Solar Energy, Utilities, and Fairness

TROY A. RULE*

TABLE OF CONTENTS

 Associate Professor of Law, Sandra Day O'Connor College of Law. Many thanks to Rhett Larson, Zachary Gubler, Karen Bradshaw-Schulz, Kaipo Matsumura, Erin Scharff, and attendees at the University of San Diego's Sixth Annual Climate Change and Energy Law Symposium for their invaluable comments and input on the issues covered in this Article.

I. INTRODUCTION

To what extent should fairness considerations drive energy policy? This basic question underlies much of the current debate over the net metering programs and related policies that have propelled record growth in the rooftop solar industry over the past decade. Utilities are increasingly calling for reforms to these programs, claiming that they are unfair in one way or another.

Fairness is a notoriously fuzzy concept capable of describing a wide range of distinct policy ideals. Unless they are properly managed, general claims of unfairness can thus confuse and distract decision-makers in their attempts to address complicated regulatory challenges. In light of these risks, how should policymakers respond to the various fairness arguments arising in the ongoing struggle over disruptive innovation in the nation's energy sector?

This Article analyzes the primary fairness arguments that utilities are leveling against net metering programs and electricity rate designs as rooftop solar energy expands across the country. By categorizing and more thoroughly evaluating these arguments, this Article seeks to enhance the dialogue between utilities, legislators, state regulators, and the solar energy industry over how to best orchestrate the nation's shift toward more sustainable electricity strategies.

Part II of this Article describes how net metering programs and other factors are spurring dramatic growth in distributed solar energy generation in the United States and how utilities are increasingly lobbying for policy changes that would slow this trend. Part III highlights the conspicuous role that simple fairness arguments are playing in utilities' campaigns against distributed energy-friendly policies. Part III also describes research by Professor Steven Shavell and Professor Louis Kaplow that questions the propriety of fairness arguments in policy analysis. Shavell and Kaplow argue that claims of unfairness can be counterproductive distractions in the formulation of policy and thus recommend that decision-makers

thoroughly examine fairness-based arguments before allowing them to shape legislative, regulatory, or judicial decisions. Part IV of this Article seeks to apply these scholars' approach, analyzing fairness-based arguments against net metering and existing rate designs as they relate to three distinct groups: (i) utility customers who have no solar panels, (ii) utility customers with low incomes, and (iii) utilities themselves.

This Article ultimately argues that general appeals to fairness are detrimental in policy debates involving distributed solar energy. Shunning fairness arguments in favor of clearer, more specific arguments would benefit decision-makers as they search for solutions to the complex policy challenges associated with transitioning to a more sustainable electricity system.

II. DISTRIBUTED SOLAR ENERGY: UTILITIES' EXISTENTIAL THREAT?

Throughout much of the United States today, rooftop solar energy installations have become a sound financial investment for real property owners. Falling prices for photovoltaic ("PV") solar panels[1] and various government incentive programs[2] have vaulted rooftop solar energy from a small niche industry into a booming business in many regions of the country.[3]

A. The Powerful Effects of Net Metering

Net metering programs have arguably been more effective than any other type of policy at promoting the growth of distributed solar energy in

1. *See* Elisabeth Graffy & Steven Kihm, *Does Disruptive Competition Mean a Death Spiral for Electric Utilities*?, 35 ENERGY L.J. 1, 5 (2014) (noting that "PV systems present increasingly viable alternatives to conventional retail electric utility service in parts of the United States") (citing Black & Veatch, *2013 Strategic Direction in the U.S. Electric Utility Industry* 42–43 (2013).

2. For an exhaustive compilation of links to state incentive programs and policies relating to solar energy, visit the U.S. Department of Energy's DSIRE Solar Portal at http://www.dsireusa.org/solar/.

3. For information on the dramatic growth of solar energy over the past several years, see GTM Research & Solar Energy Industries Association, *Solar Market Insight Report* (2014 Q1), http://www.seia.org/research-resources/solar-market-insight-report-2014-q1 ("The U.S. installed 1,330 MW_{dc} of solar PV in Q1 2014, up 79% over Q1 2013, making it the second-largest quarter for solar installations in the history of the market").

the United States.[4] Although net metering programs vary across jurisdictions, most of them essentially provide that, when a customer's distributed energy system generates more power than the customer needs on site, that extra electricity flows onto the grid and the customer's meter effectively runs backward.[5] In most jurisdictions, net-metered customers get credits from their utility at retail electricity rates for excess power that their distributed energy systems generate.[6] Such customers thus typically pay only for whatever quantity of power they consumed during a month or year that exceeded what their renewable energy systems produced over that period.

For obvious reasons, net metering programs significantly lower the electricity bills of utility customers with rooftop PV systems. Particularly in sunny markets where retail electricity rates are high, these potential cost savings are beginning to make purchasing a solar array an attractive financial investment. In these markets, distributed PV is rapidly reaching "grid parity" with conventional electricity sources—a degree of cost-competitiveness that solar energy advocates only dreamed about just a few short years ago.[7] Solar leasing and special financing arrangements are even allowing citizens who cannot afford to pay cash for rooftop PV systems to go solar with little or no money down.[8] In light of these developments, it is hardly surprising that solar arrays are appearing on more and more rooftops across the country.

B. Utilities' Growing Campaign Against Net Metering Programs and Other Policies Favoring Rooftop Solar Energy

As exciting as the rapid rise of distributed solar energy has been for companies within that industry, some utilities seem to take a less enthusiastic view of these changes. As rooftop solar development

4. *See* ABA Environment, Energy and Resources Law Energy and Resource Committee, *Renewable, Alternative, and Distributed Energy Resources*, 2013 ABA ENV'T ENERGY, & RESOURCES L.: YEAR IN REV. 264, 270 (2013) (stating that net metering was "still the primary policy driver supporting residential solar installations" in 2013) [hereinafter ABA Environment, Energy and Resources Law Energy and Resource Committee, *Year in Review*].

5. *See* Joel B. Eisen, *An Open Access Distribution Tariff: Removing Barriers to Innovation on the Smart Grid*, 61 UCLA L. REV. 1712, 1727 (2014) (describing the basics elements of most net metering programs).

6. *See* Robert E. Curry, Jr., *The Law of Unintended Consequences*, 151 NO. 3 PUB. UTIL. FORT. 44, 47 (2013) (noting that, in "most jurisdictions," a net metering customer's meter runs "backward at the full, bundled retail rate").

7. *See* Giles Parkinson, *Solar Grid Party in All 50 States by 2015, Predicts Deutsche Bank*, CLEANTECHNICA.COM (Oct. 29, 2014), *available at* http://cleantechnica.com/2014/10/29/solar-grid-parity-us-states-2016-says-deutsche-bank/ (last visited Nov. 22, 2014).

8. *See infra* note 80 and accompanying text.

becomes more commonplace, it is likely to dampen demand for grid-supplied power and thereby cut into utilities' profits.[9] Concerned about these and other impacts, a growing number of utilities have begun actively seeking to weaken or eliminate net metering programs within their territories.[10]

1. A Utility Death Spiral?

From the perspective of regulated utilities, net metering and distributed energy technologies can represent a growing threat to the comfortable business model under which they have operated for decades. Utilities' concerns about the potential long-term consequences of net metering are often encapsulated in what has come to be known as the "death spiral" scenario.[11] When only a tiny fraction of a utility's customers have solar panels, most utilities can absorb these customers' impacts on their finances and day-to-day operations. But as its quantity of solar-using, net-metered customers grows, a utility sells less and less power and its revenue stream begins to shrink. To compensate for this drop in revenue, utilities typically must petition to increase the per-unit price of the electricity they sell. Unfortunately, these rate increases only make the relative price of distributed solar energy seem more attractive to utility customers. Additional customers

9. *See* Christopher Martin, *Solar to Reduce Utility Profits in Five Years, Fitch Says*, BLOOMBERG (July 18, 2013), http://www.bloomberg.com/news/2013-07-18/solar-to-reduce-utility-profits-in-five-years-fitch-says.html (last visited Nov. 22, 2014) (describing a recent study predicting that "[r]ooftop solar power and energy-efficiency programs will eat into utility revenue and profit margins and discourage investment in new transmission projects within five years").

10. For information on utilities' recent efforts to reform net metering and rate designs in response to the growth of distributed solar energy, see *infra* notes 16–33 and accompanying text.

11. The utility death spiral concept has been articulated in countless articles in recent years, only a few of which are listed here. *See* Graffy & Kihm, *supra* note 1, at 2 ("The characterization of renewable energy innovations, such as rooftop solar as a . . . 'death spiral' reflects an awareness that unconventional risks have emerged"); Diane Cardwell, *On Rooftops, a Rival for Utilities*, N.Y. TIMES (July 26, 2013), http://www.nytimes.com/2013/07/27/business/energy-environment/utilities-confront-fresh-threat-do-it-yourself-power.html?_r=0 (observing that, "as utilities put a heavier burden on fewer customers, it increases the appeal for them to turn their roofs over to solar panels," and that "Utility executives call this a 'death spiral'"); Liam Denning, *Lights Flicker for Utilities*, WALL ST. J. (Dec. 22, 2013) (describing Wall Street fears of a "looming 'death spiral'" for utilities, "with solar power being the culprit").

are thus enticed to get solar panels of their own, causing utilities to suffer even further revenue declines.

As solar arrays appear on more and more rooftops within a given area, a utility's daily task of balancing load supply and demand on the electricity grid also becomes more difficult. In addition to ramping centralized power plants up or down in response to shifts in load demand, utilities operating in territories with large numbers of rooftop solar installations have to also predict and respond to changes in the amount of power that these systems supply into the grid. Balancing loads in a grid with thousands of rooftop solar energy systems requires estimating how productive all of these customer-controlled systems will be at any given moment—a chore that can be particularly difficult on partly cloudy days when the amount and intensity of sunlight in a region is constantly in flux.[12] Further rate increases are often the only feasible way for utilities to fund the expensive grid upgrades needed to address the new load management challenges associated with distributed solar power. Of course, rate increases aimed at covering these additional costs only motivate more customers to invest in their own solar arrays.

This vicious cycle of declining utility revenues, rising electricity rates, and shrinking demand for grid-supplied power could theoretically spiral on and on until nearly every customer has rooftop solar panels or some other distributed energy system. At that point, electric utilities would devolve into mere suppliers of high-priced, temporary backup electricity. Retail rates for that backup power would have to be astronomically high for utilities to recoup their costs under such a model, so small-scale distributed energy storage or generators could likely become viable alternatives to reliance on utilities.[13] Insolvent and devoid of customers, conventional utilities caught in such a world would quickly fade into extinction.

---

12. The additional challenges that distributed energy generation place on grid load management are perhaps most famously illustrated through the California Independent System Operator's description of a "duck curve" reflecting hour-by-hour variations in electricity supply and demand in California's grid system. *See generally* California ISO, *Fast Facts: What the duck curve tells us about managing a green grid*, *available at* http://www.caiso.com/Documents/FlexibleResourcesHelpRenewables_FastFacts.pdf (last visited Nov. 22, 2014) (explaining how the rise of distributed energy sources creates "different operating conditions that require flexible resource capabilities to ensure green grid reliability").

13. There is evidence that the trend of utility customers leaving the grid is already beginning to gain steam in some markets. *See* Mark Chediak, *He Ripped their House Off the Grid, and He's No Hippie*, BLOOMBERG (Oct. 29, 2014), *available at* http://www.bloomberg.com/news/2014-10-30/getting-off-the-grid-in-hawaii-becoming-a-family-affair.html (last visited Nov. 22, 2014) (describing how small businesses in Hawaii are beginning to supply equipment and expertise to help residents leave the grid and noting that SolarCity Corp. and SunPower Corp. are offering solar and battery packages designed for that purpose as well).

2. Proposals to Slow or Stop the Spiral

Although the death spiral scenario just described is not likely to wipe out most utilities anytime soon, net metering programs and the growing rooftop solar energy industry are already whittling away at investor-owned utilities' profits and complicating utilities' operations in some jurisdictions.[14] Even in regions where solar panel installations are still relatively uncommon, utilities seem to increasingly view net metering and distributed solar energy as credible threats to their stability over the long term. Accordingly, more and more utilities and their investors are now lobbying for reforms to net metering programs and rate designs that would decelerate the growth of distributed solar energy.

One reform strategy that some utilities have recently proposed involves imposing special fees on utility customers that have solar panels. For example, Arizona Public Service, Co. ("APS"), a large investor-owned utility in Arizona, asked regulators in that state in 2013 to allow the utility to impose fees of up to $100 per month on solar energy-using customers.[15] Utilities have lobbied for similar fees in Georgia,[16] Idaho,[17] Utah,[18]

14. *See supra* note 9.

15. *See* Ryan Randazzo, *APS seeks higher bills for new solar customers*, azcentral.com (July 12, 2013), *available at* http://www.azcentral.com/business/consumer/free/20130712aps-seeks-higher-bills-new-solar-customers.html (last visited Dec. 5, 2014) (reporting that "Arizona Public Service Co. is proposing charging customers who install rooftop solar panels $50 to $100 or more a month to cover the cost of maintaining the power grid").

16. *See* Walter C. Jones, *Georgia Power agrees to smaller rate increase*, THE AUGUSTA CHRONICLE (Nov. 18, 2013), *available at* http://chronicle.augusta.com/latest-news/2013-11-18/georgia-power-agrees-smaller-rate-hike?v=1384802802 (last visited Oct. 17, 2014) (describing Georgia Power's decision to postpone its request for a monthly $22 fee on solar energy-using customers).

17. *See* Mark Jaffe, *Rooftop solar net metering is being fought across U.S.*, THE DENVER POST (Sept. 1, 2013), *available at* http://www.denverpost.com/business/ci_23986631/rooftop-solar-net-metering-is-being-fought-across (last visited Oct. 17, 2014) (mentioning Idaho Power Co.'s proposal to quadruple the utility's monthly service charge for rooftop solar homes).

18. *See* Laura Seitz, *Solar energy users claim victory as 'sun tax' rejected*, DESERET NEWS (Aug. 30, 2014), *available at* http://www.deseretnews.com/article/865609848/Solar-energy-users-claim-victory-as-sun-tax-rejected.html?pg=all (last visited Sept. 23, 2014) (describing Rocky Mountain Power's request for a $4.65 monthly fee on residential rooftop solar customers within its territory).

Virginia,[19] Vermont,[20] and Wisconsin.[21] In most cases, these fees are intended to apply only to customers with net-metered, on-site distributed energy systems such as rooftop solar arrays.

Thus far, it appears that Arizona is the only state in which a utility has begun actually imposing targeted fees on users of solar energy. Under authorization from the Arizona Corporation Commission, APS now generally charges residential customers fees of $0.70 per kilowatt of installed PV generating capacity.[22] For a typical 7-kilowatt solar array, this fee amounts to less than $5.00 per month.[23] However, the Commission's decision approving the fee specifies that APS customers whose solar arrays are installed after January 1, 2014, must be presented with a document stating that such fees could increase by any approved amount at any time.[24] This potential for future fee increases on solar users creates added uncertainty for customers in APS territory, and there is evidence that these reforms are already slowing the rate of distributed solar energy installations among APS customers.[25] Salt River Project, another large Arizona utility, also recently announced plans to impose special fees on customers with solar energy systems.[26]

---

19. *See* Mike Gangloff, *Appalachian Power's proposed fee targets uses of solar panels*, ROANOKE TIMES (Sept. 8, 2014), *available at* http://www.roanoke.com/news/local/blacksburg/appalachian-power-s-proposed-fee-targets-users-of-solar-panels/article_16597740-c251-5c3a-99e9-135dc19ae42c.html.

20. *See* Scott Gibson, *Vermont Utility Seeks a New Solar Fee*, GREENBUILDING ADVISOR.COM (Jul. 11, 2014), *available at* http://www.greenbuildingadvisor.com/blogs/dept/green-building-news/vermont-utility-seeks-new-solar-fee (last visited Oct. 17, 2014) (highlighting Washington Electric Cooperative's proposal to charge a grid service fee of $0.463 cents per kilowatt hour for all new net metered customers within its service area).

21. See Kiley Kroh, Push to Impose Extra Fees On Solar Customers Draws Outrage In Wisconsin, THINKPROGRESS.ORG (Sept. 14, 2014, 11:46AM), http://thinkprogress.org/climate/2014/09/14/3567244/utility-fees-end-wisconsin-solar/ (last visited Sept. 24, 2014) (describing a plan recently submitted by the Wisconsin Utility "We Energies" to impose a new monthly "demand charge" or $3.80 per kilowatt on owners of renewable energy systems).

22. *See* Diane Cardwell, *Compromise in Arizona Defers a Solar Fight*, N.Y. TIMES (Nov. 15, 2013), http://www.nytimes.com/2013/11/16/business/energy-environment/compromise-in-arizona-defers-a-solar-power-fight.html?_r=0.

23. *See id.*

24. *See* Ryan Randazzo, Commission votes to raise APS customers' bills, ARIZ. REPUBLIC (Nov. 14, 2013, 10 PM), http://www.azcentral.com/bu siness/arizonaeconomy/articles/20131114aps-solar-customer-bills-higher.html (last visited Oct. 20, 2014).

25. *See* Press Release, Marta Stoepker & Will Greene, Solar Installations Drop After APS Assesses Charge to Solar Customers, SIERRACLUB.COM (Apr. 14, 2014), http://content.sierraclub.org/press-releases/2014/04/solar-installations-drop-after-aps-assesses-charge-solar-customers (last visited Nov. 20, 2014) explaining that the quantityof rooftop solar energy installations in APS territory in the first quarter of 2014 was 40% lower than in the first quarter of 2014).

26. *See* Ryan Randazzo, SRP's proposed rate hike targets new rooftop-solar customers, AZCENTRAL.COM (Dec. 1, 2014, 4:03PM), http://www.azcentral.com/story/money/business/

Proposals to reform utility rates in ways that increase the fixed portion of customers' monthly bills have also become common in recent years and are similarly capable of curbing rooftop solar energy growth. Electricity rates have historically been volumetric, meaning that the total amount that customers owe on their electricity bills is based primarily upon the quantity of electric power actually supplied to them over that billing period.[27] However, a growing number of utilities are now seeking to make utility rates less volumetric in nature. For instance, in 2014, California's legislature recently enacted a statute authorizing utilities to impose fixed fees of up to ten dollars[28] and a utility in Wisconsin received state commission approval to increase its fixed monthly fee from nine dollars to sixteen dollars.[29]

Unlike the solar-specific fees charged by APS, fixed customer fees are paid by *all* customers, regardless of whether they have solar panels. However, these fees can still weaken economic incentives for rooftop solar because they increase the amount that customers must pay even if they use no grid-supplied power over a given billing period. Moreover, utilities tend to offset these large fixed fee increases with corresponding decreases in per-kWh rates so as to avoid steep overall rate increases. These reductions in the per-kWh price weaken customers' incentives to conserve electricity or to make buildings more energy efficient—two of the most cost-effective means of reducing carbon dioxide emissions from electric power.[30]

2014/12/01/srps-proposed-rate-hike-targets-new-rooftop-solar-customers/19753373/ (last visited Dec. 3, 2014) (describing SRP's proposed plan to impose fees of up to $50 per month on customers who add rooftop solar panels to their homes).

27. *See* Jeff D. Mackholm, "Decoupling" for Energy Distributors: Changing 19th Century Tariff Structures to Address 21st Century Energy Markets, 29 ENERGY L.J. 157, 161 (2008) ("In today's market, with millions of household and small commercial gas and electricity customers to serve, the pricing practices of most distributors are still restricted to the volumetric pricing of the 19th and early 20th century for the simple reason that household and small business meters still only measure the flowing gas and electricity supply").

28. *See* Graffy & Kihm, *supra* note 1, at 11–12 (stating that the "California Legislature set the upper bound on residential monthly fixed charges at $10") (citation omitted).

29. *See* Thomas Content, *Regulators agree to increase fixed charge on We Energy electricity bills*, MILWAUKEE JOURNAL-SENTINEL (Nov. 14, 2014) (http://www.jsonline.com/business/psc-begins-consideration-of-we-energies-rate-hike-plan-b99390765z1-282726581.html (last visited Nov. 20, 2014).

30. *See, e.g.*, Sam Robinson, Note, *The Carbon Dioxide Debate and Coal Plant Permitting in Virginia*, 35 WM. & MARY ENVTL. L. & POL'Y REV. 269, 300 (2010) (Citing a study finding that "[e]nergy conservation and efficiency improvements offer Virginia

In addition to the two fee-based reform strategies just described, utilities have advocated for several other types of policy changes in the past few years that adversely impact distributed solar energy. For example, some utilities have sought to reduce amounts credited to net-metered customers for the excess power they feed onto the grid.[31] An investor-owned utility in Colorado sought to more strictly limit the aggregate amount of distributed energy generating capacity that it must accept into its net metering program.[32] And Kansas legislators enacted a bill in 2014 that reduced the maximum size of distributed energy systems that were eligible for enrollment in net metering.[33]

Recent efforts to limit rooftop solar energy and weaken net metering programs represent a startling shift in the general policy approach toward distributed solar energy. Federal, state, and local governments have been actively promoting distributed solar energy through tax credits, subsidies, rebates, and other government incentives for years.[34] Such policies have long served as means of addressing perceived positive externality problems that would have otherwise led to sub-optimally low rates of solar installations.[35] Seemingly overnight, solar-friendly policies are now being

---

the most cost-effective means of decreasing carbon emissions" associated with electricity production and consumption in that state) (citation omitted).

31. For example, the Wisconsin Public Service Commission recently approved such changes under a request from We Energies, a large investor-owned utility in that state. *See* Thomas Content, *Regulators agree to increase fixed charge on We Energy electricity bills*, MILWAUKEE JOURNAL-SENTINEL (Nov. 14, 2014) http://www.jsonline.com/business/psc-begins-consideration-of-we-energies-rate-hike-plan-b99390765z1-82726581.html (last visited Nov. 20, 2014) (stating that, under a newly released Public Service Commission decision, We Energies would be authorized to "pay less for the power that customers generate with solar panels").

32. Xcel Energy, an investor-owned utility in Colorado, is an example of a utility that has recently advocated for more aggressive caps on net metering. *See* ABA Environment, Energy and Resources Law Energy and Resource Committee, *Year in Review*, *supra* note 4, at 270.

33. *See* Karen Uhlenhuth, *In defeat for ALEC, Kansas lawmakers pass net metering plan*, MIDWEST ENERGY NEWS (Apr. 7, 2014) (last visited Oct. 20, 2014) (describing newly-enacted legislation in Kansas providing that only residential solar energy installations with generating capacities of 15 kilowatts or less may qualify for net metering in that state).

34. An exhaustive compilation of links to state incentive programs and policies relating to solar energy, U.S. DEP'T OF ENERGY, http://www.dsireusa.org/solar/.

35. *See* Adam B. Jaffe et al., *A Tale of Two Market Failures: Technology and Environmental Policy*, 54 ECOLOGICAL ECON. 164, 172–73 (2005), *available at* http://www.rff.org/rff/Documents/RFF-DP-04-38.pdf (referring to solar energy as providing positive externalities). (quoted in Paul Boudreaux, *Carrots and Sticks, from President Obama's Solyndra and Beyond*, 4 WASH. & LEE J. ENERGY, CLIMATE, & ENV'T 1, 41 (2013), *available at* http://law2.wlu.edu/deptimages/Journal%20of%20Energy,%20Climate,%20and%20the%20Environment/6-Boudreaux.pdf).

replaced with limitations and fees that are likely to slow the pace of distributed solar energy growth.

III. FAIRNESS AS AN ARGUMENT IN POLICY ANALYSIS

Notions of fairness are woven throughout utilities' nationwide movement to limit net metering and reform electricity rate designs in response to distributed solar energy. Why has the concept of fairness emerged as a driving force in utilities' recent push for reforms? And is this emphasis on fairness sensible, or should it be cause for concern?

A. Utilities' Focus on Fairness

Utilities across the country are increasingly appealing to fairness when advocating for reforms to net metering programs or rate designs that would weaken incentives for rooftop solar energy. APS made fairness a focal point of its successful bid for permission to impose targeted fees on solar-using customers. Throughout its public relations campaign, APS emphasized the need for greater fairness as its primary motivation for seeking reforms. The following quote from the APS Manager of Renewable Energy typified the utility's message:

> We love customers to go solar; the energy is a great resource as part of our energy portfolio. But this is about cost shifting and *fairness*. . .We're trying to find a way to *fairly* compensate solar users for power they generate but also have them *fairly* pay the price for the grid they are still connected to.[36]

Other investor-owned utilities throughout the country have made very similar sorts of arguments in connection with their own reform proposals. For instance, a spokesperson for Oklahoma Gas and Electric Co. discussing that utility's push for net metering reform explained, "We're not anti-solar or anti-wind or trying to slow this down, we're just trying to keep it *fair*."[37] And the Wisconsin utility "We Energies" characterized its recent rate reform proposal as "a path to renewable energy fairness."[38]

---

36. Kristine Harrington, *APS seeks to charge new solar customers more*, azfamily.com (July 16, 2013) (italics added), *available at* http://www.azfamily.com/news/APS-seeks-to-charge-new-solar-customers-more-215759191.html (last visited Oct. 21, 2014).

37. Kiley Kroh, *Oklahoma Will Charge Customers Who Install Their Own Solar Panels*, THINKPROGRESS.ORG (Apr. 16, 2014, 3:37 PM), http://thinkprogress.org/climate/2014/04/16/3427392/oklahoma-fee-solar-wind/ (emphasis added).

38. *See Path to Renewable Energy Fairness*, WE ENERGIES, http://www.we-energies.com/renewable_energy_fairness/clarifications_corrections.htm (last visited Nov. 20, 2014).

B. Using Fairness to Defend a Conservative Policy Position?

Utilities' heavy reliance on fairness arguments to advocate for policies that would slow rooftop energy development is in some sense surprising. After all, fairness arguments tend to be most frequently employed by left-leaning parties to challenge capitalistic policy strategies. The ideals of efficiency and fairness are often characterized as being inherently at odds[39]: conservative policy positions frequently have some grounding in utilitarian principles, while progressive positions tend to give greater consideration to notions of justice and equity.

How, then, have advocates of distributed solar energy—a seemingly progressive bunch—suddenly found themselves on the opposite side of a fairness debate? And what, if anything, might we learn from this unusual dynamic?

C. The Potential Disadvantages of Fairness Arguments in Policy Discussions

Utilities may rely on fairness arguments to challenge distributed solar energy merely because they believe such arguments will resonate well among the general public. However, their emphasis on fairness may be hindering policymakers' efforts to facilitate a smooth national transition toward cleaner, distributed energy sources. As the following discussion describes, fairness arguments can often oversimplify complex questions and lead to rash or unjustifiable policy decisions.

Fairness is a concept that pervades human culture and is among the first ideals that infants grasp in early stages of child development.[40] It is thus hardly surprising that idealistic references to fairness appear throughout modern law, from fair trade to fair housing to fair labor practices. As evidenced by a recently published book that compiles dozens of top rate academic articles on the topic, there is also a vast and rich set of academic

---

39. *See* Lee Anne Fennell & Richard H. McAdams, Fairness in Law and Economics: An Introduction1 (U. OF CHI. COASE-SANDOR INST. FOR L. & ECON., Working Paper No. 704, 2014), *available at* http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2504819 [hereinafter Fennell & McAdams, Fairness in Law *& Economics*] (noting that "The relationship between fairness and the economic concept of efficiency is usually cast as an adversarial one") (citation omitted).

40. *See, e.g.*, Marco F. H. Schmidt & Jessica A. Sommerville, *Fairness Expectations and Altruistic Sharing in 15-Month-Old Human Infants*, 6 PLOS ONE 1 (2011) (describing a live human study concluding that infants begin developing a sense fairness as soon as 15 months after birth).

scholarship devoted to notions of fairness and their place in legal discourse.[41]

Notions of fairness undoubtedly have value in some contexts as a first-order means of identifying issues relating to justice, equality, or impartiality,[42] and some other policy ideals.[43] Claims that a particular proposal or rule would be unfair can sometimes help draw attention to certain policy impacts that are difficult to articulate and thus might otherwise go unnoticed.[44]

However, because such a wide variety of policy impacts can conceivably be classified as unfair, appeals to notions of fairness can also breed confusion and mislead decision-makers. The lack of a clear, singular definition of fairness can make fairness a difficult standard to pursue since stakeholders often have disparate views about what achieving fairness might look like in a given context.[45] And ambiguities embedded in the word "fair" make it particularly prone to manipulation. Consider, for example, how one scholar critiqued the use of the phrase "fair trade" in academic and political circles:

> Fair trade means a moral canonization of pure political arbitrariness . . . Fair trade in practice consists of politically anointing certain domestic economic interests, and then commandeering the machinery of the state to enforce the political dictate. To achieve fair trade requires constant bureaucratic and political manipulation and continual revision of the definition of fairness. The definition of fair trade has become trade controlled by politicians and bureaucrats.[46]

Despite the numerous shortcomings associated with the concept of fairness, framing a policy as fair often imbues it with a stamp of correctness

---

41. *See generally* FAIRNESS IN LAW AND ECONOMICS (Lee Anne Fennell & Richard H. McAdams, eds., Edward Elgar Pub. 2013).

42. *See* BLACK'S LAW DICTIONARY 271 (9th ed. 2009) 271 (defining "fair" as "[i]mpartial; just; equitable; disinterested" and alternatively defining it to mean "[f]ree of bias or prejudice").

43. *See, e.g.,* Seth D. Harris, *Conceptions of Fairness and the Fair Labor Standards Act*, 18 HOFSTRA LAB. & EMP. L.J. 19, 20–24 (2000) (describing five distinct conceptions of "fairness" present in fair labor law).

44. *See* Louis Kaplow & Steven Shavell, *Fairness Versus Welfare*, 114 HARV. L. REV. 961, 1315 (2001). ("Notions of fairness are like other intuitions and instincts: they may suggest a tentative answer to questions, motivate inquiry in useful directions, and *serve* as a check against the tendency to accept too readily new and intriguing yet untested ideas").

45. *See, e.g.*, James R. Kearl, PRINCIPLES OF ECONOMICS 607 (1993) (Noting that it is "not clear how 'fairness' should be defined" and that "whether we judge what we observe to be fair or unfair depends on what we believe 'fairness' means").

46. James Bovard, *The Morality of Protectionism*, 25 N.Y.U. J. INT'L L. & POL. 235, 247–48 (1993). Fairness has likewise taken on several different definitions in the context of fair labor laws. *See generally* source cited *supra* note 43.

or "moral superiority."[47] Many people seem to inherently favor what they perceive to be the fairest policy or outcome and to give less weight to all other considerations. Some scholars have speculated that this inclination may be partly due to close ties between humans' conceptions of fairness and their shared system of social norms.[48] Regardless, humans' ingrained bias in favor of what they perceive to be fair can make appeals to fairness a powerful means of influencing public sentiment on a controversial issue.

Published research by Professors Steven Shavell and Louis Kaplow has brought significant attention to the concept of fairness within legal academic circles over the past two decades.[49] In essence, these renowned scholars argue that policies should be evaluated based "exclusively on their effects on individuals' welfare" with "no independent weight" given to "conceptions of fairness."[50] In part because of the potential hazards described above, they recommend proceeding cautiously when encountering fairness arguments in policy discourse. To quote Shavell and Kaplow:

> [W]hen a particular result seems fair or unfair to us, we should . . . explore the problem, both analytically and empirically, and also reflect on our notion of fairness . . . In some instances, we will thereby identify important considerations that we might otherwise have omitted from our analysis. At other times, we will find . . . our notion of fairness to be misleading . . . [A] common phenomenon is that the notion of fairness reflects one important factor in a situation but ignores others."[51]

The pervasive use of fairness arguments in the current debate over net metering and solar energy warrants an application of the Shavell and Kaplow approach—a closer, more rigorous look at what truly lies behind

---

47. Louis Kaplow & Steven Shavell, *Fairness Versus Welfare*, 114 HARV. L. REV. 961, 1308 (2001).

48. *See id*. at 1308–09 (suggesting that humans' strong tendency to favor policy options that they perceive to be fair is at least partly "due to the correspondence between notions of fairness and norms of common morality that have been instilled in everyone").

49. *See generally* Louis Kaplow and Steven Shavell, *The Conflict* Between Notions of Fairness and the Pareto Principle, 1 AM. L. & ECON. REV. 63 (1999); Louis Kaplow & Steven Shavell, *Notions of Fairness Versus the Pareto Principle: On the Role of Logical Consistency*, 110 YALE L.J. 237 (2000); Louis Kaplow & Steven Shavell, *Fairness Versus Welfare*, 114 HARV. L. REV. 961 (2001). Kaplow's and Shavell's thoughtful economic analysis of the concept of fairness makes for a fascinating read but unfortunately goes well beyond the scope of this short article.

50. *Id*. at 966. It should be noted that focusing on individuals' welfare does not equate to ignoring social preferences in favor of such values as non-discrimination or equality that that are sometimes framed in terms of fairness. Theorists have clarified that these preferences are to be factored in when formulating the social welfare function. *See* Anne Fennell McAdams, *Fairness in Law and Economics*, *supra* note 39, at 1–2 (observing that "fairness is often concerned with distribution, and a social welfare function (SWF) can be structured to value certain distributions. A utilitarian SWF seeks to maximize the sum of individual utilities, but welfare theory is also consistent with the selection of a SWF that would put some independent weight on achieving equality of welfare across individuals").

51. *Id*. at 1315–16.

these fairness claims. What specific impacts are utilities referring to when they assert that policies such as net metering and existing rate structures are unfair? And do these impacts create a need for major policy reforms, or are they outweighed by other countervailing factors? Closely examining these fairness arguments is the only effective mean of evaluating their true merits.

IV. THE PRIMARY FAIRNESS ARGUMENTS AGAINST POLICIES FAVORING DISTRIBUTED SOLAR ENERGY

Fairness arguments leveled against net metering programs and existing rate designs come in various forms and involve several different classes of parties. However, such claims tend to implicate three primary categories of victims: (i) utility customers who have no solar panels, (ii) utility customers with low incomes, and (iii) utilities themselves.

A. Unfairness Toward Customers Without Rooftop Solar Energy Systems: The "Fair Share" Argument

The most common fairness-based argument raised against solar net metering is that it allows utility customers with rooftop PV systems to "free ride" off of other customers who do not have solar panels.[52] Numerous utilities and their allies have asserted that net metering programs and existing rate structures allow customers with solar energy systems to make use of the electric grid as a back-up power source without paying their "fair share" of the costs of building and maintaining it.[53]

---

52. Free riding is among the most basic concepts in microeconomic theory. *See* Kearl, PRINCIPLES OF ECONOMICS, *supra* note 45, at 441 ("Free riding occurs when a person benefits from or uses a valuable good or service without having to pay for it").

53. *See, e.g.*, Kroh, *supra* note 21 (quoting a Wisconsin utility's spokesperson as saying that "Under the current rates, [solar users] really don't pay their fair share of grid operating costs"); William Pentland, *Why the net metering fight is a red herring for utilities*, UTILITYDIVE.COM (Sept. 22, 2014), *available at* http://www.utilitydive.com/news/why-the-net-metering-fight-is-a-red-herring-for-utilities/307061/ (last visited Nov. 22, 2014) (quoting the Edison Foundation's Institute for Electric Innovation as arguing that reforms were needed to help ensure that distributed generation customers "pay their fair share of the cost of the grid"); Bobby Magill, Okla. *Utilities Hit Homes Using Solar with Extra Fee*, CLIMATECENTRAL.ORG (Apr. 22, 2014), *available at* http://www.climatecentral.org/news/oklahoma-solar-surcharge-bill-becomes-law-17335 (last visited Nov. 20, 2014) (quoting Oklahoma Gas and Electric spokeswoman Kathleen O'Shea as arguing that her company merely wants to "make sure everybody who's using the grid is paying their fair share").

1. What Does Paying a "Fair Share" of Grid Costs Mean?

As mentioned above, utility customers in most jurisdictions pay primarily volumetric rates for their electricity: the amount due on their monthly electricity bill is based largely upon the number of kilowatt hours (kWh) they consume over the billing period.[54] Utilities tend to recoup most of the variable and fixed costs associated with electricity production and distribution by charging customers for their actual consumption of grid-supplied power.[55]

When utility customers install new solar arrays on their rooftops and enroll in net metering programs, the quantity of grid-sourced electricity they consume each period typically shrinks to a mere fraction of its former amount. Under utilities' typical volumetric electricity rate structure, this decline in the net quantity of delivered power translates into much lower power bills for customers with distributed solar energy systems.[56] However, such customers still rely regularly on the electric grid for backup power when the sun is not shining enough to satisfy their energy needs.

Eventually, utilities must seek increases to their electricity rates to enable them to maintain the same basic grid infrastructure while selling less power. The monthly electricity bills paid by non-solar-using customers go up as a result of these rate increases, while customers with solar panels experience much smaller bill increases. Because solar users still depend on the grid but pay far less than other utility customers pay, some electric utilities have claimed that solar energy users do not pay their "fair share" of the grid costs.[57]

---

54. *See* Mackholm, *supra* note 27 and accompanying text.

55. *See* Curry, *supra* note 6 (explaining that the "current regulatory model provides recovery of most fixed costs through volumetric (kWh) rates for residential and small business customers. Fixed costs are part of allowed revenue requirements, which are spread over the average per-customer kWh sales established in the test year for mass market customers").

56. Net metering programs greatly amplify these savings. *See*, *e.g.*, Josh Cornfeld, *How Much Money Will California Customers Save with Net Metering?,* GREENTECHMEDIA.COM (Aug. 1, 2014), *available at* http://www.greentechmedia.com/articles/read/how-much-money-will-california-solar-customers-save-with-net-metering (last visited Nov. 22, 2014) (estimating that, "with net energy metering at the retail rate, the solar system saves each of the model customers $700 to $1,000 more on their annual electricity bill compared to the scenario with no net energy metering at all, equivalent to savings of an additional 54 percent to 85 percent").

57. Numerous utilities and advocates have made this argument. *See, e.g.*, David Fladeboe, *Memo: All Should Pay for their Fair Share of the Electric Grid*, AMERICANSFORPROSPERITY.ORG (Sept. 15, 2014), *available at* http://americansforprosperity.org/wisconsin/newsroom/memo-all-should-pay-for-their-fair-share-of-the-electric-grid/ ("Solar customers . . . should have to pay their fair share for the grid that they use as much, if not more, than the rest of us"); Melanie Turner, *Utilities: solar customers don't pay fair share*, SACRAMENTO BUS. J. (Mar. 16, 2012), *available at* http://www.bizjournals.com/sacramento/print-

2. A More Descriptive Label: Cross-Subsidization

Utilities' "fair share" arguments against solar users can be alternatively described as arguments against cross-subsidization. To the extent that they compel utilities to raise electricity rates, net metering and existing rate designs can potentially create cross-subsidies in favor of solar energy users.

One stakeholder has compared such purported subsidies to subsidies enjoyed by owners of electric cars who regularly use public roads but do not buy gasoline and thus avoid paying the gasoline taxes that fund much of a jurisdiction's road construction and maintenance.[58] Drivers of electric cars are arguably able to use public roads without paying their fair share of the costs associated with road construction and maintenance, forcing drivers of gasoline-powered vehicles pick up the tab.[59]

3. Cross-Subsidies Are Not Necessarily Bad Policy

However, evidence that net metering programs and existing electricity rate designs are creating cross-subsidies among utility customers would not necessarily mean that such policies are undesirable. Indeed, basic microeconomic theory teaches that subsidies can be a valuable tool for promoting economic efficiency when tailored to address positive externality problems that might otherwise lead to a sub-optimally low quantity of some socially valuable activity.[60]

---

edition/2012/03/16/ utilities-solar-users-dont-pay-enough.html?page=all (quoting a spokesperson for Pacific Gas & Electric Co. as being "concerned that there is a cost shift and those customers are not paying their fair share" of transmission and distribution costs); Ian Clover, *Utilities in several US states plan ways to make solar customers pay more*, PV MAG. (Sept. 24, 2013), *available at* http://www.pv-magazine.com/news/details/beitrag/utilities-in-several-us-states-plan-ways-to-make-solar-customers-pay-more_100012824/#axzz3JonYME3V (last visited Nov. 22, 2014) (quoting Arizona Public Service Co. spokesman as justifying proposed rate reforms on the ground that "[e]veryone who's using the grid ought to pay their fair share").

58. *See* Amy Joi O'Donoghue, *Critics wants lights out on net-metering bill*, DESERET NEWS (Feb. 24, 2014, 5:15 PM), http://www.deseretnews.com/article/865597293/Critics-wants-lights-out-on-net-metering-bill.html?pg=all (describing Utah State Senator Curt Bramble's comparison between solar energy users and electric car drivers).

59. *See id*.

60. *See* HARVEY S. ROSEN, PUBLIC FINANCE 86 (10th ed. 2014) (explaining positive externality problems and how such problems may be addressed through Pigouvian subsidies).

Laws intentionally creating direct and indirect subsidies have existed for decades, promoting everything from basic research[61] to home ownership[62] to charitable donations.[63] Governments use tax revenues to support a wide range of subsidies.[64] Tax-funded subsidy programs result in cross-subsidies from the broad base of all taxpaying citizens to those citizens engaged in certain, subsidized activities such as homeownership or charitable giving. Sometimes, subsidy programs facilitate rent seeking behavior and unwarranted wealth transfers to undeserving special interest groups.[65] However, many subsidies are not the product of rent seeking and appear to do much to correct market failures and promote the social welfare.

In fact, cross-subsidies have long existed within electric utility rates and many electric utilities have deliberately embedded cross-subsidies into their pricing for decades. For example, some utilities offer special discounted rates to certain commercial or industrial electricity users as a means of enticing them to relocate into their territories.[66] Numerous utilities also facilitate cross-subsidies to low-income customers through various income-based rate discount programs.[67] So long as such differential pricing is not

---

61. *See* Michael Livingston, *Risky Business: Economics, Culture, and the Taxation of High-Risk Activities*, 48 TAX L. REV. 163, 218–19 (1993) (describing externalities as a common justification for basic research and development).

62. *See* Gregg D. Polsky, *Rationally Cutting Tax Expenditures*, 50 U. LOUISVILLE L. REV. 643, 655 (2012) (explaining that "proponents of the mortgage deduction argue that home ownership creates positive externalities" and that "[t]his is the most common justification for continuing the mortgage interest deduction" under federal income tax law).

63. *See* David A. Weisbach, *What Does Happiness Research Tell Us About Taxation?*, 37 J. LEGAL STUD. 293S, S320 (2008) (stating that "charitable donations have a positive externality (they help the recipient as well as provide utility to the donor) and, therefore, might be subsidized" on that ground).

64. *See* Walter F. Dodd, *The Growth of National Power*, 32 YALE L.J. 452, 454 (1923) ("The income tax amendment, by giving to the national government a large additional source of revenue, has made it possible for the nation to embark upon a system of subsidies to the states, through which the nation has come to a large extent to determine state policies as to education, highway construction, and other matters").

65. *See* Jason Brennan, *The Right to Good Faith: How Crony Capitalism Delegitimizes the Administrative State*, 11 GEO. J. L. & PUB. POL'Y 317, 328 (2013) (explaining that a "firm engages in rent seeking when it tries to manipulate the political environment for its own benefit" and adding that rent seeking is a "socially destructive" practice).

66. *See* Charles F. Phillips, Jr., THE REGULATION OF PUBLIC UTILITIES, REGPU CH 10, 2005 WL 998372, 97 (1988) "[T]here are special discount rates; rates that have been proposed and adopted (often on an experimental basis) that are commonly known as 'incentive' or 'economic development' rates. Such rates 'are designed both to promote increased sales to existing industrial customers and to attract new firms to a utility's service territory'" but "raise issues of undue discrimination").

67. *See* STEVEN FERREY, THE LAW OF INDEPENDENT POWER § 10:17 (34th ed. 2014) (providing a comprehensive review of low-income electric rate discount programs in the United States).

"unreasonably discriminatory", it is generally permissible in most jurisdictions.[68]

In addition to the intentional cross-subsidies just described, incidental cross-subsidies have likewise existed within utilities' electricity pricing since the earliest years of the regulated utility model. To illustrate this idea, consider Ann and Beth—two hypothetical residential utility customers receiving electricity service from a common utility company. Suppose that Ann lives about one mile from a large natural gas-fired power plant that generates most of her utility's supply of electricity. A single distribution line carries that power directly from the power plant to Ann's home. In contrast, Beth lives more than 100 miles away from the power plant, so the electricity she uses must traverse tens of millions of dollars' worth of grid infrastructure before reaching her residence. Assuming that Ann and Beth pay identical retail rates and fees for their electric power, Ann subsidizes Beth's use of the electric grid—Beth arguably doesn't pay her "fair share" of the costs of maintaining it. And yet, such cross-subsidies have been an accepted reality for regulated electricity pricing for generations. It would be nearly impossible to price electricity so as to perfectly avoid such cross-subsidization,[69] so utilities seldom characterize these sorts of cross-subsidies as unfair.

Given that subsidies can sometimes be valuable policy tools and that at other times they are very costly to avoid, case-by-case analysis is required to determine whether any particular policy creating a subsidy is justifiable. In the case of distributed solar energy, the proper question is not an ambiguous one about whether the alleged cross-subsidies associated with policies supporting distributed solar energy are "fair." Instead, decision-makers should be asking whether these policies are a justified means of furthering important social goals.

Policies benefiting distributed solar energy arguably do advance a legitimate policy goal: they address a positive externality problem and

68. *See* Steven Ferrey, *Solving the Multimillion Dollar Constitutional Puzzle Surrounding State "Sustainable" Energy Policy*, 49 WAKE FOREST L. REV. 121, 164 (2014) ("If classifications are reasonable, disparity in rates may exist between different classes of customers and, typically, industrial, residential, commercial and municipal customers pay different rates for their services") (citations omitted).

69. U.S. Supreme Court Justice Stephen G. Breyer has emphasized the inherent imprecision associated with utility rate setting. *See* STEPHEN G. BREYER, REGULATION AND ITS REFORM 47 ("It is clear that setting a rate of return cannot, even in principle, be reduced to an exact science . . . and suggestions of a proper rate—carried out to several decimal places—give an air of precision that must be false").

thereby promote more optimal levels of investment in rooftop solar energy. Solar energy generation is widely recognized as creating benefits that are not easily captured by producers of that energy. For example, a recent study focused on APS territory concluded that the benefits of distributed solar generation in that region actually exceeded its costs by more than 50% because it reduced peak demands while helping the utility to comply with state renewable portfolio standard requirements.[70] Solar energy generation also displaces demand for fossil fuel-generated power and the adverse environmental impacts associated with it—additional benefits that ordinarily cannot be fully captured by generators of solar power.[71] In the absence of any government intervention, this positive externality problem is likely to result in a sub-optimally low quantity of solar energy production.[72] Policies that directly or indirectly subsidize solar energy generation to encourage more of it can be a useful means of helping to correct that market failure.[73] Accordingly, policymakers have used federal investment tax credits and other programs to aggressively subsidize renewable energy development for nearly a decade.[74] There is no obvious reason why a subsidy to solar energy users is any less fair when it results from net metering programs and volumetric electricity rates than when it is administered more directly through tax credits or similar means.

A more legitimate policy concern associated increasing rooftop PV installations and existing policies is the risk that this combination could ultimately drive utilities into insolvency—the death spiral scenario highlighted above.[75] Reductions in the reliability or quality of electricity service under such a scenario could impose widespread economic losses

---

70. *See* R. Thomas Beach & Patrick G. McGuire, *SEIA/Crossborder Energy: The Benefits And Costs Of Solar Distributed Generation For Arizona Public Service* at 2, *available at* http://www.seia.org/sites/default/files/resources/AZ-Distributed-Generation.pdf (last visited Nov. 24, 2014) (concluding that "the benefits of [distributed generation] on the APS system exceed the cost, such that new [distributed generation] resources will not impose a burden on APS's ratepayers . . . The benefits exceed the costs by more than 50%, with a benefit/cost ratio of 1.54").

71. *See* Diana S. Power, *Solar Power Begins to Shine as Environmental Benefits Pay Off*, N.Y. TIMES, Nov. 11, 2013 (describing numerous environmental benefits of PV-generated power as an alternative to coal-generated electricity).

72. *See* Rosen, *supra* note 60, at 106 (explaining that, "[w]hen an individual or firm produces positive externalities, the market underprovides the activity or good, but an appropriate subsidy can remedy the situation").

73. *Id.*

74. *See* Zachary Scott Simmons, *Subsidizing Solar: The Case for an Environmental Goods and Services Carve-out from the Global Subsidies Regime*, 32 UCLA J. ENVTL. L. & POL'Y 422, 432–38 (2014) (Providing a detailed summary of the recent cadre of aggressive subsidy programs directed at promoting solar energy, beginning with the 30 percent federal Investment Tax Credit instituted under the Energy Policy Act of 2005).

75. *Supra* notes 11–13 and accompanying text.

and may thus be worthy of policymakers' attention. Inventive policies are needed to facilitate the growth of distributed generation technologies while promoting a smooth and non-disruptive transition away from centralized power. Unfortunately, rhetoric fixation on fairness among customers can make it difficult to focus on these more genuine policy challenges.

B. Unfairness Toward Low-Income Utility Customers: The Regressivity Argument

Another common fairness-based argument against net metering and existing rate design is that such policies are income-regressive, creating wealth transfers from low-income customers to high-income ones. Such regressivity-based unfairness claims have surfaced in multiple states in recent years in debates over solar-related utility policy reforms.[76] These claims combine the cross-subsidy concept described above with assumptions about the socioeconomic status of solar-using utility customers. In essence, the argument is that cost barriers prevent lower-income customers getting rooftop solar panels, leaving them no option but to pay ever higher utility rates for conventional power as wealthier customers go solar.[77] As one utility representative summarized it:

> Low-income customers can't put on solar panels—let's be blunt. . .So why should a low-income customer have their rates go up for the benefit of someone who puts on a solar panel. . .?[78]

Do potential wealth distribution impacts create a compelling reason to reform net metering programs and rate designs in response to the growth of distributed solar energy? On the one hand, although market prices of

---

76. *See, e.g.*, Melissa Powers, *Small is (Still) Beautiful: Designing U.S. Energy Policies to Increase Localized Renewable Energy Generation*, 30 WIS. INT'L L.J. 595, 647 (2012) ("[U]tilities have raised populist arguments in which they characterize net metering policies as wealth transfer mechanisms that force poorer ratepayers to subsidize the renewable energy proclivities of wealthier ratepayers"); Monica Martinez, *The Poor Shouldn't Have to Bear the Cost of Solar Power*, FORBES, June 13, 2014 (opinion) (arguing that solar net metering results in an "unfair cost shift" from low-income families to high-income families).

77. *See* Powers, *supra* note 76, at 655 ("Since wealthier customers will typically install distributed generation systems, but the costs of supporting distributed generation are shared among ratepayers, this may appear to be an unfair wealth transfer").

78. Diane Cardwell, *Solar Panel Payments Set off a Fairness Debate*, N.Y. TIMES, June 5, 2012, at B1.

rooftop PV and other distributed energy systems have declined precipitously over the past decade, such systems still remain out of reach for many residential consumers.[79] Solar leasing companies such as SolarCity and SunRun have helped to expand the accessibility of distributed solar energy to some customers with lesser means.[80] Still, even these companies generally require that customers have solid credit histories and stable incomes to qualify for their products.[81] Since lower-income customers are less likely to go solar and be beneficiaries of any purported cross-subsidies associated with it, net metering and some other pro-solar utility policies arguably could be characterized as income-regressive.

On the other hand, investing in solar PV systems is less financially appealing to low-income customers in much of the country because of the significant rate discounts that are available to these customers based on their income levels.[82] For example, in APS territory in Arizona, a family of five with an annual household income of nearly $42,000 can qualify for rate discounts between 26 percent and 65 percent.[83] In contrast, a recent study by Berkeley Labs determined that even if a hypothetical utility in the Southwestern United States was to fill 10 percent of its electricity demand via solar energy, utility rates in that jurisdiction would likely increase by only 2.5 percent.[84] Such a modest rate increase would

---

79. *See* Christine Tusher, *Everything You Need to Know About Adding Solar Panels At Home*, FORBES, May 17, 2014, http://www.forbes.com/sites/houzz/2014/05/17/everything-you-need-to-know-about-adding-solar-panels-at-home/ (noting that, nationwide, the average up-front cost (after tax credits and other subsidies) for a residential solar energy system was about $17,000).

80. *See* Gabriel Schnlitzler, *Clean Tech Opportunities in Green Building Legislation*, 5 AM. U. BUS. L. BRIEF 42, 49 (2008) (describing how "financing innovations from companies such as SunRun and Solar City. . .try to reduce up front solar installation costs by making sales to consumers via power purchase agreements and equipment leases").

81. *See* Jonathan Fahey, Can you go solar? Leases and loans make it possible, USA TODAY, Oct. 12, 2014 (noting that SolarCity's solar lease and loan plans "generally require[] a high credit score" and that "SolarCity will only lend to those with a credit score of at least 680").

82. *See* FERREY, THE LAW OF INDEPENDENT POWER, *supra* note 67, § 10:17 (providing a comprehensive review of low-income electric rate discount programs in the United States).

83. To review the discounts available to lower-income residential customers in APS territory, visit the APS limited income home web page at http://www.aps.com/en/ residential/ accountservices/assistanceprograms/pages/limited-income-home.aspx (last visited Nov. 24, 2014) (providing that a household of five individuals with a total household income of no more than $3,489 per month (or $41,858 per year) could qualify for discounts on electricity of between 26% and 65 percent under the APS Energy Support Program).

84. *See* Andrew Satchwell, et al., *Financial Impacts of Net-Metered PV on Utilities and Ratepayers: A Scoping Study of Two Prototypical U.S. Utilities*, BERKLEY LAB: ELECTRICITY MARKETS AND POLICY GROUP at 29 (Sept. 2014), *available at* http:// emp.lbl.gov/sites/all/files/LBNL%20PV%20Business%20Models%20Report_no%20report%20number%20(Sept%2025%20revision).pdf (At 10% PV penetration . . . average retail rates for the SW utility are 0.35 cents/kWh (2.5%) higher than without PV").

barely begin to offset the massive cross-subsidies for which low-income customers already qualify.

Moreover, utilities can often mitigate the potential income distribution effects of net metering and volumetric rate structures without sacrificing solar-friendly utility policies. For instance, utilities with such concerns can simply increase the magnitude of their rate discounts to lower-income customers.[85] Utilities can even help to fund such additional discounts by adopting Oregon's policy of contributing unused net metering credits to low-income assistance programs.[86]

Ironically, some utilities' proposals to reform net metering policies or rate designs affecting distributed solar energy could ultimately harm low-income customers. As some advocacy groups have recently pointed out, these sorts of reforms could ultimately drive greater numbers of solar-using customers to leave the electric grid entirely and use distributed energy storage systems for backup power.[87] Such an exodus would only increase the long-term cost burden on lower-income customers who remained connected to the grid.

Reforms that weakened the policy incentives for distributed solar energy could also help to perpetuate energy-related environmental injustices that often disproportionately victimize low-income populations. For example, low-income citizens are more likely to live near coal-fired power plants, nuclear power facilities, oil refineries, and other locales made less desirable because of adverse impacts of conventional energy production.[88] Net metering, volumetric electricity rates, and other utility-

85. At least one scholar has noted this possibility. *See* Power, *supra* note 76, at 655 ("Even among residential customers, several states offer low-income payment assistance and lifeline rates designed to provide affordable electricity services for poor customers. Thus, maintenance of these rate design strategies should mitigate the possibility of wealth transfer").

86. *See* OR. REV. STAT. § 757.300(3)(d) (2013) (providing that "any remaining unused kilowatt-hour credit accumulated during the previous year shall be granted to the electric utility for distribution to customers enrolled in the electric utility's low-income assistance programs" or used in certain other limited ways set forth in the provision).

87. *See* Herman K. Trabish, *The fight over solar moves from net metering to rate design*, UTILITY DIVE (Nov. 3, 2014), http://www.utilitydive.com/news/the-fight-over-solar-moves-from-net-metering-to-rate-design/327742/ (describing how groups such as AARP and the NAACP opposed Madison Gas & Electric's proposed increase in fixed customer fees because of feared impacts on lower-income customers).

88. A 2012 NAACP report highlights this problem. *See* Adrian Wilson, et al., *Coal Blooded*, NAACP 15 (2012), http://www.naacp.org/page/-/Climate/CoalBlooded.pdf (last

related policies that promote renewable energy arguably help to limit these injustices as well.[89]

Finally, some economists would argue that policymakers should not even consider income distribution effects when structuring net metering and electricity rates. As Professors Shavell and Kaplow have observed, weighing wealth distribution impacts in these contexts tends to result in unnecessary economic distortions. In their words:

> [W]hen legal rules do have distributive effects, the effects usually should not be counted as favoring or disfavoring the rules because distributional objectives can often be best accomplished directly, using the income tax and transfer (welfare) programs. One reason economists have tended to favor these direct means of redistribution is that they reach all individuals and are based explicitly on income.[90]

Put differently, reforming net metering policies or redesigning electricity rates on account of wealth distribution impacts is generally inefficient and undesirable from the perspective of all socioeconomic classes. For all of the aforementioned reasons, such impacts are not viable grounds for reforming existing utility policies in response to the growth of rooftop solar power.

C. Unfairness Toward Utilities and Their Investors: The "Breach of Regulatory Contract" Argument

One other type of fairness argument that might be leveled against solar-friendly utility policies is that such policies are unfair to investor-owned utilities and their shareholders. Unsurprisingly, utilities tend to make this argument more sparingly. Citizens tend to be less inclined to sympathize with corporations and investors than with ordinary utility customers. In truth, policies that promote the growth of distributed renewable energy probably create greater financial risks for utilities than for their customers or anyone else.[91]

Regulated electric utilities have long been viewed as having an implicit contract with state regulators. Under this contract—which is commonly

---

visited Feb. 3, 2015) (finding that "coal power plants tend to be disproportionately located in low-income communities").

89. *See* Jeanetta Williams, *Net metering is fair, benefits all communities*, LAS VEGAS SUN, Oct. 12, 2014, http://www.lasvegassun.com/news/2014/oct/12/net-metering-fair-benefits-all-communities/ (Local NAACP leader arguing in favor of solar-friendly utility policies on the ground that the "costs of continuing on the fossil fuel-dependent paths are disproportionately borne by low-income communities and communities of color" but that "the development of clean energy sources, such as solar, provides an opportunity to improve the health and well-being of everyone").

90. Kaplow & Shavell, *Fairness versus Welfare*, *supra* note 49, at 993–94.

91. *See* Satchwell, et al., *supra* note 84, at 60 ("Compared to the impacts on ratepayers, the impacts of customer-sited PV on utility shareholders are potentially much more pronounced").

referred to as a "regulatory contract"[92]—utilities generally must provide power to all parties within their designated geographic territory and must only charge rates approved by their state's regulating entity.[93] In return, utilities have historically enjoyed legally protected monopoly status within their assigned territories[94] and rights to charge electricity rates sufficiently high to generate reasonable financial returns.[95]

Utility policies that support the growth of distributed solar energy arguably threaten both of the promised benefits that utilities have historically enjoyed under their implicit contract with state regulators. First, such policies help a powerful disruptive technology to erode away at utilities' monopoly power within their designated territories. Net-metered solar energy users compete directly with conventional utilities, displacing customer demand in an already-tepid electricity market that utilities have long occupied almost entirely on their own.[96] From the perspective of some utilities, policies supporting a new market entrant—distributed solar energy—might seem to contravene regulators' implicit promise of monopoly franchise protection.

---

92. Professors Gregory Sidak and Daniel Spurber helped to popularize the regulatory contract concept by publishing a book that employs the phrase in its title. *See generally* J. GREGORY SIDAK & DANIEL F. SPULBER, DEREGULATORY TAKINGS AND THE REGULATORY CONTRACT: THE COMPETITIVE TRANSFORMATION OF NETWORK INDUSTRIES IN THE UNITED STATES (Cambridge Univ. Press 1997).

93. This "duty to serve" is a common thread in utility regulation generally and frequently extends to water utilities and other utility entities. For a more detailed discussion of the concept of a duty to serve, *see generally* Jim Rossi, *The Common Law "Duty to Serve" and Protection of Consumers in an Age of Competitive Retail Public Utility Restructuring*, 51 VAND. L. REV. 1233, 1248–50 (1998) (summarizing the history of the "duty to serve" in utilities law).

94. Electric utilities have enjoyed such exclusive franchise rights since the earliest days of the electricity grid. *See id.* at 1265 (describing Samuel Insull's historic formation of the Chicago Edison utility and attainment of an exclusive franchise for a designated geographic territory in connection with that enterprise).

95. To review the basic principles and theories of cost-based utility rate regulation, *see generally* FRED BOSSELMAN ET AL., ENERGY, ECONOMICS AND THE ENVIRONMENT 60–65 (Foundation Press, 2d ed. 2006) (describing utilities' typical rights to charge "just and reasonable" rates, which seek to allow a utility to cover its costs and earn a reasonable rate of return).

96. *See* John Kemp, *Integrated approach needed to U.S. electricity policy*, REUTERS (Nov. 24, 2014, 5:38 AM), http://www.reuters.com/article/2014/11/24/us-usa-electricity-carbon-kemp-idUSKCN0J522Z20141124 (reporting that "North America's peak electricity demand is forecast to increase by just 1 percent a year for the next decade, the slowest rate of growth on record").

Distributed solar-friendly utility policies can also cut indirectly into utilities' earnings and jeopardize utilities' ability to generate reasonable and predictable returns on their investments. As net-metered PV systems become more prevalent and more cost-competitive with conventional electricity, utilities' historically stable earnings are likely to decline.[97] Most net metering programs require utilities to effectively purchase any excess electricity generated by their customers' energy systems, often at retail rates that are significantly higher than the rates that utilities generally pay for wholesale power.[98] For obvious reasons, these mandated purchases can significantly soften utilities' earnings outlooks and increase the risk of substantial stranded costs—investments in infrastructure that utilities are ultimately unable to fully recover from customers.[99]

In the eyes of utilities, state regulators' policy support of a distributed solar energy industry that is bringing unwelcome changes to conventional utility markets may feel like an "unfair" breach of their regulatory contract. Language released by FERC in the context of wholesale electricity deregulation nearly 20 years ago encapsulates this type of appeal to fairness:

> Utilities have invested billions of dollars in order to meet their obligations. Those investments have been made under a "regulatory compact" whereby utilities—and their shareholders—expect to recover prudently incurred costs. With the advent of competition, even prudent investments may become stranded. Reliance on past contractual and regulatory practices must be recognized and past investments must be protected to assure an orderly, *fair* transition to competition.[100]

Unfortunately, utilities tend to overlook one important fact when making this sort of unfairness claim: their regulatory contract was never intended

---

97. *See* Satchwell, et al., *supra* note 84, at 26–27 (describing two separate mechanisms for how the growth of distributed PV can reduce utility shareholder earnings and estimating that a 10% market penetration of customer-cited PV would cause a hypothetical southwestern United States utility company to suffer earnings decreases of approximately 5.7%).

98. *See* Steven Ferrey, et al., *Fire and Ice: World Renewable Energy and Carbon Control Mechanisms Confront Constitutional Barriers*, 20 DUKE ENVTL. L. & POL'Y F. 125, 186–87 (2010) ("Net metering can pay the eligible renewable energy source approximately four times more for this power when it rolls backwards at the retail rate than paid to any other independent power generators for wholesale power, and much more than the time-dependent value of this power to the purchasing utility").

99. *See* Herbert Hovencamp, *The Takings Clause and Improvident Regulatory Bargains*, 108 YALE L.J. 801, 802–03 (1999) (defining stranded costs as "investments in specialized, durable assets that may have seemed necessary, or at least justifiable, when constructed and placed into service under a regime of price and entry controls but that have become underutilized or even useless under deregulation").

100. FERC PROPOSED REGULATIONS, 32,514, Promoting Wholesale Competition Through Open Access Non-Discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities (proposed Mar. 29, 1995), 18 C.F.R. Part 385, 60 F.R. 17662, 2013 WL 4290204 (C.C.H.) (2013) (italics added).

to include a perpetual guarantee of protection against disruptive innovation.[101] Facilitating the growth of rooftop solar energy is fundamentally different from allowing a new utility company to construct a utility-scale power plant and distribution infrastructure within an incumbent utility's territory and begin selling grid-supplied power there. The rooftop solar energy industry is a competitive threat borne of valuable and rapidly advancing technologies that have the potential to transform how the world produces and distributes electricity. A duty to shield utilities from this sort of innovation was never contemplated as falling within the regulatory contract. To quote one pair of scholars:

> Historical precedent clearly shows that when emerging conditions create a critical tension between upholding social welfare objectives and upholding continuity of a utility for its own sake, courts will decisively favor social welfare objectives and markets play no favorites. Indeed, neither regulators nor courts can ultimately protect regulated utilities from all competition, even when—perhaps especially when—the character of that competition challenges the viability of their fundamental business model.[102]

For similar reasons, utility shareholders have also assumed risks associated with disruptive innovation. The average return on investment for equity shares in utility companies is a bit lower than that of the stock market generally,[103] but it is significantly higher than that available from investments in treasury bills or other very-low-risk assets.[104] Part of the reason that utility stocks have historically generated comparatively higher returns is that there are additional risks associated with these investments, including the risk that disruptive innovation could render utilities obsolete. In short, as threatening and frustrating as the growth of the distributed solar energy

---

101. Other scholars have emphasized this idea. *See, e.g.*, Graffy & Kihm, *supra* note 1, at 27–28 (asserting that "utilities have no constitutional protection against competitive impacts" and that "even low-risk companies cannot expect to remain low-risk indefinitely and may shift into higher risk status in surprisingly short periods of time given sufficiently disruptive conditions").

102. Graffy & Kihm, *supra* note 1, at 16.

103. *See* Larry Swedroe, *Should You Invest in Utility Stocks?*, CBS NEWS (Oct. 3, 2012), http://www.cbsnews.com/news/should-you-invest-in-utility-stocks/ (last visited Nov. 25, 2013) (reporting that, "[f]or the 85-year period 1927–2011, the total stock market provided an annual average return of 11.6 percent, with an annual standard deviation of 20.5 percent. Utilities produced a slightly lower annual average return of 11.3 percent").

104. *See id.* (explaining that, "[f]or many, safe bond investments no longer generate the interest income they need to meet expenses" and that "[t]his is causing them to take on incremental risk in their search for greater yields" such as through "investing in utility stocks").

industry may seem in the eyes of utility executives, state policies tailored to facilitate such growth neither constitute an unfair breach of the regulatory contract nor necessitate reforms to existing net metering programs or rate designs.

V. FAIRNESS ARGUMENTS CAN CUT BOTH WAYS

All of this discussion of fairness begs one additional question that should not go unmentioned: what if the actions of utilities were subjected to the same fairness lens they have used to critique distributed solar energy policies in recent years? Appeals to fairness are often characterized as a double-edge sword.[105] To the extent that investor-owned utilities insist on talking about solar energy-related policy issues in terms of fairness, they might reasonably anticipate having fairness arguments directed back at them. The strategies that some investor-owned utilities have employed in responding to distributed solar energy technologies arguably offend notions of fairness more than any of the purportedly unfair aspects of net metering or existing rate designs.

A. Should Regulated Utilities Be Permitted to Compete in the Private Rooftop Solar Energy Market?

Consider, for example, a few regulated utilities' recent proposals to directly compete within the private rooftop solar energy industry. Arizona's APS utility has proposed such a plan, seeking state regulators' permission to install solar PV arrays on 3,000 homes within its territory pursuant to a new rooftop leasing program.[106] Under the APS proposal, residential customers who participated in the program would receive a $30 monthly credit on their electricity bills—an amount greater than the monthly $5 to $10 savings that a typical APS customer can earn through arrangements

105. *See, e.g.*, Mark Klock, *Is it the Will of the People or a Broken Arrow? Collective Preferences, Out-of-the-Money Options, Bush v. Gore, and Arguments for Quashing Post-Balloting Litigation Absent Specific Allegations of Fraud*, 57 U. MIAMI L. REV. 1, 27 (2002) ("[F]airness is a double-edged sword"); MARVIN KOHL, THE MORALITY OF KILLING 17 (1974) ("[F]airness is a double-edged sword") (cited in Mark Strasser, *Assisted Suicide and the Competent Terminally Ill: On Ordinary Treatments and Extraordinary Policies*, 74 OR. L. REV. 539, 559 n.105 (2005)); James B. Zagel, *Drug Rhetoric, Courts, and the Law: A Response to Professor Rudovsky*, 1994 U. CHI. LEGAL F. 275, 277 (1994) (". . . fairness cuts both ways. . ."); Eric A. Posner & Cass R. Sunstein, *Chevronizing Foreign Relations Law*, 116 YALE L.J. 1170, 1190 n.52 (2007) (". . . fairness cuts both ways . . ."). 106. To learn more about the APS rooftop solar proposal, see http://www.aps.com/en/ourcompany/aboutus/investmentinrenewableenergy/Pages/azsun.aspx?src=azsun (last visited Nov. 25, 2014).

with private solar leasing companies in that state.[107] Tucson Electric Power, another Arizona utility, has proposed a similar sort of plan.[108]

Some solar energy industry advocates have contended that it would be unfair to allow regulated utilities to compete in private rooftop solar markets. Regulated utilities enjoy the unique benefits of state-protected returns on investment and consequent access to comparatively low-cost capital—special government-provided benefits that are simply unavailable to private solar energy companies.[109] Any proposal permitting regulated utilities, armed with these advantages, to enter into private rooftop solar markets, would instantly create an uneven playing field tilted in utilities' favor. In the words of one solar energy industry spokesperson:

> 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?[110]

As with the other fairness-based arguments examined in Section IV above, accurately assessing the merits of this unfairness claim requires identifying and more carefully analyzing the argument at issue. In this instance, the purportedly unfair policy is to permit an entity enjoying special government benefits as a regulated utility to operate in a competitive market—one that is not prone to the sort of market failures that ordinarily justify such regulatory protections.

Natural monopoly problems tend to arise in markets in which producers' cost structures are such that a "single firm can take advantage

---

107. *See* Ryan Randazzo, *APS wants to put free solar panels on 3,000 homes*, AZCENTRAL.COM (JUL. 28, 2014), http://www.azcentral.com/story/money/business/2014/07/28/aps-wants-put-free-solar-panels-homes/13299121/ (last visited Nov. 25, 2014) (reporting that, when customers lease panels from SolarCity, "their new, lower power bills combined with the lease payments bring about $5 to $10 a month in savings for customers").

108. *See* Robert Walton, *Tucson Electric Power proposes new utility-owned rooftop solar program*, UTILITYDIVE.COM (Aug. 20, 2014), *available at* http://www.utilitydive.com/news/tucson-electric-power-proposes-new-utility-ownedrooftop-solar-program/299840/ (last visited Dec. 4, 2014) (describing Tucson Electric Power's proposal and quoting a solar energy industry advocate contending that the utility was "trying to go into a completely new market and compete on an unlevel playing field in a market that's already served by competitive forces").

109. *See supra* notes 92–95 and accompanying text.

110. Stephen Lacey, *Arizona Public Service Enters the Rooftop Solar Business: Good for Installers or a Trojan Horse?*, GREENTECHMEDIA.COM (July 30, 2014), *available at* http://www.greentechmedia.com/articles/read/arizona-public-service-enters-the-rooftop-solar-biz (last visited Nov. 25, 2014).

of economies of scale and supply the entire industry output, at least for a sizable region."[111] Conventional power distribution is highly vulnerable to natural monopoly problems because of the very high up-front costs associated with it. Regulators have long addressed this vulnerability through the familiar regulated monopoly model described above.[112]

Producers in the market for residential rooftop solar products do not face the exceptionally high up-front capital costs and steeply declining average cost functions faced by regulated utilities. The barriers to entry into the rooftop solar market are far lower than for centralized utility-scale electricity generation and distribution. These lower barriers to entry have allowed a competitive and well-functioning market for rooftop solar leases and installations to emerge in recent years.[113]

Given the absence of a natural monopoly problem in the rooftop solar energy market, there is no legitimate policy justification for allowing regulated utilities to compete in it. For the same reasons that regulated utilities are not permitted to open retail stores and sell table lamps or ceiling fans, utilities should not be permitted to directly compete against private companies that sell or lease rooftop solar products. Regardless of whether policies allowing utilities to enter the rooftop solar market would be unfair, they would be bad policy.

B. Should Regulated Utilities Be Permitted to Fund Campaigns Aimed at Protecting Their Monopolies Against Disruptive Innovation?

Some within the solar industry have also criticized investor-owned utilities in recent years for leveraging their financial and political prowess to protect their own interests at the expense of their customers. As mentioned above, electric utilities typically enjoy exclusive franchise rights and regulated pricing designed to ensure reasonable investment returns.[114] However, they also generate profits for private shareholders and can thus have company-specific interests that are markedly different from the prevailing interests of their customers. Should regulated utilities be permitted to spend millions of dollars on political activities aimed at protecting their own interests and delaying the impacts of disruptive innovation?

---

111. Rosen, PUBLIC FINANCE, *supra* note 60, at 315.

112. *See supra* notes 92–95 and accompanying text.

113. *See* Robert McIntosh & James Mandel, *Why Solar Installers are Becoming Vertically Integrated*, CLEANTECHNICA.COM (July 19, 2014), http://cleantechnica.com/2014/07/19/5-reasons-solar-installers-integrating-vertically/ (last visited Nov. 25, 2014) ("The solar installation market is still very large with a lot of small players. The barriers to entry are low; any electrical contractor can get the parts and equipment to make installations").

114. *See generally supra* notes 94–95 and accompanying text.

As distributed solar energy becomes more prevalent and utilities seek regulatory approvals or reforms aimed at responding to these new technologies, utilities can be tempted to contribute to campaigns aimed at swaying political forces in their favor. For example, in 2013, the parent company of the Arizona utility APS spent roughly $3.7 million on advertising and lobbying associated with its proposal to impose monthly fees on users of solar power.[115] Ultimately, APS won approval to impose the nation's first-ever fees on solar users. These fees make the purchase or lease of rooftop solar panels less financially rewarding for customers in APS territory, thereby helping to shield APS from this increasingly threatening form of market competition.

The fact that APS won approval to impose special fees on solar energy users may be startling to some, given the long history of subsidies aimed at promoting solar energy. However, this outcome was fully consistent with basic public choice theory: highly regulated entities, like APS, are permitted to fund campaigns for their own rent-generating proposals and tend to have sizable advantages over the general public in the political process.[116] APS had much to gain from commission approval of its proposal, which gave the utility a new revenue stream. In contrast, the costs associated with the proposal will be diffusely spread among thousands of APS customers who favored solar energy-friendly policies but faced collective action problems in banding together to oppose this sort of measure.

From the early beginning of the regulated utility model, commentators have similarly warned of its vulnerability to "regulatory capture."[117] Regulatory capture occurs when a well-organized group or entity exerts influence over government legislative or regulatory processes to advance

115. *See* Nichola Groom, *Arizona sets precedent for solar systems with monthly fee*, CHI. TRIB. (Nov. 14, 2013), http://articles.chicagotribune.com/2013-11-14/news/sns-rt-us-solar-arizona-20131114_1_net-metering-solar-customers-aps (last visited Nov. 26, 2014).

116. *See* Nathan B. Oman, *A Pragmatic Defense of Contract Law*, 98 Geo. L.J. 77, 90 (2009) ("Government institutions . . . are prone to capture by special interests that have an incentive to obtain concentrated benefits by imposing diffuse costs on the general public. There is thus a depressing tendency for institutions, programs, and laws designed to regulate particular industries to become captured by those very same groups, which then modify the law over time for their own benefit regardless of the costs to the public or other interests").

117. *See* William Boyd, *Public Utility and the Low Carbon Future*, 61 UCLA L. REV. 1614, 1635 (2014) ("[E]arly proponents of public utility were well aware of the problems manifest in the actual practice of utility regulation. They recognized that rent seeking, regulatory capture, and overinvestment posed important challenges to the success of public utility regulation").

its own interests at the expense of the general public.[118] The risk of regulatory capture is heightened in contexts where a regulated entity has repeated and prolonged interactions with a specialized regulating body.[119] Utility regulation perfectly fits this description since utilities' fortunes are heavily dependent upon succeeding in their repeated interactions with the state public utility commissions.

In many states, public utility commissions are comprised of only a small handful of commissioners, each wielding significant influence over the regulation of utilities within the state. Facing the threat of distributed solar energy—a disruptive innovation that could undercut utility profits in the short run and radically transform the entire electricity industry in the long run—utilities increasingly have much at stake in these elections. The political leanings of public utility commissioners can matter a lot to utilities that are seeking reforms to net metering or rate designs in response to distributed energy growth.

Given the growing importance of public utility commissions to the financial well-being of utilities in this new era of distributed solar energy, it is thus hardly surprising to see possible signs of regulatory capture as utilities increasingly lean on the state regulatory system to shield them from the market impacts of distributed solar energy. For instance, APS recently drew attention for allegedly contributing large sums of money to indirectly aid the election campaigns of public utility commissioner candidates and an attorney general candidate in Arizona.[120] Such "dark money" funding

---

118. *See* Michael A. Livermore & Richard L. Revesz, *Regulatory Review, Capture, and Agency Inaction*, 101 GEO. L.J. 1337, 1340 (2013) ("Capture describes situations where organized interest groups successfully act to vindicate their goals through government policy at the expense of the public interest").

119. *See id*. ("For groups that are repeat players before specialized agencies, investments in long-term relationships can have substantial returns in terms of influence, raising capture concerns.").

120. Multiple news articles have mentioned that APS was widely suspected to have given heavy financial backing to Arizona Corporation Commission candidates Tom Forese and Doug Little and to Arizona attorney general candidate Mark Brnovich in the states' 2014 midterm elections. *See, e.g*., Mike Sunnucks, *APS- Backed Republicans take ACC seats, AG's office*, PHOENIX BUS. J. (Nov. 4, 2014, 9:43 PM MST), http://www.bizjournals.com/phoenix/news/2014/11/04/aps-backed-republicans-take-acc-seats-doing-well.html (last visited Nov. 26, 2014) ("Arizona Public Service Co. and its parent company. . .were big backers of Republicans Tom Forese and Doug Little, who won the race for two Arizona Corporation Commission seats); Ryan Randazzo, *Republicans Forese, Little win Arizona Corporation Commission race,* AZCENTRAL.COM (Nov. 4, 2014, 9:40 PM MST), http://www.azcentral.com/story/money/business/2014/11/04/arizona-corporation-commission-election-night/18427899/ ("APS is widely believed to have contributed to the independent groups that supported Forese and Little and ran $1.3 million in negative ads against Democrat Sandra Kennedy as well as primary opponents of Forese and Little."); Laurie Roberts, *Secret campaign to elect Forese/Little nears $1 million*, AZCENTRAL.COM (Aug. 2, 2014, 1:43 PM MST), http://www.azcentral.com/story/opinion/op-

strategies, which are supposedly permissible under certain conditions after the Supreme Court's famed *Citizens United* decision,[121] seemed to pay off for APS in this instance: all three of the candidates that purportedly benefited from indirect APS financial contributions ultimately won their election bids.[122] In the week leading up to the election, one local newspaper columnist reporting on the issue questioned:

> Is APS trying to buy not only the commission that regulates it but all the big state offices? Is APS making a secret bid to essentially run this state using money supplied by you and me when we pay our electric bill?[123]

Some might characterize it as "unfair" for heavily-regulated utilities to indirectly contribute large sums of money toward the election campaigns of the state officials who regulate them.[124] However, it seems more fruitful to disregard notions of fairness when examining such activities and analyze them instead under principles of welfare economics and public choice theory. In that light, the hazards of allowing this practice are plain to see. Heavily regulated utilities—including investor-owned utilities—are primarily intended to serve the public.[125] Such highly regulated

---

ed/laurieroberts/2014/08/01/corporation-commission-dark-money-race/13493677/ ("Save Our Future Now and the Arizona Free Enterprise Club are both widely suspected in the political community of being front groups for Arizona Public Service" and that "the two groups ha[d] spent a jaw dropping $885,000 in their independent campaign to try to get Forese and Little onto the Corporation Commission").

121. *See generally* Citizens United v. Federal Election Com'n, 558 U.S. 310 (2010). *See also* John P. Sarbanes & Raymond O' Mara III, *Foreword*, 8 HARV. L. & POL'Y REV. 1, 14 (Winter 2014) explaining that the "entrance of "Super PACs" and "dark money" outside spenders" was "made possible by Citizens United and subsequent lower court rulings").

122. *See* Sunnucks, *supra* note 120.

123. Laurie Roberts, *Who is secretly spending $15 million to win your vote?*, AZCENTRAL.COM (Oct. 29, 2014, 11:19 AM MST), http://www.azcentral.com/story/laurieroberts/2014/10/29/dark-money-spending-in-arizona-tops-15-million/18081207/.

124. For example, a bill was recently introduced in Congress entitled the "Fair Elections Now Act" that sought to promote more "fair" elections by subsidizing certain types of private campaign contributions through matching rules with a goal of helping candidates to compete on a more equal playing field. *See generally* Fair Elections Now Act, S. 1285, 110th Cong. (2007), *available at* http://www.opencongress.org/bill/110-s1285/text. Likewise, an agency in California with the term "fair" in its name—the Fair Political Practices Commission—regulates election fundraising activities in that state. CALIFORNIA'S FAIR POLITICAL PRACTICES COMMISSION AND ITS RESPONSIBILITIES, *available at* http://www.fppc.ca.gov/index.php?id=2 (last visited Nov. 26, 2014).

125. *See* Nicole Fox, et al., CORPUS JURIS SECUNDUM: PUBLIC UTILITIES, 73B C.J.S. PUBLIC UTILITIES § 13 (2014) ("The theory behind the regulation of public utilities is the

entities should not be permitted to exert heavy influence over the political process in matters that directly and substantially affect them. Legal rules that neglect to limit the influence of heavily regulated bodies in these political activities substantially increase the risk of costly regulatory capture problems like those highlighted above.[126]

VI. CONCLUSION

If the past decade's dramatic growth is any indication, rooftop solar energy and other distributed energy technologies are poised to drastically transform the electricity industry in the coming century. Given the nation's heavy reliance on electricity, there is much to be gained from ensuring that this is a smooth and efficient transformation. Many of the policy challenges associated with this transition remain unresolved and significant uncertainty lies ahead. Academics and policymakers are only beginning to grapple with the difficulties that will face the electricity sector as it wades through this historic shift toward cleaner and more distributed energy sources. However, one thing seems reasonably clear: descriptive, straightforward debate that is free from fairness rhetoric is more likely to lead decision-makers to the ideas and policies necessary to support a sustainable energy future.

---

protection of the public and the assurance of adequate service on one hand, and on the other, a fair opportunity to the utility to secure, by business economy, a reasonable return from such services, but the primary purpose is to serve the interests of the public and not to establish a monopoly or to guarantee the security of investment in a public utility").

126. *See supra* notes 118–19 and accompanying text.