LSU Journal of Energy Law and Resources

Volume 3 | Issue 2
Spring 2015

Allowing Utilities to Compete in the Distributed Energy Resources Market: A Comparative Analysis

Jennifer A. Neuhauser

Allowing Utilities to Compete in the Distributed Energy Resources Market: A Comparative Analysis

*Jennifer A. Neuhauser**

INTRODUCTION

Beginning with the adoption of the nation's first net metering law in 1981, the state of Minnesota has proactively sought policies and programs to encourage the development of renewable energy.[1] Part of this initiative includes a legislative mandate requiring incumbent utilities to produce 27.5% of their electricity from renewable sources by 2025, as well as reducing electricity sales every year by the equivalent of 1.5% of their revenues.[2] Yet, in spite of strong popular and legislative support in developing renewable energy resources, Minnesota continues to spend more than $1 billion every year importing fossil fuels, which generate almost 90% of its energy.[3]

One method of encouraging wider adoption of renewable energy sources is to foster competition and innovation in the distributed energy resources (DER)/distributed generation (DG) market.

---

* Major Jennifer Neuhauser is a U.S. Army Judge Advocate in the U.S. Army's Environmental Law Division. She has previously served in South Korea and Germany as an Ordnance officer, in Iskandariya, Iraq as part of the 172nd Infantry Brigade Combat Team, and in Afghanistan as an adviser to the Supreme Court of Afghanistan and as the Deputy Officer-In-Charge of the Justice Center in Parwan. Master of Laws in Environmental Law, The George Washington University, 2014; Master of Laws in Military and Administrative Law, The Judge Advocate's Legal Center and School, 2010; J.D., University of North Carolina at Chapel Hill, 2005. The author wishes to thank Donna Attanasio, Senior Advisor for Energy Law Programs, The George Washington University, for her generous substantive and editorial feedback during the writing process. The author also wishes to thank Carolyn Brouillard, Erin Ruccolo, Brad Crabtree, and Rolf Nordstrom for their insights on competition and renewable energy. Additionally, the author wishes to thank Germaine Leahy for her assistance in the research process. The views expressed in this paper are solely those of the author and do not reflect the official policy or position of the United States Army, Department of Defense, U.S. Government, GW Law, the GW Sustainable Energy Initiative, the e21 project or any of its participants.

1. MINN. STAT. § 216B.164 (2003) (requiring net metering for qualifying facilities less than 40 kW; requiring purchase of all energy and capacity at avoided cost for all facilities more than 40 kW). Net metering is "a billing arrangement that allows customers to receive compensation for unused electricity that they send back to the utility grid." BILL GRANT & LISE TRUDEAU, MINNESOTA DISTRIBUTED GENERATION AND NET METERING 13 (2012).

2. MINN. STAT. § 216B.1691 (2008).

3. Linda Taylor, *Clean Energy: Minnesota's Legacy and Economic Future* 1 (Feb. 2012), http://fresh-energy.org/wp/wp-content/uploads/2012/02/Fact-sheet_RES.pdf, archived at http://perma.cc/WX5M-FZ9L.

Generally speaking, distributed generation is on-site power generation "designed to meet local needs."[4] Distributed energy resource systems enhance or provide backup to traditional electric power systems. Usually DG requires connection to the commercial power grid due to the intermittent nature of its fuel source: the sun doesn't always shine, and the wind doesn't always blow.[5] Because of its reliance on the commercial grid, incumbent utilities can significantly influence how quickly DG is adopted. Nonetheless, recent years have seen increased incumbent utility efforts to frustrate the growth of DG—particularly in Arizona, California, and Hawaii—because many utilities see DG initiatives as threatening potential sources of revenue, as well as imperiling grid stability and reliability.[6] This article argues that rather than fighting against third party efforts to expand DG, incumbent utilities in Minnesota should embrace its inevitable widespread adoption by competing in the DG market. This article examines the possible policy and practical implications of fostering a competitive DER market in Minnesota with incumbent utilities and third parties competing to offer DER products and services. Lastly, this article demonstrates why allowing incumbent utilities to directly compete against third parties in DG/DER, if done in a thoughtful, deliberate manner with accompanying regulation to mitigate unfair advantages, is the best path forward for Minnesota utility consumers.

I. BACKGROUND

Throughout much of the twentieth century, the generation, transmission, and distribution of electrical power was considered to be a "natural monopoly" with service by more than one electric utility considered both uneconomical and duplicative.[7] Usually the

---

4. GRANT & TRUDEAU, *supra* note 1, at 9. MINN. STAT. § 216B.164 (2013) (defining "distributed generation" as means a facility that: (1) has a capacity of ten megawatts or less; (2) is interconnected with a utility's distribution system, over which the commission has jurisdiction; and (3) generates electricity from natural gas, renewable fuel, or a similarly clean fuel, and may include waste heat, cogeneration, or fuel cell technology.).

5. Though DG can also include combined heat and power systems (which capture and utilize waste heat) or natural gas-fired generators, this paper will mainly concentrate on renewable sources. In this paper DG and DER will be used interchangeably.

6. *See generally* Mark Chediak, et al., *Utilities Feeling Rooftop Solar Heat Start Fighting Back*, BLOOMBERG (Dec. 26, 2013), http://www.bloomberg.com /news/2013-12-26/utilities-feeling-rooftop-solar-heat-start-fighting-back.html, archived at http://perma.cc/N38H-CUWG.

7. *See* Jim Rossi, *Universal Service in Competitive Retail Electric Power Market: Whither the Duty to Serve?*, 21 ENERGY L.J. 27–29 (2000). Under the

natural monopoly of electrical service provision was vertically integrated, with a single company providing generation, transmission, and distribution of electrical power.[8] Under this model, the utility assumes a duty to serve customers in a geographical area and accepts the obligation to interconnect and extend service per request in exchange for exclusivity, expected recovery of costs, and a reasonable rate of return.[9] Consequently, investment in electrical utilities is traditionally considered "a safe, but unimaginative" venture, with an emphasis on low risk in exchange for small, but reliable returns.[10]

As electricity use spread throughout the United States, utility companies built ever-larger power plants to meet the additional demand. Increased demand required larger power plants, which in turn increased performance and reduced production costs.[11] Such growth also meant more customers increasing the utility rate base and lowering costs for all by increasing efficiency.[12] This model worked well until the energy crises of the 1970s prompted policymakers to re-examine the natural monopoly model.[13] Beginning with the Public Utility Regulatory Policies Act of 1978 (PURPA), Congress enacted several provisions to move utilities away from the vertically integrated single-provider structure in place since the 1930s.[14] PURPA required incumbent utilities to purchase excess power generated by so-called "qualifying facilities" (QFs) at their "avoided cost," which is the price the utility would

---

theory of natural monopoly, the most economical way to serve a market demand in a natural monopoly is by a single firm. *See generally*, WILLIAM W. SHARKEY, THE THEORY OF NATURAL MONOPOLY vii–27 (1982).

8. *See* AMORY LOVINS & ROCKY MOUNTAIN INST., REINVENTING FIRE: BOLD BUSINESS SOLUTIONS FOR THE NEW ENERGY ERA 172 (2011).

9. *Id.*

10. *Id.*

11. DEP'T OF ENERGY, A PRIMER ON ELECTRIC UTILITIES, DEREGULATION, AND RESTRUCTURING OF U.S. ELECTRICITY MARKETS 6.1 (2002).

12. *See id.*

13. *See* Jeffery S. Dennis, *Twenty-Five Years of Electricity Law, Policy, and Regulation: a Look Back*, 25 NATURAL RES. & ENV'T. 33, 34 (Summer 2010). In a PowerPoint presentation accompanying the article the author notes,"The Oil Embargo of the 1970s changed things in a hurry. Rapid increases in the cost of fuel to operate power plants translated into equally large jumps in retail power prices. Continued increases in oil prices and unstable fuel supplies led electric utilities to construct new power plants that relied on domestic coal and uranium. These plants cost much more to build than simple oil or natural gas-fired generators. Consequently, the fixed costs of utility operations increased, further increasing retail electricity prices. The natural consequence was consumer complaints and increased regulatory oversight."

14. *Id.* at 34.

pay to acquire the power from an alternative source.[15] With its departure from the traditional regulatory model and vertically integrated structure, PURPA encouraged the development of alternative sources of power, including cogeneration and small power production facilities.[16] Furthermore, §210(e) of PURPA exempted QFs from most state and federal utility regulations, bolstering the development of Independent Power Producers (IPPs) who owned generation resources outside of those owned by the incumbent utilities.[17] Prior to 2005, utility ownership of QFs was restricted to 50% to assure participation by third parties.[18]

The passage of PURPA marked both an initial departure from the regulated monopoly model and a greater reliance on market forces to set wholesale energy prices. PURPA was followed by the Energy Policy Act of 1992 (EPACT 1992), which was designed to "further development of IPPs and competition in wholesale electric markets" by allowing the Federal Energy Regulatory Commission (FERC) to order utilities to provide transmission service to outside providers generating electric energy for wholesale sale.[19] FERC ruled on specific transmission requests on a case-by case basis, which meant that the impact of the new law was limited to those entities seeking transmission service.[20] Though competition increased, incumbent utilities routinely favored their own utility-owned generators in the interconnection process, while creating barriers to other parties such as refusing to grant easements across utility properties.[21] During the 1990s, FERC abandoned their case-by-case approach by promulgating FERC Order No. 888, requiring

> each utility that owns, operates, or controls transmission facilities to provide open and nondiscriminatory transmission service to others on the same basis as the utility provided for its own needs….Further, the regulations required

15. Public Utility Regulatory Policies Act of 1978, Pub. L. No. 95-617, § 210, 92 Stat. 3144 (codified as amended at 16 U.S.C. § 824a-3 (2011)) [hereinafter PURPA]. A "qualifying facility" is a renewable energy or cogeneration facility that meets FERC standards that qualify it for a myriad of regulatory and financial incentives. As enacted in 1978, it included the mandatory purchase of excess power by incumbent facilities. As amended in 2005, utilities that are able to demonstrate that the QFs in their service areas have competitive options, may be exempted from the purchase mandate.
16. *Id. See also* Dennis, *supra* note 13.
17. PURPA, *supra* note 15, at § 210(e).
18. ROBERT E. BURNS & KENNETH ROSE, PURPA TITLE II COMPLIANCE MANUAL 8 (2014).
19. Energy Policy Act of 1992, Pub. L. No. 102-468, 106 Stat. 2776.
20. *See id.*
21. JAMES BRODER ET. AL., THE MILLENNIAL REVOLUTION IN ELECTRIC TRANSMISSION: FROM MONOPOLY TO THE MARKETPLACE 12 (2014).

> 'functional unbundling'; that is, utilities were required to separate the transmission portion of their services from their generation and power marketing functions, and to state separate rates for each such service.[22]

PURPA, EPACT 1992, and FERC Order No. 888 reflected a wider trend of opening wholesale markets to competition as well as a push by the federal government to diversify the energy market through the presence of IPPs. The success of IPPs in wholesale markets demonstrated the feasibility of a non-vertically integrated model.[23] Similar changes occurred at the retail level, with several states pursuing competitive markets for the retail supply of electric power while simultaneously seeking supply through alternative resources and distributed generation.[24]

Today, there are two broad models at the retail level: the vertically integrated utility and the retail choice model. Under the vertically integrated utility model, transmission and distribution services are provided by a single entity with prices set by the regulatory authority.[25] Conversely, the retail choice model allows consumers to select their energy provider with the utility providing delivery.[26] The retail choice model requires the utility's delivery charges to be set by the regulatory authority, while the non-utility provider sets its own pricing for generation.[27] Generation services in the retail choice model can be provided by either a competitive provider or by a "provider of last resort."[28]

The history of deregulation at both the wholesale and retail levels is relevant to the issue of allowing utilities to compete in DER services for several reasons. First of all, the transition to deregulation demonstrates the natural tendency of an entrenched monopoly, such as a vertically integrated utility, to keep the status quo and resist competition consistent with the existing regulatory structure and its duties to shareholders. Second, the opening of the market to wider competition forced utilities to contemplate a different way of doing business once they realized change was inevitable. Third, regardless of the activities of newcomers, incumbent utilities still play a large role in influencing the market due to their access to customers,

22. Dennis, *supra* note 13, at 36.
23. BRODER, *supra* note 21, at 13.
24. *See* NAVIGANT, EVOLUTION OF THE ELECTRIC INDUSTRY STRUCTURE IN THE U.S. AND RESULTING ISSUES ii (2013).
25. *Id.* at iii.
26. *Id.*
27. *Id.*
28. *Id.* at iv.

familiarity with existing structures, and need to plan and provide service as part of the regulatory compact.

One example of an innovation caused by deregulation is the expansion of environmentally friendly offerings by utilities. In their paper "Deregulation and Environmental Differentiation in the Electric Utility Industry," authors Magali Delmas, Michael Russo, and Maria Montes-Sancho argue that deregulation and the fungibility of the kilowatt-hour forced incumbent utilities to differentiate themselves by offering more green power.[29] The authors assert prior to deregulation, utilities catered to three broad classes of customer: industrial, commercial, and residential. Because of their position as a monopoly, utilities had "little incentive to think further about how customers differed within each of these customer classes."[30] Even if there was a demand within these classes for green power, prior to deregulation there was little incentive for incumbent utilities to offer consumers choices.[31] The authors also point out that traditionally utilities aggregated costs from all types of generation and

> apportioned them to kilowatt-hour prices. Under this regime . . . creating a green power product by pulling out just the costs associated with those plants represented not only a substantial shift in accounting practice, but, equally, a profound regulatory challenge. These factors worked together to keep potential 'green customers' out of the picture prior to retail deregulation.[32]

With the arrival of deregulation, incumbent utilities were forced to innovate in order to respond to competitive threats in the marketplace. Previously suppressed customer classes, such as the 'green' customer, emerged as the historical accounting practices and lack of innovation fell by the wayside. Though incumbent utilities may resist change created by the proliferation of competition-enhancing policies and legislation, eventually they concede the inevitable and embrace competition, adapting in ways that are advantageous to the ordinary consumer. The evolution of utilities in the face of enhanced competition offers useful lessons for the future of distributed generation because it demonstrates that competition combined with appropriate incentive drives innovation.

---

29. *See* Magali Delmas, et al., *Deregulation and Environmental Differentiation in the Electric Utility Industry*, 28 STRAT. MGMT. J. 189, 192 (2007).
30. *Id.* at 193.
31. *See id.*
32. *Id.*

II. DISTRIBUTED GENERATION

Though the terms "distributed generation" and "distributed energy resources" may be unfamiliar to most Americans, DG and DER actually pre-date the centralized, gigawatt-scale power plants and high-voltage transmission lines that are the hallmark of modern life in America.[33] Even as central power generation evolved, many consumers, such as hospitals, telecommunication sites, and the military, found it advantageous to have on-site power generation as backup, usually in the form of diesel generators.[34] Unfortunately, the use of diesel generators for back-up power is an imperfect solution in the event of a prolonged blackout: "Diesel generators are not designed to run for weeks at a time, and fuel storage capacities vary widely. Additionally, the preventive maintenance for these diesel generators does not always prepare the generators for 100% availability; they have a low probability of 60% to start when needed."[35] Another commenter adds, "Backup generators are filthy, wasteful, and prone to performance problems depending on the frequency and duration of grid outages."[36]

Though today's rooftop solar DG systems are cleaner and ultimately cheaper in the long run than diesel generators, they still require connection to the commercial power grid due to variability in their energy supply. However, advancements in battery and storage technology presage that the ability to operate independently from the grid may only be a few years away; Edison Electrical Institute imagines a future where "efficient energy storage combined with distributed generation could create the ultimate risk to grid viability."[37] Today, the military is investing heavily in technologies coupling DG with renewable energy and advanced storage, allowing the Department of Defense (DOD) to potentially operate independently of the commercial power grid in the event of a

---

33. *See* U.S. DEP'T OF ENERGY, THE POTENTIAL BENEFITS OF DISTRIBUTED GENERATION AND RATE-RELATED ISSUES THAT MAY IMPEDE THEIR EXPANSION i (2007) [hereafter BENEFITS OF DG].

34. *See id.*

35. JUANIA GIRALDEZ ET AL., NATIONAL RENEWABLE ENERGY LABORATORY, VALUING ENERGY SECURITY: CUSTOMER DAMAGE FUNCTION METHODOLOGY AND CASE STUDIES AT DOD INSTALLATIONS 2 (2012).

36. William Pentland, *Backup Generators Are the Bad and Ugly of Decentralized Energy,* FORBES (Apr. 13, 2013, 12:52 PM), http://www.forbes.com /sites/williampentland/2013/04/15/backup-generators-are-the-bad-and-ugly-of decentralized-energy/, archived at http://perma.cc/L3RQ-F2BG.

37. PETER KIND, EDISON ELECTRIC INSTITUTE, DISRUPTIVE CHALLENGES: FINANCIAL IMPLICATIONS AND STRATEGIC RESPONSES TO A CHANGING RETAIL ELECTRIC BUSINESS 3 (2013).

major disaster or national emergency.[38] This technology will both enhance energy security and reduce fuel costs.[39]

Along with its future potential to act as a reliable backup power source or possible displacement of the commercial grid, DG presently offers many benefits to consumers and utilities alike. For example, a study conducted by Southern California Edison found that adding DG to the grid system reduces peak demand, thereby deferring necessary upgrades in circuit capacity.[40] DG also improves the efficiency of the transmission and distribution (T&D) network by replacing power generation from central facilities with demand-side reactive power resources, which also "frees up useful T&D system capacity for additional real power transfers from generation sources to loads."[41] Using DG to provide reactive power on-site also reduces both distribution line losses and transmission line losses, improving the overall capabilities of the T&D system.[42] In fact, one study found:

> Distribution losses are the largest percentage of total system losses, comprising about 27% of total losses. When reactive power is supplied from a Distributed Energy Resource (DER) such as a microturbine, losses on the distribution feeder can be reduced or even eliminated. Local power quality can also be significantly improved.[43]

Overall, DG installations can defer T&D upgrades and renewable DG provides environmental benefits that both benefit society as a whole and enable utilities to meet legislative mandates.[44] DG can also improve overall power quality and grid security. Furthermore, some DG, such as rooftop solar installations, helps utilities avoid contentious eminent domain battles when planning for system expansions and upgrades, thereby improving relations with the local community.[45]

---

38. S.V.T. NGUYIN, ET. AL., MASSACHUSETTS INSTITUTE OF TECHNOLOGY, MICROGRID STUDY: ENERGY SECURITY FOR DOD INSTALLATIONS iii (2012).
39. *Issue: Military Microgrids*, NEMA, http://www.nema.org/Policy/Documents/Military%20Microgrids.pdf, archived at http://perma.cc/5U8K-LSBR(last visited Jan. 20, 2015).
40. BENEFITS OF DG, *supra* note 33, at 3-4.
41. *Id.* at 4-2.
42. *Id.*
43. J.D. Kueck, et al. *Voltage Regulation: Tapping Distributed Energy Resources*, PUB. UTILS. FORTNIGHTLY, Sept. 2004, at 46.
44. L. BIRD ET. AL., NATIONAL RENEWABLES ENERGY LABORATORY, REGULATORY CONSIDERATIONS OF DISTRIBUTED GENERATION 11 (2013).
45. JOHN FARRELL, INSTITUTE FOR LOCAL SELF-RELIANCE, THE POLITICAL AND TECHNICAL ADVANTAGES OF DISTRIBUTED GENERATION 17 (2011).

However, the rise of DG is not entirely good news for the incumbent utilities. Reliable power requires both predictability and flexibility in the generation, transmission, and distribution of electricity, which is easier to provide with centralized management and planning of energy resources.[46] With the growth of DG systems, customer-owned generation may be outside the utility's control, largely unmonitored, and therefore unavailable to regulate the balance of energy supply and demand.[47] Furthermore, DG power production may not correspond to peak electricity demand, and areas with high penetration of DG production may actually require additional investment in infrastructure to handle excess energy supply.[48] Many utilities argue the revenue generated from customers with DG assets does not offset the costs to act as standby power for those customers, leading to issues of fairness and cost allocation—while some customers reduce their individual energy costs through self-generation, part of their share of distribution costs are shifted to non-DG customers.[49] Utility companies are powerless to refuse service to DG customers, as current law mandates utilities provide access to the grid for all customers regardless of whether it is being used for power delivery or merely for backup.[50] This problem is exacerbated by the fact that consumers with fewer resources are less likely to have access to DER.[51]

Many in the electric utility industry have termed the rise of DG/DER as an "existential threat" to the livelihood of incumbent utilities.[52] Steven Corneli, Senior Vice President of Policy, Strategy, and Sustainability at NRG Energy notes the expansion of DER is "increasingly eroding the volumetric sales of electricity by utilities, leaving utilities with fewer kWh and kW of sales over which to

---

46. JAMES NEWCOMB ET. AL., ROCKY MOUNTAIN INSTITUTE, NEW BUSINESS MODELS FOR THE DISTRIBUTION EDGE: THE TRANSITION FROM VALUE CHAIN TO VALUE CONSTELLATION 7 (2013) [hereafter NEW BUSINESS MODELS].

47. Jeff St. John, *Hawaii's Solar Grid Landscape and the Nessie Curve*, GREEN TECH SOLAR (Feb. 10, 2014), http://www.greentechmedia.com/articles/read/hawaiis-solar-grid-landscape-and-the-nessie-curve, archived at http://perma.cc/V8MR-ZVPG.

48. NEW BUSINESS MODELS, *supra* note 46, at 17.

49. John Slocum, *Threat from Behind the Meter: The Case for Utilities to Compete Directly with Distributed Resources*, PUB. UTILS. FORTNIGHTLY, July 2013, at 49–50.

50. *Id.*

51. *Id.*

52. Richard Martin, *Distributed Generation Poses Existential Threat to Utilities*, FORBES.COM, (Aug. 26, 2013), http://www.forbes.com/sites/pikeresearch/2013/08/26/distributed-generation-poses-existential-threat-to-utilities/, archived at http://perma.cc/2AK6-3GZX.

spread their fixed and operating costs."[53] DER technologies are growing demonstrably cheaper: Between 2008 and 2012, the cost of photovoltaic (PV) panels dropped from $3.80/watt to $.86/watt.[54] At the same time, much of the infrastructure utilities rely on requires upgrading or replacement; it is projected that the United States. electric power structure could require $3.5 trillion over the next 40 years to replace aging infrastructure.[55] Upgrades to existing facilities and infrastructure due to age, security needs, reliability issues, or environmental standards increase fixed costs to utilities, which pass these costs along to their customers.[56] Since 2002, annual spending per customer on routine tasks such as maintenance and distribution equipment has increased at roughly twice the rate of inflation.[57] Additionally, DG/DER contributes to stranded costs, which occur when the incumbent utility invests in infrastructure that becomes redundant in a competitive environment.[58] Oftentimes utilities will seek to recover stranded costs by charging their customers a stranded cost recovery fee, further increasing rates among its remaining ratepayers.[59]

Meanwhile, incumbent utilities are experiencing flat or falling demand due to phenomenon such as demand saturation and increasingly efficient appliances.[60] Demand saturation occurs when "consumers in rich countries can afford and already use as much of the basic commodities and services they need and want…when consumers reach high per capital levels of consumption, be it pasta, soda, miles driven, or electricity, there is little or no gain from consuming more."[61] Additionally, federal and state governments continue to support policies such as the Solar Investment Tax Credit, which provides a 30% tax credit for solar systems on residential and commercial properties, as well as energy efficiency and power

---

53. Slocum, *supra* note 49. NRG Energy is a wholesale energy company based in Princeton, New Jersey.

54. Richard Read, *Will Solar Panels Destroy Electric Utilities' Business Model? Yes, They Say*, GREENCARREPORTS (May 31, 2013), http://www.greencarreports.com/news/1084508_will-solar-panels-destroy-electric-utilities-business-model-yes-they-say, archived at http://perma.cc/BZU6-J4SA.

55. LOVINS, *supra* note 8, at 166.

56. *Id.*

57. Slocum, *supra* note 49, at 48.

58. JOSEPH P. TOMAIN, ENERGY LAW IN A NUTSHELL 198–99 (2011).

59. Minnesota does not currently have a stranded cost recovery fee. *See Minnesota*, ENERGY & ENVTL. ANALYSIS, INC., http://www.eea-inc.com/rrdb/DGRegProject/States/Newsite/MNrevised.html, archived at http://perma.cc/E2Q7-UBWN.

60. FEREIDOON P. SIOSHANSI, DISTRIBUTED GENERATION AND ITS IMPLICATIONS FOR THE UTILITY INDUSTRY 56 (2013).

61. *Id.* at 61.

conservation programs.[62] Furthermore, net metering and feed-in tariffs require utilities to buy distributed renewable energy at "parity with retail rates rather than the wholesale cost of power."[63] These factors combine to create a feedback loop of ever-increasing regulated utility rates while simultaneously many of the costs of alternatives such as DER are falling, leading even more customers producing electricity on-site and further accelerating loss of sales to DER.[64]

Therefore, the rate of DER penetration continues to raise concerns. Though Minnesota solar energy supporters proposed legislation mandating the state's power companies get ten percent of their electricity from solar resources by 2030, eventually the bill was watered down to a non-mandatory goal.[65] Even so, the state's two largest electric companies, Xcel Energy and Great River Energy, opposed the measure, claiming it would increase customer rates by up to 1.3%.[66] "Markets, not mandates, should drive energy development," added Cris Oehler, a spokeswoman for Otter Tail Power Company of Fergus Falls, Minnesota.[67]

In spite of proclamations of an impending "utility death spiral," many analysts, including famed investor Warren Buffett, insist such talk is premature.[68] The American Council for an Energy Efficient Economy (ACEEE) calculates even with the rapid growth of DG and increases in energy efficiency initiatives, energy consumption will decrease only ten percent in the next 25 to 30 years.[69] Furthermore, there are some places where it is impossible, either due to geography or the nature of the dwelling, for

---

62. *Solar Investment Tax Credit*, SOLAR ENERGY INDUS. ASS'N., http://www.seia.org/policy/finance-tax/solar-investment-tax-credit, archived at http://perma.cc/PJ8B-BBJV?type=live.

63. Slocum, *supra* note 49, at 49.

64. *Id.*

65. Dan Haugen, *Minnesota's New Solar Law: Looking Beyond Percentages*, MIDWEST ENERGY NEWS (May 24, 2013), http://www.midwestenergynews.com/2013/05/24/minnesotas-new-solar-law-looking-beyond-percentages/, archived at http://perma.cc/H2RV-CMAL.

66. David Shaffer, *Minnesota Solar Industry Pushes for Utility Mandate,* STAR TRIBUNE (Feb. 20, 2013), http://www.startribune.com/business/192130991.html, archived at http://perma.cc/S7Z3-M4PQ.

67. *Id.*

68. Ethan Howland, *Why is Warren Buffett Investing in Utilities in the Death Spiral Era?*, UTIL. DIVE (Mar. 6, 2014), http://www.utilitydive.com/news/why-is-warren-buffett-investing-in-utilities-in-the-death-spiral-era/236004/, archived at http://perma.cc/24XC-RXTW.

69. *See generally* Steven Nadel & Garrett Herndon, *The Future of the Utility Industry and the Role of Energy Efficiency*, AM. COUNCIL FOR AN ENERGY-EFFICIENT ECON. vi (June 2014), http://www.aceee.org/sites/default/files/publications/researchreports/u1404.pdf, archived at http://perma.cc/6UHZ-LCVE.

consumers to stop using grid-provided electricity—an example being high-rise apartment buildings in densely populated urban centers with little solar exposure.[70]

Though complete obsolescence of the grid may not come any time soon, utilities still must deal with the real and present danger of erosion of their stock value.[71] For example, many experts predict advancing storage and generation technologies, such as those researched by the military, may one day allow ordinary consumers to completely disconnect from the grid; the Edison Electric Institute, a utility trade organization, admits:

> Due to the variable nature of renewable DER, there is a perception that customers will always need to remain on the grid. While we would expect customers to remain on the grid until a fully viable and economic distributed non-variable resource is available, one can imagine a day when battery storage technology or micro turbines could allow customers to be electric grid independent.[72]

Shane Kann, Senior Vice President of GTWM Research notes, "Utilities operate on a long time horizon, and concerns about grid defection should be creeping toward the forefront of utilities' minds now."[73]

In response to perceived attacks on their business model by DG, concerns over grid stability and reliability, and unfairness to non-solar consumers, many utilities have gone on the offense. In 2013, Arizona Public Service (APS) proposed an $8.00/kW charge to solar customers, arguing it was necessary in order to avoid shifting infrastructure costs to non-solar customers.[74] This proposal coincided with the exponential growth of rooftop solar installations in Arizona caused by new leasing programs that allowed construction at little to no upfront cost—between June 2009 and June 2013 rooftop solar systems in APS's service area increased from approximately 900 to 18,000 systems.[75] Rather than accepting

---

70. *Id*.
71. Steven Lacey, *Report: Solar Paired with Storage is a 'Real, Near, and Present' Threat to Utilities*, GREENTECH MEDIA (Feb. 28, 2014), http://www.greentechmedia.com/articles/read/where-and-when-customers-may-start-leaving-the-grid, archived at http://perma.cc/7JBB-LLYY.
72. KIND, *supra* note 37, at 5.
73. Lacey, *supra* note 71.
74. Herman K. Trabish, *Arizona Preserves Net Metering by Charging a Small Fee to Solar Owners*, GREENTECH MEDIA (Nov. 15, 2013), http://www.greentechmedia.com/articles/read/Charging-a-Fee-to-Solar-Owners-Preserves-Net-Metering-in-Arizona, archived at http://perma.cc/384P-29HP. The average rooftop solar installation in Arizona is around 6 kilowatts.
75. *Id.*

the $8.00/kW charge, or even the $3.00/kW charge proposed by Arizona's Ratepayer Advocate, the Arizona Corporation Commission voted to charge $0.70/kW to rooftop solar owners to help offset revenue losses.[76] In April 2014, APS supported a property tax on customers leasing solar panels in Arizona, an estimated 85% of new solar customers.[77]

Arizona is not the only state dealing with DG issues. In September 2013, Hawaiian Electric Company (HECO) told solar contractors and residents on the island of Oahu they would need permission to connect rooftop solar systems to the island's power grid.[78] The penetration of rooftop solar in Oahu is ten percent, compared with California's rate of two to three percent.[79] Due to its dependency on imported petroleum for 70% of its electricity generation, Hawaii has the highest energy costs in the nation.[80] HECO argued the unprecedented jump in solar installations caused a situation where PV panels created more power than was consumed, thereby creating "overvoltage" which can flow back to substations, leading to reliability and surge problems.[81] HECO also said that overvoltage could create safety issues for their utility crews working in the area.[82]

Waiting for HECO approval caused substantial delays and frustration for new rooftop solar consumers, particularly those who were simultaneously paying high energy bills and loan payments on solar installations while their PV panels sat idle. In May 2014, the Hawaii Public Utilities Commission (HPUC) found HECO was not responding to customer demand fast enough, and ordered the utility to come up with a "core comprehensive strategy that can lower costs and help connect more PV systems to the grid."[83]

The responses of HECO and APS are but one of many reactions incumbent utilities can have to DG growth. The next section will examine two broad modalities of these responses: 1) ratemaking measures to mitigate costs associated with DG expansion

---

76. *Id.*
77. Kiley Kroh, *Arizona May Impose Unusual New Tax on Customers Who Lease Solar Panels*, THINK PROGRESS (Apr. 30, 2014, 9:28 AM), http://thinkprogress.org, archived at http://perma.cc/6AED-GB8X.
78. Anne C. Mulkern, *Islands: Hawaii Solar Boom So Successful, It's Been Halted*, ENV'T & ENERGY PUBL'G (Dec. 20, 2013), http://www.eenews.net/stories/1059992167, archived at http://perma.cc/WC7C-XNFU.
79. *Id.*
80. Kiley Kroh, *Hawaii's Largest Utility Ordered to Help Customers Install More Rooftop Solar*, THINK PROGRESS (May 2, 2014, 12:05 PM), http://thinkprogress .org, archived at http://perma.cc/6AED-GB8X.
81. *See* Mulkern, *supra* note 78.
82. *Id.*
83. Kroh, *supra* note 80.

and equalize the burden appropriately between DG and non-DG customers and 2) alternative utility and regulatory structures designed to enable incumbent utilities to compete with outside entrants.[84]

III. RESPONSE TO GROWTH IN DISTRIBUTED GENERATION

Existing regulatory and rate-recovery mechanisms can create disincentives for customer-owned DG. The Edison Institute advocates "revis[ing] utility tariff structures in order to eliminate cross subsidies (by non-DER participants) and investor cost-recovery uncertainties."[85] It is reasonable to expect utilities and regulators to turn to the familiar mechanism of ratemaking to diminish the impact of DG entrants in the market.[86] Many states, including Minnesota, rely on traditional cost-of-service ratemaking and volumetric pricing in order to allow utilities to recover their costs of service, with allowed rates of return on equity.[87] Some utilities have argued linking a utility's profits to the volume of electricity consumed creates disincentives for the utility to encourage energy efficiency while magnifying the harm for remaining non-DG customers when DG customers use less energy.[88]

One method of addressing disincentives for energy conservation and renewable energy is "decoupling," which can reduce lost revenues for shareholders as well as break the link between sales and profitability.[89] Minnesota Statutes 216B.2412 defines decoupling as a "regulatory tool designed to separate a utility's revenue from changes in energy sales. The purpose of decoupling is to reduce a utility's disincentive to promote energy efficiency."[90] The same statute provides for the development of pilot programs to assess rate decoupling among rate-regulated utilities.[91]

Another method to recover lost revenue is the imposition of backup/standby rates, interconnection charges, and universal access charges against DG users to ensure they pay a fair share of transmission and distribution costs that would otherwise be

---

84. *See generally* Slocum, *supra* note 49, at 47.
85. KIND, *supra* note 37, at 19.
86. *Id.* at 5.
87. MICHAEL T. BURR, ET AL., U.S. DEP'T OF ENERGY, MINNESOTA MICROGRIDS: BARRIERS, OPPORTUNITIES, AND PATHWAYS TOWARD ENERGY ASSURANCE 10 (2013).
88. *Id.*
89. Slocum, *supra* note 49, at 50.
90. MINN. STAT. § 216B.2412 (2003).
91. *Id.*

subsidized by other users.[92] Standby rates are often not effective because the actual costs incurred by the network vary according to time of day and location.[93] Because of this uncertainty and lack of transparency, the 2013 Minnesota Omnibus Energy Bill amended Minnesota Statutes 216B.164 to prohibit standby charges for facilities smaller than 100 kW.[94]

Other utilities have sought to reduce or eliminate incentives such as net metering, arguing they are no longer necessary as renewable energy costs and technology reach parity with nonrenewable resources. As of February 2014, 43 states and the District of Columbia had policies encouraging the rolling over of credits for excess electricity to future utility bills.[95] Utilities contend DG customers receive more credit than the overall benefits they provide to the grid; rather than just receiving the cost of the power credited to their next month's bill, customers with solar systems are credited at the full retail electricity rate, meaning the cost of the power, plus fixed costs such as poles, wires, meters, and other infrastructure.[96] According to the Edison Electric Institute, the average residential customer paying $110 a month for electricity is paying for $60 worth of grid service; net-metered customers avoid paying these grid-related costs through rollover credits, thereby passing these costs on to other customers.[97] In Kansas, for example, utilities supported legislation that would reduce the amount of money solar customers would receive from net metering.[98] Similar battles have taken place in Arizona, North Carolina, California, and Colorado.[99]

Regardless of whether such measures are for reasons of fairness and equity (as argued by utilities) or to preserve revenue (as argued by DG advocates), ratemaking responses inevitably have the effect of alienating the very customers the utilities are seeking to retain. Inevitably there will be accusations that the incumbent utility is seeking to "punish" DG users, regardless of

---

92. KIND, *supra* note 37, at 24.
93. BURR, *supra* note 87, at 35.
94. MINN. STAT. § 216B.164 (2003).
95. Pamela Prah, *States Brace for Utilities, Solar Advocates Clash*, PEW CHARITABLE TRUSTS (Feb. 19, 2014), http://www.pewtrusts.org/, archived at http://perma.cc/E5S9-4B4W.
96. *Id.*
97. *See Straight Talk About Net Metering*, EDISON ELEC. INST. 2 (Sept. 2013), http://www.eei.org/issuesandpolicy/generation/NetMetering/Documents/Straight%20Talk%20About%20Net%20Metering.pdf, archived at http://perma.cc/ F4DV-Y7KH.
98. Kan. HB 2458. Net metering and excess energy credits. The measure was stricken from the calendar as of Feb. 28, 2014.
99. Prah, *supra* note 95.

how justified or altruistic such measures may be.[100] As the cases in Arizona and Hawaii demonstrate, efforts appearing to obstruct or hinder the expansion of renewable DER, largely seen by the public as a "good thing," usually either fall far short of making the utility whole or fail outright while simultaneously turning public opinion against the utility. Even if such efforts are successful, they still do not address the underlying problem of losing revenue to DG/DER long term.

Though some efforts of cost recovery such as standby fees are necessary, a better, more strategic approach to the threat of DG/DER is to change the traditional utility business model rather than sit idly by as revenue diminishes.[101] As the Edison Electric Institute noted in its report on DG, "Participants in all industries must prepare for and develop plans to address disruptive threats, including plans to replace their own technology" with alternatives.[102] "Ultimately, all stakeholders must embrace change in technology and business models in order to maintain a viable utility industry," the report added.[103] It appears some in the industry are listening: According to a recent Pricewaterhouse Coopers survey, rather than viewing DG as a "disruptive threat" 82% of utility executives view DG as an "opportunity."[104]

One justification for utilities to embrace DER, particularly DG solar, is the opportunity to enhance shareholder returns. Utilities need capital investments to ensure healthy returns for shareholders; private utilities invest in infrastructure and then charge customers enough to earn the investment back plus an authorized rate of return.[105] Long-term solar contracts between utilities and homeowners could guarantee a steady revenue stream for the length of the contract, typically up to 25 years.[106] With the potential of a $6 billion market and just one percent penetration, rooftop solar is "just getting started" according to Kristian Hanelt, Senior Vice President of Renewable Capital Markets at Clean Power Finance.[107]

---

100. Slocum, *supra* note 49, at 50.
101. *See generally* Slocum, *supra* note 49.
102. KIND, *supra* note 37, at 6.
103. *Id* at 19.
104. Davide Savenije, *94% of Utility Execs Predict Business Model Upheaval*, UTIL. DIVE (Oct. 7, 2013) http://www.utilitydive.com/, archived at http://perma .cc/7N9D-5LED.
105. Maria Galluci, *Why Are Some Big Utilities Embracing Small-Scale Solar Power?*, INSIDE CLIMATE NEWS (Sept. 12, 2013), http://insideclimatenews.org/, archived at http://perma.cc/4HJT-3BCE.
106. Kristian Hanelt, *Making Friends with Solar DG,* PUB. UTILS. FORT NIGHTLY, Sept. 2013, at 10.
107. *Id.*

Increased adoption of DG would also drive down costs for incumbent ratepayers. Mr. Hanelt observes that out of 80 million detached single-family homes in the United States, 56 million would be able to save money by switching to rooftop solar.[108] Utility customers who adopt rooftop solar could use the monthly savings in their electricity bill to help pay for the system.[109] Thus, utilities that fight, rather than embrace, the DER/DG market may be forgoing a potentially lucrative opportunity to participate. Additionally, due to their regulated monopoly status and their regular interactions with capital markets, utilities are able to raise capital at rates much lower than those obtained by non-utilities who invest in DER, thereby lowering overall costs to utility consumers.[110]

Utilities must learn these lessons quickly; a failure to understand the paradigm shift wrought by renewable DER has already had real-world consequences for utilities and their shareholders in other countries. In 2011, the main political parties in Germany agreed to an 11 year phase-out of nuclear plants in the response to the Fukushima nuclear accident in Japan; additionally, the government set a target of cutting carbon emissions by 80 to 95% by 2050, with renewables supplying 80% of Germany's electricity.[111] In response to the policy, RWE, a German utility company, started burning more coal to keep up with demand while transitioning from nuclear power, and at the same time an unusually cold winter increased fossil fuel prices.[112] In March 2014, RWE's CEO, Peter Terium, admitted the company's €2.8 billion loss, the first loss in 60 years, was largely attributable to a misguided focus on conventional fossil fuels over renewable and distributed energy.[113] "We were late entering into the renewables market—possibly too late," Terium said; rather than strategizing for the long run, RWE instead chose to meet immediate demands

---

108. *Id.*
109. *Id.*
110. *See* Michael Mendelsohn, *Where is All the Utility Investment? Are Utilities Missing an Opportunity to Finance Solar and Storage?*, NAT'L ENERGY LAB. (Oct. 14, 2013, 2:14 PM), https://financere.nrel.gov/finance/content/where-all-utility-investment-are-utilities-missing-opportunity-finance-solar-and-storage, archived at https://perma.cc/S35R-9AYA.
111. Fred Pearce, *On the Road to Green Energy, Germany Detours on Dirty Coal*, YALE ENVT. 360 (May 29, 2014), http://e360.yale.edu/feature/on_the road_to_green_energy_germany_detours_on_dirty_coal/2769/ archived at http://perma.cc/Y8LA-AAUJ.
112. *Id.*
113. Giles Parkinson, *Germany: Fossil Fuel Industry Decline is Unstoppable*, CLEAN TECHNICA (Mar. 7, 2014), http://cleantechnica.com/2014/03/07/germany-fossil-fuel-industry-decline-unstoppable/, archived at http://perma.cc/8RBW-FGH6.

and damn the consequences.[114] Renewable energy comprises 31% of the German electricity sector,[115] far exceeding that of the United States. Nonetheless, utilities in the United States can learn from RWE's failures. After all, according to the National Renewable Energy Laboratory, renewable energy generation has the potential to supply 80% of total electricity generation in the United States by 2050.[116]

Overall, whether provided by third parties or the incumbent, increased use of DER would offer benefits to consumers and the environment and improve electricity production and delivery as a whole. Minnesota's grid suffers significant outages due to blizzards and ice, floods, tornados, and wind storms, as well as equipment failure; the proliferation of DG would help mitigate and possibly prevent some of these outages, especially as storage and battery technologies improve.[117] The issue of DER and the future of renewables in Minnesota takes on a pressing importance when considering that both of the state's nuclear plants will retire in 2030 and 2033 and 50% of Minnesota coal-fired power plants will be more than 40 years old by 2017.[118] Such concerns, combined with a progressive stance towards renewable energy and DG in general, enabled the passage of DER friendly laws in Minnesota in 2013 and 2014: Under recently passed legislation, investor-owned utilities in Minnesota must add an estimated 450 MW of solar power to their systems between 2013 and 2020, a tenth of which will need to come from small systems of up to 20 kW.[119]

The prospect of the expansion of DER, as well as the potential resources and pivotal role incumbent utilities play in the management

---

114. *Id.* Karel Beckman, *RWE Sheds Old Business Model, Embraces New Energy Reality*, RENEWECONOMY (Oct. 22, 2013), http://reneweconomy.com.au/2013/rwe-sheds-old-business-model-embraces-new-energy-reality-52967, archived at http://perma.cc/J3GN-MZ4V.

115. Caroline Winter, *Germany Reaches New Levels of Greendom, Gets 31 Percent of Its Electricity From Renewables*, BLOOMBERG BUS. (Aug. 14, 2014), http://www.bloomberg.com/bw/articles/2014-08-14/germany-reaches-new-levels-of-greendom-gets-31-percent-of-its-electricity-from-renewables, archived at http://perma.cc/H3UG-LB2N.

116. Ronald Lehr, *New Utility Business Models: Utility and Regulatory Models for the Modern Era*, 26 ELEC. J. 8, 35 (2011).

117. BURR, *supra* note 87, at 17.

118. Kim W. Havey, *Metropolitan Energy Policy Coalition Solar Finance Workshop*, MINN. DEP'T OF COMM. 13 (Jul. 30, 2014), http://www.mepc-mn.org/FinancingSolarJULY14/Solar%20Regulation%20Kim%20Havey%20Commerce%207%2030%2014.pdf, archived at http://perma.cc/8V4L-QMY9.

119. Dan Haugen, *Minnesota's New Solar Law: Looking Beyond Percentages*, MIDWEST ENERGY NEWS (May 24, 2013), http://www.midwestenergynews.com/2013/05/24/minnesotas-new-solar-law-looking-beyond-percentages/, archived at http://perma.cc/Q8AU-52Q7.

of the commercial grid, indicate there is a role for them to play in the future of DER. Given the incumbent utility's legal obligation to provide universal service in exchange for exclusive franchise rights,[120] the question arises as to whether the benefits of allowing incumbents to directly compete with third parties for DER market share outweigh the potential costs, and what second- and third-order effects may arise from such an arrangement. The following paragraphs examine arguments for and against direct incumbent utility involvement in the DER market.

IV. ARGUMENTS FOR AND AGAINST UTILITY INVOLVEMENT

There are a number of arguments against allowing incumbent utilities to directly compete with third parties. A New York State Energy Research and Development Authority (NYSERDA) report on the subject states that "[electric] market structures are developed to prevent the exercise of undue market power over the price or availability of power by any market participant."[121] One issue cited by the NYSERDA report is the advantage of incumbent utility in terms of "access to information or the cost of information for pre-development activities," the most likely being information about current and future T&D relief needs.[122] Many third-party installers argue that utilities with the advantages of name recognition, access to information, and low-cost capital, will dominate the market, driving many of their competitors to extinction. They argue it would be better to have the utility stay out of the market altogether, instead providing information and incentives targeted to third parties to promote growth in those areas most likely to benefit the grid as a whole.

Conversely, the expertise and resources incumbent utilities bring to bear on the market can encourage rapid adoption of renewable DG, allowing it to gain a foothold in the market rather than remaining an outlier. Recent years have shown these assets can provide carbon-free generation, hedges against fuel price risk, deferment of transmission and distribution upgrades, and valuable

120. *See generally* Jim Rossi, *Universal Service in Competitive Retail Power Markets: Whither the Duty to Serve?*, 21 ENERGY L.J. 29 (2000).

121. Michael Razanousky, et al., *Deployment of Distributed Generation for Grid Support and Distribution Infrastructure: a Summary Analysis of DG Benefits and Case Studies*, NEW YORK STATE ENERGY RESEARCH & DEV. AUTH. 15 (Feb. 2011), http://www.synapse-energy.com/sites/default/files/SynapseReport.2011-02.NYSERDA.DG-Benefits-and-Case-Studies.07-081.pdf, archived at http://perma.cc/A6G3-4EX7.

122. *Id.* at 4.

grid resiliency at a price comparable to non-DER resources.[123] The faster DG is adopted the quicker these benefits can be realized.

For their part, utilities argue unregulated third parties have a significant advantage over incumbents, who are both subject to state and federal regulations for safety and reliability as well as economic rate of return regulation by the Public Utilities Commission (PUC).[124] According to the regulatory compact, the incumbent is required to serve all customers located in an assigned service territory, including those DG owners who may be subsidized by other users, as well as low-income consumers.[125] In addition, the incumbent must plan for all customer's needs; the Integrated Resource Planning (IRP) process requires incumbent utilities to plan "to meet present and future customer demands by designing their generation mix to make reasonably priced electricity adequately available on a reliable basis."[126] Thus, the utility must be prepared to serve, even if a customer reduces or alters its usage through the use of DG without notice to the utility, or decides to abandon its DG investment and return to the grid. Additionally, rather than having the flexibility to adapt to the changing needs of the market, utilities must consult with and receive approval from the PUC before changing rate structures or offerings. As a result, incumbent utilities lack flexibility to react to market contingencies and business opportunities. Key decisions by incumbents must undergo a lengthy, and often contentious, review process using time, personnel, and resources. Third parties have no such constraints.

Moreover, third parties continue to enjoy the advantages of net metering policies as well as grid backup, while imposing additional costs to the incumbent in the form of administrative and backup supply burdens due to the variable nature of renewable DER.[127] Though the incumbent must also provide backup power should it install its own renewable DER, such costs may be mitigated, planned for, shifted, and internalized. Third parties transfer risk to incumbent utilities if they use non-standard technologies unfamiliar to incumbent power engineers who still have the burden to ensure interconnected systems are safe and do not impose reliability issues.[128]

Without utility involvement in the DG market, utilities are seeing the erosion of their customer base without any corresponding

123. Mendelsohn, *supra* note 110.
124. STATE REGULATION OF PUBLIC UTILITIES REVIEW COMMITTEE ENERGY ADVISORY COUNSEL, DISTRIBUTED ENERGY RESOURCES REPORT 45 (Jan. 2014).
125. *Id.* at 46.
126. *Id.* at 47.
127. KIND, *supra* note 37, at 5.
128. BURR, *supra* note 87, at 34.

compensation to make up for the loss. In the meantime, upkeep of generation, transmission, and distribution infrastructure must still be maintained for the benefit of both the DG and non-DG consumer alike. Allowing incumbent utilities to compete makes them active participants in the DG market, fostering enthusiasm for DG expansion that cannot be substituted for with regulatory mandates, while helping to maintain their financial health.

Furthermore, direct participation in the DG market is consistent with utility obligations and can help ensure equity among consumers. Unlike private actors, public utilities hold a unique position in public life. Minnesota Statutes 216B.01 states:

> It is hereby declared to be in the public interest that public utilities be regulated as hereinafter provided in order to provide the retail consumers of natural gas and electric service in this state with adequate and reliable services at reasonable rates, consistent with the financial and economic requirements of public utilities and their need to construct facilities to provide such services or to otherwise obtain energy supplies, to avoid unnecessary duplication of facilities which increase the cost of service to the consumer and to minimize disputes between public utilities which may result in inconvenience or diminish efficiency in service to the consumers.[129]

The statutory purpose of the public utility is to provide reliable electricity at a reasonable cost. The overarching goal as established by the Minnesota Legislature is not competition or profitability, but rather reliability and affordability. Both of these goals can be achieved through the rapid expansion of DER facilitated by the incumbent's participation in the market.

Currently, those residential customers purchasing or leasing solar installations tend to be wealthier than the average electrical consumer: Between complicated local permitting requirements (costing up to $2,000 in some cities), owning a residence that allows for such installations (i.e. a house versus an apartment), having sufficient taxable assets to take advantage of incentives provided by the federal and state governments, or even having good enough credit to secure a lease, there are significant obstacles for lower income consumers.[130] If the goal is to promote the expansion of renewable DG beyond

---

129. MINN. STAT. § 216B.01 (2003).

130. *See* Umair Irfan and Kandy Wong, *Renewable Energy: Solar Water Heaters Bloom on China's Rooftops but not in the U.S.,* CLIMATEWIRE (Jul. 2, 2013), http://www.eenews.net/stories/1059983772, archived at http://perma.cc/RUN9-Q2PE.

those who already have the ability to use it (i.e. the wealthy), the utility offers advantages over third party providers. First of all, many third party providers may be uninterested in extending service in lower income areas, even with incentives provided by the utility. Conversely, regardless of consumer wealth, the utility still has the obligation to act as the provider of last resort, and providing DG in those areas may lower overall costs for the utility, and ultimately, to its ratepayers.

Additionally, many consumers may not want the hassle of dealing with competing providers. As one writer observed:

> Call me a lousy consumer, or maybe just a lazy one, but I don't want choices when it comes to my energy supplier…I do not feel qualified or knowledgeable enough to weigh the many options out there, and it made my head hurt to contemplate trying to do that for myself.[131]

Research conducted during the deregulation of the electricity market in some states has shown consumers

> have difficulty evaluating the barrage of advertising and marketing material associated with customer choice, are concerned about the reliability of their new provider, and expect exaggerated or misleading advertising claims by green power marketeters. Not surprisingly, many consumers exposed to competitive electricity markets simply find choice overwhelming and, as a result, find it easier to do nothing.[132]

Inertia on part of the consumer can result in a situation in which the electric system could benefit from DG, but the market fails to provide it. In this instance it is the utility, having the obligation to provide power while making the system work, that has the incentive to intervene and place DG as part of that system. In such instances, the market is better with the incumbent-utility competitor than without it.

---

131. Cathy Woodruff, *Too Many Choices Lead to Too Much Confusion*, THE ADVOCATE (Oct. 3, 2011, 2:45 PM), http://www.timesunion.com/local/article/Too-many-choices-lead-to-too-much-confusion-2187518.php, archived at http://perma.cc/35CA-DFDZ?type=live.

132. RYAN WISER, ET. AL, NAT'L RENEWABLE ENERGY LAB., GREEN POWER MARKETING IN RETAIL COMPETITION: AN EARLY ASSESSMENT 11 (Feb. 1999), *available at* http://emp.lbl.gov/sites/all/files/REPORT%2042282.pdf, archived at http://perma.cc/CZW9-7FQW.

V. INCUMBENT UTILITIES IN COMPETITIVE MARKETS

Many of the arguments for and against incumbent participation in DER expansion are being played out in Arizona. In July of 2013, APS, the incumbent utility provider, argued before the Arizona Corporation Commission (ACC) that in addition to unfair net metering policies shifting costs to non-DG customers, "[a]dditional benefits claimed from rooftop solar, such as long-term fuel hedging, impacts on national and regional commodity prices, employment benefits from solar jobs and compliance costs for the renewable portfolio standard are either double-counting, spurious, unproven or all three."[133] A month later, APS complained bitterly that it did not believe "ancillary benefits of rooftop solar…which include commodity price mitigation, grid security, and economic development, would provide any significant value (if any at all) in reducing utility costs or in mitigating the cost shift that results from net metering."[134] Two months after that, APS categorically denied any sort of benefits of rooftop solar over large-scale solar facilities, asking "why should APS customers pay more for energy produced by rooftop solar than for energy produced by utility-scale solar facilities . . . ?"[135]

These arguments lost their forcefulness, however, when on July 28th, 2014, APS filed a proposal with the ACC asking for permission to develop 20 MW of solar PV systems on 3,000 rooftops in the state of Arizona through the end of 2015.[136] APS announced it was proposing the 20 MW utility-owned residential DG program in "respon[se] to clear customer interest."[137] Under this program, APS would "install the DG on customer rooftops and on the utility side of the meter," renting these rooftops for 20 years in exchange for a 30 dollar per month bill credit.[138] If approved, this program would render net metering concerns for those customers taking part in the program

---

133. Stephen Lacey, *Flashback: Before Calling Rooftop Solar 'Exciting,' APS Said Its Benefits Were 'Unproven',* GREENTECHMEDIA (Aug. 5, 2014), http://www.greentechmedia.com/articles/read/before-and-after-heres-what-aps-said-about-rooftop-solar-before-deciding-to?utm_source=Daily&utm_medium=Headline&utm_campaign=GTMDaily, archived at http://perma.cc/Z28R-EKJK.

134. *Id.*

135. *Id.*

136. Stephen Lacey, *Arizona Public Service Enters the Rooftop Solar Business: Good for Installers or a Trojan Horse?*, GREENTECH MEDIA (Jul. 30, 2014), http://www.greentechmedia.com/articles/read/arizona-public-service-enters-the-rooftop-solar-biz, archived at http://perma.cc/XHG6-GMVM.

137. Arizona Public Service, No. E-01345A-13-0140, (July 28, 2014) 1, *available at* http://www.energymanagertoday.com/arizona-utility-180-solar-0103630/, archived at http://perma.cc/6J74-M2EE.

138. *Id.*

moot. According to the proposal "AZ Sun DG customers would not take net metering service," though they would "continue taking service under any rate for which they would otherwise be eligible."[139] APS would also "competitively select local solar installers to build AZ Sun DG" to deploy these systems, "strategically deploy[ing] a portion of the 3,000 systems to pursue specific purposes, such as serving low income or low credit score customers and providing system benefits."[140] Additionally, APS would orient these systems to "maximize the amount of solar production during system peak periods" and install advanced inverters to "provide flexibility to manage power quality and lay the foundation for better integrating rooftop solar with the distribution system."[141]

Many solar advocates and national solar companies are crying foul over APS's solar rooftop proposal, complaining it is nothing more than a ploy to strengthen APS's stranglehold on Arizona's power industry. "The irony here is that APS has spent two years complaining about how terrible solar is [and] how it's a massive problem for the grid. But now they are saying it's fine, as long as they can control it entirely," complained a spokesman for the Alliance for Solar Choice, an advocacy group representing solar service companies.[142] He has a point: Even while touting its contribution to the overall industry by setting aside projects for local installers, should the proposal be passed, APS would be controlling its former competitors.

Regardless, APS's plan addresses many of the concerns that come with the expansion of DG while preserving many of its benefits. First, it contributes to achieving Arizona's Renewable Energy Standard (RES) of 15% by 2025, with 30% of the total to be derived from distributed energy technologies.[143] The proposal enhances APS's ability to target and control installation while keeping upgrade costs down, allowing APS to position DG assets in places with the greatest benefit to the grid.[144] If approved, APS will gain expertise in both installation and maintenance of these systems while benefiting from the ability to buy DG equipment in bulk. Moreover, because of APS's large balance sheets, thanks to its T&D assets, APS will be able to tap

139. *Id.* at 2.
140. *Id.*
141. *Id.* at 2–3.
142. Lacey, *supra* note 136.
143. ARIZ. ADMIN. CODE §§ R14-2-1801–1816 (2007).
144. Email from Donna Attanasio, Senior Energy Advisor, The George Washington University (July 30, 2014) (on file with the author).

into low-cost capital to finance the expansion.[145] The proposal also neutralizes many of APS's previous opponents; many local installers initially opposed to APS's efforts are now eligible to bid on the proposed solar installations.[146] Nonetheless, national solar companies assert APS's proposal would ultimately quash competition in the state because it is the incumbent utility, rather than the consumer, making the choice.

A primary concern for third parties competing with an incumbent utility like APS is the regulatory structure that facilitates the utility's ability to make authorized rate of return on its DG investment. Ken Johnson, a Solar Energy Industries Association (SEIA) spokesman observed, "This latest tactic by APS has a 'Trojan horse' smell to it. Our member companies welcome fair and equal competition, but this move would stack the deck in favor of a company which can rate-base solar with a guaranteed rate of return. How is that fair?"[147] This is in addition to the built-in advantage of name recognition and existing connections with customers that incumbent utilities already have over third party competitors.[148]

VI. LEVELING THE PLAYING FIELD

If incumbent utilities are allowed to directly compete with third parties, unfair competitive advantages on both sides would have to be addressed. How would third parties be able to match the name recognition and access utilities already have with their customers? Is it fair that utilities have to seek PUC approval before every change in their business models, even those that may lower overall costs for their consumers?

Ostensibly, the purpose of competition is to provide a better product to consumers while lowering costs and increasing innovation. Before utilities could compete with non-utility service providers, they would need the flexibility to adjust their service offerings with more ease and frequency, which in turn would require a more flexible relationship with regulators.[149] Though recent

---

145. *See* Rob Day, *Why Are Utilities Letting Other People Take All the Value?*, CLEANTECH INVESTING (Apr. 4, 2013, 1:37 PM), http://www.greentechmedia.com/cleantech-investing/post/why-are-utilities-letting-other-people-take-all-the-value, archived at http://perma.cc/MWX7-NAZX.

146. Lacey, *supra* note 136.

147. *Id*.

148. Day, *supra* note 145.

149. *See* Bentham Paulos, *Debate About the Future of Utilities Moves Deeper Into the World of Regulation*, GREENTECH MEDIA (Oct. 17, 2013), http://www.greentechmedia.com/articles/read/debate-about-the-future-of-utilities-moves-deeper-into-the-world-of-regulat, archived at http://perma.cc/9AQS-4MQ3.

innovations such as energy efficiency and environmental regulations have been compatible with the current regulatory structure, DER is a fundamentally different paradigm; "They are forcing the creation of a new market that the current regulatory system is not optimized for," said Joseph Scalise of Bain and Company, a global management-consulting firm.[150] Until the regulatory structure is able to catch up, it is reasonable to provide utilities more leeway in optimizing their DG offerings to their consumers. This flexibility could be achieved by allowing utilities more latitude in configuring systems and pricing for their DG systems, at least until those systems comprise a certain percentage of the market.

Utilities already have the burden of planning for future power needs and upgrades through the IRP process; they know where infrastructure will need replacement, where neighborhoods are expanding, and where DG implementation would have the greatest benefit. As part of this process, utilities must set-aside a certain percentage of power generation for renewables. For example, under Minnesota law, utilities are required to include "the least cost plan for meeting 50 and 75% of all new and refurbished capacity needs through a combination of conservation and renewable energy resources."[151] In a similar manner, incumbent utilities could be required to file an IRP with a certain percentage of generating capacity reserved for DG, allotting a certain percentage of generation to third party providers. Both figures would be set by the PUC, and would be a floor rather than a ceiling. Utilities could also be given rate incentives for reducing overall expenses through the strategic use of DG. As part of this process utilities would be required to provide access to information on customers and planned growth and upgrades to non-utility competitors.

Mandating that third parties provide a certain threshold percentage of all renewable DG in the state could allay concerns by utilities about unfair competitive advantage. For instance, if 50% of all new power needs must be supplied by renewable energy, then at least 25% of those renewable energy sources must be provided by third party contractors. This would be a floor, not a ceiling; if more than 25% of consumers chose third party providers over the incumbent, there would be no cap. Similarly, if less than 25% of consumers chose the third party, the utility would have to contract out the remainder among third parties. Therefore, utilities would still have an incentive to compete while ensuring more fair competition for new entrants.

---

150. *Id.*
151. MINN. STAT. § 216B.2422 (1)(e)(2) (2014).

At the same time, there are a number of strategies that can level the playing field for third parties competing against incumbents. For example, the low-cost capital advantage of utilities can be mitigated with a separate low-interest loan program established exclusively for third party installers. Minnesota's Agricultural and Economic Development Board administers the Small Business Development Loan Program, providing up to $5 million for any one business with 20% of project costs privately financed through equity or other sources.[152] A similar program could be created for third-party solar installers, along with incentives such as tax breaks. Alternatively, the utility incumbents could provide financing to third parties as a method to meet their RPS goals, or purchase their services outright.

Name recognition and relationships between incumbent utilities and their customers are harder to mitigate. Just as it took many years for people to recognize "Virgin Mobile" as readily as "AT&T," such recognition takes time. This transition can be facilitated by utilities providing on-bill comparisons between themselves and third-party providers. Additionally, the PUC can provide a webpage/clearinghouse for rate and financing comparisons, such as the one used by the Texas PUC.[153] A similar clearinghouse can be established for third party providers with customer information and planned construction, so all parties have access to the same information.

Ultimately, the advantage of having the incumbent utility compete in the market rather than merely providing information and incentives to third parties comes down to a matter of orderly expansion and boosting the overall demand for renewable DG. The advantages enjoyed by the utility over third parties, such as name recognition, trust, customer service, and billing experience, are the same ones that allow it to make renewable DG attractive to customers who would not otherwise choose to do so. Without incumbent utility participation, it will likely take longer for renewable DG to reach a critical mass as third parties attempt to target those consumers willing to give up the certainty and reliability of the provider they have known for years in exchange for incentives that may or may not be appealing. Ultimately, it will be up to the legislature to decide whether it favors competition with a longer timeline for DG adoption or reliability and predictability with incumbent participation as a partner in DG

152. *See Small Business Development Loan Program*, MINN. DEP'T OF EMP'T & ECON., http://mn.gov/deed/business/financing-business/deed-programs/small-biz-loans.jsp, archived at http://perma.cc/QW7Y-HUVU (last visited Feb. 3, 2015).

153. *See Electric Industry Rates & Tariffs*, PUB. UTIL. COMM'N OF TX., http://www.puc.texas.gov/industry/Electric/rates/Default.aspx, archived at http: //perma.cc/F8BT-G59X (last visited Jan. 21, 2014).

development. The alternative is having the incumbent utility be an unwilling and resentful facilitator forced to participate in its own untimely death through the stick of regulation.

CONCLUSION

Though concerns over the utility's unfair competitive advantage are noteworthy, they are not enough to overcome the certain advantages that will be offered when the utility throws its resources and experience behind DG. Allowing incumbent utilities to compete in the renewable DG market will encourage adoption and investment in DER, which in turn will accelerate benefits such as carbon mitigation, lowered fuel costs, and grid stability. In addition to benefiting the consumer, the utility, and installers, permitting such competition would encourage innovation, provided the utility is given both the flexibility and incentive to do so.

While utilities occupy a strong position within their exclusive territories in terms of competitive advantage, this will likely erode over time as third parties and new technologies offer consumers other options.[154] Allowing utilities in the marketplace will ease the transition to DG by giving consumers the option of keeping the provider they think of as being reliable and familiar while moving towards a new paradigm of power generation and distribution.

Information sharing and low-interest financing could ensure fairness and decrease overall costs for competitors and consumers. Meanwhile, set-asides can nurture the industry in its infancy like net metering before it by attracting third-party competitors and investors, which in turn can attract employment opportunities for Minnesotans. Just like the example of deregulation forcing utilities to think critically about how to attract and retain customers by offering "green power," so too can competition in the renewable DG/DER market encourage innovation and enhance customer service.

The durability of the incumbent utility business model, combined with the inexorable rise of renewable DG technology, means it is both necessary and beneficial to start incorporating incumbents into the DER market as soon as possible. The most efficient way to do this is to take advantage of the profit motive by allowing utilities to compete in providing DER solutions while retaining the current options for customers to install DER using a third party. By combining reasonable constraints on the competitive advantage, transparency of information for the consumer and competitors, and flexibility to innovate, stakeholders can ensure a smooth transition while lowering costs and increasing choice. In this manner, both incumbents and third

154. Razanousky, *supra* note 121.

parties can meet the regulatory and aspirational goals of making Minnesota a leader in providing green energy at reasonable prices while ensuring reliability and sustainability.