


## The Role of Third-Party Verification in Emissions Trading Systems: Developing Best Practices

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# THE ROLE OF THIRD-PARTY VERIFICATION IN EMISSIONS TRADING SYSTEMS:

## DEVELOPING BEST PRACTICES

by Jennifer Rohleder\*

### INTRODUCTION

This article examines several of the emissions trading systems currently in place around the world and how they conduct their monitoring and verification processes. By comparing the systems, and studying their experiences, we can distill best practices for implementing an effective monitoring and verification protocol.

Compliance is required in both a command-and-control system and a trading system; but a trading system has the additional demands of transparency and confidence in the scheme. Verification is critical because it promotes compliance, which in turn is needed to foster trust and stability in the market. Emissions disclosure must be universally trusted in order to be tradable. Trust in disclosure requires clear and uniform definitions, requirements, and rules for verification.<sup>1</sup>

All existing and proposed emissions reduction programs involve some kind of verification or certification of self-reported data. The differences appear in the implementation of the verification processes. Which party makes up the verifying body is the primary issue. It may either be a government / regulatory body or a third-party organization that is in some way qualified to perform the data assessment. A centralized verification and enforcement center in the regulator allows for consistency and standardization; however, it requires specialized resources and can pose a heavy monetary burden depending on the number of program participants. Using a third-party verification system allows the costs to be spread among the program participants. If the accreditation system is robust, it can foster the same consistency and standardization as the centralized method.

### COMPARING CURRENT EMISSIONS REDUCTION PROGRAMS

#### U.S. ACID RAIN PROGRAM

The goal of the U.S. Acid Rain Program is to significantly reduce emissions of sulfur dioxide (“SO<sub>2</sub>”) and nitrogen oxide (“NO<sub>x</sub>”), which are the primary causes of acid rain.<sup>2</sup> The SO<sub>2</sub> Program utilizes an allowance trading system, whereas the NO<sub>x</sub> Program does not. Both programs require an accounting of the total emissions from every regulated unit; reported emissions cannot exceed the allowance held for that unit for it to be in compliance.<sup>3</sup>

The U.S. model has a centralized structure with a regulating body, the U.S. Environmental Protection Agency (“EPA”), serving as the verifier. According to the EPA, “[a]pproximately 75 percent of administrative resources in the U.S. SO<sub>2</sub>

Allowance Trading Program are devoted to measuring, tracking and quality assuring emissions.”<sup>4</sup> Once the facility monitoring plan is certified, the facility must adhere to ongoing quality assurance and quality control testing requirements.

The organizing principles for measurement, reporting, and validation are maintaining accountability and providing administrative certainty.<sup>5</sup> Administrative certainty is created by making processes routine and minimizing regulatory discretion. Government resources are focused on measurement and information systems for standardized reporting and simplified auditing procedures. The regulator in the U.S. systems is the EPA in conjunction with state and local officials. The key features of the U.S. model are: detailed rules for measurement and reporting; extensive use of information technology (“IT”); automatic and non-discretionary penalties; and public access to data.<sup>6</sup>

Industry and the government have integrated their IT systems for emissions reporting, auditing, allowance transfers, and other administrative functions. In all programs, regulated sources must report all emissions as measured by continuous emissions monitors. Standard reporting procedures and software have been issued by the EPA for such reporting. Emissions are submitted to the Emissions Tracking System using “ETS-FTP” software.<sup>7</sup> Companies can use this software to check their data prior to submitting it, allowing mistakes to be corrected before an audit.<sup>8</sup> Automatic penalties focus corporate efforts on reduction strategies rather than politicking for waivers. Discretionary civil and criminal penalties are also available in addition to the automatic fine; the fines are fixed such that they far exceed the market price of an allowance certificate, providing a further incentive for compliance with the system.<sup>9</sup>

#### U.S. CLIMATE LEADERS PROGRAM

The Climate Leaders Program is a voluntary partnership between industry and the EPA to develop comprehensive climate change strategies. Program participants develop corporate greenhouse gas (“GHG”) reduction goals and measure their progress by inventorying their emissions.<sup>10</sup> Participants must report their inventory to the EPA annually. In exchange for their participation, the EPA provides recognition through press releases and conferences, technical assistance to develop a GHG inventory, and credibility through a transparent GHG reporting system.<sup>11</sup>

The Climate Leaders Program requires that participants document emissions from the six major GHGs<sup>12</sup> on a company-

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wide basis, which includes at a minimum all domestic facilities associated with onsite fuel consumption, process-related emissions (as applicable), refrigeration and air conditioning use, and indirect emissions from electricity/steam purchases.<sup>13</sup> The reporting requirements for the Climate Leaders Program consist of three major components: an Inventory Management Plan (“IMP”), the Annual GHG Inventory Summary and Goal Tracking Form, and the review process. The IMP describes the company’s process for completing the corporate GHG inventory, and the company uses the IMP to “institutionalize a process for collecting, calculating, and maintaining GHG data.”<sup>14</sup> EPA has provided guidance documentation for developing a corporate GHG inventory and inventory management plan and setting a GHG reduction goal.<sup>15</sup>

The GHG Inventory Summary and Goal Tracking Form is submitted annually using a standardized form.<sup>16</sup> The form describes total carbon dioxide (“CO<sub>2</sub>”)–equivalent emissions and offsets for both domestic and international sources. Historical totals and performance indicators are also included to track the progress toward a reduction goal.<sup>17</sup>

The final reporting requirement is a review. The EPA performs a desktop review of the company’s IMP and corporate GHG inventory data and also conducts a site visit to ensure the accuracy of the facility-level implementation of the IMP. Facility-level GHG data reviews are also available for interested companies. Some companies have found that these facility-level reviews help to improve the quality of their inventory.<sup>18</sup> The Climate Leaders Program also has a reporting option for using third-party verification for reporting GHG inventories as an alternative to the primary reporting option.<sup>19</sup>

## EU EMISSIONS TRADING SYSTEM

The EU Emissions Trading System (“EU ETS”) encompasses over 11,500 installations in 25 countries.<sup>20</sup> During the first phase of the program, spanning from 2005 to 2007, the ETS will cover only CO<sub>2</sub> emissions from large emitters in the power and heat generation industry and in selected energy-intensive industrial divisions.<sup>21</sup> This will include emitters such as combustion plants, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, bricks, ceramics, pulp, and paper.<sup>22</sup>

The development of the EU ETS has been largely influenced by the U.S. SO<sub>2</sub> program; however, the primary difference between the two programs is the level of decentralization of the EU ETS, which is the result of the EU political structure.<sup>23</sup> The EU established the ETS framework but implementation, compliance, and enforcement strategies are left to the discretion of the Member States. Additionally, emission-verification policy determinations are delegated to the Member States, such as whether

verification would occur through a government authority or a third-party, along with defining the rules and procedures for verifier accreditation.<sup>24</sup> However, because consistency is desirable, Implementation Committees are engaged in the harmonization of implementation provisions across Member States.<sup>25</sup>

The European Commission is required to adopt binding Guidelines for Monitoring and Reporting (“MRG”) by the EU ETS Directive. Member States must ensure that the provisions of the guidelines are applied in the monitoring and annual reporting of greenhouse gas emissions of each of the installations covered by the EU ETS.<sup>26</sup> The MRG defines monitoring methodology as “the methodology used for the determination of emissions, including the choice between calculation and measurement, and the choice of tiers [of levels of assurance].”<sup>27</sup> The monitoring methodology specifies how an operator of an installation will carry out the monitoring and reporting of CO<sub>2</sub>-emissions for that

specific installation. Approval of the monitoring methodology is part of the permit granting process.<sup>28</sup>

Installation operators are required to ensure that their report are compliant with the applicable monitoring methodology; additionally, independent third-party verification is required for all self-reported emissions.<sup>29</sup> As stated above, the verifier can either be a government body or an accredited verifier, depending on the state’s verification policy. A guidance document prepared under the European Cooperation for Accreditation Certification Committee

details a harmonized approach to the recognition of verification bodies under the EU ETS Directive and the MRG.<sup>30</sup>

## NEW SOUTH WALES GREENHOUSE GAS ABATEMENT SCHEME

The New South Wales Greenhouse Gas Abatement Scheme (“NSW GGAS”) is a state-based mandatory emissions reduction program in Australia. The NSW GGAS targets the electricity sector, which is responsible for 39 percent of the state’s emissions.<sup>31</sup> Electricity retailers and large end-users are required to meet mandatory emissions targets by reducing their GHG emissions or participating in off-set activities such as purchasing NSW greenhouse gas abatement certificates (“NGACs”) from accredited abatement certificate providers.<sup>32</sup>

The regulatory body administering the NSW GGAS is the Independent Pricing and Regulatory Tribunal of NSW (“IPART”). IPART is the Compliance Regulator and Scheme Administrator responsible for managing the creation and transfer of NGACs. A participant is in compliance with the NSW GGAS if its attributable emissions are less than or equal to its GHG benchmark; excess emissions are subject to a penalty per metric ton of CO<sub>2</sub>.<sup>33</sup>

Accredited NGAC providers produce NGACs through project-based GHG abatement activities like demand-side-abatement, carbon-sequestration projects, and implementation

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of new low-emission generation within NSW.<sup>34</sup> Renewable energy certificates can also be used to off-set emissions exceeding the benchmark level in limited circumstances. NSW GGAS participants must surrender certificates equivalent to the GHG emissions above the benchmark level.<sup>35</sup>

The primary reporting requirement for benchmark participants is the Annual Greenhouse Gas Benchmark Statement (“Benchmark Statement”), which details the participant’s electricity sales or purchases, GHG benchmark, and abatement certificates surrendered.<sup>36</sup> However, prior to submission, the Benchmark Statement must be audited for data accuracy and record-keeping system quality. According to the GGAS website, “The role of the auditor is important in bringing an appropriate level of assurance, integrity and transparency to the Scheme.”<sup>37</sup> IPART has established an audit panel in order to maintain a qualified pool of auditors to support the objectives and effectiveness of the Scheme. Audit activity associated with the NSW GGAS can only be performed by approved auditors.<sup>38</sup>

#### VERIFICATION BEST PRACTICES

The common challenge for all countries is to develop verification structures and processes that are credible and efficient.<sup>39</sup> The key principles for a credible verification system are consistency, transparency, independence, ethical conduct, truthful disclosure, and due professional care.<sup>40</sup> Each of the programs described above provide examples of best practices relating to emissions reporting and verification, particularly the role of third-party verification.

One primary reason for using third-party verification is to avoid creating extensive new bureaucratic institutions. Rather than creating a “greenhouse gas accounting firm,” the government may focus its resources on certifying or accrediting private organizations. Private organizations are better positioned to develop efficient ways to meet verification requirements in order to achieve their targeted bottom line. Best practices developed by individual organizations will eventually evolve into industry standards, particularly where private companies participate in efforts by international organizations that represent a broad cross-section of industry, government, and non-governmental organizations. For example, the Greenhouse Gas Protocol Initiative seeks to produce uniform GHG accounting and reporting standards so that they are consistent across different trading schemes.<sup>41</sup> Uniformity and consistency have the potential of evolving naturally, despite different implementation strategies, where a general consensus was reached on the standards.

As shown by the NSW GGAS, creating a comprehensive verification protocol that adheres to these principles requires an intense development process. GGAS took approximately nine

months to go from a blank sheet to registered projects and certificates. The development process required trial assessments, guidance development, audit guidelines and training, and setting monitoring and compliance criteria.<sup>42</sup> Even in a system that formally includes third-party verification in its monitoring and compliance processes required extensive documentation of the accreditation and oversight responsibilities of the governing body.

Creating a viable third-party verification scheme in a decentralized system such as the EU ETS is difficult since all implementation processes and regulations are delegated to the individual participating countries. However, a guidance document prepared under the European Cooperation for Accreditation Certification Committee details a harmonized approach to the recognition of verification bodies under the EU ETS Directive and the MRG. Using this guidance would enable states to confirm that the proposed verifying organization has the necessary organiza-

tional controls, safeguards to prevent conflicts of interest, and competent individuals able to conduct in-depth verification of reported emissions.<sup>43</sup> The EU ETS is composed of 40 different accreditations in 25 countries, with different accreditation requirements and at least three sets of deadlines.<sup>44</sup> A standardized approach to certifying verifiers would resolve many of these issues currently facing verification companies.

The use of IT for emissions reporting and verification

provides a wide range of benefits including increased accuracy and speed, reduced administrative costs, and enhanced data analysis and comparability.<sup>45</sup> Electronic reporting contains standardized data requirements and enables for quality assurance and quality control checks (“QA/QC”) in real time for missing data, mathematical and methodology checks, and statistical analyses.<sup>46</sup> These QA/QC checks enable routine desk audits and allow for selective use of in-depth reviews depending on risk assessment or other factors. The United States has implemented IT very successfully into its SO<sub>2</sub> and NO<sub>x</sub> programs. The detailed nature of the regulation structure and the vast amount of data that must be handled allowed the operation of the trading programs to be built around IT systems.<sup>47</sup> Feedback provided to company officials facilitates improved data quality and compliance with regulations. IT systems also promote transparency to foster credibility and public acceptance of emissions trading programs. Public access to the data is a further incentive for compliance, since annual compliance reports are published, and have been used by non-governmental organizations and other organizations for a variety of purposes such as assessing the impacts of trades and comparing company emission profiles.<sup>48</sup> Regardless of whether continuous emissions monitoring or alternative methods for calculat-

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ing emissions are used, developing IT systems for reporting and verification processes will facilitate verification for compliance and enforcement.

## CONCLUSION

Even in the absence of mandatory limits on GHG emissions, corporations are increasingly expected by their stakeholders to disclose their emissions footprint and associated mitigation strategies. An independent verification of self-reported data, either within or outside of a regulated reporting structure, provides credibility and a level of assurance in the validity of the reported data. Involving an independent third-party in the verification process allows both companies and government to

benefit from their experience and expertise, and also their external perspective.

The references of the U.S. programs with SO<sub>2</sub> and NO<sub>x</sub> programs are small centralized systems with the government assuming the role of the verifier. Third-party verification has increasingly become the preferred method of compliance auditing as new trading systems have come online – in both centralized systems, as in New South Wales, and decentralized systems, such as the EU ETS. All of these trading protocols are relatively young, and questions still remain regarding how verification should be conducted and who should conduct it. Questions such as these must be resolved before we can hope to create a viable global emissions trading system.



## ENDNOTES: Verification in Emissions Trading Systems

<sup>1</sup> Gudmundur Sigurthorsson, Stakeholder Perspectives: Third Party Verifiers, Presentation at the Confidence Through Compliance in Emissions Trading Markets workshop sponsored by the Int'l Network for Env'tl. Compliance & Enforcement (Nov. 17-18, 2005), available at <http://inece.org/emissions> (last visited Jan. 10, 2006).

<sup>2</sup> U.S. Env'tl. Protection Agency ("EPA") website, Clean Air Markets – Programs and Regulations, available at <http://www.epa.gov/airmarkets/arp/index.html> (last visited Jan. 10, 2006).

<sup>3</sup> EPA, Clean Air Markets – Programs and Regulations, Continuous Emissions Monitoring Fact Sheet, available at <http://www.epa.gov/airmarkets/monitoring/factsheet.html> (last visited Jan. 10, 2006).

<sup>4</sup> EPA, TOOLS OF THE TRADE: A GUIDE TO DESIGNING AND OPERATING A CAP-AND-TRADE PROGRAM FOR POLLUTION CONTROL, at B-3, available at <http://www.epa.gov/airmarkets/international/tools.pdf> (last visited Jan. 10, 2006).

<sup>5</sup> Joe Kruger, U.S. Model for Compliance and Enforcement in Trading Programs: Past Experience and Future Challenges, Presentation at the Confidence Through Compliance in Emissions Trading Markets workshop sponsored by the Int'l Network for Env'tl. Compliance & Enforcement (Nov. 17-18, 2005), available at <http://inece.org/emissions> (last visited Jan. 10, 2006).

<sup>6</sup> Kruger, *id.*

<sup>7</sup> EPA website, Report Emissions – Monitoring Data Checking Software, available at <http://www.epa.gov/airmarkets/reporting/index.html#otc> (last visited Jan. 10, 2006).

<sup>8</sup> Kruger, *supra* note 5.

<sup>9</sup> Kruger, *supra* note 5.

<sup>10</sup> EPA CLIMATE LEADERS PARTNER RESOURCES, CLIMATE LEADERS PROGRAM GUIDE: SETTING THE STANDARD FOR GREENHOUSE GAS MANAGEMENT, available at <http://www.epa.gov/climateleaders/resources/index.html> (last visited Jan. 10, 2006).

<sup>11</sup> EPA CLIMATE LEADERS PARTNER RESOURCES, *id.*

<sup>12</sup> The six major greenhouse gases include carbon dioxide ("CO<sub>2</sub>"), methane ("CH<sub>4</sub>"), nitrous oxide ("N<sub>2</sub>O"), hydrofluorocarbons ("HFCs"), perfluorocarbons ("PFCs"), and sulphur hexafluoride ("SF<sub>6</sub>").

<sup>13</sup> EPA website, About Climate Leaders, available at <http://www.epa.gov/climateleaders/aboutus.html> (last visited Jan. 10, 2006).

<sup>14</sup> EPA CLIMATE LEADERS REPORTING REQUIREMENTS, INVENTORY MANAGEMENT PLAN, available at <http://www.epa.gov/climateleaders/resources/reporting.html> (last visited Jan. 10, 2006).

<sup>15</sup> See e.g., Inventory Management Plan Checklist; Climate Leaders GHG Inventory Guidance; Goal Setting Fact Sheet; Climate Leaders GHG Inventory, available at <http://www.epa.gov/climateleaders/aboutus.html> (last visited Jan. 20, 2006).

<sup>16</sup> EPA website, Annual GHG Inventory Summary & Goal Tracking Form, available at <http://www.epa.gov/climateleaders/resources/reporting.html> (last visited Jan. 10, 2006).

<sup>17</sup> GHG Summary and Goal Tracking Form, *id.*

<sup>18</sup> EPA website, EPA Climate Leaders Reporting Requirements and Technical Assistance, available at <http://www.epa.gov/climateleaders/resources/reporting.html> (last visited Jan. 10, 2006).

<sup>19</sup> EPA reporting, *id.* (stating that "EPA allows Partners that undertake a rigorous third-party verification of their GHG inventories to submit a verification report certifying that, at a minimum, the requirements of the Climate Leaders GHG inventory review have been met.").

<sup>20</sup> Press Release, EUROPA, Questions & Answers on Aviation & Climate Change (Sept. 27, 2005), available at <http://europa.eu.int/rapid/pressReleasesAction.do?reference=MEMO/05/341> (last visited Jan. 20, 2006).

<sup>21</sup> European Commission website, EU Action Against Climate Change, available at [http://europa.eu.int/comm/environment/climat/pdf/emission\\_trading2\\_en.pdf](http://europa.eu.int/comm/environment/climat/pdf/emission_trading2_en.pdf) (last visited Jan. 26, 2006).

<sup>22</sup> European Commission website, *id.*

<sup>23</sup> Christian Egenhofer, The European Model: Principal Challenges of EU Regulatory Culture, Presentation at the Confidence Through Compliance in Emissions Trading Markets workshop sponsored by the Int'l Network for Env'tl. Compliance & Enforcement (Nov. 17-18, 2005), available at <http://inece.org/emissions> (last visited Jan. 26, 2006).

<sup>24</sup> Joe Kruger & Christian Egenhofer, *Confidence Through Compliance in Emissions Trading Markets*, (Background paper developed for the Confidence Through Compliance in Emissions Trading Markets workshop sponsored by the Int'l Network for Env'tl. Compliance & Enforcement, Nov 17-18, 2005, available at [inece.org/emissions](http://inece.org/emissions)), *infra* at 2.

<sup>25</sup> Kruger & Egenhofer, *id.* at 2.

<sup>26</sup> European Union Commission website, Answers to Frequently Asked Questions on Commission Decision 2004/156/EC of 29 January 2004 establishing guidelines for the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC, Mar. 2, 2005, available at [http://europa.eu.int/comm/environment/climat/emission/pdf/monitoring\\_report\\_faq.pdf](http://europa.eu.int/comm/environment/climat/emission/pdf/monitoring_report_faq.pdf) (last visited Jan. 10, 2006) [hereinafter FAQ].

<sup>27</sup> FAQ, *id.*

<sup>28</sup> FAQ, *id.*

<sup>29</sup> Kruger & Egenhofer, *infra* at 2.

<sup>30</sup> *EA Guidance For Recognition of Verification Bodies Under EU ETS Directive*, EA-6/03, European co-operation for Accreditation, Mar. 2005, available at <http://www.european-accreditation.org/content/publications/default.htm> (click on Series 6; download EA-6/03) (last visited Jan. 6, 2006).

<sup>31</sup> Robert Fowler, Innovative Aspects of Trading Innovative Aspects of Trading Systems: Lessons from NSW GGAS, Presentation at the Confidence Through Compliance in Emissions Trading Markets workshop sponsored by the Int'l Network for Env'tl. Compliance & Enforcement (Nov. 17-18, 2005), available at <http://inece.org/emissions> (last visited Jan. 6, 2006).

<sup>32</sup> Independent Pricing and Regulatory Tribunal of New South Wales by Acuiti Legal, Overview of the NSW Greenhouse Gas Abatement Scheme, at 1, May 2003, available at <http://greenhousegas.nsw.gov.au/documents/syn58.asp> (last visited Jan. 6, 2006).

<sup>33</sup> *NSW Overview*, *id.* at 9.

<sup>34</sup> Hugh Outhred, Emission reduction schemes, Presentation at Queensland Power and Gas Conference, (Feb. 23-24, 2004), available at [http://www.ergo.ee.unsw.edu.au/qldpower2004\\_Emissions Regulation.pdf](http://www.ergo.ee.unsw.edu.au/qldpower2004_Emissions%20Regulation.pdf) (last visited Jan. 10, 2006).

<sup>35</sup> Outhred, *id.* at 7.

<sup>36</sup> Greenhouse Gas Abatement Scheme website, Benchmark Participants: Compliance with the Scheme, available at [http://greenhousegas.nsw.gov.au/benchmark/benchmark\\_compliance.asp](http://greenhousegas.nsw.gov.au/benchmark/benchmark_compliance.asp) (last visited Jan. 6, 2006).

<sup>37</sup> Greenhouse Gas Abatement Scheme website, Audit Panel Guide to Applying, at 4, available at <http://greenhousegas.nsw.gov.au/audit/joining.asp> (click on Guide to Applying) (last visited Jan. 20, 2006).

<sup>38</sup> Guide to Applying, *id.* at 5.

<sup>39</sup> Gudmundur Sigurthorsson, Stakeholder Perspectives: Third Party Verifiers, Presentation at the Confidence Through Compliance in Emissions Trading Markets workshop sponsored by the Int'l Network for Env'tl. Compliance & Enforcement (Nov. 17-18, 2005), available at <http://inece.org/emissions> (last visited Jan. 26, 2006).

<sup>40</sup> Sigurthorsson, *id.*

<sup>41</sup> See generally, Greenhouse Gas Protocol Initiative, available at <http://www.ghgprotocol.org/DocRoot/oMsLK1c26xWiEW26h3B5/ghg-protocol-revised.pdf> (last visited Jan. 20, 2006) (The Greenhouse Gas Protocol Initiative is a joint effort of the World Resources Institute and the World Business Council for Sustainable Development).

<sup>42</sup> Robert Fowler, Innovative Aspects of Trading Innovative Aspects of Trading Systems: Lessons from NSW GGAS, Presentation at the Confidence Through Compliance in Emissions Trading Markets workshop sponsored by the Int'l Network for Env'tl. Compliance & Enforcement (Nov. 17-18, 2005), available at <http://inece.org/emissions> (last visited Jan. 6, 2006).

<sup>43</sup> European Co-operation for Accreditation, *EA Guidance For Recognition of Verification Bodies Under EU ETS Directive*, EA-6/03, Mar. 2005, available at <http://www.european-accreditation.org/content/publications/default.htm> (click on Publications; Content; Series 6; download EA-6/03) (last visited Jan. 20, 2006).

<sup>44</sup> Sigurthorsson, *supra* note 39.

<sup>45</sup> Jeremy Schreifels, The Digital Administrator: Information Technologies for Improving Compliance, Presentation at the Confidence Through Compliance in Emissions Trading Markets workshop sponsored by the Int'l Network for Env'tl. Compliance & Enforcement (Nov. 17-18, 2005), available at <http://inece.org/emissions> (last visited Jan. 6, 2006).

<sup>46</sup> Schreifels, *id.*

<sup>47</sup> Kruger & Egenhofer, *infra* at 2.

<sup>48</sup> Kruger, *supra* note 5.