

# COMMENTARY

## WHAT IS THE BEST FORMULA TO PROTECT THE ENVIRONMENT IN ELECTRICITY RESTRUCTURING? COMMENT ON THE ENVIRONMENTAL IMPACTS OF ELECTRICITY RESTRUCTURING BY KAREN PALMER AND DALLAS BURTRAW

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## I. INTRODUCTION

In *The Environmental Impacts of Electricity Restructuring: Looking Back and Looking Forward*, Karen Palmer and Dallas Burtraw do an admirable job of marshalling and compiling data concerning any impacts that electricity deregulation and restructuring have on environmental health.<sup>1</sup> This analysis is extremely important as we consider the complete deregulation of electricity and energy markets and determine whether deregulation must be tempered with continued oversight.

Before any significant deregulation occurred in the energy markets, the negative effects that electricity and energy deregulation might have on the environment concerned environmentalists.<sup>2</sup> In particular, deregulation could eliminate regulatory preferences for conservation over generation and lowering costs could increase demand and the environmental impacts of energy usage.<sup>3</sup> Given the limited data that is available, Palmer and Burtraw provide an excellent analysis regarding these questions, but as they point out, the findings are still only tentative.<sup>4</sup> The inter-relationships between energy usage, deregulation, and environmental impacts are extremely complex; it is too early to conclude much from what has already occurred. Yet, as we march forward, or even sideways, in pursuing “more competitive energy markets,” the need for research on environmental regulation remains. With adequate empirical data or not, the purpose of this panel is to provide some context for considering these issues.

However, our task is not hopeless. In addition to their data analysis, Palmer and Burtraw raise even more interesting questions about our approach, especially with respect to the connection between energy usage and environmental health. Therefore, my comments will focus on two issues: the analysis and implications of the data reviewed by Palmer and Burtraw, and the more fundamental question of how we should think about the interrelationship of energy and environmental health, if we are to truly understand and mitigate the environmental problems that may accompany energy deregulation.

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1. Karen Palmer & Dallas Burtraw, *The Environmental Impacts of Electricity Restructuring: Looking Back and Looking Forward*, 1 ENVTL. & ENERGY L. & POL'Y J. 171 (2006).

2. Kirsten H. Engel, *The Dormant Commerce Clause Threat To Market-Based Environmental Regulation: The Case of Electricity Deregulation*, 26 ECOLOGY L.Q. 243, 248 (1999).

3. *Id.*

4. Palmer & Burtraw, *supra* note 1, at 203.

## II. ANALYSIS AND IMPLICATIONS OF PALMER AND BUTRAW'S DATA

Like most problems with environmental degradation, concerns about environmental health and energy deregulation are all traceable to the problem of the "commons."<sup>5</sup> Increased energy usage is not a per se problem in environmental terms, except for the fact that the byproducts of energy use pollute the commons. For this reason, increased energy usage tends to increase environmental degradation.<sup>6</sup>

Similarly, the main justification for regulations that encourage and/or mandate energy conservation or alternative energy sources is also couched in the issue of commons problems. Those people promoting conservation or alternatives sources argue that even if "producing" power by conservation seems to cost more, it is actually less costly when environmental externalities such as global warming, pollution, and protection of endangered species are considered.<sup>7</sup> With very few exceptions, all of the issues considered by Palmer and Burtraw are traceable to the internalization of negative environmental externalities associated with energy usage.

If environmental laws, regulations, and enforcement mechanisms completely addressed the concerns of environmental costs not being properly internalized, the issue would disappear. Though related to the capturing and exploitation of energy, the corrections for these issues should be made in the arena of environmental protection, not energy deregulation.

With this backdrop, I will comment on Palmer and Burtraw's data analysis. Their study focuses on a few issues that can be analyzed with existing data to provide some generalizations about the impact of electricity restructuring on the environment.<sup>8</sup> They examine both "supply-side factors," related to the effect deregulation would have on the mix of sources in our energy basket,<sup>9</sup> and "demand-side" factors, related

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5. See Garrett Hardin, *The Tragedy of the Commons*, 162 SCI. 1243 (1968), reprinted in ROBERT L. GLICKSMAN ET AL., ENVIRONMENTAL PROTECTION LAW AND POLICY 47, 49 (Erwin Chemerinsky et al. eds., 4th ed. 2003) (discussing how commons-based resources run the risk of over-exploitation due to the aggregated effect of multiple users, each pursuing their own best interest).

6. See, e.g., Homer Sun, Note, *Controlling the Environmental Consequences of Power Development in the People's Republic Of China*, 17 MICH. J. INT'L L. 1015, 1018 (1996) (proposing a strategy to mitigate the environmental degradation resulting from China's power development).

7. Engel, *supra* note 2, at 282-83; Ralph C. Cavanaugh, *Least Cost Planning Implementation for Electric Utilities*, 10 HARV. ENVTL. L. REV. 299, 309-10 (1986).

8. Palmer & Burtraw, *supra* note 1.

9. *Id.* at 178-79.

to how consumers will behave when faced with deregulated electricity.<sup>10</sup>

A. *Supply Side Impact of Electricity Restructuring on the Environment*

With respect to “supply-side” issues, Palmer and Burtraw pay particular attention to how deregulation will affect energy production from various sources.<sup>11</sup> The underlying assumption being that, generally speaking, increased energy from coal will have a negative impact on air quality and will contribute to global warming, while increased reliance on natural gas, nuclear energy, and renewable sources will have a less negative effect on the environment because they produce less air pollution and contribute less to global warming.<sup>12</sup> The effect of deregulation on the country’s energy mix is certainly an important piece of the puzzle, because air pollution and global warming are major environmental concerns of electricity production. Palmer and Burtraw focus on this issue because it is one of the few areas with measurable results. We can trace or calculate the amount of pollutants and global warming gases put into the atmosphere both before and after the beginnings of electricity restructuring. But, we cannot forget that this environmental effect is only part of the story.

After all, comparing the environmental effects of different sources of energy is a difficult task. Though classified as a “good environmental result” from electricity deregulation, increased use of natural gas, nuclear power, and renewables have their own environmental problems.<sup>13</sup> There is still no way to permanently and safely store waste from nuclear fission.<sup>14</sup> Renewable sources of energy can have shortcomings as well. Wind farms have been unpopular because of aesthetics, and hydropower facilities can threaten endangered species. Generally, natural gas seems environmentally preferable to coal

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10. *Id.* at 185–86.

11. *Id.* at 178–85.

12. *Id.*

13. Shi-Ling Hsu, *Reducing Emissions From the Electricity Generating Industry: Can We Finally Do It?*, 14 TUL. ENVTL. L.J. 427, 432 (2001); Michael P. Healy, *The Attraction and Limits of Textualism: The Supreme Court Decision in PUD No. 1 of Jefferson County v. Washington DOE*, 5 N.Y.U. ENVTL. L.J. 382, 386 (1996); Susan E. Holley, *Global Warming: Construction and Enforcement of an International Accord*, 10 STAN. ENVTL L.J. 44, 61 (1991); Edith Brown Weiss, *New Developments in International Environmental Law*, 85 AM. SOC’Y INT’L L. PROC. 401, 404 (1991).

14. U.S. NUCLEAR REGULATORY COMM’N, BACKGROUNDER ON RADIOACTIVE WASTE, 2 (2005).

in an energy mix.<sup>15</sup> Still, methane releases from improperly handled, stored, and transported natural gas can result in increased global warming. Additionally, some sources of natural gas raise concerns about environmental amenities at the point of extraction.<sup>16</sup>

Because the environmental effects of different sources of energy vary, effective environmental controls must account for the numerous facets of environmental risk. Presumably, if the Endangered Species Act were enforced correctly, we need not worry about the disappearance of salmon species in the Pacific Northwest, no matter how much power we generate from hydroelectric, because such generation would not be allowed to affect endangered species.<sup>17</sup> Additionally, if we correctly price the cost of safely and permanently storing nuclear waste and the cost of disposing of the byproducts of uranium enrichment, nuclear power could be used without fear of environmental or health effects.

However, even when focusing on coal, it is difficult to understand what impact electricity deregulation has had on air pollution and greenhouse gases. Palmer and Burtraw note that coal generation is up, but no data can confirm that this is a result of deregulation of electricity markets.<sup>18</sup> In addition to the confounding factors they discuss, I would note that the increase in the use of coal for base power could be related to the question of whether the Clean Air Act's New Source Review requirements<sup>19</sup> apply to the maintenance and upgrades of grandfathered plants, which make up a sizable portion of the coal power and emit more air pollution.<sup>20</sup> Moreover, the mixture of old and new sources is itself important, because increased production of base power from older plants increases the air pollutant load per amount of power generated. The rules governing pollution control at these plants have whipsawed drastically in the last ten

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15. Hsu, *supra* note 13.

16. *Id.*

17. See Endangered Species Act, 16 U.S.C. §§ 1531–1544 (2005); see generally Helen Nowlin-Chantreau, *The Endangered Species Act and the Federal Energy Regulatory Commission: The Challenges in Saving the Pacific Northwest Salmon*, 9 ALB. ENVTL. OUTLOOK 245 (2004) (describing the impact of hydroelectric dams on salmon).

18. Palmer & Burtraw, *supra* note 1, at 188–89.

19. 42 U.S.C. § 7411 (2005).

20. See generally VICTOR FLATT & KIM CONNOLLY, CENTER FOR PROGRESSIVE REGULATION, 'GRANDFATHERED' AIR POLLUTION SOURCES AND POLLUTION CONTROL: NEW SOURCE REVIEW UNDER THE CLEAN AIR ACT (Ctr. for Progressive Regulation, White Paper #504) (Mar. 2005) (discussing the proposed rule changes and the application of New Source Review), available at [http://www.progressiveregulation.org/articles/NSR\\_504.pdf](http://www.progressiveregulation.org/articles/NSR_504.pdf).

years between tight enforcement in the Clinton era<sup>21</sup> to attempts to end regulation of grandfathered plants in the Bush administration.<sup>22</sup> Palmer and Burtraw themselves note that reductions of nitrogen oxides and sulfur dioxides are required by the Clean Air Act no matter how much energy usage increases.<sup>23</sup>

This change in policy suggests that any impact electricity deregulation has on the use of coal, due to its cheaper base price, is more than overwhelmed by factors governing how pollution from coal-fired plants is regulated. Palmer and Burtraw hint at a similar conclusion,<sup>24</sup> which bolsters my opinion that the issue is really one of environmental control in general. If the Clean Air Act were enforced as written, it would not matter for the purposes of most pollutants whether or not the use of coal increased or decreased. After all, the Clean Air Act ostensibly protects all of us from harm to our health caused by air pollution.<sup>25</sup>

Of course, the one important exception is the regulation of carbon dioxide, a harmful byproduct of coal combustion, or unregulated combustion of any fossil fuel for that matter.<sup>26</sup> Again, however, this is a flaw not of any electricity deregulation scheme but of environmental regulation generally. Our country has chosen not to regulate the production of carbon dioxide to any sort of healthful level (if that can be reached),<sup>27</sup> nor has it yet

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21. See, e.g., Press Release, Department of Justice, *U.S. Sues Electric Utilities In Unprecedented Action To Enforce The Clean Air Act: Complaints Filed After One of The Largest Enforcement Investigations in EPA History* (Nov. 3, 1999) available at <http://www.usdoj.gov/opa/pr/1999/November/524enr.htm>; see also Environmental Protection Agency, available at <http://www.epa.gov/compliance/civil/programs/caa/coal/index.html>.

22. FLATT & CONNOLLY, *supra* note 20, at 5–8 (discussing the intent and legality of the proposed rule, Prevention of Significant Deterioration (PSD) and Non-Attainment New Source Review (NSR): Equipment Replacement Provision of the Routine Maintenance, Repair and Replacement Exclusion, 68 Fed. Reg. 61,248 (published Oct. 27, 2003) (stayed pending outcome of court challenges)).

23. Palmer & Burtraw, *supra* note 1, at 178–85.

24. *Id.*

25. See 42 U.S.C. § 7401(b)(1) (2005) (declaring the purpose of the act being to promote the public health and welfare and the productive capacity of the population); see also 42 U.S.C. § 7470(1) (2005) (declaring the purpose to protect public health and welfare from any actual or potential adverse effect from air pollution).

26. U.S. ENVTL. PROT. AGENCY, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990–2003, 52–54 (Apr. 15, 2005), available at [http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/RAMR69V4ZS/\\$File/05\\_complete\\_report.pdf](http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/RAMR69V4ZS/$File/05_complete_report.pdf).

27. Control of Emissions From New Highway Vehicles and Engines, 68 Fed. Reg. 52,922 (Sept. 8, 2003) (denying petition for rulemaking after EPA determined that it did not have statutory authority to regulate greenhouse gas emissions from motor vehicles and that, even if it did, it would not exercise the authority at the time); *Massachusetts v. EPA*, 415 F.3d 50 (D.C. Cir. 2005) (affirming denial of petition as within discretion of the agency).

created any way to mitigate the environmental effects of carbon dioxide (though the Bush administration is touting a pilot project on clean coal technology, which would supposedly control any negative effects on the air from coal combustion).<sup>28</sup> Should energy companies and electric utilities be concerned about carbon dioxide even though it is not already regulated as an environmental pollutant? From the point of view of a good citizen concerned about increased usage of coal, the answer is yes. Even when profit maximization is the only consideration, companies must examine the carbon dioxide (CO<sub>2</sub>) trading markets that are forming all over the world<sup>29</sup> and the possibility of future regulation of CO<sub>2</sub> in this country. However, this is not a “flaw” of deregulation, but a flaw of our federal government to deal with a harmful environmental pollutant. Coal fired utility plants are not the only source of global warming gases, and they are not the only ones that should be regulated.<sup>30</sup>

Interestingly, this flaw in many ways may also explain the unexpected results noted by Palmer and Burtraw concerning the strengthening of the nuclear power sector.<sup>31</sup> The paper notes that contrary to expectations, nuclear power is coming back into the mix of energy sources despite its relatively higher costs, a result one would generally not expect with deregulation.<sup>32</sup> It is, however, absolutely expected when one considers the failure of the government to effectively regulate global warming gases. Beginning in the mid 1990s, regulators at first and then environmentalists began to come around to nuclear power, precisely because it does not generate greenhouse gases. This change in attitude, particularly of environmental organizations, cannot be overemphasized. Nuclear power has been given a surge of life. Protests against its usage have slowed and in the balance of all environmental harms, it is seen as one of the few major power sources that does not contribute to global warming.<sup>33</sup>

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28. U.S. Dep't of Energy, *FutureGen—Tomorrow's Pollution-Free Power Plant*, <http://www.fossil.energy.gov/programs/powersystems/futuregen/> (last visited Apr. 15, 2005).

29. See CO<sub>2</sub> Trading European Union Emissions Trading Scheme, <http://europa.eu.int/comm/environment/climat/emission.htm> (last visited May 24, 2005); CO<sub>2</sub>e, <http://www.co2e.com> (last visited May 24, 2005).

30. U.S. ENVTL. PROT. AGENCY, INVENTORY OF U.S. GREENHOUSE GAS EMISSIONS AND SINKS: 1990–2003, 22; 24–25 (Apr. 15, 2005), available at [http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/RAMR69V4ZS/\\$File/05\\_complete\\_report.pdf](http://yosemite.epa.gov/oar/globalwarming.nsf/UniqueKeyLookup/RAMR69V4ZS/$File/05_complete_report.pdf) (summarizing CO<sub>2</sub> emissions and emission trends from all U.S. anthropogenic sources in Table 2-1 and Table 2-3).

31. Palmer & Burtraw, *supra* note 1, at 189–91.

32. *Id.*

33. See, e.g., Timothy Walsh, Note, *Turning Our Backs: Kyoto's Mistaken Nuclear Exclusion*, 16 GEO. INT'L ENVTL. L. REV. 147, 156 (2003), (citing Joe Colvin, *Nuclear*

Presumably, if the government effectively controlled greenhouse gases, relatively speaking, the cost of nuclear power would come down and its use would increase. To some degree, this is already happening, but it is not due to direct regulation but to shifting public attitudes, which also affect the cost of electricity production.

In some ways, shifting public attitudes also explain part of the rising natural gas prices that Palmer and Burtraw claim was unexpected during deregulation.<sup>34</sup> For at least the last decade, natural gas has been proclaimed the “clean burning fuel,” largely because its associated air pollutant effects per Btu produced are lower than coal.<sup>35</sup> The perception that natural gas is clean has increased its popularity and demand.<sup>36</sup> In the 1980s concerns over acid rain increased, and natural gas became more available to utilities.<sup>37</sup> In response to this and the acid rain provisions of the 1990 Act, many utilities shifted to co-generational facilities or to natural gas produced electricity.<sup>38</sup> This switch continued into the 1990s because of increased public concern over global warming gases and other air pollutants.<sup>39</sup> Decision-makers in government and those in electricity production are not immune from shifts in public opinion. Even without deregulation, public opinion would likely contribute to higher natural gas demand and hence increased prices.

### B. Demand Side Impact of Electricity Restructuring on the Environment

With respect to demand side management, Palmer and Burtraw note two important facts: in general, increased demand

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*Electricity is a Key to Sustainable Development*, 5 WORLD ENERGY No. 3, at 2–3 (2002)) (estimating that from 1973 to 2000, over 33 million tons of NO<sub>x</sub> and 2.7 billion metric tons of carbon emissions have been avoided by the use of nuclear energy).

34. Palmer & Burtraw, *supra* note 1, at 202–03.

35. U.S. DEP'T OF ENERGY, NATIONAL ENERGY STRATEGY: POWERFUL IDEAS FOR AMERICA, 86 (1st ed. 1991) (Natural gas combustion produces virtually no sulfur oxides and emits far less nitrogen oxide, carbon monoxide, carbon dioxide and reactive hydrocarbons than other fossil fuels); Office of Policy, Planning and Evaluation, EPA, *Policy Options for Stabilizing Global Climate: Report to Congress*, 34 (1990).

36. Shi-Ling Hsu, *Reducing Emissions from the Electricity Generation Industry: Can We Finally Do It?*, 14 TUL. ENVTL. L.J. 427, 430–32 (2001) (discussing the increasing role of natural gas in reducing emissions).

37. See, e.g., Arnold Reitze, Jr., *The Legislative History of U.S. Air Pollution Control*, 36 HOUS. L. REV. 679, 714 (1999).

38. James E. Beard, *An Application of the Principles of Sustainability to the Problem of Global Climate Change—An Argument for Integrated Energy Services*, 11 J. ENVTL. L. & LITIG. 191, 200 (1996).

39. Thomas W. Waelde, *Intermittent Energy Investment*, 17 ENERGY L.J. 191, 214 (1996).

has not accompanied deregulation of electricity, and consumers have not exercised consumer choice to purchase more “green” sources of energy.<sup>40</sup>

#### 1. Consumers Have Not Preferred “Green” Energy

With respect to the latter issue, a demand for renewables was supposed to be the “silver lining” of market deregulation for environmentalists. After all, given the option, enough consumers would be expected to choose renewables even if they had to pay more than they would for cheaper, “dirty” fuels. From an economist’s point of view, society’s preference for a source of energy should be expressed by their willingness to pay for such energy, so it might be inappropriate to artificially support renewable sources of energy.

The demand for renewables has been lower than anticipated, but I would posit that it is not a reflection of societal choice. Two factors may be at work, and these should be explored further. First, the market is not deregulated yet and consumers do not have access to so-called “green power” on demand, nor are they faced with a choice which allows direct comparison of power produced from renewable sources vs. power produced from fossil fuels. Where market information has been made available, as in Texas, consumers have shown a marked preference for increasing “green” sources of power.<sup>41</sup> Therefore, to the extent that we do not have, or possibly never will have, a completely deregulated energy market, we may never fully understand the amounts of power that could be produced from renewables, or perhaps more importantly, from conservation.

Moreover, there is a supply issue with renewables that Palmer and Burtraw did not explore. Renewable power sources on any large scale are unique at this time. As such, there are not routine permitting processes for them at the local, state, or federal level. Additionally, the public has not had time to completely understand the trade-offs that may be associated with them. For instance, the largest off-shore wind farm ever has been proposed for an area off the coast of Cape Cod.<sup>42</sup> This facility, with over 130 windmills, would be able to produce over twenty-five percent of the power of Massachusetts at competitive prices

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40. Palmer & Burtraw, *supra* note 1, at 193–97.

41. Philip Olden & Joseph Younger, *Lighting the Lone Star: The Texas Experience with a Competitive Electricity Market*, 40 WAKE FOREST L. REV. 709, 720–21 (2005).

42. Cape Wind Associates, America’s First Offshore Wind Farm on Nantucket Sound, Project at a Glance, <http://www.capewind.org> (last visited June 15, 2005) (website providing information on the Cape Wind Horseshoe Shoal Project in Massachusetts).

when operating at peak capacity.<sup>43</sup> However, the project is currently bogged down in permitting issues, with the EPA recently rejecting the environmental impact statement prepared by the Corps of Engineers for permitting the water-disturbing activities of the site.<sup>44</sup> We currently see similar issues with LNG facilities.<sup>45</sup> This is not to say that these projects should not be subject to scrutiny and analysis. These renewable projects are novel, and our information about them is limited. Small co-generation facilities are far more prevalent and are ergo subject to less scrutiny because their effects are already well understood, which allows a co-generation facility to be brought to market much faster than large scale renewable facilities. These issues will probably continue to delay renewable energy implementation for the foreseeable future. Thus, even with strong demand from consumers, the ability of renewables to meet our energy needs is limited in the near term. Great Britain has embarked on an ambitious goal of increasing renewable energy in its energy mix (primarily from off-shore wind farms), but even an ambitious goal coupled with fast track approval will only be expected to produce up to fifteen percent of that country's power by 2020.<sup>46</sup>

## 2. Deregulation Has Not Increased Electricity Demand

The fact that deregulation does not seem to have increased demand for energy may be a result of the kind of "deregulation" that has occurred so far. The paper correctly notes the complexity of factors relating to demand increase, and indeed it is hard to determine exactly what has been happening with the interplay of deregulation and demand.<sup>47</sup> However, I think it quite salient that, on average, prices have not dropped any with deregulation

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43. U.S. ARMY CORPS OF ENG'RS, DRAFT ENVIRONMENTAL IMPACT STATEMENT EXECUTIVE SUMMARY § 1.3, available at [http://www.capewind.org/downloads/deis\\_execsumm.pdf](http://www.capewind.org/downloads/deis_execsumm.pdf).

44. Letter from Robert Varney, EPA Regional Administrator, to Colonel Brian Osterndorf (Apr. 5, 2005) available at <http://www.epa.gov/NE/nepa/pdfs/NEOAScopingFinal.pdf>. (in this ten page memorandum to the U.S. Army Corps of Engineers, the U.S. Environmental Protection Agency's New England region criticized the Corp's Draft Environmental Impact Statement, released last November, which was generally favorable to developer Cape Wind Associates). The EPA also called on the Corps to formulate a supplemental report before releasing its final environmental impact statement. *Id.*

45. See, e.g., John Rather, *Beset by Opposition, Broadwater Bets on Washington and Time*, N.Y. TIMES, July 3, 2005 (discussing the Broadwater Project LNG terminal in Long Island Sound, which was approved by federal agencies, but opposed by local and state governments). For more information, see generally <http://broadwaterenergy.com>.

46. UNITED KINGDOM DEPARTMENT OF TRADE AND INDUSTRY, ENERGY WHITE PAPER "OUR ENERGY FUTURE—CREATING A LOW CARBON ECONOMY," (Feb. 2002).

47. Palmer & Burtraw, *supra* note 1, at 195–97.

and have gone up in certain markets.<sup>48</sup> This alone can explain the demand result, but it also begs the question of whether future deregulation will in fact drop prices, which in turn would be expected to increase demand. In many ways, this question is partially addressed by this symposium's inquiry into whether deregulation is competitive or anti-competitive. Based on anecdotal evidence referred to in Palmer and Burtraw, it appears that prices have dropped only when deregulation preserves true competition. When deregulation actually allows the increased exercise of market power, prices actually rise.

### III. UNDERSTANDING THE INTERRELATIONSHIP OF ENERGY AND ENVIRONMENTAL HEALTH

If we actually were to create competitive energy markets, which reduced the cost of power, would usage and associated environmental problems increase? If we successfully capture the costs of environmental externalities associated with energy production, increases in use will not matter for purposes of the environment. Interestingly, if we were to fully capture environmental costs in energy production, it might mean that price will not drop as it must account for such externalities.<sup>49</sup> But, we will never know unless we actively enforce the proper environmental controls. Also, the power of the markets, long touted as a reason for energy deregulation, might reduce the costs of environmental control more quickly than a centralized attempt to do so. This leads us again to the general principle that if the government would simply require all polluters to internalize the cost of their pollution, we would see maximum improvement in environmental quality in the most efficient manner.

Is this best of all possible worlds impossibly "Panglossian"? Maybe. We are, however, moving towards having better technology to improve monitoring and enforcement of pollution limitations.<sup>50</sup> This technology will allow market-based incentives to control pollution without fear that the incentives will be ineffective or undermined by cheating. This is not a wholesale endorsement of market mechanisms as currently proposed in

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48. *Id.*

49. This would be the antithesis of the view that recognizes an ineluctable human tendency toward externalization of social costs. Ronald Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960), reprinted in RONALD COASE, *THE FIRM, THE MARKET, AND THE LAW* 95 (1988).

50. See, e.g., Real-time infrared video monitoring used in Texas to detect leaks and other fugitive emissions of smog-forming chemicals, <http://www.tceq.com/implementation/air/airmod/texaqs-files/rsproject.html> (last visited June 15, 2005).

pollution controls. Effective enforcement remains a problem, as do “hot spots” that are more damaging to some parts of society than others.<sup>51</sup>

Nevertheless, the market enthusiasts’ dream of increasing efficiencies and superior products, the dream that we are examining today, is not just a pipe dream if we carefully analyze and control what we are doing. It may seem odd to speak of “control” in a deregulated environment; however, all economists recognize the concept of externalities. The common law has been very successful at using the “market” to internalize the externalities for most of our history.<sup>52</sup> If a person was injured by another’s actions (an externality), that person could recover the cost of that injury (the internalization of that externality).<sup>53</sup> It was and is efficient because the incentives are generally properly aligned.<sup>54</sup> It encourages behavior and actions that are both efficient and avoid interference with the rights of others.<sup>55</sup>

With a commons, whether it is air, public health, or traffic congestion, the incentives do not work so well.<sup>56</sup> Modern environmental law is an attempt to deal with these commons problems, primarily by requiring polluters to consider and pay for the externalities of their behavior. We have not reached the best efficiencies with regulation. By recognizing general principles, we are coming closer. If we know that costs come in direct controls, enforcement costs, and failure costs, we can examine the best mix of control strategies.<sup>57</sup> Nevertheless, given the commons issue, the solutions will not be guided by the “invisible hand.”<sup>58</sup>

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51. Lee Anne Fennell, *Revealing Options*, 118 HARV. L. REV. 1399, 1409 (2005) (discussing hot spots); Richard Kosobud et al., *Does Emissions Trading Lead to Air Pollution Hot Spots? Evidence from an Urban Ozone Control Programme*, INT’L. J. ENVTL. TECH. & MGMT. Vol. 4, Nos. 1/2, 137, 139 (2004) (analyzing the impact of cap-and-trade programs on hot spots).

52. See generally, Victor B. Flatt, *This Land is Your Land . . .*, 107 W. VA. L. REV. 1, 21–23 (2004).

53. *Id.*

54. *Id.*

55. *Id.*

56. See, e.g., Barton Thompson, Jr., *Tragically Difficult: The Obstacles of Governing the Commons*, 30 ENVTL. L. 241, 253 (2000) (discussing the air commons and global warming); *supra* note 5.

57. See generally Victor B. Flatt, *The Enron Story and Environmental Policy*, 33 E.L.R. 10485 (2003).

58. The metaphor of the “invisible hand” was invoked by Adam Smith to demonstrate how self interest guides the most efficient use of resources in a nation’s economy, with public welfare coming as a byproduct.

## IV. CONCLUSION

Deregulation of energy markets may face many commons issues. I have been asked to discuss the environmental ones. The problems exist, and the empirical results measured by Palmer and Burtraw are, in my opinion, not unexpected. Controlling the environmental effects of energy usage require consideration of many factors, but if we keep the big picture in mind, that we are trying to simply internalize the negative externalities and we follow through with enforcement strategies, the environmental issues of energy deregulation fall away.

Perhaps the prescription for environmental problems associated with energy usage in general and any kind of deregulation in particular, is to regulate all things that significantly affect the environment and make sure that any special energy programs or deregulation does not interfere with general programs to take care of environmental harms. Thus properly enforcing the Clean Air Act, Clean Water Act, RCRA and the ESA, coupled with new laws that effectively internalize the negative externalities of the production of greenhouse gases, the storage of nuclear waste, and other commons spillovers which can occur will be the best way to address these issues.<sup>59</sup> Though energy usage and environmental impacts are most definitely linked, taking care of the environmental issues as environmental issues will solve the problem.

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59. Clean Air Act, 42 U.S.C. §§ 7401–7671q; Clean Water Act, 33 U.S.C. §§ 1251–1387; Resource Conservation Recovery Act, 42 U.S.C. §§ 6901–6992k; and the Endangered Species Act, 16 U.S.C. §§ 1531–1544.