⁵³ FIRST BIENNIAL REPORT, *supra* note 7, at 47. See also *About Us*, GLOBAL RESEARCH ALLIANCE ON AGRICULTURAL GREENHOUSE GASES, <http://www.globalresearchalliance.org/about-us/> (last visited Feb. 24, 2014); Press Release, Hon. David Carter & Hon. Tim Groser, \$45 Million for Global Research Alliance (Dec. 17, 2009), <http://www.beehive.govt.nz/release/45-million-global-research-alliance>.

⁵⁴ FIRST BIENNIAL REPORT, *supra* note 7, at 47. See also *About Us*, NEW ZEALAND AGRICULTURAL GREENHOUSE GAS RESEARCH CENTRE, <http://www.nzagrc.org.nz/who-we-are.html> (last visited Feb. 24, 2014).

- Membership in the Climate and Clean Air Coalition, which “brings together countries committed to taking action on short-lived climate pollutants (such as black carbon and methane).”⁵⁵
- Various energy efficiency initiatives, such as a home insulation program; product labeling; a program to measure, rate, and improve the energy performance of commercial buildings; and reforms related to achieving more sustainable government procurement.⁵⁶ Goals and priorities related to renewable energy and energy efficiency are set out in the New Zealand Energy Strategy 2011–2021 and the New Zealand Energy Efficiency and Conservation Strategy 2011–2016.⁵⁷
- Initiatives in the transport sector, including a road-user charge exemption for electric vehicles, actions to improve fuel efficiency in heavy commercial vehicles, and investment in the development of advanced biofuels.
- Implementing legislation and strategies related to waste minimization, including a levy on all waste going to disposal facilities; landfill standards; and a Waste Minimisation Fund that supports projects that “increase resource efficiency, reuse, recovery and recycling, and decrease waste to landfills.”⁵⁸

⁵⁵ FIRST BIENNIAL REPORT, *supra* note 7, at 47. See also *Objectives of the CCAC*, CLIMATE AND CLEAN AIR COALITION TO REDUCE SHORT-LIVED CLIMATE POLLUTANTS, <http://www.unep.org/ccac/About/Objectives/tabid/130281/language/en-US/Default.aspx> (last visited Feb. 24, 2014).

⁵⁶ FIRST BIENNIAL REPORT, *supra* note 7, at 47.

⁵⁷ *Energy Strategies*, MINISTRY OF BUSINESS, INNOVATION AND EMPLOYMENT, <http://www.med.govt.nz/sectors-industries/energy/strategies> (last updated May 10, 2013).

⁵⁸ SIXTH NATIONAL COMMUNICATION, *supra* note 9, at 93.

South Africa

Hanibal Goitom
Foreign Law Specialist

SUMMARY South Africa currently has no comprehensive legal framework regulating greenhouse gas (GHG) emissions. To fulfill its 2009 commitment at the Copenhagen Climate Change Conference to dramatically reduce its GHG emissions, South Africa is currently developing a carbon-tax regime that, if adopted into law, would be implemented gradually, beginning in January 2015. The country's National Treasury recently issued a policy paper outlining key elements that the proposed carbon-tax regime would incorporate.

It is proposed that the carbon tax would be imposed as a fuel input tax on what are known as "Scope 1 emissions" (which include carbon dioxide, methane, and nitrous oxide) and implemented in several five-year phases. At least for the first phase of implementation, the regime would include percentage-based (relative) tax-free emission thresholds and allowances (including offsets), which would be capped at 90% of emissions. The effective tax rate would be set at the equivalent of US\$11 per metric ton of CO₂eq (carbon dioxide equivalent), which would be increased by 10% every year of the first phase.

To mitigate its effects on low-income households and industry competitiveness, the proposed carbon-tax regime would be made revenue neutral through its revenue recycling features.

I. Introduction

South Africa's greenhouse gas (GHG) emissions are among the highest in the world, and its absolute carbon dioxide emissions rank among the top twenty countries, "with emissions per capita in the region of 10 metric tons per annum."¹ The energy sector, which relies heavily on coal, is the highest emitter and accounts for 48% of the country's total emissions,² followed by the metal-products sector (which also relies heavily on coal) with about 22% of emissions, and the transportation sector (including household use), which generates about 10% of emissions.³ The chemical, rubber, and water-supply sectors are responsible for about 5% of emissions, while all other sectors are responsible for about 15% of total emissions.⁴

¹ DEPARTMENT OF NATIONAL TREASURY, CARBON TAX POLICY PAPER: REDUCING GREENHOUSE GAS EMISSIONS AND FACILITATING THE TRANSITION TO A GREEN ECONOMY (CARBON TAX POLICY PAPER) 19 (May 2013), <http://www.treasury.gov.za/public%20comments/Carbon%20Tax%20Policy%20Paper%202013.pdf>.

² DEPARTMENT OF NATIONAL TREASURY, REDUCING GREENHOUSE GAS EMISSIONS: THE CARBON TAX OPTION 16–17 (Dec. 2010), <http://www.treasury.gov.za/public%20comments/Discussion%20Paper%20Carbon%20Taxes%2081210.pdf>.

³ *Id.*

⁴ *Id.*

To fulfill a commitment it made at the 2009 Copenhagen Climate Change Conference to reduce its GHG emissions by 34% below current levels by 2020 and 42% below current levels by 2025,⁵ South Africa began developing a legal and institutional framework that will help it achieve this goal. In 2010, the country's National Treasury published a carbon tax discussion paper for public comment.⁶ This document discusses carbon taxes and emissions trading schemes, among other things, and makes the case for gradually introducing a carbon-tax system as the best way to reduce GHG emissions.⁷ In 2011, South Africa issued a white paper outlining a national climate change policy framework for making the transition to a low-carbon economy.⁸

In May 2013, the National Treasury issued an update to the 2010 discussion paper entitled *Carbon Tax Policy Paper: Reducing Greenhouse Gas Emissions and Facilitating the Transition to a Green Economy* (CTPP).⁹ The CTPP, which incorporates ideas from various sources, including the 2006 Environmental Fiscal Reform Policy Paper¹⁰ and public comments made on the 2010 discussion paper, outlines key features of the proposed carbon-tax regime.¹¹ It will remain available for public comment before draft legislation on the carbon tax is issued for enactment and implementation at the beginning of 2015.¹²

This report describes the key features of South Africa's proposed carbon-tax regime as outlined in the CTPP.

II. Cap-and-Trade System

According to the CTPP, South Africa does not plan to introduce a cap-and-trade system, or emissions trading system (ETS), in the near future for a number of reasons. The CTPP states that an ETS, while providing certainty in emission-reduction levels, creates uncertainty in carbon prices.¹³ The fact that an ETS, in order to function properly, requires a certain number of players

⁵ *South African Government's Position on Climate Change*, DEPARTMENT OF ENVIRONMENTAL AFFAIRS, REPUBLIC OF SOUTH AFRICA, <http://www.climateaction.org.za/cop17-cmp7/sa-government-position-on-climate-change> (last visited Feb. 18, 2014).

⁶ REDUCING GREENHOUSE GAS EMISSIONS: THE CARBON TAX OPTION, *supra* note 2.

⁷ *Id.* at 58–59; Press Release, Department of National Treasury, Carbon Tax Discussion Paper (Dec. 13, 2010), <http://www.treasury.gov.za/public%20comments/Final%20Press%20Release%20Carbon%20Tax%20Discussion%20Paper.pdf>.

⁸ GOVERNMENT OF THE REPUBLIC OF SOUTH AFRICA, NATIONAL CLIMATE CHANGE RESPONSE WHITE PAPER (Oct. 2011), <http://cer.org.za/wp-content/uploads/2011/10/White-Paper-on-Climate-Change-Response-Oct-2011.pdf>; *see also* CARBON TAX POLICY PAPER, *supra* note 1, at 7.

⁹ CARBON TAX POLICY PAPER, *supra* note 1.

¹⁰ NATIONAL TREASURY, A FRAMEWORK FOR CONSIDERING MARKET-BASED INSTRUMENTS TO SUPPORT ENVIRONMENTAL FISCAL REFORM IN SOUTH AFRICA (Apr. 2006), <http://www.treasury.gov.za/public%20comments/Draft%20Environmental%20Fiscal%20Reform%20Policy%20Paper%206%20April%202006.pdf>.

¹¹ Press Release, Department of National Treasury, Updated Carbon Tax Policy Paper: Request for Public Comment (May 2, 2013), *available at* http://deloitteblog.co.za/files/tax_alerts/29may/carbon_tax_policy_paper.pdf.

¹² *Id.*

¹³ CARBON TAX POLICY PAPER, *supra* note 1, at 9.

and a certain level of trading volume in the market is also seen as making it less feasible than a carbon tax (at least in the short to medium term) given that the energy market in South Africa is made up of small players.¹⁴ In addition, the administrative complexity and cost of an ETS make it less attractive than a carbon tax; an ETS, for example, “requires new systems to administer emissions baselines, allocate emissions rights, and verify and enforce compliance.”¹⁵

Furthermore, South Africa’s status as a non-Annex I country under the Kyoto Protocol (one not bound by mandatory emissions reduction targets) gives it flexibility, at least initially, to experiment with non-ETS programs, specifically a carbon-tax regime.¹⁶

However, South Africa is not completely opposed to an ETS. The CTPP notes that South Africa will continue to examine its practicability for implementation as a complementary system to the carbon-tax regime by 2025 at the latest.¹⁷ Nevertheless, it does not appear that South Africa plans to eventually fully replace the carbon-tax regime with an ETS.¹⁸

III. Carbon Tax

The CTPP notes that the primary objective of the proposed carbon-tax regime¹⁹ will not be to raise revenue, but to lower carbon emissions, which it would seek to achieve through

- changing producer and consumer behavior through changing the prices of goods and services on the basis of their emissions intensity, and encouraging the use of energy efficient alternatives;
- supporting the incorporation of mitigation and adaptation measures in investment decisions; and
- putting in place incentives to innovate low-carbon technology.²⁰

According to the CTPP, the proposed carbon-tax regime would have a number of key features designed to achieve the abovementioned objectives, including the following:

¹⁴ *Id.* at 34.

¹⁵ *Id.*

¹⁶ *Id.* at 9 & 34; MICHAEL KIDD, ENVIRONMENTAL LAW 325 (2nd ed. 2011).

¹⁷ CARBON TAX POLICY PAPER, *supra* note 1, at 34.

¹⁸ *Id.*

¹⁹ South Africa currently imposes what are known as environmental levies, including a 3.5 cent-per-KWH (about US\$0.003) levy on electricity generated from nonrenewable sources, a R4 (about US\$0.37) levy per electric filament lamp, and a levy on carbon dioxide emissions of motor vehicles “calculated on emissions as per test report or proxy based on engine capacity.” *Schedules to the Customs and Excise Act, 1964 (Tariff Book)*, SOUTH AFRICA REVENUE SERVICE (SARS), <http://www.sars.gov.za/Legal/Primary-Legislation/Pages/Schedules-to-the-Customs-and-Excise-Act.aspx> (last visited Feb. 25, 2014). It appears that these taxes will remain in effect even after the proposed carbon-tax regime is implemented. CARBON TAX POLICY PAPER, *supra* note 1, at 70.

²⁰ UNIVERSITY OF CAPE TOWN, ENERGY RESEARCH CENTRE, COMMENTS ON THE CARBON TAX POLICY PAPER ISSUED BY NATIONAL TREASURY IN MAY 2013, at 1 (Sept. 2013), http://www.erc.uct.ac.za/Research/publications/13ERC_Comments_Treasury_Carbon_Tax_Paper.pdf; CARBON TAX POLICY PAPER, *supra* note 1, at 8.

A. Gradual Implementation

The carbon tax would be phased in gradually. The first phase (also known as the introductory phase) is a five-year period starting January 1, 2015, the day the proposed carbon-tax regime takes effect, through December 31, 2019.²¹ The second phase, also a five-year term, would run from 2020 through 2025, and would be followed by additional phases.²²

B. Tax Base

The CTPP notes that imposing a carbon tax as a fuel input tax (to be levied on coal, crude oil, and natural gas inputs) and not as a tax on energy output is the preferred method.²³ This tax base is attractive for its administrative simplicity, despite being less effective in encouraging GHG emissions reduction than alternative methods.²⁴ In fact, imposing a carbon tax as a fuel input tax does not capture all GHG emissions (see Part III(C), below).²⁵

However, the imposition of the carbon tax as a fuel input tax would be accompanied by “complementary measures and incentives,” including tax incentives, to encourage business to reduce emissions not captured by the proposed scheme.²⁶

C. Covered Gases

The CTPP identifies three general sources of GHG emissions:

- Direct GHG emissions from sources owned or controlled by an entity, also known as “Scope 1 emissions.” These typically result from “fuel combustion and gasification as well as from non-energy industrial processes,” and include carbon dioxide, methane, nitrous oxide, perfluorocarbons, hydrofluorocarbons, and sulfur hexafluoride.
- Indirect GHG emissions resulting from “generation of electricity, heating and cooling, or steam generated offsite but purchased by the entity,” known as “Scope 2 emissions.”
- Indirect emissions “from sources not owned or directly controlled by the entity but related to the entity’s activities,” known as “Scope 3 emissions.”²⁷

The carbon-tax regime would directly target Scope 1 emissions, as they account for the great majority of emissions in South Africa. As noted in the Introduction above, South Africa’s economy is heavily dependent on fossil fuels; in 2000, emissions from carbon dioxide accounted

²¹ Press Release, *supra* note 11.

²² *Id.*

²³ UNIVERSITY OF CAPE TOWN, ENERGY RESEARCH CENTRE, *supra* note 20, at 1.

²⁴ CARBON TAX POLICY PAPER, *supra* note 1, at 12.

²⁵ *Id.*

²⁶ *Id.* at 13.

²⁷ *Id.* at 47.

for 76.6% of total emissions in the country, followed by methane and nitrous oxide, which accounted for 17.5% and 5.5% of total emissions, respectively.²⁸

Although other forms of emissions would also be indirectly impacted, the proposed carbon tax would only directly target Scope 1 emissions.²⁹ However, as noted above, South Africa would put in place measures and incentives that are complementary to the proposed carbon-tax regime to encourage reductions in Scope 2 and Scope 3 emissions.

D. Tax Exemptions

The CTPP proposes the application of three types of percentage-based (relative), tax-free emission levels, which it characterizes as “sector threshold and allowances below which no carbon tax will be payable during the first phase of the proposed carbon tax regime.”³⁰ These levels are

- a basic, 60% tax-free threshold applicable to all sectors;
- an additional allowance of up to 10% for certain emissions-intensive and trade-intensive sectors (including iron and steel, cement, and chemicals); and
- an additional 10% allowance for certain sectors (including iron and steel, cement, coal mining, and chemicals) where emissions reductions are limited for technical or structural reasons.³¹

To encourage the reduction of carbon intensity (both direct and indirect emissions), the 60% tax-free threshold could be adjusted by five percentage points (up or down) using “a carbon emissions intensity factor for output compared with an agreed sector benchmark.”³² This in effect would mean that the tax-free threshold would fluctuate from 55% to 65%. The CTPP also proposes a 5–10% tax offset, depending on the sector, to be used by firms to limit their tax liabilities.³³ However, overall tax-free emission levels, including offsets, would be capped at 90% of emissions during the first phase.³⁴ The agriculture and waste sectors would remain completely exempt from the carbon tax in the first phase.³⁵

²⁸ KIDD, *supra* note 16, at 308.

²⁹ CARBON TAX POLICY PAPER, *supra* note 1, at 47.

³⁰ *Id.* at 53.

³¹ *Id.*; Press Release, *supra* note 11.

³² CARBON TAX POLICY PAPER, *supra* note 1, at 54.

³³ *Id.* at 53.

³⁴ *Id.* at 54.

³⁵ *Id.*

The CTPP notes that the tax-exemption levels will be reduced in the second and subsequent phases of the proposed carbon-tax regime, and may be eventually replaced with absolute thresholds.³⁶

E. Tax Rate

The CTPP states that a tax rate of R120 (about US\$11) per metric ton of CO₂eq above the tax-free thresholds and allowances (including offsets) would take effect by January 1, 2015.³⁷ This rate would be increased by 10% each year until the end of the first phase of the carbon-tax regime, by which time a different tax rate would be announced.³⁸

F. Revenue Recycling

The CTPP proposes a number of ways to make the carbon-tax regime revenue neutral, a step that is, among other things, aimed at softening the negative impact of the carbon tax on low-income households and industry competitiveness.³⁹ This step would be implemented through tax incentives, tax shifting, and targeted household assistance (including free basic electricity), among other things.⁴⁰ In addition, the revenue recycling program would include tax rebates for the adoption and use of clean energy technology, including carbon capture and storage technology.⁴¹

The program would also use revenue generated through the carbon tax to boost existing programs that support measures aimed at mitigating and adapting to climate change. These include the Renewable Energy Flagship Program, which, among other things, seeks to expand the deployment of renewable energy technology, and the Transportation Flagship Program, which aims to expand public transportation programs in various urban areas to “promote lower-carbon mobility.”⁴²

³⁶ *Id.*

³⁷ *Id.* at 15.

³⁸ *Id.*

³⁹ NATIONAL CLIMATE CHANGE RESPONSE WHITE PAPER, *supra* note 8, at 40.

⁴⁰ CARBON TAX POLICY PAPER, *supra* note 1, at 65–70; Press Release, *supra* note 11.

⁴¹ CARBON TAX POLICY PAPER, *supra* note 1, at 65.

⁴² *Id.*; Press Release, *supra* note 11.

South Korea

Sayuri Umeda
Senior Foreign Law Specialist

SUMMARY South Korea adopted a “low-carbon, green growth” strategy in 2008. Following this, framework legislation relating to matters such as emissions reduction targets, carbon disclosure, carbon labeling, carbon taxation, and the growth of renewable energy use was enacted in 2010. The legislation also indicated that an emissions trading system was to be established by separate statute. An ETS Act was subsequently passed in 2012, with a system for allocating and trading emission permits set to begin in January 2015. Under this system, eligible emitters will be allocated a set number of emission permits based on their prior emission levels. Businesses will be able to trade permits as well as earn permits through offset activities. The government may take measures to stabilize the permit market in certain circumstances. Failure of an entity to surrender sufficient permits to cover its total liability for the compliance period will result in a penalty equal to three times the market value of the credits, up to a maximum amount.

I. Background

The Republic of Korea (South Korea) was not an Annex I Party to the 1997 Kyoto Protocol.¹ South Korea was considered a developing country under the United Nations Framework Convention on Climate Change (UNFCCC), which was adopted in 1992, but was subsequently admitted to the Organisation for Economic Co-operation and Development (OECD) in 1996, which is usually thought of as a club of the developed countries.² South Korea participates in clean development mechanism (CDM) projects but not in international emissions trading schemes.³ As discussed below, however, it is set to launch its own emissions trading scheme (ETS) in 2015.

The amount of greenhouse gas (GHG) emissions in South Korea has sharply increased due to its energy-intensive industrial structure. The increasing rate of the total amount of greenhouse gas

¹ The Kyoto Protocol is an international agreement linked to the United Nations Framework Convention on Climate Change, which commits its Parties by setting internationally binding emissions reduction targets. The Kyoto Protocol was adopted in Kyoto, Japan, on December 11, 1997, and entered into force on February 16, 2005. *Kyoto Protocol*, UNFCCC, https://unfccc.int/kyoto_protocol/items/2830.php (last visited Mar. 25, 2014). Annex I Parties include the industrialized countries that were members of the OECD (Organisation for Economic Co-operation and Development) in 1992, plus countries with economies in transition (the EIT Parties), including the Russian Federation, the Baltic states, and several Central and Eastern European states. *Parties & Observers*, UNFCCC, https://unfccc.int/parties_and_observers/items/2704.php (last visited Mar. 25, 2014).

² Julian L. Wong & Dan Sanchez, *South Korea, a ‘Developing’ Country, Embraces 2020 Emissions Cap, with Important Implications for a Global Deal in Copenhagen*, CLIMATE PROGRESS (Aug. 4, 2009), <http://thinkprogress.org/climate/2009/08/04/204456/south-korea-a-developing-country-embraces-2020-emissions-cap-with-important-implications-for-a-global-deal-in-copenhagen/#>.

³ *Emission Trading Scheme*, KEMCO, http://www.kemco.or.kr/new_eng/pg02/pg02020400.asp (last visited Mar. 26, 2014).

emissions between 1990 and 2007 was 113%, which was the highest rate among the OECD countries. The government, recognizing international pressure to reduce GHG emissions, has made efforts to reduce GHG emissions.⁴

As explained in a report by the United Nations Environment Programme (UNEP), the government adopted a “low-carbon, green growth” strategy in August 2008 as a new vision to guide the nation’s long-term development. The new vision is based on a long-term strategy of green growth up to 2050, which is to be implemented through five-year plans for green growth. The first five-year plan was released in July 2009.⁵

South Korea promulgated the Framework Act on Low Carbon Green Growth in January 2010.⁶ The Act provides the framework for mid- and long-term emissions reduction targets, carbon disclosure, carbon labeling, carbon taxation, and the growth of renewable energy use. In addition, the Framework Act states that the government must establish and enforce financial measures to establish “a carbon market (referring to a market in which rights to emit greenhouse gases or results of performance of reducing or absorbing greenhouse gases are traded; the same shall apply hereinafter) and stimulation of transactions therein.”⁷ Article 46 of the Framework Act further states as follows:

- (1) The Government may operate a system for trading emissions of greenhouse gases by utilizing market functions in order to accomplish the State’s target of reduction of greenhouse gases.
- (2) The system under paragraph (1) shall include a system for setting a cap on emission of greenhouse gases and for trading emissions and other internationally recognized trading system.⁸

The Framework Act states that the details of the system are to be provided by another Act.⁹ South Korea enacted such an act, the Act on the Allocation and Trading of Greenhouse-Gas Emission Permits (ETS Act), in May 2012 (effective November 2012) to implement a cap-and-

⁴ *Establishment of Reduction Goal of Greenhouse Gases in Each Sector*, MOE, <http://eng.me.go.kr/eng/web/index.do?menuId=108&findDepth=1> (last visited Mar. 25, 2014).

⁵ UNEP, OVERVIEW OF THE REPUBLIC OF KOREA’S NATIONAL STRATEGY FOR GREEN GROWTH 14 (Apr. 2010), http://www.unep.org/PDF/PressReleases/201004_unep_national_strategy.pdf.

⁶ Framework Act on Low Carbon Green Growth, Act No. 9931, Jan. 13, 2010, *amended by* Act No. 10599, Apr. 14, 2011, available in English translation through the Korea Legislation Research Institute (KLRI) website, http://elaw.klri.re.kr/eng_service/main.do (free registration required).

⁷ *Id.* art. 28, item 5.

⁸ *Id.* art. 46 (KLRI translation).

⁹ *Id.* art 46, para. 4.

trade system.¹⁰ The ETS Act was followed by passage of a draft Presidential Decree in July 2012 that reportedly sets forth the detailed rules governing the scheme.¹¹

The South Korean government pledged to reduce GHG emissions by 30% from forecast levels by 2020 in July 2011. In January 2014 the government confirmed the target in its *National Greenhouse Gas Emissions Reduction Roadmap 2020*.¹² Introduction of emissions trading is one of the measures identified to achieve the target.¹³

II. Verified Emissions Reduction Program (K-VER)

The South Korean government launched a project-based voluntary reduction registration mechanism, the Voluntary Emission Reduction Program (K-VER), operated by its Energy Management Corporation (KEMCO) and Ministry of Knowledge and Economy (MKE), in October 2005. Small- and medium-sized companies that do not have reduction obligations can participate in the program. The expected reduction amount must be more than 100 metric tons of CO₂ emissions per year. Reductions can be achieved through GHG reduction projects involving improved energy efficiency, renewable energy projects, and other GHG emission-reduction measures approved by the government.¹⁴ Participants submit GHG reduction reports to one of the designated verification bodies. After verification, these reports are accredited by an accreditation committee and registered with the GHG Reduction Registry Center of KEMCO.¹⁵ The government purchases KCERs (1 KCER = 1 metric ton of CO₂ reduction) from certified projects to promote participation of companies. The purchase price was about US\$11 per metric ton of CO₂ in 2012. After purchasing the KCERs, the ownership of the project credits is transferred to the government.¹⁶

¹⁰ Act on the Allocation and Trading of Greenhouse-Gas Emission Permits (ETS Act), Act No. 11419, May 14, 2012, art. 1 (purpose) & Addenda art. 1 (effective date), <http://www.law.go.kr/lsInfoP.do?lsiSeq=125344#0000> (in Korean), available in English translation through KLRI, http://elaw.klri.re.kr/eng_service/main.do (free sign-up required).

¹¹ See *Legal Alert: Korea's Emission Trading Scheme Receives Cabinet Approval*, BAKER & MCKENZIE (Nov. 26, 2012), <http://bakerxchange.com/rv/ff000c93476c98a4f4e26731fb45a94f3e29f762>. An English translation of the Decree has not been located.

¹² Press Release, Ministry of Environment (ME), National Greenhouse Gas Emissions Reduction Roadmap 2020 (Jan. 28, 2014), <http://eng.me.go.kr/eng/web/board/read.do?menuId=21&boardMasterId=522&boardId=339283>.

¹³ *Id.*

¹⁴ *Korea Voluntary Emission Reduction Program (KVER)*, KOREA ENERGY MANAGEMENT CORPORATION (KEMCO), http://www.kemco.or.kr/new_eng/pg02/pg02020201.asp (last visited Mar. 25, 2014).

¹⁵ KEMCO, PROJECT-BASED GHG REDUCTION PROGRAM IN SOUTH KOREA 8 (Mar. 2010), http://siteresources.worldbank.org/INTCARBONFINANCE/Resources/Korea_project-based_GHG_reduction_program_kemco_V2.pdf.

¹⁶ *Korea Voluntary Emission Reduction Program*, KEMCO, *supra* note 14.

III. Cap and Trade from 2015

Based on the ETS Act, an emissions trading scheme in South Korea is scheduled to begin on January 1, 2015.¹⁷ The government has selected the Korea Exchange (KRX) as the sole operator of the emission-trading system.¹⁸

Pursuant to the ETS Act, a business entity that produces an average total amount of GHG emissions during the preceding three years of more than 125,000 metric tons of comparable CO₂ equivalents (CO₂eq), or a business entity with a place of business that has produced 25,000 tons of comparable CO₂ equivalents (CO₂eq) during the preceding three years, will be eligible to receive an allocation of emission permits.¹⁹ According to news sources, the Ministry of Environment (ME) expects the number of eligible businesses to be around 500 in 2014.²⁰ The Act provides that other entities can also apply for designation as a business entity eligible for allocation.²¹ A business entity eligible for allocation must submit an application for allocation of emission permits that includes the following information, among other things:

- The total number of emission permits applied for during the commitment period and each compliance year
- A plan to expand or alter facilities during the commitment period
- A plan to consume fuel and raw materials during the commitment period
- A plan to introduce facilities and technologies for reducing greenhouse gases during the commitment period
- An estimate of increase or decrease in greenhouse gases upon implementation of these plans²²

The Ministry of Environment (ME) will allocate all emission permits for a commitment period and emission permits for each compliance year to each business entity eligible for allocation.²³ Each company's cap will be set by August 2014,²⁴ and the first commitment period will run from January 1, 2015, to December 31, 2017.²⁵

¹⁷ ETS Act, Addenda art. 2. A Presidential Decree sets forth applicable rules governing the scheme. See BAKER & MCKENZIE, *supra* note 11.

¹⁸ *Id.* art. 22; see also, Kim Rahn, *Emissions Trading Market to Open*, KOREA TIMES (Jan. 15, 2014), http://www.koreatimes.co.kr/www/news/biz/2014/01/488_149830.html.

¹⁹ *Id.* art. 8, para. 1.

²⁰ Rahn, *supra* note 18.

²¹ ETS Act art. 8, para. 1.

²² *Id.* art. 13, para. 1.

²³ *Id.* art. 12, para. 2.

²⁴ Rahn, *supra* note 18.

²⁵ ETS Act, Addenda art. 2, para. 1. The Act defines “commitment period” as the “period set to allocate emission permits to business entities producing [GHGs] and to manage their outcome of compliance every five years in order to achieve national [GHG] reduction targets[.]” *Id.* art. 2, para. 4.

Emission permits may be allocated to a business entity eligible for allocation under criteria established by Presidential Decree, considering a range of factors set forth in the ETS Act.²⁶ Notwithstanding allocation ratios referenced in the Act, however,

all emission permits may be allocated gratuitously to a business entity eligible for allocation, if its international trade intensity is higher than the standard prescribed by Presidential Decree or if it engages in a type of business for which the production cost increased [sic] by reducing greenhouse gases is not less than the standard prescribed by Presidential Decree.²⁷

The ME will maintain a register for the trading of emission permits “to register and manage the allocation and trading of emission permits, [GHG] emissions from each business entity eligible for allocation, etc.”²⁸ The emission permits register must be managed in electronic format to be linked to the Integrated Information System for Greenhouse Gases specified in the Framework Act.²⁹

Emission permits may be sold, bought, or otherwise traded by unit of GHGs converted into metric tons of comparable CO₂ equivalents (CO₂eq).³⁰ A person who intends to trade emission permits must register his/her account for trading emission permits in the emission permits register.³¹ A person who trades emission permits must report to the competent authority on transactions; the competent authority then registers the details in the emission permits register without delay. The transfer of emission permits takes effect as of the time of registration.³²

If any of the following events occur or are highly likely to occur, the ME, upon consultation with the permit allocation committee, may take measures to stabilize markets:

1. If the price of emission permits exceeds, for six consecutive months, the average price during the immediately preceding two years at a rate prescribed by Presidential Decree;
2. If trading volume substantially increases in a short period due to a cause or event prescribed by Presidential Decree, such as a rapid increase in demand for emission permits;
3. If it is deemed necessary to take market-stabilizing measures due to any other cause or event prescribed by Presidential Decree in order to maintain order in markets for trading emission permits or protect the public interests.³³

²⁶ *Id.* art. 12, paras. 1–3.

²⁷ *Id.* art. 12, para. 4.

²⁸ *Id.* art. 11.

²⁹ *Id.* art. 11, para. 4 (citing Framework Act art. 45).

³⁰ *Id.* art. 19.

³¹ *Id.* art. 20.

³² *Id.* art. 21.

³³ *Id.* art. 23, para. 1.

To achieve such stabilization, the ME may allocate additional emission permits of not more than 25% of the total number of permits held in reserve, set a minimum or maximum amount of holdings of emission permits in the manner prescribed by Presidential Decree, or “apply[] any other method prescribed by Presidential Decree as an internationally acceptable method.”³⁴

A business entity eligible for allocation must prepare and submit a report to the ME on the amount of GHG emissions it actually produced during the compliance year in a measurable, reportable, and verifiable manner within three months from the end of the compliance year.³⁵ The ME must then evaluate the validity of the details in the report and certify the actual amount of GHGs produced by the business entity.³⁶ After the ME certifies the emission amount, it must promptly notify the business entity and register the details in the emission permits register within five months from the end of the compliance year.³⁷

A business entity that received emission permits must surrender permits equivalent to the certified amount of GHGs within six months from the end of each compliance year.³⁸ A business entity that received emission permits can carry any remaining permits over to the following compliance year, or borrow those allocated for any other compliance year in the same commitment period, with approval from the ME, if it needs to use them in order to surrender emission permits.³⁹ Unused emission permits and those not carried over in the compliance year become invalid after six months from the end of the compliance year.⁴⁰

A business entity can request that the ME convert its GHG reductions generated from an external project in compliance with international standards into emission permits.⁴¹ The ME maintains an offset register to record such activities.⁴²

Companies that exceed emissions limits will pay a penalty equal to three times the market value of the credits, but the penalty is limited to a maximum of 100,000 won (about US\$88.50) per metric ton of emissions.⁴³

The exact allocation details for the first and future trading periods will be decided on by an Emissions Permit Allocation Committee within the Ministry of Strategy and Finance, which will

³⁴ *Id.* art. 23, para. 2.

³⁵ *Id.* art. 24, para. 1.

³⁶ *Id.* art. 25, para. 1.

³⁷ *Id.* art. 25, para. 3.

³⁸ *Id.* art. 27, para. 1.

³⁹ *Id.* art. 28, paras. 1–2.

⁴⁰ *Id.* art. 32.

⁴¹ *Id.* art. 29, para. 1.

⁴² *Id.* art. 31.

⁴³ *Id.* art. 34.

develop a National Allowances Allocation Plan. The Committee will be chaired by the Minister of Strategy and Finance.⁴⁴

⁴⁴ *Id.* arts. 6, 7; *see also* INTERNATIONAL EMISSIONS TRADING ASSOCIATION, B-PMR MISSION KOREA 3 (Conference Report, Sept. 2013), http://www.ieta.org/assets/BPMR/SouthKorea/korea%20bpmr_summary_en.pdf.

Sweden

Elin Hofverberg

Foreign Law Research Consultant

Under the supervision of Edith Palmer

Chief, Foreign, Comparative and International Law Division II

SUMMARY Swedish carbon emissions legislation is based on EU directives. In addition to implemented EU directives, Sweden has a number of other regulations that are meant to stem carbon dioxide emissions. Sweden allows for, and is itself a great proponent of, reduction units to offset emissions. Despite publicly speaking out in favor of limiting emissions Sweden has redistributed certificates that were kept as reserves instead of letting them expire.

I. Introduction

Sweden is a member of the European Union (EU) and as such is subject to the EU Directives on Emissions.¹ Sweden's cap-and-trade rules are heavily influenced and governed by EU law but it also has other legislation and regulations meant to deal with the environmental effects of industry, transportation, etc.² Sweden uses the EU's emissions trading system (EU ETS). Swedes take global warming seriously, and a recent poll shows that the environmentally friendly Green Party is currently the country's third largest political party.³ Also, there is a growing demand from individuals for the purchase of emissions rights as Christmas presents to reduce the emissions rights available on the market or to offset their own use during holiday travel.⁴

II. Cap-and-Trade Scheme

A. Relevant Legislation and Regulation

Sweden implemented EU Directive 2003/87/EG of October 13, 2003, and Kyoto Protocol undertakings through its Emissions Trading Act.⁵ The Act regulates emissions from greenhouse

¹ Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 Establishing a Scheme for Greenhouse Gas Emission Allowance Trading. See EU survey, *supra*.

² See Part III, Other Measures for Energy Efficiency and/or Use of Renewable Resources, below.

³ *SKOP's väljarbarometer [SKOP's Voter Poll]*, SKOP (Jan. 14, 2014), <http://www.skop.se/main/wp-content/uploads/2014/01/SKOPs-v%C3%A4ljarbarometer-15-januari-2014.pdf>.

⁴ *Kan jag köpa utsläppsrätter? [Can I Buy Emission Rights]*, SVENSKA DAGBLADET (May 1, 2008), http://www.svd.se/resor/reseexperter/kan-jag-kopa-utslappsratter_1196179.svd; *Köp utsläppsrätter*, NATURSKYDDSFÖRENINGEN, <http://www.naturskyddsforeningen.se/vad-du-kan-gora/butiken/kop-utslappsratter> (last visited Mar.14, 2014).

⁵ LAG OM HANDEL MED UTSLÄPPSRÄTTER [EMISSIONS TRADING ACT] (Svensk författningssamling [SFS] 2004:1199), <http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/Lag-20041199-om-handel-med-sfs-2004-1199/?bet=2004:1199>.

gases—i.e., releases into the atmosphere of carbon dioxide (CO₂), nitrous oxide, perfluorocarbons, or CO₂ equivalents that have the same effect on the climate as the emission of one metric ton of CO₂.⁶

Sweden has no additional trade in emissions rights that go beyond the EU Directive but requires permits for other types of activities that are considered environmentally hazardous.⁷

The emissions rights traded are equal to the right to emit 1000 kg of CO₂ or CO₂ equivalents.⁸ One emissions permit on the free market cost approximately SEK 60 (approximately US\$10) in 2013.⁹ The low price has attracted criticism from local environmental experts, who argue that the emissions permits need to triple in cost to effectively deter emissions.¹⁰ The current regime has also been criticized for inefficiently distributing costs as it raises energy prices for homeowners while big industry is enjoying a surplus of emissions rights and high profits.¹¹

B. Regulatory Authorities

The supervisory agencies are Energimyndigheten (the Swedish Energy Agency), Naturvårdsverket (the National Environmental Protection Agency), and Länsstyrelserna (the County Administrative Boards). Energimyndigheten is responsible for record keeping in connection with emissions rights.¹² Naturvårdsverket is responsible for reviewing annual

⁶ 2 b § EMISSIONS TRADING ACT (legislative history at Proposition [Prop.] 2004/2005:18 handel med utsläppsrätter II, <http://www.regeringen.se/content/1/c6/03/06/80/540db4a5.pdf>).

⁷ See, e.g., 5 § FÖRORDNING OM MILJÖFARLIG VERKSAMHET OCH HÄLSOSKYDD [INSTRUCTION ON ENVIRONMENTALLY HAZARDOUS ACTIVITY AND HEALTH PROTECTION] (SFS 1998:899), http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/Forordning-1998899-om-miljo_sfs-1998-899/?bet=1998:899.

⁸ Ch. 3:5 EMISSIONS TRADING ACT; see also *Korta fakta om utsläppshandel*, UTSLÄPPSHANDEL, <http://www.utslappshandel.se/sv/Utslappshandel/topmeny/om-utslappshandel/> (last visited Mar. 14, 2014).

⁹ *Expert: Priset på utsläppsrätter måste tredubblas*, VECKANS AFFÄRER (Jan. 14, 2013), <http://www.va.se/va-hallbarhet/experten-laga-utslappspriser-motverkar-miljoinvesteringar-471098>; *Gratis utsläppsrätter till svenska bolag*, SVENSKA DAGBLADET (Jan. 14, 2013, updated Feb. 7, 2014), http://www.svd.se/naringsliv/nyheter/sverige/gratis-utslappspratter-till-svenska-bolag_7821208.svd; *Rekordlåg pris på rätt till utsläpp av växthusgas*, SVENSKA DAGBLADET (Jan. 25, 2015, updated Feb. 24, 2014), http://www.svd.se/naringsliv/nyheter/sverige/rekordlagt-pris-pa-ratt-till-utslapp-av-vaxthusgas_7859388.svd.

¹⁰ Victor Bodelius, *Expert: Priset på utsläppsrätter måste tredubblas*, VECKANS AFFÄRER (Jan. 14, 2013), <http://www.va.se/va-hallbarhet/experten-laga-utslappspriser-motverkar-miljoinvesteringar-471098>.

¹¹ *Utsläppsrätter driver upp villaägares elpris*, SVENSKA DAGBLADET (Jan. 21, 2013, updated Feb. 14, 2014), http://www.svd.se/naringsliv/branscher/energi-och-ravaror/utslappspratter-driver-upp-villaagares-elpris_7835944.svd.

¹² 2B § FÖRORDNING OM HANDEL MED UTSLÄPPSRÄTTER [INSTRUCTION ON EMISSION RIGHTS TRADING] (SFS 2004:1205), http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svenskforfattningssamling/Forordning-20041205-om-hand_sfs-2004-1205/?bet=2004:1205.

emissions reports.¹³ It is also responsible for regulating how emitters may use the reduction units in accordance with the Kyoto Protocol.¹⁴ Länsstyrelserna is the licensing authority.¹⁵

C. Regulated Installations

As per EU regulations, Swedish law divides regulated installations into two categories: stationary units and air-carrier activity. In accordance with Emissions Trading Act chapter 1, section 2(1) a stationary unit is a plant where there are one or more activities that result in emissions requiring a permit in accordance with the Act, including all directly related activity, which is technologically tied to the activities that are conducted and that can affect emissions and pollution. These are further defined in sections 10–17 of the accompanying government instruction and include plants in the mineral industry; plants for production and processing of iron metals; plants for the production of paper, cardboard, and paper pulp; combustion plants; coking plants; and mineral oil refineries.¹⁶

Air-carrier activities that are subject to the cap-and-trade regime include flights that leave or enter an airport within the territory of the EU or the European Economic Area (EEA), and are subject to reporting requirements under the Emissions Trading Act.¹⁷

D. Exemptions

1. Exempted Plants

A plant, or part of a plant, that is used only for research and development, or trials of new products or processes, are exempted from the emissions trading rules, as are plants where biomass is used exclusively during combustion or where only biomass is used during combustion at the beginning and end of the process. However, a permit is required for greenhouse gases where biomass is used, if the plant is connected to a district heating network of more than twenty megawatts.¹⁸

Moreover, the cap-and-trade regulation does not apply to plants that exclusively handle dangerous waste or household waste, as this type of activity is regulated separately, requiring special permits that are not tradable as emissions permits.¹⁹ However, it does apply to so-called multipurpose facilities that burn a variety of waste.²⁰

¹³ *Id.* 2a §.

¹⁴ *Vägledning om utsläppshandel*, NATURVÅRDSVERKET (Feb. 27, 2014), <http://www.naturvardsverket.se/Stod-i-miljoarbetet/Vagledning/Utslappshandel---vagledning/>.

¹⁵ 2 § INSTRUCTION ON EMISSION RIGHTS TRADING, *supra* note 12.

¹⁶ *Id.* §§ 10–17.

¹⁷ 2 § EMISSIONS TRADING ACT.

¹⁸ 17 § st 3 INSTRUCTION ON EMISSIONS RIGHTS TRADING.

¹⁹ *Id.* 15 § st 5.

²⁰ *See Id.*, Addendum.

2. Exempted Air Carriers

In Sweden, as in the EU, one of the most controversial issues facing the current cap-and-trade regulation is whether EU should include third-country flights in future emissions trading requirements.²¹ Flight emissions were included as of January 1, 2012, a decision which has been criticized.²² However, third-country flights were exempted.²³

Airline industry distribution of emission rights is made by the government and through a European-wide auction.²⁴ Of the total certificates awarded, a minimum of 15% must be auctioned off.²⁵ Sweden has an agreement with the European Energy Exchange to provide this service.²⁶

E. Emissions Caps

The government issues instructions on when a permit is needed.²⁷ In 2004 it issued the Instruction on Emission Rights Trading.²⁸ Swedish regulatory agencies set Emission Limit Values (ELVs) for each plant or air carrier that needs a permit to emit greenhouse gases.²⁹

In addition to the EU cap-and-trade rules, Sweden developed phased goals for CO₂ emissions by entities that were not covered by the EU regulations.³⁰ The goal was a 40% reduction from 1990 levels by 2020.³¹ This goal was met in December of 2013.

²¹ *EU parlamentet håller med flygbranschen i frågan gällande utsläppsrätter för internationellt flyg* [EU Parliament Agrees with Airline Industry On Issue of Emission Rights for International Airline Flights], SVENSKT FLYG (Dec. 5, 2013), <http://www.svensktflyg.se/sv/2013/12/eu-parlamentet-haller-med-flygbranschen-i-fragan-gallande-utslappsratter-for-internationellt-flyg/>.

²² *Kritik mot handel med utsläppsrätter för flyg* [Criticism of Trade with Emission Rights for the Airline Industry], SVERIGES RADIO (Jan. 1, 2012), <http://sverigesradio.se/sida/artikel.aspx?programid=83&artikel=4885821>.

²³ *Beslut att tillfälligt undanta viss flygverksamhet från EU:s utsläppshandel* [Decision to Temporarily Exempt Certain Airline Activity from EU's Cap and Trade], NATURVÅRDSVERKET (Apr. 26, 2013), <http://www.naturvardsverket.se/Stod-i-miljoarbetet/Vagledning/Utslappshandel---vagledning/Utslappsratter-for-flygsektorn/Beslut-att-tillfalligt-undanta-viss-flygverksamhet-fran-EUs-utslappshandel/>.

²⁴ *Utsläppsrätter för flygsektorn* [Emission Rights for the Airline Industry], NATURVÅRDSVERKET (Feb. 10, 2104), <http://www.naturvardsverket.se/Stod-i-miljoarbetet/Vagledning-amnesvis/Utslappshandel---vagledning/Utslappsratter-for-flygsektorn/>.

²⁵ *Id.*

²⁶ *Id.*

²⁷ Ch. 1:3. § EMISSIONS TRADING ACT.

²⁸ INSTRUCTION ON EMISSION RIGHTS TRADING, *supra* note 12.

²⁹ *Permits and Conditions Under Swedish Legislation*, SWEDISH EPA (Feb. 3, 2014), <http://www.swedishepa.se/Legislation/Guidance/Environmentally-hazardous-activities/Permits-and-conditions-under-Swedish-legislation/>.

³⁰ *Etappmålen*, NATURVÅRDSVERKET (Mar. 3, 2014), <http://www.naturvardsverket.se/Miljoarbete-i-samhallet/Sveriges-miljomal/Etappmal/>.

³¹ *Id.*

F. Allocation of Certificates

1. Ordinary Allocation

Initial allocation of cap-and-trade certificates is made by the government.³² The allocation is subject to the European Commission's review, which approves or rejects the government's allocation and determines whether or not a certain plant or activity is covered by the EU Directive.³³ If the EU Commission finds that the activity is not covered by the EU Directive the corporation will not receive any of the certificates that are distributed for free, but may purchase them in the marketplace.³⁴ All certificates that the government initially distributes are free of charge.³⁵ After 2013 a larger part of the certificates pool has been distributed through an auction³⁶ and electricity producers do not receive any emissions rights but must bid for such rights through the EU auctions.³⁷ In an attempt to stem the formation of oligopolies the government also holds on to a pool of emissions certificates for future use by start-up companies, or so-called new entrant companies.³⁸

Each type of business has its own distribution model. Naturvårdsverket determines the distribution for the stationary industries, which are heavily determined by EU regulation.³⁹ Allocation is based on the information provided in the application and a verified control of that information.⁴⁰ Emission rights are distributed from the Svenskt Utsläppsrättssystem (Swedish System for Emission Rights, SUS) accounts to the transactional accounts of the distributors on February 28 of each year.⁴¹

³² Ch. 3:2 § EMISSIONS TRADING ACT.

³³ *Id.* Ch. 3:3 §.

³⁴ *Id.* Ch. 3:3 st 2; 20a § INSTRUCTION ON EMISSION RIGHTS TRADING, *supra* note 12.

³⁵ *Ett år i utsläppsrättssystemet*, ENERGIMYNDIGHETEN (Jan. 22, 2008), <http://www.energimyndigheten.se/Foretag/Utslappshandel/Ett-ar-i-utslappsrattssystemet/>.

³⁶ *Utslappshandel och klimatet [Emissions and the Climate]*, ENERGIMYNDIGHETEN (May 13, 2009), <http://www.energimyndigheten.se/Foretag/Utslappshandel/Om-utslappshandel-/Utslappshandel-och-klimatet/>.

³⁷ *Utsläppsrätter för anläggningar [Emissions for Plants]*, NATURVÅRDSVERKET (Feb. 18, 2014), <http://www.utslappshandel.se/Stod-i-miljoarbetet/Vagledning-amnesvis/Utslappshandel---vagledningar/Utslappsratter-for-anlaggningar/>.

³⁸ *Id.*

³⁹ For Naturvårdsverket's regulation of stationary plants, see *Regler för tilldelning av utsläppsrätter för perioden 2013–2020 [Rules for Allocation of Emission Rights for the Period 2013–2020]*, <http://www.utslappshandel.se/upload/stod-i-miljoarbetet/vagledning/utslappsratter/Tilldelning-stationara.pdf>; for more on stationary plant emissions, see *Stationär anläggning*, UTSLÄPPSHANDEL, <http://www.utslappshandel.se/sv/Utslappshandel/topmeny/Stationar-anlaggning/> (last visited Mar. 24, 2014).

⁴⁰ 20 § INSTRUCTION ON EMISSION RIGHTS TRADING, *supra* note 12.

⁴¹ See ENERGIMYNDIGHETEN, *supra* note 35.

2. Special Allocation

In addition to the annual permits handout, the Swedish government allows for additional distribution of certificates to an emitter in certain cases. To receive additional certificates without an approved verification there must have been “exceptional and unforeseen circumstances that were outside the control of [the emitter] and which could not have been avoided even if [the emitter] had exercised due diligence.”⁴² So far this special allocation has not been used.

The Swedish government also retains a number of certificates for start-ups.⁴³ In 2012 the Swedish government instructed the supervisory agencies to release these unused new entrants’ emissions rights to the market, a decision that has been criticized by the political opposition.⁴⁴

G. Trading Regulation

Trading is supervised by Finansinspektionen (the Financial Supervisory Authority)⁴⁵ and Riksgäldskontoret (Swedish National Debt Office) is responsible for the auction of emissions rights.⁴⁶ Failure to acquire the needed permit before emitting (regardless of intent), or not setting up an approved oversight and reporting plan, is punishable with a fine or imprisonment for up to one year.⁴⁷ These punishments are contingent on there being no other penalties for the action ascribed under the Swedish Penal Code.⁴⁸

Each company must provide annual emissions reports by March 31 for emissions of CO₂ for the previous year.⁴⁹ March 31 is also the last day for an accredited controller to approve the corporate information using SUS.⁵⁰ On April 1 the accounts for outgoing transactions are frozen for the corporations that have not issued the verified emissions reports. No later than on April 30 emitters must relinquish emissions rights equal to the prior year’s emissions.⁵¹

⁴² 20 § st 3 INSTRUCTION ON EMISSION RIGHTS TRADING, *supra* note 12 (translation by author).

⁴³ *Id.* 2d §.

⁴⁴ *Lena Ek om EU:s handel med utsläppsrätter: Marknadslösningar kan minska utsläppen* [Lena Ek on EU’s Cap and Trade: Market Solutions May Reduce Emissions], REGERINGSKANSLIET (Jan. 23, 2014), <http://www.regeringen.se/sb/d/18427/a/232465>; *Jens Holm, Interpellationsdebatt* [Interpellation Debate]: Överskott av utsläppsrätter [Surplus of Emission Rights], SVERIGES RIKSDAG (Jan. 14, 2014), <http://www.riksdagen.se/sv/Debatter--beslut/Interpellationsdebatter1/Debatt/?did=H110206&doctype=ip>.

⁴⁵ 2C § INSTRUCTION ON EMISSION RIGHTS TRADING, *supra* note 12.

⁴⁶ *Id.*

⁴⁷ Ch. 8:1 § EMISSIONS TRADING ACT.

⁴⁸ *Id.* Ch. 8:2 §.

⁴⁹ *Id.* Ch. 5:1 §.

⁵⁰ ENERGI MYNDIGHETEN, *supra* note 35.

⁵¹ Ch. 6:1 EMISSIONS TRADING ACT.

On May 15 an inventory report table is presented, which shows the reported emissions from each individual corporation. On June 30 the state annuls the emissions rights. Relinquished emissions rights are retracted from the cap-and-trade marketplace.⁵²

H. EU Marketplace Register

All finalized trade in emissions is registered at the European marketplace's register, Unionsregistret,⁵³ as required under the EU ETS. Access to the register is restricted and requires issuance of a login by the state authority. The actual trade or exchange is not conducted on the site but takes place privately between the purchaser and seller. The transaction is merely registered at Unionsregistret.

Trade is not limited to industry participants; a number of environmental groups purchase emissions rights to have them expire and thereby reduce the available emissions permits that are available for emission.⁵⁴

I. Reduction Units

In addition to providing emissions rights, corporations may also use reduction units to offset their emissions. For instance, Swedish airlines may compensate as much as 1.5% of all their emissions through the reduction units.⁵⁵ For stationary units the rule of thumb is that emissions equaling up to 11.5% of the emissions allotted for free may be compensated for with reduction units.⁵⁶ A reduction unit is a way to compensate for the emissions either through the Clean Development Mechanism (CDM) or Joint Implementation (JI).⁵⁷ For environmental investments to count as reduction units they must be made in the Least Developed Countries.

J. Sanctions

Sweden has monetary as well as “shame-and-blame” provisions that apply to those who violate emissions requirements. Failure to publish an emissions report on time (by March 31) is subject

⁵² ENERGIMYNDIGHETEN, *supra* note 35.

⁵³ *Unionsregistret*, ENERGIMYNDIGHETEN (Oct. 28, 2013), <https://www.energimyndigheten.se/Foretag/Utslappshandel/Unionsregistret/>.

⁵⁴ *See, e.g., Köp utsläppsrätter*, NATURSKYDDSFÖRENINGEN, <http://www.naturskyddsforeningen.se/vad-du-kan-gora/butiken/kop-utslappsratter> (last visited Mar. 14, 2014); *Utsläppsrätter*, MILJÖBÖRSEN, <http://www.miljoborsen.se/gpage.html> (last visited Mar. 14, 2014).

⁵⁵ *Vägledning om reduktionsenheter*, UTSLÄPPSHANDEL (Feb. 18, 2014), <http://www.utslappshandel.se/Stod-i-miljoarbetet/Vagledning/Utslappshandel---vagledning/Om-redu/>.

⁵⁶ *Id.* A list of allocated reduction units is available at *Bilaga 3 Rätt till användning av reduktionsenheter under perioden 2008–2020*, UTSLÄPPSHANDEL, <http://www.utslappshandel.se/upload/stod-i-miljoarbetet/vagledning/utslappsratter/reduktionsenheter/naturvardsverket-lista-ratt-till-reduktionsenheter-140229.pdf>.

⁵⁷ For more information on Sweden's reduction units and the Kyoto Protocol, see *Sveriges deltagande i Kyotoprotokollets flexibla mekanismer, CDM och JI*, ENERGIMYNDIGHETEN (Apr. 5, 2013), <https://www.energi-myndigheten.se/Internationellt/NY-Internationellt-klimatsamarbete/Information-om-CDM-och-JI/>.

to a fine of SEK 20,000 (approximately US\$3,150).⁵⁸ Failure to relinquish emissions rights on time are sanctioned in accordance with the EU Directive, i.e., at €40 (approximately US\$55) per metric ton during 2005–2007 and €100 (approximately US\$138) per metric ton as of 2008.⁵⁹ Swedish corporations may also be shamed and blamed through the publication of the corporate name by the supervisory authorities if the corporation fails to relinquish a sufficient number of emissions permits.⁶⁰

In 2012 the Swedish Supreme Court asked the European Court for a preliminary ruling on the effects of failing to hand over the emissions rights by April 30 when the corporation possessed the necessary emissions rights. The European Court declared that the Directive provided no room for a proportionality judgment and that the relinquishment of the rights was as important as an actual breach.⁶¹ In light of the EU Court’s decision, the Swedish Supreme Court found that it had no legal basis for going against the preliminary ruling.⁶² As a result the Swedish corporation Billerud had to pay over SEK 20 million (approximately US\$3.14 million) in “overuse penalties” despite not having emitted more CO₂ than it was allotted.⁶³

K. Administrative Court System

Decisions related to the emissions process are appealable to Sweden’s Mark- and miljödomstol (Land and Environmental Court).⁶⁴ The cap-and-trade provisions provide a seventeen-entry long list of decisions that are appealable.⁶⁵ These include the granting of permits, approval for oversight and reporting plans, distribution of emissions rights, revision of allocation decisions, rejection decisions, decisions on rectification, decisions not to open a depository account, decisions not to approve an agent or an additional agent. Decisions not on this list are not appealable.⁶⁶

III. Other Measures for Energy Efficiency and/or Use of Renewable Resources

In addition to the EU emissions trading regulation, Sweden developed phased goals for CO₂ emissions for entities not covered by EU regulations.⁶⁷ The goal was a 40% reduction from 1990

⁵⁸ § 5a EMISSIONS TRADING ACT.

⁵⁹ Directive, *supra* note 1, art. 14.

⁶⁰ Ch. 8:5 EMISSIONS TRADING ACT.

⁶¹ Case C-203/12, Billerud Karlsborg AB, Billerud Skärblacker AB v. Naturvårdsverket, 2013 EUR-Lex CELEX LEXIS 2103/C 376/20, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62012CJ0203:SV:HTML>.

⁶² Högsta Domstolens beslut [Supreme Court Decision] 2014-02-25 Ö461-11, <http://www.hogstodomstolen.se/Domstolar/hogstodomstolen/Avgoranden/2014/2014-02-25%200%20461-11%20Beslut.pdf>.

⁶³ *Id.*

⁶⁴ Ch. 9:1 EMISSIONS TRADING ACT.

⁶⁵ *Id.* Ch. 9:1, 4.

⁶⁶ *Id.* Ch. 9:4.

⁶⁷ *Etappmål*, NATURVÅRDSVERKET, <http://www.naturvardsverket.se/Miljoarbete-i-samhallet/Sveriges-miljomal/Etappmal/> (last updated Mar. 5, 2014).

levels by 2020.⁶⁸ As noted above, this goal was met in December of 2013.⁶⁹ Below are some of the measures that helped Sweden achieve the 2020 goal and additional measures proposed in the wake of this achievement.

A. Renewable Resources Legislation

The Swedish government previously set goals for renewable fuels, and on December 23, 2013, the Minister for Energy announced that Sweden had met the goal it set for 2020.⁷⁰

B. Regulation of CO₂ Emissions from Traffic

Sweden has strong regulation and taxation of CO₂ emissions related to transportation. All cars are subject to a CO₂ emissions tax.⁷¹ In addition, the state collects city tolls for the two largest cities, Stockholm and Gothenburg, to stem individual car travel and in effect limit CO₂ emissions.⁷² Moreover, fuels are subject to a two-part tax, one tied to energy and the other to CO₂.⁷³

C. Energy Efficiency

On February 7, 2014, the Swedish government sent proposed measures for more efficient energy usage (including a mandatory energy usage review for larger companies) to the Lagrådet (the Legislative Committee).⁷⁴ Sweden has also been on the forefront of replacing ordinary light bulbs with LED light bulbs.⁷⁵

⁶⁸ *Id.*

⁶⁹ *Sverige har uppnått sitt och EU:s förnybartmål [Sweden Has Reached Its and EU's Renewable Targets Goal]*, REGERINGSKANSLIET (Dec. 23, 2013), <http://www.regeringen.se/sb/d/18109/a/231264>; *Sveriges andra rapport om utvecklingen av förnybar energi enligt artikel 22 i Direktiv 2009/28/EG [Sweden's Second Report on Development of Renewable Energy in Accordance with Article 22 in Directive 2009/28/EC]*, REGERINGSKANSLIET, <http://www.regeringen.se/sb/d/17076/a/231263>.

⁷⁰ *Sverige har uppnått sitt och EU:s förnybartmål*, REGERINGSKANSLIET, *supra* note 69.

⁷¹ VÄGTRAFIKSKATTELAG (SFS 2006:227), http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svensk_forfattningssamling/Vagtrafikskattelag-2006227_sfs-2006-227/.

⁷² *Trängselskatt i Stockholm*, TRANSPORTSTYRELSEN, <http://www.transportstyrelsen.se/Vag/Trangselskatt/Trangselskatt-i-stockholm/> (last modified Jan. 8, 2014); *Trängselskatt i Göteborg*, TRANSPORTSTYRELSEN, <http://www.transportstyrelsen.se/sv/Vag/Trangselskatt/Trangselskatt-i-goteborg/> (last modified Jan. 8, 2014).

⁷³ Lag om skatt på energi (SFS 1994:1776), http://www.riksdagen.se/sv/Dokument-Lagar/Lagar/Svensk_forfattningssamling/sfs_sfs-1994-1776/.

⁷⁴ *Regeringen föreslår nya åtgärder för effektivare energianvändning*, REGERINGSKANSLIET (Feb. 6, 2014), <http://www.regeringen.se/sb/d/13745/a/233471>.

⁷⁵ *Nya krav på reflektorer och LED lampor samt energimärkning av lamparmaturer*, ENERGIMYNDIGHETEN (Mar. 5, 2014), <http://www.energimyndigheten.se/Press/Pressmeddelanden/Nya-krav-pa-reflektor--och-LED-lampor-samt-energimarkning-av-lamparmaturer/>.

D. Overall CO₂ Emissions

According to a report by the Swedish Environmental Protection Agency, the total CO₂ emissions for 2012 reached a record low, 20% less than in 1990.⁷⁶ Also, the emissions from domestic flights are decreasing, at least if measured per traveler.⁷⁷ During 2010 the Swedish air carrier industry managed to accommodate an increase in domestic travelers while simultaneously reducing the amount of CO₂ emitted compared to previous years, thus becoming more energy efficient.⁷⁸

E. Future Legislation

Having already met its EU targets for 2020,⁷⁹ Sweden favors the proposed EU level of emissions reduction of 40% by 2020, with renewable resources making up 27% of energy consumed by 2030.⁸⁰ Sweden reached both its emissions reduction targets (50%) and its target for renewable resources for transportation (12%) in 2013.⁸¹

⁷⁶ *Rekordlåga utsläpp 2012 [Record Low Emissions 2012]*, NATURVÅRDSVERKET (Oct. 21, 2013), <http://www.naturvardsverket.se/klimat2012>.

⁷⁷ Press Release, Svenskt flyg, Svenskt flyg ökar – och utsläppen minskar kraftigt! [Swedish Flights Increasing and Emissions Heavily Reduced] (May 3, 2012), http://www.mynewsdesk.com/se/foereningen_svenskt_flyg/pressreleases/svenskt-flyg-oekar-och-utslaepfen-minskar-kraftigt-756135?utm_source=rss&utm_medium=rss&utm_campaign=Subscription&utm_content=current_news.

⁷⁸ *See Id.*

⁷⁹ *Sverige har uppnått sitt och EU:s förnybartmål*, REGERINGSKANSLIET, *supra* note 69; *Sveriges andra rapport om utvecklingen av förnybar energi enligt artikel 22 i Direktiv 2009/28/EG [Sweden's Second Report on Development of Renewable Energy in Accordance with Article 22 in Directive 2009/28/EC]*, REGERINGSKANSLIET (Dec. 23, 2013), <http://www.regeringen.se/sb/d/17076/a/231263>.

⁸⁰ *EU:s framtida klimat- och energipolitik diskuteras [EU's Future Climate and Energy Policy Discussed]*, REGERINGSKANSLIET (Dec. 13, 2013, updated Mar. 5, 2014), <http://www.regeringen.se/sb/d/6767/a/235472>.

⁸¹ ENERGI MYNDIGHETEN, *supra* note 35; *Sverige har uppnått sitt och EU:s förnybartmål*, REGERINGSKANSLIET, *supra* note 69.

United Kingdom

Clare Feikert-Ahalt
Senior Foreign Law Specialist

SUMMARY The United Kingdom has extensive and robust legislation that implements EU Directives concerning carbon emissions into the national law. The legislation establishes a cap on the amount of carbon emissions specified installations are permitted to produce each year, allowing them to either take measures to reduce the amount of emissions or purchase allowances through auctions to cover the emissions they produce. The government has also undertaken a number of other measures with the aim of reducing carbon emissions, such as restricting the amount of packaging used for products and tying the annual car tax rate to the amount of carbon emissions each vehicle produces.

I. Introduction

The Department of Energy and Climate Change is responsible for ensuring that the United Kingdom (UK) has “secure, clean, affordable energy supplies and promote[s] international action to mitigate climate change.”¹ The government has issued a number of policies relating to climate change, which is generally accepted as scientific fact in the UK. Recent floods in the country have been attributed to climate change and, while some commentators question this, the population appears to generally agree.² The government has introduced many policies and laws in an attempt to be environmentally friendly and reduce carbon emissions. The Climate Change Act was enacted in 2008, setting a target to reduce greenhouse gas emissions to 80% lower than 1990 levels by 2050.³ The UK is actively participating in the European Union’s (EU’s) Emissions Trading System (EU ETS), which provides a limit on greenhouse gas emissions by Member States.

II. Cap and Trade Scheme

The establishment of the EU ETS in 2005 was considered a major milestone to collectively tackle climate change across the EU. It is one of the EU’s key policies to help meet a target of reducing greenhouse gas emissions to 8% below the levels produced in 1990, as per the Kyoto Protocol.⁴ The rationale behind emissions trading is that it enables emission reductions to take

¹ *What We Do*, DEPARTMENT OF ENERGY & CLIMATE CHANGE, <https://www.gov.uk/government/organisations/department-of-energy-climate-change/about> (last visited Feb. 12, 2014).

² *Barrage Over Climate Change Link to Floods*, BBC News (Feb. 18, 2014), <http://www.bbc.co.uk/news/science-environment-26242253>.

³ Climate Change Act 2008, c. 27, § 1, <http://www.legislation.gov.uk/ukpga/2008/27/contents>.

⁴ Greenhouse Gas Emissions Trading Scheme (Amendment) Regulations 2012, SI 2012/3038, Explanatory Memorandum ¶ 7.1, http://www.legislation.gov.uk/uksi/2012/3038/pdfs/uksiem_20123038_en.pdf.

place where the cost of the reduction is lowest, lessening the overall cost of tackling climate change.⁵

The UK is under an obligation to meet the emissions trading standards set by the EU ETS and must reduce emissions to at least 15% below 1990 levels by 2020, and to at least 80% of those levels by 2050.⁶ The UK has transposed the EU Directives that regulate this scheme into its national law. The most current version of the regulations is the Green House Gas Emissions Trading Scheme Regulations 2012, which came into force on January 1, 2013.⁷

III. UK's Regulatory Authority for the EU ETS

The Department for Energy and Climate Control (DECC) is the regulator of the EU ETS in the UK, with the financial aspect of bidding on emissions regulated by the Financial Services Authority. The Environmental Agency regulates the UK's opt-out scheme for small emitters and hospitals. In Scotland, this role is played by the Scottish Environment Protection Agency and in Northern Ireland by the Chief Inspector (NI), with the DECC regulating offshore activities. Wales is currently establishing a Single Environmental Body, which will take over regulatory functions in that country when it is operational. The regulators ensure compliance with the EU ETS and, among other things, grant and maintain permits, aviation emission plans, and the monitoring and reporting of planes.⁸

IV. Installations Covered by the EU ETS

A. Permit Requirement

The Greenhouse Gas Emissions Trading System Regulations 2012 provide that any operator conducting an activity that is covered by the EU ETS must hold a greenhouse gas emissions permit.⁹ The government describes this permit as effectively being a "license to operate and emit greenhouse gases covered by the EU ETS."¹⁰ When applying for a greenhouse gas emissions permit, the operator must propose a monitoring plan that provides information on how the emissions will be measured and reported on an annual basis, in accordance with the European

⁵ *Id.* ¶ 7.1.

⁶ Climate Change Act 2008, c. 27, § 1, <http://www.legislation.gov.uk/ukpga/2008/27/contents>. See also, *What Is the EU ETS (Aviation)?*, ENVIRONMENT AGENCY, <http://www.environment-agency.gov.uk/business/topics/pollution/136226.aspx> (last visited Feb. 11, 2014).

⁷ Greenhouse Gas Emissions Trading Scheme Regulations 2012, SI 2012/3038, <http://www.legislation.gov.uk/uksi/2012/3038/contents/made>. This Regulation served to implement Directive 2003/87/EC of the European Parliament and of the Council of 13 October 2003 Establishing a Scheme for Greenhouse Gas Emission Allowance Trading Within the Community and Amending Council Directive 96/61/EC, 2003 O.J. (L 275) 32, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:2003L0087:20090625:EN:HTML>, as amended.

⁸ *Participating in the EU ETS*, DEPARTMENT OF ENERGY & CLIMATE CHANGE, <https://www.gov.uk/participating-in-the-eu-ets> (last visited Feb. 19, 2014).

⁹ Greenhouse Gas Emissions Trading Scheme Regulations 2012, *supra* note 7, ¶ 9.

¹⁰ Activities covered by the EU ETS are listed in Annex I of Directive 2003/87/EC, *supra* note 7.

Commission's Monitoring and Reporting Regulation.¹¹ Applications for permits are made to the relevant regulator, who may grant the permit if the applicant is capable of monitoring and reporting emissions from the installation in accordance with the requirements of the regulation.¹²

In accordance with the EU Directive, the UK has set out the list of participants in Phase III.¹³ The aviation industry has been included in the EU ETS¹⁴ since January 1, 2012, with the system covering flights that land and depart from any EU or European Economic Agreement Member State.¹⁵ Each aircraft operator is to be administered by a single Member State, as set out by the European Commission.¹⁶ While there are four regulators in the UK, only the Environment Agency for England and Wales and the Scottish Environment Protection Agency regulate aircraft operators.¹⁷

B. Opt-out Scheme for Small Emitters and Hospitals

The UK has a Small Emitter and Hospital Opt-out Scheme, which allows eligible installations to be excluded from Phase III, which runs from 2013 to 2020.¹⁸ This is in accordance with article 27 of the EU ETS Directive, which allows the exclusion of such emitters. The opt-out requires that such installations be subject to a domestic scheme that provides for an equivalent contribution to the reduction of emissions as the EU ETS.¹⁹

A “small emitter” is an installation with reported annual emissions of less than 25,000 tons of carbon since 2008 and, if certain combustion activity is undertaken, a net rated thermal input of below 35MW between the years 2008–2010. To be eligible for the scheme, hospital participants must not export more than 15% of the heat it produces to another non-hospital establishment or, if the installation is not operated by a hospital, it must supply at least 85% of the heat it produces to a hospital.²⁰ Two hundred and forty-seven installations have been approved to participate in

¹¹ DEPARTMENT OF ENERGY & CLIMATE CHANGE, *supra* note 8.

¹² Greenhouse Gas Emissions Trading Scheme Regulations 2012, *supra* note 7, ¶ 10(4).

¹³ *The UK's National Implementation Measures for Phase III of the EU Emissions Trading System as Submitted to the European Commission* (Dec. 2011), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48248/3846-uk-nat-imp-measures-phase3-euets.pdf.

¹⁴ DEPARTMENT OF ENERGY & CLIMATE CHANGE, *supra* note 8.

¹⁵ Greenhouse Gas Emissions Trading Scheme Regulations 2012, *supra* note 7, ¶ 10(4).

¹⁶ *Aircraft Operators and Their Administering Member States*, EUROPEAN COMMISSION, http://ec.europa.eu/clima/policies/transport/aviation/operators/index_en.htm (last updated Feb. 25, 2014).

¹⁷ DEPARTMENT OF ENERGY & CLIMATE CHANGE, *supra* note 8.

¹⁸ DEPARTMENT OF ENERGY & CLIMATE CHANGE, THE UK'S SMALL EMITTER AND HOSPITAL OPT-OUT SCHEME ¶ 3.2 (May 23, 2013), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/170714/Policy_paper_The_UK_s_Small_Emitter_and_Hospital_Opt-out_Scheme_updated_Appendices_I_II_-_updated_25_Mar_2013.pdf.

¹⁹ The Small Emitter and Hospital Opt-out Scheme allows eligible installations to be excluded from Phase III, which runs from 2013 to 2020. This is in accordance with article 27 of the EU ETS Directive, which allows the exclusion of such emitters. DEPARTMENT OF ENERGY & CLIMATE CHANGE, *supra* note 8.

²⁰ DEPARTMENT OF ENERGY & CLIMATE CHANGE, *supra* note 18, ¶ 3.3.

this scheme during Phase III of the EU ETS.²¹ The aim of excluding these installations it to reduce the administrative burden, as these costs are “disproportionately higher per tonne [metric ton] of CO₂, in comparison to the costs for large emitting installations.”²²

V. The Scheme in Practice

The EU ETS cap-and-trade system works by placing a cap (limit) on the total greenhouse gas emissions permitted by participants. The cap is converted into tradable emission allowances, so those who are likely to produce more emissions than they have been allocated may either take measures to reduce their emissions or purchase surplus allocations.²³ This is done through either the secondary market, or from auctions held by the EU or individual Member States.²⁴

The EU ETS is occurring in phases, three of which have already been delivered or agreed to.²⁵ The current phase, Phase III (2013–2020) places an EU-wide cap on the number of available allowances.

VI. Allocating Allowances

Under the EU ETS, one ton of carbon dioxide is equivalent to one EU allowance.²⁶ Participants in the EU ETS are required to monitor and report their emissions at the end of each calendar year, with the reports and monitoring verified by an independent verifier, in accordance with the EU’s Accreditation and Verification Regulation.²⁷ The Secretary of State set the carbon price at £4.27 (approximately US\$7.30) per ton of carbon for 2014.²⁸ The operators are then required to surrender the allowances to account for their annual emissions.

²¹ DEPARTMENT OF ENERGY & CLIMATE CHANGE, *supra* note 8. See also Department of Energy and Climate Change, *List of the UK Installations to Be Excluded from Phase III of EU Emissions Trading System (EU ETS) Under Article 27 of the Revised ETS Directive*, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65660/7178-list-of-the-uk-installations-to-be-excluded-from-p.pdf (last visited Feb. 19, 2014) (providing list of installations approved to participate in the small operators scheme).

²² This allows eligible installations to be excluded from Phase III, which runs from 2013 to 2020 in accordance with article 27 of the EU ETS Directive. DEPARTMENT OF ENERGY & CLIMATE CHANGE, *supra* note 8.

²³ *Id.*

²⁴ *Id.*

²⁵ Phase I occurred between January 2005 and December 2007; Phase II occurred between January 2008 and December 2012. Phase III is currently in operation and is intended to run from January 2013 to December 2020. *Id.*

²⁶ Greenhouse Gas Emissions Trading Scheme (Amendment) Regulations 2012, Explanatory Memorandum, *supra* note 4, ¶ 7.3.

²⁷ *The UK’s National Implementation Measures for Phase III of the EU Emissions Trading System*, *supra* note 13, ¶ 6; DEPARTMENT OF ENERGY & CLIMATE CHANGE, *supra* note 8. In the UK, the verifier is currently the UK Accreditation Service (UKAS), <http://www.ukas.com/about-accreditation>.

²⁸ Department of Energy & Climate Change, Determination by the Secretary of State for Energy and Climate Change of the EU Emissions Trading System (EU ETS) Carbon Price Under the Greenhouse Gas Emissions Trading Scheme Regulations 2012 (Nov. 29, 2013), https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/262227/determinat_2014_carbon_price_sos.pdf.

All sectors covered by the EU ETS, with the exception of most of the EU power sector, are currently provided with free allowances in order to assist the transition to lowering carbon emissions. Additional allowances are provided to sectors where competition from countries with no emission reduction schemes is high,²⁹ and in cases where the scheme could cause “carbon leakage,” such as where the company may be inclined to shift production or investment overseas to a country with no emission reduction scheme to avoid the increased costs associated with complying with the EU ETS. These free allowances are determined in accordance with the methodology in Commission Decision 2011/278/EU.³⁰ The UK government has expressed concern that the current additional allowances will not adequately compensate these sectors in the future if the EU ETS is not reformed for Phase IV.³¹

Current allowances stand at 100% of free allowances for sectors deemed at high risk for carbon leakage; sectors not at risk receive 80% of their allocations for free, declining to 30% by 2020 and 0% in 2027, leading to full auctioning of carbon emissions. Electricity intensive companies that are deemed at high risk for carbon leakage are also eligible for compensation from the UK government to help offset the increased costs associated with compliance with the EU ETS and the carbon price floor.³²

VII. Auctioning Allowances

The European Commission’s Auctioning Regulation governs the auctioning of European Union allocation allowances and establishes a common EU auction platform.³³ The regulations provide that Member States may opt out of using the common EU auction platform and set up their own national platform. The UK has exercised this right to opt out and established its own auction platform, with the role of auctioneer performed by the Department of Energy and Climate

²⁹ Sectors deemed at high risk from competition were assessed against criteria in the EU ETS Directive and agreed to through the EU comitology procedure in December 2009. The Directive provides that reviews of high-risk sectors may occur every five years. Commission Decision of 24 December 2009 Determining, Pursuant to Directive 2003/87/EC of the European Parliament and of the Council, a List of Sectors and Subsectors Which Are Deemed to Be Exposed to a Significant Risk of Carbon Leakage, 2010 O.J. (L 1) 10–18, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32010D0002:EN:NOT>.

³⁰ Commission Decision of 27 April 2011 Determining Transitional Union-wide Rules for Harmonised Free Allocation of Emission Allowances Pursuant to Article 10a of Directive 2003/87/EC of the European Parliament and of the Council, 2011 O.J. (L 130) 1, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2011:130:0001:0045:EN:PDF>. The UK’s allowances for phase III were approved in December 2013. See Press Release, European Commission, Commission Gives Green Light for a First Set of Member States to Allocate Allowances for Calendar Year 2013 (Dec. 18, 2013), http://ec.europa.eu/clima/news/articles/news_2013121801_en.htm; *Phase III National Implementation Measures, as approved by the European Commission*, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/269457/Phase_III_allocation_as_approved_in_the_UK_National_Implementation_Measures.pdf.

³¹ DEPARTMENT OF ENERGY & CLIMATE CHANGE, *supra* note 8.

³² *Energy-intensive Industries: Compensation for Indirect Costs of Energy and Climate Change Policies*, DEPARTMENT FOR BUSINESS, INNOVATION & SKILLS (July 4, 2013), <https://www.gov.uk/energy-intensive-industries-compensation-for-carbon-leakage#energy-intensive-industries-exemption>.

³³ Commission Regulation (EU) No. 1031/2010, 2010 O.J. (L 302) 1, <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:302:0001:0041:EN:PDF>.

Control, administered by ICE Futures Europe.³⁴ During the Phase II auctions between 2008–2012, the UK auctioned 10% of allowances, more than triple the EU’s average of 3%.³⁵ During the Phase II EU ETS auctions, the UK held thirty auctions and sold almost 123 EU allowances, raising £1.3 billion (approximately US\$2.2 billion) for the Exchequer.³⁶

EU Regulations require certain persons wishing to bid in the EU ETS auctions across Europe to be regulated by the competent national authority. Bidding for emissions under the EU ETS in the UK by certain bodies, such as investment firms, is regulated by the Financial Services Authority (FSA).³⁷

VIII. Penalties for Noncompliance

The penalties for noncompliance with the EU ETS are left to each Member State’s discretion, but must be “effective, proportionate and dissuasive.”³⁸ In the UK, civil penalties for noncompliance are provided for in the Greenhouse Gas Emissions Trading System Regulations 2012.³⁹ These regulations provide that the regulator may issue a penalty notice to operators stating the regulation under which the liability arises; the amount of civil penalty due; if appropriate, how the penalty is calculated; whether the operator is liable for an additional daily penalty; and the date the penalty must be paid.⁴⁰ The current civil penalty for failing to surrender enough allowances is €100 (approximately US\$140) per ton of carbon not covered by an allowance.⁴¹ The regulator does have some discretion to either decrease or increase the penalty to an amount that exceeds any economic benefit the operator obtains by failing to provide the appropriate allowances.⁴²

In the 2012 Regulations the government moved towards a flexible and more proportionate enforcement regime for noncompliance in Phase III.⁴³ Regulators now have the discretion to waive or reduce penalties to reflect the seriousness of the breach. A new discretionary €20 (approximately US\$28) per ton of carbon emissions penalty was introduced for installations that

³⁴ This role was initially conducted by the UK Debt Management Office. *EU ETS: Carbon Markets*, DEPARTMENT OF ENERGY & CLIMATE CHANGE (Jan. 22, 2013), <http://www.gov.uk/eu-ets-carbon-markets#phase-iii-auctioning>.

³⁵ *Id.*

³⁶ *Id.*

³⁷ *Regulating Certain Bidders in Auctions of EU Emissions Allowances*, HM TREASURY (Feb. 14, 2012), <https://www.gov.uk/government/consultations/regulating-certain-bidders-in-auctions-of-eu-emissions-allowances>.

³⁸ DEPARTMENT OF ENERGY & CLIMATE CHANGE, *supra* note 8.

³⁹ Greenhouse Gas Emissions Trading Scheme Regulations 2012, *supra* note 7, ¶ 7.1.

⁴⁰ *Id.* ¶ 50.

⁴¹ Greenhouse Gas Emissions Trading Scheme (Amendment) Regulations 2012, SI 2012/3038, Explanatory Memorandum, *supra* note 4, ¶ 7.1.

⁴² Greenhouse Gas Emissions Trading Scheme Regulations 2012, *supra* note 7, ¶ 52(3).

⁴³ *Id.* ¶ 51.

fail to surrender allowances “in cases where emissions are under-reported and the error is self-rectified.”⁴⁴

IX. Methods of Recourse Against Administrative Decisions

A right of appeal against a decision from the regulatory body is available to the First Tier Tribunal in England and Wales, the Planning and Appeals Commission in Northern Ireland and the Directorate for Planning and Environmental Appeals in Scotland determines appeals on behalf of the Scottish Minister.⁴⁵ The appeal body has recourse to four actions under the Regulations. It may:

- (a) affirm the decision;
- (b) quash the decision or vary any of its terms;
- (c) substitute a deemed refusal with a decision of the appeal body; or
- (d) give directions to the regulator as to the exercise of the regulator’s functions under these Regulations.⁴⁶

X. Other Energy Efficiency Measures

There are a number of laws in place to help reduce the UK’s carbon footprint. As referenced above, the UK has its own Climate Change Act, with a carbon price floor applicable to UK base electricity generators that aims to reduce the UK’s carbon emissions faster than the EU ETS can alone.⁴⁷ The UK has restrictions on excessive packaging of products, stemming from an EU directive. The Regulations require companies to reduce excessive packaging unless it is essential for safety, the protection of the health and hygiene of the packed products, or transport requirements.⁴⁸

Vehicles in England are taxed annually, with the rate tied to the level of carbon dioxide emissions. The rate ranges from charges of £0 for vehicles that emit less than 100g of CO₂ per kilometer up to £1,065 (approximately US\$1,700) for vehicles that emit over 255g of CO₂ per kilometer. After the first year tax, there is then an annual tax that ranges from £0 for vehicles

⁴⁴ DEPARTMENT OF ENERGY & CLIMATE CHANGE ET AL., AMENDMENTS TO UK GREENHOUSE GAS EMISSIONS TRADING SCHEME AND NATIONAL EMISSIONS INVENTORY REGULATIONS: A PUBLIC CONSULTATION 4 (Dec. 2013), http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/267670/Summ_response_and_Gov_resp_to_consult_on_amend_to_ghg_and_invent_regs_new_format_FINAL.pdf.

⁴⁵ *Id.*; DEPARTMENT OF ENERGY & CLIMATE CHANGE, *supra* note 8.

⁴⁶ Greenhouse Gas Emissions Trading Scheme Regulations 2012, *supra* note 7, ¶ 77.

⁴⁷ HM TREASURY, HM REVENUE & CUSTOMS, CARBON PRICE FLOOR CONSULTATION: THE GOVERNMENT RESPONSE ¶ 1.14 (Mar. 2011), http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/190279/carbon_price_floor_consultation_govt_response.pdf.

⁴⁸ Packaging (Essential Requirements) Regulations 2003, SI 2003/1941, <http://www.legislation.gov.uk/uksi/2003/1941/contents/made>.

that emit less than 100g of CO₂ per kilometer up to £490 (approximately US\$780) for vehicles that emit over 255g of CO₂ per kilometer.⁴⁹

⁴⁹ Driver & Vehicle Licensing Agency, Rates of Vehicle Tax, V149 (effective Apr. 1, 2013), www.gov.uk/government/uploads/system/uploads/attachment_data/file/175492/V149_rates_of_vehicle_tax.pdf.

International Law

Luis Acosta

Senior Legal Information Analyst

SUMMARY The United Nations Framework Convention on Climate Change and the Kyoto Protocol thereto provide for international trading in greenhouse gas credits. The Kyoto Protocol established three mechanisms covering different aspects of international trade in greenhouse gas credits. It also established monitoring and compliance regimes to enable development of a trading market. The Protocol initially established a commitment period of 2008–12, which was later extended to cover a second commitment period of 2013–20. Negotiations subsequent to the Kyoto meeting have implemented and strengthened the Kyoto Protocol and have addressed a future agreement that will follow the Protocol.

I. Introduction

The international law global climate change regime under which greenhouse gas credits may be traded are primarily set forth in the United Nations Framework Convention on Climate Change (UNFCCC),¹ the Kyoto Protocol to the UNFCCC,² and subsequent agreements made in UNFCCC meetings.

II. United Nations Framework Convention on Climate Change

International negotiations regarding mitigation of and adaptation to climate change are conducted pursuant to the UNFCCC, which was concluded at Rio de Janeiro in 1992 and entered into force in 1994. Its stated objective was

to achieve, in accordance with the relevant provisions of the Convention, stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system . . . within a time-frame sufficient to allow ecosystems to adapt naturally to climate change, to ensure that food production is not threatened and to enable economic development to proceed in a sustainable manner.³

Parties to the UNFCCC, including the United States, agreed to the broad principles of the framework and to particular commitments. “Developed country parties” were listed on Annex I to the convention. These Annex I countries committed to adopting national policies providing for mitigation of climate change by limiting greenhouse gas emissions.⁴

¹ U.N. Framework Convention on Climate Change, May 9, 1992, 1771 U.N.T.S. 107, https://unfccc.int/files/essential_background/background_publications_htmlpdf/application/pdf/conveng.pdf.

² Kyoto Protocol to the U.N. Framework Convention on Climate Change, Dec. 10, 1997, 37 I.L.M. 22, <http://unfccc.int/resource/docs/convkp/kpeng.pdf>.

³ *Id.* art. 2.

⁴ *Id.* art. 4(2)(a).

The UNFCCC provided for parties to attend an annual Conference of the Parties (COP), at which negotiation and decision-making regarding multilateral responses to climate change take place.⁵

The first COP occurred in Berlin in 1995; there have been eighteen COP meetings since then.⁶ The Berlin meeting resulted in the “Berlin Mandate,” in which the parties agreed to develop a schedule for Annex I countries to reduce emissions of greenhouse gases; this led to the Kyoto Protocol two years later.⁷

III. Kyoto Protocol

The third COP occurred in 1997 in Kyoto, Japan, where the Kyoto Protocol was concluded. While most UNFCCC parties became parties to the Kyoto Protocol, the United States signed but did not ratify it.⁸

The Protocol required the Annex I countries to reduce greenhouse gas emissions to 5% below a baseline of 1990 levels by 2012.⁹ The Protocol’s initial mandate covered the years 2008–12, which is referred to as the “first commitment period.” The greenhouse gases listed in the Protocol were carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulphur hexafluoride.¹⁰

A. Emissions Trading Mechanisms

The Protocol created three mechanisms for emissions trading involving credits for emissions reductions and the international trading of offsets and allowances to help countries meet their compliance obligations: the Clean Development Mechanism, the Joint Implementation Program, and the trading of Assigned Amount Units.

⁵ *Id.* art. 7(2)(a).

⁶ See *A Brief Overview of Decisions*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, <https://unfccc.int/documentation/decisions/items/2964.php> (last visited Feb. 25, 2014) (listing reports from COPs). The nineteenth COP meeting was held November 11–22, 2013, in Warsaw, Poland. *COP 19*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, https://unfccc.int/meetings/warsaw_nov_2013/session/7767/php/view/decisions.php (last visited Feb. 25, 2014).

⁷ U.N. Convention on Climate Change, *Report of the Conference of the Parties on Its First Session, Held at Berlin from 28 March to 7 April 1995, Addendum, Part Two: Action Taken by the Conference of the Parties at Its First Session*, U.N. Doc. FCCC/CP/1995/7/Add.1 (June 6, 1995), <http://unfccc.int/resource/docs/cop1/07a01.pdf>.

⁸ *Status of Ratification of the Kyoto Protocol*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, https://unfccc.int/kyoto_protocol/status_of_ratification/items/2613.php (last visited Feb. 25, 2014). Some other countries that are UNFCCC members subsequently withdrew from the Protocol, such as Canada, which withdrew on December 15, 2012. *Id.*

⁹ *Id.* art. 3(1).

¹⁰ *Id.* annex A.

1. *Clean Development Mechanism*

Under the Clean Development Mechanism (CDM), Annex I countries can obtain greenhouse gas offsets to help them meet their compliance obligations from approved emissions reduction projects in developing countries.¹¹ The Protocol established an Executive Board to administer the CDM.¹² The emissions reduction projects are evaluated by “Operational Entities” that validate the projects for approval by the Executive Board, and verify the greenhouse gas emission reductions when the projects begin operation.¹³ Developers seeking to utilize the CDM to obtain offset credits must show that emission reductions are “additional to any that would occur in the absence of the certified project activity.”¹⁴ Greenhouse gas credits known as “Certified Emission Reductions” are transferred from developing countries to Annex I countries that need offsets to meet their compliance obligations under the Protocol.¹⁵

2. *Joint Implementation Program*

A second mechanism for the trading of greenhouse gas credits is known as the Joint Implementation Program.¹⁶ Under this program, the Annex I countries may trade among themselves credits derived from projects that have achieved emission reductions, called “Emission Reduction Units.”¹⁷

3. *International Trading of Assigned Amount Units*

The third mechanism created by the Protocol is the trading between countries of Assigned Amount Units, which are the amounts of emissions of greenhouse gases permitted for each country. A selling country that has achieved emission reductions below the amount needed can sell excess assigned amounts to other countries that have not achieved sufficient reductions to meet their assigned amounts.¹⁸

B. Monitoring and Compliance

Because the Protocol’s effectiveness depends upon the reliability of emissions data used to assess compliance, the Protocol provides for rules to be established governing monitoring and

¹¹ *Id.* art. 12.

¹² *Id.* art. 12(4).

¹³ *Id.* art. 12(5).

¹⁴ *Id.* The Executive Board established a methodology for making this showing in a document known as the *Tool for the Demonstration and Assessment of Additionality*, the most recent version of which (Nov. 23, 2012) may be viewed at <http://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-01-v7.0.0.pdf>.

¹⁵ Kyoto Protocol, *supra* note 2, art. 12(9).

¹⁶ *Id.* art. 6.

¹⁷ *Id.* art. 6(1).

¹⁸ *Id.* arts. 3(10), 3(11), 17.

compliance procedures.¹⁹ Parties are required to have national systems for estimating greenhouse gas emissions.²⁰ Parties are also required to submit annual greenhouse gas inventories and other communications at regular intervals to demonstrate compliance with the Protocol.²¹ Countries' inventories and other communications are monitored by expert review teams.²²

Transactions under the emissions trading mechanisms are recorded in registry systems and transaction records kept by the UN Climate Change Secretariat. Emissions trades are delivered from sellers' accounts to buyers' accounts in these registries, and the registries thus serve as part of the institutional infrastructure necessary for the development of a trading market.²³

Compliance with the Protocol is overseen by a Compliance Committee made up of two branches: a facilitative branch, which provides advice and assistance to parties to promote compliance, and an enforcement branch, which determines whether parties have fallen out of compliance with emissions targets or other requirements under the Protocol and takes appropriate enforcement measures.²⁴

C. COPs Following Kyoto

Conferences of the Parties to the UNFCCC following the Kyoto meeting sought to strengthen implementation of the Kyoto Protocol and other aspects of the UNFCCC climate-change regime, address the parties' obligations beyond the first commitment period, and create a new agreement to follow the Kyoto Protocol that will require commitments from both developed and developing countries. Some of the more significant meetings include the following:

- In COP 7, which took place in Marrakesh in 2001, the parties developed the “Marrakesh Accords,” an extensive number of agreements that, among other things, established rules and procedures for the Joint Implementation Program, the CDM, and the trading of Assigned Amount Units.²⁵
- In COP 13, held in Bali in 2007, the parties agreed to the “Bali Action Plan,” which included plans for the period after the first commitment period, including both new mitigation targets

¹⁹ *Guidelines Under Articles 5, 7 and 8: Methodological Issues, Reporting and Review Under the Kyoto Protocol*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, https://unfccc.int/kyoto_protocol/reporting/items/3879.php (last visited Feb. 25, 2014).

²⁰ *Id.* art. 5.

²¹ *Id.* art. 7.

²² *Id.* art. 8.

²³ *Registry Systems Under the Kyoto Protocol*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, https://unfccc.int/kyoto_protocol/registry_systems/items/2723.php (last visited Feb. 25, 2014).

²⁴ *An Introduction to the Kyoto Protocol Compliance Mechanism*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/kyoto_protocol/compliance/items/3024.php (last visited Feb. 25, 2014).

²⁵ *The Marrakesh Accords and the Marrakesh Declaration*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, http://unfccc.int/cop7/documents/accords_draft.pdf (last visited Feb. 27, 2014) (scroll to “Work Programme on Mechanisms”).

for Annex I countries, and “nationally appropriate mitigation actions” for developing countries.²⁶

- In COP 15, which was held in Copenhagen in 2009, the meeting resulted in the “Copenhagen Accord,” which was not adopted by the parties and thus was not legally binding, but constituted a political statement of principles. It included the goal of limiting the global temperature increase to no more than two degrees Celsius above preindustrial levels, and agreement on the measurement, reporting, and verification of developing country actions.²⁷
- In COP 16, which took place in Cancun in 2010, the parties adopted the “Cancun Agreements.” These agreements included goals on further reductions in greenhouse gas emissions, creation of a registry for developing nations to record pledges to reduce their emissions, and the creation of a framework for a formal forest-protection program, Reducing Emissions from Deforestation and Degradation.²⁸
- In COP 17, held in Durban in 2011, the parties agreed to establish a second commitment period of the Kyoto Protocol to follow the first commitment period, which was to end in 2012. They also agreed to the “Durban Platform for Enhanced Action,” which calls for a new agreement to be finished by 2015 that would be applicable to all parties (both developed and developing countries) and that would mandate commitments beginning by 2020 sufficient to meet the goal of keeping global temperature increases to 1.5 or 2.0 degrees Celsius over preindustrial levels.²⁹
- In COP 18, held in Doha in 2012, the parties agreed, among other things, that the length of the second commitment period would extend to 2020, that the Kyoto market mechanisms (CDM, Joint Implementation, and international trading of Assigned Amount Units) would continue, and that surplus Assigned Amount Units could be carried over to the second commitment period.³⁰
- In COP 19, held in Warsaw in 2013, the parties, among other efforts, continued to move toward securing a new agreement by establishing a timeline to enable concluding negotiations by December 2015; agreed to the “Warsaw International Mechanism for Loss and Damage,” which addresses losses and damages from climate change in vulnerable developing countries;

²⁶ U.N. Framework Convention on Climate Change, *Report of the Conference of the Parties on Its Thirteenth Session, Held in Bali from 3 to 15 December 2007, Addendum, Part Two: Action Taken by the Conference of the Parties at Its Thirteenth Session*, U.N. Doc. FCCC/CP/2007/6/Add.1 (Mar. 14, 2008), <http://unfccc.int/resource/docs/2007/cop13/eng/06a01.pdf>.

²⁷ *Copenhagen Climate Change Conference – December 2009*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, https://unfccc.int/meetings/copenhagen_dec_2009/meeting/6295.php (last visited Feb. 27, 2014).

²⁸ U.N. Framework Convention on Climate Change, *Report of the Conference of the Parties on Its Sixteenth Session, Held in Cancun from 29 November to 10 December 2010, Addendum, Part Two: Action Taken by the Conference of the Parties at Its Sixteenth Session*, U.N. Doc. FCCC/CP/2010/7/Add.1 (Mar. 15, 2011), <http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf>.

²⁹ *Durban: Towards Full Implementation of the UN Climate Change Convention*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, https://unfccc.int/key_steps/durban_outcomes/items/6825.php (last visited Feb. 27, 2014).

³⁰ *The Doha Climate Gateway*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, https://unfccc.int/key_steps/doha_climate_gateway/items/7389.php (last visited Feb. 27, 2014).

and made decisions regarding ways to reduce emissions from deforestation and forest degradation.³¹

³¹ *Warsaw Outcomes*, U.N. FRAMEWORK CONVENTION ON CLIMATE CHANGE, https://unfccc.int/key_steps/warsaw_outcomes/items/8006.php (last visited Feb. 27, 2014).

Bibliography

Constance A. Johnson
Senior Legal Research Analyst

This bibliography lists selected, recent, English-language works on cap-and-trade schemes, focusing on materials that feature foreign, international, and comparative law.

General Works

- Avi-Yonah, Reuven S. & David M. Uhlmann. *Combating Global Climate Change: Why a Carbon Tax Is a Better Response to Global Warming Than Cap and Trade*. 28 STANFORD ENVIRONMENTAL LAW JOURNAL. 3–50. Jan. 2009. K23.T215
- Carlson, Ann E. *Designing Effective Climate Policy: Cap-and-Trade and Complementary Policies*. 49 HARVARD JOURNAL ON LEGISLATION. 207–48. Summer 2012. K8.A684
- Cherniak, Cyndee Todgham. *A New Wavelength? Carbon Tax, Cap-and-Trade, and Market Adaptation*. 36 CANADA-UNITED STATES LAW JOURNAL. 179–211. 2012. K3.A48
- HUFBAUER, GARY CLYDE, STEVEN CHARNOVITZ, & JISUN KIM. GLOBAL WARMING AND THE WORLD TRADING SYSTEM. 166 pp. Washington, DC: Peterson Institute for International Economics, 2009. HF1379.H86 2009
- Jarvis, Alec. *Sourcing Abatement Costs in an International Offset Credit Cap-and-Trade Regime*. 18 NEW YORK UNIVERSITY ENVIRONMENTAL LAW JOURNAL. 671–88. 2011. K14.E972
- Johnston, Jason Scott. *Problems of Equity and Efficiency in the Design of International Greenhouse Gas Cap-and-Trade Schemes*. 33 HARVARD ENVIRONMENTAL LAW REVIEW. 402–30. 2009. K8.A682
- Kane, Mitchell A. *Taxation and Multi-Period Global Cap and Trade*. 19 NEW YORK UNIVERSITY ENVIRONMENTAL LAW JOURNAL. 87–145. 2011. K14.E972
- Kaswan, Alison. *Reconciling Justice and Efficiency: Integrating Environmental Justice into Domestic Cap-and-Trade Programs for Controlling Greenhouse Gases, in THE ETHICS OF GLOBAL CLIMATE CHANGE*. 232–54. New York: Cambridge University Press, 2011. GE42.E844 2011
- Nowicki, Meghan. *Implementing Sustainable Industrial Development in the United States and Abroad: The Need for Legislation and International Cooperation*. 62 ALABAMA LAW REVIEW. 1093–1117. 2011. K1.L3
- PHILLIPS, EARL W., JR. ET AL. CAP-AND-TRADE: LAW AND ECONOMICS. 38 pp. New Providence, N.J.: Matthew Bender, 2010. K3593.5.C37C37 2010

- Quinn, Elias Leake. *The Solitary Attempt: International Trade Law and the Insulation of Domestic Greenhouse Gas Trading Schemes from Foreign Emissions Credit Markets*. 80 UNIVERSITY OF COLORADO LAW REVIEW. 201–54. Winter 2009. K25.N5695
- Sewalk, Stephen. *Carbon Tax with Reinvestment Trumps Cap-and-Trade*. 30 PACE ENVIRONMENTAL LAW REVIEW. 580–624. Spring 2013. K16.A225
- Turek, Andreas, et al. *Linking Carbon Markets: Concepts, Case Studies and Pathways*. 6 CLIMATE POLICY. 341–57. 2009. HC79.P55L56 2009
- United States Congress, Senate Committee on Finance. *International Aspects of a Carbon Cap and Trade Program: Hearing Before the Committee on Finance, United States Senate, 110th Congress, 2d sess. (Feb. 14, 2008)*. 105 pp. Washington, Government Printing Office. KF26.F5 2008a
- Westerfield, Bill, et al. *EBA Climate Change Primer: Cap and Trade*. 29 ENERGY LAW JOURNAL. 173–93. 2008. K5.N47

Works on Specific Jurisdictions

- BOGOJEVIĆ, SANJA. EMISSIONS TRADING SCHEMES: MARKETS, STATES AND LAW. 207 pp. Portland, OR: Hart Publishing, 2013. 207 pp. K3593.5.C37B64 2013
- CHEVALLIER, JULIEN. ECONOMETRIC ANALYSIS OF CARBON MARKETS: THE EUROPEAN UNION EMISSIONS TRADING SCHEME AND THE CLEAN DEVELOPMENT MECHANISM. 217 pp. New York: Springer, 2012. HC240.9.P55C48 2012
- Childs, J. Scott. *Continental Cap-and-Trade: Canada, the United States, and Climate Change Partnership in North America*. 32 HOUSTON JOURNAL OF INTERNATIONAL LAW. 393–457. Spring 2010. K8.O89
- CLÒ, STEFANO. EUROPEAN EMISSIONS TRADING IN PRACTICE: AN ECONOMIC ANALYSIS. 182 pp. Northampton, MA: Edward Elgar, 2011. KJE6249.C56 2011
- ENDRESS, MARTING. THE DEVELOPMENT OF EMISSIONS TRADING IN GERMANY: A POLITICAL ECONOMY ANALYSIS OF STAKEHOLDERS, INTERESTS, AND POWER RESOURCES. 276 pp. Munich: Oldenbourg Industrieverlag, 2010. HC290.5.E5E53 2010
- Hardy, Brettny. *How Positive Environmental Politics Affected Europe's Decision to Oppose and Then Adopt Emissions Trading*. 17 DUKE ENVIRONMENTAL LAW AND POLICY FORUM. 297–318. Spring 2007. K4.U58

- Heinmiller, B. Timothy. *The Politics of “Cap and Trade” Policies*. 47 NATURAL RESOURCES JOURNAL. 445–67. Spring 2007. K14.A868
(Note: Includes case study from Australia.)
- Hutchinson, Michael & Isabelle Laborde. *Cap and Trade: The View from the United Kingdom*. 26 NATURAL RESOURCES AND ENVIRONMENT. 40–43. Spring 2012. K14.A8679
- NEUHOFF, KARSTEN. CLIMATE POLICY AFTER COPENHAGEN: THE ROLE OF CARBON PRICING. 274 pp. New York: Cambridge University Press, 2011. HC79.E5N447
(Note: Contains discussion of the European Union emissions trading scheme in section 3.2.)
- Plant, Glen. *International Decision: Air Transport Association of America v. Secretary of State for Energy and Climate Change: European Court of Justice Judgment on Compatibility of EU Emissions Trading Scheme with Treaty Commitments and Customary International Law*. 107 AMERICAN JOURNAL OF INTERNATIONAL LAW. 183–92. Jan. 2013. K1.M444
- Reagan, Daniel B. *Putting International Aviation into the European Union Emissions Trading Scheme: Can Europe Do It Flying Solo?* 35 BOSTON COLLEGE ENVIRONMENTAL AFFAIRS LAW REVIEW. 349–84. 2008. K5.N83
- Rebech, Peter. *The Art of Subsidizing Fuel-Free Electricity Under the European Economic Area Agreement as Illustrated by Norway’s Reversion Instrument*. 86 CHICAGO-KENT LAW REVIEW. 109–37. 2011. K3.H45
- Rudolph, Sven. *Carbon Markets in Japan: Recent Experiences from CO2 Cap-and-Trade at the National and Local Level*. 6 CARBON AND CLIMATE LAW REVIEW. 354–57. 2012.
Lexxion subscription database
<http://www.lexxion.de/zeitschriften/fachzeitschriften-englisch/cclr.html>
- Shah, Vidhi R. *Note and Comment: The Allocation of Free Emissions Allowances by Germany to its Steel Industry: A Possible Subsidy Claim Under the W.T.O. Agreement on Subsidies and Countervailing Measures*. 22 AMERICAN UNIVERSITY INTERNATIONAL LAW REVIEW. 445–78. 2007. K1.M475
- SKJAERSETH & PER OVE EIKELAND. CORPORATE RESPONSES TO EU EMISSIONS TRADING: RESISTANCE, INNOVATION, OR RESPONSIBILITY? 301 pp. Burlington, VT: Ashgate, 2013. HC240.9.P55C67 2013 OverflowA5S
- STEPPLER, ULRICH & ANGELA KLINGMÜLLER. EU EMISSIONS TRADING SCHEME AND AVIATION. 448 pp. Portland, OR: International Specialized Book Services, 2010. KJE6249.E94 2010

Switzer, Stephanie. *Aviation and Emissions Trading in the European Union: Pie in the Sky or Compatible with International Law?* 39 *ECOLOGY LAW CURRENTS*. 1–12. 2012.

<http://elq.typepad.com/currents/volume-39-2012/>

(Scroll down to locate article.)

United States Congress. Senate Committee on Commerce, Science, and Transportation. *The European Union's Emissions Trading System: Hearing Before the Committee on Commerce, Science, and Transportation, United States Senate, 112th Congress, 2d sess.* (June 6, 2012) 114 pp. Washington: Government Printing Office. KF26.C69 2012h

VEITH, STEFAN. *THE EU EMISSION TRADING SCHEME: ASPECTS OF STATEHOOD, REGULATION, AND ACCOUNTING*. 203 pp. New York: Peter Lang, 2010. HC240.9.P55V45 2010

Zane, Steven Nathaniel. *Leveling the Playing Field: The International Legality of Carbon Tariffs in the EU*. 34 *BOSTON COLLEGE INTERNATIONAL AND COMPARATIVE LAW REVIEW*. 199–225. Winter 2011. K2.O77