

# Describing Purchaser Impact in U.S. Voluntary Renewable Energy Markets

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*Since at least 2015, voluntary buyers have increasingly used the confusing term “additionality” to describe their goals and impacts, or to mark themselves as leaders. As the limitations of the term have emerged, the World Resources Institute has led the community of practice in an exploration of what consumers are trying to accomplish by using the term and what approaches might better meet their goals. Extensive input has been gathered through workshops at buyers’ events, reviews of draft frameworks by experts, buyers, developers and utilities, and close observation of the rapidly evolving market dynamics. Synthesizing this, the authors propose **a framework and transparent language for analyzing, communicating and clarifying the impact consumers are seeking to create**. The authors hope this clarity will allow voluntary demand to continue to expand in a race to the top, while constantly adapting to the frontier barriers the clean energy transition will face in the coming years.*

## Executive Summary

At 62 percent of U.S. retail electric sales, commercial and industrial electricity consumers can substantially influence the demand for renewable energy and accelerate the pace of electric sector decarbonization. Businesses and other large-scale energy consumers are increasingly setting greenhouse gas (GHG) emission reduction targets and/or renewable energy goals, so more companies are seeking ways to credibly talk about their actions and impacts, and to distinguish their impacts from others.

In its simplest form, buying and using renewable energy demonstrates leadership, particularly because that choice is still relatively rare. The multitude of ways that consumers buy and use it can have very different impacts on the electricity grid. Impact is not limited to big companies; small and mid-sized companies with strong local ties can also be profoundly influential regionally. Consumers seeking to be identified as leaders want to have a material impact on creating clean, renewable energy without overstating their claims.

Consumers frequently emphasize the “additionality” of their actions, or how important “additionality” is. This concept originated in GHG project accounting with specific tests, and doesn’t effectively translate to corporate GHG accounting. Corporate GHG accounting claims the *use* of renewable electricity and other energy sources, and the associated GHG emissions. In contrast, GHG project accounting claims *additional* generation has been created and *caused* by actions reliant on the offset revenue. Additionality is more complicated than just new capacity. Casual claims of “additionality” are potentially misleading and should be avoided.

To credibly and effectively articulate the consumer’s role in positive outcomes, we propose a simple descriptive framework to complement well-defined renewable electricity and GHG reporting standards. This offers companies transparent, supplemental language to describe the impact that they are having in terms of energy and GHG reductions. It highlights the environmental benefits of purchases, as well as the attribution of corporate influence in making positive impacts happen. The two key elements are:

1. ***What you did*** – Transparently communicating what the purchase is; its scale, scope and term; how it goes beyond regulatory requirements; its impact on new or existing generation; and GHG emissions.
2. ***How you did it*** – Clearly describing your role in the outcome; financial and risk positions in any project or purchase; role in influencing policy changes; increasing access for other consumers; or other aspects of participation in the renewable energy market transformation.

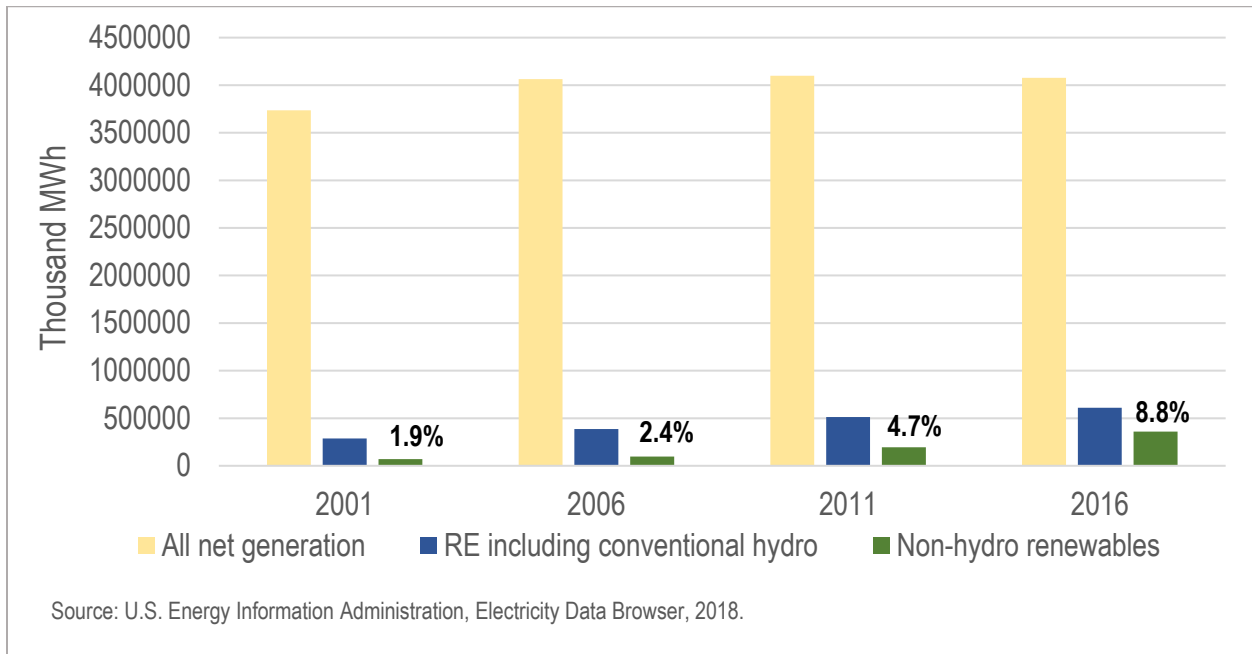
Consumers should think of their impact in terms of how their efforts lead to transformation of the electric sector. Large and direct voluntary purchasing can have big, immediate impacts on production. But smaller procurements with indirect impacts can send important demand signals. Both are needed to reduce GHG emissions and influence investment in new generation development. Different procurement paths are appropriate for different companies under different circumstances. What constitutes leadership and impact may also change as markets mature, public policy evolves, market awareness and acceptance grows, individual consumer experience increases and economic feasibility improves.

Demonstrating impact toward reducing GHG emissions in the electric sector is a race to the top, always seeking to use the consumer’s leverage to maximize the positive impact of purchases and buying power. No one purchasing option will always serve that ever-moving frontier, but transparent communications about impact will fuel the desired change.

# I. Introduction

Spurred by declining technology costs and public policies at all levels of government, the United States is gradually making the transition to a cleaner electricity supply. Non-hydro renewables accounted for 8.8 percent of 2016 net electricity generation in the United States.<sup>1</sup> Although it is a solid increase (up from 4.7 percent in 2011 and 2.4 percent in 2006), there is still a long way to go if the United States is going to significantly reduce greenhouse gas (GHG) emissions.

**Figure 1. Renewable Source Contribution to Net Generation — United States**



Commercial and industrial electricity users (C&I consumers) represent 62 percent of U.S. retail electricity sales.<sup>2</sup> With this procurement power, they can substantially influence the demand for renewable energy, transform the electricity supply mix and accelerate the scale and pace of electric sector decarbonization.

In the United States, voluntary demand for renewable electricity is growing at a rate of nearly 20 percent per year,<sup>3</sup> and is being driven by non-residential consumers.<sup>4</sup> Motivated by sustainability and financial goals, many consumers are striving to increase their purchase of renewable energy, lower their GHG emissions and ensure predictable and stable electricity prices.

<sup>1</sup> U.S. Energy Information Administration, Electricity Data Browser. <https://www.eia.gov/electricity/data/browser/>. Accessed Feb. 22, 2018.

<sup>2</sup> Ibid.

<sup>3</sup> O'Shaughnessy, E., J. Heeter, J. Cook and C. Volpi. 2017. *Status and trends in the U.S. voluntary green power market (2016 data)*. National Renewable Energy Laboratory. Retrieved from <https://www.nrel.gov/docs/fy18osti/70174.pdf>.

<sup>4</sup> O'Shaughnessy, E., C. Liu and J. Heeter. 2016. *Status and trends in the U.S. voluntary green power market (2015 data)*. National Renewable Energy Laboratory. Retrieved from <https://www.nrel.gov/docs/fy17osti/67147.pdf>.

### Textbox 1.

There are a range of commitment platforms and peer networks for large-scale energy consumers.

- Over **120 of the world's most influential companies** have joined RE100, an initiative working to increase demand for renewable energy by committing to purchase 100% renewable electricity.
- Science Based Targets is an initiative through which over **320 leading businesses** set greenhouse gas emission reduction targets in line with climate science.
- Over **325 U.S. cities** have made a commitment to climate action.
- More than **600 colleges and universities** have committed to take action on climate as part of the President's Climate Leadership Commitments, supported by Second Nature.
- **EPA's Green Power Partnership** has helped establish minimum usage benchmarks for a wide range of non-residential consumers and recognizes leadership in renewable electricity use across a wide range of credible supply options.
- The **Renewable Energy Buyers Alliance (REBA)** supports large-scale consumer demand for renewable power by helping utilities and others effectively meet it.

The renewable energy purchasing actions consumers take are varied, fulfilling different business needs and creating different systemic impacts. Some purchases are short-term while others are long-term, some support existing renewable projects while others support projects still in development, and some renewable energy is purchased from another party while others are developed and owned by the consumer.

Different purchases have different impacts in different markets. All renewable energy purchases contribute to overall demand growth, but bigger purchases usually have more impact than small ones. Some purchases have indirect impacts, as aggregate rising demand (voluntary as well as mandatory demand) leads to increasing supply. Some actions include a more direct engagement with the renewable energy project(s) that supply the consumer. Some actions have impacts beyond immediate supply and demand by inducing changes in public policy or regulations, or in the consumer's own supply chain.

With this range of potential actions and impacts, consumers want to know: What is leadership? How can they talk credibly about their actions and the positive impact they are having?

This paper seeks to answer these questions so that electricity market transformation can be accelerated through the varied actions of consumers – recognizing that regional electricity systems are at different stages of transformation – and consumers can claim their impact credibly. This paper proposes a framework for transparently articulating the consumer's role in positive outcomes.

Section II provides background on energy usage claims, fundamental consumer motivations for using renewable electricity and the growing consumer movement. Section III contrasts usage claims with claims of additionality. Section IV distinguishes leadership from impact, and describes how impact may be created through both procurement and non-procurement actions. Section V proposes a template for how organizations communicate about their actions and their impacts. Section VI concludes with hypothetical examples, putting these recommendations into practice.

## II. Background

As more and more consumers choose renewable electricity, they report their activities to their stakeholders in press releases, marketing materials, sustainability reports and GHG registries. There are a variety of sources advising them about how to talk about their actions in ways that are clear, factual and credible. In 2016, RE100 issued a technical brief summarizing useful guidance on electricity usage claims.<sup>5</sup>

According to the RE100 guidance, credible renewable electricity usage claims and the criteria for contractual allocation of attributes (including energy attribute certificates) require:

1. Credible generation data;
2. Attribute aggregation;
3. Exclusive ownership of attributes (no double counting);
4. Exclusive claims on attributes (no double claiming);
5. Geographic market limitations of claims; and
6. Vintage limitations of claims.

In other words, to make a renewable electricity claim, the consumer must be able to support the claim through ownership of the attributes, ideally in the form of cancelled or retired energy attribute certificates, such as a renewable energy certificate (REC) in the United States or Guarantees of Origin (GOs) in the European Union. This is a fundamental condition of renewable electricity use. Certificates are an accounting instrument that must be acquired regardless of how renewable electricity is purchased.

Corporate GHG accounting of emissions from electricity use (scope 2 carbon footprint claims) also require energy attribute certificates or other contractual instruments that convey the emission rate attribute for the renewable generation facility.<sup>6</sup> Again, certificates are used as an emissions accounting tool, and all renewable energy certificates are equal with a zero-emission rate (setting aside the situation where some biomass combustion and other renewable resources may have non-zero emissions). Regardless of how they are acquired – through long-term contracts or year-to-year purchases of renewable electricity – all certificates are equal in the eyes of GHG accounting. It is not the role of GHG accounting to demonstrate relative levels of impact by different consumers.

Therein lies a challenge for consumers that want to express impact beyond making a credible renewable energy consumption and scope 2 emissions claims. If all renewable electricity is the same from an accounting perspective, how else can an organization distinguish itself?

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<sup>5</sup> Braslawsky, J., T. Jones and M. Sotos. 2016. *Making credible renewable electricity usage claims*. RE100 Technical advisory group briefing. Retrieved from <http://media.virbcdn.com/files/62/53dc80177b9cc962-RE100CREDIBLECLAIMS.pdf>.

<sup>6</sup> Sotos, M. 2015. GHG Protocol Scope 2 Guidance: An Amendment to the GHG Protocol Corporate Standard. World Resources Institute and World Business Council for Sustainable Development. Retrieved from [http://www.ghgprotocol.org/scope\\_2\\_guidance](http://www.ghgprotocol.org/scope_2_guidance).

## Making A Difference

Although energy attribute certificates are all the same from an accounting standpoint, regardless of how they are acquired, consumers taking voluntary action to support renewable electricity want to make a difference. Making a difference can mean different things and take different forms, but fundamentally, consumers want to have a material impact on moving the electric sector toward more clean, renewable energy.

This is already happening in a big way:

- The U.S. Environmental Protection Agency's (EPA) Green Power Partnership boasts over 1,300 partner organizations that meet program criteria. Leading the pack is Microsoft (purchasing 4,557,278 MWh) and Intel (purchasing 4,152,035 MWh).
- It's no accident that the leaders both represent tech firms, given their growing energy needs to power expanding data use. The National Renewable Energy Laboratory (NREL) reports that the tech sector leads the market for power purchase agreements (PPAs), with Google, Amazon, Apple and Microsoft in the top five signing for the most PPA capacity.<sup>7</sup>
- Corporations are beginning to make an impact on the installation of new utility-scale photovoltaic (PV) capacity, accounting for 9 percent of annual installed capacity in 2016 and 17 percent by early 2017. According to NREL, "through July 2017, corporate consumers contracted for more than 2,300 MW of utility-scale solar, primarily using financial PPAs and green tariff or bilateral contracts with utilities."<sup>8</sup>

In addition to the tech firms, retailers Kohl's, Starbucks, IKEA, Walmart and H&M are top-rated in the United States by the Green Power Partnership. Even organizations that are not in obviously competitive fields, such as hospitals, colleges or non-profit organizations – including governmental entities – attract support from stakeholders by demonstrating leadership in purchasing renewable electricity.

Collectively and individually, these actions are making a difference and many consumers have good stories to tell. Their stories may be about engaging directly with project developers and helping to bring new capacity online; buying renewable electricity for 100 percent of the organization's needs through unbundled REC procurements; being first among their peers to take an action; leading others to take group action, as in a multi-party PPA or a shared renewables community project; taking a risk in demonstrating a new technology; and influencing their supply chain.

Simply using renewable electricity demonstrates leadership given the substantial number of consumers that do not yet choose it. However, the multitude of ways that consumers go about procuring and using it can have very different impacts on transforming the electricity grid. The more commonplace renewable electricity use becomes, the more important it is to consumers to distinguish their impact from another consumer's impact.

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<sup>7</sup> O'Shaughnessy, E., J. Heeter, J. Cook and C. Volpi. 2017. Status and Trends in the U.S. Voluntary Green Power Market (2016 Data). National Renewable Energy Laboratory. Retrieved from <https://www.nrel.gov/docs/fy18osti/70174.pdf>.

<sup>8</sup> Heeter, J., J. Cook and L. Bird. 2017. Charting the Emergence of Corporate Procurement of Utility-Scale PV. National Renewable Energy Laboratory. Retrieved from <https://www.nrel.gov/docs/fy17osti/69080.pdf>.

As they talk about their actions, many consumers emphasize that their purchase results in the development of additional or incremental renewable energy capacity. Some even use the term “additionality” as a noun to represent the impact of their purchase – as a proxy term for impact. Often consumers introduce this idea of causation into statements of emissions reductions. Using additionality as a term of impact can create confusion with project carbon accounting and carbon offset instruments (which are different from RECs) that have formalized definitions of “additionality.”<sup>9</sup> This confusion, in turn, raises credibility issues for consumer claims.

### III. The Burden of Additionality

Additionality was the buzzword at the 2017 REBA Summit.<sup>10</sup> Companies describing their renewable electricity purchases frequently emphasized the additionality of their actions, or how important additionality is to making a difference. But what is additionality and what makes a purchase additional?

When used to describe renewable energy purchases and investments, “additional” and “additionality” are imprecise terms, subject to different definitions and interpretations. These terms appear in several recent reports<sup>11</sup> where they typically mean that the renewable electricity purchase is:

- Driving additional renewable investment or capacity.
- Using high-impact procurement methods.
- Supporting new or additional projects compared to what might have occurred.

The concept of additionality originated in GHG project accounting. To claim emission reductions (a carbon offset) for a renewable energy or other kind of project, the emission reductions must be quantified relative to baseline emissions, sometimes referred to as business-as-usual (BAU). Comparing project emissions to BAU is important because the purpose of project accounting is to determine an absolute reduction in global emissions, and this requires a comparison to a baseline – even if it is hypothetical – to quantify the additional renewable generation.

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<sup>9</sup> U.S. Environmental Protection Agency, Green Power Partnership, 2018. Carbon Footprint Reduction Instruments. Retrieved from <https://www.epa.gov/greenpower/carbon-footprint-reduction-instruments>.

<sup>10</sup> REBA is the Renewable Energy Buyers Alliance, whose purpose is to help companies understand the benefits of moving to renewables, connect large buyer demand to renewable energy supply, and help utilities better understand and serve the needs of all energy buyers. REBA is led by four non-profit organizations: BSR’s Future of Internet Power, RMI’s Business Renewables Center, WRI’s Electricity Initiative and WWF and WRI’s Renewable Energy Buyers’ Principles. See <http://www.rebuyers.org>.

<sup>11</sup> Examples:

Cook, G., J. Lee, T. Tsai, A. Kong, J. Deans, B. Johnson and E. Jardim. 2017. Clicking Clean: Who Is Winning the Race to Build a Green Internet? Greenpeace. Retrieved from <http://www.clickclean.org/usa/en/>.

Meister Consultants Group. 2016. Opportunities to Increase Corporate Access to Advanced Energy: A National Brief. Advanced Energy Economy Institute. Retrieved from <http://info.aee.net/hubfs/PDF/MCG-A2AE-Paper-8-4-16.pdf?t=1470801137966>.

GreenBiz. 2017. State of Corporate RE Procurement. Apex Clean Energy. Retrieved from <https://www.apexcleanenergy.com/article/corporations-want-clean-energy/>.

Establishing the baseline is an art by itself. There are two methods used to estimate baseline emissions, but the one that is most relevant to project accounting requires “an estimate of baseline emissions through the identification of a baseline scenario specific to the proposed project activity. The baseline scenario is identified through a structured analysis of the project activity and its alternatives. Baseline emissions are derived from the baseline scenario and are valid only for the project activity being examined.”<sup>12</sup>

The baseline is a counterfactual scenario – what would have happened absent the project. It is not a statement of historical emissions. Many projects reduce GHG emissions relative to historical levels, but would have happened regardless of GHG motivations.

Distinguishing project emissions from the baseline emissions is referred to as determining additionality. Because the baseline scenario is hypothetical and uncertain, some contend that this estimation methodology should be accompanied by explicit additionality tests.

There are a number of such tests – though there is confusion because terminology is not consistent and some definitions overlap<sup>13</sup> – but the consumer information presented by Carbon Offset Research and Education offers a short selection of additionality tests that are commonly used:<sup>14</sup>

- **Legal and Regulatory Additionality Test:** In the context of renewable energy markets, the GHG project must reduce GHG emissions below the level required by policy mandate, e.g. a renewables obligation or renewable portfolio standard. This test is already in the canon of voluntary renewable energy markets.<sup>15</sup>
- **Financial Test:** The GHG project activity must be economically or financially infeasible or unattractive without carbon revenue. Where multiple sources of revenue are possible, how does one prove that the carbon revenue is the decisive reason that makes the project economically feasible?<sup>16</sup> This is hard to prove without project developers opening their books for examination.<sup>17</sup>
- **Barriers Test:** Regardless of profitability, the GHG project faces non-financial barriers (e.g. technology-related, institutional, organizational, cultural or social barriers) that prevent its implementation, and that the business-as-usual alternative would not have to face. The project, with the purchaser’s help, succeeds in overcoming these barriers.
- **Common Practice Test:** A project can only be considered additional if it employs technologies or practices that are not already in common use.<sup>18</sup>

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<sup>12</sup> GHG Protocol. 2005. The GHG Protocol for Project Accounting. World Resources Institute and World Business Council for Sustainable Development (p. 13). Retrieved from [http://ghgprotocol.org/sites/default/files/ghgp/standards/ghg\\_project\\_accounting.pdf](http://ghgprotocol.org/sites/default/files/ghgp/standards/ghg_project_accounting.pdf).

<sup>13</sup> Gillenwater, M. 2012. What is Additionality? Part 1: A long standing problem. GHG Management Institute, Discussion Paper No. 001 | Version 03. Retrieved from [http://ghginstitute.org/wp-content/uploads/2015/04/AdditionalityPaper\\_Part-1ver3FINAL.pdf](http://ghginstitute.org/wp-content/uploads/2015/04/AdditionalityPaper_Part-1ver3FINAL.pdf).

<sup>14</sup> Carbon Offset Research and Education is sponsored by the Stockholm Environment Institute and the GHG Management Institute. See <http://www.co2offsetresearch.org/consumer/Additionality.html>.

<sup>15</sup> In the United States where a single type of energy attribute instrument (a REC) is used, it is easy to demonstrate that renewable energy purchasing is above and beyond what is otherwise required by law. By owning the instrument, a voluntary consumer thus denies its use by a regulated entity, and in doing so, the renewable energy represented by the instrument is said to be additional or surplus to regulation.

<sup>16</sup> Some would argue that any project that receives a financial incentive would not meet a strict additionality test. This presents a problem in many markets where government intervention through incentives is commonplace.

<sup>17</sup> Often contractual non-disclosure agreements prevent transparency of financial and other competitive information.

<sup>18</sup> The U.S. EPA and other voluntary market supporters espouse the Common Practice test and the Regulatory Additionality test together as the most realistic additionality tests to assess.



Additionality is critical to the success and integrity of GHG programs that recognize project-based GHG reductions – for example, in the carbon offset market. But most renewable electricity purchasers are not pursuing project accounting for carbon offsets.<sup>19</sup> Instead, most organizations buying renewable electricity are interested in corporate accounting – an inventory of their organization’s emission responsibilities – and corporate accounting follows different rules because it is counting something different. Corporate accounting is about claiming the *use* of renewable electricity, alongside the use of other energy sources and their resulting GHG emissions.

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Corporate accounting is a claim of renewable electricity use, while project accounting is a claim of additional generation beyond a baseline.

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With a focus on current emissions resulting from an organization’s activities, corporate accounting is not concerned with why a reporting organization was able to reduce emissions from one inventory to the next. Instead, the focus is on providing a replicable management tool for credibly and comparably documenting inventory snapshots from one reporting period to another.

It is also said that additionality is about assessing causation,<sup>20</sup> but even if the consumer’s intervention caused the project to be built, causation alone is not sufficient to meet the additionality tests. Many renewable generating projects caused by developers or by contracting buyers are not additional to regulation, are financially feasible without a carbon revenue or market, face the same barriers as other similar projects, and/or do not employ uncommon technologies. In other words, additionality is a lot more complicated than just adding new capacity.

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Consumers should limit claims about additionality unless they are qualifying a renewable electricity project for carbon offsets.

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Given the uncertainty around baselines and the fact that additionality requires proof, not just a casual claim that a purchase is additional, the term additionality is best avoided in the context of voluntary purchasing and consumption of renewable electricity. Just as the U.S. Federal

Trade Commission (FTC) has advised against using the term “green” in renewable energy marketing, recommending instead that organizations make straightforward statements of the facts, consumers should leave additionality to project accounting where it has a formal role. They should instead focus on describing their leadership in using renewable electricity and distinguishing the impacts of their purchases in straightforward language.<sup>21</sup> This approach lets the audience make its own judgment as to whether the action is green enough – or in this case, additional enough.

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<sup>19</sup> Some possible reasons for this are that (1) consumers may recognize that their project is not additional so they don’t follow that path; (2) third-party project owners may be unwilling to give up the direct emissions reduction to the consumer (or there may be no contractual arrangement that would support such a transfer); (3) documentation for verifying and obtaining a project offset may cost too much; (4) the increasing prospect of carbon regulation in the U.S. electricity market would undermine the value of project offset investments; and (5) formal or informal market rules may prohibit project owners from seeking both offsets and energy attribute certificates.

<sup>20</sup> Gillenwater, *op. cit.*

<sup>21</sup> For another perspective on additionality, see Center for Resource Solutions. 2016. Additionality and Renewable Energy Certificates: Understanding the value of REC claims. Retrieved from <http://resource-solutions.org/wp-content/uploads/2016/03/RECs-and-Additionality.pdf>.

## IV. Understanding Leadership and Impact

In the United States, voluntary sales of renewable electricity to final consumers in 2016 were an estimated 95,450,000 MWh.<sup>22</sup> Despite the positive growth cited above, this still amounts to just 2.5 percent of total retail electricity sales in the U.S. The figure includes residential as well as non-residential renewable electricity purchasing, so the number of organizations that are doing the buying and getting the credit is actually very small. This is not to dismiss voluntary action as ineffectual, but rather to emphasize that renewable energy purchasing through any means is still the exception rather than the rule.

Leadership is taking an action that influences others within a common sphere of influence to aspire to and follow. In the context of supporting renewable energy, leadership is the voluntary choice of renewable over conventional sources of electricity and by so doing, contributing to the transformation of the electricity market to cleaner sources of energy. In its simplest form, buying and using renewable energy, particularly when it is an otherwise uncommon practice, is leadership when that action inspires others.

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Leadership is the voluntary choice of renewable over conventional sources of electricity, plain and simple.

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With this definition, everyone who uses renewable electricity is a leader within their own sphere of influence. Whether a consumer buys unbundled RECs or builds a utility-scale solar project, they are demonstrating leadership by setting a direction for others to follow.

There is a tendency to describe leadership in terms of impact, or to talk about leadership and impact as though they are interchangeable. While linked, leadership and impact are different things. The use of renewable electricity demonstrates leadership, but the multitude of ways that consumers buy and use it have very different impacts on transforming the electricity grid.

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Impact is the relative effect, direct and indirect, of an action on transforming the electric grid.

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Distinct from leadership, impact is the relative effect or influence of an action that someone or something, especially something new, has on

others or on a situation (e.g. the electric grid), and may take into account both tangible and intangible, or direct and indirect consequences of that action.

Impact can be demonstrated and described in numerous ways. In the context of renewable electricity purchasing, impacts could emerge through investing in new projects; demonstrating a new purchasing, legal or financing model; direct project contracting; purchasing 100 percent renewables; being the first in a sector to demonstrate the business case for renewable electricity; being a large-scale consumer of renewable electricity in one's community or market segment; encouraging a supply chain to purchase renewable electricity; or influencing a market sector or broader market in other ways. Impact can also be amplified by effective communication and advocacy.

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<sup>22</sup> O'Shaughnessy et al. (2017), *op.cit.*

Impact is not limited to big companies, although they generally will get more attention and may have more sway in some settings. Mid-sized companies with strong local ties can be profoundly influential in a regional market. Institutions and non-profits also play outsized roles in their spheres of activity and among their stakeholder groups.

This framework enables the small consumer as well as the large. If leadership were defined by impact alone (e.g. by the size of the purchase or by method of procurement), then small consumers would be denied credit for choosing renewable energy over the alternative, and for their contribution to changing the electricity grid.

To summarize, leadership is based on the choice to use renewable energy and to set an example for others to do likewise, while impact is variable depending on how much or how an organization procures – or other impacts unrelated to procurement. All consumers can be leaders, but not all will have the same impact.

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All consumers can be leaders, but not all will have the same impact.

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## Impact Revealed Through Procurement Option

Impact can be revealed through the procurement option that is chosen. No one purchasing option is *inherently* more impactful than others.<sup>23</sup> Ultimately, different procurement paths are appropriate for different companies at different times and in different markets. Organizations taking action should help stakeholders understand the context of their impact.<sup>24</sup>

Purchasing the RECs or the energy and RECs from a renewable energy project can positively impact the larger renewable energy market in several ways:

- Purchasing the energy from a project or taking on risk in a project can:
  - Help proposed projects obtain financing by providing security to lenders or investors (requires a creditworthy buyer and a contract completed prior to construction).
  - Extend the productive life of already built projects, particularly if the project is at risk of ceasing operation. This may also indirectly release capital for other new projects.
  - Keep risk premiums and the cost of capital at a minimum for the larger market.
- Owning a generation project adds new renewable energy capacity and adds the consumer's capital to the overall capital pool available to renewable energy technology, potentially indirectly releasing capital for other projects.

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<sup>23</sup> “Procurement” and “purchasing” is intended to encompass all sourcing options, including ownership and self-generation.

<sup>24</sup> This review is not intended to describe the details or possible variants of each procurement option, or to discuss their pros and cons, nor to describe all impacts. For more information about procurement options, see U.S. Environmental Protection Agency. 2018. Guide to Purchasing Green Power: Renewable Electricity, Renewable Energy Certificates, and On-site Renewable Generation. (forthcoming)

- Buying unbundled RECs can:
  - Be a significant element of finance for new projects, if the agreement is long-term.
  - Help existing projects maintain profitability and continue support for the existing capacity in the market. Maintaining support for older projects will become more important as lower-cost renewable energy penetration increases. Failing older projects could increase the risk premium for newer projects.
  - Signal increasing, aggregate consumer demand for renewable energy.
- Participating – through either RECs or RECs and energy – in a shared project can attract other consumers and increase demand for the project and renewable energy.

**Textbox 2.**

***Impact by the Numbers***

In the green power purchasing community of practice, discussion at workshops, conferences and other venues often turns to which procurement options are best. Procurement officers often ask how a particular action will be viewed by stakeholders. Some have suggested that to encourage more impactful purchasing, the industry should rank procurement options, create an impact index or develop a point system to indicate preferred types of purchasing, and by inference, evaluate consumers' purchases of renewable electricity.

Rating procurement methods would be counterproductive because they could chill purchasing activity. A rating system is nearly impossible to implement without judging some procurement methods as ineffective or undesirable. Companies might fear that they will be criticized unless they follow the most highly rated action, effectively narrowing the options. Instead, stakeholders should encourage everyone to engage with renewable electricity purchasing to the best of their abilities.

Not all consumers are alike, and one size does not fit all – or electricity markets. Some are experienced energy buyers, others are new to purchasing renewable electricity; some have large staffs, expertise and technical resources, while others have very few resources; some have lots of cash to invest, others have very limited financial flexibility; and some have long-established businesses with strong credit ratings, while others have a weak credit history. This range of experience and capabilities – in addition to physical issues like real estate portfolio, energy demand and geographic spread – strongly affect what procurement options are realistic for a consumer at any given time.

Similarly, not all electricity markets or grids are alike. The degree of renewable penetration or curtailment, the policy or infrastructure constraints, the relative cost of renewable energy compared to fossil-fueled alternatives and the political economy surrounding the clean energy transition all shape the impact of a consumer's individual action. Finally, as the clean energy transition continues, markets are changing over time, defying any static rule about what constitutes high-impact action.

- Participating in a retail renewable energy product adds to the aggregate demand for renewable energy, in a similar way as unbundled REC purchases do. Renewable electricity options may be offered by the electricity supplier (electric utility in traditionally regulated markets, competitive electricity supplier in restructured markets with retail choice, or a community aggregator in states that allow community choice aggregation (CCA)). Some programs also set aside a portion of the premiums paid to invest in other new projects or include long-term energy purchasing commitments, which has a more direct impact on expanding the generating capacity on the grid.

## **Impact That is Not Tied to Procurement Option**

Influencing others with respect to renewable energy and decarbonizing the electric grid is not limited to electricity procurement. Not all information about impacts can be captured in a REC because the impacts cannot be independently verified and associated with a specific generator or MWh. Yet impact can be demonstrated in significant other ways, and may or may not be related to the procurement option chosen.

Consumers can exercise more influence and amplify their impact if they communicate or publicize their accomplishments. Unless their actions and the reasons behind their actions are known to others – and are held up as worth emulating – they will have little influence. Consumers can also accomplish more by working together, or by joining with others to address barriers and advocate for solutions. Consumers also interact with many others and may be able to encourage them to procure renewable electricity. Finally, some consumers can engage in policy discussions and advocacy at the local, state and national levels.

Illustrative examples of non-procurement specific impacts are described below.

### **Increasing Access**

- Create a group PPA as the primary buyer but leave part of the output for one or more smaller consumers to buy in.
- Champion a community choice aggregation program, where allowed.
- Spearhead a new shared renewables project targeted to renters in a large apartment building.
- Coordinate a collaborative procurement of unbundled RECs for a group to achieve economies of scale and cost efficiencies.
- Support or facilitate an employee purchase program for renewable electricity.

### **Replicable Demonstrations**

- Pilot a new on-site technology and publicize performance results.
- Install behind-the-meter energy storage with renewables to lower peak demand charges.
- Pioneer an innovative procurement method and make it available to others.
- Propose and anchor a community solar project.
- Communicate widely about the project, its benefits, how it was accomplished and how others could emulate the success.

## Building Relationships

- Use corporate position to influence supply chain renewable electricity use.
- Encourage and enable employees to purchase green power.
- Influence and enable customers to purchase green power.
- Engage with peer or neighboring companies to encourage them to purchase green power.
- Join group initiatives, such as REBA or EPA's Green Power Partnership, to raise awareness of choosing renewable electricity.

## Leveraging Location

- Break down barriers or negative perceptions by siting a project in a state or market with low renewable energy deployment. Make the project visible and engage the community in its success (e.g. local schools, the regional economic development agency, etc.).
- Procure renewable electricity from a market with high marginal GHG emissions.
- Implement renewable energy integration projects in markets with growing renewable energy penetration or curtailment risk.

## Policy Advocacy

- Support utility renewable energy procurement on behalf of all ratepayers before utility regulatory commissions.
- Actively support laws and policies that remove barriers and make more renewable electricity cost-effective.
- Encourage adoption of green tariff enabling legislation.
- Participate in regulatory proceedings regarding renewable energy incentives, siting policies, prevention of double counting between voluntary and compliance markets, utility resource plans or other relevant policies.
- Inform state policymakers regarding the role of voluntary markets and the need to preserve voluntary market claims and investments.
- Testify at legislative committee hearings on proposed legislation affecting renewable energy.

Taken together, renewable electricity use, procurement actions and efforts to influence others are key to market transformation. Large-scale and direct voluntary purchasing can have big, immediate impacts on production. Smaller procurements with indirect impacts also send an important demand signal and all are needed to reduce carbon emissions and influence investment in new generation development. Impact can be demonstrated in many different ways, based on a consumer's capabilities and resources. What constitutes leadership and impact may also change as markets mature, public policy evolves, market awareness and acceptance grows, individual consumer experience increases and economic feasibility improves. As a result, flexibility is needed in recognizing the impact of different actions, large and small, direct and indirect.

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Impact comes in many forms and is based on a company's capabilities and resources.

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## V. Communicating Corporate Actions and Impacts

Building on the above recommendation to use simple, factual language to describe the context and impact of a consumers' action, the following proposed framework offers transparent language to describe impact in terms of energy and GHG reductions. This is a complement to the well-defined renewable electricity consumption and GHG accounting standards. It avoids the confusing language of additionality, focuses on impact and the role of the consumer and assumes that active purchasing of renewable energy, given the low aggregate levels of purchasing today, demonstrates leadership.

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Leadership actions and impacts can be described in terms of “What” and “How.”

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To describe impacts, the framework describes *what* a consumer did and *how* they did it:

**What:** *What procurement action did you take and what is the renewable electricity and GHG impact of that action?*

**How:** *How did you exert influence? What was your role? How did you make a difference?*

Long and technical responses to these questions may be appropriate in some settings while simpler approaches may be effective in press releases and announcements. For example, in a peer-to-peer learning environment, you might be quite detailed in order to maximize replicability by others. Communicating the actions thoughtfully to a range of audiences is, in itself, an opportunity to maximize the impact of the purchase.

In answering these questions, many aspects of impact are not quantifiable, and may not be independently verifiable. Some actions such as advocacy, educating employees or influencing supply chain and business partners are not factual generation attributes that are reported and carried on RECs or other tradable instruments. The impacts can nevertheless be described in terms of what and how.

With respect to GHG corporate accounting, emissions from purchased electricity are reported as scope 2 (indirect) emissions and are based on emission factor attributes only, so how RECs are acquired makes no difference in scope 2 claims. Similarly, any renewable energy consumption claim must be substantiated with RECs (see Section II above). Additional narrative information is encouraged, however, and organizations have a lot of flexibility in reporting it. See the GHG-Protocol scope 2 guidance for more information.<sup>25</sup>

### Describing “What” You Did and Its Impact

- **Project, Purchase & Use:** Describe the project(s) you are purchasing from: energy resource, size (capacity), size of purchase (MWh), length or term of purchase or commitment and any unique features. Describe the project location in relation to the organization's facilities that will use the renewable electricity. Be clear about what portion of the project's output you are actually using and

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<sup>25</sup> Sotos, M. 2015. GHG Protocol Scope 2 Guidance. World Resources Institute and World Business Council for Sustainable Development. Retrieved from [http://www.ghgprotocol.org/scope\\_2\\_guidance](http://www.ghgprotocol.org/scope_2_guidance).

ensure you have the necessary energy attribute instruments to substantiate it. Be clear about energy attribute management, including whether you will resell them.

- **Age of the Project:** Where is the project in its life cycle? Is the project still in development or in commercial operation?<sup>26</sup> Is it new or existing (see Text Box 3)? Is it still recovering its investment and financing costs? Is it an existing zero-emitting generator at risk of closure because it's otherwise non-competitive with current technology? Is your purchase preventing closure in the near- or medium-term? Is your engagement enabling upgrades, repowering or expansions?
- **Regulatory Surplus:** Is the procurement surplus to renewables mandates and requirements for other generation attributes (e.g. GHG emissions)? Only MWh and RECs not counted towards a mandate are voluntary and are making a difference beyond what is required by law. In particular, is the procurement surplus to any GHG emission reduction program? If an emissions cap is in place on the electric sector, renewable electricity buyers should retire equivalent allowances (either using an allowance set-aside mechanism, where available, or independently) or otherwise ensure that emission reductions associated with their purchase are not counted toward regulatory emission targets. This is a common requirement for the voluntary market. Be transparent about how this is handled.
- **Avoided Emissions:** What are the estimated avoided emissions associated with the purchase? Estimating the avoided GHG emissions is optional in the GHG Protocol Corporate Standard<sup>27</sup>, since it is an impact occurring outside of the inventory. But separate reporting of estimated avoided grid emissions associated with purchased renewable electricity can help demonstrate the extent of GHG impact based on the marginal fossil units that are likely backed down. Note that avoided emissions are not typically reported with generation data, recorded with RECs issued, or independently verified by tracking systems.

### Textbox 3.

#### **Defining "New"**

Every renewable energy project was once "new," but for how long can a consumer claim "newness?" In any given year following the initial contract or project completion, an organization's procurement is no longer literally "new." But having engaged in the difficult process of getting a project built, it would be unreasonable to require all procurement to be new each year – the time from project signing to operation can take two years or more. PPAs sufficient to provide necessary financial security to investors typically range from 10-20 years because it takes that long to amortize the investment. This is why Green-e, a global leader in clean energy certification, and EPA's Green Power Partnership define a "new" project as one that commenced operation within the last 15 years, or for the term of a project-specific, long-term contract. From a capital recirculation perspective, there is also a reasonable argument that a project should be considered new to the end of its payback period. This approach recognizes long-term commitments without penalty to the original buyer, since the term of the contract can be a key factor in the financing of the project.

<sup>26</sup> Both EPA and Green-e® have criteria for what repowering an existing facility constitutes to make it new, but criteria for repowered facilities may be a topic for further discussion by market participants and observers.

<sup>27</sup> GHG Protocol. 2004. The GHG Protocol, A Corporate Accounting and Reporting Standard. World Resources Institute and World Business Council for Sustainable Development. Retrieved from <http://www.ghgprotocol.org/sites/default/files/ghgp/standards/ghg-protocol-revised.pdf>.



## Describing “How” You Made an Impact

The actions described below are not exhaustive, but illustrative. They are also approaches that a consumer might still utilize to maximize the impact of past purchases.

- **Financial risk:** If you are contracting directly with a specific project, describe whether your PPA helped obtain project financing. If you are a party to a PPA, describe in non-technical terms whether it is a physical PPA, a financial PPA (or virtual PPA) or a utility PPA (green tariff). Although these details may not be of interest to all stakeholders, a description will help others become familiar with the distinctions and may help increase market acceptance of less familiar options. Was the project facing other risks or hurdles that your participation helped overcome, for example, regulatory barriers? If you will own the project and are self-generating, or you are part of a shared renewables project in which you own the RECs, describe the team you worked with and how the project will serve your facilities and the risks you are taking or mitigating as a result.
- **Growing demand:** If you are purchasing a retail electricity product or unbundled RECs, describe how your purchase adds to aggregate demand. In the United States, Europe and Australia, this aggregation approach sends an important market signal to create more renewable electricity. Describe how buying unbundled certificates has brought transparency and accountability to consumer electricity choices, and clearly documented that there is corporate voluntary demand. Energy attribute certificates are core to all supply types and are the recognized and credible way to substantiate renewable electricity use. Describe how consumer purchasing in aggregate can move markets and policy, to decarbonize the electric sector. If you are creating ways for others (e.g. employees, suppliers, neighboring facilities, etc.) to participate, explain how unbundled RECs enable many different types of consumers to participate and contribute to decarbonization.
- **Location:** If you are investing in or purchasing from a location where voluntary demand is not common, how are you trying to change perceptions of renewable electricity by announcing your procurement to stakeholders in that region? You might describe how cost-effective it is, how replicable it is and how it helps the local economy. The location of your project may face barriers because of reliability issues, transmission congestion or system integration issues. Describe how you worked with the utility to solve reliability concerns, or how you worked with the grid operator to solve a renewable energy integration or utilization issue. If storage, electric vehicles or other new technology are part of your project solution, describe how they add to the GHG benefits from your project.
- **Advocacy:** If your procurement is based on new law or regulation that you have advocated for, share the change in policy and describe the opportunity it creates for others. Share with peers how you successfully engaged in advocacy and managed the internal and external barriers to engagement.
- **Replicability:** Clearly describe how your project or actions are replicable or scalable so that others are encouraged to follow your lead. Use opportunities for peer-to-peer learning to support others that would like to follow you. Consider sharing the story with less common outlets with the express goal of increasing awareness and demand for clean energy sources.
- **Access:** If there are multiple parties involved in the purchase, describe how you are increasing access to renewable electricity or what role you played in the project. If you are working with others or reaching out to other consumers, describe how building relationships and teams can help grow the market for renewable energy and reduce emissions more rapidly.

## VI. Putting Recommendations Into Practice

Consumers can describe their actions to procure and use renewable electricity and achieve GHG emission reductions (*the what*) and their role in achieving market transformational impacts (*the how*) using the approach outlined above. The following scenarios offer some examples of how organizations can be transparent in applying these communication recommendations. The scenarios are meant to stimulate discussion; the format should be dictated by the audience.

### Consumer A: Virtual or Financial PPA

We have lots of small retail outlets around the country, making it difficult to purchase individually for each due to different suppliers and high transaction costs. We undertook a single procurement through a financial PPA to cover all our electricity use. We also encouraged one of our major product suppliers to purchase 5 percent of the output to reduce their carbon footprint.

**What:** This project has the following characteristics:

- *Project, purchase & use:* A 15-year PPA for 95 percent of the output from a 100 MW wind project in Oklahoma. We take delivery of the power at the nearest node on the grid and then sell the electricity into the local wholesale electricity market since we can't deliver it to each of our outlets, but we keep the RECs from the project to match our nationwide electricity use.
- *Age of the project:* The wind project is brand new. We expect it to begin operation early next year.
- *Regulatory surplus:* None of the RECs will be sold or claimed for compliance with a state mandate or utility goal. Oklahoma has no emissions cap on the power sector, ensuring that we make a difference above and beyond public policy requirements.
- *Emissions:* The project produces no emissions and will avoid emissions at the marginal rate of 1,663 lbs/MWh based on EPA's eGRID subregion non-baseload 2016 emission rates.

**How:** We enabled this project through:

- *Financial risk:* The project developer was able to secure financing because we signed a long-term contract for the power and took some risk on the wholesale price differential. We have worked with a broker to understand and collar that risk, since we don't have facilities exposed to that same market price for their electricity costs.
- *Growing demand:* This purchase will have a direct and immediate effect on expanding the amount of generating capacity on the grid. Our purchase demonstrates leadership to our stakeholders that using renewable energy is cost-effective and possible within our industry.
- *Location:* We worked closely with the developer and our broker to select a location that was not already saturated.
- *Advocacy:* While this project did not specifically require advocacy, we have begun to explore supporting solutions to the growing glut of wind resources in the market.
- *Replicability:* This PPA model in organized wholesale markets has been and can continue to be replicated by similarly situated companies. We have participated as 'faculty' in the Business Renewables Center's boot camps to support learning by peers. We have shared our learnings via a case study as well.

- *Access:* One of our product suppliers was interested in securing long-term renewable electricity but was too small to be considered for a stand-alone PPA. We explored the possibility of letting them have a piece of the project's output, and whether it would affect the financial security required by investors. The project developer and investors were willing, so we enabled them to contract for 5 percent of the output over the same 15-year term. They also keep the RECs associated with their portion to make renewable electricity use and emissions reduction claims.

## Consumer B: Utility PPA (Green Tariff)

We are a consumer goods company with commercial and industrial operations in traditionally-regulated southern states. We have been buying renewable electricity from our utility for several years but it's always at an added cost to our electricity price, and it's just not cost-effective to buy 100 percent of our needs this way. Local regulations don't allow us to purchase directly from a renewable generator, but we worked with our utility for two years (including regulatory approvals) to create a customized tariff that allows us to enter a long-term contract with the utility for electricity from a specified generator, and the utility will enter into a similar long-term contract with the generator, at a long-term stable price.

We have subscribed to a green tariff newly offered by our utility. It is the first such tariff offered in the state, and the utility secured the new projects on our behalf.

**What:** This purchase has the following characteristics:

- *Project, purchase & use:* This is a 15-year agreement for the entire output from a 30 MW solar farm in Georgia. The utility will continue to supply our electricity and has agreed to register the project with a tracking system so they can retire the RECs on our behalf.
- *Age of the project:* The solar project is brand new. We expect it to begin operation early next year.
- *Regulatory surplus:* Our green power use will be entirely voluntary, since none of the RECs will be sold or claimed for compliance with a state mandate or utility goal. Georgia has no emissions cap on the power sector, ensuring that we make a difference above and beyond public policy requirements and what would have otherwise occurred absent our voluntary choice to use green power.
- *Emissions:* The project produces no emissions and will avoid emissions at the marginal rate of 1,697 lbs/MWh based on EPA's eGRID subregion non-baseload 2016 emission rates.

**How:** We enabled this project through:

- *Financial risk:* Our willingness to enter a long-term contract with the utility, on the same contract terms that they negotiated with the solar farm developer, helped the developer obtain financing for the project. This is a project the utility was unable to win regulatory approval for the general customer pool because the public utilities commission staff's assumptions about future natural gas prices.
- *Growing demand:* This purchase will have a direct and immediate effect on expanding the amount of generating capacity on the grid. It will supplement the small amount of renewable energy we receive as customers of the utility, bringing our total usage of renewable energy closer to our 100 percent goal.
- *Location:* Developing the solar farm in-state made the green tariff more politically persuasive because the utility also gets credit for its openness to adopting a new technology. It also demonstrates that solar is viable and creates jobs in the state.
- *Advocacy:* We helped ensure regulatory approval by joining commission hearings on the tariff.

- *Replicability:* We were among the first customers to join the pilot phase of the tariff, ensuring a scaling possibility as more customers join. We also participated in NGO working groups to analyze and describe this tariff and help its successful elements be replicated by other utilities. We've participated in peer-to-peer webinars and on panel discussions, for example at NARUC, to share how the tariff works for us.
- *Access:* This tariff is structured with a low load-size threshold, different term length options and access for existing loads – allowing more consumers to utilize this tariff.

## Consumer C: Tenant Purchasing Unbundled RECs

We are a small company with six offices in Minnesota, Wisconsin, North Dakota and South Dakota. We own our small office building in St. Paul but we rent our other offices and do not directly pay for our own electricity, as it is an embedded cost in our building lease.

**What:** This project has the following characteristics:

- *Project, purchase & use:* We purchase RECs each year equal to 100 percent of our (partly metered, partly estimated) electricity use, approximately 300 MWh. These RECs come from a wind project in Iowa.
- *Age of the project:* The wind farm began operation in 2013, and the project owner is still paying off the project debt and interest.
- *Regulatory surplus:* Two of the states in which we operate (Minnesota and Wisconsin) have a renewable energy standard, but the wind RECs we purchase are not claimed for compliance with a state mandate or utility goal. None of the states in which we operate have an emissions cap on the power sector, ensuring that we make a difference above and beyond public policy requirements.
- *Emissions:* The project produces no emissions and will avoid emissions at the marginal rate of 1,822 lbs/MWh based on EPA's eGRID subregion non-baseload 2016 emission rates.

**How:** We support growing demand for renewable energy through:

- *Financial risk:* The purchase of unbundled RECs is an additional cost to our electricity bill.
- *Growing demand:* We are helping to send a signal to policymakers that we support positive renewable energy policies in our state(s). Our company's wind REC purchase is completely voluntary and represents generation that is surplus to regulation while helping us meet our renewable electricity use and carbon footprint reductions objects.
- *Location:* Because we buy unbundled RECs from Iowa, the environmental effect of our purchase is realized in the Midcontinent Independent System Operator electric grid region where we operate.
- *Advocacy:* We have convinced the building owners at two of our rented spaces that there are other tenants that could be attracted by a green lease, and we have encouraged them to consider installing onsite solar. We also mention how to buy renewables at our local Chamber of Commerce meetings.
- *Replicability:* Unbundled RECs are available to all consumers, no matter their location, and are a credible way to demonstrate that voluntary demand for renewable electricity is met by renewable resources on the wider electricity grid.
- *Access:* So that our employees can also say they are using renewable electricity, we offer an employee buy-in program related to our wind REC purchase and retire those RECs on their behalf.

## Consumer D: Onsite REC Swap and Retail Electricity Supplier Purchase

We are a midsize natural foods store in northern Nevada. For several years we have been purchasing renewable electricity from our local utility through its green power program – a mix of geothermal (85 percent), solar (10 percent) and hydro (5 percent) – and have been able to increase our purchase to 100 percent of our electricity use. Recently we investigated and built an onsite solar project that we own for part of our needs. We are not large enough or have the credit rating to support a larger project.

**What:** Our renewable electricity purchases have the following characteristics:

- *Project, purchase & use:* The 200 kW solar project is installed on the roof of our store and provides us an economic benefit of a stable cost for our power. To make it more cost-effective, we accepted a financial incentive from the local utility, but the agreement requires us to relinquish the RECs to the utility, which means the power from the project is no longer renewable. We therefore buy replacement RECs - in our case, wind RECs from Texas. As a result, we claim the environmental benefits of wind rather than solar. Because we are buying replacement wind RECs, our purchase of utility green power is lower.
- *Age of the project:* Our replacement wind RECs are from the generation produced by a wind farm that began operation in 2014. Our utility green power purchase is supplied by projects that range in age from 5 to 15 years old.
- *Regulatory surplus:* Our Texas wind RECs are above and beyond what is needed for the Texas renewable energy requirement, and are retired on our behalf for our exclusive use. Our Nevada utility green power purchase is also incremental to the Nevada energy portfolio standard that mandates 25 percent eligible resources by 2025. In both cases, our voluntary purchases are in excess of what is used for compliance. There is no emissions cap and trade program in either state.
- *Emissions:* The replacement RECs and the purchased green power produce no emissions and will avoid emissions at the marginal rate of 1,403 lbs/MWh (in Texas) and 1,525 lbs/MWh (in Nevada) based on EPA's eGRID subregion non-baseload 2016 emission rates.

**How:** We support the broad advancement of renewable electricity through:

- *Financial risk:* Our risk is the capital investment cost of the new solar project. For the replacement Texas wind RECs, we entered into a 3-year renewable contract.
- *Growing demand:* Our purchase of Texas RECs and Nevada green power adds to collective demand for renewable electricity and provides a market signal that consumer preferences are changing. We believe it is also important to support existing renewables that are still paying off their indebtedness.
- *Location:* Our replacement RECs come from a Texas wind project, and the projects supplying our green power product purchase are all located in Nevada.
- *Advocacy:* We are part of a local organization advocating for stronger renewable energy policies in Nevada, and in particular, a policy to encourage shared renewables projects.
- *Replicability:* Onsite solar has become common. The risks are known, and there is an experienced solar industry available for design, installation and support. REC swaps, which we did because we gave up the solar RECs, are also easy as long as we don't claim to be solar-powered.
- *Access:* We have set up a small display about our solar project, and we explain the REC swap implications. As part of the display, we invite our customers to indicate their interest in a shared solar project that we hope to spearhead within the next couple of years.

## Summary

In an electricity market where renewable energy use is still uncommon, leadership can be defined as a consumer making a voluntary choice to use renewable electricity, and by doing so, setting a direction for their stakeholders to aspire to and follow. In using renewable energy, consumers can also distinguish themselves based on the varied range of impacts that different procurement approaches offer and customize those approaches to meet their objectives.

Impact in renewable electricity use can be demonstrated in many ways, and is not necessarily limited to being the first to pioneer a purchase option or adding new renewable energy capacity. As more renewable energy is deployed, consumer actions will continue to evolve to address emerging barriers to reducing GHG emissions. Consumers should think of their actions more broadly in terms of exercising influence among energy buyers broadly and of their impact in terms of how their efforts lead towards transforming the electric sector.

When describing an organization's actions, consumers should think about the impact they are having, whether they are adding new capacity immediately, helping to grow demand in the aggregate and over time, or making an impact in some other way. They should be careful about claiming "additionality" unless they are qualifying a renewable electricity project for carbon offsets that meet project-based accounting requirements. They should also consider broader market impacts such as advocacy and fostering increased access to renewable electricity. Consumers should recognize that companies are diverse in their size, priorities, electricity market environments and capabilities, and that therefore one size or definition of impact does not fit all.

To more effectively communicate impact through their purchasing strategy, consumers should transparently communicate what the purchase is – its scale, scope and term, how it is voluntary and goes beyond regulatory requirements, its impact on new or existing generation, and its impact on GHG emissions. Consumers should also be straightforward about how they helped make that happen. They should be clear about their financial and risk positions in any project or purchase, and their role in influencing policy changes, increasing accessibility for other consumers or other aspects of their participation in the renewable energy market transformation.

Rapid decarbonization of the electric sector relies in no small measure on participation and leadership of all consumers by the expression of their demand through renewable electricity use. Demonstrating impact in that effort is a race to the top, always seeking to use the consumer's leverage to maximize the positive impact of purchases. No one application of purchasing options will serve that ever-moving frontier, but transparent communications about their impact will fuel the desired change.

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