



CHAPTER EIGHT

EMISSIONS TRADING COMPLIANCE

INTRODUCTION

This chapter introduces the topic of compliance with emissions trading schemes. Emissions trading is a market-based mechanism designed to allow firms to choose the least expensive strategy to meet environmental standards and has been successfully used in Europe and the U.S. to reduce acid-rain-causing sulfur dioxide emissions. As more and more countries accept the need to address climate change on a priority basis, emissions trading will play an increasingly significant role as an approach that not only creates incentives for firms to cut greenhouse gas emissions (GHG) but also spurs needed technological innovation that ensures that this is done at the lowest cost.¹ Understanding how to strengthen compliance with these kinds of market-based mechanisms is a priority for many policy-makers in both developed and developing countries.

Emissions trading schemes require strict compliance to succeed. High compliance is a “prerequisite of investor confidence.”² Low or even

¹ See Henrik Hasselknippe, *Systems for carbon trading: an overview*, Climate Policy Special Supplement on Defining and Trading Emission Targets, 3 suppl. 2, 43-57 (2003) (describing the increasing number of regional, national, and international systems for trading and transfer of GHG emission allowances, focusing on the International Emissions Trading Association (IETA) Trading Schemes Database, developed by Point Carbon.). See also Joe Kruger, Katherine Grover, & Jeremy Schreifels, *Building Institutions to Address Air Pollution in Developing Countries: The Cap and Trade Approach* (2003), available at <http://www.oecd.org/dataoecd/11/25/2957736.pdf> (discussing the viability of emissions trading schemes in countries that lack the resources to use high-technology monitoring systems). For more on technological innovation and sustainable development, see Chapter Thirteen: Compliance & Competitiveness: The Porter Hypothesis.

² Rupert Edwards, *Effective Enforcement and Compliance in the EU ETS: A View from the Financial Sector*, available at <http://inece.org/emissions/edwards.pdf> (“[T]he rules must be credible or the investor community will not play or will heavily discount the price, thus undermining the policy goals.”). See generally, the website for the International Conference on Copmliance and Enforcement of Trading Schemes in Environmental Protection 16-18 March 2004 (Worcester College, Oxford University, England), available at <http://inece.org/emissions>.



moderate levels of compliance can destroy markets and undermine the financial incentives that drive emissions trading.

Emissions trading schemes have been successful where monitoring and compliance were high. National level programs in Europe and the U.S. have benefited from sophisticated monitoring technology that allows regulators to track the emissions of participating firms. For example, the U.S. EPA has experienced nearly 100 percent compliance with its Sulfur Dioxide Allowance Trading Program in part due to its use of continuous emissions monitoring technology (CEM).³ Participating facilities are required to install continuous emissions monitoring systems, which allows the EPA to maintain an accurate tally of SO₂ emissions. The EPA has described the CEM data as “the gold standard to back up the paper currency of emissions allowances” by “verifying the existence and value of the traded allowance.”⁴ The success of the SO₂ program indicates that, with high compliance, emissions trading schemes can succeed in identifying cost-effective methods to reduce emissions. But it is important to note that CO₂ emissions and other greenhouse gases are ubiquitous, and monitoring and compliance present difficult challenges, requiring different approaches and technologies.⁵

At the international level, emissions trading systems have been proposed as part of the Kyoto Protocol to the United Nations Framework Convention on Climate Change,⁶ and in January 2005 the European Union instituted the world’s first mandatory international trading scheme.⁷ The

³ Part of the Acid Rain Program in Title IV of the 1990 Clean Air Act Amendments, the trading scheme succeeded in 2003 in reducing SO₂ emissions by 38 percent of 1980 levels. See U.S. EPA’s Acid Rain Program 2003 Progress Report, available at <http://www.epa.gov/airmarkets/cmprpt/arp03/summary.html>.

⁴ U.S. EPA, “Continuous Emissions Monitoring Fact Sheet,” <http://www.epa.gov/airmarkets/monitoring/factsheet.html>.

⁵ For a discussion on monitoring greenhouse gas emissions in the EU ETS, see Joseph Kruger and William A. Pizer, *The EU Emissions Trading Directive: Opportunities and Potential Pitfalls*, Resources for the Future, Discussions Paper 04-24, April 2004 (“[T]he EU has more regulated sources and covers more industrial sectors. Some of the sectors ... have more varied sources of emissions, for which emissions measurement is not as straight forward as the utility and industrial boilers that make up the bulk of the U.S. programs. The EU ETS could also include multiple greenhouse gases in the second phase of the program and is likely to include a mixture of cap-and-trade and offset provisions.”).

⁶ The Kyoto Protocol’s programs include: the national systems to estimate GHG emissions and removals (Article 5(1)); the reporting of GHG emissions (Article 7(1)); and the rules for the Protocol’s three market-based mechanisms — joint implementation (JI), the clean development mechanism (CDM), and international emissions trading (Articles 6, 12, and 17).

⁷ Terje Berntsen, Jan Fuglestad & Frode Stordal, *Reporting and Verification of Emissions*
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European Union Trading System (ETS) was devised to help EU countries meet their obligations under Kyoto. In its first phase, the ETS will involve more than 12,000 installations in the 25 Member States and account for approximately 45 percent of the EU's total CO₂ emissions.⁸ The ETS aims to reduce GHG emissions to 8 percent of 1990 levels by 2012.⁹

The mandatory monitoring and reporting requirements under the ETS have forced companies to establish CO₂ budgets and carbon management systems for the first time.¹⁰ The carbon market created by the scheme has spawned a new industry comprised of carbon traders, carbon finance specialists, carbon management specialists, and carbon auditors.¹¹ New businesses such as Climate Change Capital in the U.K., and the Chicago Climate Exchange in the U.S., are poised to benefit from the ETS.¹² In addition to driving practically an entirely new sector of the economy, the scheme is expected to allow the EU to achieve its Kyoto target at a cost of between €2.9 and €3.7 billion annually – less than 0.1 % of the EU's GDP. Without the scheme, compliance costs could reach up to €6.8 billion a year.¹³

The excerpt in this chapter, by John K. Stranlund, Carlos A. Chavez, and Barry C. Field, highlights the crucial role enforcement and compliance

and Removals of Greenhouse Gases, in IMPLEMENTING THE CLIMATE REGIME: INTERNATIONAL COMPLIANCE (Olav Schram Stokke, Jon Hovi & Geir Ulfstein eds., 2005).

⁸ The scheme is based on Directive 2003/87/EC. The first phase, from 2005 to 2007, covers only selected industries and emissions, but will likely expand in its coverage in later phases (such as to transportation), as well as possibly link with other emissions trading schemes that may arise under Kyoto or other agreements.

⁹ European Commission, *EU Emissions Trading: An Open Scheme Promoting Global Innovation To Combat Climate Change* (2004), available at http://europa.eu.int/comm/environment/climat/pdf/emission_trading2_en.pdf (The EU scheme allows companies to use credits from Kyoto mechanisms, which provides cost-effective means for EU firms to cut emissions and creates additional incentives for firms to invest in emission-reduction projects abroad, such as in developing countries).

¹⁰ *Id.*

¹¹ *Id.*

¹² Climate Change Capital is an independent merchant bank in the UK offering financial consulting to clients affected by climate change and energy policies, developing risk management and other financial markets that help develop new markets, and conducting a variety of research and transactional services related to carbon markets. See <http://www.climatechangecapital.com>. Chicago Climate Exchange is a multi-national and multi-sector market for reducing and trading GHG emissions. See <http://www.chicagoclimatex.com/>.

¹³ *European Commission, supra* note 9. Similarly, a report by the Natural Resources Defense Council on the impacts on employment in the U.S. as a result of the proposed McCain-Lieberman Climate Stewardship Act indicated that the "jobs created outweigh jobs lost by a factor of five by 2015, rising nearly to seven to one by 2025." James Barrett *et al.*, *Jobs*

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play in effective emissions trading schemes and then focuses on the problem of how emissions trading schemes should be enforced to achieve broad, cost-effective compliance.¹⁴ The article describes two successful emissions trading schemes: the Sulfur Dioxide Allowance Trading program and the Regional Clean Air Incentives Market (RECLAIM) program.

and the Climate Stewardship Act: How Curbing Global Warming Can Increase Employment (2005), available at <http://www.nrdc.org/globalWarming/csa/CSAjobs.pdf>.

¹⁴ John K. Stranlund, Carlos A. Chavez & Barry C. Field, *Enforcing Emissions Trading Programs: Theory, Practice, and Performance*, 30(3) POL'Y STUDIES J., 343 (2002).