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A perspective on clean power and the future of US energy politics and policy☆

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ABSTRACT

United States energy policy is undergoing a historic transformation. For the first time, the federal government has taken the lead in aligning energy and environmental regulation. The Environmental Protection Agency has asserted itself under the auspices of an administrative rule known as the Clean Power Plan (CPP) that specifically targets electric utilities, most notably coal-fired utilities, for the express purpose of reducing carbon emissions. The CPP requires states, either individually or through multi-state arrangements, to submit compliance plans in either 2016 or 2018 if an extension is granted. The EPA has suggested three principal "building blocks" for formulating state compliance plans. In the wake of this new regulatory landscape, this paper describes the CPP, identifies the specific challenges facing the electric industry, and provides potential responses to those challenges. The paper concludes that the Clean Power Plan provides the necessary context for the US transition to a clean energy future.

The US electric industry currently faces two substantial and related challenges. First, the electricity delivery system is in need of multi-trillion dollar investment[1] if it is to evolve into the promised smart grid and accommodate changing markets. The Northeast Blackout, Hurricane Katrina,[2] Superstorm Sandy,[3] and Fukushima[4] revealed costly weaknesses in the sector, including lack of resilience. Second, the generation segment is now being called to task for carbon emissions and may be subject to historically significant federal regulations intended to address climate change.

Weak transmission and distribution systems and generation risks associated with climate change both affect the electricity system in terms of economic losses and disrupted lives. The estimated cost of the Northeast Blackout in 2003, as an example, ranges from $4-$10 billion.[5] Costs are so significant because the centralized structure of the electric industry ensures concentrated losses upon such occurrences. Unfortunately, "[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."[6] One response to these risks is to restructure the electric system in ways that make it more resilient.

This paper will first explain those two challenges and place them in the context of the industry's evolution and regulation. Next, the paper will argue that at least a partial solution to those problems is available through decentralization. Decentralization, in turn, contributes to the development of a new politics of energy that promotes both competition and democratization in the form of increased citizen engagement.

☆ This paper is an expanded version of Joseph P. Tomain, *Clean Power and the Democratization of Energy in the US*, 17 Network Industries Quarterly 3 (2015).

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[1] Marc W. Chupka et als., Transforming America's Power Industry: The Investment Challenge 2010–2030 (November 2008) (estimating investment needs of between $1.5 and $2.0 trillion by 2030); World Economic Forum: The Future Of Electricity: Attracting Investment to Build Tomorrow's Electricity Sector (January 2015) (estimating global investment needs of $7.6 trillion by 2040).

[2] See e.g. Joseph P. Tomain, Katrina Consequences: What Has Government Learned?: To a Point, 52 Loyola L. Rev. 1201 (2006).

[3] Lincoln L. Davies et al., Energy Law and Policy 19-22 (2014).

[4] Lincoln L. Davies, *Beyond Fukushima: Disasters, Nuclear Energy, and Energy Law*, 2011 Brigham Young L. Rev. 1937 (2011).

[5] 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).

[6] Jennie C. Stephens, Elizabeth J. Wilson & Tarla Rai Peterson, Smart Grid (R) evolution 15 (2015).

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1. Evolution of the electricity industry and its regulation

Over the last four decades, the electric industry in the US has faced several challenges of varying degrees of intensity. Following World War II, the industry enjoyed substantial and predictable growth because energy was the chief input into the country's most significant economic expansion. Subsequently, four notable issues were encountered.[7] First, during the mid-1960s through the mid-1970s, the industry appeared to have hit a technological plateau. Given regulatory incentives, privately owned electric utilities continued to make capital investments that in turn contributed to excess capacity and high electricity prices. Second, from the mid-1970s into the 1980s, the nuclear industry faltered with significant repercussions for both shareholders and ratepayers. Specifically, federal and state regulators had to determine how to apportion costs for failed nuclear investments between ratepayers and shareholders.[8] Third, during the late 1980s through the 1990s, following a general deregulatory mood in the country, regulators attempted to restructure wholesale and retail electricity markets with the intent of increasing competition in the industry. Those efforts were only partially successful for wholesale sales and much less so for retail sales. Finally, since the turn of the 20th century, regulators continued efforts to restructure the industry by focusing on the transmission segment (to facilitate wholesale markets).

These challenges affected the industrial structure of the electricity sector as well as its regulation. Prior to restructuring, the dominant industry actor was the vertically-integrated, investor owned utility or IOU. IOUs generated more than 80% of US electricity. Privately owned IOUs continue to generate 42% of the electricity with another 42% generated by non-IOU firms and the remainder by various local and federal entities.[9] The increasing numbers of non-IOU firms are designated as independent power producers (IPPs), merchant generators, qualifying facilities (QFs), or exempt wholesale generators, among others. A key characteristic of restructured markets is the separation of generation, transmission, and distribution either through functional unbundling or actual corporate divestiture of these business units. The single driving force behind the separation of generation and transmission is the desire by regulators and policymakers to increase price competition by opening access to the transmission system, of which 66% is owned by private IOUs.[10] Restructuring was motivated in part by the private ownership of transmission lines in the absence of a common carrier obligation. By contrast, the statutory authority of the Federal Energy Regulatory Commission (FERC) to regulate interstate natural gas pipelines as common carriers has generally been much clearer.

Today, at the federal level, FERC regulates wholesale electricity markets, including regional transmission authorities known as either regional transmission organizations (RTOs) or independent system operators (ISOs). These regional organizations are tasked with the responsibility of operating transmission facilities owned by others, maintaining reliable power supply, and facilitating competitively priced transmission. At the state level, some states continue to regulate IOUs according to traditional models (known as “regulated states”), while other states have introduced competition at the retail level based on access to competing suppliers suppliers (known as “unregulated states”). In short, industry and regulatory change both center on access to transmission. Restructuring has been complicated by resistance by incumbent IOUs[11] and reluctance by state regulators, particular in the wake of the failure of Enron.

The industry now faces two new interrelated challenges. The first is the need for substantial grid investment to replace and modernize aging transmission and distribution infrastructure to provide resiliency and accommodate evolving markets and generation technologies. Regulatory authority in this area is split between federal (interstate) and state (intrastate) regulators and heightened judicial scrutiny has added a dimension of governance uncertainty to transmission planning.[12] The second, and more significant challenge arises from a rule promulgated by the United States Environmental Protection Agency (EPA) to curb carbon dioxide emissions from existing power plants. Known as the Clean Power Plan (CPP),[13] the proposed rule elicited more than 4 million public comments as well as significant critical analysis since first publicized in June 2014.[14] The final rule was issued August 4, 2015 and became official with publication in the Federal Register on October 23, 2015.[15] The CPP requires states to reduce carbon emissions; final plans are due in September 6, 2016 and, under specified circumstances can be extended to September 6, 2018. Compliance begins in 2022 and will be conducted in three phases culminating in full compliance in 2030.

The CPP is a watershed proposal in US energy policy because it begins to align energy and environmental regulation. Historically, energy and the environment have been regulated under separate legal regimes and by separate regulatory agencies. While several individual states have taken steps to address climate change, the federal government's had failed to lead in this area until the CPP. Through the CPP, the EPA is exerting regulatory authority over carbon pollution from central power stations based on statewide compliance with specified emission targets. Unsurprisingly, the rule is subject to legal challenge and the final verdict regarding its legally sustainability will not be known for years.[16]

Regardless of its legality, the CPP stands as a significant shift in US energy policy. It also stands as a challenge to both the electricity industry and regulators. One approach to this challenge, as addressed in this paper, is to re-envision the politics of energy in ways that consider electricity production and consumption as more decentralized and diverse and, therefore, potentially more democratic.

[7] *See e.g.* Karl McDermott, Edison Elec. Inst., Cost of Service Regulation in the Investor-Owned Electric Utility Industry: A History of Adaptation 17 (2012); Peter Kind, Energy Infrastructure Advocates, Disruptive Challenges: Financial Implications and Strategic Responses to a Changing Retail Electric Business 1 (2013).

[8] Joseph P. Tomain Nuclear Power Transformation (1987).

[9] U.S. Energy Information Administration, *Electric Power Industry Overview 2007* available at http://www.eia.gov/electricity/archive/primer/.

[10] Massachusetts Institute of Technology, the Future of the Electric Grid: An Interdisciplinary Study 4 (2011).

[11] See e.g. Ann Carlson, Industry Will Try to Keep the Clean Power Plan from Taking Effect Pending Court Decision on its Legality, Legal Planet ((July 7, 2015) (blog post).

[12] See e.g. Piedmont Environmental Council v. FERC, 558 F.3d 304 (4th Cir, 2009); Transmission Planning and Cost Allocation by Transmmission Owning and Operting Public Utilities, 136 FERC ¶61,051 (July 21, 2011).

[13] Environmental Protection Agency, Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Utility Generating Units, 79 Fed. Reg. 34830 (June 18, 2014) (proposed rule).

[14] Environmental Protection Agency, *Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Generating Units* [EPA-HQ-OAR-2013-0602; FRL-XXXX-XX-OAR] RIN 2060-AR33 (August 4, 2015) (hereinafter Final Rule).

[15] Environmental Protection Agency, Carbon Pollution Emission Guidelines for Existing Stationary Sources: Electric Generating Units; Final Rule, 80 Fed. Reg. 64661(2015) (Final Rule).

[16] The first challenge to the rule was rejected because the rule was only a proposal and not a “final” rule *in In Re: Murray Energy Corp*. Docket No. 14-1151 (D.C. Cir. June 9, 2015). Since the official promulgation of the final rule, however, other lawsuits have been filed.