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The Democratization of Energy

*Joseph P. Tomain**

ABSTRACT

The electricity industry is changing in dramatic ways. Most significantly, as demonstrated by the Obama Administration's Clean Power Plan, the country is witnessing the merger of energy and environmental regulation. Historically, energy regulation was driven by the need to produce more power for economic growth. By contrast, environmental regulation attended to the pollution of the environment. Production of energy depends upon the use of natural resources, and throughout the fuel cycle from extraction and transportation to the burning and disposal of those resources, the environment is directly affected. Most dramatically, greenhouse gas emissions present climate change challenges. In order to effectively address those challenges and transition to a clean energy future, it is necessary that we rethink our energy and environmental politics. This Article argues that we are experiencing change in energy/environmental politics and as a consequence of that change, decisions are being decentralized and consumers have a greater input into their energy choices. This expansion of decision making constitutes the democratization of energy.

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Natural disasters such as Hurricane Katrina, [1] Superstorm Sandy,[2] and the typhoon that devastated Fukushima,[3] the technical

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1. *See, e.g.*, Joseph P. Tomain, *Katrina Consequences: What Has Government Learned?: To a Point*, 52 LOY. L. REV. 1201, 1201 (2006) (describing how Hurricanes

weaknesses that caused the Northeast blackout in October 2003,[4] and regulatory failures that ended California electric industry restructuring efforts[5] share one commonality: all affect the energy system at enormous costs in economic losses and disrupted lives.[6] The reason the economic and social costs of such disasters are so significant is that the centralized structure of electricity generation and transportation guarantees concentrated losses upon such occurrences. Unfortunately, such costs can be expected to be incurred in the future[7] because "[e]lectricity systems are increasingly expected to be prepared for more frequent and intense storms, to rapidly respond to any disruptions, and to minimize all kinds of environmental impacts of their operations."[8] One response to these risks is to restructure the electric system through greater decentralization as well as through increased competition and consumer participation.

These natural and human-caused disasters raise a large number and variety of concerns about our energy future. The energy sector constitutes approximately 8–9 percent of our country's gross domestic

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Katrina and Rita demonstrate the urgency of reevaluating U.S. energy policy); Joseph P. Tomain, *Lost in the Flood*, 23 PACE ENVTL. L. REV. 219, 220 (2006) (reviewing THE LAW OF ENERGY FOR SUSTAINABLE DEVELOPMENT (ADRIAN J. BRADBROOK ET AL., EDS. (2005))) (noting that disasters like Katrina demonstrate the need for sustainable energy policy because unsustainable energy policy is an anthropogenic driver of climate change).

2. LINCOLN L. DAVIES ET AL., ENERGY LAW AND POLICY 19–22 (2014).

3. *See, e.g.*, Lincoln L. Davies, *Beyond Fukushima: Disasters, Nuclear Energy, and Energy Law*, 2011 BRIGHAM YOUNG L. REV. 1937, 1938-39 (2011) (analyzing the effects of energy related disasters like Fukushima on discussions of energy policy in the United States). *See generally* Lincoln L. Davies, *Energy Policy Today and Tomorrow—Toward Sustainability?* 29 J. LAND RES. & ENVTL. L. 71, 79 (2009) (pointing out differences in investments made in renewables and conventional power sources).

4. *See, e.g.*, U.S.-CANADA POWER SYSTEM OUTAGE TASK FORCE, FINAL REPORT ON THE AUGUST 14, 2003 BLACKOUT IN THE UNITED STATES AND CANADA: CAUSES AND RECOMMENDATIONS 1 (April 2004), http://energy.gov/sites/prod/files/oeprod/DocumentsandMedia/BlackoutFinal-Web.pdf [http://perma.cc/AK8R-BRTD] (archived Sept. 7, 2015) (quantifying economic impacts of the blackout on both the United States and Ontario, Canada).

5. *See, e.g.*, Severin Borenstein, *The Trouble with Electricity Markets: Understanding California's Restructuring Disaster*, 16 J. ECON. PERSP. 191, 198–200 (2002) (describing changes in costs that California generators encountered and their causes); Joseph P. Tomain, *The Past and Future of Electricity Regulation*, 32 ENVTL. L. 435, 442 (2002) (detailing the costs that California incurred in its energy crisis).

6. Total costs of the 2003 U.S.-Canadian blackout in the United States, as an example, were estimated at between $4 billion and $10 billion. U.S.-CANADA POWER SYSTEM OUTAGE TASK FORCE, *supra* note 4, at 1.

7. *See, e.g.*, Jedediah Purdy, *The Politics of Nature: Climate Change, Environmental Law, and Democracy*, 119 YALE L.J. 1122, 1133–34 (2010) ("Each year's greenhouse gas emissions commit the global atmosphere to decades of resulting change, and the sum of atmospheric changes, arising from interacting natural and anthropogenic influences, may emerge over an even longer time.").

8. JENNIE C. STEPHENS, ELIZABETH J. WILSON & TARLA RAI PETERSON, SMART GRID (R)EVOLUTION 15 (2015).

product (GDP).[9] Additionally, the United States has developed an approach to the production, distribution, and consumption of energy that has lasted well over a century.[10] Our energy history can be put into another perspective: significant financial and legal resources have been dedicated to designing and sustaining our current energy system. Consequently, any attempt to change a century-old system entails myriad political, policy, legal, and economic issues to mention a few. Nevertheless, the reality is that changed energy and environmental circumstances and policies demand our attention and demand new policies and a new politics.

The United States and large parts of the world are experiencing an energy transition. Even though the United States is decreasing its fossil fuel dependence because of increased domestic production, it may appear as if we are neither dramatically nor aggressively moving away from fossil fuels. Nevertheless, an energy transition is underway as we consciously add renewable resources and efficiency to our energy mix. At bottom, the scope and speed of that transition depend on a new politics of energy.

I. THE POLITICS OF ENERGY AND THE ENVIRONMENT

The word "politics" can be elusive and subject to several definitions. Those definitions range from the politically partisan to more broadly encompass political theory. If the country is to make the transition to a clean energy economy, then we must look at politics in its broadest sense in order to create a new narrative that fits more closely to the energy future that we envision. Simply, politics is an essential variable for our energy transition, as the conference fairly raises the issue in a particular and important way. The Fukushima nuclear disaster, given its magnitude and scope, can stand as a trope in our contemporary energy discussions, and it poses a very specific question: Should we continue down the hard energy path, including

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9. *See, e.g.*, INST. FOR ENERGY RES., *A Primer on Energy and the Economy: Energy's Large Share of the Economy Requires Caution in Determining Policies that Affect It* (February 16, 2010), http://instituteforenergyresearch.org/analysis/a-primer-on-energy-and-the-economy-energys-large-share-of-the-economy-requires-caution-in-determining-policies-that-affect-it/ [http://perma.cc/9F2G-ZAEV] (archived Sept. 6, 2015) (tracking energy expenditures as a percentage of GDP from 1970 to 2006, with the most recent values falling between 8% and 9%); Gregor MacDonald, *Here's What Happens When US Energy Spending Passes 9% of GDP*, BUS. INSIDER (June 11, 2011), http://www.businessinsider.com/the-energy-limit-model-2011-6 [http://perma.cc/L5EX-LXRJ] (archived Sept. 6, 2015) (showing energy expenditures averaging between 8 percent and 9 percent of the U.S. GDP between 2005–2010).

10. Joseph P. Tomain, *The Dominant Model of United States Energy Policy*, 61 UNIV. COLO. L. REV. 355, 355 (1990).

its nuclear component? The answer is no. The hard path has had its day.[11] Instead, a better and more desirable energy future is available.

"Politics" is a difficult topic. The concept is elusive as well as plastic and susceptible to several definitions. Politics can be used to describe the partisan battles [12] we have between liberals and conservatives, red states and blue states, and Republicans and Democrats over such issues as the Keystone Pipeline, ANWR, and—not so long ago—"Drill Baby Drill." Today, politics rears its head as utilities assert that they are in a "death spiral,"[13] as lobbying dollars seek to stall needed climate regulations,[14] as state legislators attempt to repeal renewable energy portfolio standards,[15] and today, most

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11. *See* AMORY B. LOVINS, SOFT ENERGY PATHS: TOWARD A DURABLE PEACE (1977); *see also* AMORY V. LOVINS & ROCKY MOUNTAIN INST., REINVENTING FIRE: BOLD BUSINESS SOLUTIONS FOR THE NEW ENERGY ERA 3–8 (2011) (discussing the high true costs associated with the widespread use of oil and coal).

12. Washington state governor Jay Inslee has proposed air-quality policies to protect health caused by pollution including imposing an emissions charge on oil refineries, power plants and other industries. The revenue collected from that charge is to be dedicated to education and transportation rather to be spent on climate or clean energy projects in the hope that this approach is politically viable. *See* Kirk Johnson, *A Down-to-Earth Response to Climate Change*, N.Y. TIMES (April 5, 2015), http://www.nytimes.com/2015/04/05/us/politics/washington-governor-puts-focus-on-climate-goals-and-less-on-debate.html?_r=1 (subscription required) [http://perma.cc/B3ZP-7V9W] (archived Sept. 6, 2015).

13. *See generally* CITI, RISING SUN: IMPLICATIONS FOR US UTILITIES 22, 26 (2013); PETER KIND, ENERGY INFRASTRUCTURE ADVOCATES, DISRUPTIVE CHALLENGES: FINANCIAL IMPLICATIONS AND STRATEGIC RESPONSES TO A CHANGING RETAIL ELECTRIC BUSINESS 1 (Jan. 2013), http://www.eei.org/ourissues/finance/ documents/ disruptivechallenges.pdf [http://perma.cc/9FMD-UQRD] (archived Sept. 6, 2015) (discussing the "death spiral" for electric utilities that is theoretically created when new technologies render it difficult or impossible for traditional utilities to recover stranded investments in outmoded energy infrastructure). For an analysis of the death spiral discussion, compare Elisabeth Graffy & Steven Kihm, *Does Disruptive Competition Mean a Death Spiral for Electric Utilities?*, 35 ENERGY L.J. 1, 2 (2014) (arguing that renewable energy innovations are a form of disruptive competition that indicates serious risks to society) with David Raskin, *Getting Distributed Generation Right: A Response to "Does Disruptive Competition Mean a Death Spiral for Electric Utilities?"*, 35 ENERGY L.J. 262, 262-63 (2014) (responding that the growth of renewable energy technologies does not signal a traditional utility death spiral, in part because it will take decades for these innovations to displace traditional utilities). *See also* Joseph P. Tomain, *Traditionally-Structured Electric Utilities in a Distributed Generation World*, 38 NOVA L. REV. 473, 473 (2014) ("To hear electric utilities tell the story, the end is nigh.").

14. *See generally* Robert J. Brulle, *Institutionalizing the Way: Foundation Funding in the Creation of U.S. Climate Change Counter-Movement Organizations*, 122 CLIMATE CHANGE 681, 681 (2014) (describing the financing and effects of organizations comprising the climate change countermovement).

15. *See, e.g.*, Gwynne Taraska & Alison Cassady, *Fact Sheet: Efforts to Repeal or Weaken Renewable Energy Schedules in the States*, CENTER FOR AM. PROGRESS (March 10, 2015), https://www.americanprogress.org/issues/green/report/ 2015/03/10/ 108250/fact-sheet-efforts-to-repeal-or-weaken-renewable-energy-schedules-in-the-states/ [http://perma.cc/H6V2-PXPV] (archived Sept. 6, 2015).

dramatically, as a variety of actors push back against the Environmental Protections Agency's Clean Power Plan.[16]

In addition to partisan energy politics, a significant group of scholars also discusses politics in terms of energy federalism—that is, the federal, state, and local conflicts that occur over the production, consumption, and disposal of our energy resources.[17] As desirable as a national energy policy might be for a transition to a clean energy economy, existing institutions, case law, legislation, and regulations have created a web of energy governance at all levels of government that remains on the books and presents challenges as well as opportunities. A persistent challenge for the future, for example, is the siting of electricity transmission lines.[18] On the other side of the

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16. *See e.g.*, INST. FOR 21ST CENTURY ENERGY, U.S. CHAMBER OF COMMERCE, ASSESSING THE IMPACT OF POTENTIAL NEW CARBON REGULATIONS IN THE UNITED STATES 2 (2014), http://www.energyxxi.org/sites/default/ files/file-tool/Assessing_the_Impact_of_Potential_New_Carbon_Regulations_in_the_ United_States.pdf [http://perma.cc/YB93-46FE] (archived Sept. 6, 2015) (identifying the costs of EPA's proposed rules at $51 billion); INST. FOR 21ST CENTURY ENERGY, U. S. CHAMBER OF COMMERCE, IN THEIR OWN WORDS: A GUIDE TO STATES' CONCERNS REGARDING THE ENVTL. PROTECTION AGENCY'S PROPOSED GREENHOUSE GAS REGULATIONS FOR EXISTING POWER PLANTS 10–11 (January 22, 2015), http://www.energyxxi.org/eparule-stateanalysis [http://perma.cc/J559-S7A9] (archived Sept. 7, 2015) (describing how the "extremely complex and confusing structure of the proposed rule sent states and stakeholders scrambling to understand its specific implications for their communities and industries"); N. AM. RELIABILITY CORP., *Potential Reliability Impacts of EPA's Proposed Clean Power Plan* 2–3 (November 2014), http://www.nerc.com/pa/RAPA/ra/Reliability%20Assessments% 20DL/Potential_Reliability_Impacts_of_EPA_Proposed_CPP_Final.pdf (suggesting, among other criticisms, that reliability services will be strained by the Clean Power Plan).

17. *See, e.g.*, Hari M. Osofsky & Hannah J. Wiseman, *Dynamic Energy Federalism*, 72 MD. L. REV. 773, 774 (2013) (proposing novel principles for designing institutions that would reduce fragmentation in energy governance and foster public and private involvement); Hari M. Osofsky & Hannah J. Wiseman, *Hybrid Energy Governance*, 2014 ILL. L. REV. 1, 12–54 (2014) (discussing examples of hybrid institutions addressing substantive challenges in energy governance); Jim Rossi, *"Maladaptive" Federalism: Addressing the Structural Barriers to Interstate Coordination in Sustainability Initiatives*, 64 CASE WESTERN L. REV. 1759, 1763 (2014) (exploring "whether there should be limits on a state or other subnational unit of government acting independently when this stands in the way of other states creating coordination benefits from an adaptive federalism program."); Jim Rossi & Alexandra B. Klass, *Revitalizing Dormant Commerce Clause Review for Interstate Coordination*, 100 MINN. L. REV. __ (2015) (analyzing multi-state coordination problems using electric transmission lines as examples); David B. Spence, *Federalism, Regulatory Lags, and the Political Economy of Energy Production*, 161 U. PENN. L. REV. 431, 431 (2013) ("[A]sking which level of government ought to resolve these policy questions, rather than which level of government is likely to produce a particular favored policy outcome.").

18. *See, e.g.*, Alexandra B. Klass & Elizabeth Wilson, *Interstate Transmission Challenges for Renewable Energy: Federalism Mismatch*, 65 VAND. L. REV. 1801, 1803 (2012) (considering the challenges and opportunities for growth in wind energy that are presented by differing federal, state, and regional policies on transmission planning);

equation, opportunities are plentiful as states and local governments experiment with various ways to increase the use of renewable resources and energy efficiency.[19] In short, the politics of energy federalism is alive, well, and vigorous.

Additionally, politics can refer to the shifting public opinions about any variety of energy and environmental topics including fossil fuels, nuclear power,[20] clean energy,[21] and climate change.[22] Each of

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Alexandra B. Klass, *Takings and Transmission*, N.C. L. REV. 1079, 1080–93 (2013) (exploring the potential impacts of the growing private electric transmission industry on the use of eminent domain for transmission lines).

19. *See, e.g.*, J. Kevin Hardy & L. Margaret Barry, *Local Initiatives, in* GLOBAL CLIMATE CHANGE AND U.S. LAW 375 (Michael B. Gerrard & Jody Freeman, eds., 2nd ed. 2014) (cataloging local strategies that are currently in use to reduce greenhouse gas emissions).

20. *See, e.g.*, Nuclear Energy Inst., Americans Voice Strong Support for Nuclear Energy, http://www.nei.org/Knowledge-Center/Public-Opinion (last visited Sept. 7, 2015) [http://perma.cc/6H8A-5NPQ] (archived Sept. 7, 2015) (conveying majority support for a renewing nuclear power licenses, new reactor construction, and for the United States to be a global leader in the nuclear industry); Massachusetts Institute for Technology, The Future of Nuclear Power: An Interdisciplinary MIT Study 71 (2003), http://web.mit.edu/nuclearpower/pdf/nuclearpower-ch4-9.pdf [http://perma.cc/M5CR-27TX] (archived Sept. 7, 2015) (surveying adults in the United States for opinions on future usage of nuclear power); Yale Project on Climate Change Communication, Nuclear Power in the American Mind, http://environment.yale.edu/climate-communication/article/nuclear-power-in-the-american-mind (last visited Sept. 7, 2015) [http://perma.cc/G7T5-MA9N] (archived Sept. 7, 2015) (depicting the change in what Americans associate "nuclear power" with before and after Fukushima).

21. *See e.g.*, Tom Caiazza, *CAP Poll Finds Fossil-Fuel Interests Dominate Agenda of New Congress, but Americans Favor Renewable Energy, Environmental Protections*, CTR. FOR AM. PROGRESS (January 15, 2015), https://www.americanprogress.org/press/release/2015/01/15/104581/release-cap-poll-finds-fossil-fuel-interests-dominate-agenda-of-new-congress-but-americans-favor-renewable-energy-environmental-protections/ [http://perma.cc/5TF5-NWWK] (archived Sept. 7, 2015) (highlighting research that indicates that Americans' priority in energy and environmental issues is in the growth of the renewable energy industry); Dennis Jacobe, *Americans Want More Emphasis on Solar, Wind, Natural Gas: Oil, Nuclear, and Coal are More Popular with Republicans in the South*, GALLUP (March 27, 2013), http://www.gallup.com/poll/161519/americans-emphasis-solar-wind-natural-gas.aspx (subscription required) [http://perma.cc/VA79-GV5P] (archived Sept. 7, 2015) (relating results of a survey examining how politics correlate with Americans' preferences for the development of different energy sources).

22. *See e.g.*, *The New York Times/Stanford University Poll on Global Warming*, N.Y. TIMES (January 30, 2015), http://www.nytimes.com/interactive/2015/01/29/us/politics/document-global-warming-poll.html (subscription required) [http://perma.cc/Q5KG-8UWQ] (archived Sept. 7, 2015) (polling Americans' opinions on global warming and governmental prioritization of measures to address it); YALE PROJECT ON CLIMATE CHANGE COMMUNICATION, 4C & GEORGE MASON UNIVERSITY CENTER FOR CLIMATE CHANGE COMMUNICATION, CLIMATE CHANGE IN THE AMERICAN MIND 4 (October 2014), http://environment.yale.edu/climate-communication/files/Climate-Change-American-Mind-October-2014.pdf [http://perma.cc/U7Z5-E9MC] (archived Sept. 7, 2015) (conveying, among other findings, that although most Americans think that global warming is occurring, public understanding of its causes is largely inconsistent with scientific consensus); *see also* Coral Davenport & Marjorie Connelly, *Most Republicans Say They Back Climate Action, Poll Finds*, N.Y. TIMES (January 30, 2015), http://www.nytimes.com/

these uses of the term politics is part of a national conversation on energy and the environment. It is necessary, however, to put politics into a broader, more normative context in order to more fully address our current energy transition.

In brief, we discuss and regulate energy and the environment as if these two natural systems behaved independently of each other. More notably, both energy and environmental regulation have developed silos that not only keep them separate from each other but also regulate resources independently of each other. Nuclear power licensing, for example, is regulated by the Nuclear Regulatory Commission, while the rates charged for nuclear electricity is set by the Federal Energy Regulatory Commission and state public utility commissions. Indeed, energy resources such as solar, wind, natural gas, coal, oil, nuclear power, and energy efficiency are all regulated by separate agencies. So too are air, water, land, and ecosystems regulated by separate environmental agencies or divisions. Thus there is little coordination within the realms of energy and environmental regulation and there is no coordination between the two.

This separation ignores physical reality because throughout the energy fuel cycle, environmental consequences follow. Energy and the environment are not separate realms of natural physical behavior. Therefore, it is better and more accurate to consider the energy/environmental complex rather than to treat them independently of each other. Consequently, the political assessment of the energy/environmental complex and the laws and policies attendant to that assessment must be considered as a whole. To date, though, the separation largely remains and is deeply entrenched.

Consider and compare how energy advocates and environmentalists address the future. Energy advocates such as Daniel Yergin see a future of increased energy production, including fossil fuel development, as an "engine for job creation and economic growth."[23] In contrast, environmentalists such as Gus Speth, former Dean of the Yale School of Forestry and Environmental Studies and co-founder of the Natural Resources Defense Council, see a desirable future as one that embodies a steady-state economy in which environmental burdens are reduced within a "nongrowing GDP."[24]

2015/01/31/us/politics/most-americans-support-government-action-on-climate-change-poll-finds.html (subscription required) [http://perma.cc/UK7A-CTAE] (archived Sept. 7, 2015) (relating poll results indicating that Americans are more likely to vote for candidates who say they will fight climate change).

23. Daniel Yergin, *America's New Energy Reality*, N.Y. TIMES SUNDAY REV. (June 10, 2012), http://www.nytimes.com/2012/06/10/opinion/sunday/the-new-politics-of-energy.html (subscription required) [http://perma.cc/WZU8-J26X] (archived Sept. 7, 2015).

24. JAMES GUSTAVE SPETH, AMERICA THE POSSIBLE: MANIFESTO FOR A NEW ECONOMY 97 (2012).

Environmentalists and energy advocates are speaking not only about different core topics but also in different languages using different vocabularies. Speth speaks in the language of the environment and Yergin in the language of energy. These separate languages create separate narratives, which, in turn, have the intent and effect of creating different and separate political agendas as well as policy programs.

The language of the environment is about conservation, species protection, ecological sensitivity, and precaution.[25] The language of energy is about production, consumption, jobs, and, most importantly, economic growth. Both languages pay inadequate attention to the reality of the energy fuel cycle. From the environmental side, the energy narrative tends to downplay, if not ignore, the environmental effects that occur from exploration and extraction through production and transportation to consumption and disposal. From the energy side, the environmental narrative tends to downplay, if not ignore, the costs of doing business such as the sunk costs of past investments, the transition costs of moving from one energy paradigm to another, and the possibility of lost opportunity costs available under current business practices. More simply, in addition to positively contributing to our economy and to our quality of life, the natural resources we use to produce energy impose identifiable and often serious social and economic costs.

Thus, it is incumbent upon us to adopt a new approach to energy and the environment—one that merges both narratives into a consistent whole. To that end, we might consider adopting a new energy/environmental politics. From the environmental side, we can learn from the arguments made by Sir Anthony Giddens in his book *The Politics of Climate Change*[26] in which he argues that challenges of the magnitude of climate change, which directly affect both energy and the environment, must be addressed through a political and economic convergence in which the government plays a central role in

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25. *See e.g.*, JOSEPH P. TOMAIN, ENDING DIRTY ENERGY POLICY: PRELUDE TO CLIMATE CHANGE 237 (2011) ("Historically, energy advocates spoke a language of markets and production while environmentalists spoke a language of conservation and protection."); Lincoln L. Davies, *Alternative Energy and the Energy-Environment Disconnect*, 46 IDAHO L. REV. 473, 504–06 (2010) (arguing that overhauling the United States' energy infrastructure requires also transforming the legal regime in order to bring energy and environmental law closer together); Alexandra Klass, *Climate Change and the Convergence of Environmental and Energy Law*, 24 FORDHAM ENVTL. L. REV. 180, 182 (2013) (describing an increasing convergence between environmental law and energy law at the state level); Amy J. Wildermuth, *The Next Step: The Integration of Energy Law and Environmental Law*, 31 UTAH ENVTL. L. REV. 369, 369 (2011) (arguing that environmental law and energy law have to be more fully integrated in order to address environmental quality concerns and clarify how energy choices impact the environment).

26. ANTHONY GIDDENS, THE POLITICS OF CLIMATE CHANGE 116–119 (2011).

establishing workable markets, contributes to technological advances, and engages in thoughtful planning as well as managing risk and uncertainty in a changing world.[27] For Giddens, political convergence involves innovative policy and regulatory changes with wide public support.[28] Economic convergence, in turn, involves technological innovations and the creation of new markets that can address climate challenges and generate competitive advantages for smart actors.[29]

From the energy side, William Boyd's discussion of public utility offers fertile ground. In Boyd's conception, public utility is not simply an entity that sells electricity. Rather, the Progressive idea of public utility is that it is driven by the idea of service: not electricity or energy sales, but by public service more broadly.[30] In short, an energy/environmental politics provides a more vibrant future. It also provides a richer source of normative value than efficiency or economic growth and/or profit. Furthermore, it paves the way for the democratization of energy, and, in doing so, we as citizens can find political value in the public actions that bind us together.[31]

II. MERGING ENERGY AND THE ENVIRONMENT

Two significant consequences follow from linking energy and the environment. First, a clean energy policy can be designed. Second, the energy future is linked to climate change. It can be argued, easily enough, that a clean energy future is valuable in and of itself. However, it is also usefully aligned with and complementary to addressing the challenges of climate change. The division between energy and the environment, and the languages used to describe, analyze, and regulate them, has gone on too long, as other scholars have recognized.[32] The division is not only unproductive but also counterproductive and, more importantly, unsuited to the times. Assume, then, that a merger of energy and environmental policy is a wise step to take. Assume further that a clean energy future is not only promising but also desirable. Those assumptions then raise two significant questions. First, what political strategies should be engaged to achieve this promising future? While the strategic

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27. *Id.*

28. *Id.* at 72.

29. *Id.*

30. William Boyd, *Public Utility and the Low-Carbon Future*, 61 UCLA L. REV. 1614, 1675–82 (2014).

31. *See e.g.*, TONY JUDT, WHEN THE FACTS CHANGE: ESSAYS 1995-2010 312 (2015) ("A civilized society requires more than self-interest, whether deluded or enlightened, for its shared narrative of purpose.").

32. TOMAIN, *supra* note 25, at 237; Davies, *supra* note 25, at 504–06; Klass, *supra* note 25, at 182; Wildermuth, *supra* note 25, at 369.

political question is a necessary one, another political question precedes it: What new narrative does the merger between energy and the environment need in order to justify itself? If we can begin to describe that narrative, then it should lead us to the appropriate political strategies.

Consequently, the concept of "politics" needs to be pushed a bit further on the way to constructing that new narrative. Our energy/environmental future should be defined by a new political norm: the democratization of energy. The essence of the argument that a new energy/environmental politics is needed is based on the idea that our traditional hard energy path (as well as its underlying assumptions) has outlived its useful life; the traditional energy narrative is stale. Cheap, but dirty, fossil fuel energy has played a significant role in contributing to economic growth and the political authority of the United States for most of the twentieth century. By the end of the century, however, the fundamental economic assumption of traditional energy policy has proven to be seriously flawed.

The energy/environmental future is indeed daunting. It is complex, uncertain, and fraught with challenges, not the least of which implicates individual and social psychology, that little, if anything, can be or should be done. Given the magnitude of the problem, individual or local action may appear futile. Yet, such is not the case.

Local, democratic actions need not attempt to boil the ocean. Nevertheless, they have a vital role to play in developing a forward-thinking energy/environmental ethic. Local energy/environmental action is directly linked with democracy, as people who engage in those activities say that they do so because of "the importance of building community; doing the 'right thing' irrespective of outcomes; leaving a legacy of trying to avert tragedy for future generations, even if tragedy ensues; and establishing habits and patterns that will equip present and future generations to live in a very different world."[33]

Local energy/environmental action is a reality. By engaging in activities such as 350.org[34] and voluntary carbon action reduction groups,[35] individual behavior is changing as we reorient our political lives from energy consumerism to democratic energy participation. Proactive involvement with the energy/environmental complex at the

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33. Sarah Krakoff, *Planetarian Identity Formation and the Relocalization of Environmental Law*, 64 FLA L. REV. 87, 90 (2012).

34. 350.org is a grassroots organization that coordinates of global network of public actions. Its homepage can be found at http://350.org/about/what-we-do/ (last visited Sept. 7, 2015) [http://perma.cc/26FW-PYBX] (archived Sept. 7, 2015).

35. *See* Krakoff, *supra* note 33, at 107–33 (describing neighborhood climate action groups' optimism and motivation).

local and individual levels is a significant change to the way we think about the future. Our actions today do not count as short-term economic losses through reduced consumption or paying the costs of environmental adaptation or mitigation. Instead, participation is viewed as a gain in greater democracy and consumer control.[36] As Sarah Krakoff reports, individual action does lead to behavioral change for the good. By way of example, just in the category of efficiency improvements, individuals report switching from incandescent to compact fluorescent light bulbs; purchasing more efficient hot water heaters, furnaces, and toilets; and installing programmable thermostats, ceiling fans, and better insulation, all to the end of smarter and more controlled electricity consumption.[37]

How, though, does this clean energy politics connect with democracy? The central democratic principle is to promote greater participation and voice in political and economic institutions. With that quick definition, a new, more democratic energy/environmental paradigm affects four aspects of the system: (1) the production and delivery of energy, (2) its consumption and control, (3) its regulation and enforcement, and (4) its governance and legal institutions.

A. *Production and Delivery of Clean Energy*

Significant changes in the production and delivery of electricity are well underway. Today's electricity providers no longer resemble their historic counterparts as the provision and delivery of electricity have become more complex.[38] Although vertically integrated investor-owned utilities (IOUs) still supply over half of the nation's electricity, the business structure of electric power providers now assumes multiple forms. Merchant generators and independent system operators, as well as independent or merchant transmission companies, are remaking the electric industry and its regulation. Similarly, "[a]ncillary services such as voltage support, black-start capability and system balancing can be provided by regulated entities or independent parties competitively bidding for the work."[39] There is an upside to this complexity. As more actors enter the market,

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36. *See id.* at 91 n.7 (cataloging recent literature that describes ways in which individual behavior changes might be affected by government).

37. *Id.* at 118–20.

38. Historically, the dominant electric provider was the privately owned utility also known as an investor owned utility (IOU). Today, however, in addition to IOUs, electricity is provided by privately owned non-utility generators, merchant generators, exempt wholesale generators, qualifying facilities, and other entities. *See generally* Graffy & Kihm, *supra* note 13, at 2 (describing how traditional utilities are challenged by, among others, innovations in rooftop solar systems).

39. *See, e.g.*, Sonia Aggarwal & Hal Harvey, *Rethinking Policy to Deliver a Clean Energy Future*, 26 ELECTRICITY J. 7, 11 (2013).

competition for production, delivery, and ancillary services increases, and consumers should enjoy lower prices and more options.

Additionally, and more importantly, fossil fuel electricity is slowly being replaced. Renewable power generation has, for over fifty years, played a marginal role in power generation.[40] Today, although the contributions of renewable resources are still small, their role is growing and is projected to grow significantly in the future. The Department of Energy's *Renewable Future Study*, for example, estimates that renewable energy can meet 80 percent of U.S. energy needs with currently available commercial technologies in connection with a more flexible electric system. [41] Indeed, solar power is becoming increasingly affordable, as prices have declined 80 percent in recent years. Similarly, wind power costs have declined over 30 percent as both technologies gain market share.[42] And demand-side management programs, which treat energy efficiency as an energy resource, help stimulate demand for, and local use of, smart appliances and controls.[43] Rooftop solar, energy efficiency standards, efficient appliances, heat pumps, and a large array of consumer-friendly technologies produce energy or energy savings right in the backyard or right in the home. Energy production and delivery through these small-scale technologies are thus decentralized and consistent with the alternative soft energy path.[44]

Decentralized power generation can increase grid reliability, reduce congestion, reduce the costs of long-distance transmission, increase efficiency, and expand the number of energy resources used to produce electricity. By way of example, it has been estimated that 80 to 90 percent of all grid failures begin at the distribution stage. Consequently, smaller-scale distribution systems can enhance reliability from the bottom up rather than from the top down.[45] Additionally, the smart grid,[46] with its two-way information flows,

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40. U.S. ENERGY INFO. ADMIN., U.S. DEP'T OF ENERGY, FEBRUARY 2015 MONTHLY ENERGY REVIEW 4–6 (2015), http://www.eia.gov/totalenergy/data/monthly/archive/00351502.pdf [http://perma.cc/Y6E8-SDTB] (archived Sept. 6, 2015) (graphing energy production by source dating back to 1949).

41. NATIONAL RENEWABLE ENERGY LABORATORY, RENEWABLE ELECTRICITY FUTURES STUDY: EXECUTIVE SUMMARY iii (2012).

42. *See, e.g.*, Aggarwal & Harvey, *supra* note 39, at 4.

43. *Id.* at 11.

44. Boyd, *supra* note 30, at 1634 (footnote omitted) ("[A] more decentralized power system in which consumers play a more active role on both the generation and load side may actually require more planning and coordination than one built around large, centralized, utility-scale systems.").

45. Peter Asmus, *Microgrids: Friend or Foe for Utilities?*, 153 PUB. UTIL. FORT. 19, 20 (2015).

46. *See, e.g.*, Joseph P. Tomain, *Smart Grid, Clean Energy and US Policy*, 13 J. COMPETITION & REG. IN NETWORK INDUSTRIES 187, 187–90, 211 (2012) (describing the smart grid).

can improve information to consumers through better forecasting and improved load-balancing, while individual consumers can serve as generators by selling electricity back to the grid through plug-in electric vehicles.[47]

As local and state governments expand opportunities for clean energy technologies, especially distributed generation, these experiments will have a direct effect on the entire electric sector. "By any account, decarbonizing the U.S. electric power sector will require large new investments (at multiple scales), sustained technological innovation, extensive reform of regulatory and market structures, and the development of new business models." [48] In particular, changes in the sector will directly affect how utilities conduct business. Favorable clean energy regulations will help design the utility of the future, which will sell a variety of energy products and services including energy efficiency, adopt new rate designs that move away from volumetric electricity sales and promote consumption, and better integrate renewable energy resources.[49] Again, the electric sector will be more decentralized, and consumer participation will be enhanced and increased.

B. *Consumption and Control of Clean Energy*

Consider, next, the consumption and control of energy. As noted, power providers are offering a greater range of services as they participate in regulated and unregulated markets. IOUs no longer monopolize the power production market. Instead, they must compete with non-utility providers of various configurations. On the demand-side, opportunities to increase market competition are also available.

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47. *See, e.g.*, Hannah J. Wiseman, *Urban Energy*, 40 FORDHAM URB. L.J. 1793, 1824 (2013) ("[E]nterprising individuals could even serve as back-up 'generators,' . . . sending electricity back to the grid from plug-in hybrid electric vehicles, which they plug in at night.").

48. Boyd, *supra* note 30, at 1682; *see* Adrene Briones et al., Vehicle-to-Gris (V2G) Power Flow Regulations and Building Codes Review by AVTA 66–70 (2012) (discussing recommendations for the successful adoption of electric vehicles); KEMPTON WILLETT, PEREZ YANNICK & PETIT MARC, PUBLIC POLICY FOR ELECTRIC VEHICLES AND FOR VEHICLE TO GRID POWER (2014), http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2487800 [http://perma.cc/Q7Z7-ZAQ2] (archived Sept. 5, 2015) (discussing same).

49. *See, e.g.*, TOMAIN, *supra* note 25, at ch. 6 (recommending regulatory changes for utilities); Joseph P. Tomain, *Traditionally-Structured Electric Utilities in A Distributed Generation World*, 38 NOVA L. REV. 473 (2014) (discussing "the shape that the utility of the future ought to take"); Chris Vlahoplus et al., *Renewable Energy Drivers of Change and Overview of Actions from the Utility Perspective*, *in* EVOLVING BUSINESS MODELS FOR RENEWABLE ENERGY: 2014 INDUSTRY REVIEW 5–10 (2014), http://acore.org/images/documents/EvolvingBusinessModels2014.pdf [http://perma.cc/9D5E-7WM7] (archived Sept. 6, 2015) (analyzing the "potential for disruptive change for electric utilities" caused by the emergence of clean technology).

Local governments or private firms can form entities known as power aggregators to reduce collective action problems by grouping together a large number of small consumers, where the aggregators serve as buying agents to negotiate contract terms and rates.[50]

Smart electricity meters, programmable appliances and thermostats, a variety of energy apps, combined heat and power, and microgrids and virtual power plants[51] all provide consumers with the power to control consumption at prices they prefer.[52] In this way, consumer choice is expanded, and participation in, and control of, energy markets expands as more "households and businesses [become] more active participants in [the electricity] infrastructure."[53]

Thus, distributed generation generally and micro-grids particularly "offer a bottomup solution platform, often tailored to the specific needs of an end-use customer."[54] Additionally, small-scale energy facilities can avoid difficult siting issues, minimize or avoid "not in my backyard" (NIMBY) problems such as those posed by larger-scale installations, and provide energy savings to adopters.[55] Additionally, smart use of the smart grid can "empower citizens to

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50. *See, e.g.*, OFFICE OF OHIO CONSUMERS' COUNCIL, THE BASICS OF GOVERNMENTAL ENERGY AGGREGATION (2012), http://www.occ.ohio.gov/publications/aggregation/The_Basics_of_Governmental_Energy_Aggregation.pdf [http://perma.cc/TX8Y-RKMS] (archived Sept. 6, 2015) (discussing the benefits of aggregation for residential energy consumers).

51. "A microgrid is a group of interconnected loads and distributed energy resources within clearly defined electrical boundaries that acts as a single controllable entity with respect to the grid." James Newcomb et al., *Distributed Energy Resources: Policy Implications of Decentralization*, 26 ELECTRICITY J. 65, 81 n.36 (2013). "Virtual power plants are groups of distributed generation assets managed by one entity." *Id.* at 81 n. 37. Another way of thinking about both of these entities is that they appear as "islands" within a regulated utilities service territory. Consequently, similar to solar rooftop and energy efficiency, both entities have the potential for reducing sales to the local electric distribution company. A virtual power plan is expected to open near Erie, Pennsylvania in 2019. Through the use of high voltage direct current (HVDC) power lines, power will be imported into Pennsylvania from Ontario Canada. This power will be high drove and, in that regard, can go to satisfying clean power plan requirements. High voltage direct current is able to ramp up delivery of power between specific points much more easily than alternating current and, therefore, can deliver renewable power over longer distances. *See* Peter Behr & Emily Holden, *Grid: An "Extension Cord" Remedy for Coal Plant Retirements*, ENERGYWIRE (March 23, 2015), http://www.eenews.net/stories/1060015539 [http://perma.cc/XNV7-FAHC] (archived Sept. 4, 2015).

52. Chris King, *Market Spotlight: Electric Vehicles: Flexibility, Creativity, and Profit Potential for Utilities*, *in* EVOLVING BUSINESS MODELS FOR RENEWABLE ENERGY: 2014 INDUSTRY REVIEW, *supra* note 49, at 29.

53. Boyd, *supra* note 30, at 1628; *see also* Garrick B. Pursley & Hannah J. Wiseman, *Local Energy*, 60 EMORY L. J. 877, 897 (2011) [hereinafter *Local Energy*] ("At the distributed scale, renewables fit an energy production model that has existed for thousands of years; energy is consumed close to its source.").

54. Asmus, *supra* note 45, at 20.

55. *Local Energy*, *supra* note 53, at 897–99.

more actively engage in the generation and management of the electricity system at multiple levels"[56] and enable them to become more "actively engaged in making important decisions about how they will interact with the electricity system" [57] because more information will be available to them with which to make choices.

In short, "Distributed generation also can enable customers and communities to invest much more directly in the transition to a renewable energy future."[58] Additionally, smart utilities will take advantage of these technological and market changes. Distribution utilities can serve as managers of microgrids and as such have the potential of becoming the "vehicles that maximize the value of investments in smart grid infrastructure, and can leverage these utility-owned assets with customer-owned assets."[59] This design of bringing together multiple producers and multiple consumers is simply an extension of network actors, such as Google, Amazon, or Dell computers. Each of these actors becomes the central node in a supply chain that aggregates information or products and services and makes those available to billions of customers. The future electric industry can have some of the dimensions of this type of platform, most notably as the number of providers increases, completion increases, and consumer choice expands, facilitating competition and expansion of choice.

C. *Regulation and Enforcement of Clean Energy*

The regulation and enforcement of a clean energy regime moves from producers to consumers as choices increase. In a clean energy economy, there are more producers, more and varied technologies, and increased consumer choice, resulting in greater market discipline, thus reducing the need for central government enforcement. Regulation and enforcement at the local level mean greater access by citizen/consumers and therefore more responsive government behavior.[60]

From the supply side, given the radical changes necessary to move to this clean energy future and away from fossil fuels, not only will utilities need to redesign their business models but regulators will also need to accommodate those changes as well as shape

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56. STEPHENS ET. AL., *supra* note 8, at 28.

57. *Id.* at 29.

58. Joseph Weidman & Tom Beach, *Distributed Generation Policy: Encouraging Generation on Both Sides of the Meter,* 26 ELECTRICITY J. 88, 89 (2013).

59. Asmus, *supra* note 45, at 19.

60. *See, e.g.*, *Local Energy*, *supra* note 53, at 947 ("To the extent that such innovation will expand the range of possible applications for existing technologies and drive down costs, this factor may further reduce consumer uncertainty and facilitate broad adoption.").

developing more complex, electricity markets. Indeed, it is quite likely "that as the electric power system becomes more participatory, the importance of a broad public utility framework to support planning, coordination, and innovation only increases." [61] Thus, innovative utility business models and innovative regulations will turn, in large part, on how consumer responsive those innovations actually are.

While numerous benefits accrue to decentralized energy, conflicts also attend the energy sector. Energy is regulated at the local, state, regional, national, and international levels. The proper choice of governance level is not easy for any number of reasons, including the fact that different energy resources are located in different geographic areas and have different consequences throughout the fuel cycle. Consequently, energy conflicts abound. Conflicts occur between different energy resources. Wind and solar installations, for example, may be installed on the surface, but may also sit over oil and gas reserves that likewise contribute to the energy sector. Conflicts, then, occur between different mineral estates; they occur between state and local governments as well as between state and federal regulators. By way of example, cities or localities that wish to ban fracking must confront a state interest in natural resource development and, therefore, must address preemption issues between those two levels of government. And, there are conflicts between oil and gas development and clean energy development, all requiring responsive, democratic regulations.[62]

D. *Governance and Legal Institutions of Clean Energy*

Finally, the governance and legal institutions surrounding a clean energy economy move, at least in part, from the federal to the local level. Citizen participation in energy and climate actions can take place more easily as regulation moves from the federal to the local level, whether it is a movement to ban fracking in the community, [63] reject windmill sites, adopt local energy efficiency standards, or implement energy-efficient and clean energy-based building codes.[64] Local governments can make decisions about how

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61. Boyd, *supra* note 30, at 1682.

62. *See generally* Wiseman, *supra* note 47, at 1793 (discussing ways that "populated areas" can and have been "addressing potential conflicts ex ante").

63. *See, e.g.*, David B. Spence, *The Political Economy of Local Vetoes*, 93 TEX. L. REV. 351, 378 (2014) ("[L]ocals care far more about the impacts of fracking than non-locals do, making them more likely to mobilize politically around fracking issues."); Hannah J. Wiseman, *Governing Fracturing from the Ground Up*, 93 TEX. L. REV. 29 (2015) (reviewing Spence, *supra*).

64. *See, e.g.*, NAOMI KLEIN, THIS CHANGES EVERYTHING: CAPITALISM VS. THE CLIMATE 10 (2014) (explaining that such movements "can disperse power into the

their buildings are built, such as whether they should be LEED certified. Local governments can also make decisions about the fuels to be used in, and the vehicle efficiency standards of, their fleets. Additionally, local regulation of diverse energy resources can enhance protection for those natural resources as well as facilitate energy development planning. [65] Well-thought-out planning for a community's energy future can help either avoid or defer the need for costly expansions of transmission and distribution to the benefit of both utilities and consumers. [66] In this way, then, planning goes contrary to traditional utility regulation that rewarded the utility for its capital investments. In other words, investment decisions shift, at least in part, from producers to consumers.

A substantial literature exists exploring the problem of what level of government is optimal for energy and environmental regulation. Optimality may well be a goal to be pursued, yet existing legal institutions present obstacles to a smooth transition from one regulatory regime to another. Regardless, a case can be made for at least a set of local energy regulations from two perspectives. First, local regulators enjoy certain advantages over other levels of government. Second, citizens too enjoy certain advantages in dealing with local governments.

The literature that discusses the level of government, particularly with reference to environmental regulation, encounters a prisoner's dilemma problem sometimes referred to as a race-to-the-bottom. [67] The core idea behind this dilemma is that competing regulatory entities, whether they are states or local governments, are reluctant to engage in aggressive environmental regulations for fear of losing a competitive advantage against other entities. Consequently, it is not in either particular entity's best economic interest to aggressively regulate the environment. As a direct consequence of this incentive to back off regulation, society sustains losses that should have been avoided.

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hands of the many rather than consolidating it in the hands of the few, and radically expand the commons rather than auctioning it off in pieces."); *see also* Purdy, *supra* note 7, at 1193–99 (discussing local governments and citizens' efforts in addressing climate change).

65. Uma Outka, *Intrastate Preemption in the Shifting Energy Sector*, 86 COLORADO L. REV. 927, 931 (2015).

66. Utilities, also, will engage in such coordination through a process referred to as "integrated distribution planning" (IDP), which has been defined: "IDP requires a reconsideration of the traditional methods for financing interconnection studies in upgrades, but it makes more efficient upgrades and increase transparency possible." Weidman & Beach, *supra* note 58, at 102. IDP takes place first through modeling and then through coordinating distribution system planning by analyzing the growth in distributed generation. *Id.* at 101–03.

67. *See Local Energy*, *supra* note 53, at 916–57 (discussing institutional competence to make regulations across the range of government and "the permissibility of actually allocating implementation authority and costs in the way that comparative institutional analysis suggests would be optimal").

Smart energy/environmental technologies, however, offer a different paradigm than environmental regulations alone. Decentralized, small-scale, labor-intensive clean energy industries and activities should offer a locality a competitive advantage by stimulating jobs,[68] innovations,[69] and investments.[70] Further, local

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68. *See, e.g.*, Am. Council for an Energy-Efficient Econ., How Does Energy Efficiency Create Jobs? (2011), http://aceee.org/sites/default/files/pdf/fact-sheet/ee-job-creation.pdf [http://perma.cc/PZ6J-PDBV] (archived Sept. 4, 2015) (describing a correlation between investment in clean energy and job creation); Am. Council on Renewable Energy, Cal. Clean Energy Fund & Climate Policy Initiative, Strategies to Scale-Up U.S. Renewable Energy Investment, 4, 20 (2013), http://www.acore.org/images/uploads/Strategies-to-Scale-Up-US-Renewable-Energy-Investment.pdf [http://perma.cc/VD3Y-9TXC] (archived Sept. 4, 2015) (mentioning the connection between renewable energy growth and job creation); Environmental Entrepreneurs, Clean Energy Works for US: 2013 Year-in-Review and Q4 Report (2014), https://www.e2.org/ext/doc/E2CleanEnergyJobs2013Year-EndandQ4.pdf [https://perma.cc/7KTE-ZCU8] (archived Sept. 4, 2015) (reviewing the jobs created by clean energy and clean technology in 2013 and Q4); McKinsey Global Energy & Materials, Unlocking Energy Efficiency in the U.S. Economy 99 (2009), http://www.mckinsey.com/~/media/mckinsey/dotcom/client_service/epng /pdfs/unlocking%20energy%20efficiency/us_energy_efficiency_full_report.ashx [http://perma.cc/V55M-MXHJ] (archived Sept. 5, 2014) ("[R]esearch suggests that the employment benefits of increased national energy efficiency could be significant."); Yi Xu, Environmental and Energy Study Institute, Fact Sheet: Jobs in Renewable Energy and Energy Efficiency (Laura Small ed., 2014), http://www.eesi. org/papers/view/fact-sheet-jobs-in-renewable-energy-and-energy-efficiency-2014 [http:// perma.cc/P2K2-X3YV] (archived Sept. 4, 2015) (providing a breakdown of jobs created by energy efficiency and renewable energy by industry and sector); Casey Bell, *Proving Energy Efficiency Creates Jobs: Seeking a New Standard Model*, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY (January 22, 2014, 11:18 PM), http://aceee.org/blog/2014/01/proving-energy-efficiency-creates-job [http://perma.cc/6T3B-X4VC] (archived Sept. 4, 2015) (identifying studies that support the proposition that energy efficiency creates jobs); Rachel Gold, *State by State, Appliance Standards Save Money, Create Jobs, and Protect the Environment*, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY (May 25, 2011, 8:35 PM), http://aceee.org/blog/2011/05/state-state-appliance-standards-save-money-create-jobs-an [http://perma.cc/2CQH-HMKZ] (archived Sept. 4, 2015) (highlighting the creation of 340,000 jobs attributed to the 2010 federal energy standards).

69. *See, e.g.*, Sara Hastings-Simon, Dickon Pinner & Martin Stuchtey, *Myths and Realities of Clean Technologies*, MCKINSEY & CO. (April 2014), http://www.mckinsey.com/insights/energy_resources_materials/myths_and_realities_of_clean_technologies (last visited Sept. 6, 2015) [http://perma.cc/H55P-DLG3] (archived Sept. 6, 2015) (discussing three myths of clean energy technology, one of which is that innovations have under delivered).

70. REN21, RENEWABLES 2014 GLOBAL STATUS REPORT 72 (2014), http://www.ren21.net/Portals/0/documents/Resources/GSR/2014/GSR2014_full% 20report_low%20res.pdf [http://perma.cc/D7AB-YCST] (archived Sept. 5, 2015) ("In 2013, gross investment in new renewable electric generating capacity (not including hydro >50 MW) amounted to USD 192 billion, down from USD 234 billion in 2012 due to lower technology costs and policy uncertainty . . . . [A]lmost all investment in renewable capacity is net, meaning that it adds to overall generating capacity. Considering only net investment in 2013, renewable power was ahead for the fourth consecutive year, with its USD 192 billion taking a wide lead over fossil fuels' estimated USD 102. Taking into account investment in hydropower projects >50 MW,

government can serve as "policy laboratories" that engage in regulatory experimentation, which should promote efficiency gains through competition, develop best practices for the local use and distribution of energy, engage in public education through the accumulation and dissemination of local knowledge, enable localities to scale energy activities to the tasks most suitable to them, and search for cooperative solutions with and among other layers of government.[71]

Local governments have decided advantages for clean energy technologies. Land-use decisions have traditionally been delegated to local governments. Consequently, local governments have knowledge about local conditions that can determine which technologies will be most effective and where:[72]

> Variables including the nature of cities' primary energy sources, local climate and weather patterns, the nature of the built environment, zoning plans, growth plans, population, and local economic conditions are all directly relevant to the choice of one or more distributed renewable technologies and the means of deployment.[73]

Indeed, municipal initiatives now underway involve hundreds of cities engaged in addressing climate change, green job creation, energy efficiency, alternative fuels, and the like.[74]
Additionally, local governments have a shared interest with their citizens in promoting local economic development and encouraging clean energy innovators. Through such a shared approach, energy goals and priorities should be more clearly defined; regulatory risks should also be more clearly defined and monetized and, in fact, considerably reduced; and planning and investment should be more reliable and stable.[75]

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global investment in renewable power capacity was well over twice the net investment in fossil fuel power capacity in 2013.").

71. *Local Energy*, *supra* note 53, at 881–82, 933–34.

72. *Id.* at 883–84, 936–40.

73. *Id.* at 936–37 (footnote omitted).

74. *See, e.g.*, *C40Cities, About C40*, http://www.c40.org/about (last visited Sept. 4, 2015) [http://perma.cc/JR7M-VEBD] (archived Sept. 4, 2015) (describing "a network of the world's megacities committed to addressing climate change."); The United States Conference of Mayors, *About the Mayors Climate Protection Center*, http://www.usmayors.org/ climateprotection/about.asp [http://perma.cc/9S25-N6ZD] (archived Sept. 4, 2015) (describing a forum available for municipalities to implement and promote "policy positions on a range of issues affecting energy production and use."); United Nations Department of Economic and Social Affairs, Cities for Climate Protection Campaign, Sustainable Development Knowledge Platform, https://sustainabledevelopment.un.org/index.php?page=view&type=1006&menu=1348 &nr=1498 (last visited Sept. 6, 2015) [http://perma.cc/5GT8-YNXA] (archived Sept 6, 2015) (detailing a program that "enlists cities to adopt policies and implement measures to achieve quantifiable reductions in local greenhouse gas emissions, improve air quality, and enhance urban livability and sustainability").

75. Aggarwal & Harvey, *supra* note 39, at 10.

Small-scale energy technologies deployed at the local level will have shorter time horizons for investment, require less capital per project, and can rely on more efficient, less time-consuming arrangements with local government. This investment scenario differs markedly from large-scale projects, particularly for nuclear power or clean coal projects, which will rely on carbon capture and sequestration. Regulatory uncertainties as well as longer time horizons make the cost of capital for these large-scale projects increasingly prohibitive.[76]

From the citizen side of the equation, local energy regulation has the advantage of reducing collective action problems as described in the public choice literature. Local political action (1) will be less costly in terms of organizing, lobbying, preparing for, and attending hearings; (2) will reduce the number of free-riders, thus encouraging participation; (3) should galvanize interest and sharpen the focus on the specific issues to be addressed; (4) should be able to clarify policy initiatives and goals; and (5) should help local businesses deploy energy innovations.[77] Consequently, local government officials are more responsive to citizen concerns while issues are aired, debated, and modified more readily at the local level than at the state or national levels.[78]

Through all of these processes, citizen participation is heightened while they search for a common value. And, as a result, a new energy narrative is constructed as "people create their shared public language by participating in it, by seeking to persuade one another."[79] It is through these processes that citizens choose new political ends—in this case an integrated energy/environmental future. Such is the democratic impulse. As distributed generation, decentralization, and small-scale energy technologies expand, utilities will rethink their business models as consumers play a more participatory role in signaling to utilities their demand for energy as well as their ability to generate their own power and control their own consumption. Likewise, regulators will be called upon to better manage the energy system by balancing new consumer demands with new utility structures. In short, a new and more democratic regulatory framework will develop "to support planning, coordination, and innovation."[80]

Readers may think this Article has gone too far off the grid, to borrow a phrase, but one more dimension must be added to the democratization of energy. It can only be successfully achieved

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76. Boyd, *supra* note 30, at 1689–90.
77. *Local Energy*, *supra* note 53, at 922–31.
78. *Id.* at 940–46.
79. Purdy, *supra* note 7, at 1138.
80. Boyd, *supra* note 30, at 1682.

through well-thought-out and considered public-private partnerships where government is not the problem, but part of the solution. Markets are not eschewed in favor of government control. Nor is government regulation eschewed in a bow to market fundamentalism. Instead, government regulation, especially in the development of innovative energy technologies, serves as a stimulant and partner to the private sector.

Such partnerships for a clean energy future are built on the goal of the commercialization of clean energy technologies. This is to say that there will be a handoff of technologies from government research and development to private sector firms along an energy innovation continuum. Private firms not only have managerial and marketing expertise but also have a nose for, and are driven by, the profitability that is necessary to create and expand clean energy markets. Those markets will contain new energy technologies, new entrants, and, consequently, greater competition. Together, those elements will not only increase consumer choice but also increase both consumer and producer surpluses. The energy/environmental paradigm is not anathema to economic growth; it is a valuable constituent of smart growth.

III. CONCLUSION

The Fukushima tragedy, as well as others, provides an opportunity to change the energy/environmental conversation, identify new political and community values, and explore a new narrative and identity through an active democratic politics. We can continue discussing a nuclear renaissance, our increases in domestic oil and gas production, and/or the potential for clean coal, or we can abandon this old dialogue and move to develop a new set of energy and environmental commitments: a set of commitments that advances the interests of citizen/consumers in the emerging clean energy future. The choice seems obvious as we continue to develop an energy transition away from a traditional fossil fuel economy to one in which environmental concerns are treated together with our energy demands. Incumbent firms, existing institutions and regulations, and the old energy narrative will continue to influence public discussion. Nevertheless, a new narrative is developing that is attentive to emerging energy technologies, cognizant of environmental consequences of the fuel cycle, and committed to developing a wider range of energy resources, markets, and participants on both the supply and demand sides of the meter.

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/s/ Linda Faye Johnson

Linda Faye Johnson
Program Coordinator