Solar PV Deployment through Renewable Energy Tariffs

An Option for Key Account Customers

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SOLAR OUTREACH PARTNERSHIP

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ABSTRACT

Utility customers with the highest energy use, such as large corporations with data centers, are in a powerful position to expand markets for renewable energy technologies and reduce overall emissions by procuring their power from clean, renewable sources. While there are several options for these customers to obtain renewable power, utility-offered renewable energy tariffs are becoming an increasingly popular preference among key account customers. These tariffs provide an alternative to customer-sited self-generation and third-party power purchase agreements, two options that may not be available to all customers, depending upon state regulatory policies and site suitability. In addition to offering an opportunity for large energy users to access renewable energy, these tariffs hold benefits for local governments, in terms of tax revenue and economic development, renewable energy providers, and the utilities offering the tariffs. These benefits, as well as customer participation and satisfaction, can be optimized if certain design elements, such as location of generation and pricing approach, are carefully considered when developing renewable energy tariffs. This emerging option should be considered as a way to expand access to renewable power, while providing an array of widespread secondary benefits.

I. Introduction

As more of their customers are developing an awareness of the importance of sustainability and mitigation of personal environmental impact, many large, energy-consuming companies are beginning to look for additional ways to reduce or offset their environmental impact. More specifically, consumers are now demanding that companies do their part to reduce emissions and support renewable energy, often even intentionally selecting to purchase products and services from "green" companies over those with less environmentally-friendly business practices.

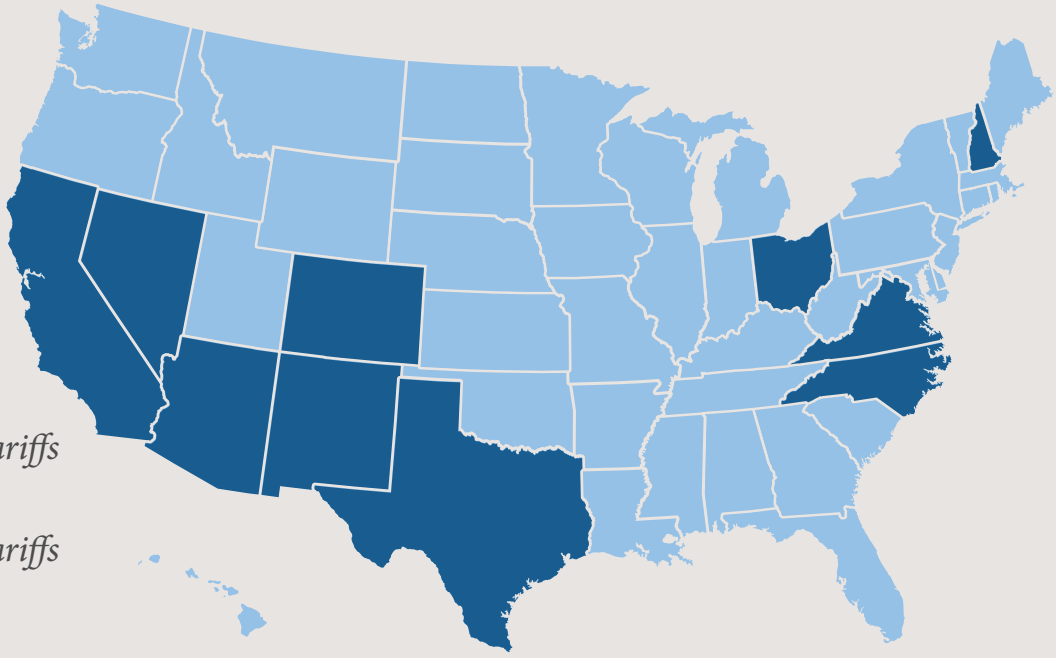
Renewable energy tariffs designed by electric utilities are one way by which large companies can opt for renewable energy over their utility's standard power mix. While these tariffs have the ability to promote all types of renewables, they have particular potential to promote solar photovoltaics (PV). This report examines the innovative option of using renewable energy tariffs to support solar PV development. We first discuss the basics and purpose behind renewable energy tariffs. Next, we detail the benefits of renewable energy tariffs, with particular regard to solar PV. Following this, we examine the specific features of renewable energy tariffs, along with case studies of two utilities, Duke Energy and Dominion Virginia Power, that have instituted such tariffs. Finally, we present key considerations and emerging practices for renewable energy tariff design, with a particular focus on solar deployment.

II. What Are Renewable Energy Tariffs?

A renewable energy tariff is a special rate option offered by utilities to their largest revenue-generating customers (called "key accounts"), who are also often the highest energy users. Such customers looking to obtain all or a portion of their electricity from renewable sources can opt in to a renewable energy tariff program to pay a slight premium for renewable power and directly support utility-owned or utility-procured third-party development of new renewable generation.

Although the cost of renewable energy is rapidly declining, in most cases it is currently higher than the utility's wholesale energy rate (in restructured markets), or "avoided cost" rate (in regulated markets). Non-participating customers would potentially have to pay more to share in the cost of these renewable resources in the absence of additional revenue generation methods. The premium charge ensures that, in cases where the cost of renewables exceeds the avoided cost rate, other utility customers are not paying the costs for these additional renewable sources.

Renewable Energy Tariffs by State



Utilities can obtain the renewable power requested by a key account customer in one of two ways: either (1) the utility develops the generation itself, or (2) the utility enters into a power purchase agreement (PPA) to purchase renewable power from an independent power producer (IPP). In both cases, renewable energy certificates (RECs)[1] are bundled with the power, and it is up to the key account customers and their utilities to negotiate which party ultimately receives the REC. Most renewable power obtained under renewable energy tariffs to date has been through PPAs between utilities and IPPs.[i] As of August 2014, renewable energy tariff programs for large customers could be seen in at least 10 states.

Besides renewable energy tariffs, key account customers can procure renewable power in two other major ways: onsite self-generation or third-party PPAs. On-site generation, through system ownership or leasing, involves siting at the customer's facility for direct electricity consumption. This option provides distinct and unique grid benefits because the power does not need to enter the transmission and distribution system prior to being consumed, effectively operating as an on-site tool to save and conserve energy.

However, for a variety of reasons, the optimal site for renewable energy generation may not be at the customer's facility, rendering this option infeasible for some. Another option is to obtain renewable energy through direct PPA contracts between key account customers and third-party renewable energy project developers. However, regulations in many states do not allow third-party PPAs, thereby eliminating this option altogether for customers in those states (a map of where third-party PPAs are permitted is available at www.dsireusa.org/documents/summarymaps/3rd_Party_PPA_map.pdf). Renewable energy tariffs provide an alternative to these options for key account customers to obtain power from renewable sources and offer many unique benefits to society, utilities, and key account customers.

III. What are the Overall Benefits of Renewable Energy Tariff Programs?

Renewable energy tariffs have several distinct and unique benefits for utilities, key accounts (including local governments), and for society at large, given the significant potential economic and environmental benefits of renewable energy development.

[1] RECs are the accounting mechanism for the renewable attributes of energy generated from renewable sources; one REC represents one megawatt-hour of renewable energy. "Unbundled" RECs are sold separately from the power itself.

Renewable Energy Options for Key Account Customers in 2014

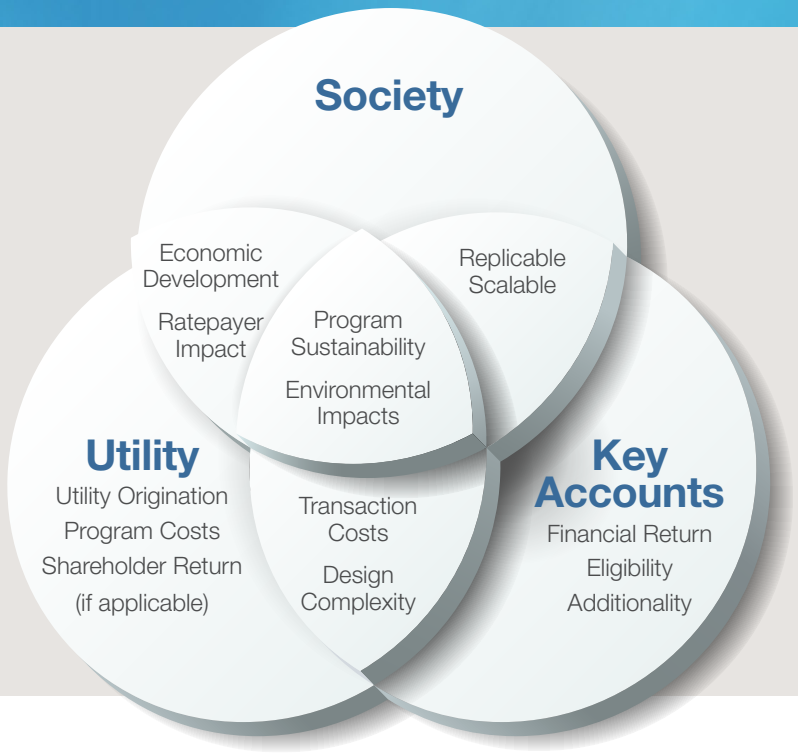


Image Credit:
Solar Electric Power Association

Local Government and Economic Development Benefits

Renewable energy tariffs can provide several benefits to local governments, as well as encourage overall economic development within a community. Several companies, such as Google, have made the availability of a renewable energy tariff a determining factor in their decisions to locate in particular areas.[ii] New businesses entering a community provide benefits to the local economy, including employment opportunities and an increased tax base. In addition to the jobs created as a result of large companies coming to the area, renewable energy jobs may be created (with an accompanying expansion of the tax base) as a result of increased demand for renewables.

Utility renewable energy tariff programs can also be designed to include local governments that are large energy users as key account customers. Many federal, state and local governments have adopted "lead by example" programs that set goals or requirements for energy efficiency or renewable energy usage in municipal buildings. Currently, 36 medium and major cities in 15 states (along with 38 states and the federal government) have set these goals.[iii] Local governments could thus meet these respective renewable energy and sustainability goals with limited transaction costs by participating in renewable energy tariff programs.

"Additionality" and Environmental Improvement

Renewable energy tariffs differ from simple renewable energy certificate (REC) purchasing programs, in which customers voluntarily pay the cost of the "renewable attributes" of power generated by renewable sources. RECs are sold separately ("unbundled") from the actual power generated by the renewable source, so the customer pays the standard utility rate for their electricity plus the premium for the RECs. While this does provide a small added revenue stream to renewable generators, the customers do not buy the power, and it is not always guaranteed that the renewable power associated with the unbundled RECs is "additional" (meaning it displaces an equal amount of non-renewable energy generation) and that the revenue will be invested in new renewable generation. There are programs, such as Green-e, that provide independent verification of additionality, but these services involve additional costs.

By contrast, the key advantage of a renewable energy tariff over a traditional REC purchase program is that the customer is able to ensure that renewable power being purchased is in fact displacing non-renewable energy wherever it is being generated. Duke Energy's Green Source Rider in North Carolina, for example, allows a large customer's new load to be met with renewables, which may eliminate the need to build new power

plants to meet this load. Therefore, participation in the renewable energy tariff can directly result in displacement of non-renewable energy generation and its emissions.

Minimized Ratepayer Impact

The premium charged under a renewable energy tariff is consistent with traditional cost causation principles of ratemaking, whereby those who are causing the cost should be responsible for paying it.[iv] As customers electing to participate in a renewable energy tariff pay for the cost of the renewable power they request, in addition to traditional rates and riders, this option holds other ratepayers harmless.

Expanded Access to Renewable Energy

As previously mentioned, other options for obtaining renewable power include on-site generation and third-party PPAs. However, oftentimes customers' facilities are not in optimal locations for renewable energy generation and many states disallow third-party energy sales. Renewable energy tariffs expand access to renewable energy by providing an option for customers falling into these groups.

Customer Retention

A benefit to utilities of offering renewable energy tariffs is that they are less likely to lose customers. While oftentimes customers will take standby service from the utility even if they generate power on-site or purchase power directly from independent power producers, some customers may choose to leave the utility's service entirely if a renewable power option isn't available. Particularly as energy storage becomes a more mature technology, customers will be able to leave the utility without much, if any, change in reliability. By offering a renewable energy tariff, utilities may head off this loss of customers to self-generation, third-party sales, and eventually, storage.

IV. What Are Characteristics of Renewable Energy Tariffs?

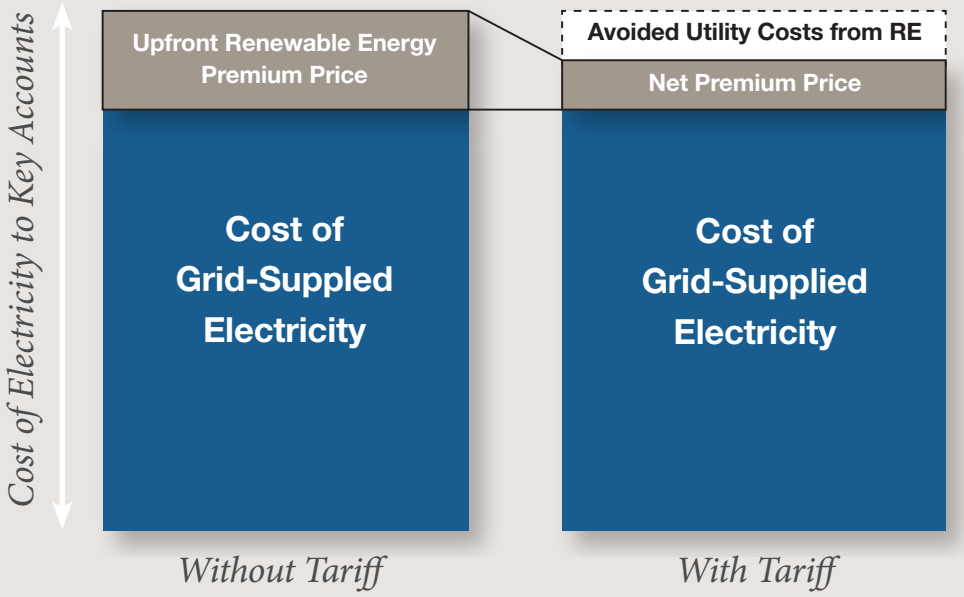
Varying Definitions of Renewable Energy

As with renewable portfolio standards, the resources defined as renewable energy may vary. Utilities in states with renewable portfolio standards in place are likely to use the same definition of renewable energy for a renewable energy tariff. Utilities in states without renewable portfolio standards will likely need to develop their own definition of renewable energy for the purposes of a renewable energy tariff. For example, Dominion Virginia Power uses Virginia's statutory definition of renewable energy to determine which types of resources may be selected under its Renewable Energy Supply Service tariff.

Eligibility

Eligibility requirements for participation in a renewable energy tariff are currently typically tied to a customer's participation in another rate tariff. For instance, Duke Energy Carolinas' Green Source Rider is available to customers on three different time-of-use rate schedules for large electricity users.[v] Some tariffs also impose load requirements or new load requirements that restrict participation. For example, Dominion Virginia Power's tariff requires a planned supply of between 1,000 and 24,000 MWh per year, and Duke Energy Carolinas requires customers to have a new load (load added after June 30, 2012) of at least 1 MW that they will supply under the Green Source Rider.[vi]

Renewable Energy Tariffs: Basic Approach to Pricing



Customer Choice of Resource

Another key feature for utilities to consider when designing a renewable energy tariff is allowing the customer to select which type of renewable resource they wish to get their power from. This allows the customer to have greater control over their energy, enabling companies interested in solar PV to choose solar PV.

Additionality

As mentioned above, a key benefit of renewable energy tariffs is that companies wanting to go above and beyond REC purchases to show their commitment to using renewable energy are able to do so. Companies, such as Google, have expressed interest in creating additional renewable generation that displaces a degree of non-renewable generation, rather than purchasing RECs from existing sources.[vii] One way to ensure that the power purchased under these renewable energy tariffs is additional is to set a date that the generating source must have been placed in service on or after. For example, Duke Energy Carolinas ensures that the source will have been placed in service on or after January 1, 2007.[viii]

REC Treatment

The Federal Trade Commission (FTC) issues guidelines for environmental marketing claims in its Green Guides. Specific guidelines are provided for claims that business' products are created using renewable energy. In order to validly make this type of claim, the RECs from the power used to make a company's products must be retired.[ix] It is critical that the utility offering a renewable energy tariff retire the RECs associated with the power purchased under the tariff for the customer to accurately claim that they are using renewable energy.

Aggregate Supply Caps

Some renewable energy tariffs place limits on the total amount of energy to be supplied under the tariff. While this could be beneficial in the short term, as utilities experiment with these tariffs and work to smoothly integrate larger amounts of renewables into their grids, these caps may eventually limit the impact that these renewable energy tariffs can have. One option for utilities is to maintain an aggregate supply cap, but closely monitor capacity contracted under the program and keep a plan in place to evaluate and raise the cap upon nearing it. This allows utilities to keep an eye on reliability without significantly limiting program participation.

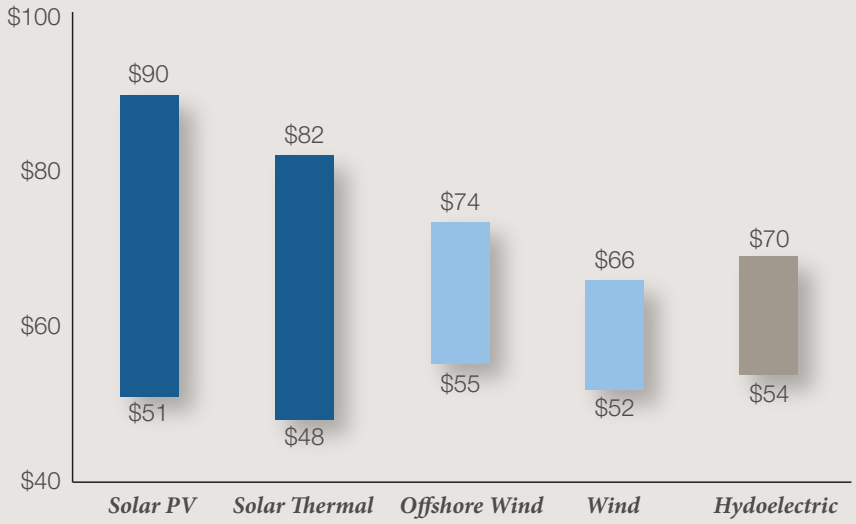
Pricing

Customers participating in renewable energy tariff programs are required to pay for the costs of the renewable energy they request. Typically,

Levelized Avoided Cost of Energy (LACE)/MWh for Renewable Resources

2019-2040, Developed for EIA Annual Energy Outlook

Source:
U. S. Energy Information Administration



the customer is given an opportunity to review the PPA price or price of the utility's own resource before committing to the tariff. Renewable energy tariffs also may include a monthly administrative charge and per kWh premium to cover the additional billing and administrative expenses involved in providing the tariff, which is frequently offset by the costs avoided by the utility by purchasing the renewable power from an IPP. The figure below illustrates this concept.

While presently renewable energy tariffs involve the customer paying a premium for renewable energy, the decreasing cost of solar energy and other renewables could allow it to be competitive at the utility's avoided cost rate, allowing customers to avoid paying a premium price.

Contract Terms

Renewable energy tariffs require the customer to enter into a contract with the utility for a period of years. Duke Energy's Green Source Rider, for instance, requires a contract length between three and 15 years.[x] Other contract terms refer to termination of the contract, including fees for early termination. Specific contract terms typically vary with each individual contract. This flexibility and opportunity for customization is attractive to key account customers.

Reporting Requirements

As part of some renewable energy tariff programs, the utility will agree to track and report important statistics associated with tariff participation, such as the amount of capacity contracted under the tariff. Duke Energy tracks "key metrics" and provides annual updates to the North Carolina Utilities Commission.[xi] Tracking and reporting of these metrics can be useful in evaluating the tariff's impact.

V. Renewable Energy Tariffs and Solar PV: Benefits for PV Technology and Utilities

Solar PV Non-Hardware "Soft" Cost Reduction Benefits

While the primary goal of a renewable energy tariff may be to support development of all forms of cost-effective renewable energy, these tariffs have significant potential to promote solar energy in particular and reduce a portion of its associated non-hardware "soft" costs. According to the National Renewable Energy Laboratory, soft costs are responsible for 64% of the total cost of residential PV systems, 57% of the total cost of small commercial systems, and 52% of the total cost of large commercial systems.[xiii]

1. Financing Costs

A major advantage of procuring power from solar PV or other renewables through a utility's renewable energy tariff, as opposed to on-site self-generation or direct third-party PPA procurement, is that transaction and financing costs could be greatly reduced for the customer. Obtaining power through self-generation involves medium to high transaction costs, and third-party PPAs can involve high transaction costs.[xiv] Under the renewable energy tariff option, however, a large portion of procurement work is assumed by the utility with renewable energy contract expertise, allowing a key account customer to incur lower transaction costs, such as those associated with administration, program design, site development, and capital financing.

2. Customer Acquisition

By offering a relatively simple way to obtain renewable power, customers that may have previously chosen not to invest in solar PV or other forms of renewable energy may now move forward with diversifying their power supply by switching to renewables. While renewable energy tariffs do sometimes involve applications, a mild degree of paperwork, and some additional decisions on the part of the customer, it is often a much simpler option than for the company to go out and procure the renewable power themselves. Additionally, the availability and convenience of the tariff may spur customers to participate that had not previously considered purchasing renewable power or had considered but not pursued renewable power, due to resource or regulatory challenges.

Benefits for Utilities and Key Accounts

1. Economies of Scale & Optimization of Averted Cost Benefits

By building larger utility-scale solar arrays, some economies of scale can be achieved. Evidence suggests that economies of scale help to particularly reduce the soft costs of solar. The National Renewable Energy Laboratory (NREL) estimated the 2012 installation cost for 5 kW residential systems at $5.22/W, commercial

systems less than 250 kW at $4.97/W, and commercial systems 250 kW or greater at $4.05/W.[xv] The hardware costs for each of these system sizes were approximately the same, so the price differential is due primarily to reductions in soft costs as system size increases.

In addition, depending on where it is installed, solar PV has the potential to avoid a more significant degree of utility capacity and energy costs than other renewable resources. Recently, the U.S. Energy Information Administration (EIA) estimated solar PV operating between 2019 and 2040 could deliver avoided generation, transmission, and distribution cost benefits of up to $90/MWh, without accounting for other avoided environmental and renewable portfolio standard costs. The graph below compares the range of averted energy costs associated with different types of renewable energy resources.

It is important to note that utility-scale and "behind-the-meter" PV systems can have distinct benefits relative to one another, and that renewable energy tariffs encourage the development of utility-scale systems. Procurement of energy from new utility-scale PV can 1) have a beneficial impact on carbon and other emissions, 2) reduce the need for peak generation, and 3) provide system-wide benefits to the grid, especially when strategically placed in areas that maximize those benefits.

2. Project Development Advantages for Solar PV Relative to Other Renewable Resources

Not only does solar PV have higher potential avoided cost benefits because of its ability to generate during peak periods, utility-scale solar PV has distinct project development advantages over other new renewable resources. First, in many states that offer these Public Utility Regulatory Policies Act (PURPA) qualifying facility rates to systems larger than 100 kW, solar PV can often take advantage of guaranteed, fixed-term avoided cost rates that most utilities must offer under PURPA. Second, solar PV projects, in general, are smaller than larger-scale wind farms, meaning that they can often involve more limited permitting requirements. More specifically, solar PV's advantage over wind comes from the transmission capacity requirements of wind farms. Solar interconnects at the distribution or subtransmission level (except the very large solar projects in the southwest) so it does not require as much infrastructure build-out or regulatory compliance for interconnection. Thus, solar PV projects can be built to suit key account customer needs more quickly than other larger-scale renewable resources.

VI. Case Studies

Renewable energy tariff programs that allow key accounts (or others) to procure affordable renewable energy (and particularly solar PV) in an affordable way that works for them seem more likely to succeed. Below are two short case studies of southeastern and Mid-Atlantic utilities that have designed renewable energy tariffs that permit their customers to simultaneously benefit from renewable energy and bill credits relative to the (often) added cost of renewable resources.

Duke Energy Carolinas Green Source Rider

In 2014, Duke Energy Carolinas began offering its pilot Green Source Rider ("Rider GS") to qualifying, energy-intensive customers interested in offsetting new load with their choice of renewable energy. Duke Energy Carolinas will obtain this renewable power in one of two ways: either (1) through three to 15 year PPAs or (2) by producing it with their own generating facilities. Duke Energy Carolinas requires interested customers to apply for this renewable power and its associated RECs under Rider GS. These RECs are retired on behalf of the customer and will not be applied toward compliance with North Carolina's Renewable Energy and Energy Efficiency Portfolio Standard (REPS).[xvii]

Rider GS is available to non-residential customers receiving service from general (OPT-G), high load-factor (OPT-H), and industrial (OPT-I) Optional Power Service rate schedules. In addition, customers must demonstrate high energy-intensity by having added more than 1 MW of new load since June 30, 2012.[xviii] Such qualifications particularly target "manufacturers, data centers, college campuses and big-box retailers [by providing] the option of offsetting some or all of their energy consumption from new load – such as new or expanded facility – with renewable energy".[xix]

Enrolled customers agree to pay (in addition to their original rate schedule) the full cost of the renewable energy procured/produced, a monthly $500 administrative fee, as well as 0.02 ¢/kWh for procured/produced renewable energy *acquired* through the Rider GS agreement. The program also allows for customers to receive bill credits based on avoided energy and capacity rate, in ¢/kWh, from monthly *actual* renewable energy procured/produced.[xx] This means that if REC prices for the customer-selected resource drops to $0, key accounts may be able to procure renewable energy for *no added* cost relative to their retail rate.

Renewable Energy Tariffs Currently Offered to Large Key Accounts						
Tariff & Utility	**Application Fee**	**Monthly Admin. Charge**	**Premium Over Retail Electricity Price**	**Renewable Energy-Related Bill Credits for Key Accounts**	**Aggregate Program Cap**	**Contract Length**
Duke Energy Carolinas (Green Source Rider)	$2000	$500 + 0.02 cents/kWh	Difference between the all-in cost of the renewable energy + RECs and the avoided cost of the renewable energy.	Generation from customer-selected renewable energy credited to customer bill at applicable avoided capacity and energy rate	1,000,000 MWh	Between 3-15 years
Dominion Virginia Power (Rider RG)	None	$500 & either $0.006 or $0.007/kWh	Difference between the all-in cost of the renewable energy + RECs and customer's retail rate.	Generation from customer-selected renewable energy can reduce certain distribution and energy supply charges relative to customer demand in any 30-minute increment	240,000 MWh, or 100 customers, whichever occurs first	Individually negotiated
NV Energy (GreenEnergy Rider, Option 2)	None	None	The cost of the Nevada GreenEnergy Rider (NGR) rate, plus the cost of generation	None. Minimum cost of tariff is the cost of the NGR plus the customer's full retail rate	None	Individually negotiated

Examples of Renewable Energy Tariffs Being Developed/Considered	
State/Utility	**Description**
California	The California Public Utilities Commission is implementing SB 43, which requires utilities with at least 100,000 customers to offer a renewable energy tariff option.
Public Service Co. of Oklahoma (PSO)	Google is pushing PSO to offer a renewable energy tariff for large customers.
Oregon	The Oregon state legislature recently enacted HB 4126 that requires the Public Utilities Commission to study the impact of allowing utilities to offer voluntary renewable energy tariffs to nonresidential customers and make a decision on whether to allow this.

Paul Newton, Duke Energy president – North Carolina, said of the renewable energy tariff, "We've been working with our customer groups to explore ways to provide more renewable energy options… We are pleased to offer a new program that… may help to promote economic development and growth of renewable energy in the region, and help our customers achieve their sustainability goals."[xxi]

Dominion Virginia Power Renewable Energy Supply Service Tariff (Rider GR)

Dominion Virginia Power has begun a renewable generation pilot program targeted to its large commercial customers. In addition to having their choice of renewable energy generation options, qualifying customers can also specify the exact renewable energy generator they would like to purchase the power from. In essence, the utility acts to "sleeve contracts" between the energy provider and customer, purchasing renewable energy from third-party providers under a renewable energy purchase and sales agreement (REPSA). The utility then sells renewable energy purchased from a third-party provider in the name of the customer to the customer under a renewable energy tariff.

Dominion Virginia Power plans to source the renewable energy for the customers from third-party developers within the PJM transmission territory. All costs to the utility, including the administrative fee, will be recovered through the customer tariff. Customers will execute two contracts with Dominion Power. The first is a REPSA between the utility and the third-party developer, and the second is between the utility and its customer for a proposed 10-year minimum contract for the purchase of renewable energy assigning all risk of the purchase to the customer. The program is currently capped at 100 customers or 240,000 MWh in aggregate.

As with Duke Energy, if the price of the RECs associated with the projects selected by key accounts declines in conjunction with the cost of renewable energy resources, it is possible to reduce the customer premium associated with procuring renewable energy resources, while allowing customers to realize bill credits related to the customer-selected renewable energy system.

VII. Key Considerations and Emerging Practices

Location and Siting of Generation

The location and siting of the renewable energy system is a key consideration for utilities looking to develop these programs for two main reasons. As noted above, the ability to claim a true economic and environmental benefit from their investment in renewable energy is a key consideration for large customers interested in renewable energy tariffs, particularly for companies building large, energy-intensive data centers. By siting generation locally, more large customers may be inclined to participate, as it is a closer alternative to on-site generation and may provide local economic benefits.

As Google explained in a white paper on renewable energy tariffs, "(w)e're not interested in reshuffling the output of existing projects, and where possible, we want to undertake efforts near our data centers and operations."[xxii] What's more, when these customers wish to choose solar PV through a renewable energy tariff, utilities can also help customers to select either existing PV projects or help to site new projects in areas that maximize utility avoided costs, which accrue to the general benefit of all of a utility's customers.

Pricing Approaches: Eliminating Rate Impacts, Benefitting from Solar PV Cost Declines

As a whole, renewable energy tariff programs are designed to minimize or eliminate rate impacts for non-participating customers. Following this same general principle, though, if solar PV's overall cost continues to decline to levels approaching wholesale energy or "avoided cost" rates (and/or the market value of the RECs associated with the system declines to $0), participating customers may be able to reduce or avoid paying a premium for participating in the program. In this situation, customer savings, of course, could happen without causing any rate impacts to non-participating customers. At this point, it would also be likely that solar PV would be the most appropriate option to be included in a utility's rate base.

Designing a program to reflect a future reduction or elimination of a premium price (as Duke Energy has), coupled with off-site generation for customers who may not be able to invest in on-site generation, could add to the appeal of participation in such programs, with the benefit of eliminating cost shifting to non-participating customers. Thus, the development of renewable energy tariff programs should prioritize flexibility and adaptability to future changes in renewable energy market fundamentals.

Flexibility, Customer Input, and Education

Allowing for customer input on generation source, contract price, etc. can encourage greater customer participation and satisfaction. Building opportunities for customization into the renewable energy tariff allows customers to enjoy more of the benefits of self-generation or third-party PPAs with less of the hassle involved with these options. Allowing flexibility, particularly on generation source, also enables customers to specifically request solar PV. Educating customers on the unique benefits of solar may encourage more customers to request that their power comes from solar. Creating and distributing educational resources or providing links to existing resources with information about the various types of renewable energy to interested customers could help ensure customers make informed resource selections.

VIII. Conclusion

Renewable energy tariffs, if designed effectively, can provide a host of benefits to society, utilities, and key account customers. First, renewable energy tariffs provide opportunities for soft cost reduction by providing economies of scale and optimizing avoided cost benefits, lessening transaction costs, and reducing costs associated

with customer acquisition. Renewable energy tariffs can also provide economic benefits to the local community in the form of an increased tax base and jobs, due to large companies establishing offices in locations with utilities that offer these tariffs. Other benefits of renewable energy tariffs include minimizing the impact on other ratepayers, expanded access to renewable energy, and customer retention. Since these tariffs are new to the utility industry, little is known on the actual cost to implement the programs and how cost recovery will work. Therefore, utilities will likely need to design programs that ensure that shareholders can benefit from procurement of renewable energy for new large loads, given the increasing importance of sustainable energy sources for these customers.

In order to achieve the most benefits from a renewable energy tariff, certain features should be kept in mind when designing the tariff. First, the siting of the renewable generation is an important consideration for utilities for both economic and environmental reasons. These factors can affect the key accounts' interest in participating in a renewable energy tariff program, and should thus be considered carefully in the design and implementation of the tariff. Next, the pricing approach taken will have an impact on acceptance of the tariff, as well as participation. Finally, flexibility and opportunity for customer input can increase customer participation and satisfaction. If these design elements are considered when creating a renewable energy tariff, there will be significant potential for new solar PV and other renewable resources to be developed.

Footnotes

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