NOTES

Establishing an Aggressive Legal Framework for the Future of Wind Energy in Europe

ABSTRACT

Europe is the world's frontrunner in wind energy, and European governments are committed to aiding renewable energy entrepreneurs and investors. In April 2009, the EU passed a new Climate Action Directive. The Directive set goals for both increased use of renewable energy and decreases in greenhouse gas emissions. Despite this legislative success, the Climate Action Directive was widely criticized as insufficient and ineffective. Indeed, there are numerous substantive concessions given to industry in the emission reduction portion of the Directive. Dissenters argued the weaknesses of the emissions reduction Directive squandered the EU's opportunity to be a world leader in energy reform. This Note argues otherwise, proposing that the shortcomings in the emissions reduction portion of the Directive in fact present great opportunity to develop and promote the renewable energy portion of the Directive. In particular, this Note argues there are unique regulatory opportunities for wind power to recoup the energy reform losses created by the shortcomings in the emissions reduction plan.

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I. INTRODUCTION

The Intergovernmental Panel on Climate Change has determined that the main anthropogenic cause of global warming is the burning of fossil fuels that release carbon dioxide into the Earth's atmosphere.[1] Carbon dioxide is a so-called greenhouse gas because it allows light and heat from the sun to enter the Earth's atmosphere but does not allow light back out, thus trapping the heat and warming the Earth's climate over time.[2] By reducing the amount of carbon dioxide emitted into the atmosphere, renewable energy plays an important role in combating climate change.[3] While many sources of renewable energy were developed only recently, wind technology made its debut approximately 2,000 years ago,[4] and humans first used wind turbines to generate electricity over 100 years ago.[5] Today, policymakers and investors worldwide are paying renewed attention to wind energy. Investment in wind energy reduces carbon emissions, provides security of energy supply, reduces dependence on increasingly expensive and volatile oil supplies, and has the potential to create hundreds of thousands of new jobs.[6]

Europe is the world's frontrunner in wind energy,[7] and European governments are committed to aiding renewable energy entrepreneurs and investors.[8] The European Union (EU) holds a 70% world market share in renewable energy[9] and added 8.5 gigawatts

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1. *See* WORKING GROUP III CONTRIBUTION, INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE (IPCC), CLIMATE CHANGE 2007: MITIGATION 102 [hereinafter IPCC 2007 Report], *available at* http://www.ipcc.ch/ipccreports/ar4-wg3.htm ("The predominant sources of the increase in GHGs are from the combustion of fossil fuels.").

2. SCOTT W. HEABERLIN, A CASE FOR NUCLEAR-GENERATED ELECTRICITY 14 (2004).

3. Xiaodong Wang, *Legal and Policy Frameworks for Renewable Energy to Mitigate Climate Change*, 7 SUSTAINABLE DEV. L. & POL'Y 17, 17 (2007).

4. Bent Ole Gram Mortensen, *International Experience of Wind Energy*, 2 ENVTL. & ENERGY L. & POL'Y J. 179, 180 (2008).

5. *Id.*

6. EUROPEAN WIND ENERGY ASSOC., MAKING 180 GW A REALITY BY 2020, at 2 (2008), *available at* http://www.ewea.org/fileadmin/ewea_documents/documents/news_releases/position_paper_FINAL_VERSION.pdf.

7. *Id.*

8. James Kanter, *Europe Encouraging Clean Energy Industry*, N.Y. TIMES, Jan. 23, 2007, at C3.

9. Mortensen, *supra* note 4, at 181, *available at* http://www.gwec.net/uploads/media/06-02_PR_Global_Statistics_2005.pdf (citing Press Release, Global Wind Energy Council, Record Year for Wind Energy: Global Wind Power Mkt. Increased by 40.5% in 2005 (Feb. 17, 2006)).

(GW) of new capacity from wind energy in 2007 alone.[10] Forty percent of new power installations built in Europe in 2007 were wind power installations, making wind "the fastest growing power-generating technology in Europe."[11] So too have the EU legislative bodies been champions of wind power. In 2001, the EU passed Directive 2001/77/EC on the promotion of electricity from renewable energy resources.[12] Commentators call this Directive "the single most globally important case of legislation for wind energy."[13] EU Member States have worked from the institutional framework of the Directive to develop the beginnings of national regulatory and economic mechanisms to reach renewable energy goals.[14] In January 2008, a new Proposal for a Directive on renewable energy established a mandatory goal of renewable energy for at least 20% of European energy consumption by 2020.[15] Similarly, in March 2007, the European Council called for a 20% decrease in carbon emissions by 2020 through a cap-and-trade emissions reduction scheme.[16] In April 2009, the EU Parliament passed a pair of Directives implementing these Proposals (Climate Action and Renewable Energy Package).[17]

Despite these legislative advancements, many criticize the Climate Action and Renewable Energy Package as insufficient.[18] There are numerous substantive concessions given to industry in the emissions-reduction cap-and-trade Directive 2009/29/EC (2009

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10. GLOBAL WIND ENERGY COUNCIL, GLOBAL WIND 2007 REPORT 30 (2007), *available at* http://www.gwec.net/index.php?id=90.

11. *Id.*

12. Council Directive 2001/77/EC, 2001 O.J. (L 283).

13. European Wind Energy Association, Key Aspects of the RES-E Directive 77/2001/EC, http://www.ewea.org/index.php?id=197 (last visited Oct. 30, 2009).

14. *See id.* ("[T]he EU legislation sparked the adoption of legal frameworks in . . . EU countries . . . .").

15. *Commission of the European Communities Proposal for a Directive of the European Parliament and of the Council on the Promotion of the Use of Energy from Renewable Resources*, at 8, COM (2008) 30 final (Jan. 23, 2008) [hereinafter Jan. 2008 Proposed Directive].

16. *See* Directive 2009/29/EC, Amending Directive 2003/87/EC So As To Improve and Extend the Greenhouse Gas Emission Allowance Trading Scheme of the Community, 2009 O.J. (L 140) 63 para. 3.

17. Directive 2009/28/EC, On the Promotion of the Use of Energy from Renewable Sources and Amending and Subsequently Repealing Directives 2001/77/EC and 2003/30/EC, 2009 O.J. (L 140) 16–62 [hereinafter 2009 Renewable Energy Directive]; Directive 2009/29/EC, Amending Directive 2003/87/EC So As To Improve and Extend the Greenhouse Gas Emission Allowance Trading Scheme of the Community, 2009 O.J. (L 140) [hereinafter 2009 Emissions Trading Scheme Directive].

18. *See* James Kanter, Defanged E.U. Climate Plan Still Has (Some) Teeth, New York Times Green Inc., http://greeninc.blogs.nytimes.com/2008/12/15/defanged-eu-climate-plan-still-has-some-teeth/?scp=1&sq=defanged%20e.u.&st=cse (Dec. 15, 2008, 06:21 EST) ("Environmental groups called the deal a disaster.").

Emissions Trading Scheme Directive).[19] Dissenters argue that the weakened 2009 Emissions Trading Scheme Directive has squandered the EU's opportunity to be a world leader in energy reform as the 2009 UN Climate Conference in Copenhagen approaches.[20] This Note argues otherwise: The shortcomings of the 2009 Emissions Trading Scheme Directive present a great opportunity to implement proposals for the increased use of renewable energy through the development of Directive 2009/28/EC (2009 Renewable Energy Directive). In particular, this Note argues that there are unique opportunities for wind power to recoup the energy reform losses created by the shortcomings in the emissions reduction plan.

Energy supplies over the long-term are expected to rely heavily on energy from renewable sources.[21] So long as that remains the case, now is the time for EU Member States to implement broad, aggressive policies that support the development of wind and other renewable energies. This Note provides an argument for distilling and synthesizing the support policies developed throughout Europe over the last decade in a way that presents a bold legal path forward for wind energy in the EU. Fortifying and expanding the European wind energy industry is the best way to remedy the failures of the emissions reduction program. Furthermore, EU investment in wind and renewable energies mitigates concerns that attention to climate change necessarily means a threat to jobs and economies.

Part II of this Note examines the general need for government regulation to support the development of wind energy in the European market. Part III presents the major support schemes employed by European governments to promote the development of wind energy. Part IV analyzes the additional supplemental regulations needed for any major renewable energy legislation to succeed. Part V analyzes the successes and failures of the widely criticized Climate Action and Renewable Energy Package. Part VI argues that given the EU's imperfect emissions reduction program against the backdrop of a declining global economy, there is both immediate need and ripe opportunity for the EU to inject additional

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19. Press Release, Greenpeace, Parliament Adoption of Climate Deal Forfeits EU Role as Climate Leader (Dec. 17, 2008), *available at* http://www.greenpeace.org/eu-unit/press-centre/press-releases2/Parliament-adoption-of-climate-deal.

20. James Kanter & Stephen Castle, European Leaders Agree on Weakened Plan to Reduce Emissions, New York Times Green Inc., http://greeninc.blogs.nytimes.com/2008/12/12/eu-considering-weaker-co2-reduction-plans/?scp=1&sq=European%20Leaders%20Agree%20on%20Weakened%20Plan%20to%20Reduce%20Emissions&st=cse (Dec. 12, 2008, 07:08 EST).

21. Pablo del Rio, *A European-Wide Harmonized Tradable Green Certificate Scheme for Renewable Energy: Is it Really So Beneficial?*, 33 ENERGY POL'Y 1239, 1239 (2005).

bold, community-wide regulations for the promotion of wind and renewable energy.

II. THE NEED FOR REGULATORY INCENTIVES IN WIND ENERGY DEVELOPMENT

A. *Market Barriers and Externalities*

Despite the strong environmental advantages obtained by the introduction of native, local renewable energy, wind companies and wind investors face a steep climb as new entrants in the European energy market.[22] Renewable energy companies must compete with conventional fossil fuel plants that have been operating comfortably for decades in a monopoly market.[23] Many of these companies enjoy economies of scale due to vertical integration that new renewable energy producers are unable to achieve.[24] Furthermore, because producing electricity with coal and gas does not internalize the social costs of production, there is a market failure that puts renewable electricity at a competitive disadvantage against energy produced from fossil fuels.[25]

All electricity-generating technology produces some pollution or has some negative impact on the environment.[26] For example, emissions during construction and operation of any plant—even a wind farm—cause quantifiable damage to human health and the environment.[27] This damage is termed an "externality" because energy producers do not pay for these costs" to the human health and environment, nor do they pass the costs on to consumers.[28] Costs are considered internalized only when the polluter itself pays for the damage it causes to human health and the environment.[29] If the external costs of electricity produced from coal and oil in the EU were taken into account, it is estimated that the cost of electricity in the EU would double.[30]

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22. European Wind Energy Association, *supra* note 13.
23. *Id.*
24. *Id.*
25. EUROPEAN WIND ENERGY ASSOC., SUPPORT SCHEMES FOR RENEWABLE ENERGY 15 (2005), *available at* http://www.ewea.org/fileadmin/ewea_documents/documents/projects/rexpansion/050620_ewea_report.pdf.
26. *Id.* at 10.
27. *Id.*
28. *Id.*
29. *Id.*
30. *Id.* at 11.

Electricity generated from wind and other renewable sources has less external cost than energy generated from fossil fuels.[31] Wind technology has particularly low external costs, even when compared to other renewable energies.[32] As a result, there is a market failure that puts wind at a competitive disadvantage with fossil fuels.[33] That is, "[i]f externalities were incorporated in . . . market prices, the perceived cost of renewable energy would be practically unchanged, whereas the perceived low cost of conventional technologies . . . would increase dramatically . . . ."[34] Thus, by incorrectly pricing the full cost of energy produced from the burning of fossil fuels, the market fails by making that technology appear competitively priced, when renewable energies are actually cheaper over the long term.

Where the cost of externalities is not taken into account, it is difficult for developers of wind energy to compete in the market without government aid and intervention. One way of leveling the market is to impose a "polluter pays" principle:

> By compelling the polluter to bear the expense, the cost of these clean up measures is reflected in the cost of the goods and services that generate the pollution through their production or consumption. When the price of goods and services reflects their environmental costs, consumers are not challenged to gather and consider Information concerning a good's or service's effect on the environment. Rather, because consumers prefer the least expensive goods and services, the consumer generally makes a decision based on price alone, in which the social and environmental costs of contamination are already embedded. Consequently, the polluter pays principle ensures that the choices made in the self-interest of the consumer further environmental responsibility.[35]

In the absence of such a method of internalizing the costs of electricity produced from fossil fuels, the next best alternative is for EU Member States to provide direct support to the renewable energy industry by enacting regulatory support mechanisms.[36] These regulatory schemes could provide the long-term price stability essential to attracting investors to the renewable energy market.[37]

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31. *Id.* at 12, 14.

32. Steven Ferrey, *Why Electricity Matters, Developing Nations Matter, and Asia Matters Most of All*, N.Y.U. ENVTL. L.J. 113, 139–40 (2007) (explaining that the cost of externalities associated with wind is 0.1 cents/kWh, solar is 0.4 cents/kWh, and biomass is 0.7 cents/kWh).

33. EUROPEAN WIND ENERGY ASSOC., *supra* note 25, at 14.

34. *Id* at 15.

35. Eric Larson, Note, *Why Environmental Regimes in the U.S., The European Community, and Japan Have Grown Synonymous with the Polluter Pays Principle*, 38 VAND. J. TRANSNAT'L L. 541, 544 (2005).

36. EUROPEAN WIND ENERGY ASSOC., *supra* note 25, at 24.

37. Wang, *supra* note 3, at 17.

B. *Security of Energy Supply*

The gas and oil pipelines that supply the EU's energy were built to maximize the profitability and efficiency of energy companies, not to ensure the EU's energy security.[38] The EU Commission has determined that the European Union's dependence on foreign energy "threatens its security of supply and implies higher prices."[39] The fact that a large percentage of the world's known remaining oil reserves are in a small group of countries that are unreliable suppliers creates this insecurity.[40] Additionally, because global demand for energy is expected to outpace supply, experts predict sharp rises in price.[41] Thus, the case for government support of wind energy is compelling from a security of supply point of view. Renewable and wind energy strengthens the security of energy supply by "increasing the share of domestically produced energy, diversifying the fuel mix . . . and increasing the proportion of energy obtained from politically stable regions."[42] Wind does not need to be imported, and utilizing a native, renewable fuel source removes reliance on the unpredictable price and availability of foreign fossil fuels.[43]

The EU's recent natural gas dispute with Russia highlights the security of supply problem created by reliance on energy imports.[44] The EU gets close to 25% of its natural gas from Russia via pipelines that run through Ukraine.[45] On New Year's Day 2009, Russia slowed supplies of natural gas to Ukraine due to a dispute over prices.[46] Later, all Russian gas supplies to the EU through Ukraine were

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38. Andris Piebalgs, European Responses to Energy Challenges, Remarks at the EU Energy and Environmental Law and Policy Conference 3 (Jan. 22, 2009), *available at* http://europa.eu/rapid/pressReleasesAction.do?reference=SPEECH/09/18&format=HTML&aged=0&language=EN&guiLanguage=en.

39. January 2008 Proposed Directive, *supra* note 15, at 3.

40. Mortenson, *supra* note 4, at 184 (citing RISØ ENERGY REPORT 4: THE FUTURE ENERGY SYSTEM–DISTRIBUTED PRODUCTION AND USE 9 (Hans Larsen & Leif Søngerberg Petersen eds., 2005), *available at* http://www.risoe.dk/rispubl/energy-report4/ris-r-1534.pdf).

41. *Id.*

42. *Renewable Energy Road Map: Renewable Energies in the 21st Century: Building a More Sustainable Future*, at 14, COM, (2007) 848 final (Jan. 1, 2007), *available at* http://ec.europa.eu/energy/energy_policy/doc/03_renewable_energy_roadmap_en.pdf [hereinafter 2007 Renewable Energy Roadmap].

43. *Id.* at 3.

44. Posting of Keith Johnson to WSJ Blogs: Environmental Capital, Get Smart: More Calls for Energy Efficiency to Meet Demand, http://blogs.wsj.com/environmentalcapital/2009/01/22/get-smart-more-calls-for-energy-efficiency-to-meet-demand (Jan. 22, 2009, 09:58 EST).

45. Alan Cullison, *Europe Waits to See if Gas Will Flow*, WALL ST. J., Jan. 19, 2009, http://online.wsj.com/article/SB123232859990694389.html.

46. *Id.*

entirely cut off.[47] The crisis lasted over a week, causing large numbers of Europeans to go without heat during the cold winter, and even forcing factories to halt operations.[48] Even after Russian and Ukrainian leaders reached an agreement to resume the flow of gas, EU leaders were forced to watch from afar and hope the deal would not fall apart.[49] Diversification of energy security, including producing more energy from indigenous, renewable wind, would enable the EU to better handle such short-term disruptions in its energy supply.

Wind energy holds matters in a security of supply analysis because wind turbines yield a positive energy balance.[50] That is, any given wind turbine produces a greater amount of energy in its lifetime than is needed to initially construct the turbine.[51] Some turbines recoup their cost as quickly as within one year.[52] Furthermore, wind is comfortably immune to fluctuations in the price of fossil fuels, and it is almost always cheap because wind is free.[53] Thus, the marginal cost of producing each additional unit of energy from wind is almost zero.[54] Wind is also in the best position to expand compared to other sources of renewable energy. Over half of the current renewable energy supply in Europe comes from hydropower.[55] This amount represents nearly the full extent of Europe's ability to generate power from water sources.[56] As a result, wind energy could constitute the largest growing renewable energy supplier as the EU strives to meet its 20% target.[57] Consequently, the European Commission projects that 12% of the EU's electricity consumption will come from wind energy by 2020, thus replacing hydrological power as the main source of renewable energy throughout the EU.[58]

Finally, the intermittent nature of wind energy does not pose a threat to security of supply. Critics of wind power suggest that if

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47. *Id.*

48. John W. Miller & Andrew Osborn, *Standoff Exposes EU Weaknesses, Analysts Say*, WALL ST. J., Jan. 15, 2009, http://online.wsj.com/article/SB123192898866080831.html.

49. Cullison, *supra* note 45.

50. Mortenson, *supra* note 4, at 184.

51. *Id.*

52. *Id.*

53. *The Economics of Renewables*, ECONOMIST, July 7, 2007, www.economist.com/finance/displaystory.cfm?story_id=9447965.

54. Ferrey, *supra* note 32, at 144.

55. EWEA Chief: EU Legislation Set to Boost Wind Industry, www.euractiv.com/en/energy/ewea-chief-eu-legislation-set-boost-wind-industry/article-178688 (last visited Oct. 30, 2009).

56. *Id.*

57. *Id.*

58. *Id.*

Europeans rely on wind turbines, there is a risk that the wind will stop blowing and energy will become scarce.[59] However, the EU already has protections built into energy systems that eliminate the risk of a large power outage.[60] First, the European energy infrastructure already holds a large amount of reserve capacity to guard against wind variability.[61] Second, as energy grids become connected over larger geographical areas and across countries, the additional capacity from the interconnected system helps balance any variations in wind supply.[62] In short, "the bigger the geographical area is, the less volatility you'll have because the wind will be likely to blow somewhere within that area."[63] As a result, what matters is total production of all turbines in a system, not whether or not the wind is blowing any given turbine at any particular time.[64]

C. *Impact of the Declining Global Economy*

Over time Europeans have grown used to the idea that energy is cheap, plentiful, and virtually unlimited.[65] Prospects for success among renewable-energy companies are currently threatened by the once again declining cost of energy and the tightening credit market.[66] Over a three-month period in 2008, renewable energy stocks dropped 45%.[67] However, that price decrease must be viewed against the backdrop of the recent and continuing volatility of oil prices, which has underscored the fact that fossil fuels will always be a finite resource.[68] Nevertheless, the global economic downturn has taken climate initiatives off the top of the legislative priority list in the EU.[69] EU leaders are being pressured to focus on the economy and creating new jobs.[70] For example, in Germany, politicians facing reelection in 2009 are likely to react to average workers' concerns

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59. *See id.* (posing a question that represents this concern).
60. *Id.*
61. *Id.*
62. *Id.*
63. *Id.*
64. *Id.*
65. Piebalgs, *supra* note 38, at 2.
66. Tom Wright, *Wind Shifts for Renewable Energy As Oil Price Sinks, Money Gets Tight*, WALL ST. J., Oct. 20, 2008, http://online.wsj.com/article/SB122446199550848849.html?mod=googlenews_wsj.
67. *Id.* During the same period, the Dow Jones Industrials Average dropped by a relatively modest 23%. *Id.*
68. *See generally* Kurt Cobb, *Oil Prices and the Mayflower Problem*, SCITIZEN, Aug. 29, 2008, http://scitizen.com/stories/Future-Energies/2008/08/Oil-Prices-and-the-Mayflower-Problem/ (discussing the use of oil prices as a gauge for scarcity).
69. Benny Peiser, Op-Ed., *Cooling on Global Warming*, WALL ST. J., Dec. 15, 2008, http://online.wsj.com/article/SB122937766062908297.html.
70. *Id.*

about job assurance, at the expense of tackling climate change issues.[71] As the economy tightens, climate regulations are being more closely scrutinized to be sure they are "truly cost-effective."[72] Without government incentives to attract investors, many renewable energy companies are struggling to attract badly needed long-term funding.[73] Part VI of this Note argues that the current government fear of investment in renewable energy is misapplied as a reaction to the economic downturn. Rather, an aggressive legal framework that provides a regulatory base for smart government investment in wind energy can be a solution that both provides jobs and an economic stimulus, while letting Europe continue as a leader in wind development.

D. *The Role of Government Action in Encouraging Renewable Energy Development*

Wind power cannot be a viable market entrant without a regulatory incentive system to attract producers and investors in the business community.[74] Given the sharp environmental externalities, some commentators have suggested the most efficient solution to level the market is the implementation of an environmental tax on producers of non-renewable energy for the cost of negative externalities harmful to human health and the environment.[75] However, such a provision is unlikely due to the considerable political downsides associated with levying new taxes.[76] As a result, proactive government incentives are necessary to level the playing field and to allow wind energy to compete fairly with traditional energy producers in the absence of a mechanism for internalizing external costs of non-renewable energy production.[77] Further, commentators credit government action with making Europe an attractive target for investment in renewable energy.[78] Government-generated regulatory

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71. *Id.*

72. *Id.*

73. Wright, *supra* note 66.

74. Mortensen, *supra* note 4, at 193.

75. *E.g.*, Philippe Menanteau et al., *Prices Versus Quantities: Choosing Policies for Promoting the Development of Renewable Energy*, 31 ENERGY POL'Y 799, 800 (2003) ("Ideally, the simplest, most efficient solution for reestablishing fair competition between power generation technologies would be to correct the market imperfections by implementing an optimum environmental tax.").

76. *Id.* The subjective merits of such a tax are beyond the scope of this note.

77. *See* discussion *supra* Part II.A (discussing externalization of social costs in traditional energy production).

78. *See* ERNST & YOUNG, RENEWABLE ENERGY COUNTRY ATTRACTIVENESS INDICES 8 (2009), *available at* http://www.ey.com/Publication/vwLUAssets/Renewable_energy_country_attractiveness_indices_August_2009/$FILE/Renewable_energy_country_attractiveness_indices_August%202009.pdf.

support schemes help stabilize the market for renewable energy and help renewable energy market entrants compete with market failure.[79] Thus, it is essential that the EU and individual Member States work together to adopt a set of legal, political, and regulatory regimes that minimize risk for large-scale, long-term investors.[80] In particular, the EU can implement binding emissions reduction targets to serve as a catalyst for wind energy development and investor commitment, and to encourage research.[81]

III. MAJOR EU SUPPORT SCHEMES DEVELOPED BY EUROPEAN COUNTRIES

A. *The Legal Basis for Support Schemes for Renewable Energy*

In recognition of the barriers to entering the wind market and the corresponding need to set targets for Members States, the EU has established a legal framework for the promotion of renewable energy resources.[82] Article 174 of the Treaty Establishing the European Union (European Treaty) establishes power for the Community to protect the quality of the environment and human health.[83] The European Treaty also grants broad power to impose binding obligations on Member States for measures directly affecting the internal European market.[84] Under the Treaty, any measure that "significantly affect[s] a Member State's choice between different energy sources and the general structure of its energy supply" must pass unanimously and only after consultation with the European Parliament and other special committees.[85] Unanimous support for the EU-wide emissions reduction and renewable energy scheme cuts both ways: It shows consensus is possible among the various Member States on a politically-heated issue, but it also suggests large concessions to powerful constituencies may be needed to achieve unanimous support for renewable energy producers at the expense of the traditional energy industry.

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79. Wang, *supra* note 3 at 20.
80. *Id.* at 17.
81. EUROPEAN WIND ENERGY ASSOC., *supra* note 6, at 2.
82. European Wind Energy Association, *supra* note 13.
83. Consolidated Version of the Treaty Establishing the European Community, tit. XIX, art. 174(1), Dec. 24, 2002, 2002 O.J. (C 325) 33.
84. *Id.* arts. 94, 95(3).
85. *Id.* art. 175(2)(c).

In 2001, the EU adopted Directive 2001/77/EC on the promotion of electricity from renewable sources.[86] This legislation led to the development of legal frameworks for wind energy in countries throughout Europe.[87] Additionally, in October 2003, Directive 2003/87/EC laid the legal foundation for a cap-and-trade emissions reduction program in Europe,[88] and in January 2005, the EU entered into the largest multinational emissions trading program in the world.[89] In January of 2008, a new Proposal for a Directive on Renewable Energy was adopted, proposing a mandatory goal of renewable energy of at least 20% of European Energy consumption by 2020.[90] Finally, in April 2009, the European Parliament unanimously adopted the Climate Action and Renewable Energy Package, including Directives for both the promotion of the use of energy from renewable sources [91] and for complex amendments to the greenhouse gas emission allowance trading system.[92]

No Directive mandates that Members States choose a single support scheme to promote the development of wind energy to meet the Directives' goals for renewable energy.[93] Rather, Members States are free to work towards the goals set by the Directives by choosing from a variety of support mechanisms.[94] For example, the December 2008 Directive defines Support Scheme as:

> any instrument . . . applied by a Member State . . . that promotes the use of energy from renewable sources by reducing the cost of this energy, increasing the price at which it can be sold, or increasing, by means of a renewable energy obligation or otherwise, the volume of such energy purchased.[95]

Examples of such schemes include "investment aid, tax exemptions or reductions, tax refunds, . . . green certificates, and direct price support schemes including feed-in tariffs and premium payments."[96] While the Directive requires Member States to introduce some measure to increase the percentage of electricity generated in their

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86. Council Directive 2001/77, On the Promotion of Electricity Produced from Renewable Energy Sources in the Internal Electricity Market, 2001 O.J. (L 283) 33 (EC).

87. European Wind Energy Association, s*upra* note 13.

88. Emission Trading System (EU ETS), http://ec.europa.eu/environment/climat/emission/index_en.htm (last visited Oct. 30, 2009).

89. *Id.*

90. January 2008 Proposed Directive, *supra* note 15.

91. *See generally* 2009 Renewable Energy Directive, *supra* note 17 (promoting the use of renewable energy sources).

92. *See generally* 2009 Emissions Trading Scheme Directive, *supra* note 17 (improving and amending "the greenhouse gas emission trading scheme").

93. GLOBAL WIND ENERGY COUNCIL, *supra* note 10, at 31.

94. 2009 Renewable Energy Directive, *supra* note 17, pmbl., para. 25.

95. *Id.* art. 2(k).

96. *Id.*

countries from renewable sources, it does not mandate the use of any particular defined support schemes.[97] The 2009 Emissions Trading Directive somewhat modifies this framework by imposing an EU-wide cap-and-trade scheme to incentivize fossil fuel burning energy producers to reduce greenhouse gas emissions.[98] However, the 2009 Renewable Energy Directive still leaves the development of national schemes for increasing renewable energy production to the Member States' individual discretion.[99]

B. *Tax Credits and Investment Incentives*

Direct tax and financial incentives can help break down barriers to entry for wind energy producers. Globally, such policies represented the earliest means of government support for renewables.[100] Governments implemented these programs with the goal of reducing the start-up costs of constructing wind turbines to attract committed long-term investors.[101] These financial mechanisms also operated by reducing operating costs, improving cash flow through tax credits and carbon credits, and providing guarantees for certain loans.[102] However, tax credits are only attractive when businesses are operating at a profit and have taxable income they wish to offset.[103] The recent economic downturn has limited the number of such companies.[104] Furthermore, tax incentives are often unattractive to long-term investors because they could be cancelled at any time subject to the whim of the legislature.[105]

Government investment incentives are also used to build the necessary infrastructure to connect wind turbines to the energy grid, provide research and development to wind entrepreneurs, and implement marketing and public interest campaigns to boost public support for the wind renewables market.[106] These early programs

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97. GLOBAL WIND ENERGY COUNCIL, *supra* note 10, at 31.

98. *See* 2009 Emissions Trading Scheme Directive, *supra* note 17, pmbl., para. 42 (providing for emissions caps).

99. 2009 Renewable Energy Directive, *supra* note 17, pmbl., para. 74.

100. *See* EUROPEAN WIND ENERGY ASSOC., *supra* note 25, at 25 (describing historical means of encouraging investments).

101. *Id.*; *see also* Wang, *supra* note 3 (discussing various policies to encourage "large-scale investment in renewable energy").

102. Wang, *supra* note 3, at 18.

103. Posting of Keith Johnson to WSJ Blogs: Environmental Capital, Clean Energy: How Do You Jumpstart It?, http://blogs.wsj.com/environmentalcapital/2009/01/21/clean-energy-how-do-you-jumpstart-it/ (Jan. 21, 2009, 08:54 EST).

104. *Id.*

105. *See id.* (describing the system of perennial Congressional renewal in the U.S.).

106. Wang, *supra* note 3 at 18.

were most successful in the 1980s in Germany and Denmark where, for example, schemes for providing preferred loans for the construction of wind turbines were enacted.[107]

C. *Production Subsidies and Feed-in Tariffs*

Investment subsidies alone do not sufficiently support technology development because they only incentivize increased output, not optimal planning or efficient production over the long term.[108] Thus, economic support mechanisms, in addition to tax or investment subsidies, come in the form of production subsidies.[109] Such subsidies have been used to regulate water utilities in Eastern Europe and Central Asia.[110] One of the most common methods of supporting wind power via production subsidies is to ensure that the electricity produced can be sold at a profitable price.[111] However, this so-called cost-plus tariff is criticized because critics argue that guaranteeing a price at which electricity can be sold for a profit provides no incentive for efficient production and is implemented relatively rarely.[112]

A more common alternative production subsidy is a price-based fixed feed-in tariff (FIT). FIT schemes provide long-term investor confidence by fixing a mandatory subsidy for the purchase and sale of electricity.[113] That is, the price paid to those who produce electricity from renewable—rather than traditional—sources would be at least equal to the wholesale price of electricity paid to traditional producers, plus a premium reflecting the value of the social and environmental benefits of the renewable energy.[114] Under the FIT scheme, wind farm operators are paid a fixed price for every kilowatt-hour of electricity they produce.[115] The premium between the cost of the tariff and the actual market price of electricity is paid by tax revenue or by the consumer.[116] This premium makes it possible for

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107. EUROPEAN WIND ENERGY ASSOC., *supra* note 25, at 25.

108. *See* Mortensen, *supra* note 4, at 197 (noting that investment subsidies historically "focused mainly on estimated output or available capacity").

109. Mortensen, *supra* note 4, at 197.

110. ORG. FOR ECON. COOP. & DEV., URBAN WATER REFORM IN EASTERN EUROPE, CAUCASUS, AND CENTRAL ASIA 43 (2003), *available at* http://www.oecd.org/dataoecd/1/45/14626557.pdf.

111. Mortensen, *supra* note 4, at 199.

112. *Id.* at 198.

113. Wang, *supra* note 3, at 18.

114. VOLKMAR LAUBER, THE POLITICS OF EUROPEAN UNION POLICY ON SUPPORT SCHEMES FOR ELECTRICITY FROM RENEWABLE SOURCES 6 (2005), *available at* http://www.wind-works.org/FeedLaws/Lauber%20-%20EU%20policy%20on%20support%20schemes%20for%20electricity%20from%20renewable%20energy%20sources%20-%20&E%20-%2018%20Oct%2005.pdf.

115, EUROPEAN WIND ENERGY ASSOC., *supra* note 25, at 31.

116. *Id.*

renewable energy start-ups to compete against fossil fuel burning producers that externalize the costs of their energy production. FIT schemes appeared on the EU radar at the end of 1996 when Parliament expressed concerns over the ability of renewable energy to compete in an unregulated free market.[117] Countries across Europe have adopted mechanisms based on FIT schemes:[118] these systems are the main support scheme Germany, Spain, and France use to achieve the renewable energy goals established by the EU 2001 Directive.[119] As of August 2006, eighteen of the then twenty-five EU countries used feed-in tariffs.[120]

However, FIT schemes are not without detractors. The nature of the FIT makes it impossible to predict how expensive the scheme will be over time.[121] That is, where the price of the legislatively-set tariff remains constant, but the market price of electricity fluctuates, the cost consumers bear changes with the market price of electricity.[122] Additionally, because operators cannot predict when the tariff level may change, they must account for a risk premium when planning their projects, thus increasing the overall cost to consumers.[123] A market-based criticism says that feed-in tariffs shelter renewable energy developers from price competition; thus, any increases in capacity have not been achieved in an efficient manner.[124]

Despite these arguments, countries favor FIT schemes because they are simple and encourage efficient planning by wind farm operators.[125] Investors also seem to prefer these tariffs despite the risk that the tariffs could change on a legislative whim.[126] One explanation for such enthusiasm is that FIT schemes require little regulation as compared to other support schemes.[127] One report has even called this relative absence of administrative bureaucracy "essential" to the establishment of long-term security.[128]

The chief predictor in whether a FIT scheme is successful in attracting investment is the value of the tariff.[129] Chances for success may also be increased where a government can reduce the

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117. *Id.* at 7.
118. *Id.* at 31 .
119. Mortensen, *supra* note 4, at 199 & n.120.
120. European Wind Energy Association, *supra* note 13.
121. EUROPEAN WIND ENERGY ASSOC., *supra* note 25, at 31.
122. *Id.*
123. *Id.*
124. Lucy Butler & Karsten Neuhoff, *Comparison of Feed-In Tariff, Quota and Auction Mechanisms to Support Wind Power Development*, 33 RENEWABLE ENERGY 1854 (2008).
125. EUROPEAN WIND ENERGY ASSOC., *supra* note 25, at 31.
126. Mortensen, *supra* note 4, at 199.
127. LAUBER, *supra* note 114, at 11.
128. *Id.* at 19.
129. EUROPEAN WIND ENERGY ASSOC., *supra* note 25, at 31.

political risk of the tariff's level being changed or the FIT law being repealed.[130] Spain has reduced this political risk by giving government assurances that no changes will be made in tariff levels that would result in the bankruptcy of existing wind farms built under previous conditions.[131] Germany has similarly reduced political risk by guaranteeing payments for twenty years.[132] For wind energy, Germany guarantees a tariff of 9.1 cents per kilowatt hour (kWh) for the first five years of a project's operation, and for 6.19 cents per kWh for the next fifteen years.[133]

D. *Tradable Green Certificates*

Under a system of tradable green certificates, a set quota of the electricity sold on a market must come from renewable energy sources.[134] Where feed-in tariffs are seen as a price-based scheme, green certificates are viewed as a market-based mechanism.[135] Specifically, through the sale of certificates, renewable energy producers are compensated for the competitive price disadvantage of renewable energy, as well as for the environmental benefits provided by the renewable energy.[136] Under the tradable green certificate (TGC) mechanism, the government sets a minimum amount of electricity that must come from renewable sources in the overall electricity portfolio for the country.[137] As the quota gradually increases, this system purports to stimulate demand for renewable energy, which leads to a decrease in demand for conventional energy and indirectly to a decrease in greenhouse gas emissions.[138] A country-wide quota for renewable electricity is set and then individually applied among producers, distributors, etc.[139] Energy producers, distributors, and, in some countries, consumers, may either generate the required amount of renewable energy on their own, purchase renewable energy through long-term contracts from renewable energy generators, or purchase TGCs from other operators.[140]

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130. *Id.*
131. *Id.*
132. *Id.*
133. Butler & Neuoff, *supra* note 124, at 1855.
134. Menanteau et al., *supra* note 75, at 802.
135. Giovanna Golini, *Tradable Green Certificate Systems in the E.U.*, 26 ENERGY L.J. 111, 112 (2005).
136. *Id.* at 114.
137. EUROPEAN WIND ENERGY ASSOC., *supra* note 25, at 31.
138. Golini, *supra* note 135, at 112.
139. Menanteau et al., *supra* note 75, at 803.
140. *Id.*

Early supporters of green certificates argued that TGCs are the regulatory option that best conforms to free market principles[141] because the market-oriented TGC promotes renewables without causing the price distortions of a tariff scheme.[142] Additionally, the TGC scheme allows renewable energy to mature and gradually merge into a competitive free market with conventional energy.[143] Supporters say TGCs are effective because they allow for obligated parties to be flexible in complying with the quota: They can produce renewable energy themselves, or they can purchase certificates on the market for certificates.[144] TGC schemes are active in Britain, Italy, Belgium, Poland, and Sweden, among other countries.[145]

In an efficient market, the price of a TGC is equal to the market price for electricity plus the additional cost of new renewable energy generating capacity.[146] In a market situation where demand for certificates exceeds supply, renewable energy is being produced at an amount below the government quota, and the price of certificates increases.[147] The price will continue to increase until new capacity can be added to meet the quota, thus creating an incentive for producers to develop more renewable energy.[148] However, a key feature of the TGC program is that the certificate price is set on a daily basis on a market separate from the electricity market.[149] This daily fluctuation of prices makes investors risk averse.[150] An additional disadvantage of the TGC is that it is more complex than tariff-based schemes.[151] Quota schemes require more regulatory and administrative arrangements than FIT mechanisms,[152] and TGCs require energy producers to be simultaneously active in two financial markets: one for certificates, and one for conventional power.[153] Finally, TGCs result in an asymmetry of interests between renewable energy producers and electricity companies: the former prefer long term contracts in order to minimize risk, while the latter prefer short-term contracts so as to minimize costs.[154]

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141. Golini, *supra* note 135, at 114–15.

142. LAUBER, *supra* note 114, at 5 (citing Commission Green Paper, *Community Strategy, Energy for the Future: Renewable Sources of Energy*, at 34–35, COM (1996) 576 final (Nov. 11, 2001)).

143. Golini, *supra* note 135, at 115.

144. *Id.*

145. LAUBER, *supra* note 114, at 4.

146. EUROPEAN WIND ENERGY ASSOC., *supra* note 25, at 34.

147. *Id.* at 35.

148. *Id.*

149. *Id.* at 34.

150. *Id.*

151. *Id.* at 35.

152. LAUBER, *supra* note 114, at 11.

153. EUROPEAN WIND ENERGY ASSOC., *supra* note 25, at 36.

154. *Id.*

The risk posed to investors by the daily pricing of certificates can be overcome by implementing effective markets for long-term power contracts and certificate contracts.[155] The addition of futures or options markets further reduces this risk by allowing parties to buy or sell certificates for delivery at a point in the future for a price agreed on in the present.[156] Additionally, many of the disadvantages of TGCs are reduced when a "banking" system is available. A banking system stabilizes fluctuating prices by giving consumers the option of buying future production and giving renewable energy producers the option of selling future production by trading borrowed certificates.[157] The system further allows wind farm operators and investors to predict their cash flow with more certainty, which greatly reduces risk and increases the likelihood of investment.[158] Supply-side remedies to stabilize a TGC regime might also be considered. For example, a certificate scheme that includes not only wind, but also several types of clean technology, helps minimize risk of price fluctuations resulting from an unpredictable supply of wind.[159]

Some commentators see a TGC scheme as the best regulatory mechanism for a harmonized, EU-wide support scheme for wind and renewable energy.[160] For instance, "[a] pan-European TGC scheme would facilitate the setting and achievement of national [renewable energy] targets by allowing Member States with a shortage of TGCs to fulfill their obligations by importing certificates from countries with a surplus of them."[161] A larger market with more suppliers also reduces risk to investors by decreasing the risk of volatility of certificate prices.[162] Individual countries also stand to benefit: if an EU-wide TGC scheme were utilized, countries could promote and develop wind and renewable energy at vastly lower costs than if countries were limited to their own policies.[163]

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155. *Id.* at 34.
156. *Id.* at 36.
157. *Id.*
158. *Id.*
159. Golini, *supra* note 135, at 116–17.
160. *Id.* at 118.
161. *Id.*
162. *Id.* at 117–18.
163. del Rio, *supra* note 21, at 1242. It should be noted, however, that this particular cost-saving argument applies equally to a hypothetical EU-wide feed-in tariff scheme.

IV. A CORRECT PATH FORWARD: NECESSARY COMPONENTS OF RENEWABLE ENERGY LEGISLATION

The EU actively reviews the status of wind power development in Europe and is revising its legislative framework moving forward.[164] According to the European Wind Energy Association, the primary issue that must be resolved by the EU in the near term is whether to institute a single EU-wide support scheme for the development of wind and other renewable energies.[165] Other primary and secondary issues include grid access, guarantees of origin, and administrative barriers.[166] Implementation of support schemes, removal of administrative barriers, and establishing a framework for grid access can be viewed as a three-legged chair: If one of the legs is removed, the EU's renewable energy market will collapse.[167]

A. *Harmonization*

The January 2008 Proposed Directive recognizes that Member States all currently use renewable energy.[168] As a result, it does not offer any measures that significantly affect the structure of any individual Member States' renewable energy support scheme or require harmonization throughout the EU.[169] The December 2008 Directive implements this passive approach.[170] Leading industry groups support this position, saying too quick a move toward a harmonized system would put European wind technology at risk.[171] Other commentators say it is simply too soon to implement a harmonized system throughout the EU.[172] While harmonization remains a long-term goal, the EU has decided that it would be an error to pursue this objective in the short term.[173] Commentators on the other side of the debate recognized as early as 1999 that "contemporaneous existence of different support schemes was likely

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164. *See* GLOBAL WIND ENERGY COUNCIL, *supra* note 10, at 31 (describing the European Commission's 2006 Green Paper and 2007 Strategic Energy Review, along with the EU Heads' of State adoption of a binding target of twenty percent renewable energy by 2020).

165. EUROPEAN WIND ENERGY ASSOC., *supra* note 6, at 3.

166. *Id.*

167. EWEA Chief: EU Legislation Set to Boost Wind Industry, *supra* note 55.

168. January 2008 Proposed Directive, *supra* note 15, at 9.

169. *Id.*

170. EUROPEAN WIND ENERGY ASSOC., *supra* note 6, at 4.

171. *Id.*

172. *Id.*

173. GLOBAL WIND ENERGY COUNCIL, *supra* note 10, at 31.

to result in distortions of trade and competition and that these effects were likely to grow in the coming years" as renewable energy production increased.[174] Those commentators point to examples such as the creation of a single market in areas like transport, telecommunications, and other utilities as support for the increased efficiency and technological innovations—as well as decreased prices—that come with a harmonized single market.[175]

However, it is the new EU Directive's mandate of a community-wide cap-and-trade program to reduce emissions that embarrasses the argument that the EU "isn't ready" for a community-wide regulatory scheme to support the development of renewable energy. The chief weakness of the December 2008 Directive is not—as most commentators argue—its many concessions to industry that weaken the emissions reduction scheme.[176] Rather, the Directive fails by not calling for an EU-wide regulatory support mechanism to make renewable energy competitive on a community-wide market. The community-wide cap-and-trade scheme provides an ideal foundation upon which to build a community-wide feed-in tariff or tradable green certificate scheme. Harmonizing support schemes throughout Europe creates a larger, more efficient market with more players and greater cost savings. A larger wind energy market is also a more stable, reliable energy market.[177] So long as harmonization is forgone, economies of scale the size of continental Europe will continue to be squandered at the expense of human health and the global environment.

Harmonization would also lead to more efficient development of wind technology. Rather than being forced to find the best sites for wind farms within their own borders, EU member states could unite and take advantage of the best wind farm locations no matter which country they are located in. This reduction in administrative burdens increases investor confidence and spurs production, development, and job creation.[178] Additionally, a harmonized scheme provides EU politicians with the protection of majority collective action: none is responsible for individual successes or failures of the schemes within his or her own country. As long as EU legislators avoid implementing a harmonized support scheme for the development of renewable energies, they cannot say they are implementing wind energy and creating green jobs in the most efficient, expedited manner available.

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174. LAUBER, *supra* note 114, at 8.

175. *Id.* at 11–12.

176. *See infra* Part V.B.

177. *See supra* text accompanying notes 59–64 (discussing the benefits of a larger energy system in guarding against potential shortages in the supply of wind).

178. *See infra* Part IV.B.

B. *Other Necessities: Grid Access, Administrative Procedures, and Guarantees of Origin*

In addition to the challenges presented by the new Directive's framework, other major barriers to the development of wind energy in Europe include administrative delays, prohibitive grid access conditions, and the lack of guarantees of origin.[179] With the new Directive in place, a primary challenge is to ensure that implementation provides for rapid integration of renewables into existing energy markets.[180] The wind industry in Greece illustrates that a sufficient support mechanism does not by itself guarantee development of wind energy.[181] That country has a high feed-in tariff supplemented by moderate capital grants, and yet development is stagnant.[182] Despite the value of the tariff, investors are unwilling to commit to wind projects without an efficient regulatory framework in place and easy access to the electricity grid system.[183] France faces a similar problem: it has adequate financial incentives, but grid access and bureaucratic administrative structures are stifling development.[184]

Countries must ensure an efficient, easily navigable administrative process for approval and licensing of wind turbine construction. The current laws in some Member States are having the opposite effect. In France, the ZDE Law requires wind farms to be constructed in designated Wind Power Development Zones in order to benefit from that country's feed-in tariff program.[185] As a result, wind turbines are banned in large tracts of land near legally protected natural areas and along flight paths.[186] This 2005 amendment to France's original 2001 feed-in tariff law has complicated administrative procedures and resulted in a slowdown in the growth of the country's wind energy industry.[187] Additionally, planning restrictions are the most common hurdle to development cited by wind energy producers in the UK.[188] In Germany, by contrast, wind turbine construction is considered a priority under the German Federal Building Code.[189] There, municipalities are to give administrative priority to projects that will utilize wind for energy

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179. GLOBAL WIND ENERGY COUNCIL, *supra* note 10, at 31.
180. Piebalgs, *supra* note 38, at 5.
181. EUROPEAN WIND ENERGY ASSOC., *supra* note 25, at 31.
182. *Id.*
183. *Id.*
184. *Id.* at 32.
185. GLOBAL WIND ENERGY COUNCIL, *supra* note 10, at 33.
186. *Id.*
187. *Id.*
188. Butler & Neuhoff, *supra* note 124, at 1860.
189. GLOBAL WIND ENERGY COUNCIL, *supra* note 10, at 34.

production.[190] Even with this provision, Germany has its share of administrative obstacles. For example, restrictions on wind turbine height have resulted in producers being unable to build turbines tall enough to maximize their energy-producing potential.[191]

Guaranteed access to existing electricity grids is vital element to developing the wind energy industry in the EU.[192] Grid access was the second most commonly cited barrier to development in a recent study of German and UK wind producers, second only to administrative barriers.[193] Thus, the issue of physical access to the grid is major decisive factor, along price, in establishing a viable wind energy industry.[194] Major greenhouse gas emissions-reducing incentives such as feed-in tariffs and cap-and-trade schemes will have little effect if wind farms are denied the ability to sell their renewable energy on the grid.[195] Some countries may have room for wind developments to connect to existing grids, while other countries (or large, modern wind farm developments in any country) could require additions to grid capacity.[196] Thus, Member States' legislatures must also speed up authorization procedures for expanding grid infrastructure.[197] Countries must make one of two guarantees: either priority access (where already-connected wind farm operators are ensured they will be able to sell and transmit their electricity) or guaranteed access (ensuring all electricity from renewable sources gets initial access to the grid).[198]

Guarantees of origin prove to the consumer that a given unit of energy comes from a renewable source.[199] By Directive, EU nations must "ensure that the origin of electricity produced from renewable energy sources can be guaranteed as such."[200] The guarantee must provide information on the source from which the electricity was produced, including the date and place of production.[201] Guarantees of origin are necessary because they facilitate efficient trading of renewable energy and increase transparency for consumers by providing a means to differentiate electricity from renewable sources

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190. *Id.*
191. *Id.* at 35.
192. Mortensen, *supra* note 4, at 195–96.
193. Butler & Neuoff, *supra* note 124, at 1860.
194. Mortensen, *supra* note 4, at 196.
195. *Id.* at 195–96.
196. *Id.* at 196.
197. EUROPEAN WIND ENERGY ASSOC., THE RENEWABLE ENERGY DIRECTIVE —A CLOSE-UP 3, *available at* http://www.ewea.org/fileadmin/ewea_documents/documents/press_releases/2008/RES/RES_Directive_special.pdf.
198. *Id.*
199. *Id.*
200. Council Directive 2007/77/EC, art. 5, para. 1, 2007 O.J. (L 032).
201. *Id.* para. 3.

and electricity from conventional sources.[202] The December 2008 EU climate change directive takes steps to establish consistency for guarantees of origin throughout the community.[203] First, guarantees of origin are to be issued in a standard size of 1 megawatt hour.[204] Additionally, no more than one guarantee of origin may be issued for each unit of energy produced.[205] To ensure accountability among renewable energy producers, Member States must take measures to ensure that the same unit of energy is taken into account and guaranteed only once.[206]

V. SUCCESS AND FAILURE IN THE NEW EU CLIMATE PACKAGE

A. *Promotion of the Use of Energy from Renewable Sources*

The EU's 2009 Climate Action and Renewable Energy Package contains numerous provisions seen as necessary components of effective legislation designed to promote renewable energy.[207] The 2009 Renewable Energy Directive is more successful and represents fewer concessions to the powerful energy industry interests than the emissions allowance trading system discussed in Part V.B below.[208] The key principles of the January 2008 Proposal for a Renewable Energy Directive were retained in the December 2008 text adopted by the European Parliament.[209] At its core, the text incorporates a mandatory target of 20% of overall EU energy production coming from renewable sources by 2020.[210] To achieve this goal, the Directive establishes legally binding national targets for each member country.[211] Furthermore, the Directive declares that member states "shall introduce" measures designed to meet or exceed the national goals set out in the text.[212] These measures may include regulatory support schemes as well as cooperative efforts with other Member States or outside nations.[213] Member States are required to

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202. Ernst Tremmel, *Legislative Development: Directive 2001/77/EC On The Promotion Of Electricity Produced From Renewable Energy Sources In The Electricity Market*, 8 COLUM. J. EUR. L. 363, 364 (2002).
203. 2009 Renewable Energy Directive, *supra* note 17, art. 15.
204. *Id.* art. 15, para. 2.
205. *Id.*
206. *Id.*
207. *Id.*
208. *Id.*
209. EUROPEAN WIND ENERGY ASSOC., *supra* note 197, at 1.
210. 2009 Renewable Energy Directive, *supra* note 17, art. 3, para. 1.
211. *Id.*
212. *Id.* art. 3, para. 2.
213. *Id.* art. 3, para. 3.

adopt National Action Plans (NAPs) that set out the measures to be taken to achieve the overall national targets[214] and submit those action plans to the EU by June 2010.[215]

The Directive contains strong provisions related to administrative procedures and regulations. The measures—largely retained from the January 2008 Proposal for a Directive—will increase government transparency and break down the administrative barriers faced by entrepreneurs hoping to develop wind companies. For example, Member States are required to make all certification and licensing procedures clearly coordinated and defined with transparent timetables for permitting procedures.[216] Additionally, there is a strong information-forcing provision regarding the processing and certification of applications for renewable energy installations.[217] In a surprising move, the Directive allows for "simplified and less burdensome . . . procedures" for smaller projects.[218] Finally, the comprehensive administrative portion of the Directive includes a provision for consumer education, which requires member states to develop awareness-raising programs to inform citizens of the benefits of developing and using renewable energy.[219] These administrative conditions provide increased legislative certainty for investors and should decrease the amount of time new projects take to become operational, thereby helping member states meet their mandatory 2020 targets.

The adopted Directive also contains strong provisions for guarantees of origin. The Directive requires member states to ensure "the origin of electricity produced from renewable sources can be guaranteed as such . . . ."[220] Furthermore, Member States are to ensure that each unit of renewable energy is only taken into account once[221] and that the guarantee of origin does not function as evidence that a Member State is in compliance with its obligations under Article 3 to meet mandatory renewable energy targets.[222] These provisions help legitimize the guarantee of origin program by

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214. *Id.* art. 4, para. 1.
215. *Id.* para. 2.
216. *Id.* art. 1312, para.1(a).
217. *Id.* para 1(b).
218. *Id.* art. 13, para. 12. This provision is surprising in light of the strong industry lobby surrounding the climate legislation processed, as evidenced by the many concessions made to industry discussed in Part V.B. Additionally, many large businesses are taking advantage of economies of scale in the down economy and are looking to buy up or force out smaller competitors, which makes it unlikely that special treatment for those small competitors would survive in the final text adopted by the EU Parliament.
219. *Id.* art. 14, para. 6.
220. *Id.* art. 15, para. 1.
221. *Id.* 2.
222. *Id.*

ensuring it will boost consumer confidence in the renewable energy scheme, as well as by minimizing loopholes for Member States to comply with their renewable energy targets.

In a step vital to the success of new and developing wind farms, the Directive requires Member States to take action regarding their electricity grid to accommodate production from renewable energy sources.[223] Member States must develop infrastructure, intelligent networks, and storage systems so new producers can connect to the grid and sell electricity from renewable sources.[224] In a forward-looking move, the Directive calls for the grid to be interconnected between Member States and third-party countries.[225] Member states are required to provide priority or guaranteed access to producers of electricity from renewable sources.[226]

However, the 2009 Renewable Energy Directive is not without its substantial shortcomings. The lack of a mandatory, harmonized support scheme will harm renewable energy interests. Only the legislative certainty that comes with a mandatory, integrated, and interconnected support scheme will give investors the confidence needed to provide capital to renewable energy projects during the economic downturn. The EU's continued failure to endorse a unified scheme means that individual countries will continue to develop disparate plans. As these plans become more ingrained in any single country, the variations between schemes becomes more difficult to reconcile, and the likelihood of an integrated support scheme emerging in the future becomes even more unlikely—or at least more expensive to implement. Additionally, businesses will come to rely on the support scheme and its corresponding administrative regulations in the country they start a business in, and they will shape their practices accordingly. This will have the long-term effect of increasing transaction costs and reduces incentives of developing renewable energy in two or more countries that will inevitably have variations in their support schemes. As a result, economies of scale are stymied, growth is capped, and investors are less likely to see long-term profit potential in wind energy.

B. *The Emission Allowance Trading System*

The EU has taken the aggressive step of simultaneously addressing both the increased use and promotion of renewable energy and reductions in greenhouse gas emissions into the environment. The two legislative frameworks could be viewed as mutually

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223. *Id.* art. 16, para. 1.
224. *Id.*
225. *Id.*
226. *Id.* para. 2(b).

exclusive, with the renewable energy provisions centered on energy policy and regulation, and the cap-and-trade provisions focused on emissions and clean air. However, because the EU chose to address both issues at once, any analysis of the renewable energy directive would be incomplete without also analyzing the proposed cap-and-trade emissions reduction scheme. Where the cap-and-trade scheme fails as an effective tool in reducing greenhouse gas emissions, there is room for renewable energy measures to thrive and curb greenhouse gas emissions as the amount of energy consumed from renewable sources increases over time.

The 2009 ETS Directive establishing the EU-wide emissions trading scheme exists as amendments to the Parliament's original attempt to establish a cap-and-trade scheme in Directive 2003/87/EC.[227] Under the amended scheme, Member States must ensure that no facilities in their countries emit greenhouse gasses without a permit or "allowance."[228] Member States establish a plan for the total number of permits and their allocation.[229] Once countries allocate allowances, companies that emit beyond their allowance must buy more from those companies who emit less.[230] Thus, a free market for emissions is established where those who can curb their emissions and sell their allowances are rewarded, and those who pollute more are forced to pay more.[231] While such an emissions trading system operates only indirectly in terms of promoting renewable energy, it provides incentives for companies to emit less and therefore has an immediate, direct impact in the effort to curb greenhouse gas emissions.

The complexities and concessions of the Amendments are best evidenced by the evolution of Articles 10 and 11, both of which were entirely replaced in the 2009 Directive.[232] These articles were transformed from simple proposals to lengthy, complex schemes with changes made to the method of distributing allowances and exceptions carved out for various industries and countries. Where the original scheme called for 10% of allowances for 2008 to be auctioned by the countries at a profit, the amended directive calls for free allocation of allowances for any emitter in operation as of December

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227. *See* 2009 Emissions Trading Scheme Directive, *supra* note 17, pmbl., para. 42 (provision for emissions caps).

228. *Id.* art. 4.

229. Directive 2003/87, 2003 O.J. (L 275) 32, art. 9, para. 1 (EC).

230. CAN Europe, Emission Trading in the EU, http://www.climnet.org/EUenergy/ET.html (last visited Oct. 30, 2009).

231. *Id.*

232. *Compare* Directive 2003/87, arts. 10–11, 2003 O.J. (L 275) 32 (EC) (including prior articles 10 and 11), *with* 2009 Emissions Trading Scheme Directive, *supra* note 17, arts. 10–11 (replacing former articles 10 and 11).

31, 2008.[233] When allowances are sold for a price (i.e., when they are "auctioned"), businesses will have an economic incentive to curb emissions if the cost of doing so is less than the cost of purchasing additional allowances. However, where the cost imposed for a pollution allowance is removed, businesses have no immediate incentive to take expensive measures to reduce their emissions.[234] Moreover, certain manufacturing industry sectors earned concessions in the final version of the new scheme. For example, while the January 2008 Proposed Directive called for coal-fired power plants (major greenhouse gas emitters) to purchase 100% of their pollution allowances by 2013, that measure is absent from the 2009 Directive.[235] Some countries lobbied hard and earned concessions that weaken the effectiveness of the bill: for example, steel plants and chemical factories in Germany enjoy exceptions from the full cap-and-trade scheme.[236]

It is useful to compare the many concessions of the cap-and-trade scheme to the provisions of the renewable energy scheme, which survived almost entirely intact from previous EU proposals and roadmaps.[237] The continuity in the renewable energy provisions is evidence of broader, stronger support for government aide for renewable energy. Conventional wisdom says that government injection of capital and support schemes that promote, for example, the development of wind farms can create jobs and benefit a country's economy as well as its environment. Cap-and-trade emissions reduction schemes, on the other hand, may be more easily viewed as the sort of increased regulation that is bad for business. These businesses lobbied harder, and the cap-and-trade legislation was weakened.[238] That the renewable energy Directive was not met with the same obstacles is evidence that EU policy makers have political capital to spend on the continued promotion of renewable energy via strong regulatory support schemes. A vision of this attractive regulatory opportunity is laid out in Part VI.

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233. *Id.*

234. 2009 Emissions Trading Scheme Directive, *supra* note 17, arts. 10–11. The Directive does call for a gradual implementation of auctioned allowances over time. *Id.* para. 13.

235. Kanter & Castle, *supra* note 20.

236. *Id.*

237. *See supra* text accompanying notes 232–34 and note 232.

238. *See* Kanter & Castle, *supra* note 20 (noting the agreement to a "drastically weaker plan to reduce emissions").

VI. A BOLD PLAN TO SECURE THE EUROPEAN WIND ENERGY MARKET IN THE LONG TERM

A. *Policymakers Must Lead in Aiding Renewable Energy Companies Through the Global Downturn*

Given the market barriers described in Part II, governments must intervene to support the private institutions that develop wind energy if renewable energy is to be successful. Aggressive goals for wind energy are within the EU's reach if the community acts in a unified fashion and expands the scope of its Directives beyond the step-by-step measures that have thus far been the model for change. The EU must inject a new level of bold support for wind and renewable energies in the short term. If support is not offered, investors will shy away from renewable energy investments during the current economic downturn. So far, EU leaders have been unwilling to emerge as such aggressive energy leaders. The slower-than-expected growth of wind power in markets such as Germany, Portugal, and the UK is due to, among other things, administrative barriers and legislative uncertainty.[239] Additionally, the declining price of oil reduces demand for renewable energy, and tightening credit markets dry up investments.[240] EU leaders are under pressure to create jobs—not reduce emissions.[241] In the meantime, companies across Europe continue to emit greenhouse gases, and climate change remains an imminent threat.

Despite the global market crash, many investors still see long-term opportunity for profit in renewable energy.[242] The EU Commission itself said the challenges concerning the future of energy "call for a comprehensive and ambitious response."[243] Private companies cite the will of European politicians to fight climate change and reduce dependence on foreign oil as the basis for their interest in renewables investments.[244] This lasting investor interest proves the inherent potential value of wind and renewable energy. Further, the need for strong government support to attract investors is underscored: With the correct legal framework and legislative action,

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239. GLOBAL WIND ENERGY COUNCIL, *supra* note 10, at 30. The report also mentions a lack of grid access as a cause of slow growth. *Id.*

240. *See* discussion *supra* Part II.C.

241. *Id.*

242. Tom Wright, *Winds Shift for Renewable Energy As Oil Price Sinks, Money Gets Tight*, WALL ST. J., Oct. 20, 2008, at 2.

243. 2007 Renewable Energy Roadmap, *supra* note 42, at 3.

244. Wright, *supra* note 242.

the EU is in a position to support wind energy in such a way that wind companies can not only survive the economic collapse, but also play a key role in retooling member states' economies for the future. To the extent market failures persist and to the extent wind energy is most successfully developed where it is supported by government mechanisms, the future success of wind companies depends even more heavily on government support during a declining economy and where oil is relatively cheap.

To successfully implement this new legal framework, policymakers must view themselves as champions and promoters of technological advancement and innovation. This new role should develop in several steps: First, leaders must educate consumers in their countries about both the costs and benefits of new renewable energy schemes. Second, leaders should fulfill their traditional policymaking roles and pass laws to actually implement the sort of renewable energy support schemes discussed in subpart B below. Third, leaders must do an additional "follow up" round of consumer education, demonstrating the successes of the implemented mechanisms and drawing conclusions that link job growth, reduced emissions, etc., back to their renewable energy schemes. Properly executed, this plan will lead to popular support for the regulatory schemes over time, and renewable energy production can compete on the free market with conventional energy technologies free of government support schemes. An economy with an energy scheme that is clean, safe, secure, and price-competitive with conventional energy technology is the very embodiment of one that is retooled for the future.

Despite calls for green initiatives to be delayed during the global depression, the political, financial, and legal climates are all perfectly positioned for European nations to step in and take strong legislative action that would be welcomed across the continent. To start, private-equity firms predict positive results for renewable energy throughout the next decade.[245] Additionally, wind energy is approaching a competitive price in the market.[246] Prices of wind turbines are likely to decline during an economic downturn, thereby diminishing the startup costs of wind farms and making wind energy

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245. Jennifer Bollen, *Even As Oil Gets Cheaper, Renewable Buyouts Go On*, WALL ST. J. EUROPE, Oct. 28, 2008, at 2.

246. *Id.*

even more affordable.[247] Analysts worldwide expect to see a "large discount in the prices of [wind] farms during 2009."[248]

Thus, policymakers must invest their political capital in wind farms. These legislators are in a position to take strong action against climate change, and in doing so will meet the public demand in Europe for more renewable energy and will support an industry eager for the government to provide investor certainty. Wind companies will welcome tax incentives, infrastructure investments, and a strong renewables support mechanism to attract these investors. EU leaders, therefore, are poised to take advantage of the current economic climate to exploit the rare political situation where regulatory investment in wind energy poses little risk of political backlash from either consumers or industry. Once the EU nations educate, then legislate, and then reeducate, companies will be in a position to take action quickly.

Regulatory intervention will also ensure continued competition and innovation in the wind energy arena. Barriers to entry are consistently high in energy markets, and they are especially so in a struggling economy where large producers can take advantage of economies of scale to succeed over small to mid-sized producers. During difficult economic times, only those renewable energy companies with strong balance sheets are considered safe investments, and smaller competitors are expected to be squeezed out of the picture.[249] The EU cap-and-trade scheme may achieve such competition, innovation, and growth as the cap on emissions forces companies to find new, innovative ways to pollute cheaply or pollute less. However, there is no guarantee these companies will invest in renewable energy as a way of achieving the required emissions reductions. Rather, these companies can simply buy emissions allowances from other producers and continue emitting the same amount. It follows that there is no guarantee of progress toward meeting the binding target of 20% of energy coming from renewable sources by 2020.

EU leaders and policymakers face an obligation to call attention to this gap in the recent climate change package. The many concessions made in the Emissions Trading Directive portion of the Climate Action and Renewable Energy Package are evidence that

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247. Posting of Keith Johnson to WSJ Blogs: Environmental Capital, Clean Crunch: Wind Companies Suffer Downturn, Look for Upside, http://blogs.wsj.com/environmentalcapital/2008/11/06/clean-crunch-wind-companies-suffer-downturn-look-for-upside/ (Nov. 6, 2008, 15:41 EST).

248. Teresa Rivas, *This Utility Will Inherit the Wind*, BARRON'S, Dec. 29, 2008 (alteration in original) (citing Macquarie Research analyst Angie Storozynski).

249. *See id.* (explaining that the strength of the FPL Group's balance sheets will help it succeed relative to weaker competitors).

renewable energy faces a formidable opponent in the traditional energy lobby.[250] The cries of business, however, can be drowned out by the cries of the populace. Put differently, any renewable energy legislation is only as good as the popular support it has behind it.

The duties of the policymaker are challenging but necessary: EU leaders must push forward public opinion by presenting the problems posed by the gaps in the cap-and-trade legislation. Next, leaders must introduce support mechanisms that provide the investor confidence needed for renewable energy companies to succeed. Third, in another round of consumer education, leaders must demonstrate that the new renewable energy schemes are the solution to the problems created by the cap-and-trade bill. Implemented correctly, this plan will result in public demand for more legislative solutions to the climate problem. This sequence lays the foundation for policymakers to solve this gap in the current climate legislation by investing in renewables in a way that allows more entrants into the market, thereby fostering more competition, more innovation, and greater increases in the percentage of renewable energy used throughout the continent.

B. *Supplemental Support Mechanisms Are Necessary to Attract Investment to Small and Mid-Sized Producers*

Despite the EU's development of a cap-and-trade scheme, the downturn in the economy means additional support mechanisms and infrastructure investment remain necessary to develop a wind energy industry. A cap-and-trade program may be able to reduce emissions, but without legislative support in place, investors and entrepreneurs have no incentive to develop renewable energy. Due to the weaknesses in the EU cap-and-trade scheme that allow traditional power companies to take advantage of legislative carve outs and continue to pollute, only additional support schemes and investment incentives will ensure that wind energy's prominence can increase. Thus, the cap-and-trade scheme is best viewed as the foundation on which real efforts to reduce greenhouse gas emissions through the increased use of renewable energy can be built.[251] The goal of 20% renewable by 2020 in the EU plan will be difficult to meet in the declining economy if small renewable energy companies are not supported in a way that ensures competition and innovation.

Spain serves as an example that pricing and infrastructure support are catalysts for wind market development. Despite the

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250. 2009 Emissions Trading Scheme Directive, *supra* note 17.

251. *See* Piebalgs, *supra* note 38 (describing the trading scheme as such a foundation).

down economy, wind energy companies made major expansions into Spain as recently as January 2009.[252] Business leaders call Spain one of the most attractive wind markets in Europe.[253] Spain utilizes a feed-in tariff program to support the price of renewable electricity.[254] Such multi-year commitments to expansion directly support the assertion that FITs or other government investment are needed in addition to the cap-and-trade scheme if Europe is to meet its 20% renewable energy goal.

EWEA officials have argued the new EU climate package provides sufficient incentives for investment in the wind energy.[255] However, this argument requires the assumption that the Directive will provide an incentive for the national governments to put in place financial frameworks, administrative rules and accessible grids in order to meet their binding national targets. While it may be true that the Member States will act in such a way, an efficient administrative process and an accessible grid will not be enough to attract investment in wind energy. Grid access and the reduction of administrative barriers may make investment appear less burdensome in the short term but do nothing to provide a long-term foundation of stability for investors. Rather, a tight credit market requires that investors be assured not just of a reduction in barriers to entry, but also of strong prospects for long-range profitability. The situation therefore calls for a stronger foundation of FITs and price stabilization to truly attract high amounts of capital in the short term.

C. *Investment in Wind Will Mitigate Concerns that Jobs and the Economy Must Take Precedence over Fighting Climate Change*

Wind gives European leaders the opportunity to provide energy that is not only clean but also cheap. Whereas the price of energy produced from fossil fuel is sharply volatile, wind energy is virtually free. Furthermore, a recent study of wind-generation data in Germany from 2006 to 2008 found significant cost savings potential.[256] The study found an average yearly savings of one billion

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252. Press Release, RWE Innogy, RWE Innogy Expands Wind Farm Portfolio in Spain (Jan. 6, 2009), *available at* http://www.rwe.com/web/cms/en/86182/rwe-innogy/news-press/press/?pmid=4002859.

253. *Id.*

254. *Id.*

255. EWEA Chief: EU Legislation Set to Boost Wind Industry, *supra* note 55.

256. Hannes Weigt, *Germany's Wind Energy: The Potential for Fossil Capacity Replacement and Cost Saving*, 38 APPLIED ENERGY 1857 (2009).

Euros due to the availability of wind energy.[257] Given that wind energy has no fuel costs, it is especially cheap during peak demand periods.[258] Wind was even found to be cost effective when taking into account the additional price consumers pay due to feed-in tariffs.[259] Additionally, government support for renewable energy can lead to the development of entire new industries and the jobs they create. Here, history serves as an example. Beginning in 2000, Germany developed a feed-in tariff scheme for the production of solar energy.[260] As a result of those tariffs, the solar energy industry created 60,000 new jobs in Germany alone during the five-year period from 2000 to 2005.[261] These results undermine the arguments of critics who say economic concerns must take precedence over legislative attention to climate change. Rather, cheaper energy is likely to stimulate the economy. Those 60,000 new jobs in Germany increased the installed capacity of wind energy in Europe from 48 megawatts in 1990, to 4500 megawatts in 2000, and to 20,622 megawatts at the beginning of 2007.[262] Importantly, 21,000 megawatts of cheaper renewable energy frees up assets normally expended on utilities and will lead to more disposable income, which can be spent in the market and will also help create jobs.

Thus, the job-creating potential of wind energy is two-fold: First, jobs are created when governments invest in promoting new start-up wind farms; second, relatively inexpensive wind energy increases disposable income, which results in increased consumer spending and subsequent job creation. Additionally, new jobs will come in forms other than just those created by the construction of wind farms. Work must be done to create a competent grid system that provides access for renewable energy producers to sell their electricity. Such massive infrastructure undertakings can provide thousands of new jobs.[263] Furthermore, jobs will be created in the public sector as government spending on renewable energy is monitored and as permits and other administrative procedures for the development of new wind farms are implemented. Government investment in wind energy can simultaneously mean both economic recovery for a country as well as cleaner air and a more secure energy supply for its citizens. Policymakers face a rare win-win situation, which, if squandered, will have adverse impacts on both the economy and the environment.

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257. *Id.* at 1861.
258. *Id.*
259. *Id.*
260. LAUBER, *supra* note 114, at 19–20.
261. *Id.* at 20.
262. Butler & Neuoff, *supra* note 124, at 1858.
263. *See e.g., supra* text accompanying note 261.

VII. CONCLUSION

Europe may still claim a role as a global leader in combating climate change. On December 7, 2009, officials from close to 200 countries will meet in Copenhagen for the UN Climate Conference.[264] The event will be one of the most significant international gatherings in history.[265] Conference participants face the daunting task of negotiating a global solution to the greenhouse gas problem. Those European energy leaders who still believe that Europe has a role in providing a sustainable energy model for the rest of the world to follow[266] are certainly correct. Within the time span of a single generation, Europe has the possibility of achieving a clean, secure, and independent system for renewable energy.[267] Those who criticize the concessions to business and other failures of the 2009 Climate Action and Renewable Energy Package do not make their claims without merit.[268] However, more sensational reactions predicting the death of Europe's ability to lead in the renewable energy arena[269] are not grounded in sound legal or policy strategy. The failures of the Emissions Trading Scheme Directive do not write the fate of the Renewable Energy Directive. Neither does the latter Directive secure its doom by its own words. Rather, room remains for additional government injection of support. Additionally, the emissions reduction plan, while flawed, shows that the political will to fashion an EU-wide plan for renewable energy support is far from unavailable.

A new roadmap is clear: Policymakers no longer need to view the environmental demand to curb greenhouse gas emissions and the economic demand to create jobs as mutually exclusive goals in irreconcilable tension. Rather, government-induced development of renewable energy both creates jobs and retools nations' economies for long-term stability. Such development of a disadvantaged technology requires government intervention in a market stricken with externalities. Thus, strong spending—ideally on a confidence-

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264. *UN Climate Conference: The Countdown to Copenhagen*, INDEP. (London), Jan. 9, 2009, at 2.

265. *Id.*

266. Piebalgs, *supra* note 38, at 8.

267. *Id.*

268. *See, e.g.*, Press Release, Greenpeace, Parliament Adoption of Climate Deal Forfeits EU role as Climate Leader (Dec. 17, 2008), *available at* http://www.greenpeace.org/eu-unit/press-centre/press-releases2/Parliament-adoption-of-climate-deal ("The Parliament has marginali[z]ed itself by lacking the courage to make even small changes to the compromises negotiated by the EU summit . . . .") (quoting Joris den Blanken, Climate & Energy Pol'y Director, Greenpeace EU).

269. *See id.* ("Europe promised leadership on climate, but so far it has led us up the garden path.") (quoting Dir. Blanken).

creating FIT scheme—both creates jobs and reduces emissions. These economic times call for the most efficient implementation possible, and the development of a harmonized community-wide scheme will provide never before seen economies of scale. The pathway for such a harmonized scheme is already laid in the form of the community-wide cap-and-trade scheme. Finally, the removal of administrative barriers and development of a grid that provides readily available access to producers of renewable energy ensures that producers are able to maximize the benefit of government expenditures.

Nothing is preventing EU regulators, legislators, and other policymakers from seizing on the unique possibilities presented by the current challenges in a way that allows the EU to serve as an exemplary model for the world in December 2009.

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