Section of Environment, Energy, and Resources
AMERICAN BAR ASSOCIATION

Renewable, Alternative, and Distributed Energy Resources Committee Newsletter

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NOTE FROM THE CHAIRS

Aaron Levine and Elizabeth Stevens

The Renewable, Alternative, and Distributed Energy Resources (RADER) Committee is pleased to provide our first newsletter of the 2017–2018 ABA year. This comprehensive newsletter addresses both domestic and international issues in the field of renewable and alternative energy from the Great Lakes to France!

The RADER Committee aims to provide content relevant to many aspects of renewable, alternative, and distributed energy from international issues to project finance to climate adaptation strategies. We are always open ears for topics of interest and articles for future RADER newsletters.

In addition, be on the lookout for a second newsletter later this summer, providing the three winning articles from the annual SEER Energy Law Student Writing Competition, of which RADER continues to serve as the primary committee sponsor.

Finally, we would like to thank our 2017–2018 vice chairs for all of their hard work and dedication throughout the year. Special thanks go to our newsletter vice chairs Joseph Siegel and Bo Mahr for serving as both article authors and editors for this newsletter. We hope you enjoy it!

Aaron Levine *and* **Elizabeth Stevens** *are co-chairs of the Renewable, Alternative, and Distributed Energy Resources Committee.*

Renewable, Alternative, and Distributed Energy Resources Committee Newsletter
Vol. 6, No. 1, July 2018
Bo Mahr and Joseph A. Siegel, Editors

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AMERICAN BAR ASSOCIATION
SECTION OF ENVIRONMENT, ENERGY, AND RESOURCES

CALENDAR OF SECTION EVENTS

August 2-7, 2018
ABA Annual Meeting
Chicago, IL

August 10, 2018
30th Annual Texas Environmental Superconference
Austin, TX
Primary Sponsor: State Bar of Texas, Environment & Natural Resources Law Section

August 23, 2018
SEER Social—Happy Hour
Portland, OR

September 13, 2018
SEER Social—Happy Hour
San Francisco, CA

October 17-20, 2018
26th Fall Conference
Marriott Marquis San Diego Marina
San Diego, CA

March 25-27, 2019
37th Water Law Conference
Grand Hyatt Denver
Denver, CO

March 27-29, 2019
48th Spring Conference
Grand Hyatt Denver
Denver, CO

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ENERGY AGGREGATION: MODES, OPPORTUNITIES, AND CHALLENGES

Radina Valova, Sheryl Musgrove, and Karl R. Rábago

Introduction

The electricity industry has always depended on aggregation to achieve economies of scale, from the time of Thomas Edison's Pearl Street station, often cited as the birthplace of the modern system, to the rise of multistate and multinational electric utility and power companies. Now, thanks to the emergence of distributed energy resources (DER), such as rooftop and community solar, battery storage, and microgrids, aggregation is becoming a cost-effective means of empowering customers at the local distribution edge of the electric grid—a revolution in scale is under way. New aggregation models based on clean energy resources, especially DER, offer customers greater control over their energy choices and raise novel issues of law and policy.

Aggregation in a Nutshell

Energy aggregation involves two or more people cooperating to obtain energy services or procure energy-related technologies. The driving economic appeal behind energy aggregation is economies of scale. That is, it is less expensive for two people to do something in the energy space than for one person. For economists, this means that the marginal cost of the next unit of service is always declining, at least for the foreseeable future. This phenomenon has led some to characterize the provision of electric service as a "natural monopoly"—a form of business structure that favors a single provider in order to maximize economic efficiency and, for an essential service like electricity, social welfare. *See Omega Satellite Prods. Co. v. Indianapolis*, 694 F.2d 119 (7th Cir. 1982).

Regulated investor-owned electric utilities are perhaps the most formal and complex form of aggregation. Democratic participation in integrated investor-owned utilities is also highly attenuated. Decision-making is assigned to corporate organizations, which in turn respond to corporate boards and state-level and federal regulators.

Three big factors have led to the rise of the current energy aggregation movement's focus on clean and distributed energy. First, the utility model has increasingly exhausted power plant economies of scale. This means that building and operating bigger power plants—especially nuclear and coal plants—does not result in lower electricity prices. Coal and nuclear power plants in the US have lost significant market share to smaller, more flexible natural gas plants. *See* US Energy Information Administration, *Annual Energy Outlook 2018*, https://www.eia.gov/outlooks/aeo/pdf/AEO2018.pdf. Gas generation, in turn, now faces challenges from electricity generation technologies that thrive on manufacturing economies of scale—becoming less expensive with manufacturing volume. Smaller solar generation technology can be quickly sited in many more locations, including on customer rooftops.

Transmission and distribution infrastructure is also challenged by increasing costs. Large transmission and pipeline infrastructure is difficult and expensive to site. Transmission and local distribution systems can be devastated by increasingly severe weather events and require significant investments to harden them against storm damages and flooding. Hardening and repair investments are being required of utilities just at the time when electricity sales levels are flat or declining across much of the country. Second, regulators, customers, and to a more limited extent, utilities, have begun to appreciate the improving economics and value of "right-sized" resources, especially distributed energy resources like energy efficiency, distributed generation, customer-sited solar, battery storage, and microgrids. Microgrids are a linked and integrated network of electrical users powered by one or more on-site sources of energy, which can, as a whole, operate connected to or isolated from the grid. *See generally* Amory B. Lovins et al., Small Is Profitable: The Hidden Economic Benefits of Making Electrical Resources the Right Size (2002), *available at*

https://www.rmi.org/insights/knowledge-center/small-is-profitable/. Third, customers as citizens lost patience with their lack of control over the energy decisions made on their behalf. Some customers want and are willing to pay for value as they perceive it, such as low-carbon generation, local generation, enhanced efficiency, and other desired goals and outcomes. *See* Susan Partain, *Meet Community Choice Aggregation, Public Power's First Cousin*, American Public Power Association (Nov. 9, 2017), *available at* https://www.publicpower.org/periodical/article/meet-community-choice-aggregation-public-powers-first-cousin. In the past, the only real choices for these customers were engagement in the complex and frequently arcane world of electricity regulation or the lengthy, expensive, and risky proposition of seeking to municipalize their utility service.

These drivers have fueled an emergent wave of initiatives at the community and neighborhood level to make economies of scale work for more locally driven agendas. Customers and communities are gathering today to contract for renewable energy supply, to build local community and shared generation, and to enable the provision of energy management and energy efficiency services, among other purposes. Today, we use the term "energy aggregation" to describe relatively local groupings embedded within, but not displacing, existing utilities. The focus on more local control and influence on resource and service decisions is the hallmark of the current rapid growth in energy aggregation efforts.

Every aggregation project or program can be described according to four key attributes: (1) scope and population—who or what is being grouped together, (2) mission—the purpose or purposes for which the aggregation is being created, (3) organizational structure—whether the aggregation project adopts a particular legal form and the role of members, managers, and contractors, and (4) investment and finance—how operating expenses and, if necessary, capital investments, are funded and managed.

Modes of Energy Aggregation

One of the primary benefits of aggregation is that it gives members control over their energy choices. Aggregation can take many forms, based on the needs of each community or set of members. Aggregation can be organized around member affinity, including ethnicity, religion, or income, or other factors relevant to the host community, but it is most often structured around geographic parameters. At the smallest level, building-wide or neighborhood aggregation projects group individual tenants from within a single building or several buildings. For example, the River Garden Apartments project in Louisiana aggregates 89 apartments and provides members solar power through a 420 kW installation. *See* Energy Sage, *PV (420 KW)—River Gardens Solar Neighborhood*, *available at* https://www.energysage.com/project/6540/pv-420-kw-river-gardens-solar-neighborhood/.

In the middle range are municipal aggregations of customers of villages, towns, or cities, and aggregations based on local land use or zoning delineations, such as flood zones. For example, the City of Lancaster, California, launched a municipal aggregation to help the city meet its goal of becoming the first net-zero energy city in the nation, and provides its customers with supply options of 35 percent renewable energy content, 100 percent renewable energy content, and net metering for those customers that generate solar or wind power. The city also uses the aggregation to promote, directly or indirectly, the development of additional local renewable generation. *See* Lancaster Choice Energy, *About LCE*, *available at* http://www.lancasterchoiceenergy.com/about-lce//; personal communication with Cathy DeFalco, Executive Director, Lancaster Choice Energy (Mar. 12, 2018). As another example, the City of Worcester, Massachusetts, is in the process of evaluating and creating a municipal aggregation program that would provide city residents price stability and an option to buy green power. *See* http://www.worcesterenergy.org/leading-by-example/municipal-electrical-aggregation.

At the largest scale are regional aggregations encompassing several cities, towns, villages, or counties. For example, Marin Clean Energy (MCE) includes 33 municipalities located in the counties of Marin and Napa, and in unincorporated Costa County, California, with a central mission "to address climate change by reducing energy related greenhouse gas emissions through renewable energy supply and energy efficiency at stable and competitive rates for customers while providing local economic and workforce benefits." *See* MCE, *Your LOCAL Energy Choice*, *available at* https://www.mcecleanenergy.org/.

These mid- and large-scale municipal aggregations of energy demand, known as Municipal Energy Aggregation or Community Choice Aggregation (CCA), are typically opt-out programs, wherein customers within the geographic boundary of the CCA are automatically enrolled. Because of the opt-out feature, CCA programs are generally reviewed and approved by the state public utilities regulatory commission. For example, Sustainable Westchester—a consortium of local governments in Westchester County, New York, has been authorized by the New York State Public Service Commission to implement a CCA program within the county. As residents of White Plains, New York, two of the authors are members of Westchester Power, based in Westchester County. The Westchester Power site provides excellent reference materials, including a FAQ page. *See* http://www.westchesterpower.org.

Legal, Technology, and Economic Issues Impacting Energy Aggregation

A wide range of planning, financing, and management issues attend to the formation and operation of an energy aggregation project. Attorneys in a surprising range of practice areas may have an opportunity to interact with and provide services to energy aggregation projects, including, but not limited to, public service and energy law, land use law, municipal law, and commercial law. The range of legal and regulatory issues that may arise in the context of energy aggregation include:

- Whether the aggregation project requires rights-of-way across public roadways or permitting to connect aggregation members to each other and on-site generators.
- Whether the aggregation project is subject to regulation under the state's public service laws as a "utility," with all of the regulatory encumbrances that would entail.
- Whether the aggregation project's activities conform with local development and land use master plans and zoning requirements.
- Whether a municipality or group of municipalities has the authority to automatically enroll, on an "opt-out" basis, all of the customers within their jurisdiction in an aggregation program, or whether they must seek affirmative enrollment from aggregation members on an individual basis.
- Whether aggregation members are subject to punitive utility tariffs and rates that might reduce the value of their investments in distributed energy resources.
- Whether the incumbent utility poses any challenges to aggregation projects, for example, through the exercise of market power.

In addition to the legal issues, aggregation presents a wide range of other policy and regulatory questions, challenges, and opportunities. Members of an aggregation frequently seek to obtain their energy through a wholesale retail energy supplier that sources electricity from distant, large-scale renewable energy facilities, or from local, clean, and distributed energy sources. When aggregations source their supply from local generation, they contribute to their members' energy security and resiliency against grid impacts, such as natural or man-made outages, and can have a positive impact on the local economy. Depending on the mix and configuration of distributed energy resources, aggregation projects can also provide grid support to the local distribution utility during times of

grid constraint, such as during high-heat days in summer or extremely cold days in winter, and thus contribute to overall grid security and reliability.

Microgrids are among the most impactful distributed energy resource tools available to aggregators. Microgrids enable several buildings and electrical loads to link to each other and one or more local energy sources, such as a biomass- or natural gas-fired generator (which may be configured to provide both heat and electrical energy—in a structure described as "Combined Heat and Power," or CHP), a solar array, and battery storage.

CHP systems use a thermal prime mover, such as a small-scale, gas-fired turbine, to generate electricity and to harvest the energy in exhaust gases to create steam or chilling. This aggressive harvesting of energy results in operations significantly more efficient than typical central-station power plants, and results in locally generated energy resources that can keep hospitals, shelter facilities, homes for the elderly, police stations, and other critical loads operating when the larger grid goes down. *See* New York State Research and Development Authority, Microgrids: An Assessment of the Value, Opportunities and Barriers to Deployment in New York State (2010), *available at* https://www.nyserda.ny.gov/-/media/Files/Publications/Research/Electic-Power-Delivery/microgrids-value-opportunities-barriers.pdf.

Microgrids raise many of the legal and regulatory issues listed above, including those relating to permitting, rights-of-way, local land use and zoning laws, and their treatment under state public service laws. They offer numerous benefits, making microgrid development one of the most exciting aggregation trends in the electricity sector today. *See* Peter Lilienthal, *Microgrid Value Propositions*, HOMER Microgrid News & Insight (Jan. 13, 2012), *available at* http://microgridnews.com/microgrid-value-propositions/. Microgrids can be configured to serve customers with a system that is technically isolated or isolatable from the conventional electric grid and offer an increasingly cost-effective alternative to the costs of extending the conventional grid to remote villages in developing economies. With some two billion people having no regular access to reliable grid-based electric service, village power systems based on microgrid structure are a key to equitable prosperity in many parts of the globe. Microgrids can also play a critical role in rebuilding Puerto Rico's grid and creating a more equitable, secure, and resilient electric system. *See, e.g.*, Puerto Rico Energy Commission, Case CEPR-IN-2017-0002, *In re: Energy Commission Investigation Regarding the State of Puerto Rico's Electric System After Hurricane María*, *Comments of the Pace Energy and Climate Center* (Nov. 27, 2017), *available at* https://peccpubs.pace.edu/state/Puerto+Rico. Now with increasing affordability and rising concern over emergency energy supply in a conventional grid threatened by climate and other security threats, microgrids are the subject of significant interest from community leaders focused on resilience.

Aggregation as a Method for Addressing Equitable Access to Clean Energy Resources

Low-income customers spend a disproportionately high percentage of their income on household energy costs—they have high "energy burdens." Access to affordable energy is a growing challenge for these customers. Energy efficiency measures and renewable energy opportunities are key to reducing this energy burden, with energy efficiency alone providing the potential to reduce low-income household energy burden by almost 30 percent. *See* Ariel Drehobl & Lauren Ross, Lifting the High Energy Burden in America's Largest Cities: How Energy Efficiency Can Improve Low Income and Underserved Communities 29 (2016), *available at* http://energyefficiencyforall.org/sites/default/files/Lifting%20the%20High%20Energy%20Burden_0.pdf. Despite the bill savings and other benefits of these measures, uptake by low-income households has been limited due to barriers such as split incentives (such as between landlords and tenants), lack of access to capital or credit needed

to pay up-front costs, and lack of trusted sources of easily understood information on opportunities to reduce energy costs. Energy aggregation, especially approaches that leverage the organizing power of local organizations, provides an opportunity to overcome these barriers and provide equitable access to clean and affordable energy.

At a relatively small scale, aggregation through a community-distributed generation project, such as community-shared solar (CSS), has the potential to increase low-income household participation in renewable energy projects and reduce household energy costs through renewable energy bill credits. Community-shared solar customers enjoy the opportunity to receive electricity bill credits for solar generation in return for a subscription fee. Because the costs of solar energy generation are flat—not subject to wide variations in fuel costs—this model is especially attractive to low- and fixed-income customers as a bill management tool.

CSS projects serving low-income households will be developed only if the CSS program is appropriately designed and CSS projects are appropriately compensated. For example, incentives for a CSS project serving low-income households must be adequate to compensate the CSS developer/operator for the additional costs of identifying, enrolling, and maintaining low-income household subscribers, and the potentially higher cost of financing the project due to the perceived risk of having low-income subscribers. The compensation scheme should also be based on the assumption that CSS subscriptions will be provided to low-income customers at low or no cost. The authors recently submitted testimony in a regulatory proceeding in Massachusetts seeking to establish a tariff for solar facilities serving low-income customers, which discusses some of these issues. *See, generally*, Massachusetts Department of Public Utilities, *Case D.P.U. 17-140, Joint Petition of Fitchburg Gas and Electric Light Company d/b/a Unitil, Massachusetts Electric Company and Nantucket Electric Company, each d/b/a National Grid, and NSTAR Electric Company and Western Massachusetts Electric Company, each d/b/a Eversource Energy for Review and Approval of a Model SMART Tariff*, *Direct Testimony of Karl R. Rábago and Sheryl Musgrove on Behalf of BCC Solar Energy Advantage, Inc.* (Jan. 29, 2018).

Moving to a larger scale of aggregation has the potential to provide increased low-income access to renewable energy projects, as well as other bill savings and resiliency related to increasing distributed energy resources, such as energy efficiency and microgrids. To be successful, a larger scale aggregation should serve the needs of low-income households and overcome the barriers that have prevented those households from participating in clean energy opportunities. The authors developed a new model of energy services aggregation, called "Community-Based Aggregation" or CBA, designed to do just that.

The CBA model borrows from the purchasing power strength of the CCA model but recognizes that something more is needed to serve the needs of low-income households. To meet those needs, the CBA model leverages the organizing and networking power of community-based organizations (CBOs) to assist with outreach and community engagement, to maximize low-income household enrollment in the CBA and the CBA's programs, and to help guide the ongoing operation of the CBA. The CBA model also engages the owners and managers of multifamily housing to help overcome the barrier of split incentives. Taking a community-wide approach, the CBA uses the power of aggregation to maximize the effectiveness of federal, state, city, and utility energy efficiency programs, and to develop shared distributed generation, energy storage, and microgrids. The CBA model provides a pathway for providing low-income households and their communities with long-term and sustainable reduced energy costs, increased resilience, and control over their clean energy future.

More detailed information on the CBA model can be obtained by contacting the authors.

Energy Aggregation in the Larger Electricity Sector Context

Energy aggregation is part of a larger wave of forces driving utility transformation emerging across the United States and abroad. *See* Karl R. Rábago, *Rethinking the Grid: Encouraging Distributed Generation*, BUILDING ENERGY (Feb. 17, 2015), *available at* http://www.rabagoenergy.com/blog/files/bemags15_rabago.pdf. Many states, including New York, California, Maryland, Massachusetts, Ohio, Rhode Island, and Hawaii, to name a few, are in the process of regulatory reform to transition their electric utilities away from the traditional top-down model of the utility as sole provider of energy services over its transmission and/or distribution provider, to a model in which the utility serves as a platform provider, linking consumers to new third-party distributed energy resource providers and ensuring that data critical to enabling the new DER economy flows securely to consumers and DER providers. This process is variously referred to as utility transformation, grid modernization, or power sector transformation. These transformation processes also involve replacing traditional cost-of-service regulation with performance-based regulation. New York, for example, is leading the charge through its Reforming the Energy Vision proceeding and has integrated development of opt-out and large-scale municipal aggregation projects into a broader sector transformation agenda. *See* New York Public Service Commission, Case No. 14-M-0101, *Proceeding on Motion of the Commission in Regard to Reforming the Energy Vision*; *see also* Utility Dive, *New York Regulators Greenlight Third CCA Program* (Jan. 25, 2018), https://www.utilitydive.com/news/new-york-regulators-greenlight-third-cca-program/515595/.

Aggregations are critical to utility transformation, as they give their members control over choosing their energy supply and supporting DERs, such as load-reducing energy efficiency and battery storage, and enable utilities to develop new business models relating to ancillary energy services, such as data analytics and smart grid management.

Conclusion

Energy aggregation represents one of the most promising opportunities for utility transformation, customer empowerment, and energy security. Aggregation has the opportunity to reshape today's electric industry from the bottom up, and to enable the benefits of electrification for billions of underserved people around the world. Aggregation is empowering—communities can develop aggregation projects to fit the scale, location, and goals they wish to achieve. And energy aggregation can be used to serve an ever-wider variety of purposes, from community resiliency to more equitable access to clean energy. Aggregation also represents an exciting opportunity for legal practitioners to advance energy democracy and energy justice and will ultimately engage attorneys from many practice areas in addressing a wide range of legal, policy, and regulatory issues.

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FRANCE'S ENERGY DILEMMA

David Desforges

Introduction

On December 30, 2017, France adopted a law banning the exploration and exploitation of fossil fuels as of 2040 even though domestic hydrocarbons represent at best only one day of the country's yearly consumption.[1] Therefore, the move is essentially symbolic. Indeed, France's energy dilemma does not reside in its fossil fuel production. It sits in the necessary buildup of a stronger renewable capacity and in the gradual scaling down of its unique nuclear electricity production capacity.

Today, about two-thirds of France's electricity is supplied by nuclear reactors (71.6% in 2017) with 58 reactors operated at 19 sites. In 2017, the balance broke down as follows: fossil fuel (10.3%), hydraulic (10.1%), wind (4.5%), solar (1.7%), and biogas (1.7%) thus making about 90 percent of the country's electricity production already low carbon.[2]

Pursuant to the Energy Transition for Green Growth Law adopted in 2015, France must now tilt the scale toward renewables in the next decade or so.[3] On the one hand, by 2025 the production of nuclear electricity must be brought down to 50 percent.[4] On the other, in line with the EU's renewables objective of 27 percent by 2030, France contemplates reaching 23 percent of its final consumption from renewables in 2020 and 32 percent by 2030. If it goes as planned, by 2030, renewables should represent 40 percent of the electricity production, 38 percent of the final heat consumption, 15 percent of the final fuels consumption, and 10 percent of the natural gas consumption.

The Challenge of "Denuclearization"

France is already off schedule with its renewables program. Critics argue that "the nuclear lobby" is strongly at play in delaying any significant progress in the R&D, financing, and development of a meaningful solar and wind capacity. At the same time, ageing nuclear reactors must undergo the retrofit and modernization necessary to carry them another 50 to 60 years forward (the so-called *Grand carénage* program). The price tag estimated by *Electricité de France* (EDF) is €55 bn worth of maintenance investments (2014–2025). The choice between maintaining the country's nuclear capacity and curtailing its installed nuclear fleet while boosting renewables can hardly be delayed any longer.

As of today, 13 of the reactors built since 1955 have been permanently stopped, nine of which are currently being dismantled. Bringing nuclear electricity production down to 50 percent in 2025 would mean shutting down no less than an additional 17 units. In 2017, a parliamentary report reviewed potential decommissioning costs estimated by EDF.[5] Lawmakers found discrepancies between costs already registered in real-life decommissioning operations and EDF figures. Other European nuclear reactor operators estimate decommissioning costs at between €900 million and €1.3 bn per reactor while EDF estimates €350 million per reactor. The end of the debate is nowhere in sight. On November 7, 2017, Nicolas Hulot, the current Environment Minister announced that the 2025 objective would be "difficult" to comply with and that it might entail delaying the closure of coal-fired production plants and restarting certain fossil fuel thermal plants. The Minister further indicated that the government was going to work on a 2030–2035 postponement. This announcement triggered a barrage of criticism from environmental nongovernmental organizations pointing to the repeated blows that such backtracking inflicts on the development of renewables.

France's Defiance vis-à-vis Renewables

In a country with virtually no energy resources, French households have nevertheless gotten used to a plentiful electricity supply. For these consumers,

the average cost per kilowatt is about half that of their German neighbors (€0.171 vs. €0.298 in 2016), while industrial consumers pay about the same price (€0.089 vs. €0.094).

However, the formation of the price for a portion of the electricity supply in France is far from being market driven. Indeed, residential and small business consumers (a mere 26.5 million households and 3.3 million small businesses representing 82 percent of the whole segment of such consumers) still benefit from the so-called EDF blue rate (*Tarif Bleu*). This tariff is administered by the government, which maintains it at artificially low levels based on social considerations. While access to energy for vulnerable low-income customers is now secured via ad hoc schemes, it will become increasingly difficult to uphold the blue rate which is further incompatible with EU competition principles.

The tariff situation and the relatively low price of the nuclear MWh (€59.6 in 2013) are consistent with the limited development of an affordable renewables offer. The difficult balance between the need to develop renewables and the presence of such a massive nuclear electricity production tool is illustrated by the steady increase of the blue rate over the last 15 years. On the one hand, this increase is due to the passing on to the consumer of the cost of modernization of nuclear power plants. On the other, since 2003, it reflects the gradual increase in the so-called Contribution to the Public Service of Energy fee (CSPE) levied on each electricity bill which finances the development of renewables (an estimated €100 per capita/year).

From a marketing perspective, conscious of a more ethical and greener demand, existing operators have diversified the range of options for green electricity while mounting competition now presents a range of offers (including green electricity) at tariffs 3 to 15 percent lower than EDF's.

Yet, compared with Germany in particular, renewables have somewhat remained anecdotal in France. In 2016, renewable sources secured only 19.6 percent of France's electricity consumption (4.3% wind, 1.7% solar, and 12.2% hydro) while France is easily outranked by its neighbors: Spain 38.7 percent, Germany 33.8 percent, and Italy 33.4 percent. Germany has an installed wind capacity of 50 GW and solar capacity of 40 GW while France's capacities from these sources are, respectively, 11.7 GW and 6.8 GW. With 360,000 installations and longer sunlight hours annually, France stands behind the UK, which has 900,000 installations representing 11 GW. In 2016, France's renewables-connected load even stagnated at its 2010 level.

France's weak development of renewable energy capacity is the combined result of poor tax incentives, burdensome administrative procedures, and legislative uncertainties. For the country to meet its target of 32 percent renewables in 2030, it would need to install an additional 14,000 wind turbines while only 5000 are in operation today. France still has no offshore wind turbine despite its 4700-kilometer coastline, one of Europe's longest. The development of onshore wind turbines continues to be hampered by military and civil aviation obstacles while 70 percent of the permits are crippled by legal action. The development of a wind farm in France requires 7 to 9 years contrasted with 3 to 4 years in Germany. Solar projects suffer too. In the 0–9 kWp segment, the installation of roof-mounted residential installations dropped from 28,900 in 2012 to 14,500 units in 2015. The decline is attributable to decreasing repurchase prices since 2011, the removal of these installations from a tax credit scheme in 2013 and, sadly, to massive sales of defective equipment on the market that discouraged homeowners from solar installations.

A Government Plan to Boost Renewables

The government announced in early January 2018 a package of measures designed to boost the development of renewables. The plan vows to simplify procedures, increase production, and foster innovation to accelerate the energy transition.

Major simplification measures are contemplated for offshore wind farms. "Envelope permits" will be created to allow projects to evolve and be modified within defined limits in terms of installation and connection to the grid (as the current permit system is too rigid to allow departures from the original submission). Earlier and improved public consultation procedures will be enforced to secure greater project awareness and social acceptability. The legal framework governing the connection of these projects to the grid will be adapted to anticipate the connection and limit risks of delays that too often hamper the financing of offshore wind projects today.

Developing the production of solar electricity is a key item of the plan. With more competitive production costs, the share of solar in France's energy mix is expected to increase. Ambitious targets have been set for 2023: 18.2 to 20.2 GW of installed capacity (vs. only 7.7 GW as of Sept. 30, 2017, up 0.9 GW from the end of 2016). In the context of the Multiannual Energy Plan (*Programmation Pluriannuelle de l'Energie* or PPE), a nationwide energy investments scheduling tool, the Energy Regulation Commission launches tenders for the installation of renewable projects.[6] Hence, to achieve the above target, one of the measures will include boosting the volume of such tenders from 1.5 to 2.5 GW per year. This increase was already in place for the March 2018 tender for building-mounted PVs (200 MW) and will apply to the June 2018 tender for ground solar farms. In parallel, the average repurchase price of electricity continued to drop to €85/MWh during the third tender period that closed on December 1, 2017 (9% less than the second period that closed on Sept. 1, 2017).

In the meantime, efforts are, for example, being made to promote the self-use of electricity generated by PVs (building-mounted installations with an installed capacity of up to 100 kWp. In this respect, a Ministerial Order of May 9, 2017, sets repurchase tariffs for 20-year contracts in cases where one's PV production is injected in full on the grid.[7] For PVs where production is in-part self-used with surplus injected on the grid, producers are eligible for premiums paid over a five-year period. Some positive results have already been recorded. The self-use market has moved upward: 8000 projects in 2016 and 6000 during the first half-year of 2017 alone.

Promoting innovation is the last leg of the plan. R&D programs in the renewables sector will receive financial support from the *Programme des investissements d'avenir* (government's Invest in the Future Program). In December 2017, the government also launched an Innovation Contest dedicated to innovative projects initiated by medium-sized businesses. This contest is organized in the framework of a larger €57-billion investment plan announced in 2017, which prioritizes carbon neutrality and competitiveness through innovation. Finally, on February 9, 2018, a call for proposals was also launched by the French Environment and Energy Management Agency (ADEME) for eight demonstrations in the field of renewables, which should receive €300 million worth of financial support in 2018 and 2019.

Conclusion

Aware of France's untenable 2025, 50 percent denuclearization objective, the then-candidate Macron was cautious enough to avoid advocating for the objective during his 2017 bid for the presidency. Since March 2018, the official PPE public debate has shifted to defining the objectives of the country's energy policy for 2018–2023 and 2024–2028. Decisions on whether to close or extend the operating permits of certain nuclear reactors beyond their fourth ten-year inspection should be based on the priorities of ensuring the security of supply, reducing the consumption of electricity, the development of renewable energies, and the findings of the Nuclear Safety Authority. According to the various scenarios envisaged, the reduction in annual nuclear energy generation by 2023 will range between 10 and 65 Terawatt Hours (TWh) (out of a 2017 production of 379 TWh). With Europe's growth back on track at last after sluggish years, chances are the government will err on the safe side and not hasten the move toward

the 50 percent target, at the expense of renewables, again.

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DRIVING DISTRIBUTED GENERATION IN DIFFERENT DIRECTIONS FROM THE SHORES OF LAKE MICHIGAN: A LOOK BACK AT PIVOTAL 2016 ENERGY LEGISLATION IN MICHIGAN AND ILLINOIS.

Robert Weinstock

To begin with a truly hot take: 2016 was a strange year in politics. Among the lesser-covered political oddities in the waning months of that year was the surprising passage of sweeping energy bills in two Midwestern states led by beleaguered Republican governors. Illinois and Michigan had (and still have) very different political landscapes and energy markets. As such, each piece of legislation focused on modernizing energy regulation and markets along the different dimensions that were salient and feasible in the particular political context. The laws dealt with a myriad of energy issues—from subsidizing nuclear power, to reforming renewable portfolio standards, to smoothing the transition from closing coal-fired plants—but this article will focus on the aspects of each that represent a significant step on the particular questions of how quickly and equitably distributed generation (or "DG") resources will develop in each state.

The Future Energy Jobs Act in Illinois (FEJA) was the product of significant and multifaceted negotiations that resulted in developed provisions that aim to increase and expand access to distributed generation resources by building upon defined stakeholder processes within specific legislative policy priorities. The Michigan legislation, by contrast, punted entirely on the key question of compensating distributed generation providers to a vaguely conceived and time-limited administrative proceeding before the Public Service Commission. The Michigan legislation lacked the sort of targeted policy provisions that could incubate and democratize distributed generation capacity.

With over a year of implementation in the rearview mirror, it is becoming apparent that from these different starting lines that Illinois and Michigan

are charting starkly different routes for distributed generation. At a high level, Illinois has adopted an inclusive, iterative approach framed by statutory policy choices, while Michigan sets policy through an opaque administrative process, building off statutory language at least implicitly inimical to DG expansion.

As states around the country look to modernize their energy systems in the absence of a federal Clean Power Plan and within swirling market and policy trends at the national level, policymakers around the country would be well served by examining the contrasting courses of Illinois and Michigan. This article seeks to do just that, starting—as lawyers do—with the laws.

I. The Statutory Starting Lines

Both Michigan S.B. 437[1] and S.B. 438[2] (the "2016 Michigan laws") and Illinois' Future Energy Jobs Act (S.B. 2814)[3] (FEJA) are prime examples of legislative sausage made from a mix of ingredients being amalgamated into a single dish. The laws' impacts on distributed generation in each state can be considered along two primary dimensions: (1) how DG providers are compensated in general; and (2) how state policy promotes or inhibits equitable access to DG resources.

First, notes on nomenclature. The phrase "distributed generation" can refer to a broad array of generation technologies that are decentralized throughout the existing grid.[4] For practical purposes, in Illinois and Michigan, "distributed generation" refers to relatively small-scale solar installations at residential, commercial, municipal, or industrial properties. "Net metering"—perhaps the fundamental term when discussing how DG is compensated—refers to the utility billing model under which a customer who both consumes energy from the grid and puts electricity back on the grid—say, by connecting solar panels—pays the consumer rate for the amount of power equal to the difference between what they take and what they give. In effect, the power a DG producer puts on the grid is thereby compensated at the same rate as all retail consumers pay to take power off the grid.[5]

A. Compensating DG

Before 2016, both Illinois and Michigan employed modified net metering policies to compensate distributed solar generators. In each state, the 2016 laws laid the groundwork for fundamental changes.

Previous law in Illinois established true net metering as the means to compensate distributed generators until DG represented 5 percent of the total peak demand supplied by a particular utility during the previous year.[6] Utilities were free to continue net metering for DG systems brought online after the 5 percent threshold was reached, but were not bound to do so.[7] What would happen then was an open question. In the negotiations that precipitated FEJA, Illinois utilities sought to eliminate net metering and replace it with a demand charge that would apply an additional fee to DG customers for their use of the grid.[8]

Instead, FEJA retained the 5 percent threshold, grandfathered in existing sources, and tasked the Illinois Commerce Commission (ICC) with developing an answer on what comes next for DG compensation.[9] FEJA mandated that once the state hits 3 percent DG penetration, the ICC must develop a new DG pricing model through a process that "include[s] diverse sets of stakeholders, calculations for valuing distributed energy resource benefits to the grid," is forward-looking, and reflects the time, locational, and performance-based benefits of DG.[10] By specifically referencing different types of benefit conferred by distribution generation while it instructs the ICC to create a next pricing regime for DG, FEJA requires broad and proactive market regulation and guarantees the regulator will consider benefits of solar power in addition to any costs associated with operating and maintaining the grid.

Other terms in FEJA provide further support for expanding DG well beyond the 5 percent level, including a program that uses proceeds from renewable portfolio standard compliance credits to

fund a rebate for DG, and community solar projects in particular.[11] The bill also allows community generation projects or projects housed on single buildings with multiple apartments to be eligible for the program.[12] However future DG comes to be compensated on utility bills, these additional incentives will ensure DG expansion while also increasing access to DG.

The 2016 Michigan laws began by clarifying what distributed generators qualified for true net metering, as opposed to modified net metering, and that utilities are responsible for providing a net meter. Customers with distributed generation systems with capacity of 20 kilowatts or less qualify for true net metering, while customers with systems capable of generating over 20 kilowatts qualify for modified net metering.[13]

A notable point of contention in the Michigan bill was the proposed fee for net metering program participants. Initial proposals included simply charging DG customers for their use of the grid to offload power.[14] The final version of the bill removed the fee, but it assigned the Michigan Public Service Commission (MPSC) the duty of determining if an "appropriate tariff" will be necessary in the future.[15] S.B. 437 mandated the MPSC to conduct a study on developing an appropriate tariff to ensure "equitable cost of service" that would apply to customers participating in either the net metering or distributed generation programs.[16] Existing customers participating in a net metering program will be grandfathered in without the tariff.[17] In contrast to FEJA, the text of which posits broad societal and grid benefits from DG, the 2016 Michigan laws instead leave valuation to the MPSC without meaningful guidance and frame the question of what "cost" DG imposes on the grid.

B. Expanding Access to DG

FEJA represents an important exemplar in the arena of state DG policymaking by virtue of its variegated programmatic provisions targeted at expanding access to DG. The statutory centerpiece on this score is the creation of the Solar for All program, which "shall include incentives for low-income distributed generation and community solar projects."[18] The Solar for All program:

- provides incentives through the state's long-term renewable resource plan "to increase the participation of low-income households in photovoltaic on-site distributed generation," through projects that include low-income households and projects that are exclusively subscribed to by low-income households, as well as setting a goal for the proportion of projects in environmental justice communities;[19]
- directs the establishment of low-income community solar pilot projects that are not capped in generation capacity and can receive up to $20 million in funding. To qualify, utilities must partner with a community-based organization and the projects must result in demonstrable economic benefit for the community;[20]
- provides for employment programs, including by requiring the two primary utilities to spend $3 million for utility job training programs;[21]
- requires that projects receiving assistance must commit to hiring job trainees for a portion of the construction.[22] Those job trainees will be taught how solar installation is done and will be able to utilize those skills going forward whether it is with their initial employer or with a different company; and
- mandates that training programs and trainee sourcing are occurring within the same communities that Solar for All projects aim to impact, specifically that 50 percent of the trainees must come from environmental justice communities with an added focus on those who grew up in foster homes or possess a criminal record.[23]

These are remarkably detailed energy justice policies that were the product of negotiations that included environmental justice advocates at the table. Principal among those advocates was Juliana Pino, of the Little Village Environmental Justice

Organization, who put her organization's goals directly: "What we were looking for out of this bill was to be able to access the benefits of a clean energy economy, both environmentally and the economic benefits."[24]

The 2016 Michigan laws included nothing of this sort. Indeed, sections of the 2016 Michigan laws can be expected to inhibit DG in general, which will, in turn, preclude more equitable access to DG, as low-income communities may be less able to quickly deploy solar or locate attractive and eligible solar sites. For example, one provision provides that utilities are "not required to allow for a distributed generation program that is greater than 1 percent of its average in-state peak load for the preceding 5 calendar years," i.e., utilities may block DG from ever amounting to more than 1 percent of Michigan's energy mix.[25] Another provision limits an individual DG system to a capacity of up to 100 percent of that customer's previous 12-month consumption.[26] This capacity limit is particularly problematic for community solar proponents for two reasons. First, it pegs permitted DG capacity to an individual customer's past energy use instead of a property's past use; multifamily housing properties may be prime sites for large DG installations but have many individual power customers. Second, it renders far less valuable under-utilized properties—perhaps a brownfield, vacant lot, or multifamily building with vacancies. If the property used little or no energy previously, the 2016 Michigan laws prohibit an owner from installing a DG system of any significance. The 2016 Michigan laws evince a conception of DG that is limited to single-family owner-occupied homes willing to bear additional costs to set up solar arrays; embodying that vision in statute will inhibit the expansion of solar through rules that particularly and unjustly exclude low-income, urban, and renter communities.

That was how the landscape looked in December 2016 when the legislative ink dried on these statutory energy road maps. Now, we can look back on how the administrators behind the wheels of regulation have actually navigated those paths during the past 17 months.

II. Off to the Races

In Illinois, stakeholder processes and long-term planning abound. As explained above, once DG penetration reaches 3 percent of overall generation, the ICC will be obliged to determine a new mode of compensating DG providers. As rooftop solar continues to grow, the ICC has sought a head start on that process, engaging with the Pacific Northwest National Laboratory to conduct Distributed Generation Valuation and Compensation Workshops, which began in February 2018 with a substantive white paper now undergoing stakeholder review and comment.[27] Additionally, in the wake of the passage of FEJA, the ICC launched the NextGrid process to broadly explore emerging approaches to regulatory, market, and technology policies.[28] And, just this month, the ICC issued its first long-term renewable energy procurement plan under FEJA. The plan builds on FEJA's targeted and multifaceted approach to encouraging DG, with particular carve-outs for community and brownfields solar projects, and a $30 million set-aside to fund Solar for All projects.[29] In general, consumer and environmental groups have lauded the plan for its ambition and aggressive movement toward the goals articulated in FEJA.[30] Participation and planning epitomize Illinois' approach to implementing and building upon FEJA; it may not be a quick road trip for DG in Illinois, but the maps look detailed and updated, and the bus looks to be big enough for all.

Thus far, Michigan regulators appear to be steering toward a regulatory regime that discourages equitable DG expansion to an even greater degree than specifically required in the 2016 Michigan laws. In a February 22, 2018 order, the MPSC announced its intention to follow, by and large, it's staff recommendation on the DG "tariff" required under the laws.[31] Those recommendations included eliminating net metering in favor of an "inflow/outflow" calculation that would, at least initially, credit DG generation at the utility's

avoided cost rate as set under the federal Public Utilities Regulated Policies Act. The MPSC staff's recommendation resulted from an ad hoc stakeholder process during the latter half of 2017 into 2018[32] that could be viewed utility friendly: utility comments were accepted after deadlines met by other stakeholders, and staff responses frequently failed to respond to specific substantive points raised by stakeholders other than utilities. For example, energy justice organizations based in low-income communities and communities of color pointed out that the staff's proposal required that a DG system must "be located on the customer's premises [and] serv[e] only the customer's premises."[33] Those requirements are nowhere in the actual text of the 2016 Michigan laws and directly block a host of community solar or other DG models that could expand or democratize DG.[34] The MPSC staff report did not respond to this substantive legal and policy critique. Then, on April 18, the commission issued its final order formally adopting the staff's recommendation to use an "inflow/outflow" tariff, which it described as "a billing mechanism that can be adapted over time to ensure conformance with [cost of solar] principles even as conditions change."[35] Perhaps the commission will someday tune up this inflow/outflow tariff to replace these unnecessary and inequitable components and actually incorporate the array of benefits conferred by DG, but the forcing device created by the 2016 Michigan laws is now no more and it would have been better if the staff and commission had addressed these considerations now rather than ignoring them or kicking them down the road.

While Illinois and Michigan continue to rumble down their differing routes on distributed generation, states around the country look to the paths they chart for both potholes and shortcuts. Just this April, South Carolina's utilities lobbied to kill a bill that would lift the state's cap on compensable DG, a similar outcome as Michigan's laws that retained such a cap.[36] And, as of March, it appeared that Kentucky would follow in Michigan's footsteps by advancing legislation that would broadly empower utility regulators to develop a price of solar to replace net metering.[37] Though Kentucky's state senate failed to pass the bill before it ended its 2018 session, it seems likely the bill will be back on the legislative agenda next year.[38] If Kentucky's goal is to promote the equitable advance of low-cost, distributed renewable energy, the Bluegrass State would be advised to turn left at Indiana instead of right.

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THE TALANOA DIALOGUE: AN OPPORTUNITY FOR COLLABORATION ON RENEWABLE ENERGY

Joseph A. Siegel

Introduction

This is a critical year for the global response to climate change. Decisions made by the Parties to the United Nations Framework Convention on Climate Change (UNFCCC) at the December 2018 Conference of the Parties in Poland will help determine whether we succeed or fail in meeting the goals of the UNFCCC's 2015 Paris Agreement. Recognizing the importance of a global dialogue on how to achieve the Paris Agreement goals, the UNFCCC Parties have embarked this year on a facilitative process to inform the decisions in Poland. This process, known as the Talanoa Dialogue, is derived from a traditional form of facilitated collaboration common to Fiji and the Pacific Island region. According to UN Climate Chief Patricia Espinosa, the Talanoa Dialogue is an opportunity for "all stakeholders to come together and share stories on how we can significantly step up climate action."[1]

The framework for the Talanoa Dialogue includes sharing of stories via an online platform throughout 2018, in-person facilitated meetings of UNFCCC Parties and non-parties to discuss the submittals, and interactive roundtables at the political level in late 2018.[2] The year-long process opens the door for experts on renewable energy to demonstrate, through collaborative exchanges, the important role that renewables can play in addressing the climate crisis. It also provides an opportunity to engage and empower underserved communities through facilitative dialogue on renewable energy solutions that both reduce greenhouse gas emissions and build resilience to climate change impacts.

The Need for Accelerated Greenhouse Gas (GHG) Reduction and the Role of Renewables

Each year, the Parties to the UNFCCC meet in November or December to advance the global effort on climate change. The annual meeting is known as the Conference of the Parties (COP). During the past seven years, just prior to each COP, the United Nations Environment Programme (UNEP) has produced a document called "The Emissions Gap Report," which informs the Parties about the gap between their collective pledges to reduce GHG emissions and the reductions needed to avert disaster.[3] The 2015 Paris Agreement, which was negotiated at COP 21 and which the United States is still a party to,[4] established the long-term temperature goal of limiting warming to "well below 2 degrees C above pre-industrial levels and [pursue] efforts to limit the temperature increase to 1.5 degrees C above pre-industrial levels."[5] Unfortunately, we have a long way to go to achieve this long-term temperature goal.

Based on the current pledges of the UNFCCC Parties in their Nationally Determined Contributions (NDCs) pursuant to the Paris Agreement, The Emissions Gap Report, issued by UNEP in 2017, projects a significant shortfall in the reductions required to meet the temperature goal. UNEP concludes that global emissions by 2030 will be 16 to 19 gigatons of carbon dioxide equivalent (GtCO2e) higher than the maximum emissions (37 GtCO2e) possible to limit warming to 1.5 degrees C by 2100.[6] And this maximum assumes only a 50 percent certainty of avoiding the 1.5 degrees C increase. UNEP characterizes this gap as "alarmingly high."[7] Among the best opportunities to narrow the gap is scaling up wind and solar which, combined, could achieve global reductions of up to 10.1 GtCO2e.[8] These reductions would require an average annual growth of installed capacity of 11 to 15 percent per year for wind and 14 to 20 percent per year for solar photovoltaics (PV).[9] In 2017, we already saw global capacity growth rates of 10 percent for wind and 32 percent for solar energy,[10] so there is reason to be hopeful. Renewables can also play an important role in the phase-out of coal by mid-century, which is crucial to staying within the 1.5 degrees C increase by 2100.[11] The Talonoa Dialogue provides an opportunity for advocates of renewable energy to demonstrate the ability of wind and solar to transform the energy sector and bridge the gap.

UNFCCC: The Origin of the Talanoa Dialogue

The Talanoa Dialogue was established at the UNFCCC COP 23 meeting in Bonn, Germany in November 2017 as a global collaborative process to effectuate the goals of the Paris Agreement.[12] The Talanoa Dialogue springs from language in the Paris Agreement, Article 4, paragraphs 1 and 8, and the COP 21 Decision Document adopting the Paris Agreement, which notes concern about the emissions gap and states that the Parties will "convene a facilitative dialogue . . . in 2018 to take stock of the collective efforts . . . in relation to progress towards the long-term [temperature] goal . . . and to inform the preparation of nationally determined contributions."[13] In particular, the facilitative dialogue is intended to help the Parties meet the commitment, agreed to in Paris, of submitting new or updated NDCs nine to twelve months prior to COP 26 in 2020.[14] Between COP 22 in Marrakech in 2016 and COP 23 in Bonn in 2017, there was growing consensus that the facilitative dialogue should be a year-long process rather than a one-time event and that non-state parties should be participants in the dialogue.[15]

While Bonn was the host of COP 23, the meeting was convened under the presidency of Fiji, which sought to effectuate the facilitative dialogue. Drawing on the traditions of Fiji and other Pacific Island Nations, the Parties to the UNFCCC agreed to use the Talanoa process to carry out the facilitative dialogue in an inclusive, participatory, and transparent manner.[16] The first half of 2018 has focused on information sharing through the Talanoa Dialogue Online Platform (Online Platform).[17] Interested stakeholders are asked to submit inputs on actions to enhance ambition, i.e., accelerate GHG reduction, in the pre-2020 period.[18] This enhanced ambition, critical to narrowing the emissions gap by 2030, is structured around three central questions: (1) Where are we? (2) Where do we want to go? and (3) How do we get there?[19] While the information sharing will continue through October 2018, the Talanoa process includes an in-person component which was held in Bonn during May 2018 when each of the three questions was addressed in succession via simultaneous Talanoa groups of 35 participants meeting for 2.5 hours.[20] The groups were comprised of 30 UNFCCC party representatives and 5 non-party stakeholders, and facilitated by Fijians experienced with the Talanoa tradition.[21]

The Opportunity for Renewables in the Talanoa Dialogue: Expert Institutions on Renewable Energy

Although the May 2018 in-person component of the Talanoa Dialogue has passed, there are remaining opportunities for the renewable energy sector to participate in the Talanoa Dialogue including (1) submitting individual inputs to the Online Platform between now and October 2018; (2) convening "local, national, regional or global events in support of the dialogue"[22] that draw upon experts in the field to prepare and submit collective inputs to the Online Platform; and (3) convening local dialogues in underserved communities throughout the United States that harness the story-telling emphasis of Talanoa and submitting inputs to the Online Platform based on these community events.

Experts in the renewable energy sector can collectively play a particularly important role in answering the third Talanoa question, "how do we get there?" given the great potential to reduce the emissions gap by scaling up wind and solar. Non-party expert organizations "are encouraged to prepare analytical and policy-relevant inputs to inform the dialogue" and submit the inputs via the Online Platform by April 2, 2018, in time for the May session in Bonn, or by October 29, 2018 in time for COP 24 in Katowice, Poland.[23]

Many non-party expert organizations have already submitted inputs to the Online Platform, and some of the inputs focus on renewable energy. For example, the International Renewable Energy Agency (IRENA), an international intergovernmental organization committed to the

transition to a sustainable energy future, indicated that current NDCs do not reflect the positive growth rates that we are now seeing in renewable energy deployment and noted the importance of quickly creating a track record of successful renewable energy projects in developing countries to help "unleash market dynamics that will make further growth much easier."[24] The Business Council for Sustainable Energy's (BCSE) input highlights the importance of stable tax policy to support the transition to low and zero-carbon resources by providing the necessary signals that private sector investment will be profitable. BCSE also points to the importance of the "rule of law, protection of intellectual property and innovation, anti-corruption measures, a trained work force and a working infrastructure that supports the flow of goods and services," to establish favorable market signals for clean energy investment.[25]

The International Energy Agency's input forecasts that global average generation costs will "drop further by almost a quarter for large (utility) scale solar PV, almost 15 percent for onshore wind, and a third for offshore wind between 2017–2022" and that "energy transitions consistent with meeting Paris Agreement goals . . . can be realized at a modest global cost" of only 13 percent additional investment in the energy sector by 2030.[26] The Institute for Global Environmental Strategies recommends using public investment as a lever for mobilizing private finance and new financial mechanisms to serve as guarantees against large-scale, low-carbon investment risks.[27] While some other inputs also focus on renewables, there is still significant untapped opportunity for the renewable energy sector to participate in the Talanoa Dialogue. Only approximately 10 percent of the 148 inputs submitted by April 2, 2018, to answer the question, "how do we get there?" address initiatives and actions in the energy sector.[28] Future inputs could be most effective and persuasive if they are the product of collective efforts by expert renewable energy organizations.

A Call for Facilitated Local Talanoa-Style Events on Renewable Energy in Underserved Communities

Collaboration is a central tenet of Talanoa,[29] and should be applied not only to collective inputs of expert organizations but also to stakeholder engagement within communities. Local Talanoa-style events could be a particularly effective tool for engaging underserved communities that have had a range of successes in bringing renewable energy to their communities. The collective experiences of those communities could be harnessed to submit inputs to the Online Platform and would have the added benefit of empowering the communities that participate.

The most vulnerable communities, including communities of color and the poor, are at the greatest risk from the impacts of climate change.[30] Therefore, experiences in underserved communities with distributed generation and microgrids that incorporate renewable energy would be particularly relevant inputs to the Online Platform because they have the potential to reduce greenhouse gas emissions while enhancing resilience during weather-related power losses.[31] Since the NDCs can include not only greenhouse gas reduction measures but adaptation measures as well, the Talanoa Dialogue specifically encourages participants to "share experiences and lessons on actions and initiatives that address both adaption and mitigation."[32]

The tradition of Talanoa involves sharing stories, building empathy and trust, and advancing knowledge through common understanding in a way that promotes cooperation and better decision-making for the collective good.[33] By telling their stories through facilitated dialogue about the impacts of climate change and renewable energy solutions that include distributed generation and microgrids, underserved communities can offer lessons learned to the Online Platform and mobilize to promote strategies that will build resilience and reduce greenhouse gas emissions in other underserved communities.

The important role of a facilitator in such discussions cannot be overemphasized particularly for underserved communities. Traditionally, a Talanoa Dialogue is an open process run without an agenda or predetermined outcome.[34] Each participant tells his or her story, and the spirit of trust and respect among the participants helps lead to an outcome. A facilitator extracts the main points of each participant and then checks in to see if the facilitator has summarized correctly.[35] This approach to facilitation, which has much in common with Western facilitation, would not only result in inputs to the Online Platform on the successes and challenges of underserved communities but also would empower those communities and build support for further promotion of renewables.

Conclusion

The Talanoa Dialogue continues until COP 24 in Katowice, Poland, and represents an important step toward increased ambition in the NDCs to be submitted ahead of COP 26 in 2020. Renewables, in particular solar and wind, have significant potential to bridge the emissions gap identified by UNEP and should be more robustly addressed in the inputs to the Online Platform. Inputs focused on renewables could take the form of collective recommendations from technical and policy experts and lessons learned from underserved communities that have had experiences with renewables projects. A series of local Talanoa-style dialogues on renewable energy in the United States that are inclusive and rely on facilitators to generate trust and respect would empower underserved communities and offer valuable lessons learned for the Parties at COP 24.

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SHORT BUT NOT SWEET: UNDERSTANDING SHORT-TERMISM IN RENEWABLE ENERGY

Bo Mahr

Short-termism—an excessive focus on near-term results at the expense of long-term interests— is nothing new. Writing critically of the market's methods of assessing value, John Maynard Keynes noted in 1936 that investors "are concerned, not with what an investment is really worth . . . but with what the market will value it at, under the influence of mass psychology, three months or a year hence."[1]

This nearsightedness, he argued, was attributable to investors, who are "largely concerned, not with making superior long-term forecasts of the probable yield of an investment over its whole life, but with foreseeing changes in the conventional basis of valuation a short time ahead of the general public." Little seems to have changed in the ensuing decades. Institutional and private investors, along with managers and CEOs, continue to focus on near-term, quarterly accounting results at the detriment of economically sustainable, long-term value creation. This perverse incentive structure has historically, and particularly, disfavored renewable energy, which is an inherently long-term venture with a need for large up-front capital investment.

Renewable energy development has, for decades, faced more well-known barriers, such as the non-consideration of positive externalities and the continued subsidization of conventional fossil fuels. However, equally important is the problem of short-termism, a concept similar to Keynes's concern about nearsightedness. Short-termism has created a unique and less well-known set of struggles for the renewable energy sector. Identifying, learning from, and adapting to these struggles is necessary if we want to craft effective solutions. To do this, it's crucial to designate short-termism in the renewable energy industry as its own, definable issue.

Short-Termism: A Market Failure

Short-termism is a market failure created by investors and managers rationally responding to the market equivalent of a prisoner's dilemma.[2] This is to say a market where cooperation—a shared focus on long-term success by companies and investors—while ultimately most beneficial, does not always appear to market participants as the most rational action. Short-termism is an economic trend that incentivizes both companies and investors to "defect" from long-term success and cooperation and, instead, focus their individual efforts on producing and investing only for near-term success.

Unfortunately, this myopic focus on the near term, and the ensuing discounting of future values, is ingrained in human nature. This inability to delay gratification is well documented in social psychology and on no greater display than in self-defeating behaviors such as smoking cigarettes.[3] Yet, it would seem that today's sophisticated investor, highly educated and learned in objective data, would be able to escape such self-defeating behavior. But to that point, scholarship in exponential and quasi-hyperbolic discounting, the concept that decision-makers apply increasingly unequal discount rates to future returns, shows that this bias is a continued concern of behavioral economists.[4]

But short-termism is about more than just internal biases. External forces contributing to a myopic focus on the near term exist within companies and markets as well. Colloquially, these forces can be characterized, from an investor's perspective, as "what have you done for me lately?" Economically, the forces are defined as "quarterly capitalism," or the incentive institutional investors have to favor investment opportunities that meet or exceed quarterly earnings targets, and the incentive that companies have to bend to this preference.[5]

Short-Termism's Impacts on Renewable Energy

Short-termism's impacts on renewable energy development are broad. Specifically, though, adverse impacts arise out of the US accounting system requiring the immediate expensing of long-

term investments such as research and development (R&D), advertising, and human capital, creating a trade-off between these long-term investments and near-term earnings.[6] Capital investments (investments in property, plant, or equipment) are especially hard hit. This type of investment is different from financial investments, such as stocks and bonds, and working capital, such as inventory and other current assets used in the daily operation of a business. Being such a capital-heavy industry means that renewable energy requires larger amounts of financing to achieve the same capacity as conventional energy sources.[7]

This also creates secondary issues such as barriers to entry for entrepreneurs who, unlike those in less capital-intensive, quicker return industries, cannot secure the large up-front investments.[8] It also leads to poor creditworthiness for renewable energy companies, which restricts the ability of the industry to access adequate capital. This is in addition to expenses such as construction and maintenance that are key components of the industry.

Without adequate capital, the industry must rely on unique financing mechanisms that increase transaction costs industrywide.[9] Creating new financing mechanisms—while a viable solution over time that mitigates many of the long-term payback barriers created by "quarterly capitalism"—is hampered by the market charging a premium for these mechanisms due to the market's unfamiliarity with the new schemes. An obvious example is SunEdison, which went bankrupt as a "result of the company's overly ambitious vision and aggressive financing schemes."[10] Long-term payback periods plague the renewable energy industry as capital markets require a premium for such long-term loans. This leads to high discount rates that can require economic incentives, such as tax credits, in the initial stages of investment to become economically viable.

Unfortunately, historic failures with these developing technologies combined with lower margins "tend to lead investors to seek their fortunes elsewhere."[11] Fortunately, studies have shown that market and policy changes, combined with renewable energy's decreasing costs, can foster sustainable growth of the sector.[12]

Overcoming Short-Termism in Renewable Energy

Under the status quo, the renewable energy industry is disproportionately affected by market-level short-termism; therefore, any discussion of short-termism solutions must include market-wide solutions that will disproportionately benefit the renewable energy industry. One of the broadest solutions is increasing the business community's collective understanding of corporate law. For example, "Corporate law does not require managerial short-termism. Rather, it accords management broad discretion to use its authority in the long-run best interests of 'the corporate enterprise.'"[13] However, this is not being internalized by managers. No fiduciary duty requires managers to maximize profits in the short term. Not only are business schools and the media misrepresenting this fiduciary duty that is not legally required, a study by the *Journal of Business Ethics* revealed almost 92 percent of directors surveyed said "they'd cut down a mature forest or release a dangerous, unregulated toxin into the environment in order to increase profits. Whatever they could legally do to maximize shareholder wealth, they believed it was their duty to do."[14] Consequently, that is not what their duty entails.

Additionally, generally accepted accounting principles conventions do not demonstrate the full value of long-term investments in a company's accounting statements.[15] While a sophisticated investor should be able to look beyond these statements, change is needed to provide everyday investors and everyday managers a measure that demonstrates the value of a company's long-term investments. The measure could be modeled after fixed-asset accounting where the asset's cost is allocated over its useful life.[16] This would prevent long-term projects such as wind and solar farms, which pay back slowly year after year, from having

an immediate negative effect of a large, lump sum decrease in revenue.

Industry-specific solutions to short-termism are more nuanced than broad market-based solutions. These solutions come in the form of national, state, and local policy changes as well as internal institutional changes. As of late, companies and communities are using new financing mechanisms, along with key policy developments, to lower the cost of renewable energy investment. A common theme among new investment vehicles is lowering the up-front burden of alternative energy investment—directly addressing the short-term issue of up-front capital. Most used is third-party ownership, which has been a catalyst for the development of renewable energy in many states.[17] Commonly known as "power purchase agreements" (PPAs), or solar leases, third-party ownership greatly lowers the up-front cost of investing in renewable energy for both institutional and private investors. While third-party ownership can add $0.78/W to a residential system's costs and $0.67/W to a commercial system's cost, it comes with many operation- and maintenance-related benefits that make ownership economically more feasible over the long term.[18] This is evidenced in the US residential solar market where 66 percent of investment is in the form of third-party ownership.[19] Similar to fixed-asset accounting, this financing mechanism allows the investor to incur the cost of the investment over the life of the asset. Unfortunately, these contracting options are not available throughout the world and even in the United States utilities attempt to prevent this market solution from developing.

More cost-effective than third-party ownership, solar loans allow consumers to retain ownership of their solar installations while still avoiding the up-front cost. Retaining ownership allows the consumer to collect the tax benefits, renewable energy credits, and discounted energy produced by the system—all subsidies and benefits designed to counter the effects of short-termism. The National Renewable Energy Laboratory estimates the savings from loan financing, relative to third-party ownership, is 19 to 29 percent.[20]

Public financing mechanisms like Property Assessed Clean Energy (PACE) also help reduce or eliminate the up-front cost of renewable energy and energy efficiency.[21] Under the PACE mechanism, the cash flow of a renewable energy project is converted into a municipal bond and sold on the bond market, providing renewable energy with a substantial amount of long-term capital.[22] The money from the bond pays for the up-front cost of the project and the project's cash flow pays for the bond.[23]

Additionally, the expansion of government-supported research and development is essential to transition the US toward clean energy independence.[24] Generally, industry funds about two-thirds of the research and development done in the US.[25] However, that research and development is not always the early-stage, high-risk research.[26] For this high-impact research and development, public-private partnerships are key. The need for public-private partnerships has been the focus of many governments, including those at the Paris climate negotiations.[27] To mitigate the hits renewable energy companies take to their balance sheets, and the negative reaction the markets have to it, the US government needs to aggressively fund this type of public-private partnership in an effort to "bridge the valley of death" created by a deficit of private financing.[28]

Short-Termism Must Be Understood

Renewable energy is uniquely positioned to solve long-term, global problems such as climate change and burgeoning energy demand. Yet, short-termism in management and the market hampers the renewable energy sector from achieving its full potential. By acknowledging and respecting short-termism's influence in renewable energy development, investors and management can begin to address these issues. Combined with government and market-based policy changes, short-termism's detrimental effects can be minimized or even

eliminated. As Keynes put it, "The social object of skilled investment should be to defeat the dark forces of time and ignorance which envelop our future."

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