

**STAKEHOLDER REACTION TO EMISSIONS TRADING IN  
THE UNITED STATES, THE EUROPEAN UNION, AND THE  
NETHERLANDS**

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I. INTRODUCTION

As a contribution to the debate over market-based environmental regulation, this article examines the reaction of stakeholders to cap-and-trade programs proposed or implemented in the United States (U.S.), the European Union (EU), and the Netherlands for industrial emissions of certain pollutants. Those pollutants include nitrogen oxides (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), mercury (Hg), and greenhouse gases such as carbon dioxide (CO<sub>2</sub>). For the purpose of

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the article, stakeholders include industry, environmental groups, and regulators.

The broad conclusion, to which the remainder of the article provides context, is straightforward: Industry dislikes regulation. It strongly dislikes redundancy. It loathes uncertainty. Even emitters that have profited through emissions trading seem to remain generally averse to uncertainty. The result is a bias for the status quo, except when that status quo becomes too unpredictable or otherwise burdensome, and a bias against overlapping regulatory regimes.

In examining the reactions of industry and environmental groups, two distinctions are particularly important. The first distinction is between the *method* of emissions regulation and the *extent* of emissions reduction. A group's public arguments for or against a cap-and-trade regime may often obfuscate which of these is the primary motivator. For example, a polluter may publicly oppose the introduction of cap-and-trade largely out of a private concern that any regulatory change would be accompanied by a tightening of the relevant pollution standard.

The second related distinction is between the "cap" and the "trade" in a cap-and-trade regime. The cap determines the extent of overall emissions reduction, whereas the trade enables the regulatory targets to collectively achieve that reduction. But like the trade, the cap also delegates some decisions to the regulatory targets, such as the choice between switching fuels and abating emissions. In other words, *both* elements provide flexibility that a command-and-control regime might not.

Following this introduction, Section II discusses U.S. cap-and-trade programs for SO<sub>2</sub>, NO<sub>x</sub>, and mercury as well as cap-and-trade proposals for greenhouse gas emissions. Both industry and environmental groups (with some prominent exceptions) have been cautiously receptive to cap-and-trade as a method, although environmental groups have generally opposed the use of cap-and-trade for mercury emissions.

Section III discusses the European Union's Emissions Trading Scheme (EU ETS) for greenhouse gases and the European Commission's ongoing exploration of a similar regime for SO<sub>2</sub> and NO<sub>x</sub>. Both industry and environmental groups have cautiously supported EU ETS but have resisted similar regulation of SO<sub>2</sub> and NO<sub>x</sub>, for which an integrated command-and-control regime already exists.

Section IV discusses the Netherlands' cap-and-trade program for NO<sub>x</sub>. Industry generally supported the program's introduction but has since objected to the unpredictability and rigidity created

by the interaction with the European Union's command-and-control regime for NO<sub>x</sub>.

Section V concludes.

## II. CAP-AND-TRADE PROGRAMS IN THE UNITED STATES

### *A. Background*

The federal and state governments of the United States limit certain emissions of SO<sub>2</sub>, NO<sub>x</sub>, and mercury through a combination of command-and-control and cap-and-trade regulation. This section discusses three federally-inspired cap-and-trade programs: the Acid Rain Program's SO<sub>2</sub> Allowance Trading Program, the so-called "Clean Air Interstate Rule" (CAIR) for SO<sub>2</sub> and NO<sub>x</sub>, and the so-called "Clean Air Mercury Rule" (CAMR) for mercury.<sup>1</sup> It does not directly examine two state-inspired programs that also include market-based mechanisms: the RECLAIM program for SO<sub>2</sub> and NO<sub>x</sub> in Southern California and the OTC Regional NO<sub>x</sub> Trading Program in the Northeastern United States (which CAIR replaces).

As this complex regulatory web suggests, the U.S. experience is most instructive when understood in the context of the country's jurisdictional and geographic anomalies. State governments share responsibility with the federal government for environmental protection and often implement federal programs and standards. The fifty states also cooperate and compete with each other, and emissions from upwind states impact the quality of air, water, and soil in downwind states. Coal—the dominant fuel for stationary power sources in the United States—varies regionally by price and by sulfur content. These conditions have affected the political compromises and design decisions inherent in the three programs discussed below.

### *B. Acid Rain Program*

#### 1. Stakeholder Response to the Clean Air Act Amendments (CAAA): 1990

The Acid Rain Program, established under the 1990 Clean Air Act Amendments (CAAA), includes a command-and-control regime for NO<sub>x</sub> and a cap-and-trade regime for SO<sub>2</sub>. This article focuses on

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1. As a result of court decisions and the 2008 U.S. presidential election, both CAIR and CAMR will be replaced by new rules. In the interim, only CAIR is in effect. *See North Carolina v. EPA*, 550 F.3d 1176 (D.C. Cir. 2008); *New Jersey v. EPA*, 517 F.3d 574 (D.C. Cir. 2008); *see also* Motion of the Environmental Protection Agency to Dismiss the Case, *EPA v. New Jersey*, available at [http://www.epa.gov/mercuryrule/pdfs/certpetition\\_withdrawal.pdf](http://www.epa.gov/mercuryrule/pdfs/certpetition_withdrawal.pdf).

the latter, which supplements an existing command-and-control regime under which utilities tend to mitigate ambient air pollution by increasing their stack heights.<sup>2</sup>

Statements leading up to the CAAA highlight the public positions of certain stakeholders. The final act was signed by then-President Bush<sup>3</sup> and enjoyed overwhelming support from both houses of Congress, with nearly ninety percent of legislators voting to approve it.<sup>4</sup> Nonetheless, the CAAA did face opposition. An industry coalition predicted that the entire bill, including the SO<sub>2</sub>, NO<sub>x</sub>, and air toxin provisions, would eliminate 600,000 jobs and “dramatically change our lifestyles,” presumably not for the better.<sup>5</sup> The National Coal Association accused Congress of defying science and economics.<sup>6</sup> The American Mining Congress predicted adverse economic effects.<sup>7</sup> (The National Gas Association, meanwhile, welcomed the amendment’s “significant opportunities” for its members.<sup>8</sup>)

President Bush and many of his top advisors embraced, and indeed insisted on, the inclusion of a cap-and-trade program.<sup>9</sup> His administrator of the federal Environmental Protection Agency (EPA) described the program as “innovative” and critical to helping Bush “break the clean air logjam.”<sup>10</sup>

Utilities and other industrial stakeholders were generally ambivalent toward the SO<sub>2</sub> cap-and-trade program. In an editorial, the *Journal of Commerce* supported emissions trading over a proposed emissions tax that would have subsidized the installation of pollution controls at the dirtiest facilities.<sup>11</sup> A major coal-hauling railroad called the emissions trading regime “murky.”<sup>12</sup> A major electric company questioned whether emission trading would work at all.<sup>13</sup> The Electricity Consumers Resource Council described the trading regime as “an extra hoop to make utilities jump through”

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2. Dallas Burtraw et al., *Economics of Pollution Trading for SO<sub>2</sub> and NO<sub>x</sub>*, 30 ANN. REV. ENVTL. RESOURCES, 253, 257 (2005).

3. *Clean Air Act Signed into Law by Pres. Bush*, 238 CHEMICAL MARKETING REP. 5 at 21, Nov. 19, 1990 [hereinafter *Clean Air Act Signed*].

4. *See Acid Rain Curbs: A Technical Summary*, J. COM., Nov. 9, 1990, at 14A [hereinafter *Acid Rain Curbs*].

5. *Clean Air Act Signed*, *supra* note 3.

6. *Acid Rain Curbs*, *supra* note 4, at 14A.

7. *Id.*

8. *Id.*

9. *Congress Wraps Up Clean Air Bill, Retaining Basic Acid Rain Package*, INDUSTRIAL ENERGY BULLETIN 14A (Oct. 26, 1990) [hereinafter *Congress Wraps Up*].

10. *Clean Air Act Signed*, *supra* note 3. This article attributes statements by an organization’s official to that organization.

11. *Acid Rain Runaround*, J. COM., Jan. 22, 1990, at 8A.

12. Tim Sansbury, *Inside Talk on Coal*, J. COM., Nov. 8, 1990, at B7.

13. *Id.*

in what was predominately a command-and-control regime.<sup>14</sup> An energy holding company likewise predicted that little, if any, trading would occur, producing an onerously complex regime with the cost of command-and-control.<sup>15</sup>

Some eight months before passage of the CAAA, three dominant electric utility groups with oft-conflicting goals together offered an alternative that would have allowed the measurement of emissions on a company-wide, statewide, or power pool average.<sup>16</sup> However, this alternate proposal received scant attention.<sup>17</sup> Three months before passage of the CAAA, these groups then identified six common priorities.<sup>18</sup> Of the six, only one related to emissions trading: the ability of utilities to opt in to the regime sooner than would otherwise be required.<sup>19</sup> This provision, which the CAAA incorporates, increased the number of credits available for trade and partially addressed fears of illiquidity in the market.<sup>20</sup>

The National Association of Regulatory Utility Commissioners supported emissions trading as a concept but warned that a cap could create electricity rationing.<sup>21</sup> The potential role of these state utility regulators—as well as their environmental counterparts—created substantial uncertainty. It was unclear whether each state's regulators would encourage or discourage trading and whether they would seek to limit that trading to within their state.<sup>22</sup>

Environmental groups were split on the cap-and-trade program. The Environmental Defense Fund (EDF) worked closely with the EPA and the White House to shape and then promote the program.<sup>23</sup> In contrast, the Sierra Club criticized the EDF for abandoning command-and-control and for implicitly accepting some pollution.<sup>24</sup> A former EDF official who was instrumental in the design of the trading scheme argued that “the environmental community slowly is coming to realize that industry isn't a giant mono-

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14. *Congress Wraps Up*, *supra* note 9, at 1, 3.

15. *Clean Air Triggers Massive Scrubber Use*, 11 COAL & SYNFUELS TECH. (1990).

16. *Alternative Acid Rain Proposal Unites Split Industry Views*, 68 ELECTRIC LIGHT & POWER (March 1990) [hereinafter *Alternative Acid Rain Proposal*].

17. *Regulators Forge Acid Rain Compromise*, 68 ELEC. LIGHT & POWER (April 1990).

18. *Industry United on Six Clean Air Issues as Minimum for Good Bill*, ELECTRIC UTILITY WK., Aug. 13, 1990, at 11; *Emissions Trading Provokes Mixed Reactions*, 11 COAL & SYNFUELS TECH. (June 4, 1990).

19. *Id.*

20. *Id.*

21. *Alternative Acid Rain Proposal*, *supra* note 16.

22. *Allowance Trades Will Be 'Prudence Issue of the '90s,' EEI Meeting Told*, ELECTRIC UTILITY WK., Nov. 12, 1990, at 10.

23. William H. Miller, *Earth Day: Twenty Years Later*, INDUSTRY WK., March 19, 1990, at 87.

24. *Id.*

lith that automatically must be opposed.”<sup>25</sup> Nonetheless, one of the keys to the program’s broad support was its incorporation of significant emissions reductions in conjunction with the new regulatory regime.<sup>26</sup>

Edmund Muskie, who championed the original Clean Air Act as a senator, recognized that the amendments were passed against the background of the global climate change negotiations.<sup>27</sup> Similarly, an energy holding company skeptical of the trading system suggested that environmental groups promoted the program as a “stalking horse” for a future greenhouse gas trading regime.<sup>28</sup>

## 2. Stakeholder Response to Phase I: 1995-1999<sup>29</sup>

The response of utilities with capped facilities evolved throughout Phase I of the Acid Rain Program. Byron Swift describes this response as “three overlapping stages”: uncertainty, recalibration, and profit-seeking.<sup>30</sup> In the first stage, a combination of uncertainty about market fluidity, uncertainty about allowance prices, and the resulting overestimation of those prices drove utilities to overinvest in compliance measures such as scrubber installation.<sup>31</sup>

In the second stage, as actual allowance prices turned out to be much lower than expected, utilities opted for the use of low-sulfur coal over the installation of scrubbers.<sup>32</sup> Because utilities did not need regulatory approval to change their compliance strategy, the “cap” was largely responsible for the “relatively rapid response to price signals.”<sup>33</sup> “Trades” were less important and largely took the form of allowance banking and intrafirm averaging rather than interfirm transactions.<sup>34</sup>

In the third stage, toward the end of Phase I, utilities began to embrace the allowance market more as a profit source than as a compliance tool.<sup>35</sup> Arbitrage and profit-motivated trades grew in prominence, and many utilities moved responsibility for trading

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25. *Id.*

26. Burtraw et al., *supra* note 2, at 261.

27. *Clean Air Act Signed*, *supra* note 3.

28. *Clean Air Triggers Massive Scrubber Use*, *supra* note 15.

29. See generally Byron Swift, *How Environmental Laws Work: An Analysis of the Utility Sector’s Response to Regulation of Nitrogen Oxides and Sulfur Dioxide Under the Clean Air Act*, 14 TUL. ENVTL. L.J. 309, 320-47 (2001).

30. *Id.* at 322-323.

31. *Id.* at 322.

32. *Id.* at 322-23.

33. *Id.* at 323.

34. *Id.*

35. *Id.*

from their environmental division to a new division or corporate entity dedicated to energy-related commodities.<sup>36</sup>

Emissions from Phase I were thirty percent below the cap.<sup>37</sup> There are several explanations for this over-compliance by the affected utilities. First, environmental regulations, including the traditional command-and-control approach, often produce net overcompliance as conservative utilities seek a margin of safety.<sup>38</sup> Second, the provision of a substantial number of “bonus” allowances encouraged the installation of scrubbers.<sup>39</sup> Third, the costs of compliance were lower than expected due to innovation and competition in both low-sulfur coal and scrubbing technology.<sup>40</sup> Fourth, utilities could bank allowances with the expectation that these allowances would become more valuable in Phase II.<sup>41</sup>

Utilities accomplished these reductions largely by embracing go-it-alone compliance. While different utilities adopted varying primary strategies, they collectively achieved nearly sixty percent of their emission reductions through the use of low-sulfur coal and thirty-five percent through the installation of scrubbers (and the subsequently high utilization of those scrubbed units).<sup>42</sup> Because the program permitted substitution, nearly one-fifth of these reductions occurred at plants that were *not* capped in Phase I.<sup>43</sup>

Trading, to the extent that it occurred, also reflected an autarkic approach. Under-emitting units generated some fourteen million allowances (that is, tons of SO<sub>2</sub>) during Phase I.<sup>44</sup> Of these, utilities banked seventy-five percent, transferred twenty percent between their own units for intrafirm averaging, and transferred only five percent between firms for the purpose of compliance.<sup>45</sup> However, “economically unrelated entities” traded more than thirty million allowances during the same period, a number that reflects the predominance of arbitrage and other profit-motivated trades.<sup>46</sup>

This approach was surprising, because “most economic analyses reveal substantial differences in compliance costs among the Phase I units.”<sup>47</sup> This disparity would have had the greatest impact on smaller utilities with limited options for intrafirm trad-

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36. *Id.* at 347.

37. *Id.* at 325.

38. *Id.*

39. *Id.*

40. *Id.* at 324.

41. *Id.* at 325.

42. *Id.* at 330, 333, 335.

43. *Id.* at 340.

44. *Id.* at 344.

45. *Id.* at 341-47.

46. *Id.* at 341.

47. *Id.* at 327.

ing.<sup>48</sup> Commentators offer several explanations for the failure of utilities to fully exploit this imperfect market.<sup>49</sup> First, these utilities did not view environmental compliance as a collective effort.<sup>50</sup> Second, state public utility regulators often eliminated the profit motive by treating gains from allowance trading as an element of fuel cost to be refunded to ratepayers.<sup>51</sup> Third, federal tax regulators required the first seller of any allowance to treat the entire selling price as taxable gain (because allowances were distributed for free and therefore had a zero cost basis).<sup>52</sup> Fourth, some utilities initially faced public and political opposition to buying a right to pollute.<sup>53</sup>

### 3. Stakeholder Response to Phase II: 2000-Present

Phase II exhibited a more robust market with more confident actors. By the start of this expanded phase in 2000, utilities had banked as many allowances as were allocated that year.<sup>54</sup> Since 2001, allocated allowances have remained steady, actual emissions have declined slightly, and banked allowances have declined significantly.<sup>55</sup>

These trends have also caused some discomfort to utilities. Disruptions such as the 2001 collapse of Enron temporarily stifled Phase II's otherwise robust market.<sup>56</sup> In 2003, a substantial rise in the price of natural gas prompted the increased use of coal plants, while proposed changes to the regulation of SO<sub>2</sub> emissions increased the value of banked allowances.<sup>57</sup> By early 2005, the allowance price reached the level that the EPA had predicted in 1990.<sup>58</sup>

Utilities responded by planning the installation of scrubbers and by turning in the interim to their banked emissions or to an allowance market. Several made multimillion dollar purchases; one utility's poor emissions hedging decreased its 2004 earnings by

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48. *Id.*

49. *Id.* at 345-46.

50. *Id.* at 345.

51. *Id.*

52. *Id.* at 346.

53. *Id.*

54. ENVTL. PROT. AGENCY, ACID RAIN AND RELATED PROGRAMS 9 (2007) [hereinafter *2006 Progress Report*], available at <http://www.epa.gov/airmarkt/progress/docs/2006-ARP-Report.pdf>.

55. *Id.*

56. *Id.* at 12.

57. Matthew Dalton, *Utilities Start to Feel Bite of SO<sub>2</sub> Caps*, WALL ST. J., Apr. 13, 2005, at 1. See also Clean Air & Interstate Rule (CAIR), *infra* note 64.

58. Robert V. Percival, *Regulatory Evolution and the Future of Environmental Policy*, 1997 U. CHI. LEGAL F. 159, 181.

more than ten percent.<sup>59</sup> Abnormally low SO<sub>2</sub> emissions in 2006 resulted primarily from lower demand, as well as a shift from oil to gas and the installation of additional scrubbers.<sup>60</sup>

The Acid Rain Program has received considerable acclaim. *The Economist* labeled the program in 2002 probably “[t]he greatest green success story of the past decade.”<sup>61</sup> The Kyoto Protocol embraced cap-and-trade as key to controlling carbon dioxide emissions.<sup>62</sup> The EPA published a guide for other countries interested in the approach.<sup>63</sup> And the program inspired domestic proposals for cap-and-trade regulation of NO<sub>x</sub>, mercury, and greenhouse gases, discussed below.

### C. Clean Air Interstate Rule (CAIR)

In 2005, the EPA issued final rules for four cap-and-trade programs. The so-called Clean Air Interstate Rule (CAIR) encompasses three of them: SO<sub>2</sub>, annual NO<sub>x</sub>, and ozone-season NO<sub>x</sub>.<sup>64</sup> The SO<sub>2</sub> provisions tighten the Acid Rain Program’s cap and potentially expand its scope.<sup>65</sup> (In a wrinkle of federalism, the EPA requires states to regulate emissions but gives them some flexibility with regard to method. Hence, the EPA manages the cap-and-trade programs on behalf of those states that opt to participate by adopting the EPA’s “model” rules.<sup>66</sup>)

In its final rule, the EPA noted that commenters “overwhelmingly supported the use of a cap and trade approach.”<sup>67</sup> The EPA also emphasized that while its cap-and-trade programs would not require emission reductions to occur in areas most affected by those emissions, it was “encouraging” states to address localized pollution through “complementary measures.”<sup>68</sup>

The final rule acknowledges several areas of significant controversy. The first is the allocation of NO<sub>x</sub> allowances, which the EPA effectively sidesteps by allowing each participating state to deter-

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59. See Dalton, *supra* note 57, at 1.

60. *2006 Progress Report*, *supra* note 54, at 11.

61. *Survey: The Invisible Green Hand*, *ECONOMIST*, July 6, 2002, at 13.

62. Kyoto Protocol to the United Nations Framework Convention on Climate Change art. 6, Dec. 11, 1997, available at <http://unfccc.int/resource/docs/convkp/kpeng.pdf>.

63. U.S. ENVTL. PROT. AGENCY OFFICE OF AIR AND RADIATION, TOOLS OF THE TRADE: A GUIDE TO DESIGNING AND OPERATING A CAP AND TRADE PROGRAM FOR POLLUTION CONTROL, EPA430-B-03-002 (June 2003), available at <http://www.epa.gov/airmarkt/resource/docs/tools.pdf>.

64. Clean Air Interstate Rule, 70 Fed. Reg. 25,162, 25,274 (May 12, 2005) [hereinafter CAIR].

65. *Id.*

66. *Id.*

67. *Id.*

68. *Id.*

mine its own method, frequency, and basis for allocation as well as its use of set-asides.<sup>69</sup>

Like the Acid Rain Program, the NO<sub>x</sub> programs allow unrestricted banking.<sup>70</sup> Utilities objected to the “complex procedures” used to restrict banking in a precursor NO<sub>x</sub> program, and the EPA questioned the effectiveness of such restrictions generally.<sup>71</sup> In addition, utilities may use allowances banked under the Acid Rain Program and the precursor NO<sub>x</sub> program to comply with their CAIR cap.<sup>72</sup>

None of the CAIR programs permit inter-pollutant trading through interchangeability of allowances.<sup>73</sup> As the EPA noted, however, trading is nonetheless possible: “a source can choose the level to which they can cost effectively control one pollutant and, if necessary, buy or sell emission allowances of the other pollutant to compensate for . . . control cost.”<sup>74</sup>

#### *D. Clean Air Mercury Rule (CAMR)*

The Clean Air Mercury Rule (CAMR), which largely mirrors CAIR, likewise allows unrestricted banking and gives states flexibility in the allocation of their allowances.<sup>75</sup> However, many more commentators opposed the use of a cap-and-trade program to control mercury emissions.<sup>76</sup> In addition, because SO<sub>2</sub> and NO<sub>x</sub> controls also reduce mercury, CAMR’s phasing does not require the specific control of mercury beyond this co-benefit until 2010.<sup>77</sup>

Like CAIR, the final rule does *not* cap the price of an emission allowance; unlike CAIR, the EPA had originally proposed such a financial safety valve.<sup>78</sup> Although many utilities supported a price cap, the EPA concluded it was unnecessary in light of CAMR’s delayed phasing and the limited market volatility experienced under the Clean Air Program.<sup>79</sup>

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69. *Id.* at 25,279.

70. *Id.* at 25,282.

71. *Id.*

72. *Id.* at 25,284.

73. *Id.* at 25,283.

74. *Id.* at 25,284.

75. See Clean Air Mercury Rule, 70 Fed. Reg. 28,606, 28,624 (May 18, 2005).

76. *Id.*

77. *Id.* at 28,617.

78. See Press Release, Edison Elect. Inst., Comments of EEI President Tom Kuhn on Senate Vote Affirming A Market-Based Approach for Reducing Mercury Emissions (Sept. 13, 2005) (following the failure in the U.S. Senate of a resolution to overturn CAMR that nonetheless received the support of a narrow majority of senators).

79. Clean Air Mercury Rule, 70 Fed. Reg. at 28,630.

CAMR has been particularly controversial but enjoys the support of many utilities.<sup>80</sup> In two mercury-related press releases, the Edison Electric Institute (EEI), an association of U.S. shareholder-owned electric companies, specifically highlighted cap-and-trade programs as “the fastest and most cost-effective approach for reducing emissions” and argued that such a program for mercury would not produce pollution hot spots.<sup>81</sup>

### *E. Greenhouse Gases*

While industry groups have historically resisted regulation of greenhouse gases, many now recognize that such regulation is inevitable and may even be desirable. The U.S. Climate Action Partnership (USCAP), which includes nearly thirty major industrial companies and six prominent environmental nongovernmental organizations,<sup>82</sup> advocates “the prompt enactment of national legislation . . . to slow, stop and reverse the growth of greenhouse gas emissions over the shortest period of time reasonably achievable.”<sup>83</sup> Cap-and-trade is “essential” to such a mandatory program and should include emission offsets, significant free allocation of initial allowances, and credit for early emission reductions.<sup>84</sup>

The EEI, some of whose members also belong to USCAP, similarly emphasizes market instruments as an important component of any regulation of greenhouse gases.<sup>85</sup> However, it opposed a 2008 Senate bill that would create a cap-and-trade regime as economically disruptive due to the “unrealistic compliance dates and ineffective cost-relief provisions.”<sup>86</sup>

According to the EEI, a cap-and-trade regime for greenhouse gases “need not” be modeled on the Clean Air Act and should instead apply to the entire economy rather than only to particular

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80. See, e.g., J.R. Pegg, *Bush Mercury Rule Sparks Controversy, Litigation*, ENV'T NEWS SERVICE, Mar. 16, 2005, <http://www.ens-newswire.com/ens/mar2005/2005-03-16-10.html>.

81. Press Release, *supra* note 78; Press Release, Edison Elect. Inst., Wisc.'s Proposed Mercury Rules, 5 (June 11, 2007).

82. See U.S. Climate Action Partnership, <http://www.us-cap.org/about> (last visited Mar. 15, 2010).

83. USCAP, A CALL FOR ACTION, CONSENSUS PRINCIPLES AND RECOMMENDATIONS FROM THE U.S. CLIMATE ACTION PARTNERSHIP: A BUSINESS AND NGO PARTNERSHIP 2, available at <http://www.us-cap.org/USCAPCallForAction.pdf> (last visited Mar. 15, 2010).

84. *Id.* at 7-8.

85. EDISON ELEC. INST., EEI GLOBAL CLIMATE CHANGE PRINCIPLES 2 (Feb. 8, 2007) [hereinafter EEI PRINCIPLES], available at [http://www.eei.org/ourissues/TheEnvironment/Climate/Documents/070208\\_climate\\_principles.pdf](http://www.eei.org/ourissues/TheEnvironment/Climate/Documents/070208_climate_principles.pdf).

86. EDISON ELEC. INST., CONCERNS ABOUT THE LIEBERMAN-WARNER CLIMATE CHANGE BILL, (Feb. 2008), available at [http://www.eei.org/ourissues/TheEnvironment/Climate/Documents/Leberman\\_Warner\\_final.pdf](http://www.eei.org/ourissues/TheEnvironment/Climate/Documents/Leberman_Warner_final.pdf).

sectors like electricity generation.<sup>87</sup> It should allow sufficient time for transition, include several phases, and permit banking across those phases.<sup>88</sup> It should derive caps from greenhouse gas intensity rather than absolute emissions, account for earlier emissions reductions, and distribute allowances almost entirely through free allocation rather than auction.<sup>89</sup> Finally, it should provide a “moderate” long-term price signal, permit unlimited domestic and international offsets, and include a financial safety valve.<sup>90</sup> The EEI is more concerned about avoiding overlapping regulation and maintaining flexibility than linking with international regimes.<sup>91</sup>

### III. CAP-AND-TRADE PROGRAMS IN THE EUROPEAN UNION

#### A. Greenhouse Gases

In the early 1990s, the European Commission proposed—but opposition from industry and from certain member states stalled—an EU-wide carbon tax. In the decade following, the Kyoto Protocol embraced trading, BP and Shell both piloted internal trading schemes, and greenhouse gas emissions trading came to enjoy “general support . . . from a majority of business and industry groups across the EU.”<sup>92</sup>

The prospect of emissions trading nonetheless generated some consternation. A 2002 survey of nearly one thousand companies in the United Kingdom and Germany revealed significant national differences of opinion: While British firms were somewhat supportive, their German counterparts were largely skeptical.<sup>93</sup> The survey authors attributed this difference to British industry’s emphasis on economic self-interest and “German industry’s implicit faith in regulated self-regulation.”<sup>94</sup>

A year before implementation of the EU Emissions Trading Scheme (EU ETS) in 2005, the EU Energy Commissioner warned that the scheme would cause relocations and “very serious problems of competitiveness . . . . There will be bankruptcies and major

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87. EEI PRINCIPLES, *supra* note 85, at 2; EDISON ELEC. INST., *Edison Elec. Inst. Response to Dingell-Boucher Letter of Feb. 27, 2007*, 1, 4, 6 n.2, 8, 33, Mar. 19, 2007, available at [http://energycommerce.house.gov/images/stories/Documents/PDF/selected\\_legislation/EEI.031907.resp.pdf](http://energycommerce.house.gov/images/stories/Documents/PDF/selected_legislation/EEI.031907.resp.pdf) [hereinafter *Dingell-Boucher*].

88. *Dingell-Boucher*, *supra* note 87, at 10-14, 33.

89. *Id.* at 10-14.

90. *Id.* at 18, 20.

91. *Id.* at 38.

92. Atle C. Christiansen & Jørgen Wettestad, *The EU As a Frontrunner on Greenhouse Gas Emissions Trading: How Did it Happen and Will the EU Succeed?* 3 CLIMATE POL’Y 3, 9 (2003), available at <http://env.asef.org/documents/EUasfrontrunneronKyoto.pdf>.

93. Ian Bailey & Susanne Rupp, *Politics, Industry and the Regulation of Industrial Greenhouse-Gas Emissions in the UK and Germany*, 14 EUR. ENV’T. 235, 247 (2004).

94. *Id.* at 246, 247.

problems.”<sup>95</sup> Certain sectors, most notably aluminum but also steel, paper and pulp, and cement, were considered particularly vulnerable.<sup>96</sup>

The European Union allocated most of the *shortage* in emissions allowances to the fifteen mostly Western European member states that constituted the EU15, and most of these states in turn allocated their shortage to their electric utility sector.<sup>97</sup> To garner industry support, allowances were generally allocated free of charge.<sup>98</sup>

The EU ETS experienced a volatile beginning.<sup>99</sup> As a result of overgenerous allocations, allowances for the scheme’s three-year Phase I fluctuated dramatically in value before becoming virtually worthless.<sup>100</sup> Several major environmental groups, including Greenpeace and the WWF, described this overallocation as an “abuse” of the trading scheme without criticizing the scheme itself.<sup>101</sup> Companies complained of the scheme’s inconsistent application and lack of “longer-term certainty and predictability.”<sup>102</sup> Eurelectric, the European electricity industry association, called for “greater predictability . . . around the boundary conditions which set the long-term price of an EU Allowance.”<sup>103</sup>

## B. SO<sub>2</sub> and NO<sub>x</sub>

### 1. Regulators

While the European Commission appears to favor cap-and-trade programs for SO<sub>2</sub> and NO<sub>x</sub>, spirited resistance comes from some environmental regulators, industry groups, and environmen-

95. *ETS Rules Could ‘Cause Co. Bankruptcies’*, 59 METAL POWDER REP. 2, 8 (Feb. 2004).

96. *Id.*

97. A. Denny Ellerman & Barbara K. Buchner, *The European Union Emissions Trading Scheme: Origins, Allocation, and Early Results*, 1 REV. ENVTL. ECON. POLY 66, 74 (2007).

98. Christian Egenhofer, *The Making of the EU Emissions Trading Scheme: Status, Prospects and Implications for Business*, 25 EUR. MGMT. J. 453, 454 (Dec. 2007), available at <http://www.sciencedirect.com/science/article/B6V9T-4PT2FTM-1/2/f6f3932433d4f3d6b2eec328965be12d>.

99. *Trading Thin Air*, ECONOMIST, June 2, 2007.

100. *Id.*

101. Press Release, Climate Action Network Europe, CO<sub>2</sub> emissions: EU Member States Abuse Emissions Trading System (May 15, 2005), available at [http://www.climnet.org/EUenergy/ET/20050515%20CO2%20emissions%20joint%20PR%20\\_final.pdf](http://www.climnet.org/EUenergy/ET/20050515%20CO2%20emissions%20joint%20PR%20_final.pdf).

102. Ahmed ElAmin, Foodproductiondaily.com, Companies Call For Set Targets Under Emissions Trading Scheme (Dec. 2, 2005), <http://www.foodproductiondaily.com/Processing/Companies-call-for-set-targets-under-emissions-trading-scheme>.

103. EURELECTRIC, POSITION PAPER, REVIEW OF THE EU EMISSIONS TRADING DIRECTIVE (2003/87/EC) AND THE LINKING DIRECTIVE (2004/101/EC) 6 (July 2007), available at <http://www2.eurelectric.org/content/default.asp?PageID=627> (then follow hyperlink to Environment & Sustainable Development).

tal organizations. As a result, the use of cap-and-trade for SO<sub>2</sub> and NO<sub>x</sub> in the European Union is extremely controversial and, it would seem, generally unpopular.<sup>104</sup>

The Commission's recently completed review of its Integrated Pollution Prevention and Control Directive (IPPC) has involved discussion of market-based approaches, including both taxation and cap-and-trade.<sup>105</sup> The review process as it pertains to cap-and-trade has two parts; only if the Commission determines that member states should be able to use a cap-and-trade regime to comply with EU environmental standards will it then develop EU-wide rules for such a regime.<sup>106</sup> The Commission has indicated cautious support for emissions trading in the abstract, noting that such a regime could be cost effective and "could play a much more important role than today."<sup>107</sup> However, the formulation of concrete rules would be a highly deliberate process that could only occur *after* the Commission had revised its IPPC.<sup>108</sup> When pressed by the European Cement Industry Association (CEMBUREAU) on emissions trading, the Commission responded that "it was too early to go into" discussion of any details.<sup>109</sup> Similarly, in the December 2007 Communication summarizing its review of the IPPC, the Commission simply noted that:

The Commission will further explore the use of IPPC-compatible, market-based instruments such as an emission trading scheme for NO<sub>x</sub>/SO<sub>2</sub>, with a view to the potential development of a legal instrument laying down EU-wide rules on this issue. This will include a full analysis of options, including the scope and the allocation of allowances, and will look into potential direct and indirect impacts for economic sectors as well as drawing on the experience from greenhouse gas emissions trading.<sup>110</sup>

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104. For example, at a May 2007 panel on "ensuring better regulation," 10 of the 14 participant comments concerned emissions trading, with the majority opposed. DRAFT MINUTES OF THE STAKEHOLDER HEARING: TOWARDS A FUTURE POLICY ON INDUSTRIAL EMISSIONS: REVIEW OF THE IPPC DIRECTIVE AND RELATED LEGISLATION 19-20 (May 4, 2007) [hereinafter DRAFT MINUTES], [http://circa.europa.eu/Public/irc/env/ipcc\\_rev/library?l=ipcc\\_stakeholder&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/ipcc_rev/library?l=ipcc_stakeholder&vm=detailed&sb=Title) (then follow hyperlink to Public Hearing Minutes).

105. *Id.* at 2.

106. *Id.*

107. *Id.* at 2, 4.

108. *Id.* at 4.

109. *Id.* at 7.

110. Commission of the European Communities, *Communication from the Commission to the Council, the European Parliament, the Economic and Social Committee and the Committee of the Regions: Towards An Improved Policy on Industrial Emissions*, 1, 7, (Dec. 21, 2007), available at <http://ec.europa.eu/environment/air/pollutants/stationary/ipcc/proposal.htm>.

Several prominent environmental regulators support the IPPC's existing best-available-technology (BAT) approach. The European Environment Agency noted that full implementation of BAT could still achieve significant emissions reductions.<sup>111</sup> The German Federal Ministry of Environment emphasized that any emissions trading scheme should only be used in tandem with BAT.<sup>112</sup> The French Environmental Ministry suggested that emissions trading might not help to simplify the regulatory framework.<sup>113</sup> Austria, Cyprus, Ireland, Latvia, Portugal, and Sweden expressed skepticism toward the use of emissions trading for SO<sub>2</sub> or NO<sub>x</sub>; many suggested that the results of the CO<sub>2</sub> trading regime were not yet clear.<sup>114</sup> The United Kingdom (and the Netherlands) noted that local pollution prevention measures could and should trump a trading regime.<sup>115</sup> Only the Dutch Ministry of Environment "welcomed" emissions trading for SO<sub>2</sub> and NO<sub>x</sub>.<sup>116</sup>

## 2. Industry Groups

Industry groups strongly support the status quo. In March 2007, eleven European industry associations issued a joint statement opposing emissions trading for SO<sub>2</sub> and NO<sub>x</sub>.<sup>117</sup> They presented three primary arguments.<sup>118</sup> First, trading would be ineffective: Because the industrial emission of SO<sub>2</sub> and NO<sub>x</sub> is already highly regulated "by several Directives, national taxes, fees and international agreements,"<sup>119</sup> the addition of another regime that would not involve nonindustrial emitters would increase costs, increase complexity, and fail to spur technological change.<sup>120</sup> Second, trading is inappropriate for local and regional pollutants and could impair the IPPC's BAT regime.<sup>121</sup> Third, a cap-and-trade regime would increase power prices, hurt competitiveness and distort

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111. DRAFT MINUTES, *supra* note 104, at 5.

112. *Id.* at 10.

113. *Id.* at 20.

114. ENTEC UK LIMITED, *Delivered to the European Commission, Assessment of Options to Streamline Legislation on Industrial Emissions*, Contract 070402/2005 /420336 /MAR/C4, 25-26 (June 2007) [hereinafter *Streamlining Report*], available at [http://circa.europa.eu/Public/irc/env/ippc\\_rev/library?l=/streamlining\\_study/final\\_report&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/ippc_rev/library?l=/streamlining_study/final_report&vm=detailed&sb=Title) (then follow hyperlink to Streamlining final report).

115. *Id.* at 26.

116. DRAFT MINUTES, *supra* note 104, at 12.

117. Press Release, CEFIC – European Chemical Industry Council et al., Emission Trading Scheme for NO<sub>x</sub> and SO<sub>2</sub> (March 2007), available at [http://www.cembureau.be/Cem\\_warehouse/EMISSION%20TRADING%20SCHEME%20FOR%20NOX%20AND%20SO2.PDF](http://www.cembureau.be/Cem_warehouse/EMISSION%20TRADING%20SCHEME%20FOR%20NOX%20AND%20SO2.PDF).

118. *Id.* at 1.

119. *Id.* at 1-3.

120. *Id.*

121. *Id.* at 1, 3.

competition, suffer from limited liquidity because of the IPPC's parallel BAT scheme, and fail to account for previous emissions reductions.<sup>122</sup> Concerns about the allocation of pollution allowances, while not explicit in the statement, were likely present as well.

Eurelectric did not join the industry statement but expressed its opposition to emissions trading for SO<sub>2</sub> and NO<sub>x</sub> in a separate position paper.<sup>123</sup> It favored full implementation of the IPPC, opposed "double regulation," and expressed concern about administrative and monitoring costs, limited liquidity as a result of BAT, and hot spots.<sup>124</sup> It also suggested that "the focus of policy should be on other, more dominant sources of emissions" rather than "sectors that have already delivered significant emission reductions, such as electricity."<sup>125</sup>

Industry groups continued to resist emissions trading at a May 2007 public hearing on IPPC. Business Europe (BE) professed the strong support of European industry for BAT as well as the IPPC's use of an "integrated approach" to regulate multiple pollutants.<sup>126</sup> Resistance to change underlay BE's support: It emphasized, for example, that "better regulation can be the enemy of good regulation."<sup>127</sup> BE further argued that the application of cap-and-trade to SO<sub>2</sub> and NO<sub>x</sub> would amount to "double regulation" and would entail administrative costs in excess of any benefit.<sup>128</sup> The trading system for CO<sub>2</sub>, by contrast, was imposed on emissions that were not previously regulated.<sup>129</sup> BE reiterated its opposition to emissions trading for NO<sub>x</sub> and CO<sub>2</sub> in a November 2007 position paper.<sup>130</sup>

The European Petroleum Industry Association (EUROPIA) "did not see how a trading system could work" in the context of the IPPC.<sup>131</sup> The European Lime Association argued that changing the IPPC would "be very confusing."<sup>132</sup> Eurelectric suggested that emissions trading was inappropriate for pollutants with local or regional impacts.<sup>133</sup> In apparently coordinated replies, the Confe-

122. *Id.* at 1, 3-4.

123. EURELECTRIC, EURELECTRIC'S COMMENTS ON THE GREEN PAPER ON MARKET-BASED INSTRUMENTS FOR ENVIRONMENT AND RELATED POLICY PURPOSES 8 (July 25, 2007).

124. *Id.*

125. *Id.*

126. DRAFT MINUTES, *supra* note 104, at 11.

127. *Id.* at 17.

128. *Id.*

129. *Id.*

130. BUSINESS EUROPE, POSITION PAPER, STATEMENT ON THE DRAFT IPPC DIRECTIVE PROPOSAL IN INTER SERVICE CONSULTATION 2 (Oct. 31, 2007), available at <http://www.business-europe.eu/DocShareNoFrame/docs/3/HMNDPBNDINEFKBGHIBCPGBIIPDB39DW1GG9LTE4Q/UNICE/docs/DLS/2007-01549-E.pdf>.

131. DRAFT MINUTES, *supra* note 104, at 19.

132. *Id.* at 20.

133. *Id.*

deration of Danish Industries and ExxonMobil Chemical BV in the Netherlands (among others) saw “only disadvantages” to supplementing or replacing the IPPC with emissions trading.<sup>134</sup> The Austrian Economic Chamber rejected emissions trading for pollutants other than CO<sub>2</sub>,<sup>135</sup> and the Chemical Industries Association expressed skepticism.<sup>136</sup>

The European steel and iron association (Eurofer), which had joined the industry statement opposing emissions trading, nonetheless suggested at a public hearing that trading could coexist with the IPPC and “may be a solution for some Member States to achieve” their targets under the related National Emissions Ceiling Directive (NEC).<sup>137</sup> The Dutch Waste Management Association noted that the IPPC’s flexibility had been used by member states to surpass the requirements of BAT.<sup>138</sup>

Of eight industrial facilities in the European Union that commented on potential emissions trading for SO<sub>2</sub> or NO<sub>x</sub> as part of a June 2007 Commission report, six were either skeptical or opposed.<sup>139</sup> The other two facilities were in the Netherlands; one generally supported trading, while the other merely lamented regulatory uncertainty.<sup>140</sup>

Of the respondents to an Internet survey conducted for the Commission, over ninety percent supported maintaining BAT as “the key instrument of the EU policy on industrial emissions” and seventy-five percent opposed the use of SO<sub>2</sub> or NO<sub>x</sub> emissions trading by member states.<sup>141</sup> Nearly two-thirds of the respondents were either companies or associations; under a quarter were individuals; and the remainder consisted of environmental groups and regulatory authorities.<sup>142</sup>

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134. European Commission IPPC Review, *Streamlining Industrial Emissions Legislation and Possible Emissions Trading for NOX and SO2*, 1, 8 (May 1, 2006) [hereinafter *Streamlining Industrial Emissions*], available at [http://circa.europa.eu/Public/irc/env/ippc\\_rev/library?l=/streamlining\\_study/](http://circa.europa.eu/Public/irc/env/ippc_rev/library?l=/streamlining_study/).

135. Austrian Federal Economic Chamber, *First Position Paper to the IPPC Review Process 4* (Jan. 11, 2006), available at [http://circa.europa.eu/Public/irc/env/ippc\\_rev/library?l=/streamlining\\_study/replies\\_questionnaire&vm=detailed&sb=Title](http://circa.europa.eu/Public/irc/env/ippc_rev/library?l=/streamlining_study/replies_questionnaire&vm=detailed&sb=Title).

136. *Streamlining Industrial Emissions*, *supra* note 134, F app. at 17.

137. DRAFT MINUTES, *supra* note 104, at 20.

138. *Id.* at 13.

139. *Streamlining Report*, *supra* note 114, app. F at 17, 26, 31, 34, 70, 76, 84.

140. *Id.* at 41, 54.

141. *Summary Results of the IPPC Review Internet Consultation Questionnaire*, [http://ec.europa.eu/environment/air/pollutants/stationary/ippc/pdf/consult\\_results.pdf](http://ec.europa.eu/environment/air/pollutants/stationary/ippc/pdf/consult_results.pdf) (last visited Mar. 15, 2010).

142. *Id.*

### 3. Environmental Groups

The European Environmental Bureau (EEB), the umbrella organization for national environmental groups in Europe, suggested that emissions trading would “confuse” the IPPC.<sup>143</sup> That system, it argued, is “just starting to work” and should not be modified for at least two years.<sup>144</sup> While the EEB “had no objection to trading in principle,” such a regime for SO<sub>2</sub> or NO<sub>x</sub> would fail to account for local environmental impacts, suffer from insufficient liquidity, and be incompatible with the IPPC’s site-specific permitting requirements.<sup>145</sup>

## IV. CAP-AND-TRADE PROGRAMS IN THE NETHERLANDS

### A. *Demonstration Project*

Prior to the introduction of NO<sub>x</sub> and CO<sub>2</sub> trading in 2005, the Netherlands conducted a trading simulation that involved twenty-five companies (representing some sixty percent of total CO<sub>2</sub> emissions) and lasted about six months.<sup>146</sup> A report following that demonstration project concluded that “companies are adequately prepared for the introduction of both CO<sub>2</sub> and NO<sub>x</sub> emission trading” and made several additional observations.<sup>147</sup> First, companies were preparing intensively for the introduction of emissions trading but had not obtained enough involvement from those with financial, legal, transactional, and trading expertise.<sup>148</sup> Second, companies were resistant to verification, particularly its cost, its scope, and the high level of statistical confidence that it demanded.<sup>149</sup> Third, there were sufficient exchange platforms in the Netherlands and brokers in Europe to facilitate trading.<sup>150</sup> Fourth, emissions trading might not benefit smaller companies because they would have limited access to the European market and would be more prone to the risks posed by trading.<sup>151</sup>

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143. DRAFT MINUTES, *supra* note 104, at 18.

144. *Id.*

145. *Id.* at 19.

146. Hans Warmenhoven & Henk van Wouw, Spin Consult & Sogos Consultants, *Emission Trading is Ready to Commence: Evaluation Report of the Large-Scale Emission Trading Demonstration*, 1, 4, 14, (Nov. 2004), available at [http://international.vrom.nl/docs/internationaal/Evaluation\\_Report\\_on\\_the\\_Large\\_Scale\\_Demonstration.pdf](http://international.vrom.nl/docs/internationaal/Evaluation_Report_on_the_Large_Scale_Demonstration.pdf).

147. *Id.* at 14.

148. *Id.* at 14-15.

149. *Id.* at 15.

150. *Id.* at 16.

151. *Id.* at 16-17.

### *B. Subsequent Evaluation*

In interviews in 2006, the operators of several industrial installations in the Netherlands expressed concerns about the Dutch cap-and-trade regime. These concerns generally relate to the complexities, inefficiencies, and uncertainties created by the interaction of the domestic regime with the EU-wide regime's BAT.

The operator of a coal and biomass-fueled power station noted several such issues. First, the government suggested that the regime would provide more flexibility than the IPPC ultimately allowed.<sup>152</sup> Second, the regulatory uncertainty that accompanied the regimes delayed emissions reductions.<sup>153</sup> Third, the BAT regime impedes trading: Because the IPPC already limits the station's NO<sub>x</sub> emissions, it has little need to buy credits; because the IPPC likewise limits the emissions of other facilities, the station has little opportunity to sell any excess credits.<sup>154</sup>

Shell Chemicals generally supported the emissions trading regime for NO<sub>x</sub>, "including the performance standard rate approach as compared to grandfathering."<sup>155</sup> However, it noted the significant monitoring costs associated with the CO<sub>2</sub> cap-and-trade regime and, to a lesser extent, the NO<sub>x</sub> cap-and-trade regime.<sup>156</sup>

The Dutch steel industry initially supported the NO<sub>x</sub> regime but became critical when the Dutch government subsequently reduced the regime's performance standard rate to a level at which abatement technology could not ensure compliance.<sup>157</sup> By 2010, compliance may require the purchase of some €9 million worth of credits per year.<sup>158</sup> This cost is in addition to nearly €900,000 per year to monitor and verify emissions at each plant.<sup>159</sup> The steel industry did support the use of a performance standard rate rather than an absolute cap since the rate allows an increase in emissions proportionate to the increase in production.<sup>160</sup>

## V. CONCLUSION

The reaction of industry and environmental groups to cap-and-trade programs has varied depending on the country, date, extent of proposed emission reductions, existence of other regulatory re-

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152. *Streamlining Report*, *supra* note 114, app. F at 41.

153. *Id.*

154. *Id.* at 39.

155. *Id.* app. F at 54.

156. *Id.*

157. *Id.* at 47.

158. *Id.*

159. *Id.*

160. *Id.*

gimes, and state of regulation absent the program, among what are likely many other factors.

The observation by Business Europe that “better regulation can be the enemy of good regulation” highlights the importance of context in assessing stakeholder reactions.<sup>161</sup> An industry group may derive its position on a proposed regulatory regime from some combination of its desire to avoid—with increasing tenacity—regulation, redundancy, and uncertainty. It is then likely to support that position with reasons other than those aversions, if it cites them at all. Accordingly, public statements alone may not explain, for example, the vociferous opposition of EU industry to a cap-and-trade regime for SO<sub>2</sub> and NO<sub>x</sub>. Strategic considerations may similarly motivate environmental groups and regulators.

Because context is so important, it would be difficult at best to assess the propriety of cap-and-trade for another country solely on the basis of the stakeholder reactions described in this article. For example, a smaller state would not encounter and need not reproduce the European Union’s unique regulatory complexity. Nor would it encounter many of the timing and coordination issues that arise from supplementing an existing method of regulation with another. While the limited scale of a purely domestic regime might reduce market liquidity, initial regulation could also deliver substantial emission reductions—the “low-hanging fruit”—that the European Union and the United States had otherwise achieved prior to any cap-and-trade scheme.

However, several lessons do emerge from the experiences in the United States, the European Union, and the Netherlands. First, regulation is necessarily controversial. Second, the extent of regulation may matter to industry and environmental groups as much as the method of regulation. Third, a cap-and-trade regime includes more elements, and more flexibility, than just the trading of allowances. Finally, cap-and-trade programs can work, and they can win support. In some circumstances, for both industry and environmental groups, they may even become “essential.”<sup>162</sup>

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161. DRAFT MINUTES, *supra* note 104, at 17.

162. USCAP, *supra* note 83, at 7.