

MAKING CORPORATE RENEWABLE ENERGY PURCHASING WORK FOR ALL UTILITY CUSTOMERS

Design principles for voluntary renewable energy programs that meet the needs of corporate customers, utilities, and other ratepayers

By Advanced Energy Economy Institute

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About Advanced Energy Economy Institute

The Advanced Energy Economy Institute (AEE Institute) is a 501(c)(3) charitable organization whose mission is to raise awareness of the public benefits and opportunities of advanced energy. AEE Institute provides critical data to drive the policy discussion on key issues through commissioned research and reports, data aggregation and analytic tools. AEE Institute also provides a forum where leaders can address energy challenges and opportunities facing the United States. AEE Institute is affiliated with Advanced Energy Economy (AEE), a 501(c)(6) business association, whose purpose is to advance and promote the common business interests of its members and the advanced energy industry as a whole. Visit www.aee.net/aeei for more information.



EXECUTIVE SUMMARY

Across the country, a growing number of companies have set renewable energy and energy-related sustainability targets, with 71 of the Fortune 100 companies now committed to reducing their energy-related impacts and over 100 companies globally pledging to source 100% of their electricity needs from renewable energy.¹ More importantly, companies are not only making commitments on paper, but following through with them in reality; since 2012, corporations have purchased over 8 gigawatts (GW) of renewable energy from offsite projects.²

To date, most projects serving corporate demand for renewable energy are in states with competitive electricity markets in which customers are able to choose their electricity supplier, while states with vertically integrated utility markets have seen relatively few deals. Onsite renewable energy generation is an alternative available in most markets, but may not be sufficient to meet corporate needs, or may be less desirable than contracting for renewable energy offsite. In response to the growing corporate demand for renewable energy, vertically integrated utilities have started to introduce voluntary renewable

energy offerings that allow customers to purchase renewable energy within the context of a traditionally regulated electricity market. In particular, some utilities have developed voluntary programs that allow customers to purchase bundled renewable energy and renewable energy certificates (RECs) at long-term, market-based prices. These programs are often referred to collectively as “renewable energy tariffs” or “green tariffs,” although details vary greatly.

There has been concern in some states that these programs may unintentionally result in higher electricity costs for utility customers who do not participate in these programs. This issue brief from Advanced Energy Economy Institute (AEE Institute) explores case studies and presents best practices for the design of voluntary renewable energy tariff offerings that meet the needs of participants without impacting other utility customers. AEE Institute finds that by appropriately allocating the costs and benefits of these programs to *participating* customers, utilities and regulators can design programs that meet companies’ needs while ensuring that *nonparticipants* do not bear any of the direct costs of these programs. Although optimal program design will depend on state-specific circumstances, there are eight general principles that policymakers, regulators, and utilities should apply to ensure that participants are able to benefit while protecting nonparticipants from impact. Specifically, such programs should:

1. Charge participants according to the actual cost of serving them;

¹ Advanced Energy Economy, *2016 Corporate Advanced Energy Commitments* (Dec. 2016), available at <http://info.aee.net/growth-in-corporate-advanced-energy-demand-market-benefits-report>; RE100, Companies (June 2017), available at <http://there100.org/companies>.

² Business Renewables Center, BRC Deal Tracker (Updated May 2017), available at <http://businessrenewables.org/corporate-transactions/>.



2. Pass RECs and REC costs to participants;
3. Charge transparent, cost-based administrative and program fees;
4. Set fair termination requirements;
5. Consider the impact of costs and benefits outside the scope of the program;
6. Enable participation by both new and existing customers;
7. Allow participants to negotiate special contracts to fit their unique needs; and
8. Set a regular schedule for program review.

Following these principles will ensure that corporate procurement delivers on its potential benefits to the grid, nonparticipating customers, and the local economy.



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INTRODUCTION

Across the country, a growing number of companies have set renewable energy and energy-related sustainability targets, with 71 of the Fortune 100 companies now committed to reducing their energy-related impacts and over 100 companies globally pledging to source 100% of their electricity needs from renewable energy.³ Companies are taking these commitments seriously, and are purchasing renewable energy at a growing pace. Since 2012, corporate purchasers have contracted for over 8 gigawatts (GW) of offsite renewable energy in the United States, with 70% of that total purchased in 2015 or later.⁴

In addition to helping companies control costs and meet their sustainability goals, new renewable energy resources brought online through corporate procurement can deliver many benefits to the grid, other customers, and the local economy. These benefits range from infrastructure upgrades and increased resource and fuel diversity to new tax revenue and local construction and operation jobs.

To date, contracts to serve corporate load have been overwhelmingly concentrated in

states with competitive electricity markets in which customers can choose the source and supplier of their electricity. Of the 1,360 MW of deals signed by corporate purchasers in 2016, only 5% were in states with vertically integrated utilities, even though vertically integrated utilities account for over 40% of electricity production in the United States.⁵ Onsite renewable energy generation is an alternative available in most markets, but may not be sufficient to meet corporate needs, or may be less desirable than contracting for renewable energy.

In response to the growing corporate demand for renewable energy, vertically integrated utilities have started to introduce voluntary purchasing options that allow customers to purchase renewable energy within the context of a traditionally regulated electricity market. Given the growing number of companies setting ambitious renewable energy and sustainability targets, successful renewable energy purchasing options are important for states in their efforts to attract and retain top corporations. In addition, voluntary purchasing programs can deliver the same economic and electric grid benefits in vertically integrated markets that corporate renewable energy procurement already delivers in competitive markets—infrastructure upgrades, resource

³ Advanced Energy Economy, *2016 Corporate Advanced Energy Commitments* (Dec. 2016), available at <http://info.aee.net/growth-in-corporate-advanced-energy-demand-market-benefits-report>; RE100, *Companies* (June 2017), available at <http://there100.org/companies>.

⁴ Business Renewables Center, *BRC Deal Tracker* (last updated May, 2017), available at <http://businessrenewables.org/corporate-transactions/>.

⁵ Business Renewables Center, *State of the Market* (Nov. 2016), available at http://www.businessrenewables.org/downloads/brc_nov_2016/State-of-the-market.pdf.



and fuel diversity, tax revenue, and job creation, among others.

To deliver on these benefits, voluntary renewable energy purchasing programs must meet the needs of prospective participants while avoiding impacts on other utility customers. There has been concern in some states that these programs may unintentionally result in higher electricity costs for non-participants. At the same time, there is also a risk that programs may overcompensate for this concern by introducing high participation fees that make the offerings unattractive for prospective participants. Striking a balance between these considerations is the key to success in creating voluntary renewable energy programs.

This issue brief from Advanced Energy Economy Institute (AEE Institute) explores case studies and presents eight general principles for the design of voluntary renewable energy purchasing programs that meet the needs of the corporate participants without impacting other utility customers.⁶ AEE Institute finds that by appropriately allocating the costs and benefits of these programs to *participating* customers, utilities and regulators can design programs that meet companies' needs while ensuring that *nonparticipants* are not impacted.

⁶ These best practices reflect what existing programs have done well, and what they could do better; as new voluntary renewable energy tariffs are implemented, they will likely lead to additional innovations that will warrant some revisions to current best practices.



OVERVIEW OF VOLUNTARY RENEWABLE ENERGY PURCHASING PROGRAMS

What are Voluntary Renewable Energy Purchasing Programs?

Voluntary renewable energy purchasing programs are utility offerings that allow customers to elect to purchase renewable energy instead of the default electricity mix. For many years, utilities in both competitive and vertically integrated markets have offered voluntary Renewable Energy Certificate (REC) purchasing programs, generally structured as a set premium applied to the customer's normal rate schedule.⁷ However, such programs fail to offer the low prices and long-term price stability that large-scale voluntary purchasers can access in competitive markets through power purchase agreements (PPAs). In recent years, as customers in competitive markets have turned to PPAs or competitive renewable energy suppliers to meet their needs, utilities in vertically integrated markets have introduced voluntary renewable energy purchasing

⁷ A REC is a non-tangible certificate that provides an incentive to renewable developers and represents the environmental attributes—and not the actual output—of producing one MWh from a renewable facility. REC programs allow customers to buy RECs to reach their sustainability goals and help to contribute to the development of renewable resources.

programs that allow customers to purchase bundled renewable energy and RECs at long-term, market-based prices. These programs are sometimes called “renewable energy tariffs” or “green tariffs.” This issue brief is primarily focused on such programs, although the same principles could be applied to other program types.⁸

Renewable energy tariffs can be categorized into three main program types: Sleeved PPA tariffs, Subscription-based programs, and Market-based rates.⁹

Sleeved PPA tariffs allow large customers to purchase energy from an offsite renewable project, with the terms of the PPA contract passed through that customer's local utility as a “sleeved” contract. Customers and renewable energy developers can sometimes negotiate directly to set the terms of such a

⁸ States could also provide customers with increased access to competitive procurement options, which may be a preferred option for some customers. Because this paper is focused on voluntary utility programs, this alternative is not considered here.

⁹ For more detail and an explanation of existing and proposed renewable energy tariffs, see World Resources Institute, *Emerging Green Tariffs in U.S. Regulated Electricity Markets* (May 2017), <http://www.wri.org/publication/emerging-green-tariffs-us-regulated-electricity-markets>.



contract, subject to utility approval and agreement. While there are many variants, the general idea is that participating customers pay a utility bill that includes the cost of the PPA plus the cost of other services delivered by the utility, including transmission, distribution, and administrative fees. Examples of sleeved PPA tariffs include Rocky Mountain Power's Schedule 34 in Utah, Duke Energy's recently expired Green Source Rider in North Carolina, and NV Energy's Green Energy Rider in Nevada.

Subscription-based programs are generally better suited to smaller or more dispersed customers that may not have the internal expertise, electricity demand, and/or balance sheet required to sign a long-term, large-scale PPA. Instead, subscription-based programs serve multiple customers with the output of one or more renewable energy facilities owned or contracted by the utility, and generally provide customers with flexibility in terms of subscription amount and length. One recent example is Puget Sound Energy's Green Direct program, which affords companies the opportunity to purchase a portion of the output of a new 130 MW wind project—a scale much larger than a traditional “community” project, but without requiring a single customer to purchase output of the full project.¹⁰ Another example is Xcel Energy's Renewable*Connect program, which was recently approved in Minnesota and Colorado.

¹⁰ WA Utilities and Transportation Commission, Filing UE-160977 (Sept. 2016), available at <https://www.utc.wa.gov/layouts/15/CasesPublicWebsite/Case.aspx?year=2016&docketNumber=160977>.

Market-based rates replace the energy portion of a customer's bill with a variable rate that moves up and down with wholesale market prices. The market-based rate can be used in parallel with a utility renewable energy offering that reflects wholesale market pricing. Alternately, a customer could sign a virtual PPA (also called a financial PPA) with a project located in the same wholesale market.¹¹ In either case, a market-based rate provides a more direct correlation between the customer's electricity rates (per kWh usage) and the variable market prices resulting from the sale of the renewable energy into the wholesale market. The only current examples are Omaha Public Power District's Schedule No. 261 M, approved in January 2017, and Dominion Energy's Schedule Market Based Rate, approved in 2016 following the development of a Special Contract Rate negotiated with Amazon Web Services.

All three program types respond to the desire of companies and other large-scale customers

¹¹ In a virtual PPA, the customer agrees to pay a fixed (or escalating) per kWh price for renewable energy, just as under a normal, or “physical,” PPA. However, rather than being directly consumed by the customer (as under a physical PPA), the electricity is sold onto the wholesale market. If the selling price in the wholesale market is higher than the fixed per kWh rate, the customer receives the difference in credit, and if the price that the renewable energy sells for is lower, the customer pays the difference. This virtual PPA arrangement enables the developer to secure financing and it provides the customer with a long-term hedge to rising wholesale market prices. However, in the absence of a market-based rate, the virtual PPA is not connected to a customer's retail bill, which for many customers is problematic.



to make renewable energy purchases that are cost-competitive, offer price certainty, and in many cases support new renewable energy projects that go above utility obligations and regulatory requirements.

What are the Potential Impacts for Nonparticipants?

The rise of voluntary renewable energy tariff programs in states across the country has been accompanied by a concern that such programs could increase electricity costs for nonparticipating customers. To avoid this outcome, there are two primary issues that must be managed.

First, there is a possibility that existing system costs—such as maintaining existing utility generating resources—will be borne by a smaller group of customers as corporate customers elect to purchase electricity via a voluntary renewable energy tariff.

Second, new costs to the system as a result of voluntary purchasing programs could be imposed on nonparticipating customers. Such costs could include infrastructure or transmission upgrades, integration and balancing costs, and utility costs for procuring new resources and administering a new voluntary program.

The key to avoiding adverse impacts for nonparticipating customers, as described in more detail below, is careful management and accurate allocation of the costs and benefits of these programs.

How can Voluntary Renewable Energy Purchasing Programs Benefit All Customers?

While posing some risks of additional costs for nonparticipating customers, voluntary renewable energy purchasing programs can also bring significant value to all customers if structured properly. Specific benefits—whether economic, environmental, social, or financial—will vary depending on a utility's service territory, but there are several ways that new renewable energy purchasing programs can benefit a state, including:

New High-Paying Jobs. Manufacturing, installing, operating, and maintaining a new renewable energy facility brings with it desirable and often high-paying jobs to the local community. In addition, large corporations are increasingly indicating that their siting decisions for new data centers or manufacturing plants are based at least in part on their ability to access renewable energy. As such, states that meet this prerequisite by providing companies with renewable energy purchasing options also stand to gain new jobs across a range of market segments outside the advanced energy industry. For example, in the proceeding to approve a Special Rate Contract between Dominion Energy and Amazon Web Services in Virginia, a precursor to Dominion's Market-based Rate offering, the opportunity to create new jobs



was cited by multiple parties as a reason why the rate should be approved.¹²

Increased Tax Revenue. New renewable energy facilities such as wind and solar bring corporate tax revenues directly to the local and state economy, as do new or expanded corporate operations. Renewable energy projects also deliver property taxes from their facilities and associated transmission infrastructure. Renewable energy developers may also pay lease payments to landowners, providing them with a new revenue stream. Finally, new direct and indirect jobs from renewable energy facilities and new or expanded corporate operations also bring increased income tax revenue.

Grow or Maintain Utility Customer Base. As more companies are making siting decisions based on renewable energy access, voluntary purchasing programs can attract new customers into a utility's service territory. This larger customer base means that certain system costs, such as some transmission and distribution costs, are spread across a greater number of ratepayers, reducing costs for all customers. Furthermore, offerings that meet customers' needs can avoid the potential for

¹² The Hearing Examiner in the case specifically stated in recommending approval of the Special Contract Rate, "Dominion Virginia Power has presented convincing evidence that flexibility provided by the Special Rate Contract is critical to: (i) the data center high-tech sector of the Commonwealth's economy, (ii) the development of renewable energy, and (iii) the Commonwealth's general economic development and business climate. Thus, I find that the proposed Special Rate Contract and the Stipulation are in the public interest." See Docket PUE-2015-00103.

load defection as large customers exit a utility's territory and instead receive service from the competitive market, as several large customers have done in Nevada.¹³

New Generation Costs Not Borne by Nonparticipating Customers. In jurisdictions where demand is growing, new generation investments will be needed. Voluntary renewable energy purchasing programs provide a vehicle for a subset of voluntary customers to select the resources they desire, and to bear the cost of these resources, rather than spreading the cost of new resources across the entire customer base.

Resource Diversity and Price Stability. New renewable energy facilities diversify a utility's resource mix, which helps to hedge price risk by protecting both the utility and its customers from fuel price fluctuations and possible resource scarcity. This hedging benefit is further enhanced because renewable energy projects have zero price volatility.

Lower Marginal Energy Costs. Renewable energy resources typically have no fuel inputs because they rely on free resources, such as wind and solar, to operate. As such, these resources generally have substantially lower operating costs than traditional fossil fuel generators, which means that the marginal cost—the cost of producing an additional unit of energy—of renewable energy is very low. As a result, when utility operators decide which resources to deploy, new renewable resources tend to displace the most expensive

¹³ Docket 15-05002, 15-05006, 15-05017, 16-11034, 16-07017.



generators, lowering the overall cost of electricity.

Reduced Regulatory Risk. As states and the federal government consider potential carbon policies and tighter air quality standards, states can reduce regulatory risk by enabling market-based mechanisms that support investment in zero-emission generation. Specifically, by shifting the resource mix away from higher-emitting resources, voluntary purchasing programs can help reduce the cost of current and future environmental regulations, even while ensuring that the environmental attributes of new renewable

energy generation are fully attributed to participating customers.

Driving Economies of Scale. Renewable energy purchasing programs drive demand for renewable technologies, such as wind turbines and solar panels, which can lower production costs and further drive down the cost of renewable technologies. As such, these purchasing programs not only allow the purchasing entity to access renewable energy, but help pave the way for access to these technologies for all customers.



DESIGN PRINCIPLES TO SERVE THE INTERESTS OF ALL CUSTOMERS

Based on an assessment of voluntary renewable energy purchasing programs across seven states, AEE Institute has identified eight principles for designing programs that meet the needs and preferences of participants while avoiding cost shifts or unfair treatment of either participants or nonparticipants.

The eight programs were selected to reflect the variety of program designs that have been implemented across the country. These programs are listed below in Table 1, and a summary of each can be found in Appendix A.

Table 1. Voluntary renewable energy purchasing programs reviewed by AEE Institute.

State	Program	Program type	Date Approved	Deals/subscribers
Minnesota	Xcel Energy's Renewable* Connect	Subscription	Jan. 12, 2017	None to date
Nevada	NV Energy's GreenEnergy Rider	Sleeved PPA	Sept. 9, 2013	Six, including Apple, Switch, and City of Las Vegas
Nebraska	Omaha Public Power District's Schedule 261 M	Market-based Rate	Jan. 12, 2017	Facebook has announced it will use the tariff
North Carolina	Duke Energy Carolinas' Green Source Rider	Sleeved PPA	Dec. 19, 2013; expired Dec. 31, 2016	Seven, including Google solar project
Utah	Rocky Mountain Power's Schedule 34	Sleeved PPA	Aug. 18, 2016	None to date
Virginia	Dominion Energy's Schedule RG	Sleeved PPA	Dec. 16, 2013; expired Apr. 1, 2017	None
Virginia	Dominion Energy's Schedule MBR	Market-based Rate	Sept. 23, 2016	Several by Amazon under similar special rate
Washington	Puget Sound Energy's Green Direct	Subscription	Sept. 28, 2016	Several, including REI, Starbucks, Target



For each program, AEE Institute's analysis focused on the treatment of participants and nonparticipants, examining areas where participants are charged accurately versus over- or undercharged relative to costs, and where nonparticipants may be impacted either positively or negatively. This analysis includes consideration of final program design elements as well as issues and concerns raised by stakeholders—whether in public regulatory filings or in AEE Institute conversations with purchasers and other stakeholders—that were not incorporated into the final program design. Optimal program design also depends on state-specific circumstances such as expected resource needs, resource availability, projected load growth, price of generation, fixed system costs, and access to competitive wholesale markets. However, the eight principles outlined below provide a good starting point for policymakers, regulators, and utilities to ensure that participants can receive the benefit they seek while nonparticipants either benefit as well or feel no impact in their electric bills.

1. Charge participants according to the actual cost of serving them

Fair allocation of costs and benefits of new renewable energy is key to ensuring that participants pay a fair price and that nonparticipants are neither harmed nor benefitted disproportionately. The best approach to applying this principle will vary by program type.

For **sleeved PPA programs**, the PPA price and any additional integration and balancing costs should be billed directly to the

participating customer. There should be no mark-ups, and all costs and benefits should be assigned to the customer. Customers should be charged for the services they receive and credited for the benefits they deliver to the grid. Many of the sleeved PPA programs developed to date fail to meet these criteria. For example, under Dominion Virginia Power's Schedule RG tariff, which expired in April 2017 without any uptake by customers, participants would have been exempted only from fuel-related riders, and would not receive any credit for capacity benefits from new renewable energy projects brought online under the program.

For **subscription-based programs** in which customers enroll to receive service from resources contracted, procured, or owned by their utility, projects should be competitively procured to minimize costs, and customers should be charged according to the actual cost to the utility of procuring those resources. As under sleeved PPA programs, customers should be charged and/or credited for the services they receive and benefits they deliver to the grid. For example, under Puget Sound Energy's Green Direct program, the utility will sign PPAs for facilities that will be acquired "at least cost for the whole rate base portfolio, all customers classes," with the expectation that these resources "will be found to be prudent for the recovery of the cost associated with that acquisition." This not only ensures that nonparticipating customers will not be saddled with extra costs if the program is not fully subscribed, but also addresses the need for competitively procured resources to keep costs low for participants. The program also presents a transparent, predictable cost



schedule based on the utility's costs, allowing customers to make informed decisions about their participation in the program.

For **market-based rates**, slightly different principles apply when the customer pursues a contract with a renewable energy facility through a virtual PPA, which it enters into in parallel with the market-based rate. This means that customers are still served from the same resource base as all other customers, and the utility's load obligations and its cost to meet its load remain unchanged. Thus, customers can be charged all applicable generation, capacity, and transmission and distribution charges, and the impact of the switch to a market-based rate for generation, capacity, and ancillary services can be quantified. Provided that utilities set up a regular schedule to review the impacts of the market-based rate (see Principle Eight, below), any cross-subsidy in either direction should be easily identified.

The first examples of market-based rates were approved only recently, so the potential impacts on participants and nonparticipants remain unknown. In Virginia, because Dominion Energy's base rates are frozen through the end of the transitional period of the market-based rate, there will be no impact to nonparticipants under this particular program. Under Omaha Public Power District's Schedule No. 261M in Nebraska, various costs are wrapped up into a single monthly service charge, making it difficult to assess the accuracy of program pricing.

2. Pass RECs and REC costs to participants

To meet clearly delineated customer needs, voluntary programs should allow for RECs to be transferred to participants or retired on their behalf. To ensure fair treatment of nonparticipants, the cost of RECs should also be passed through to participants.

The ability to claim and retire RECs is a threshold requirement for most companies interested in purchasing renewable energy. The 65 signatories to the Renewable Energy Buyers' Principles—representing an estimated annual aggregate demand of 48 million MWh by 2020, equivalent to the energy use of about 4.5 million households—agree that they need “access to new projects that reduce emissions beyond business as usual.” Specifically, the companies want “access to bundled renewable energy products” that deliver energy and RECs.¹⁴ All the programs included in AEE Institute's research allow customers to retire RECs, either directly or through their utility.

It is equally important that the cost of RECs be passed through to participants to ensure that nonparticipants are not responsible for covering these costs. For utilities subject to a renewable portfolio standard (RPS), the cost of RECs applied to meet RPS requirements must also be separated. For example, the costs associated with securing renewable energy to meet demand under Duke Energy Carolinas'

¹⁴ Corporate Renewable Energy Buyers' Principles (Updated Jan. 2017), available at http://buyersprinciples.org/wp-content/uploads/Corporate_RE_buyers_guide-Jan242017.pdf.



Green Source Rider (GSR) are kept separate from Duke's costs to comply with North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard (REPS) and are not included in the REPS rider that all customers must pay; likewise, RECs associated with the GSR will not be used for compliance with the REPS. This approach is standard practice and straightforward to implement.

3. Charge transparent, cost-based administrative and program fees

Participants should pay fair, cost-based administrative and program fees (i.e., metering, billing and/or application fees) to ensure that nonparticipants do not shoulder the costs of administering the program. At the same time, utilities should justify the fees through a comprehensive, transparent cost analysis to ensure that participants are not overcharged. If a full analysis is not possible prior to program assessment and approval, programs should establish a clear pathway to correct for overestimated costs while setting parameters to protect participating customers from unexpected cost increases in the case of underestimated costs.

Existing programs have taken a range of approaches to setting and charging program fees, and unduly high fees have been one of the key deterrents to participation in some existing programs. For example, Duke Energy Carolina's Green Source Rider in North Carolina includes a \$2,000 initial application fee to cover costs related to renewable energy procurement plus a "Rider GS Administrative Charge" of \$500 per month and 0.02 cents per kWh of renewable energy. Yet, in Duke's application for approval of the program, the

utility provided no detailed justification for these fees.¹⁵ Even for large customers, these fees are significant and warrant explanation. For example, Google's 61 MW solar facility in Rutherford County announced under the Green Source Rider in 2015 could cost the company over \$27,000 annually in administrative fees on top of the initial \$2,000 application fee, totaling more than \$550,000 over the course of a 20-year contract.¹⁶ When making decisions about participation in a voluntary purchasing program, customers need transparency into these fees. Furthermore, utilities should seek ways to minimize transaction costs, such as turning to project providers or other third parties to pay for or find ways to lower administrative costs and other program fees.

4. Set fair termination requirements

Programs should establish clear and reasonable termination rules and/or fees to provide participants with upfront transparency and ensure that nonparticipants will not have to shoulder the cost in the case of customer default or early termination (e.g., if the company closes down or moves its operations to another state). At the same time, it is important that termination provisions avoid placing an undue burden on customers that

¹⁵ Duke said that the application fee is "intended to cover the Company's transaction fees" and that the company "anticipates" that the administrative charge will be "sufficient to cover ongoing incremental billing and contract administrative costs."

¹⁶ Assuming an average 20% capacity factor, this facility would cost the customer \$21,374 in per-kWh fees and \$6,000 in flat monthly fees.



might prevent participation. In addition to fair termination requirements, programs should provide customers an option to transfer their energy obligation to another customer under some circumstances. Utilities may also allow customers to negotiate individualized termination requirements to reflect their particular circumstances.

For example, customers receiving service under Rocky Mountain Power's (RMP) Schedule 34 tariff must enter a service termination contract that requires them to pay the full cost of energy procured on their behalf if they prematurely terminate their contract. RMP also allows participating customers to transfer their rights and obligations related to the renewable energy resource to another customer, pending Commission approval of the new contract. This gives prospective participants flexibility and assurance that they will be able to opt-out of their contract if needed. Alternately, customers could be held responsible for only the cost differential between the average cost to serve that customer's load and the cost of the renewable energy contract. This approach would lower the financial risk (and therefore cost) for participating customers while still holding nonparticipants harmless in the case of customer default.¹⁷

5. Consider the impact of costs and benefits outside the scope of the program

Voluntary renewable energy procurement programs bring many benefits and potentially

¹⁷ This approach was discussed during the 2017 legislative session in North Carolina, but has not been officially introduced or implemented.

some costs that may not be captured in the billing structure of the program itself, such as increased tax revenue and new local jobs (see above for full discussion). While such impacts cannot always be quantified, this does not mean they have zero value, and they should still be considered when designing the program and presenting the business case to all stakeholders. There are well-established techniques in benefit-cost analysis, such as proxies and alternative benchmarks, that can be used to approximate values when they cannot be precisely ascertained.¹⁸

While broader benefits are often cited when justifying program development, or included as arguments in favor of adopting voluntary utility programs, these benefits have seldom been incorporated into program design and evaluation in a meaningful way. For example, under Dominion Virginia Power's Schedule RG tariff, it came up in testimony that the program might actually lower the marginal cost of serving the utility's existing customers. Specifically, the utility acknowledged that nonparticipating customers may have a lower fuel charge because the most expensive operating resources would not be dispatched, as new renewable energy—with minimal marginal costs to operate—would serve load instead. However, while this impact was discussed, it was not accounted for in program design and implementation. Taking the next step to account for costs and benefits outside

¹⁸ Synapse Energy Economics for AEE Institute, *Benefit-Cost Analysis for Distributed Energy Resources* (Sept. 2014), available at <http://info.aee.net/benefit-cost-analysis-for-der-synapse>.



the scope of the program would likely boost participation and improve overall outcomes for all customers.

6. Enable participation by both new and existing customers

Citing concerns about increased costs for nonparticipating customers, some utility renewable energy tariff programs have limited eligibility to customers with new load only, i.e., participation is limited to customers bringing new or expanded operations to the area. However, to meet the needs of all prospective participants, including companies already located and operating in the state, programs would need to allow participation by customers with both new and existing load. In some cases, allowing participation by existing customers may require additional fees or stipulations to ensure that costs do not increase for nonparticipants, particularly in situations where a smaller share of customers is left to pay for existing system resources.

To the extent that there are some costs that participating customers are *not* paying for under a voluntary renewable energy program, such as capital costs associated with existing generating plants, a utility could introduce fees to ensure that there is no lost revenue. These additional fees should be determined by a thorough and transparent process to ensure participants and nonparticipants are not overburdened with costs. Any additional fees should include the actual costs of procured contracts and resources made to serve customers that may become underutilized; they should also consider the

benefits of any newly procured resources to the system.¹⁹ Alternatively, if the utility is forecasting demand growth and the newly procured or owned renewable resources substitute for new utility-procured resources that would otherwise be needed, then additional fees are likely unnecessary.

By providing an option for existing customers to obtain cost-competitive renewable energy through their utility, successful voluntary programs can also help avoid customer defection that would result in a smaller customer base to cover system costs such as transmission and distribution, and can provide an avenue for corporations to avoid paying excessive exit fees. For example, in January 2016, three casinos in Nevada—Wynn Las Vegas, MGM Resorts, and Las Vegas Sands—all received approval to procure energy from the wholesale energy market instead of receiving service from NV Energy, contingent on paying substantial exit fees. Because their departure was estimated to reduce NV Energy's load by over 5%, the three casinos were collectively ordered to pay \$126 million in exit fees to ensure that existing customers would not be left paying for stranded costs.²⁰ By contrast, effective voluntary renewable energy programs can also help attract new customers, spreading certain system costs

¹⁹ For a good explanation of how different program types have addressed the risk of stranded assets, see Priya Barua, World Resources Institute, *Implementation Guide for Utilities: Designing Renewable Energy Products to Meet Large Energy Customer Needs*, Working Paper (June 2017), <http://www.wri.org/publication/implementation-guide-green-tariffs>.

²⁰ Docket 15-05002, 15-05006, 15-05017.



over a larger rate base and thereby lowering costs for all customers.

7. Allow flexibility within the program to address unique needs and circumstances

Different customers have different appetites for capital expenditures, risk, and contract terms, as well as different requirements around flexibility and long-term price certainty. Different customers are also able to offer different benefits to the grid, such as consistent or flexible demand. While there is value in providing a standard, replicable program offering, in many cases both participating and nonparticipating customers would benefit more from a program that is flexible enough to respond to and take advantage of individual customer circumstances. As such, customers should have the option of negotiating certain program elements, or of negotiating a special contract and rate to meet their needs and deliver any benefits that result from their willingness to take on specific risks or capital expenditures, for example.

Under the Schedule 34 tariff in Utah, Rocky Mountain Power explicitly allows customers to enter into a special contract if it is deemed in the public interest and approved by the Commission. RMP testified that there may be times when a special contract is necessary because simply billing the applicant at the tariff rate and charging for the difference between the cost of the renewable resource and RMP's avoided cost would not be appropriate. In addition, allowing participants to negotiate special contracts gives companies flexibility to meet their unique needs.

For the same reasons, subscription-based programs should include contracts of varying lengths to give customers flexibility around different time horizons. For example, under Xcel Energy's Renewable*Connect program, customers have the option of entering into month-to-month, five-year, or special event duration contracts. This added flexibility helps to increase participation in the program and reduce the chance of a customer having to terminate a contract early.

8. Set a regular schedule for program review

All programs should be subject to a regular review and utilities should be required to file annual compliance reports to assess interest and participation, ensure that costs and benefits are fairly allocated, determine whether administrative fees accurately reflect the cost to the utility, and identify whether adjustments are needed to any element of the program's design or implementation. Furthermore, because these programs have the potential to impact business opportunities for renewable energy developers, energy decisions for corporate purchasers, and costs for nonparticipating customers, these regular reviews should include a formal opportunity for stakeholder input. At the same time, participants must be given certainty upfront that they will not be negatively impacted by adjustments resulting from regular program reviews, such as by grandfathering existing customers when a price increase is deemed necessary. Without this assurance, prospective participants will hesitate to enter into a long-term agreement under a voluntary purchasing program.



Many of the programs reviewed by AEE Institute included a requirement that the utility file an annual report. For example, Duke Energy Carolinas was required to submit annual reports on the Green Source Rider pilot program and a final report within 90 days of completion of the three-year pilot. However, these reports were primarily focused on participation levels, Duke's efforts to engage customers, and qualitative reflections on challenges and opportunities; they did not include an assessment of costs to the utility and to customers, nor did they look at the costs and benefits of new renewable energy facilities brought online. In contrast, under Xcel Energy's Renewable*Connect program in Minnesota, the utility will be required to file annual reports that include an assessment of the impact of the program on nonparticipants. In particular, these reports will look at the program's neutrality adjustment charge, which is specifically intended to account for any impacts resulting from Renewable*Connect customers leaving already-procured system resources. This charge is difficult to calculate accurately in advance of implementation, and the pilot program is being used in part to collect information needed for the Commission to conduct future analysis to refine the adjustment charge.

Making Programs More Attractive for Participants

To deliver on the full range of potential benefits described above, voluntary renewable energy tariffs must not only avoid impacts for nonparticipants, but also meet the needs of participants. One key to attracting participants is to avoid overcharging customers in the

name of protecting nonparticipants; this is a general principle that should be kept in mind when implementing the eight best practices above.²¹

There are additional design elements that have little or no bearing on nonparticipants but that make programs more attractive for participants. For example, programs allowing aggregation across multiple metered locations are more useful for customers with multiple smaller locations, such as retailers.²² Additional design elements that keep costs low for participants, such as a competitive resource procurement process under subscription-based programs and direct negotiation by customers under sleeved PPA programs, will also make programs more attractive to prospective participants. For many customers, it is also important that individual customer participation limits and aggregate program caps be high enough to accommodate their

²¹ For example, participants should be charged based on the full range of costs and benefits of new, additional, customer-procured renewable energy (Principle One); participants should pay fair and cost-based administrative fees (Principle Three); and programs should be subject to regular reviews to ensure participating customers are not over- or underpaying for service (Principle Eight).

²² For example, RMP's Schedule 34 tariff allows customers to aggregate their load across multiple meters or locations in order to meet the minimum load threshold of 5,000 kW of annual peak load. RMP's original proposal required customers to pay \$150 in monthly fees for each delivery point to cover the extra costs of metering and billing. However, after many stakeholders found the fees overly burdensome and not cost-based, RMP agreed to lower the fees to \$150 for the first delivery point plus \$50 for any additional delivery points.



demand for renewable energy. These and many other design considerations are best addressed through stakeholder collaboration during the design, assessment, approval, and implementation of voluntary programs.²³

²³ For a thorough discussion of considerations for renewable energy tariff design, see Priya Barua, World Resources Institute, *Implementation Guide for Utilities: Designing Renewable Energy Products to Meet Large Energy Customer Needs*, Working Paper (June 2017), <http://www.wri.org/publication/implementation-guide-green-tariffs>. For a brief guide for designing renewable energy tariffs to meet corporate needs, see Advanced Energy Economy, *Essential Elements of Next-Generation Renewable Energy Tariffs* (July 2017), <http://info.aee.net/making-corporate-renewable-energy-purchasing-work-for-all-utility-customers>.



CONCLUSION

Designing voluntary renewable energy purchasing programs that meet the needs of participants, nonparticipants, project developers, and utilities alike is not easy, and there is no one-size-fits-all solution that will work for all stakeholders across all states. However, past experience indicates that a few relatively simple design elements can ensure that programs meet the needs of both participants and nonparticipants. Specifically, AEE Institute identified eight design principles that utilities, regulators, and other stakeholders should follow when designing voluntary renewable energy tariffs.

While these principles require a balance of interests, ultimately the needs of both participants and nonparticipants can be met. Nonparticipants have a clear expectation that voluntary programs should not impact their electricity rates or service, and prospective participants do not want their actions to negatively affect other utility customers. The 65 signatories to the Renewable Energy Buyers' Principles—representing an estimated annual aggregate demand of 48 million MWh by 2020, equivalent to the energy use of about 4.5 million households—state that when working with utilities and regulators on renewable energy options, they want to “fairly share the costs and benefits of renewable energy procurement,” and they specify that

they wish to do so “without impacting other rate payers.”²⁴

In addition to considering potential adverse impacts, good program design should seek to maximize benefits for participants and nonparticipants alike. For participants, these programs can provide access cost-competitive renewable energy to meet sustainability goals and achieve price stability. For nonparticipants, the new renewable energy projects brought online by voluntary programs also deliver a wider-reaching set of benefits, including infrastructure upgrades, increased resource and fuel diversity, potentially lower electricity prices, new tax revenue, and high-paying local construction and operation jobs.

As major companies in the United States continue to set renewable energy and sustainability targets, utilities and their state regulators have an opportunity to create programs that provide numerous benefits for both participants and nonparticipating customers. Through careful design, utilities can implement programs that strike an appropriate balance between the needs of participants and nonparticipants, and deliver on the benefits of voluntary renewable energy procurement.

²⁴ Corporate Renewable Energy Buyers' Principles (Updated Jan. 2017), available at http://buyersprinciples.org/wp-content/uploads/Corporate_RE_buyers_guide-Jan242017.pdf.



APPENDIX: CASE STUDY

SUMMARIES

MINNESOTA: XCEL ENERGY'S RENEWABLE*CONNECT

Docket: [15-985](#) (approved February 27, 2017)

Deals Done: Enrollment began April 24, 2017; none to date.

Program Overview: Pilot program aimed at large businesses that can enter into a month-to-month, five-year, 10-year, or special event duration contract at a slight premium to receive a portion of renewable energy from Xcel.

Payment Structure: Customers pay a fixed per-kWh Renewable*Connect rate that includes resource costs, administrative costs, a neutrality adjustment charge (NAC), and a capacity credit. This rate substitutes for the fuel charge; customers pay all other charges. The pilot program will be used to refine the per-kWh charge for the NAC.

Administrative Fees: Included in the fixed per-kWh rate.

Termination Fees: Customers subscribed to 5- and 10-year contracts are subject to a termination penalty of \$10/MWh, applied to the customer's last 12 months of usage. Unsubscribed energy in the program would be paid for by the rate base through the fuel charge.

Participant and nonparticipant impacts: The Renewable*Connect charge is intended to avoid a disproportionate increase in costs to nonparticipating customers. The NAC, in particular, is intended to minimize the impact on nonparticipating customers, as required under Minnesota law. Half the value is accounting for distribution losses and the other half is based on estimated costs of curtailment, balancing and integration, and any other stranded costs or adverse economic impacts resulting from Renewable*Connect customers leaving already-procured system resources to be paid for by a smaller share of customers. Some stakeholders argued that the adjustment should include potential positive economic factors like attracting new load, but Xcel argued that the adjustment is about protecting nonparticipants and not valuing customer participation.

The NAC is difficult to calculate accurately, and the pilot is being used to allow the Commission to collect necessary information for future analysis to refine the adjustment charge. Xcel Energy is required to file an annual report by April 1 each year after the first full year of operation. As part of that annual report, Xcel must include the impact of the pilot on all nonparticipating customers.

Stakeholders also raised concerns that the program will create and shift risk due to the fact that Xcel already has excess capacity. Specifically, stakeholders argued that since the



program is intended to provide incremental resources there is the possibility of cost-shifts even with the neutrality and capacity adjustments. Stakeholders questioned why Xcel would credit customers for new incremental capacity when the utility already has additional capacity.

Furthermore, given the subscription model of the Renewable*Connect program, stakeholders argued that there is potential for unsubscribed energy to expose nonparticipants to cost impacts. Xcel countered that if this happened, existing customers would pay through a fuel charge, which is how unsubscribed energy is paid for today. Xcel also argued that customers would get the benefits of the energy (i.e. RECs used for compliance). Given the level of customer interest, Xcel projects that under-subscription is very unlikely.

Even with the termination fee, nonparticipating customers may still be at some risk. Since the termination fee is only equivalent to three or four months of service, if fuel prices go down customers may choose to absorb that cost and terminate their contracts, leaving stranded assets. However, the limited size of the pilot program ensures that this risk is minimal.

Nebraska: Omaha Public Power District's Schedule 261 M and Schedule 499 (Green Sponsorship Rider)

Docket: See OPPD's [Electric Rate Schedules and Service Regulations](#), January 1, 2017.

Deals Done: None to date, but Facebook has announced that it plans to make use of OPPD's new rate structure.

Program Overview: Schedule No. 261M is a market-based rate schedule available to large customers. Eligible customers sign up for a variable rate that tracks wholesale market prices in Southwest Power Pool (SPP) in place of their normal rate structure. Schedule No. 261M does not include delivery of renewable energy, but allows customers to achieve a more direct financial correlation between their electricity bills and the variable market prices from the sale of renewable into the SPP market (purchased by a virtual PPA). Customers can also elect to participate in OPPD's Schedule 499, which delivers "Environmental Attributes" from renewable energy and which enables customers to achieve a similar price hedge.

Payment Structure: Customers under Schedule No. 261M pay a monthly service charge (\$10,000), a demand charge (\$22.45 per kw), and an energy charge that tracks SPP wholesale prices. The energy charge is calculated hourly by multiplying the kWhs consumed by the cost to procure power during that hour from a specified node in SPP. Customers also participating in Schedule No. 499 pay for Environmental Attributes (EAs), with the price of these EAs calculated as the difference between the price of the renewable energy (including any infrastructure upgrades, integration costs, administrative fees, and any price escalations included in OPPD's PPA) and the average monthly net revenue (or cost) of the sale of the renewable energy in the SPP market.



Administrative Fees: Administrative fees for Schedule No. 261M are included in the \$10,000 monthly service charge. The administrative fees under Schedule No. 499 are included in the calculation of the per kWh charge for EAs. OPPD does not include a breakdown of administrative costs under either rate schedule.

Termination Fees: Customers on Schedule No. 261M must sign up for a minimum of 12 months, and must give 12 months' notice to switch to a different rate schedule. Customers under OPPD's Schedule No. 499 must sign a long-term "Green Sponsorship Sales Agreement" (GSSA) for any additional renewable energy procured to meet customer needs under the program. OPPD does not include a sample GSSA or delineate the termination provisions included in such a contract.

Participant and nonparticipant impacts: Provided that OPPD's monthly service charge under Schedule No. 261M accurately accounts for administrative and system costs, nonparticipants should not be impacted by customer participation in Schedule No. 161.

Because the customer charges under Schedule No. 499 reflect the difference between renewable energy costs to supply customer needs and net costs or revenue from sale of that electricity into the wholesale markets, nonparticipating customers should be held harmless. Again, this will hold true if these costs and revenues are accurately reflected in the rate.

Because OPPD's rates are not regulated by the Nebraska Power Board, there was no public proceeding to approve Schedule No.

261M or Schedule No. 499, and there is limited public information about the calculation of fees and charges under these rate schedules.

Nevada: NV Energy's Green Energy Rider (Schedule NGR)

Docket: [14-06031](#) (approved November 7, 2014)

Deals Done: Docket: [15-08005](#) Switch Ltd. RE agreement; [15-11025](#), [15-11027](#), and [15-11028](#) Switch and Apple GreenEnergy Rider Transactions Package; [15-11026](#) City of Las Vegas RE agreement; [13-07005](#) Apple Fort Churchill project

Program Overview: Green energy rider that allows customers the option to enter into a power purchase agreement with NV Energy for renewable energy to be purchased on their behalf; eligible customers can identify a specific renewable energy facility.

Payment Structure: Customers are charged their normal rates, an additional per-kWh renewable resource rate that accounts for all the costs associated with the renewable energy facility (i.e. the difference between the annual PPA price and the annual long-term capped avoided cost; if the PPA is cheaper the premium is zero), and any administrative fees.

Administrative Fees: Administrative fees are set on a case-by-case basis.

Termination Fees: The customer is responsible for all costs associated with the contract up to the specified energy contract.



Participant and nonparticipant impacts:

Participating customers will pay a per-kWh renewable resource rate that reflects all the costs associated with procuring energy from the specified renewable energy facility. The renewable resource rate is calculated by determining the difference between the annual PPA price and the annual long-term capped avoided cost (LTAC)—marginal energy costs with capacity adjusted for transmission losses in the utility’s most recent IRP. If the PPA is greater, the difference is multiplied by the energy production to determine the premium. If the PPA is cheaper, the premium is zero (but the customer does not receive any savings). The premium is then converted to a present value and the energy is converted to present value and both are divided to calculate the rate.

Special Contracts Approved:

Dockets [15-11025](#), [15-11027](#), and [15-11028](#):

Nevada Power and Sierra Pacific Power (NV Energy) asked for approval of a 20-year new renewable energy agreement with Switch and Apple to help the companies achieve their 100% renewable energy goals. This group of dockets was opened on November 30, 2015 and approved on February 2, 2016, is collectively called the *NV GreenEnergy Rider Transactions Package*. Switch entered into an agreement for the output of First Solar’s new 79 MW Playa Solar 1 Project and the associated portfolio energy credits (Nevada’s equivalent of RECs) and Apple entered into an agreement for the output of SunPower’s new 50 MW Boulder Solar II Project and the associated portfolio energy credits.

The PPA between Nevada Power and 65% of First Solar’s Playa Solar was for \$38.70 per MWh with a 3% annual escalator. The PPA between Sierra Pacific Power and 35% of First Solar’s Playa Solar was for \$38.70 per MWh with a 3% annual escalator. The PPA between Sierra Pacific Power and SunPower’s Boulder Solar II was for \$39.90 per MWh with a 3% annual escalator.

The stipulation contended that NV Energy’s customers would benefit because the contract allows for the long-term supply of energy and capacity at a predictable price that will diversify SPP’s energy mix. It further argued that customers will see economic development benefits from the construction of two new renewable energy facilities.

Apple and Switch will receive a monthly invoice with the kWh generated by the solar array they have contracted with, the renewable resource rate (\$0.00271 for Switch and \$0.00412 per kWh for Apple), and any other administrative fees and/or fees dealing the portfolio energy credits.

Docket [15-11026](#): This is Nevada Power’s (NV Energy) application for a renewable energy agreement with Las Vegas to help the city achieve its 100% renewable energy goal. The City of Las Vegas would receive 100 MW from SunPower’s previously approved Boulder Solar 1 Project for three years. In a February 25, 2016 order, the PUC approved the February 9 stipulation among NV Energy, PUC staff, and the Bureau of Consumer Protection setting the terms of the deal.

NV Energy contended that customers would benefit from the agreement because it



reduces the cost of the Boulder Solar Power PPA agreement on other customers by bearing the premium and it satisfies the City of Las Vegas' desire to go green. The renewable resource rate is set at \$0.00529 per kWh.

Docket [15-08005](#): NV Energy asked for an approval of a renewable energy agreement under Schedule NGR with Switch Ltd. for renewable energy credits from a new solar PV facility for future load. NV Energy stated that the contract makes sense because if not approved, Switch would most likely not remain a bundled customer, which would increase rates for all customers. It is important to note that Switch was subsequently approved to leave NV Energy to pursue its 100% renewable energy objective, paying a significant impact fee to avoid increasing costs for other ratepayers.

North Carolina: Duke Energy Carolinas' Green Source Rider

Docket: [E-7 Sub 1043](#) (approved December 19, 2013)

Expired: December 31, 2016

Deals done: Three customers (Google and two unnamed customers) have contracted for just over 200,000 MWh of annual renewable energy.

Program Overview: Customers elect to receive renewable energy from a renewable energy facility, with the contract sleeved through Duke. Projects could be third-party (purchased by Duke via PPA) or directly supplied by Duke. Customers can specify a particular RE facility.

Payment Structure: Customer pays all energy and capacity costs under the applicable rate schedule, and receives a bill credit for renewable energy procured or produced. This credit is an "all in" avoided energy and capacity rate based on Duke's avoided cost model, and the fuel rider is adjusted to avoid cross-subsidy between participants and nonparticipants.

Administrative Fees: \$2,000 initial application fee (to cover Duke's fees related to renewable energy procurement) plus a "Rider GS Administrative Charge" of \$500 per month and 0.02 cents per kWh of renewable energy.

Termination Fees: Early termination charge is equal to the net present value of remaining costs under the PPA. Customers must provide some form of security (guarantee, surety bond, letter of credit, etc.) when signing up for the program.

Participant and nonparticipant impacts: The pilot program was designed to hold nonparticipants harmless, although a few of the features designed to protect nonparticipants may make the program unattractive to prospective participants.

First, the program limits participation to customers with new load only, to avoid cost impacts of departing load. This provision is among the issues being reconsidered as North Carolina moves toward a replacement following the expiration of the initial GSR pilot period. Second, the program includes high administrative costs to ensure that participating customers fully cover the costs of administering the program. Third, the program includes a billing structure intended to ensure



that participating customers fully cover the costs of renewable energy and other grid services. Fourth, the program's termination requirements ensure that nonparticipating customers are not on the hook for the cost of this renewable energy facility if a participating company moves, closes, changes hands, etc.

Finally, the program is designed to keep the GSR independent from North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard (REPS) to ensure that participating customers are not paying for Duke's REPS compliance obligations, and nonparticipants are not paying for GSR facilities via their REPS rider. Specifically, costs for securing renewable energy to meet demand under the GSR will be kept separate from the REPS and not included in the REPS rider, and RECs associated with the GSR will not be applied to the REPS.

Utah: Rocky Mountain Power's Schedule 34

Docket: [16-035-T09](#) (approved August 18, 2016)

Deals Done: Docket: [16-035-27](#); Facebook got approval but decided to move forward in New Mexico (for unrelated reasons).

Program Overview: Allows large customers the option of entering into a power purchase agreement with PacifiCorp for RE to be purchased on their behalf. Customers can identify a specific RE facility.

Payment Structure: Customers pay the same rates they would normally pay plus any administrative fees (metering and billing)

and/or an additional premium if the procured electricity comes at a premium to the utility's avoided costs; alternatively, a company can enter into a special contract if deemed in the public interest.

Administrative Fees: \$5,000 application fee; \$110 per generation source per month; \$150 for first delivery point and \$50 for each additional delivery point.

Termination Fees: Customer is responsible for all energy procured on its behalf (i.e. the entirety of the contract) if they terminate; alternatively, customer can transfer the obligation to someone else.

Participant and nonparticipant impacts: Schedule 34 customers will be required to pay an incremental charge if the cost of procuring the renewable generation is at a premium to PacifiCorp's avoided costs as required under Utah Code § 54-2-1(1). Additionally, each contract will need to be analyzed to ensure that other customers are protected from potential cost increases or other impacts. For example, PacifiCorp said there may be times where a special contract is necessary (i.e. if the participating customer is not a new customer nor expanding its load) because simply billing the applicant at the tariff rate and charging for the difference between the cost of the renewable resource and the Company's avoided cost would not be appropriate.

Stakeholders raised concerns over cost to existing customers if a customer were to leave the system before its contract was complete. This issue was addressed by requiring any customer receiving service under Schedule 34 to enter into a service termination contract



that requires them to pay the costs of energy procured on their behalf upon termination. Alternatively, a customer can transfer their rights and obligations related to the renewable energy resource to another customer, pending Commission approval of the new contract.

Virginia: Dominion Energy's Schedule RG

Docket: [PUE-2012-00142](#) (approved December 16, 2013)

Expired: April 1, 2017

Deals Done: None

Program Overview: Eligible customers can identify a specific RE facility; Dominion negotiates a contract with the facility and delivers the purchased renewable energy to the customer.

Payment structure: For renewable energy delivered through Schedule RG, customers pay for renewable energy at cost (passed through from Dominion), which takes the place of the generation kWh charge; customers pay all other distribution service and electricity supply charges except the fuel rider.

Administrative Fees: \$500 monthly fee.

Termination Fees: Customer contract holds customer legally responsible for any damages, costs, or losses associated with early termination.

Participant and nonparticipant impacts: Some issues of participant and nonparticipant

impacts were left unanswered pending information gained from customer participation (allowed because this is a limited pilot). On most of these issues, Dominion took a relatively conservative approach to avoiding impacts to nonparticipants.

First, Dominion ensures that participants are responsible for all new costs to the utility. This includes all costs associated with the renewable energy, as well as an administration fee of \$500 per meter per month. Dominion will adjust this fee to cover actual costs as the utility has information available from administering the program.

Second, Dominion also ensures that nonparticipants will not be impacted by a shrinking rate base as customers leave their regular GS-3 / GS-4 rate schedule to take service under Schedule RG. Customer charges include almost everything in the normal GS-3 or GS-4 rate, with one substitution and one omission:

- **Substitution:** Instead of the Generation kWh charge, customers pay the agreed price of renewable energy delivered via Schedule RG. This straight substitution should have no impact on nonparticipants.
- **Omission:** Customers are exempt from fuel-related riders, which may benefit nonparticipants (see below). Customers are still responsible for all other charges; most notably, capacity charges.

Third, because participating customers are exempt from the fuel factor for energy delivered via Schedule RG, Dominion will be



collecting less money to cover its fuel costs—but its fuel costs will also be lower because it is no longer serving those customers with its regular mix. Nonparticipating customers might actually pay less for the fuel factor (or “fuel charge rider”) because the most expensive units will be taken off the margin or stepped down as new renewable energy serves customer load under Schedule RG.

Finally, customers are credited for any renewable energy that they purchase but do not consume at the locational marginal price (LMP), which is the same price Dominion would be paying for marginal power purchased at that time. This should not have a net impact on costs for nonparticipants. It does not appear that customers would receive any compensation for capacity benefits of these resources, although there is not much detail on this.

Virginia: Dominion Energy’s Schedule MBR

Docket: [PUE-2015-00108](#) (approved September 23, 2016)

Expires: December 31, 2022

Deals Done: Amazon has utilized a similar Special Rate Contract to complete 180 MW of deals, see Docket [PUE-2015-00103](#)

Program Overview: Eligible customers sign up for a variable rate that tracks wholesale market prices, in place of a fixed-rate, cost-of-service bill. The program does not deliver renewable energy, but allows customers to achieve a more direct financial correlation between their electricity bills and the variable

market prices from the sale of RE into the PJM market (purchased by the customer via virtual PPA).

Payment Structure: Customers are charged their normal rate, plus or minus a “net market-based rate charge” that reflects the difference between what they would pay under their normal rate and what they pay under MBR. The net market-based rate includes a Generation capacity charge (based on PJM cleared capacity price), Generation energy charge (based on Dominion Zone LMP), PJM Ancillary Service Charge (pro-rated according to customer’s portion of load), PJM Administrative Charge (pro-rated according to customer’s portion of load), and a “Margin” fee (see “Administrative Fees”).

Administrative Fees: “Margin” fee of \$0.00115/kWh (with a surcharge if the customer’s load factor is less than 85%) to cover any difference between the designed rate and the actual marginal PJM cost to serve customers on the MBR rate, including some of Dominion’s administrative and fixed costs. This is included in the “net market-based rate charge.”

Termination Fees: Not specified (minimum three-year agreement required). Note that there is no long-term renewable energy purchase associated with this rate schedule.

Participant and nonparticipant impacts: Nonparticipating customers will not be impacted by the MBR Rate Schedule due to a combination of three factors. First, there is no actual renewable energy offering directly provided through the MBR Rate Schedules, so customers are still served from the same



resource base as all other customers. This means that Dominion's load obligations and its cost to meet its load remain unchanged. Second, customers pay their normal bill, and the MBR rate is applied *on top* of that as either a positive or negative charge. Thus, all riders, generation charges, capacity, and T&D charges etc. are fully funded. On paper, this means that customers are still paying their full share of the costs they would otherwise be paying. In practice, there could be a net cost or savings from the program, but this will not impact other customers through the end of the transitional period of the MBR. Third, Dominion's base rates are frozen through the end of this transitional period. Dominion has effectively avoided any potential nonparticipant impacts until it has data based on actual participants.

Regarding administrative fees, if Dominion's actual administrative fees are not covered by the margin fee, then nonparticipating customers would be impacted. The margin fee is the only administrative cost, but Dominion's costs are likely to be low under this program relative to a sleeved PPA program, because the utility is not contracting for any renewable energy.

Washington: Puget Sound Energy's Green Direct (Schedule 139)

Docket: [UE-160977](#) (approved August 1, 2016)

Subscribers to date: REI, Starbucks, Target, Western Washington University, Sound Transit,

King County, and several cities (Anacortes, Bellevue, Snoqualmie, and Mercer Island).

Program Overview: Customers enroll to receive electricity from either solar or wind facilities, which will be owned or contracted by PSE.

Payment Structure: Customers are billed according to their normal rate schedule, with two additional items: the Energy Charge Credit to credit customers for unused bundled energy, to be updated regularly, and the Resource Option Energy Charge for the purchase of renewable energy, already determined at a rate that is higher for solar and lower for wind.

Administrative Fees: The Resource Option Energy Charge includes administrative costs.

Termination: Fee equal to the net cost of renewable energy in the remaining term of the Service Agreement.

Participant and nonparticipant impacts: The issue of cross-subsidy was raised during the proceeding, and PSE agreed to seek a prudence determination for acquisition of resources to meet needs under Schedule 139 to ensure that there is no cross-subsidy should subscriptions under Schedule 139 fall short of energy supply under Schedule 139. Specifically, PSE will track all costs and benefits of Schedule 139 resources separately, and will seek recovery of costs associated with these resources (in a general rate case or Power Cost Only rate case) if energy supply under Schedule 139 does exceed subscriptions. PSE says that resources will be acquired "at least cost for the whole rate base



portfolio, all customers classes, and anticipates that it will be found to be prudent for the recovery of the cost associated with that acquisition...” (from Memo Sept. 22, 2016). It is unclear how or whether PSE would adjust costs under Schedule 139 in Power Cost Adjustment proceedings if there is a finding that cross-subsidy is occurring.

