

## 1-Click Energy: Managing Corporate Demand for Clean Power

Gina S. Warren

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## 1-CLICK ENERGY: MANAGING CORPORATE DEMAND FOR CLEAN POWER

GINA S. WARREN\*

### ABSTRACT

*Globally, more private businesses, especially Fortune 100 companies are generating their own electricity, investing in renewable energy facilities, and voluntarily purchasing renewable energy credits to cover their carbon footprints. This shift could have a significant impact on the existing energy delivery system. On the one hand, this shift shows positive momentum toward the incorporation of clean energy into a fossil fuel dominated grid. As the negative impacts of climate change accelerate around the globe, decreasing reliance on fossil fuels is certainly an important goal. On the other hand, corporate disruption of what has historically been a highly regulated public service industry could result in a slippery slope of market power and loosened consumer protections, lost profits and stranded costs for utilities, and increased utility bills for the remaining customers. This Article recommends changes to the current regulatory scheme that would (1) go further to protect customers from multinational corporate wholesale sellers of electricity and (2) allow utilities to plan and collaborate earlier with large corporate customers to meet their clean energy demands.*

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\* Gina S. Warren is the George Butler Research Professor of Law and Associate Professor of Law at the University of Houston Law Center. Special thanks to Michael Vandenberg and Darren Bush for reading and commenting on an early draft. Thanks also to Vermont Law School for its annual colloquium on environmental scholarship and to the University of Houston Law Center for its North American EENR Symposium. Finally, a special thanks to my amazing research assistants, Grace Hearn and Samin Agha, for their contributions to this piece.

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## I. INTRODUCTION

Corporate demand for clean energy skyrocketed in recent years. This demand for clean energy could very well be the catalyst the renewable energy industry needs to push it beyond fossil fuels. Unfortunately, public utility companies are not as nimble as private corporations would like them to be, and they have not always been able to respond to this increased demand. As a result, multinational companies, like Apple and Google, are either generating their own energy or entering the energy market themselves.

This shift could have a significant negative impact on the existing energy delivery system and a regulatory framework that is not equipped to deal with massive, multi-market companies entering the industry. When Thomas Edison flipped the switch at his Pearl Street station on September 4, 1882, lighting 400 light bulbs,<sup>1</sup> little could he have known that, one day, technology would advance so far to allow people to speak to each other from different parts of the planet. The leaps and bounds made in technology over the last 136 years are just that huge. In the same way that Edison could not have imagined future technology, state and federal regulatory commissions could not have anticipated the rapidly emerging new technologies and societal demands presented by multinational corporate entities. This Article discusses

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1. LINCOLN L. DAVIES ET AL., ENERGY LAW AND POLICY 291 (2015).

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the corporate demand for clean power and recommends how the Federal Energy Regulatory Commission (“FERC”) and state public utility commissions can update their regulatory framework to better manage that demand.

Part II of this Article explores the increasing corporate demand for clean energy and the emergence of private corporations, such as Apple and Google, onto the energy landscape. In August 2016, Apple Energy LLC (“Apple Energy”) received federal approval to sell wholesale electricity into the national grid.<sup>2</sup> Prior to that, Google Energy received approval to do the same.<sup>3</sup> Globally, we see more private businesses, especially Fortune 100 companies, generating their own electricity, investing in renewable energy facilities, and voluntarily purchasing renewable energy credits to cover their carbon footprint.

While multiple reasons likely factored into the shift toward self-generation, one reason may be that utilities are unable to supply the amount of renewable energy now in demand, leaving corporations to come up with creative means to meet their corporate social responsibility goals and the market demands of millennials who are seeking sustainable products. Regardless of the reasons, the energy delivery landscape will change significantly as more and more businesses self-generate. This change can be positive, as it adds much needed renewable energy. The concern, however, is the private disruption of what has historically been a highly regulated public service industry, potentially resulting in a slippery slope of market power and a potential lack of consumer protection.

As large multinational corporations, like Apple and Google, seek to sell electricity, FERC, the agency in charge of regulating wholesale energy sales, will need to implement more protective measures to ensure consumers are charged reasonable and nondiscriminatory rates for electricity and energy products. Part III explains FERC’s current rule, which allows multinational corporations to use market-based rates in setting customer rates for electricity or energy products, so long as they do not own or control (that is, so long as they do not have market power) over a certain amount of electricity within any given region. This is called the “horizontal market power rule.” Further, Part III recommends FERC redefine market power to include market power *in any industry*, not just in industries regulated by FERC.<sup>4</sup> FERC has the exclusive authority to regulate wholesale sales of electricity and an obligation to ensure that customers are protected and not manipulated by those sales.<sup>5</sup>

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2. Aaron Pressman, *Solar Power from Apple Could Light Up Your Home*, FORTUNE (Aug. 4, 2016), <http://fortune.com/2016/08/04/apple-approval-solar-electricity/>.

3. See Candace Lombardi, *Google Gets Go-Ahead to Buy, Sell Energy*, CNET (Feb. 19, 2010, 6:38 AM), <https://www.cnet.com/news/google-gets-go-ahead-to-buy-sell-energy/>.

4. FERC’s regulatory authority generally includes hydropower, wholesale electricity generation, liquefied natural gas projects, and interstate transmission of electricity, natural gas, and oil. See *What FERC Does*, FERC, <https://www.ferc.gov/about/ferc-does.asp> (last updated Aug. 14, 2018).

5. *Id.*

It may establish whatever rule is appropriate to effectuate this congressional mandate. Recent case law affirms that in fulfilling its statutory obligations, FERC should also consider relevant factors that are outside of its regulatory control, such as whether the applicant holds market power in another industry it could use to manipulate and discriminate against energy customers.<sup>6</sup>

Part IV discusses the stress corporate demand for, or independent development of, clean energy places on existing retail regulatory frameworks. If large corporate customers leave, utilities could be left with lost profits and stranded costs, which could then be filtered down to the remaining customers, resulting in higher utility bills for everyone. However, this also provides an opportunity for regulators to change how utilities plan and collaborate with their customers, so that they can be responsive to clean energy demands.

As the negative impacts of climate change accelerate around the globe,<sup>7</sup> the goal of decreasing reliance on fossil fuels is certainly an important one. Part V concludes that the corporate demand for clean energy could very well be the catalyst that propels clean energy into the spotlight. Large multinational corporations have the means and motive to ensure their products are offered through an environmentally friendly, clean energy manner. This is the future with customers, shareholders, and investors demanding no less. The goal, however, is to do so in a way that protects the end consumer from unreasonable costs associated with either market manipulation or utility lost profits.

## II. THE CORPORATE DEMAND FOR CLEAN ENERGY

This Part analyzes the ever-increasing corporate demand for clean energy and some of the drivers for this demand, including consumer and investor expectations.<sup>8</sup> This Part also discusses how this corporate demand is outpacing utility supply and how corporations are acting to generate their own renewable energy outside of the historical utility supply structure.<sup>9</sup>

### A. *Corporate Renewable Energy Goals and Incentives*

Influential global companies are increasingly demanding access to clean energy. According to one report, 23% of new wind capacity in the United States is built for non-utility, private businesses.<sup>10</sup> In 2015 alone, over 300

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6. See *Sierra Club v. FERC (Southeast Market Pipelines Project)*, 867 F.3d 1357, 1376 (D.C. Cir. 2017).

7. See Alina Bradford & Stephanie Pappas, *Effects of Global Warming*, LIVE SCI. (Aug. 12, 2017, 9:12 AM), <https://www.livescience.com/37057-global-warming-effects.html>.

8. See *infra* Section II.A.

9. See *infra* Section II.B.

10. LeRoy C. Paddock & Max Greenblum, *Community Benefit Agreements for Wind Farm Siting in Context*, in SHARING THE COSTS AND BENEFITS OF ENERGY AND RESOURCE ACTIVITY:

billion euros were globally invested in clean energy,<sup>11</sup> and as of the writing of this Article, corporate buyers have purchased some 19 gigawatts (“GW”)<sup>12</sup> of renewable energy.<sup>13</sup> While multiple reasons can contribute to this shift, observable trends are those within large multinational corporations that have established corporate social responsibility initiatives to meet consumer and investor expectations.

Voluntary corporate social responsibility initiatives<sup>14</sup> appear to be playing a big role in increasing private generation (and consumption) of renewable energy, with major companies seeing an economic advantage to taking on more leadership roles for climate control measures. According to one study, 60% of Fortune 100 companies and 43% of Fortune 500 companies have some sort of green energy goals or initiatives.<sup>15</sup> For example, Apple, Bloomberg, Coca-Cola Enterprises, Equinix, GM, Goldman Sachs, Google, H&M, HP Inc., IKEA, ING, Johnson&Johnson, Microsoft,<sup>16</sup> Nestle, Nike,

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LEGAL CHANGE AND IMPACT ON COMMUNITIES 155, 156 (Lila Barrera-Hernández et al. eds., 2016) (citing Emily Williams, *Top Trends for Wind Power in 2014*, INTO THE WIND (Apr. 15, 2015), <http://www.aweablog.org/ten-top-trends-for-wind-power-in-2014/>).

11. *Commission Proposes New Rules for Consumer Centred Clean Energy Transition*, EUROPEAN COMM’N (Nov. 30, 2016), <https://ec.europa.eu/energy/en/news/commission-proposes-new-rules-consumer-centred-clean-energy-transition>.

12. How much power is 1 gigawatt? According to the U.S. Department of Energy, it is enough to power Doc’s DeLorean from *Back to the Future* or 100 million LED lights (light-emitting diodes) or 9,090 Nissan Leafs. See *How Much Power Is 1 Gigawatt?*, OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY (Aug. 9, 2018), <https://www.energy.gov/eere/articles/how-much-power-1-gigawatt>.

13. Angus McCrone, *McCrone: Companies Buying Green Power—How Big a Trend?*, BLOOMBERG NEF (Apr. 20, 2017), <https://about.bnef.com/blog/companies-buying-green-power-big-trend/>.

14. Corporate social responsibility can be defined in many ways, but the 3P business model encourages social responsibility initiatives that focus on “people, planet and profit.” Arlette Measures, *What Is a 3P Triple Bottom Line Company?*, HOUS. CHRON, <http://smallbusiness.chron.com/3p-triple-bottom-line-company-4141.html> (last visited Sept. 24, 2018).

15. WORLD WILDLIFE FOUND. ET AL., *POWER FORWARD 2.0: HOW AMERICAN COMPANIES ARE SETTING CLEAN ENERGY TARGETS AND CAPTURING GREATER BUSINESS VALUE* 9 (2014), <https://www.ceres.org/sites/default/files/reports/2017-05/PowerForward2.0.pdf>; see RE100, *GROWING MARKET DEMAND FOR RENEWABLE POWER: RE100 ANNUAL REPORT 2* (2016), [http://media.virbcdn.com/files/f9/d6e716c56a9b3312-RE100AnnualReport2016\\_v17.pdf](http://media.virbcdn.com/files/f9/d6e716c56a9b3312-RE100AnnualReport2016_v17.pdf) (“There are now an increasing number of companies, investors, cities and citizens that have set renewable power targets and this is driving change in the market place. Electricity utilities and policymakers now need to consider the source of electricity that is wanted—not just the quantity, location or timing.”).

16. Microsoft is also currently partnering with the University of Texas to research means for their data centers to become battery-powered. Kristen Mosbrucker, *Electricity Gap: Microsoft Taps UTSA, Energy Companies to Bridge Data-Center Divide*, SAN ANTONIO BUS. J. (Aug. 12, 2016), <https://www.bizjournals.com/sanantonio/news/2016/08/11/electricity-gap-microsoft-taps-utsa-energy.html>.

Philips, SAP, Starbucks, TD Bank Group, UBS, and Walmart<sup>17</sup> have voluntary corporate social responsibility initiatives committed to only using renewable electricity for business activities and increasing the demand and access to renewable energy around the globe.<sup>18</sup> Many of these corporations have also joined RE100,<sup>19</sup> a collaborative of businesses committed to a sustainable future through renewable electricity.<sup>20</sup> While they each have varying goals, these companies all made commitments to become 100% renewable by a certain date.<sup>21</sup> Some companies already reached the 100% renewable energy goal; however, the average RE100 company is only about 50% of the way there. Average RE100 companies are projected to reach 80% by 2020.<sup>22</sup>

Companies with corporate initiatives to consume their energy and electricity from renewable sources cite several reasons for this target, including:

- To reduce their carbon footprint—in some cases, companies have specifically set science-based targets to map their greenhouse gas emissions reductions, and switching to renewable energy is part of that strategy[;]
- To secure stable energy bills and mitigate fluctuating or uncertain medium to long-term energy costs[;]
- To realize cost savings associated with generating power from renewables—particularly wind and solar[;]
- To gain cost benefits of onsite combined heat and power plants—particularly where there is a low or no-cost waste or biomass feedstock[;<sup>23</sup>and]

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17. See *Companies*, RE100, <http://there100.org/companies> (last visited Feb. 15, 2018).

18. RE100, *supra* note 15, at 2–4; see RE100, *supra* note 17.

19. See RE100, *supra* note 17.

20. RE100, *supra* note 15, at 2–3. “The private sector accounts for around half of the world’s electricity consumption. Switching this demand to renewables will accelerate the transformation of the global energy market and aid the transition to a low carbon economy.” *The World’s Most Influential Companies, Committed to 100% Renewable Power*, RE100, <http://there100.org/re100> (last visited Feb. 15, 2018).

21. RE100, *supra* note 15, at 4. Companies are also looking to encourage their supply chain to incorporate renewable energy directives. *Id.* at 6.

22. *Id.* at 12–15. Businesses from all sectors have shown an interest in renewable energy consumption/generation; however, the information communications and technology sector is leading the way. The businesses in this sector are nearly two-thirds of the way to meeting their goals. *Id.* at 5. For example, “Apple, Facebook, Google and Microsoft . . . have all built ultra-efficient data [centers] powered with renewable energy to green their images.” Stephen Lacey, *Why Big Data Is Going Green*, CORP. KNIGHTS (Apr. 9, 2014), <http://www.corporateknights.com/channels/connected-planet/why-big-data-is-going-green-13970577/>. This is not surprising given the significant amount of energy required for data centers and cloud computing, as well as their corporate brands promoting sustainability. RE100, *supra* note 15, at 7.

23. “A feedstock is defined as any renewable, biological material that can be used directly as a fuel, or converted to another form of fuel or energy product. Biomass feedstocks are the plant and algal materials used to derive fuels like ethanol, butanol, biodiesel, and other hydrocarbon fuels.”

- To access a more reliable electricity supply in areas where there is no or intermittent grid electricity.<sup>24</sup>

In addition to these reasons, however, studies show that a major driver for corporate renewable energy initiatives is customer and investor expectation. An overwhelming percentage of customers (some 80%) believe corporations should engage in social initiatives and those initiatives would be financially beneficial for the corporation.<sup>25</sup> Multiple social science studies show a link between corporate social initiatives and positive consumer response with improved financial performance.<sup>26</sup> The most effective initiatives, however, are those that closely parallel the firm's brand and image.<sup>27</sup> Customers expect corporations to engage in sincere social responsibility and will punish those perceived to be insincere, reactive, or acting only in their self-interest.<sup>28</sup> Customers may also punish corporations who stay silent or fail to act when customers have an expectation (based on image and brand) that the corporation will act.<sup>29</sup> This appears to be particularly true when it comes to millennials.

According to a 2015 market study conducted by Morgan Stanley, millennials—and especially female millennials—care significantly more about sustainability than their predecessors.<sup>30</sup> With a whopping 84% of the millennial investors identifying sustainability as an important factor when making living and investment decisions,<sup>31</sup> businesses like Apple and Google are taking notice.<sup>32</sup> According to the report, millennials—as compared to the general population—are:

- Nearly three times more likely to seek employment with a company because of its stance on social and/or environmental issues . . . [;]

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*Biomass Feedstocks*, OFFICE OF ENERGY EFFICIENCY & RENEWABLE ENERGY, <https://www.energy.gov/eere/bioenergy/biomass-feedstocks#Top> (last visited Aug. 21, 2018).

24. RE100, *supra* note 15, at 4.

25. Karen L. Becker-Olsen et al., *The Impact of Perceived Corporate Social Responsibility on Consumer Behavior*, 59 J. BUS. RES. 46, 52 (2006).

26. *Id.* at 47 (citing numerous studies).

27. *Id.* at 49.

28. *Id.* at 46.

29. Daniel Korschun, *Staying Politically Neutral Is More Dangerous for Companies than You Think*, CONVERSATION (Feb. 5, 2017, 11:56 PM), <http://theconversation.com/staying-politically-neutral-is-more-dangerous-for-companies-than-you-think-72252>.

30. MORGAN STANLEY INST. FOR SUSTAINABLE INVESTING, SUSTAINABLE SIGNALS: THE INDIVIDUAL INVESTOR PERSPECTIVE 1 (2015) [hereinafter MORGAN STANLEY], [https://www.morganstanley.com/sustainableinvesting/pdf/Sustainable\\_Signals.pdf](https://www.morganstanley.com/sustainableinvesting/pdf/Sustainable_Signals.pdf). Interestingly, women investors are “substantially more likely” than men investors to care about sustainability when making investment decisions. *Id.*

31. *Id.* at 4.

32. Pressman, *supra* note 2; see Candace, *supra* note 3.

- Nearly twice as likely to purchase from a brand because of the company's social and/or environmental impact . . . [;]
- Nearly twice as likely to check product packaging to ensure sustainability . . . [;]
- Nearly twice as likely to invest in companies or funds that target specific social or environmental outcomes . . . [;]
- Nearly twice as likely to invest in companies or funds that aim to use environmental, social, or governance practices to create a value differentiator . . . [; and]
- Over twice as likely to exit an investment position because of objectionable corporate activity . . . .<sup>33</sup>

By 2020, one-third of the United States' adult population will be comprised of millennials,<sup>34</sup> who are projected to spend \$1.4 trillion annually.<sup>35</sup> This is important when reconciled with another study that found, globally, nearly three in four millennials are willing to pay more for sustainable products and services.<sup>36</sup> Millennials are looking for fresh organic ingredients, environmentally friendly services, and companies who share their commitment to social values.<sup>37</sup> They are image-conscious with their work and personal life, and they are willing to sacrifice or pay more to be associated with a company who represents their ideals.<sup>38</sup> Furthermore, millennials are more electronically aware and connected than any previous generation. They are heavy users of technology, portable devices, and social media and are greatly influenced by those interactions.<sup>39</sup> Prudent companies, aware of these market preferences, will compete for their business and look to accommodate these consumer, investor, and work preferences.<sup>40</sup> Electricity generation provides a good example of this shifting landscape. One article title summed it up

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33. MORGAN STANLEY, *supra* note 30, at 4.

34. *Id.*

35. CHRISTOPHER DONNELLY & RENATO SCAFF, ACCENTURE, WHO ARE THE MILLENNIAL SHOPPERS? AND WHAT DO THEY REALLY WANT?, <https://www.accenture.com/mz-en/insight-outlook-who-are-millennial-shoppers-what-do-they-really-want-retail> (last visited Sept. 15, 2018).

36. *Green Generation: Millennials Say Sustainability Is a Shopping Priority*, NIELSEN (Nov. 5, 2015), <http://www.nielsen.com/us/en/insights/news/2015/green-generation-millennials-say-sustainability-is-a-shopping-priority.html>.

37. *The Sustainability Imperative*, NIELSEN (Oct. 12, 2015), <http://www.nielsen.com/us/en/insights/reports/2015/the-sustainability-imperative.html>.

38. CHRISTINE BARTON ET AL., BCG, HOW MILLENNIALS ARE CHANGING THE FACE OF MARKETING FOREVER (2014), <https://www.bcg.com/publications/2014/marketing-center-consumer-customer-insight-how-millennials-changing-marketing-forever.aspx>.

39. *Id.* "Millennials identify with brands more personally and emotionally than do older generations. Fifty percent of U.S. [m]illennials ages 18 to 24 and 38[%] of those ages 25 to 34 agree that brands 'say something about who I am, my values, and where I fit in.'" *Id.*

40. MORGAN STANLEY, *supra* note 30, at 4 ("As [m]illennials begin to accumulate more wealth and invest accordingly, their perceptions of sustainability are likely to have a significant impact on the financial services sector.").

quite well: “Millennials want solar, storage, shared energy—and an app for all that.”<sup>41</sup>

### *B. The Shift to Corporate Generation of Renewable Energy*

The challenge for corporations is finding a way to fulfill their renewable energy goals and satisfy consumer and investor expectations. Their options include purchasing utility-scale renewable energy, purchasing renewable energy credits or certificates,<sup>42</sup> entering into power purchase agreements (“PPAs”)<sup>43</sup> for wind, solar, and hydropower, or installing their own renewable energy generating facilities (self-generation).<sup>44</sup> As discussed in great detail in Part IV, most companies prefer to purchase their renewable energy directly from their local utility company; however, utilities are unable to meet the increased demand.<sup>45</sup> So, while corporations do not want to enter into PPAs or self-generate, “the lack of responsiveness from utilities in some regions has forced them to do exactly this,” and unless the power sector can find “more proactive and creative solutions,” it may be the wave of the future.<sup>46</sup>

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41. Sophie Vorrath, *Millennials Want Solar, Storage, Shared Energy—And an App for All That*, ONE STEP OFF THE GRID (Aug. 17, 2016), <https://onestepoffthegrid.com.au/millennials-want-solar-storage-shared-energy-app/>. According to this study, millennials expect renewable energy consumption and an application to control their energy profiles that allows for sharing opportunities. *Id.* Globally, over half of all millennials said they would invest in their own renewable energy, such as solar panels, in the next five years; and of them, 73% wanted to share any excess power with other consumers and 77% would use onsite battery storage. *Id.* This interest in battery energy storage is related to millennials’ desire to be portable. Historically, home energy delivery management was developed for homeowners. Millennials, however, are less likely and less interested in owning homes. Instead, they want to be in control of their energy consumption on an individual basis. See Bruce Eric Anderson, *Honeywell Introduces Home Energy Management Software for Utilities to Enhance Grid Stability, Help Homeowners Lower Energy Bills*, HONEYWELL (Jan. 31, 2017), <https://www.honeywell.com/newsroom/pressreleases/2017/01/honeywell-introduces-home-energy-management-software-for-utilities-to-enhance-grid-stability-help-homeowners-lower-energy-bills>.

42. One renewable energy credit (or certificate) generally represents 1 megawatt hour (“MWh”) of electricity generated by a renewable energy source. See DAVIES ET AL., *supra* note 1, at 485–86. While anyone can purchase a renewable energy credit (generally to offset the amount of energy consumed), renewable energy credits were historically used by a utility company to meet state renewable energy requirements, instead of actually generating the renewable energy itself. See *id.*

43. A PPA is a long-term financial agreement between two parties, one which generates electricity (the seller) and one which is looking to purchase electricity (the buyer) to assist in financing the energy project. See *Power Purchase Agreements*, RENEWABLE CHOICE ENERGY, <https://www.renewablechoice.com/services/power-purchase-agreements/> (last visited Aug. 21, 2018).

44. RE100, *supra* note 15, at 12–15.

45. *Id.* at 7.

46. *Id.*

Further, purchasing renewable energy credits has fallen out of favor because it does not guarantee that renewable energy is displacing fossil fuel energy, only that a credit is being purchased. *Forbes* ran an article, in June 2016, outlining Apple's history and what may have played into its decision to join the energy business.<sup>47</sup> According to the article, Apple was one of the first of the world's largest companies to commit to 100% renewable energy.<sup>48</sup> Apple already claims 93% of its global energy consumption comes from renewable resources.<sup>49</sup> One way Apple achieved 93% is by purchasing renewable energy credits or certificates.<sup>50</sup> The article points out, however, "a company cannot claim to be 100% renewable while relying entirely on grid power," especially in the United States where two-thirds of the grid is still powered by fossil fuels.<sup>51</sup> Most companies dedicated to green energy see purchasing offsets as a short-term band-aid. They see it as a bridge to meet their targets until they can implement more permanent solutions like PPAs and on-site renewable energy generation.<sup>52</sup>

As a result, many companies have entered into PPAs with independent power producers to secure their renewable power.<sup>53</sup> For example, Microsoft signed two PPAs for wind energy in Texas that generate up to 100 megawatts ("MW") annually;<sup>54</sup> and Adobe, which has a goal of 100% renewable energy

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47. Tim Healy, *Why Apple Energy is a Wake-Up Call for Businesses*, FORBES (June 16, 2016), <http://www.forbes.com/sites/energysource/2016/06/16/why-apple-energy-is-a-wake-up-call-for-businesses/#6f799a4a3b7d>.

48. *Id.*

49. APPLE, ENVIRONMENTAL RESPONSIBILITY REPORT: 2016 PROGRESS REPORT, COVERING FISCAL YEAR 2015, at 9 (2016), [http://images.apple.com/environment/pdf/Apple\\_Environmental\\_Responsibility\\_Report\\_2016.pdf](http://images.apple.com/environment/pdf/Apple_Environmental_Responsibility_Report_2016.pdf).

50. *Id.* at 12. Apple is not alone in this claim. SAP (a German company) claims offset of its entire global energy use by purchasing renewable energy certificates. Uclia Wang, *SAP Joins Tech Giants Google and Apple in Reaching for 100% Green Energy*, GUARDIAN (Mar. 21, 2014), <https://www.theguardian.com/sustainable-business/sap-renewable-energy-credits-100-percent-goal>.

51. Healy, *supra* note 47. While Tim Healy, the article's author and the CEO and chairman of EnerNOC, defended Apple's (and others') historical reliance on renewable energy credits, he discussed the implications of Apple's move from purchaser to seller, which could be significant. One potential implication is Apple will look to green up its supply chain by allowing its suppliers to utilize the on-site renewable energy. *Id.* The RE100 report signaled this move as well. Companies are looking to encourage their supply chain to incorporate renewable energy directives. RE100, *supra* note 15, at 6. Absent a change in the current regulatory structure, however, companies are not allowed to sell retail electricity to their suppliers. See THE FUTURE OF ELECTRICITY NEW TECHNOLOGIES TRANSFORMING THE GRID EDGE, WORLD ECON. FORUM 5 (2017), [http://www3.weforum.org/docs/WEF\\_Future\\_of\\_Electricity\\_2017.pdf](http://www3.weforum.org/docs/WEF_Future_of_Electricity_2017.pdf).

52. RE100, *supra* note 15, at 7.

53. *Id.*

54. To put this into context, the average U.S. residential customer consumes approximately 10 to 11 MW of electricity per year (note that 10 MW equals 10,000 kilowatts). *Frequently Asked Question—How Much Electricity Does an American Home Use?*, U.S. ENERGY INFO. ADMIN.,

by 2035, is currently at 30% by using PPAs that feed into the grid.<sup>55</sup> Nearly half of the RE100 member companies, however, are using some form of on-site self-generation.<sup>56</sup> For example, Infosys (an Indian company) installed solar panels on its campuses that currently generate approximately 3 MW of energy, with plans to install another 175 MW through on-site and off-site installations.<sup>57</sup>

Apple and Google also self-generate significant amounts of renewable energy both on-site and off-site for their own consumption; however, these two multinational corporations have taken matters one step further and are now *selling* their self-generated electricity into the energy market. On June 6, 2016, Apple Energy filed an application with FERC to be a wholesale *seller* of electricity with market-based rates.<sup>58</sup> It sought authority to sell electricity in the majority of the U.S. Power Pool Regions<sup>59</sup> beginning in August 2016.<sup>60</sup> Apple Energy is a wholly-owned subsidiary of the tech giant Apple Inc. (“Apple”).<sup>61</sup> While Apple Energy does not own or control transmission facilities in any region, Apple owns several generation facilities throughout the United States, including 267 MW of solar photovoltaic panels, 18 MW

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<https://www.eia.gov/tools/faqs/faq.php?id=97&t=3> (last updated Nov. 7, 2017); see *Electricity Explained: Measuring Electricity*, U.S. ENERGY INFO. ADMIN., [https://www.eia.gov/energyexplained/index.php?page=electricity\\_measuring](https://www.eia.gov/energyexplained/index.php?page=electricity_measuring) (describing how electricity is measured) (last updated Feb. 10, 2017).

55. RE100, *supra* note 15, at 12.

56. *Id.* at 12–15.

57. *Id.* at 13.

58. Application of Apple Energy LLC for Market-Based Rate Authority and Request for Waivers and Blanket Authorizations at 1, No. ER16-1887 (FERC June 6, 2016) [hereinafter Apple Energy Application].

59. See *Electric Power Markets: National Overview*, FED. ENERGY REGULATORY COMM’N (FERC), <https://www.ferc.gov/market-oversight/mkt-electric/overview.asp> (last update Apr. 13, 2017) (illustrating the U.S. Power Pool Regions).

60. “Applicant seeks authority to sell power at wholesale in the Southeast, Southwest, Northwest, Northeast, Central, and Southwest Power Pool Regions.” Apple Energy Application, *supra* note 58, at 1; see also Letter Order Granting Market-Based Rate Authorization at 1 n.1, No. ER16-1887 (FERC Aug. 4, 2016) [hereinafter FERC Letter Order] (“Apple Energy requests authorization to sell ancillary services in the markets administered by PJM Interconnection, L.L.C., New York Independent System Operator, Inc., ISO New England Inc., California Independent System Operator Corp. (CAISO), Midcontinent Independent System Operator, Inc., and Southwest Power Pool, Inc. Apple Energy also requests authorization to engage in the sale of certain ancillary services as a third-party provider in other markets.”); *Electric Power Markets*, *supra* note 59.

61. Apple Energy Application, *supra* note 60, at 2.

of fuel cells, and 3.3 MW of hydropower.<sup>62</sup> Multiple facilities went into service in 2015 or 2016,<sup>63</sup> with a total generating capacity of 288.7 MW in the United States.<sup>64</sup> Globally, Apple has significantly more generation, including 32 MW at their Singapore facilities that cover more than 800 rooftops<sup>65</sup> and 200 MW at their facilities in China<sup>66</sup> to offset the energy use. Based on the information provided by Apple Energy and a lack of opposition,<sup>67</sup> FERC issued a final order<sup>68</sup> granting the application on August 4, 2016.<sup>69</sup> Apple Energy filed their tariff, and the entity may now sell wholesale power at market-based rates.

62. Apple owns several different generation facilities throughout the United States and abroad, including:

- 67.5 MW solar photovoltaic and biogas generation facility in North Carolina;
- 3 MW hydroelectric power facility in Oregon (45 Mile Hydroelectric Power Plant);
- 0.3 MW hydroelectric power facility in Oregon (Monroe Drop Project);
- 19.9 MW solar photovoltaic generating facility in Nevada (Ft. Churchill Solar Array) (Sierra Pacific Power Company controls and operates this facility, which is interconnected to the transmission system);
- 50 MW solar photovoltaic generating facility in Arizona (Bonnybrooke PV) (this facility was still in construction at the time of Apple's application, is expected to be up and running by the end of 2016, and will be interconnected to the transmission system);
- 130 MW solar photovoltaic generating facility in California (California Flats Solar) (this facility was set to begin generation in October 2016, and is governed by a Power Purchase Agreement between Apple and California Flats Solar);
- 18 MW behind the meter generating facilities (Apple Campus 2—PV and Apple Campus 2—Fuel Cell);
- 32 MW solar rooftops in Singapore; and
- 200 MW solar in China.

*See id.* at 2–3.

The first three facilities are qualifying facilities, exempt from certain requirements of the Federal Power Act. *See* 18 C.F.R. § 292.601 (2018). The remaining generation facilities make up 19.9 MW of generation in the Northwest region and 198 MW in the Southwest region. *See* Apple Energy Application, *supra* note 58, at 2–3.

63. Apple Energy Application, *supra* note 58, at 16–17.

64. *See id.* at 2–3. The 288.7 MW capacity is less than the 500 MW limit FERC places on wholesale sellers wishing to use market-based rates. 18 C.F.R. § 35.36(a)(2) (2018).

65. Press Release, Apple, Apple Now Globally Powered by 100 Percent Renewable Energy (Apr. 9, 2018), <https://www.apple.com/newsroom/2018/04/apple-now-globally-powered-by-100-percent-renewable-energy/>.

66. Philip Elmer-Dewitt, *How Big Is Apple's Green Initiative in China?*, FORTUNE (Oct. 22, 2015), <http://fortune.com/2015/10/22/apple-china-solar/>.

67. The Public Utilities Commission of Nevada filed a timely notice of intervention but did not make any additional filings in opposition to Apple Energy's application. Notice of Intervention of the Public Utilities Commission of Nevada, No. ER16-1887 (FERC June 22, 2016). No other interested stakeholders sought to intervene.

68. FERC Letter Order, *supra* note 59, at 5.

69. *Id.*

Several years earlier, Google Energy LLC (“Google Energy”),<sup>70</sup> a wholly owned subsidiary of Google, Inc. (“Google”), became a wholesale seller of electricity.<sup>71</sup> At the time of its application, Google did not own any transmission lines or have market power of any kind because it did not own any generation facilities in North America.<sup>72</sup> It did, however, request authorization to be a wholesale seller (at market rates) to multiple U.S. regions.<sup>73</sup> It appears Google’s only change in status is it now controls 114 MW of energy generation capacity from a wind farm in Iowa pursuant to a PPA with Garden Wind.<sup>74</sup>

As discussed in Parts III and IV, this shift from utility-based to corporate-based energy generation is disrupting the historical regulatory model for electricity generation and sales. While this can be seen as a positive change because it results in an influx of clean energy, this private corporate displacement of what has historically been a highly regulated public utility service industry could result, among other things, in a slippery slope of corporate market power and lack of consumer protection.

### III. THE CURRENT WHOLESALE REGULATORY FRAMEWORK IS NOT EQUIPPED TO ADDRESS CORPORATE “UTILITIES”

As Apple and Google move into the wholesale electricity market, one cannot help but consider what this could mean for the future of energy delivery in the United States. This Part looks at the current regulatory framework and considers the areas in which it may not be adequate to govern situations where multinational corporations are becoming bigger players.<sup>75</sup> This Part then suggests FERC should change its test for market power to address the potential slippery slope early.<sup>76</sup>

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70. According to the company, Google Energy “was formed to identify and develop opportunities to contain and manage the cost of energy for Google.” Application of Google Energy LLC for Market Based Rate Authority and Granting of Waivers and Blanket Authorizations at 2, No. ER10-468 (FERC Dec. 23, 2009) [hereinafter Google Energy Application].

71. Order Granting Market-Based Rate Authorization at 2, No. ER10-468 (FERC Feb. 18, 2010) [hereinafter Google Energy Order].

72. Google Energy Application, *supra* note 70, at 4.

73. *Id.* at attach. A. Google requested approval to sell in regions served by PJM Interconnection, New York ISO, New England ISO, California ISO, Midwest ISO, and third parties. *Id.*

74. Notice of Change in Status, Google Energy LLC, No. ER10-468 (FERC Aug. 13, 2010). In the notice, Google Energy also acknowledged that it “indirectly holds a 20.5% non-managing interest in Peace Garden Wind, LLC,” which owns and operates 169.5 MW of wind generation. *Id.* at 2 n.5.

75. *See infra* Section III.A.

76. *See infra* Section III.B.

A. *The FERC's Authority over Wholesale Sales of Electricity*

FERC has authority to regulate, among other things, entities engaged in the wholesale generation of electricity and interstate electricity transmission.<sup>77</sup> Wholesale generation refers to the sale of electricity to another entity—usually a utility company—that then distributes the electricity to the end consumer (the retail sale).<sup>78</sup> The Federal Rules require anyone seeking to become a seller of wholesale power to apply through FERC.<sup>79</sup>

Historically, all entities seeking to sell electricity at wholesale were required to submit cost-of-service rate cases for FERC approval. Meaning, wholesale sellers were required to show their actual costs of service, which FERC allowed them to recover from the customer, plus a reasonable rate of return.<sup>80</sup> The utility had the burden to show their investments were prudent and resulted in a benefit to the customer.<sup>81</sup> As the United States moved toward deregulation of the electricity industry, FERC began reviewing proposals from wholesale power suppliers to use market-based rates—at least on a case-by-case basis.<sup>82</sup> Market-based rates are intended to be set by a competitive market without industry manipulation.<sup>83</sup> “Regulation of market-based rates thus focuses not on the costs that firms have actually incurred, but rather, on the firm’s share of ownership in the market.”<sup>84</sup>

FERC’s original test to determine whether a wholesale seller qualified for market-based rates was a four-pronged analysis:

- (1) whether the seller and its affiliates lack, or have adequately mitigated, market power in generation;
- (2) whether the seller and its affiliates lack, or have adequately mitigated, market power in transmission;
- (3) whether the seller or its affiliates can erect other barriers to entry; and
- (4) whether there is evidence involving the seller or its affiliates that relates to affiliate abuse or reciprocal dealing.<sup>85</sup>

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77. 16 U.S.C. § 824(a) (2012).

78. *Id.* § 824(d). “Sale of electric energy at wholesale” is defined as “a sale of electric energy to any person for resale.” *Id.*

79. 18 C.F.R. § 35.36(a)(1) (2018) (“*Seller* means any person that has authorization to or seeks authorization to engage in sales for resale of electric energy, capacity or ancillary services at market-based rates under [S]ection 205 of the Federal Power Act.”).

80. DAVIES ET AL., *supra* note 1, at 368–71, 398–99.

81. *Id.*

82. Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities, 119 FERC ¶ 61,295, 18 C.F.R. Pt. 35, at 5–6 (June 21, 2007) [hereinafter FERC Order No. 697], <https://www.ferc.gov/whats-new/comm-meet/2007/062107/E-1.pdf>.

83. DAVIES ET AL., *supra* note 1, at 399.

84. *Id.*

85. FERC Order No. 697, *supra* note 82, at 5–6.

In 2004, FERC began modifying this test and ultimately ended up streamlining it into the current three-prong test, which requires FERC to determine whether the applicant has: (1) horizontal market power;<sup>86</sup> (2) vertical market power;<sup>87</sup> or (3) affiliate<sup>88</sup> abuse/preference.<sup>89</sup> In Order 697, FERC explained that this new test would “help customers by ensuring that they are protected from the exercise of market power and would also provide greater certainty to sellers seeking market-based rate authority.”<sup>90</sup>

In practice, FERC generally focuses on the first prong, assuming the last two prongs are met<sup>91</sup> through transmission unbundling<sup>92</sup> and regulatory restructuring.<sup>93</sup> The first prong simply looks at whether the applicant is “a wholesale power marketer that controls or is affiliated with 500 MW or less of generation in aggregate per region or a wholesale power producer that owns, controls or is affiliated with 500 MW or less of generation in aggregate in the same region as its generation assets.”<sup>94</sup>

The Code of Federal Regulations divides wholesale sellers into two categories—Category 1 and Category 2. The distinction lies in the amount of market power and vertical utility control an applicant has. If the applicant qualifies as a Category 1 seller, it may sell its electricity at market-based rates

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86. Horizontal market power refers to the amount of control a company has over market prices. *See* DAVIES ET AL., *supra* note 1, at 413.

87. Vertical market power refers to the amount of control a company has over upstream or downstream markets. *See id.*

88. Affiliate abuse/preference refers to the ability of a company to gain preferential treatment (and rates) from its affiliates so that the company pays less for the product than does its competitors. *See id.* at 413–14.

89. FERC Order No. 697, *supra* note 82, at 6.

The Commission initiated the instant rulemaking proceeding in April 2004 to consider ‘the adequacy of the current analysis and whether and how it should be modified to assure that prices for electric power being sold under market-based rates are just and reasonable under the Federal Power Act.’

*Id.* (quoting Market-Based Rates for Public Utilities, 107 FERC ¶ 61,019 at 1 (2004)).

90. *Id.* at 7.

91. DAVIES ET AL., *supra* note 1, at 414.

92. *See* Order No. 888, 75 FERC ¶ 61,080 (Apr. 24, 1996) [hereinafter FERC Order 888], <https://www.ferc.gov/legal/maj-ord-reg/land-docs/rm95-8-00w.txt>. Historically, utilities were vertically integrated, meaning they owned all of the energy and energy systems so they could generate energy, transport it on their private transmission lines, and distribute it to the end consumer without ever involving another entity. Unbundling refers to FERC’s requirement that utilities provide separate tariffs for transmission services and offer open access of transmission facilities to other energy providers at non-discriminatory rates. *See generally* Midwest ISO Transmission Owners v. FERC, 373 F.3d 1361 (D.C. Cir. 2004) (discussing how the unbundling of transmission services functions).

93. *See* 18 C.F.R. § 35.39(a) (2018) (“As a condition of obtaining and retaining market-based rate authority, the conditions provided in this [S]ection, including the restriction on affiliate sales of electric energy and all other affiliate provisions, must be satisfied on an ongoing basis, unless otherwise authorized by Commission rule or order. Failure to satisfy these conditions will constitute a violation of the Seller’s market-based rate tariff.”).

94. *Id.* § 35.36(a)(2)(i).

instead of requiring cost-of-service ratemaking.<sup>95</sup> To qualify for Category 1 status, the applicant must not have market power. It must not own—or be affiliated with<sup>96</sup>—more than 500 MW of power generation within any certain region. In addition, the applicant must not own, operate, or control transmission facilities or be affiliated with anyone who does.<sup>97</sup> These requirements are ongoing and not just applicable at the time of filing.<sup>98</sup> A seller must report any change in status to the FERC within thirty days.<sup>99</sup>

In contrast, a Category 2 Seller is one that does not fit within the parameters of Category 1, meaning the applicant either owns greater than 500 MW

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95. *Frequently Asked Questions: Market-Based Rates*, FERC, <https://www.ferc.gov/resources/faqs/mbr-faqs.asp> (last updated Mar. 21, 2018). “Cost-of-service rates try to replicate the outcome a competitive market would produce, by examining utilities’ costs, whether those costs were prudently accrued, how they benefit customers, and then allowing the company to earn a ‘reasonable’ return on its investment.” DAVIES ET AL., *supra* note 1, at 398.

96. Affiliate of a specified company means:

- (i) Any person that directly or indirectly owns, controls, or holds with power to vote, 10 percent or more of the outstanding voting securities of the specified company;
- (ii) Any company 10 percent or more of whose outstanding voting securities are owned, controlled, or held with power to vote, directly or indirectly, by the specified company;
- (iii) Any person or class of persons that the Commission determines, after appropriate notice and opportunity for hearing, to stand in such relation to the specified company that there is liable to be an absence of arm’s-length bargaining in transactions between them as to make it necessary or appropriate in the public interest or for the protection of investors or consumers that the person be treated as an affiliate; and
- (iv) Any person that is under common control with the specified company.
- (v) For purposes of paragraph (a)(9), owning, controlling or holding with power to vote, less than 10 percent of the outstanding voting securities of a specified company creates a rebuttable presumption of lack of control.

18 C.F.R. § 35.36(a)(9) (2018).

97. The Code of Federal Regulations defines a Category 1 Seller as a Seller that:

- (i) Is either a wholesale power marketer that controls or is affiliated with 500 MW or less of generation in aggregate per region or a wholesale power producer that owns, controls or is affiliated with 500 MW or less of generation in aggregate in the same region as its generation assets;
- (ii) Does not own, operate or control transmission facilities other than limited equipment necessary to connect individual generating facilities to the transmission grid . . . ;
- (iii) Is not affiliated with anyone that owns, operates or controls transmission facilities in the same region as the Seller’s generation assets;
- (iv) Is not affiliated with a franchised public utility in the same region as the Seller’s generation assets; and
- (v) Does not raise other vertical market power issues.

*Id.* § 35.36(a)(2).

98. *Id.* § 35.39(a).

99. *Id.* § 35.42(a)–(b). The change in status includes a change in affiliation as well as a change in ownership or control resulting in an increase of 100 MW or more of generation. *Id.* § 35.42(a)(1).

of generation in one region; owns, operates, or controls transmission facilities; has market power; or is a franchised public utility.<sup>100</sup> Category 2 applicants undergo greater ratemaking scrutiny and have an increased regulatory burden, including higher reporting requirements after their status is approved, because Category 2 applicants, by their nature, are monopolies with market power within certain power regions.<sup>101</sup>

*B. The Slippery Slope and Opportunities to Address It Early*

When Google Energy sought to become a Category 1 Seller,<sup>102</sup> the only intervenors were the California Public Utilities Commission, which filed a motion to intervene four days after the deadline,<sup>103</sup> and Mabuhay Alliance.<sup>104</sup> Mabuhay's letter is interesting because it mimics some of the concerns discussed in this Article. Specifically, it expressed "concerns about the impact of the filing on Asian American and other minority communities."<sup>105</sup> The letter was written on behalf of five million Asian Americans living in California who worried about future energy rates if Google entered the energy market.<sup>106</sup> The letter seemed to recognize the potential for a slippery slope,<sup>107</sup> stating that if FERC allowed Google to sell electricity, it may soon "dominate

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100. *Id.* § 35.36(a)(3).

101. *See generally Id.* § 35.36. Category 2 Sellers have two choices for determining rates. They can prepare a mitigation proposal for FERC's approval, or they can rely on a traditional cost-of-service rate analysis:

Default mitigation for sales of energy or capacity consists of three distinct products: (1) Sales of power of one week or less priced at the Seller's incremental cost plus a 10 percent adder; (2) Sales of power of more than one week but less than one year priced at no higher than a cost-based ceiling reflecting the costs of the unit(s) expected to provide the service; and (3) New contracts filed for review under [FPA] [S]ection 205 . . . for sales of power for one year or more priced at a rate not to exceed embedded cost of service.

*Id.* § 35.38(b).

102. *See* Google Energy Order, *supra* note 71, at 1.

103. *Id.* at 2.

104. *Id.* at 2 n.5; *see* Letter from Mabuhay Alliance, Google's Application to Tap Power Markets and Its Potential Adverse Impact on California's Ratepayers, No. ER10-468 (FERC Jan. 13, 2010) [hereinafter Letter from Mabuhay Alliance]. FERC disregarded the letter, stating that Mabuhay Alliance provided "no facts or evidence that Google Energy has market power in Commission-regulated markets." Google Energy Order, *supra* note 71, at 2 n.5.

105. Google Energy Order, *supra* note 71, at 2 n.5; *see* Letter from Mabuhay Alliance, *supra* note 104 and accompanying text.

106. Letter from Mabuhay Alliance, *supra* note 104, at 1.

107. "This case could be a precedent for other companies breaking away from the energy market grid in ways that could increase the cost to consumers including the newly unemployed and our nation's 25 million small businesses that have no other options than the regulated utility monopoly." *Id.* at 2 (citing Rebecca Smith & Jessica E. Vascellaro, *Google Seeks to Tap Power Markets*, WALL ST. J. (Jan. 7, 2010), <https://www.wsj.com/articles/SB10001424052748704854904574644721659940760>).

the market in unexpected ways.”<sup>108</sup> FERC found no basis for Mabuhay Alliance’s assertions.<sup>109</sup>

Under FERC’s current rule, multinational corporations, like Apple and Google, are allowed to use market-based rates and given a lot of leeway in setting customer rates for electricity or energy products, so long as they do not own or control more than a certain amount of electricity within any given region. This is called the “horizontal market power rule.” The rule was intended to promote competition and entry into the market by small utilities and independent power producers.<sup>110</sup> Large utilities holding horizontal market power do not qualify, but instead are subject to more stringent regulation by FERC to ensure their rates are fair, reasonable, and non-discriminatory.

While FERC’s market power test may be sufficient to protect customers from market rates set by small utilities and independent power producers, it may not be sufficient protection when the entity selling the electricity is a multinational billion-dollar corporation that already has market power in its own industry. Safeguarding consumer protections will be key. Mabuhay Alliance was likely thinking ahead when it protested Google’s entry into the energy market.<sup>111</sup> FERC disregarded the letter, stating that Mabuhay Alliance provided “no facts or evidence that Google Energy has market power in *Commission-regulated markets*.”<sup>112</sup> Instead of focusing on commission-regulated markets, FERC should consider whether the applicant has market power in any industry, and whether that market power could result in consumer manipulation or an abuse of power.

Large tech companies selling electricity represent a concerning trend—similar to Amazon’s bid to buy Whole Foods. Amazon started out as an online bookseller in 1994 and is now one of the world’s largest corporations dominating the entire online retail market.<sup>113</sup> According to a Reuters report, “Antitrust experts . . . said the [purchase of Whole Foods] will be approved

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108. *Id.* at 1.

109. Google Energy Order, *supra* note 71, at 2 n.5.

110. See generally OFFICE OF ECON., ELEC. & NAT. GAS ANALYSIS, DEP’T OF ENERGY, HORIZONTAL MARKET POWER IN RESTRUCTURED ELECTRICITY MARKETS (2000), [http://www.energymarketers.com/Documents/DOE\\_Horizontal\\_MP-0308.pdf](http://www.energymarketers.com/Documents/DOE_Horizontal_MP-0308.pdf).

111. See Letter from Mabuhay Alliance, *supra* note 104, at 2 (“Asian American’s [sic] strongly favor competition and free markets as long as they are effectively regulated and scrutinized but, competition should be for the benefit of, not at the expense of, underserved communities or rate-payers. We also believe that many regulated utilities, such as PG&E and Sempra, more effectively serve our nation’s 15 million Asian American [sic] than most Silicon Valley companies such as Google. This service includes non-discriminatory contracts with Asian American small businesses, a wide variety of Asian Americans in all levels of senior management, and investing in the growth and welfare of underserved Asian American communities including those long ignored by corporate America such as the Hmong, Laotian, Cambodian and Samoan communities.”).

112. Google Energy Order, *supra* note 71, at 2 n.5 (emphasis added).

113. *Relentless.com*, ECONOMIST (June 19, 2014), <https://www.economist.com/briefing/2014/06/19/relentlesscom>.

because Amazon sells few groceries and Whole Foods is a minnow in the grocery market.”<sup>114</sup> But, this is exactly how large corporations leverage power from one market to enter another, ultimately dominating that industry.<sup>115</sup> Professor Darren Bush, an anti-trust expert, noted that one major concern is the ability of large corporations to discriminate.<sup>116</sup> He pointed to Amazon’s removal of the “buy” button from certain books published by entities embroiled in legal disputes with the corporation.<sup>117</sup> This type of move from one large industry to another, especially when that industry is providing a public good, should at the very least raise consumer protection awareness.

Since the early days of electricity,<sup>118</sup> the United States has maintained the policy that energy is a “public good.”<sup>119</sup> A public good is a commodity that individuals may consume but not prevent others from accessing.<sup>120</sup> Classic examples of public goods include: public defense systems, such as police and fire services, public water, or air.<sup>121</sup> Pure public goods have two primary characteristics: non-excludability and non-rivalrous consumption.<sup>122</sup> Non-excludability refers to the prohibition against excluding nonpayers from enjoying the benefits of the good or service.<sup>123</sup> This characteristic leads to the “free rider problem,” which occurs when a good is made available, and those who have not paid for it are still able to consume it.<sup>124</sup> Non-rivalrous consumption means consumption by one user of a good does not restrict consumption by others.<sup>125</sup> Because of these two characteristics, public goods cannot be supplied at a profit and may be abandoned by the private sector.<sup>126</sup>

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114. Diane Bartz, *Critics Say Whole Foods Deal Would Give Amazon an Unfair Advantage*, REUTERS (June 22, 2017), <http://www.reuters.com/article/us-whole-foods-m-a-amazon-com-anti-trust-idUSKBN19D2Q8>.

115. *Id.*

116. *Id.*

117. *Id.* According to one anonymous former republican antitrust enforcer, “The notion of leveraging your power in market A to enter into market B has . . . been around for a long time as a basis for enforcement.” *Id.*

118. The “early days” began in 1882 with Thomas Edison’s Pearl Street station in Manhattan and the formation of the first electric holding company, Commonwealth Edison, in Chicago, Illinois. See DAVIES ET AL., *supra* note 1, at 291.

119. See Christopher A. Simon, *Is Energy a Public Good?*, RENEWABLE ENERGY WORLD (July 2, 2007), <https://www.renewableenergyworld.com/articles/2007/07/is-energy-a-public-good-49201.html>.

120. Rafael Leal-Arcas, *Sustainability, Common Concern, and Public Goods*, 49 GEO. WASH. INT’L L. REV. 801, 807 (2017).

121. See *id.*; Tyler Cowen, *Public Goods*, LIBRARY ECON. & LIBERTY, <http://www.econlib.org/library/Enc/PublicGoods.html> (last visited Jan. 17, 2018).

122. Leal-Arcas, *supra* note 120, at 807.

123. *Id.*

124. See *id.* at 807–08.

125. Inge Kaul et al., *Defining Global Public Goods*, in GLOBAL PUBLIC GOODS: INTERNATIONAL COOPERATION IN THE 21ST CENTURY 2 (Inge Kaul et al. eds., 1999).

126. See Leal-Arcas, *supra* note 120, at 808.

As a result, governments typically provide pure public goods, such as a national defense system or traffic lights.<sup>127</sup>

Impure public goods may occur when a good or service is not wholly non-excludable or non-rivalrous.<sup>128</sup> There are two types of impure public goods: club goods and common pool resources.<sup>129</sup> Club goods encompass those public goods that are non-rivalrous in consumption but excludable.<sup>130</sup> Common pool resources are those goods that are mostly non-excludable but rivalrous in consumption.<sup>131</sup>

Energy by itself is a pure public good. The law of conservation of energy tells us energy can neither be created nor destroyed.<sup>132</sup> As such, energy is non-rivalrous in consumption and non-excludable. Electricity, however, does not readily meet the economic classification of a public good. Unlike energy, electricity is a secondary system because it is produced from the combustion of primary energy sources: coal, oil, and natural gas.<sup>133</sup> Because of this distinction, electricity is technically excludable and rivalrous in consumption.

Despite this classification, the United States still treats electricity as a public good. This treatment may arise from ethics rather than economics. People in the United States rely on electricity to live their everyday lives, and it is not hyperbole to state that people would die without it. An alternative view is that the secure supply of electricity rather than the electricity itself serves as the public good.<sup>134</sup> For example, the open network of transmission lines used to transport electricity from the generator to the consumer are non-excludable and non-rivalrous in consumption. Because electricity is fungible, it is impossible to exclude people from only consuming electricity not transported via transmission line. As a result, the secure supply of electricity provided by transmission lines is non-excludable. In addition, because use

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127. *Id.* at 807–08.

128. *See* Kaul et al., *supra* note 125, at 4. Because impure public goods are far more common than pure public goods, the former is generally included when discussing the latter. *Id.*

129. *Id.* at 5.

130. *See id.* at 5. Cable TV is an example of a club good because people may be excluded from consuming it, but, at the same time, consumption of Cable TV does not deplete it as a resource. Leal-Arcas, *supra* note 120, at 807.

131. Kaul et al., *supra* note 125, at 5. Examples of common pool resources include forests, fisheries, and wildlife. Leal-Arcas, *supra* note 120, at 807. People technically cannot be excluded from consuming these resources, but there is a finite amount of each and consumption will lead to depletion of the resource. *Id.*

132. *See* Clara Moskowitz, *Fact or Fiction?: Energy Can Neither Be Created Nor Destroyed*, SCI. AM. (Aug. 5, 2014), <https://www.scientificamerican.com/article/energy-can-neither-be-created-nor-destroyed/>.

133. DAVIES ET AL., *supra* note 1, at 285.

134. *See generally* Malcolm Abbott, *Is the Security of Electricity Supply a Public Good?*, 14 ELECTRICITY J. 31, 32 (2001).

of the transmission lines once they are built does not deplete their ability to provide electricity, the security they provide is also non-rivalrous.

Regardless of the reason for its treatment as a public good, electricity—particularly the wholesale electricity market—is vulnerable to abuse because of the tendency of electric utilities to form natural monopolies. “A natural monopoly exists when a single firm can produce a desired level of output at lower total cost than any output combination of more than one firm.”<sup>135</sup> Electric utilities benefit from economies of scale, meaning that average cost of generating and transmitting electricity falls as the volume of consumers increases.<sup>136</sup> Once the infrastructure is built, it is far cheaper for a single utility company to provide electricity to a new customer than it is for a new utility to build its own infrastructure and then provide service.<sup>137</sup> Due to these qualities, electric utilities were initially vertically integrated, allowing a single company to monopolize the market and requiring greater regulation.<sup>138</sup>

The slippery slope concern emerges when the tech companies are allowed to leverage their market power from the information technology industry—with their ability to touch and control millions of customers—to now provide a common good such as electricity. Several news articles discuss this concern,<sup>139</sup> with the majority predicting that Apple will be able to sell electricity directly to end users, thereby replacing the traditional utility company.<sup>140</sup> While this is something to keep an eye on, under current regulations, Apple is only allowed to consume the power itself or to sell it at wholesale. Another option, however, is more intriguing. One author wrote, “Apple could sell clean energy to households, powering iPhones and perhaps electric vehicles with 100% renewable energy.”<sup>141</sup> Again, the existing legal structure

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135. Douglas Gegax & Kenneth Nowotny, *Competition and the Electric Utility Industry: An Evaluation*, 10 YALE J. ON REG. 63, 67 (1993).

136. *Economies of Scale and Scope*, ECONOMIST (Oct. 20, 2008), <http://www.economist.com/node/12446567>.

137. DAVIES ET AL., *supra* note 1, at 308–12.

138. *Id.* at 308–09.

139. Lauren Hepler, *Why Apple’s New Energy Business Should Scare Utilities*, GREENBIZ (June 14, 2016, 2:10 AM), <https://www.greenbiz.com/article/why-apples-new-energy-business-should-scare-utilities>.

140. See e.g., Healy, *supra* note 47 (“Apple is seeking the ability to sell the renewable energy it generates to other businesses and consumers at retail prices.”); Travis Hoiium, *How Apple’s HomeKit Could Revolutionize Energy*, MOTLEY FOOL (Aug. 17, 2016, 8:07 AM), <https://www.fool.com/investing/2016/08/17/how-apples-homekit-could-revolutionize-energy.aspx> (“The company already . . . has a payment system and millions of consumers’ financial data on file, and it has the platform to control assets as well. Apple could become the power company of the future, if it wanted to.”); Seth Weintraub, *Apple Has Just Become an Energy Company, Looks to Sell Excess Electricity into the Grid and Maybe More*, 9TO5MAC (June 9, 2016, 8:18 AM), <https://9to5mac.com/2016/06/09/apple-energy-company/> (“What Apple seemingly could . . . do, however, is sell directly to end-users at market rates.”).

141. Healy, *supra* note 47.

does not allow Apple to sell electricity to households via transmission infrastructure because that would result in a retail sale that Apple would need to be licensed as a state public utility to make. Apple could, however, use its renewable energy facilities to charge batteries that could be sold to households to power their homes, iPhones, and electric cars.<sup>142</sup>

We have seen examples of companies abusing their power when left unregulated before (for example, Enron).<sup>143</sup> This abuse of power generally arises in one of three scenarios: (1) price-gouging, (2) undercutting, and (3) affiliate preference. Price-gouging occurs when a seller spikes prices to a level above what is reasonable.<sup>144</sup> In this scenario, the corporate wholesale energy seller raises prices, resulting in increased retail costs that are passed down to the end consumer.

Undercutting occurs when the seller offers energy at a price lower than what other companies could sell it at.<sup>145</sup> Undercutting prices drives out competition and allows the seller to increase its prices once the competition has been defeated. Given the market power of multinational corporations, they would be able to absorb costs of selling electricity at a price lower than their competitors. They have strong alternative markets and would survive the lower prices, while their competition would likely fail.

In *Nebbia v. New York*,<sup>146</sup> the Supreme Court identified one example of the perils of undercutting.<sup>147</sup> In this popular constitutional law case, the Court upheld a fixed price for milk set by New York's Milk Control Board.<sup>148</sup> The Court's reasoning rested on the need for expensive safeguards in the handling

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142. "Though Apple declined to elaborate on any broader strategic significance for the new energy subsidiary, the company has long been rumored to be interested in electric cars." Hepler, *supra* note 139. "Reuters recently reported that Apple had shown interest in charging station technology for electric vehicles . . ." Travis Hoiium, *Apple Energy: Is This Apple's Next Billion Dollar Business?*, MOTLEY FOOL (June 18, 2016, 8:06 AM), <https://www.fool.com/investing/2016/06/18/apple-energy-is-this-apples-next-billion-dollar-bu.aspx>. Apple also launched HomeKit, which is an application program interface that allows all household electronics, such as lights, locks, thermostats, security, doors, fans, outlets, and air conditioners, to speak to each other and be controlled remotely from the Home app. *Your Home at Your Command*, APPLE, <http://www.apple.com/ios/home/> (last visited Feb. 16, 2018).

143. See, e.g., Douglas G. Baird & Robert K. Rasmussen, *Four (or Five) Easy Lessons from Enron*, 55 VAND. L. REV. 1787 (2002); Christopher M. Iaquinto, *A Silent Spring in Deep Water?: Proposing Front-End Regulation of Dispersants After the Deepwater Horizon Disaster*, 39 B.C. ENVTL. AFF. L. REV. 419 (2012).

144. See John Spacey, *What Is Price Gouging?*, SIMPLICABLE (Sept. 21, 2016), <https://simplicable.com/new/price-gouging>.

145. See Chad Finkelstein, *Setting the Price of Your Product Across All Franchises Is No Longer a Criminal Offence*, FIN. POST (Aug. 4, 2015) <https://business.financialpost.com/entrepreneur/franchise-focus/setting-the-price-of-your-product-across-all-franchises-is-no-longer-a-criminal-offence>.

146. 291 U.S. 502 (1934).

147. See generally *id.*

148. *Id.* at 520–21.

and production of milk to protect it from contamination.<sup>149</sup> If there were no fixed price, milk producers could undercut each other by using less safeguards to achieve a lower price and, therefore, higher sales.<sup>150</sup> Just as in *Nebbia*, Apple or Amazon could undercut other wholesale electricity companies in order to increase sales.

Finally, multinational corporations could abuse their power by forcing consumers to subsidize energy for their affiliates. The entities could allow affiliates to purchase wholesale energy at a price below market value and charge non-affiliates a higher price in order to make up the difference. This same tactic was used by John D. Rockefeller and the railroads to subsidize shipping costs for oil. Railroads charged Rockefeller a lower price and forced other oil producers to pay a higher price in response.<sup>151</sup>

FERC could potentially address the unregulated power of multinational corporations by redefining market power to include market power in any industry, regardless of whether it is a FERC-regulated industry. FERC has the exclusive authority to regulate wholesale sales of electricity and an obligation to ensure customers are protected from manipulation. It may establish whatever rule is appropriate in order to carry out its statutory directives. In doing so, FERC should consider all relevant factors, such as whether the applicant holds market power in another industry that could allow it to manipulate the energy industry and its consumers.

The United States has historically sought to mitigate potential abuse of monopolist power through both regulation and fostering competition within the wholesale electricity market. Alongside this action has been the public policy of protecting consumer access to electricity, which is evident in both judicial and legislative history. The judiciary has long identified energy as a valid public use for purposes of eminent domain.<sup>152</sup> Likewise, Congress stepped in early to protect consumers from corporate abuse in the electricity industry with the Public Utility Holding Company Act of 1935 (“PUHCA”).<sup>153</sup> The PUHCA was enacted when only three massive holding companies controlled nearly half the utilities in the United States.<sup>154</sup> This pyramid scheme allowed holding companies to inflate and hide actual costs

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149. *Id.* at 516–17.

150. *Id.*

151. DANIEL YERGIN, *THE PRIZE: THE EPIC QUEST FOR OIL, MONEY, & POWER* 21–23 (2009).

152. *United States v. 14.02 Acres of Land More or Less in Fresno Cty.*, 547 F.3d 943, 952 (9th Cir. 2008).

153. Pub. L. No. 74-333, 49 Stat. 803 (1935) (repealed 2005). For an interesting historical discussion of the PUHCA, see A. C. Pritchard & Richard B. Thompson, *Securities Law and the New Deal Justices*, 95 VA. L. REV. 841, 862–68 (2009).

154. Pritchard & Thompson, *supra* note 153, at 847; *Public Utility Holding Company Act (PUHCA)*, UNION OF CONCERNED SCIENTISTS, [https://www.ucsusa.org/clean\\_energy/smart-energy-solutions/strengthen-policy/public-utility-holding.html#.W92y6S2ZMW9](https://www.ucsusa.org/clean_energy/smart-energy-solutions/strengthen-policy/public-utility-holding.html#.W92y6S2ZMW9) (last visited Nov. 3, 2018).

of service charged by unregulated affiliates, pass those costs down to the utility, and to the end customer thereafter.<sup>155</sup> Many argue this pyramid scheme led to the great Wall Street Crash of 1929.<sup>156</sup> The PUHCA prohibited non-utility owners (like oil companies) to own utilities and required the Securities and Exchange Commission to approve any utility merger or acquisition by a holding company.<sup>157</sup> The PUHCA also required holding companies to incorporate in the state where the utility operated, so the state could regulate the utility.<sup>158</sup> Congress's protection continued over the years, but in 2005 it repealed and replaced PUHCA with the Energy Policy Act of 2005.<sup>159</sup>

Further, FERC previously noted the need to be adaptive to changing realities in the energy industry. For example, in 1996, FERC issued Order 888 that required utilities to provide open access to transmission facilities.<sup>160</sup> This order lessened the economies of scale,<sup>161</sup> which enabled electricity utilities to form natural monopolies. In any event, Congress tasked FERC with regulating wholesale electricity sales to ensure fair prices for consumers and returns on investment for utility shareholders.<sup>162</sup>

Generally, “[a]n agency has no obligation to gather or consider . . . information if it has no statutory authority *to act on that information*.”<sup>163</sup> And if an agency bases a decision on that information, “which Congress has not intended it to consider,” it can be found to have acted arbitrarily and capriciously.<sup>164</sup> FERC’s authority to regulate entities engaged in the wholesale generation of energy is absolute, however, and not limited in the factors that it may consider.<sup>165</sup> This is similar to its absolute congressional power to include all relevant factors when issuing permits for natural gas pipelines, which was recently at issue in *Sierra Club v. Federal Energy Regulatory Commission (Southeast Market Pipelines Project)*.<sup>166</sup>

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155. See DAVIES ET AL., *supra* note 1, at 291–92.

156. Pritchard & Thompson, *supra* note 153, at 842.

157. Public Utility Holding Company Act § 10.

158. *Id.*

159. Pub. L. No. 109-58, 119 Stat. 594 (2005). Under the Act, non-utility owned holding companies are once again allowed to own utility companies, and they are not limited to any one geographical area. *Id.* Mergers and acquisitions are still regulated, however, but FERC is now in charge of administering the process instead of the Securities and Exchange Commission. *Id.*

160. See FERC Order 888, *supra* note 92.

161. See *Economies of Scale and Scope*, *supra* note 136 (discussing the economies of scale whereby a company can reduce its per unit costs by increasing production volume).

162. See 16 U.S.C. § 824(a) (2012); DAVIES ET AL., *supra* note 1, at 311.

163. *Southeast Market Pipelines Project*, 867 F.3d 1357, 1372–73 (D.C. Cir. 2017) (citing *Dep’t of Transp. v. Pub. Citizen*, 541 U.S. 752, 767–68 (2004)).

164. *Motor Vehicle Mfrs. Ass’n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983).

165. 16 U.S.C. § 824(a).

166. 867 F.3d 1357, 1363 (D.C. Cir. 2017).

In *Southeast Market Pipelines Project*, the Sierra Club brought suit against FERC, alleging it failed to adequately consider the climate and community impacts of a proposed natural gas pipeline project running through Alabama, Georgia, and Florida.<sup>167</sup> Environmental groups were concerned that the project would increase fossil fuel emissions that contribute to climate change, landowners did not want their land taken for a pipeline, and underprivileged communities were concerned that the pipeline project would be constructed in neighborhoods already significantly burdened by pollution from industry.<sup>168</sup> Under the Natural Gas Act of 1938,<sup>169</sup> applicants wishing to construct a natural gas pipeline must first obtain approval from FERC—in the form of a certificate of public convenience and necessity.<sup>170</sup> Prior to issuing the certificate, FERC is obligated to prepare an environmental impact statement (“EIS”) for actions “significantly affecting the quality of the human environment.”<sup>171</sup> FERC did so and ultimately approved the pipeline’s certificate without consideration of the climate and community impacts.<sup>172</sup>

With regard to the climate impact, the pipelines relied on an earlier set of cases<sup>173</sup> and argued that FERC had no obligation to look at these issues because it had no “legal power to prevent” the negative effect.<sup>174</sup> The court disagreed and distinguished the cases. In *Sierra Club v. FERC (Freeport)*,<sup>175</sup> the court held that FERC had no legal authority to consider the climate impacts of liquefied natural gas (“LNG”) exports when issuing an upgrade license and, therefore, was not obligated to include a climate assessment within the EIS.<sup>176</sup> In the case at hand, the court distinguished *Freeport* by pointing out that FERC’s authority to issue permits in LNG matters is not congressional. Its authority derives from a “narrow delegation from the Department of Energy.”<sup>177</sup> As a result, FERC is limited to the specific language of the delegated authority for LNG permits.<sup>178</sup> It is not limited, however, when

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167. *Id.* at 1363, 1365.

168. *Id.* at 1364.

169. 15 U.S.C. §§ 717–717w (2012).

170. *See id.* § 717f.

171. 42 U.S.C. § 4332(2)(C) (2012).

172. *Southeast Market Pipelines Project*, 867 F.3d at 1364–65.

173. *See Sierra Club v. FERC (Freeport)*, 827 F.3d 36 (D.C. Cir. 2016); *Sierra Club v. FERC (Sabine Pass)*, 827 F.3d 59 (D.C. Cir. 2016); *EarthReports, Inc. v. FERC*, 828 F.3d 949 (D.C. Cir. 2016).

174. *Southeast Market Pipelines Project*, 867 F.3d at 1383 (emphasis added).

175. 827 F.3d 36 (D.C. Cir. 2016).

176. *Id.* at 47.

177. *Southeast Market Pipelines Project*, 867 F.3d at 1373.

178. *Id.*

Congress so broadly construed its authority as it did under the Natural Gas Act<sup>179</sup> or, here, under the Federal Power Act.<sup>180</sup>

FERC's exclusive authority to regulate entities engaged in the wholesale generation of energy is an absolute right under the Federal Power Act.<sup>181</sup> It has the authority and the obligation to evaluate the market power of its applicants, regardless of whether that market power is within a *commission-regulated* market, if that market power has the potential to negatively impact millions of customers. Once again, FERC must adjust to changing times and redefine its market power definition to include market power *in any industry*, regardless of whether it is a FERC-regulated industry.

FERC historically adapted to changing realities in the energy industry, and it can do so again.<sup>182</sup> FERC is obligated under the Federal Power Act to protect the public from unreasonable rates and discriminatory practices.<sup>183</sup> It should now take a more proactive role in regulating energy sales by multinational companies that have the ability to reach millions with one click.<sup>184</sup>

#### IV. THE CURRENT RETAIL REGULATORY FRAMEWORK IS NOT NIMBLE ENOUGH TO MEET CORPORATE DEMAND FOR CLEAN ENERGY

Another issue to address early is the corporate demand for, and corporate development of, clean energy and its stress on the current utility structure. As previously noted, most corporate businesses do not want to become

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179. *Id.*

180. 16 U.S.C. §§ 791a–828cr (2012).

181. *Id.* § 824(a).

182. See Erich D. Priebe, *Demand Response and Order 745: Market-Based Reforms in Energy Regulation*, 39 J. CORP. L. 617, 625 (2014) (“Although FERC has certain statutory obligations to oversee the electricity market and generally protect the public interest, the scope of these obligations, in practical terms, is not static, and FERC has adapted its approach to ratemaking to accommodate shifts in the electricity market.”).

183. See James W. Moeller, *Toward an SEC-FERC Memorandum of Understanding*, 15 ENERGY L.J. 31, 36 (1994) (“The [Federal Power Act] prohibits discrimination in electric power rates and charges as well as unreasonable differences in rates and charges between different classes of electric power service.”).

184. See *About 1-Click Ordering*, AMAZON, <https://www.amazon.com/gp/help/customer/display.html?nodeId=468482> (last visited Sept. 29, 2018) (“1-Click ordering places your order automatically and lets you skip the shopping cart.”). Until September 2017, Amazon held the patent for one-click shopping, licensing the technology to companies like Apple, who used it in their iOS app store for app purchases. *Amazon's Patent on One-Click Payments to Expire*, BUS. INSIDER INTELLIGENCE (Jan. 5, 2017), <http://www.businessinsider.com/amazons-patent-on-one-click-payments-to-expire-2017-1>. The loss of this patent could open the door for companies like Google and other tech companies to institute their own one-click payment systems. In fact, one-click shopping has become so integral to online shopping that the World Wide Web Consortium works with major tech companies to set standards for adding payment credentials to web browsers to enable one-click payments for all purchases. *Id.*

energy providers, but “the lack of responsiveness from utilities in some regions has forced them to do exactly this.”<sup>185</sup> This lack of responsiveness to supply the clean energy in demand could very well result in significant lost profits, stranded costs for the utilities, and an increase in utility costs for remaining customers. This Part looks at potential implications for incumbent utilities due to existing state regulatory schemes<sup>186</sup> and considers opportunities for higher levels of collaboration for public-private development of clean energy.<sup>187</sup>

#### A. State Authority Over (Retail) Utility Planning

Most public utilities are regulated by state public utility commissions that set prices for retail customer rates and regulate utility capital expenditure decisions through prudency-type hearings.<sup>188</sup> Most states include some level of integrated resource planning (“IRP”).<sup>189</sup> IRP requirements came into play in the late 1980s as states were looking for ways to respond to nuclear development failures and the oil embargo.<sup>190</sup>

These state requirements can vary widely, with most requiring utilities to consider long-term, least-cost, and lowest-risk methods for addressing (1) customer growth, (2) demand, (3) generation capability, and (4) availability of emergency backup if a plant fails.<sup>191</sup> IRP standards tend to require utilities to have a holistic view of how demand can be met, and they do not generally focus on specific customers, such as corporate customers, demanding a specific type of energy.<sup>192</sup>

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185. RE100, *supra* note 15, at 7.

186. *See infra* Section IV.A.

187. *See infra* Section IV.B.

188. *See* *Duquesne Light Co. v. Barasch*, 488 U.S. 299, 309 (1989) (generally discussing state prudency hearings and stating: “Under the ‘prudent investment’ [or ‘historical cost’ rule], a utility is compensated for all prudent investments at their actual cost when made (their ‘historical’ cost), irrespective of whether individual investments are deemed necessary or beneficial in hindsight.”).

189. *See* RACHEL WILSON & PAUL PETERSON, SYNAPSE ENERGY ECONS., INC., A BRIEF SURVEY OF STATE INTEGRATED RESOURCE PLANNING RULES AND REQUIREMENTS 16 (2011), [http://www.cleanskies.org/wp-content/uploads/2011/05/ACSF\\_IRP-Survey\\_Final\\_2011-04-28.pdf](http://www.cleanskies.org/wp-content/uploads/2011/05/ACSF_IRP-Survey_Final_2011-04-28.pdf) (“Although 39 of 50 states have a rule or requirement for long-term resource planning or procurement, the variations between the state rules are substantial. In traditional IRP states, the general requirements are similar, but differences between scope, longevity, renewal, and other requirements are still significant. For states with only procurement rules, some of the benefits of an ‘integrated’ planning process and document are lost. For this reason, there has been a call to return to integrated resource planning in some of the states that have restructured.”).

190. RACHEL WILSON & BRUCE BIEWALD, SYNAPSE ENERGY ECONS., INC., BEST PRACTICES IN ELECTRIC UTILITY INTEGRATED RESOURCE PLANNING 3 (2013), <http://www.raponline.org/wp-content/uploads/2016/05/rapsynapse-wilsonbiewald-bestpracticesinirp-2013-jun-21.pdf>.

191. *See* WILSON & PETERSON, *supra* note 189, at 3; Lincoln L. Davies & Victoria Luman, *Incomplete Integration: Water, Drought, and Electricity Planning in the West*, 31 J. ENVTL. L. & LITIG. 167, 190–91 (2016).

192. Davies & Luman, *supra* note 191, at 192.

As such, most energy customers historically had little involvement in generation planning. Instead, state public utility commissions required utilities to make prudency determinations as to *how much* energy was needed and to forecast future energy demand.<sup>193</sup> Traditionally, prudency reviews did not involve *what type* of energy to develop, other than as it related to projected cost. If utilities could generate enough power to cover their current and anticipated customer load, it was simply not prudent to develop more (clean) energy facilities dedicated to specific customers. Further, in the mid-1990s, many states “repealed or ignored” their IRP standards due in part to restructuring in the electricity industry.<sup>194</sup>

More recently, there is a movement to make the process more robust so as to include a better vision for a clean energy future.<sup>195</sup> This was propelled forward in the 1980s, when states began adopting renewable energy portfolios that required utilities to generate a certain amount of their energy from renewable sources.<sup>196</sup> At that point, prudency determinations required utilities to supply a certain amount of renewable energy. However, most utilities met this requirement by adding new renewables to meet new demand. The renewable energy was placed into the grid and co-mingled with energy generated from fossil fuel sources.

Now, utilities are asked to supply certain energy from certain resources for certain customers with the end consumer requesting energy from a specific renewable resource. With these specific demands, it makes sense utilities involve large customers in the early decision-making process, incentivizing large customers to remain with the utility via green tariffs or something similar<sup>197</sup> instead of seeking out independent power producers or generating their own energy.

Unfortunately, most utilities are not proactive in this regard,<sup>198</sup> possibly because it is not that simple. Utilities already have installed generation from

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193. WILSON & BIEWALD, *supra* note 190, at 3.

194. *Id.* (“As the electric industry began to restructure in the mid-1990s, integrated resource planning rules in many states were repealed or ignored. Some states have since made an effort to update IRP rules to make them applicable to current industry conditions, while other states have continued to use rules that are now out of date.”).

195. See James M. Van Nostrand, *An Energy and Sustainability Roadmap for West Virginia*, 115 W. VA. L. REV. 879, 885–92 (2013) (discussing the need for West Virginia to require more rigorous long-term planning initiatives in their regulatory policies).

196. See *Renewable Energy Standards*, SEIA, <https://www.seia.org/initiatives/renewable-energy-standards> (last visited Aug. 26, 2018).

197. WORLD WILDLIFE FOUND. ET AL., *supra* note 15, at 4, 9. A green tariff allows customers to choose renewable energy through a portfolio of utility-owned renewables or via contract with independent power producers. See Teresa A. Hill & William H. Holmes, *Corporate Energy Sourcing: A New Engine for Renewables*, LAW360 (Oct. 27, 2015), <https://www.law360.com/articles/719556/corporate-energy-sourcing-a-new-engine-for-renewables>.

198. WORLD WILDLIFE FOUND. ET AL., *supra* note 15, at 4.

fossil fuel sources. Assuming no increase in demand, adding renewable energy specifically for one large customer (basically fuel switching for one customer) would result in an overage in energy generation. The utility would need to shut down or limit the use of power generated from a fossil fuel power plant and curtail output, which would result in a large stranded cost to the utility and increased costs for existing utility customers.<sup>199</sup>

Microsoft provides a recent example of regulatory requirements falling drastically behind consumer demand. Microsoft currently plans to shift 80% of its power in the Pacific Northwest away from the vertically integrated utility, Puget Sound Energy, to seek other options, such as PPAs with independent power producers who can provide greater renewable energy generation.<sup>200</sup> In April 2017, Microsoft and Puget Sound Energy entered into a special contract settlement that requires Microsoft to pay \$23.6 million in transition fees to offset the utility's lost profits and stranded costs.<sup>201</sup> Microsoft has historically been the utility's largest customer; however, Puget Sound Energy was unable to meet Microsoft's growing demand for renewable energy with 60% of its electricity generation from fossil fuels.<sup>202</sup> Puget Sound Energy's 40% renewable energy generation is significantly above Washington State's renewable portfolio requirements of 15% by 2020.<sup>203</sup>

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199. The question of how state utility commissions should address stranded costs due to clean energy and how those costs should be assessed is outside the scope of this Article. Should the customer demanding renewable energy be required to pay for a portion of the transition cost like the Microsoft Special Contract? Or, should all utility customers absorb the loss because it is for a common good? Those are topics for another day.

200. Hal Bernton, *In Quest for Clean Power, Microsoft Wants to Bypass Puget Sound Energy Under New Deal*, SEATTLE TIMES (Apr. 13, 2017), <https://www.seattletimes.com/seattle-news/environment/microsoft-pse-reach-agreement-on-greener-energy/>.

201. *Settlement Filed in Microsoft-PSE Energy Purchasing Proposal*, WASH. UTIL. & TRANSP. COMM'N (Apr. 12, 2017), <https://www.utc.wa.gov/aboutUs/Lists/News/DispForm.aspx?ID=441&Source=https%3A%2F%2Fwww%2Eutc%2Ewa%2Egov%2FaboutUs%2FLists%2FNews%2FAllItems%2Easpx&ContentTypeId=0x010400FF58A04FBD57384DB60A5ECF52665206>. As more businesses leave the grid, the impact to utility companies is noteworthy. For example, MGM Resorts recently announced it will pay \$90 million to leave the grid in Nevada so that it can buy power from third party power producers. Travis Hoiun, *Why Corporate America's Love of Renewable Energy Should Terrify Traditional Utilities*, MOTLEY FOOL (June 5, 2016, 9:07 AM), <https://www.fool.com/investing/2016/06/05/why-corporate-americas-love-of-renewable-energy-sh.aspx> ("Companies are looking at renewable energy as a way to save costs, lock in rates, and go green, and they may have more power to upset the utility business model than even a million homeowners installing solar panels.").

202. Bernton, *supra* note 200.

203. *Renewable Energy Standard*, DSIRE, <http://programs.dsireusa.org/system/program/detail/2350> (last updated Nov. 19, 2015).

### B. Opportunities for Public-Private Collaboration

This leads us to opportunities for collaboration and public-private partnerships for clean energy. Perceiving these demand gaps, several collaborations emerged over the last few years to help private businesses meet their renewable energy goals, in part by engaging utilities and raising awareness of the problem.

For example, RE100 partnered with the Business Renewables Center, which was founded by the Rocky Mountain Institute.<sup>204</sup> The purpose of the Business Renewables Center is to provide the tools to connect renewable demand with energy providers.<sup>205</sup> PPAs appear to be the main priority, as the collaboration sees PPAs as “a fast and effective way for large companies to fulfill their sustainability targets.”<sup>206</sup> The Business Renewables Center’s goal is to procure 60 GW of off-site renewable energy for member companies by 2030.<sup>207</sup> It proposes to do so by providing the following tools:

- A communications platform to raise awareness and champion successes and opportunities;
- A community of leading thinkers and industry practitioners, who actively participate in identifying hurdles and solutions to market growth; and
- A knowledge base of known obstacles and proven solutions, and software tools to facilitate transactions.<sup>208</sup>

Another collaboration is the Renewable Energy Buyers Alliance (“REBA”), which is led by the World Wildlife Fund and the World Resources Institute.<sup>209</sup> REBA is a collaboration of sixty-five companies, “representing over 54 million [MWh] of annual demand by 2020.”<sup>210</sup> The collaboration seeks to identify easier paths for access to renewable energy,<sup>211</sup> with a goal to raise awareness of the renewable energy shortage and provide

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204. RE100, *supra* note 15, at 10. The Rocky Mountain Institute was organized by the Rocky Mountain Mineral Law Foundation to address “relevant legal developments and issues.” *About the Foundation*, ROCKY MOUNTAIN MINERAL LAW FOUND., <https://www.rmmlf.org/about/about-the-foundation> (last visited Sept 26, 2018). The Foundation is a “collaborative, educational, non-profit organization dedicated to the scholarly and practical study of the laws and regulations relating to mining, oil and gas, energy, public lands, water, environmental and international law.” *Id.*

205. RE100, *supra* note 15, at 10.

206. *What We Do*, BUS. RENEWABLES CTR., <http://www.businessrenewables.org/what-we-do/> (last visited Feb. 16, 2018).

207. *BRC: Business Renewables Center*, ROCKY MOUNTAIN INST., [http://www.rmi.org/business\\_renewables\\_center](http://www.rmi.org/business_renewables_center) (last visited Feb. 16, 2018).

208. *Id.*

209. RE100, *supra* note 15, at 10.

210. *About Us*, CORP. RENEWABLE ENERGY BUYERS’ PRINCIPLES, <http://buyersprinciples.org/about-us/> (last visited Feb. 16, 2018).

211. CORP. RENEWABLE ENERGY BUYERS’ PRINCIPLES, <http://buyersprinciples.org/> (last visited Feb. 16, 2018).

utilities with the tools to address it.<sup>212</sup> For example, utilities and corporations, particularly tech companies, need to have robust and early conversations to incorporate more technological advances into the system and provide more opportunities for clean energy investment.<sup>213</sup> REBA tries to connect large energy customers with utilities by relying on the following Corporate Renewable Energy Buyers' Principles:

- Greater choice in procurement options . . . [;]
- More access to cost competitive options . . . [;]
- Longer- and variable-term contracts . . . [;]
- Access to new projects that reduce emissions beyond business as usual . . . [;]
- Increased access to third-party financing vehicles<sup>214</sup> as well as standardized and simplified processes, contracts, and financing for renewable energy projects . . . [; and]
- Opportunities to work with utilities and regulators to expand our choices for buying renewable energy . . . .<sup>215</sup>

These collaboration efforts need to occur early and focus on customer trends—like corporate demand for renewable energy. However, collaboration efforts will have little benefit if states do not have integrated resource planning requirements that value the above principles. For example, the least-cost and lowest-risk method for addressing long-term customer growth and demand should include a discussion about the possibility of major corporate customers leaving the system if utilities are unable to provide clean energy.<sup>216</sup> If Microsoft pays \$23.6 million in transition fees just to leave the system, how much would it be willing to pay for clean, reliable, renewable energy?<sup>217</sup> Maybe the least-cost, lowest-risk, long-term option is shutting

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212. RE100, *supra* note 15, at 10.

213. Priya Barua, *Beyond the Monthly Bill: 4 Ways to Achieve Renewables Goals*, GREENBIZ (Sept. 14, 2017, 12:35 AM), <https://www.greenbiz.com/article/beyond-monthly-bill-4-ways-achieve-renewables-goals>; Letha Tawney et al., *5 Emerging Trends for Corporate Buyers of Renewable Energy*, WORLD RES. INST. (Sept. 29, 2017), <http://www.wri.org/blog/2017/09/5-emerging-trends-corporate-buyers-renewable-energy>.

214. Resources are available to aid the formation of such partnerships. For example, the World Bank's Public-Private-Partnership in Infrastructure Resource Center offers help with the energy sector world-wide. Their website is a good source for sample laws and regulations, sample energy agreements, and information on Clean Technology public-private partnerships. *Legal Issues on Energy and Power PPPs*, PUB.-PRIVATE-P'SHIP LEGAL RES. CTR., <http://ppp.worldbank.org/public-private-partnership/sector/energy> (last updated July 25, 2016).

215. *The Principles*, CORP. RENEWABLE ENERGY BUYERS' PRINCIPLES, <http://buyersprinciples.org/principles/> (last visited Feb. 16, 2018).

216. WILSON & BIEWALD, *supra* note 190, at 3; Davies & Luman, *supra* note 191, at 190–91.

217. Microsoft worked with the Wyoming utility, Black Hills Energy, to collaboratively design a new tariff for its data center in Cheyenne, Wyoming. Herman K. Trabish, *How Microsoft and a Wyoming Utility Designed a Data Center Tariff that Works for Everyone*, UTILITYDIVE (Dec. 20, 2016), <https://www.utilitydive.com/news/how-microsoft-and-a-wyoming-utility-designed-a-data->

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down fossil fuel plants and building renewable energy plants to satisfy the growing customer demand for clean electricity.

## V. CONCLUSION

Globally, there is a significant increase in corporate demand for clean energy. This demand for clean energy could very well be the catalyst the industry needs to push it beyond fossil fuels. Unfortunately, public utility companies are not as nimble as private corporations would like them to be, and they are unable to respond to this increased demand. As a result, we are seeing multinational companies, like Apple and Google, generate their own energy or enter the energy market themselves. This shift could have a significant, negative impact on the existing energy delivery system. Both federal and state utility commissions need to reconsider their regulatory framework. FERC needs to reevaluate its market power rule to determine whether it is sufficient to protect electricity consumers. State utility commissions need to reevaluate their integrative resource planning requirements to ensure utilities are not bootstrapped into keeping fossil fuels on the system instead of meeting corporate demand for clean power. Large multinationals have the means and motive to offer their products through an environmentally friendly, clean-energy manner. This is the future with customers, shareholders, and investors demanding no less. The goal, however, is to do so in a way that (1) protects the end consumer from unreasonable costs either associated with market manipulation or utility lost profits and (2) creates a more collaborative and thoughtful planning process for incorporation of clean energy.

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center-tariff-that-work/430807/. The Public Service Commission of Wyoming, Large Power Contract Service approved a rate that will save Microsoft money and will not be detrimental to other ratepayers. *Id.* The approved tariff is not a renewable energy tariff but could provide a template for a future such rate agreement. *Id.* The agreement gives Black Hills Energy access to Microsoft's onsite backup generation to meet peak demand needs and allows the utility to purchase power from the market on behalf of Microsoft at a firm price. *Id.* The tariff is open to any Black Hills retail customer with a load over 13 MW that can deliver similar generation. *Id.* The tariff shows the potential for the aggregation of renewable buyers who are too small to own an entire utility-scale installation. *Id.* Microsoft hopes that in the future utilities will lean on customer-sited resources such as their back-up generation. *Id.*