

Discussion Paper | September 2016

# Competition as the Means to Building the Clean Power Platform

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# Abstract

Regulation and public financing must accelerate the move of the American and global economy to the clean power platform in order to win the battle against climate change.<sup>1</sup> But government should trust competitive markets to define the structure, conduct and performance of all relevant power markets: consumption, transmission, generation and transportation. Investment must pour quickly into each of these sectors, but the ultimate goal is power that is not only extremely emissions-light but also abundant and affordable.

From 1995 to 2001, federal action to unlock competition in the information and communication technology sector spurred the investment of more than \$700 billion of private capital to create the mobile, digital network of networks that today underlies every form of social and business activity. Competition was the means to attract and reward that investment. The result was a wholly new communications platform where voice, video and data is generated and exchanged in ways that are vastly faster, better and cheaper. A similar transformation is possible in electricity markets if government adheres to basic antitrust principles in creating competitive power markets. By legislation, regulatory persuasion or litigation, the federal government should make sure markets not only deliver clean power but also give consumers ways to pay the same or less for all the uses of power in a modern society and economy.

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<sup>1</sup> For more on this see Reed Hundt, *Zero Hour: Time to Build the Clean Power Platform* (Odyssey Editions, 2013).

# Competition as the Means to Building the Clean Power Platform

## Introduction

The American economy and society must move quickly to a clean power platform. Because of the need for speed, regulatory and financial tools must drive transformation in energy markets. But, even while fulfilling the imperative of reducing carbon emissions, the ultimate goal must be to have abundant, reliable, affordable and efficiently consumed power.

All goods and services in modern economies require energy as an input. Indeed, energy is an increasingly important input as economies become more advanced. To improve American and global standards of living, clean power solutions must be delivered at the lowest possible price. Regulation alone is rarely, if ever, the best means to minimize price. Better and cheaper products are far more likely to be invented and sold successfully in competitive markets. Although governments should boost research, development and deployment of clean power solutions, buyers and sellers in markets, not regulators, should create the clean power platform.

Energy and environmental regulators can command behavioral change, such as requiring certain amounts of renewable power to be purchased. They can stimulate demand for efficiency by providing incentives and mandates. They can tax carbon-based power so as to give a competitive advantage to renewable power or to create an incentive for consumers to consume less on the old carbon platform. They can use permits or caps to create a simulacrum of a carbon tax. It is important to solve the political and design problems that have hampered these useful techniques. But regulators should be the first to agree that nothing makes a regulator's job easier, or makes change happen faster, than when consumers happily choose the goods and services that compose the necessary new platform for economic and social activity.

Regulators can and should foster a pro-competitive clean energy platform. "Pro-competitive" does not mean anti-regulation – it means regulation aimed at removing barriers and promoting the development of competitive alternatives to the current carbon-based power platform. The new platform would give consumers the opportunity to choose among competitive sources for power, competitive offers for efficiency, and competitive providers of low-emissions vehicles. Government should clear the way for clean power to win in these markets, using as many regulatory and financial tools as politics permits. But ultimately consumer choice, and not regulators, should define the structure, conduct and performance of the clean power platform.

By embracing competition in the production and consumption of power, the United States will attract the maximum amount of private sector investment while at the same time making consumers better off.<sup>2</sup> Innovators can bring new forms of generation, transmission, distribution and consumption into existing markets, and can create new goods and services not yet seen. Investment in the new platform can increase

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<sup>2</sup> As Adam Smith observed, "in general, if any branch of trade, or any division of labour, be advantageous to the public, the freer and more general the competition, it will always be the more so."

gross domestic product (GDP) by as much as 1 percent extra annually. That is approximately equal to the impact on GDP realized by the replacement of the old communications platform by the new digital, wireless platform between 1994 and 2000. Moreover, delighting consumers is far more likely to be politically sustainable than punishing them with higher prices or pushing them to spend their money on something they do not value.<sup>3</sup>

The next president should champion competition in all power and power consumption markets.<sup>4</sup> The Executive Branch, independent agencies and Congress should collaborate to

- Use the authority of the Federal Energy Regulatory Commission (FERC) to promote competition in generation and transmission.
- Argue for competition in all state utility commissions.
- Require the Department of Energy (DOE), the Environmental Protection Agency (EPA) and FERC to collaborate on a single comprehensive statement of competition policy in all markets composing the clean power platform.
- Use DOE grants and loans to reward competition and refrain from providing such financial support to firms or states not acting in a pro-competitive manner.
- Insist on competition in all markets as a condition of permitting mergers in energy markets.
- Sue firms that seek to entrench or expand monopolies in power markets.<sup>5</sup>
- Adopt pro-competitive policies for subsidies in emissions-light transportation markets.
- Pass legislation promoting competition in all power markets.

Regulators of the grid should adopt organizational and technological methods that enhance service-level competition in adjacent markets and over the distribution network. New York's Reforming the Energy Vision (REV) commands and rewards the distribution monopolist for becoming a platform for competition in the distributed energy resources market (a term that includes distributed power, efficiency and other retail services).<sup>6</sup> The clean power platform should be a track on which firms are "racing to introduce new or improved products,"<sup>7</sup> as opposed to only raising prices on carbon-intense products or subsidizing regulators' choices of clean power solutions. The platform should host three markets: retail services behind the meter, retail service over the distribution grid, and generating wholesale power. In all of these, firms

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<sup>3</sup> For further discussion of ideas for energy transformation, see the Coalition for Green Capital's memo to the next president: [www.coalitionforgreencapital.com/2017-energy-policy-memo-march](http://www.coalitionforgreencapital.com/2017-energy-policy-memo-march).

<sup>4</sup> Regulatory mandates, such as the EPA's Clean Power Plan and state Renewable Energy Standards, should create demand for clean power and efficient consumption. That is pro-competitive as long as the demand is met by competitive offers.

<sup>5</sup> Utilities and incumbent firms often cite the state action doctrine as a defense to federal antitrust action in regulated markets. While this is undeniably a hurdle, it is not an insurmountable one. To avail itself of the defense, a private utility must demonstrate that its entry into competitive markets is "clearly articulated and affirmatively expressed as state policy" and the policy or action is "actively supervised" by the state. See *California Retail Liquor Dealers Ass'n v. Midcal Aluminum*, 445 U.S. 97, 105 (1980). Public utilities and state PUCs need only meet the first prong by demonstrating that their "anticompetitive activities were authorized by the State 'pursuant to state policy to displace competition with regulation or monopoly public service.'" See *Hallie v. Eau Claire*, 471 U.S. 34, 38-39 (1985).

<sup>6</sup> State of New York, Department of Public Service, "Order Adopting a Ratemaking and Utility Revenue Model Policy Framework" (May 19, 2016): 49-50.

<sup>7</sup> H. A. Shelanski, "Information, Innovation, and Competition policy for the Internet." *University of Pennsylvania Law Review* 161 (2012): 1663-1705.

should compete on price and/or value.<sup>8</sup> The truly desperate need to reduce emissions is not a reason to abandon competition as the means for constructing the clean power platform.

The federal government should not insist on imposing a single regulatory method in every state. Instead it should use incentives<sup>9</sup> and, where necessary, legislation and litigations to guarantee that every state has some workable method of facilitating the maximum amount of competition in every relevant market. Marketplace choice is the best way to guarantee rapid platform change, whether the platform is the internet, wireless communications, electronic commerce, transportation, or commercial and residential building materials.

## Competition and Monopolies in the Electricity Sector

The growth of clean energy over the past decade<sup>10</sup> belies the larger truth that clean energy remains a tiny part of our overall electricity mix. Consumers paid nearly \$400 billion in retail electricity and associated expenses in 2015.<sup>11</sup> Consumers' bills are divided between charges for transporting electricity and the cost of generating that electricity. Looking just at the generation side of the equation, we see renewables capturing very little of this market. Wind and solar represent less than six percent of electricity generation, and solar is less than one percent.<sup>12</sup>

Moreover, the most vulnerable consumers are often in the states where the move to the new clean power platform is critical. The following chart shows the seven states with the highest energy-related carbon emissions and how median income has changed in these states.<sup>13</sup>

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<sup>8</sup> Probably, the distribution grid should be thought to be the service.

<sup>9</sup> The federal government should provide federal capital to state and local authorities that want to capitalize public lending institutions to offer affordable capital to clean power and efficiency measures. The Green Bank Act of 2016 (H.R. 5802) accomplishes this by creating a National Green Bank to fund state and local institutions. But this sort of incentive should be offered fairly to competing providers so as to enhance competition in clean power solutions.

<sup>10</sup> According to the Department of Energy, installed wind power capacity grew nearly seven-fold between 2005 and 2015. SEIA estimates that, from 2010 to 2015, annual solar capacity installed in the U.S. grew over 600 percent percent.

<sup>11</sup> United States. Energy Information Administration, "Form EIA-826 detailed data."

<sup>12</sup> United States. Energy Information Administration, "Net Generation by Energy Source: Total (All Sectors), 2006–May 2016."

<sup>13</sup> Household median income from U.S. Census, as analyzed by Justin Fox in *Bloomberg* ("Where Median Incomes Have Fallen the Most," 19 August 2016). 2013 emissions data from U.S. Energy Information Administration.

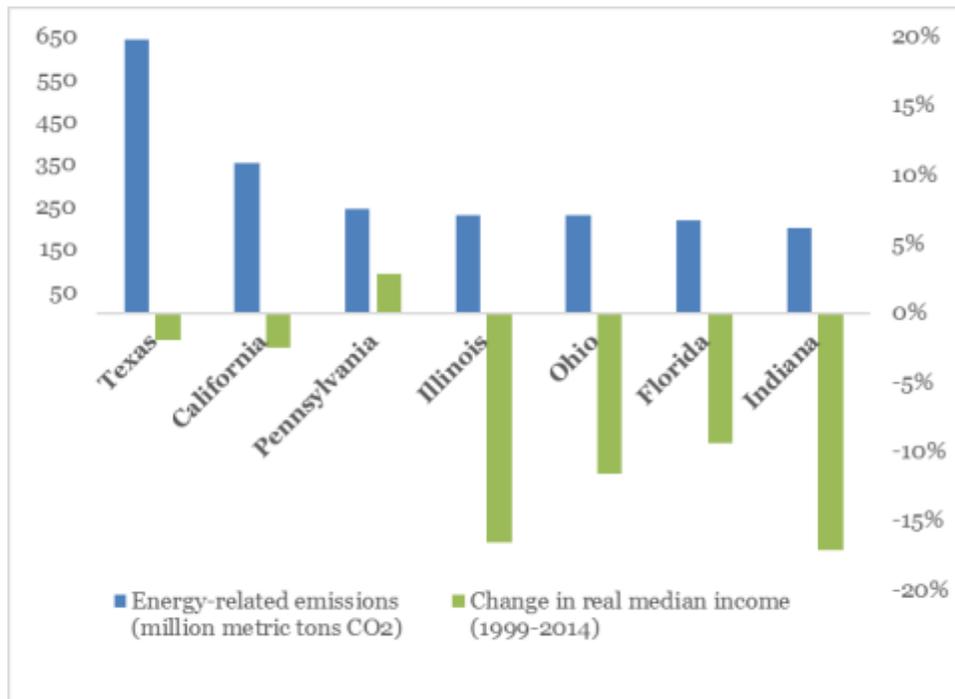


Figure 1. States with highest carbon emissions, change in state median household income

The lesson is that by seeking to substitute clean power for carbon-emitting power and at the same time to make consumers better off, government can do what is necessary and also equitable. Clean power should provide the desired use – heating, lighting, air-conditioning, industrial processes, and transportation – at the same or lower total cost as the carbon energy platform provides to consumers today.<sup>14</sup> Competition can create this outcome.

However, monopolies naturally dominate the local distribution grid used to deliver electricity to retail customers. There is a single network of distribution substations and radial power lines that deliver electricity to your house and other houses around you because no other distribution company could make a profit constructing a second distribution network unless it delivered electricity at a lower cost. But in that case, the second line would soon become the monopoly distributor – a natural monopoly.<sup>15</sup> In electricity markets in the United States, state regulators recognize the natural monopoly of distribution utilities and thus regulate those utilities so that they cannot charge monopoly prices to end users. Another example may be the charging station grid. Such networks are not sufficiently deployed to draw final conclusions, but it is likely that government should issue licenses for charging station deployment so as to assure rapid deployment with minimum state subsidies.

<sup>14</sup> Forty percent of American households make less than \$40,000, but have purchased less than 5 percent of distributed solar installations. Robustly competing firms could address this inequality by aiming at all market segments.

<sup>15</sup> R. A. Posner, “Natural monopoly and its regulation.” *Stanford Law Review* (1969): 548–643.

Many energy markets, however, can and should be structured to encourage competition. These include at least the following:

1. On the end-user side of distribution utilities, in what New York calls the distributed energy resource (DER) market, firms like Solar City and SunRun can compete to provide electricity both to end users and to the distribution utility itself.<sup>16</sup> Building management and building materials firms can compete to make energy use more efficient (by minimizing the electricity or fuel used for heating, lighting, air-conditioning or industrial processes).
2. Generation of electricity, typically from a wind farm, solar panel array, natural gas or nuclear power facility, or some other source of electricity. These competing sources require access to transmission and then distribution networks in a fair and efficient manner in order to compete. The Energy Policy Act of 1992, FERC Orders 888 and 889, and other subsequent regulation have ensured that this is possible. Creating independent grid operators and market overseers in all regions can further ensure competitive access. Retail competition would eliminate the monopsony faced by generators in some markets that hamper wholesale generation competition.
3. In some regions, new transmission lines can bring new power sources to regional grids to introduce new competition from clean power generation. For example, new transmission lines would allow energy to flow from windy and sunny parts of the country to other regions. Researchers at the National Oceanic and Atmospheric Administration (NOAA) have found that, with improvements to the transmission system, renewables could supply most of the United States' electricity at costs similar to today.<sup>17</sup> This squares with the National Renewable Energy Laboratory (NREL) analysis, which found that existing technologies combined with a "more flexible electric system," are more than sufficient to supply 80 percent of total U.S. electricity generation in 2050.<sup>18</sup>
4. In transportation, a national network of vehicle charging stations will allow firms to compete on total cost of vehicle ownership and/or a more desirable driving experience, rather than the ability to access a preexisting network of stations.

## Competition Goals Across the Energy Sector

### Behind the Meter

*Goal: Create competition on service, quality and price*

Firms should be able to compete to offer energy services such as solar and energy efficiency to consumers. Distributed energy firms should be able to compete against each other on a level playing field – none

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<sup>16</sup> Utilities have been worried for some time about competition in these market segments; see for example, P. Kind, "Disruptive Challenges," *Edison Electric Institute*, [www.eei.org/ourissues/finance/Documents/disruptivechallenges.pdf](http://www.eei.org/ourissues/finance/Documents/disruptivechallenges.pdf).  
<sup>17</sup> A. E. MacDonald et al., "Future Cost-Competitive Electricity Systems and Their Impact on US CO<sub>2</sub> Emissions," *Nature Climate Change* (2016).  
<sup>18</sup> M. M. Hand et al., "Renewable Electricity Futures Report," *United States National Renewable Energy Laboratory*, [www.nrel.gov/analysis/re\\_futures/](http://www.nrel.gov/analysis/re_futures/).

should be preferred. All need at least four obstacles to market growth removed by regulatory change or litigation:

1. Distributed energy firms should not be subject to unnecessary regulatory burdens such as the requirement to become certified utilities.
2. The owners of distributed energy generation facilities should be able to earn renewable energy credits and be paid a fair price for selling their electricity to the utility distribution firm. Alternatively, they should be able to sell renewable energy credits or delegate their right to sell electricity to a state Green Bank or another consortium.
3. Incumbent distribution utilities should only compete in this market through structurally separate subsidiaries, and the utilities must offer the same terms and conditions to rivals in DER.
4. In states where regulators allow distribution utilities to gain more profit if they sell more electricity (more profit by volume, not by increased margin), then the utility has an incentive to discourage firms from succeeding in their mission. The pro-competitive antidote is the regulatory measure called “decoupling,” where a distribution utility’s revenue is unlinked from the amount of throughput on its system. Only 17 states have adopted electricity decoupling.<sup>19</sup> Where decoupling does not exist, utilities will be reluctant to invest in efficiency or (more importantly) support the growth of efficiency markets since efficiency diminishes their revenue.

In some states, utilities and state regulators limit or hinder competition in behind-the-meter markets. In solar, utilities have moved to increase fixed charges for customers, reducing the incentive for customers to adopt solar or any technology that reduces energy consumption. A recent study found that increases to fixed charges or creation of bill minimums were proposed by at least 38 utilities across 19 states from 2013 through 2015.<sup>20</sup> Although some charges may be justified, any charge above long-run incremental cost is *prima facie* anticompetitive.

Utilities also follow varying standards for purchasing surplus electricity from distributed solar generation (a policy known as “net metering”). In the second quarter of 2016, 36 utilities across 24 states considered or enacted changes to net energy metering policies, and 15 states plus the District of Columbia formally examined or planned to examine the value of distributed generation or the costs and benefits of mandating net metering.<sup>21</sup> Moreover, some states change the standards with little or no notice, thus deterring competitive entry. After regulators in Nevada increased solar fixed charges and reduced payments for excess generation, new residential solar installations in the state fell 92 percent in the first quarter of 2016.<sup>22</sup> It is intrinsically anticompetitive for a utility to refuse to purchase solar power generated by a rooftop installation behind the meter. The price can and should be set at a reasonable and predictable

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<sup>19</sup> D. Sullivan and D. DeCostanzo. “Gas and Electric Decoupling,” *Natural Resources Defense Council*, 30 August 2014, [www.nrdc.org/resources/gas-and-electric-decoupling](http://www.nrdc.org/resources/gas-and-electric-decoupling).

<sup>20</sup> M. Wara, “Fostering Competition in the 21st Century Electricity Industry,” *Harvard Environmental Law Review* 40, no. 2 (2016): 41–48.

<sup>21</sup> J. Pyper, “42 States Took Policy Action on Distributed Solar in Q2 2016,” *Greentech Media*, 3 August 2016.

<sup>22</sup> M. Muro and D. Saha, “Rooftop Solar: Net Metering is a Net Benefit,” *The Brookings Institution*.

level.<sup>23</sup> In Florida and North Carolina, third-party ownership of solar panels is banned – effectively eliminating a form of competition in rooftop solar. Analysts consider the regulatory landscape for third-party ownership of behind-the-meter generation to be “unclear” in other states throughout the Southeast.<sup>24</sup> National competition is discouraged when rooftop solar firms face a patchwork of varying degrees of obstacles to entry.

Utility participation in behind-the-meter markets should also be rigorously reviewed. Currently, utilities are mandated to participate in energy efficiency markets in many states. Even in decoupled<sup>25</sup> regions, efficiency and other behind-the-meter programs rarely provide utilities with the opportunity for real earnings growth. This creates an incentive for utilities to create programs that go as far as required by regulatory mandate – but no further.<sup>26</sup> Utility spending on energy efficiency programs reached nearly \$6 billion in 2014, yet the savings achieved that year amounted to only 0.6 percent of total retail sales.<sup>27</sup> Achieving transformative reductions under such a system would require a massive expenditure of ratepayer money, resulting in onerous bills for consumers. Permitting downstream entry by utilities also creates an opportunity for monopolists to compete unfairly with independent efficiency installers.<sup>28</sup> Distribution utilities should not be able to leverage their natural monopoly so as to provide them advantages in competition in behind-the-meter markets.

Behind-the-meter markets need a level playing field where all rivals share such public goods as consumption information, access to the grid, billing functionality and access to capital. Although several states and municipalities have adopted energy data disclosure laws, in practice it is often difficult for building owners and energy service providers to access that data.<sup>29</sup> Data transparency is key for market actors to innovate. A consent decree obtained by the Department of Justice (DOJ) could assure that consumers are not abused by unfair practices. The DOJ would want to consider whether the distribution grid should be subject to open access rules similar to those for the bulk power grid – namely, with an independent system operator having operational control over the distribution grid.

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<sup>23</sup> For example, only 13 states credit at the retail rate with no expiration on credits. Meanwhile, 11 states compensate excess generation from solar at less than the retail rate. See DSIRE, “Customer Credits for Monthly Net Excess Generation (NEG) Under Net Metering July 2016.”

<sup>24</sup> RMI Outlet. “In the Southeast, Could Third-Party Ownership of Solar Power Be Taking Root?” *Rocky Mountain Institute*, 30 June 2015, [www.blog.rmi.org/blog\\_2015\\_06\\_30\\_southeast\\_third\\_party\\_ownership\\_of\\_solar\\_power](http://www.blog.rmi.org/blog_2015_06_30_southeast_third_party_ownership_of_solar_power).

<sup>25</sup> I.e., regions where regulators have unlinked distribution utility revenue from volume of electricity distributed.

<sup>26</sup> For more on the limits of conventional demand-side management programs, see Akin Gump White Paper: [www.akingump.com/images/content/3/0/v2/30870/ADSM-Regulatory-Equivalent-White-Paper-July-2014-FINAL.pdf](http://www.akingump.com/images/content/3/0/v2/30870/ADSM-Regulatory-Equivalent-White-Paper-July-2014-FINAL.pdf).

<sup>27</sup> American Council for an Energy-Efficient Economy, “The State Energy Efficiency Scorecard 2015,” [aceee.org/sites/default/files/pdf/state-sheet/2015/usa.pdf](http://aceee.org/sites/default/files/pdf/state-sheet/2015/usa.pdf).

<sup>28</sup> As the National Energy Marketers Association observed: [A]fter nearly two decades of experience with competitive retail markets, it is abundantly clear that the anti-competitive impacts of monopoly utility participation in competitive energy markets, be it for commodity supply or new energy-related value-added services as a [distributed energy resource] provider, is poor public policy, is not in the public interest and deters and discourages . . . private capital investment and technology innovation. “Comments of the National Energy Marketers Association on Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision,” [www.documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B929C1EFF-B6C6-4779-934A-23E5DA11D2%7D](http://www.documents.dps.ny.gov/public/Common/ViewDoc.aspx?DocRefId=%7B929C1EFF-B6C6-4779-934A-23E5DA11D2%7D).

<sup>29</sup> Barriers to data disclosure include limited visibility into legal liability, privacy concerns, and threats to the utility’s ability to monetize usage data. See “Freeing Energy Data,” *Abrams Environmental Law Clinic, University of Chicago*.

The federal government should consider urging that New York's REV plan, or its functional equivalent, be adopted in every state. The REV proceeding is taking steps to open up competition in behind-the-meter markets.<sup>30</sup> New York Public Service Commission chair Audrey Zibelman has stated that "NY's new regulatory compact demands that promotion of market-driven, clean-energy innovation is in front of and behind the meter."<sup>31</sup> Importantly, REV changes the compensation for distributed energy resources by looking at their "LMP+D" (or location-based marginal price plus distribution) value. This allows these resources to compete on that sought-after level playing field without incurring charges for the utility's generation and new utility capital expenditures. REV also articulates a pro-competitive approach to limiting utility participation in competitive markets except when the "principal effect is to facilitate the growth and operation of markets."<sup>32</sup> Utilities are further required to make data available to and easily shareable by customers and market participants at no cost.

As the Federal Trade Commission and others have noted in their comments on the REV proceedings, the REV plan calls on utilities themselves to be the operators of the new power platform, opening up the door to potential unfair competition. However, even with a proposed code of conduct governing utility actions in the new marketplace, incumbent monopolists stand to gain advantage simply because they are incumbents. Some commenters on the REV proceeding expressed concerns about utility participation in competitive markets and asked for an outright ban. It remains to be seen whether this is the right approach, but this type of innovation and experimentation should be looked at as a model that the federal government should insist all states use.

In order to incentivize states to adopt REV-like plans, the federal government should offer to reward pro-competitive actions by capitalization of state Green Banks. In states where such institutions have been created, evidence shows that combinations of public and private capital can drive investment in projects where private sector capital provides up to 90 percent of the financing.<sup>33</sup> Rooftop solar can be economically viable in most states, even without net metering. However, this requires that financing be offered at a sufficiently low interest rate,<sup>34</sup> such as one provided by a Green Bank. Access to financing quite simply makes the difference between a competitive market's expanding or shutting down, as has occurred in Nevada.

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<sup>30</sup> State of New York, Department of Public Service, "Developing the REV Market in New York: DPS Staff Straw Proposal on Track One Issues" (Aug. 22, 2014) ("Straw Proposal").

<sup>31</sup> Audrey Zibelman, Chair, NY PSC, "Reforming the Energy Vision," presentation to the New England Electric Restructuring Roundtable, June 27, 2014.

<sup>32</sup> See State of New York Public Service Commission's Order Adopting Regulatory Policy Framework and Implementation Plan, Issued Feb. 26, 2015. Criteria specified for utilities participating in DER market: "a) whether the service facilitates the growth and operation of markets; (b) whether there is already a third-party market for the service that adequately serves all sectors of the market; (c) whether utility economies of scale and/or existing utility expertise are likely to result in cost-effective stimulation of the market; (d) whether utility provision of the service is likely to prevent other providers from entering the market; and (e) the extent to which a utility has proposed placing shareholder funds at risk."

<sup>33</sup> The Connecticut Green Bank has achieved a ratio as high as 10 dollars of private investment for every dollar from the Green Bank; see [www.ctgreenbank.com/wp-content/uploads/2015/11/CEFIA\\_AR\\_2013-final-for-web.pdf](http://www.ctgreenbank.com/wp-content/uploads/2015/11/CEFIA_AR_2013-final-for-web.pdf)

<sup>34</sup> Coalition for Green Capital analysis.

## Distribution

*Goal: Create open access for electricity sellers to retail customers*

Clean power needs equal access to the grid in order to compete with consumers. As noted above, the electric industry remains vertically integrated in 35 states. In these markets transmission and distribution monopolies own generation. Even in restructured markets, many utilities deregulated generation affiliates. Although utilities are not allowed to purchase electricity from their own facilities that is above the cost of competing bids, utilities should not be tempted to favor utility-owned or affiliated generation companies.<sup>35</sup>

Creating independent organizations to oversee wholesale markets is the solution. FERC Order 2000 encouraged the voluntary formation of Regional Transmission Organizations (RTOs) to oversee the regional transmission grid. The Order further outlined the characteristics and functions that an entity must satisfy in order to become an RTO or independent service operator (ISO).<sup>36</sup> ISOs and RTOs ensure reliability and optimize supply and demand bids for wholesale electric power in all or portions of 33 states. This represents roughly 60 percent of the U.S. power supply.<sup>37</sup> These entities can create well-designed markets that send strong price signals and remove discrimination.<sup>38</sup> Where RTOs do not constitute a neutral platform for buying power at wholesale, FERC has tried to assure open access for competitive providers under its regulatory powers for the bulk power grid.<sup>39</sup> The DOJ has favored the ISO/RTO structure by insisting on it as a condition of certain mergers, such as in 2012 when it insisted that Entergy join an RTO and sell its transmission facilities to a third party.<sup>40</sup> The next president, with Congressional support, should establish in every state an RTO structure so that competitive generators can sell at wholesale in fair and open auctions.

The federal government can pursue this policy in multiple ways: requiring it as a condition of mergers, persuading state regulators to adopt competition, providing grants or loans to states to fund transitions to this policy. The government can seek a national rule by means of legislation. It can litigate against utilities and regulators that oppose or limit retail competition, taking on the state action doctrine as discussed in the introduction. In telecommunications reform, some state regulators proved to be tenacious advocates against the assertion of federal jurisdiction over various aspects of the communications platform. In the seminal case of *AT&T vs. Iowa Utilities Board*, 525 U.S. 366 (1999), the states lost 5–3, Justice Scalia writing

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<sup>35</sup> E.g., *Public Utility Commission of Texas*, 23 Tex. Reg. 5294 (May 22, 1998): “[T]here is a strong likelihood that a utility will favor its affiliates where these affiliates are providing services in competition with other, non-affiliated entities. . . . [In addition,] there is a strong incentive for regulated utilities or their holding companies to subsidize their competitive activity with revenues or intangible benefits derived from their regulated monopoly businesses.”

<sup>36</sup> United States. Federal Energy Regulatory Commission. “Regional Transmission Organizations (RTO)/Independent System Operators (ISO).”

<sup>37</sup> United States. Energy Information Administration. “About 60% of the U.S. Electric Power Supply Is Managed by RTOs,” [www.eia.gov/todayinenergy/detail.cfm?id=790](http://www.eia.gov/todayinenergy/detail.cfm?id=790).

<sup>38</sup> According to American Wind Energy Association staff, a well-designed market includes “fast sub-hourly generator dispatch, fast transmission scheduling, wind energy forecasting, and ancillary services markets to efficiently provide flexibility. And markets tend to be large balancing areas, which are a lot more efficient for accommodating variability.” See: [www.greentechmedia.com/articles/read/Ten-Years-in-Texas-Electric-Utility-Deregulation](http://www.greentechmedia.com/articles/read/Ten-Years-in-Texas-Electric-Utility-Deregulation).

<sup>39</sup> See *NY v FERC*, 535 U.S. 1 (2002), affirming FERC Order 888.

<sup>40</sup> United States Department of Justice, “Statement on Entergy Corp.’s Transmission System Commitments and Acquisition of KGen Power Corp.’s Plants in Arkansas and Mississippi,” 14 November 2012.

for the majority. The same result will occur, eventually, in the other electromagnetic wave industry: the power platform.

Consumers should be able to choose among retail electricity providers. Only 15 states and the District of Columbia have restructured their vertically integrated electric monopolies (i.e., split up generation and distribution) and offer consumers retail electricity choice.<sup>41</sup> Creating retail choice for consumers has not been a smooth ride in all states.<sup>42</sup> Seven states have suspended the breakup of the vertically integrated utility model,<sup>43</sup> while some restructured states have moved to limit competition in the wake of consumer complaints.<sup>44</sup> But Texas offers lessons on how to achieve positive outcomes. Texas created a renewable portfolio standard (RPS) at the same time it began opening the door to competition. Renewable power companies competed with one another, and retail customers were easily able to choose clean power. This led to the growth of rivals, like Green Mountain Energy, selling only clean power to retail consumers.

Today, the majority of customers in deregulated Texas markets opt to purchase their electricity from a competitive provider.<sup>45</sup> The state met its original RPS goal four years early, and renewable energy generation continued to soar. Electricity generated by wind now accounts for nearly 12 percent of all electricity consumption in Texas.<sup>46</sup> Retail choice does not guarantee clean energy growth. Indeed, Texas is a lead in energy-related carbon emissions. But combined with other policies to ensure fair pricing and grid access, consumer choice can deliver attractive outcomes to consumers.

## Generation and Transmission

*Goal: Create opportunity for clean energy suppliers to take market share*

Different types of electricity generation optimally provide electricity at low prices under various conditions. Obviously, at noon on a cloudless day, a solar panel generation firm will maximize its output at no additional incremental cost. A West Texas wind farm generates more electricity when a norther is blowing through the tower array. A coal-fired boiler incurs extra costs when it is shut down and then started up again. And so on. As a result, fair competition is best assured when generators can sell in auctions in order to adjust prices to ever-changing conditions. Auctions exist in all the RTOs and ISOs and should be used across the United States. Supply is sold in aggregate (injections) and bought at wholesale in aggregate (withdrawals) in these markets, although there can be different clearing prices for different locations on the relevant bulk power grid. The Electric Power Supply Association and others have noted

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<sup>41</sup> United States Energy Information Administration, "Status of Electricity Restructuring by State," [www.eia.gov/electricity/policies/restructuring/restructure\\_elect.html](http://www.eia.gov/electricity/policies/restructuring/restructure_elect.html).

<sup>42</sup> Common arguments against include concerns about higher prices and a lack of consumer protection, e.g., [www.energizingmichigan.org](http://www.energizingmichigan.org).

<sup>43</sup> Most notable of these negative experiences is the California electricity market manipulations of 2000–2001

<sup>44</sup> The New York PSC recently curtailed retail competition in the residential and small commercial markets; see Order Resetting Retail Energy Markets Establishing Further Process, Cases 15-M-0127, 12-M-0476, 98-M-1343 (February 23, 2016).

<sup>45</sup> United States Energy Information Administration, "State Electric Retail Choice Programs Are Popular with Commercial and Industrial Customers," 14 May 2012, [www.eia.gov/todayinenergy/detail.cfm?id=6250#tabs\\_RenewablesMaps-3](http://www.eia.gov/todayinenergy/detail.cfm?id=6250#tabs_RenewablesMaps-3).

<sup>46</sup> ERCOT. "ERCOT Quick Facts," 15 August 2016.

that this leads to transparent and nondiscriminatory markets. In turn, the real cost faced by the utility should translate to the price seen by the customer. This type of real-time pricing can provide environmental and economic benefits.<sup>47</sup> Rates that vary depending on a customer's usage and the overall level of demand on the system (so-called demand charges) should be adopted in all markets. These charges will send the correct price signal to consumers and create massive markets for energy efficiency and storage. A demand-based tariff structure will increase the utilization of the grid by better matching power supply and demand, reducing the need for excess power plant capacity.

Contract length is another issue for providing consumers with more renewable energy generation. Regulators in Idaho, for example, recently approved a utility request to reduce the length of negotiated renewable energy contracts from 20 years to just two years. Renewable developers say this will have an adverse impact on clean energy growth in the state, while utilities say that longer contracts lead to higher prices.<sup>48</sup> The correct answer may vary from state to state, but promoting competitive entry by clean power producers should be the guideline everywhere.

The vast majority of states also currently give preferential treatment to "locally made" renewables in complying with RPS goals.<sup>49</sup> This is not only an apparent violation of the Commerce Clause, but it also makes clean energy more expensive for in-state consumers. The federal government should challenge these limitations.

In addition, new transmission lines can bring more clean energy to consumers. As recently as 2011, over 4,000 MW of wind power in Texas needed to be "curtailed" (i.e., idled) because the grid was unable to transport that energy to where it was needed. In response to this challenge, the Public Utility Commission established five "competitive renewable energy zones" with high wind power potential and authorized a series of transmission projects to allow 18,500 MW of wind power to flow from these zones to the rest of the state. As these projects have been completed, the amount of wind curtailment in Texas has fallen dramatically.<sup>50</sup> New York is similarly planning an "energy highway," which will better connect clean hydropower with downstate energy consumers.<sup>51</sup> Identifying these regions and providing low-cost financing should be a goal. This can help alleviate the long wait time and high costs imposed on generators to access existing transmission. Early indicators suggest that FERC Order 1000 is having the intended impact of making planners work together across regions. To further this, FERC should, as America's Power Plan recommends, build on Order 1000 to prioritize transmission that delivers renewable energy.<sup>52</sup> Transmission companies everywhere should be required to compete to build transmission based upon

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<sup>47</sup> Amir-Hamed Mohsenian-Rad, and Alberto Leon-Garcia, "Optimal Residential Load Control with Price Prediction in Real-Time Electricity Pricing Environments." *IEEE Transactions on Smart Grid* 1.2 (2010): 120–133.

<sup>48</sup> R. Walton, "Idaho Regulators Reduce PURPA Contracts from 20 to 2 years," *Utility Dive*, 25 August 2015, [www.utilitydive.com/news/idaho-regulators-reduce-purpa-contracts-from-20-to-2-years/404518/](http://www.utilitydive.com/news/idaho-regulators-reduce-purpa-contracts-from-20-to-2-years/404518/)

<sup>49</sup> H. Reiter, "Removing Unconstitutional Barriers to Out-of-State and Foreign Competition from State Renewable Portfolio Standards," *Energy Law Journal* 36 (2015): 4–68.

<sup>50</sup> United States. Energy Information Administration, "Fewer Wind Curtailments and Negative Power Prices Seen in Texas after Major Grid Expansion," [www.eia.gov/todayinenergy/detail.cfm?id=16831#tabs\\_SpotPriceSlider-1](http://www.eia.gov/todayinenergy/detail.cfm?id=16831#tabs_SpotPriceSlider-1)

<sup>51</sup> Although these plans have faced local opposition due to siting and other issues, for example: [www.politico.com/states/new-york/albany/story/2015/02/key-component-of-cuomo-energy-highway-stalls-019547](http://www.politico.com/states/new-york/albany/story/2015/02/key-component-of-cuomo-energy-highway-stalls-019547).

<sup>52</sup> John Jimison and Bill White. "Transmission Policy: Planning for and Investing in Wires," *America's Power Plan*, [www.americaspowerplan.com/wp-content/uploads/2013/09/APP-TRANSMISSION-PAPER.pdf](http://www.americaspowerplan.com/wp-content/uploads/2013/09/APP-TRANSMISSION-PAPER.pdf).

proposed cost of capital. By funding in whole or in part new or upgraded transmission, government can also enable new sources of renewable generation to compete in the bulk power market while at the same time reducing the retail price of electricity. Finally, breaking up vertically integrated utilities will remove opposition from utilities who do not want additional generation competition.

## Transportation

*Goal: Enable consumers to drive miles without using gas or to use less gas per mile driven*

The goal for transportation markets is to enable consumers to drive miles without using gas or to use less gas per mile driven. There is little point to subsidizing the purchase of an electric vehicle that is hardly ever used.

A network of electric vehicle (EV) charging stations that is located so as to maximize use and minimize cost would be most conducive to EV growth. In California, utilities are being allowed to invest ratepayer money into owning EV charging infrastructure. This should be prohibited for all the reasons discussed above. But if the charging station grid is net present value negative, then the argument for creating a competitive market to build such grids is weak.

In addressing this issue, the federal government should copy the method by which the Federal Communications Commission (FCC) initially approached the cell phone industry. The first cell phones were large and expensive and had no network to use. The FCC licensed two network licenses in every geography. Firms built on the geographies that had the greatest demand. The logic was to offer service where it was going to be most valued.

Similarly, the federal government should choose an agency and authorize that entity to award by auction a single license for the charging station grid in every major metropolitan market. The license should require build-out of a charging station network in a timely manner, say two years, and a guaranteed, bonded promise to provide electricity at a preset price. The license should describe the minimum network build desired to provide enough service for the market.

Presumably, the auction bidders will ask to be paid rather than offering to pay for the right to build charging stations. In either event, the winner of the auction will either pay the most or ask for the least from the government. The Coalition for Green Capital has studied this issue for New York State and concluded that the costs of installing and operating a charging station grid are unlikely to recoup from selling electricity.<sup>53</sup> Our study found that Level 3 charging stations (so-called fast chargers) are net present value negative under any set of realistic assumptions. A small number of discrete geographical markets (e.g., 10) should be auctioned as an experiment – cellular networks were similarly built in just a few markets in trial phases. The FCC is very experienced in this sort of testing rollout of networks. The White House can play a critical role in setting up these early auctions.

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<sup>53</sup> Coalition for Green Capital, “Review of New York State Electric Vehicle Charging Station Market and Policy, Finance, and Market Development Solutions,” [www.nyserda.ny.gov/-/media/Files/Publications/Research/Transportation/2015-10-EV-Charging-Stations-Financing.pdf](http://www.nyserda.ny.gov/-/media/Files/Publications/Research/Transportation/2015-10-EV-Charging-Stations-Financing.pdf).

As a requirement, the charging station grids should provide equal access to all competing vehicles (i.e., be interoperable). This will promote the most robust market for electric vehicles. In a similar vein, all subsidy programs should provide equal opportunities for firms to compete in substituting for gas miles driven.

## Lessons from Telecom

The state of energy markets reminds us of the situation in telecommunications in the 1970s. The local telephone company extended its distribution monopoly (think of the telephone lines on the pole outside the house) to monopolize the long distance market. The local telephone company tried to limit competition in devices that connected to its network, such as the telephone itself.

The DOJ filed a lawsuit in 1974 against AT&T, the dominant local telephone and long distance company, challenging its monopoly over the long distance and telephone equipment industries (Western Electric). After the Reagan administration came into office, the head of the antitrust division, Bill Baxter, pursued the litigation aggressively, and AT&T was split into long distance and multiple local telephone companies under a consent decree in 1982.<sup>54</sup> That move then led to various state reforms culminating in the national paradigm of competition in both local and long distance markets as prescribed by the 1996 Telecommunications Act, passed on an overwhelming bipartisan vote. Seeing opportunity in competing in previously closed markets and in newly created markets like wireless and internet access, private investors poured about \$1 trillion into building a new information platform that was composed of digital and wireless technologies in large part. That new platform has almost totally replaced the old fixed line telephone system. Because consumers elected faster, better and cheaper solutions, the move from the old to the new platforms occurred at exciting speed, to general plaudits among the public. That is the history that can and should be emulated.

## Conclusion

It is appealing for some to depend on distribution monopolies to lead the way to the clean energy platform. Those who look to the utilities for leadership in moving to the new clean power platform may be especially sympathetic to the notion that each state presents different economic and social issues. Or they may be suspect of the efficacy and consistency of federal intervention. Perhaps they believe command-and-control regulation imposed on utilities is the fastest way to reduce emissions.

Certainly no one can deny that distributions monopolies are likely to continue to exist if they are distributing clean energy or carbon-generated electricity. They have access to reasonably low-cost capital. They can recover their costs under their state-run regulatory regimes.

However, the right economic policy is to deliver not just clean energy but also the lowest priced energy solution. Efficiency measures may lower price; so too innovation in generation may lower price. The goal is to obtain the lowest price for the economy including consideration of the cost of the dreadful externality of climate change and other atmospheric and environmental harm.

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<sup>54</sup> J. Pinheiro, "AT&T Divestiture & the Telecommunications Market," *High Technology Law Journal* 2.2 (1987): 303–355.

Innovation and choice are the two trustworthy mechanisms to achieve this goal. Moreover, if clean power is not affordable, then the move to the new clean power platform will run into consumer resistance, be subject to political opposition and take longer than if consumers can clamor for it in the marketplace.

And one thing more: competition produces unpredictable breakthroughs that monopolies are rarely geared to introduce. New entrants think of ways to make existing goods and services in new and different ways, or new goods and services that provide previously unknown value propositions. They conceive of goods and services not yet in any market. Regulators cannot issue commands to adopt what does not exist. So depending purely on command-and-control regulation to cause the transformation of the existing carbon power platform to a clean power platform will likely preclude the new new thing, the renewable wonder, and the efficiency miracle, from having a market in which to sell. The existing power platform will be entrenched, and the breakthroughs that could hasten the change in platforms will not materialize in time to meet the challenge of climate change.

Competition, in any case, is integral to the American market system. Economic experts have increasingly focused on monopoly's cost to the economy.<sup>55</sup> It is thought to contribute to secular stagnation. More than that, it forecloses those who are young or young at heart from trying to change that world. That alone is a reason to adopt a competition policy in all power markets.

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<sup>55</sup> For example, see J. Schmitz Jr., "The Costs of Monopoly: A New View," *The Minneapolis Fed*, [www.minneapolisfed.org/publications/the-region/the-costs-of-monopoly-a-new-view](http://www.minneapolisfed.org/publications/the-region/the-costs-of-monopoly-a-new-view).