



# ABOVE AND BEYOND: GREEN TARIFF DESIGN FOR TRADITIONAL UTILITIES

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## SUMMARY

Challenges, from technological advances to evolving emissions regulation and an aging infrastructure, are driving up costs and increasing the risk of stranded assets for electric utilities. Simultaneously, even vertically integrated utilities in traditional, regulated markets are facing emerging competition from renewable energy choices that cost less than current retail rates.

Customers—from residential to large industrials—are procuring renewable energy because in more and more markets they can reduce their electricity bills and mitigate their exposure to fuel price volatility. They want to go above and beyond the current grid mix to substantially rely on renewable energy, often through third parties. The most popular approaches to purchasing renewable energy also preserve customers’ own capital and maximize their long-term flexibility.

Utilities weighing how to make a competitive offering are exploring green tariffs. Traditional utilities, building on their longstanding capabilities, may be able to offer many of the features customers are seeking in renewable energy, along with greater flexibility and lower transaction costs than third-party approaches.

The utility is uniquely positioned to offer a competitive service by optimizing integration of renewable energy, aggregating customers to reduce capital and other costs, bringing to bear capabilities in reliably delivering least-cost resources, and providing flexibility to assign resources throughout the service territory.

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Designing a green tariff within the context of a regulatory compact that requires utilities to deliver least-cost, reliable service to all customers, means avoiding cost shifts to customers content with the current grid mix. The design must consider how to set a price, build a portfolio of resources, maximize both the customers' long-term commitment and their access to flexibility, mitigate the risk of stranded renewable energy assets, and consider both existing and new loads. A competitively designed green tariff could both quickly increase the deployment of least-cost renewable energy and provide utilities the first step in their evolving business model in a newly competitive landscape.

## INTRODUCTION

Much has been written recently about the disruptive changes bearing down on the electricity sector.<sup>1</sup> In an era of anemic load growth, changing pollution regulations and low-cost natural gas are pressuring the economics of coal generation in particular, potentially stranding assets.<sup>2</sup> Utilities recognize their generation mix needs to be repositioned and aging infrastructure needs to be upgraded.<sup>3</sup> These factors conspire to potentially raise the rates customers pay.<sup>4</sup>

At the same time, customers from industrial to residential are finding that new renewable energy options, often provided by third parties, can be competitive with retail rates.<sup>5</sup> At the very moment utilities need to make investments that will translate to higher costs for customers, they face the potential of losing some of their most credit-worthy customers.<sup>6</sup>

Utilities, including vertically integrated utilities in traditional electricity markets where competition has historically been extremely limited, are exploring how to effectively compete for those customers and maintain a positive relationship with them.<sup>7</sup> Green tariffs are one emerging approach.<sup>8</sup>

This paper, building on workshops convened by World Resources Institute in the fall of 2013 and interviews with iconic companies and utilities,<sup>9</sup> describes what draws commercial and industrial customers to renewable energy and explores how traditional utilities could build on their strengths to deliver affordable renewable energy to those customers. This discussion is focused on traditional markets in the United States, where limited net energy metering may be offered and PURPA qualifying facilities<sup>10</sup> are

allowed, but to date, other third parties are excluded from the market. However, the model could be useful to utilities operating in other market designs around the world. The model may also be useful for other customer classes. For example, these principles could be expanded to offerings for residential customers that would like to be powered by 100 percent renewable energy.

## WHY ARE CUSTOMERS GOING RENEWABLE?

According to interviews and public announcements, nearly 60 percent of the Fortune 100 and Global 100 companies will find ways to affordably fuel their facilities with renewable energy and reduce their greenhouse gas emissions in the coming years.<sup>11</sup> These goals go beyond public relations. The companies have recognized a business case for renewable energy and have integrated renewable energy procurement into their energy strategies.<sup>12</sup>

The business case rests on a package of energy services and hedges—or more formally, risk mitigation strategies. Individual companies may place a higher value on one feature or another based on their energy use, their sector, and their larger corporate strategy. For example, WRI's research shows some will prize energy cost savings while others prioritize mitigating their exposure to fluctuations in natural gas prices. However, in interviews conducted by WRI, these common points emerged again and again in corporate energy strategies:

- **Price certainty:** Companies value the predictable price of renewable energy. It mitigates the risk of fuel price surcharges, a risk to which many are quite sensitive. As with any forward fixed-price contract, they may pay more than market price if costs fall, but less if market prices rise. Many companies believe natural gas prices will remain volatile and they value the opportunity to remove some of that volatility and risk from their energy costs.
- **Electricity cost savings:** Companies have invested substantial human resources to track where renewable energy prices have fallen below retail electricity market prices. As this trend emerges in market after market, companies are seizing the opportunity to reduce their energy costs and improve their bottom line.
- **REC ownership:** Renewable Energy Certificates (RECs)<sup>13</sup> provide companies the ability to clearly account for renewable energy in their sustainability

reports and make credible statements in their marketing materials. The Federal Trade Commission has defined how companies present their renewable energy investments and owning and retiring RECs is an important element of most companies' strategies.<sup>14</sup> However, unbundled RECs, that is, RECs separated from the generated power, alone, do not give companies the other benefits that make the case for renewable energy so strong. Thus companies that have historically purchased RECs in order to meet their sustainability goals are increasingly interested in going beyond the current grid mix in their region, as well as holding RECs for their market-based accounting of renewable energy consumption.

- **Positive stakeholder perception:** Iconic companies report increasing pressure from customers, shareholders, employees, and other stakeholders to use more renewable energy. Some energy managers are rated and compensated on how effectively they reach their sustainability goals. "On the performance dashboard, green is the only acceptable color."<sup>15</sup> Companies and their energy teams feel real urgency to set and meet ambitious targets.

When companies seek ways to capture the benefits described above, they tend to prefer instruments that also allow them to:

- **Preserve capital:** With a few notable exceptions, such as Apple,<sup>16</sup> most companies prefer to spend operating budget rather than capital on renewable energy projects, because capital is in demand for their core business. Thus power purchase agreements are often preferred, even when the renewable energy generation is located at their facilities.
- **Maximize flexibility:** Companies often prefer options that maximize their flexibility to reorganize their real estate portfolios. They may sell a business line, consolidate facilities, or geographically shift load. Transferability among facilities can be a welcome feature for some companies. However, energy buyers recognize they cannot necessarily lock in a low price if they are only willing to agree to a short-term arrangement in order to maximize flexibility. A long-term commitment to purchase energy from a renewable energy project can substantially lower the capital costs for the energy project and in turn the price the customer pays. As a result companies do sign long-term agreements, but

those agreements often need clear buyout clauses so that the cost of exercising flexibility can be evaluated. Companies weigh each renewable energy opportunity to optimize the term, the flexibility, the cost savings, and the hedge value for their energy strategy.

To date, the models that give companies the broadest access to these energy services and hedges are primarily available in markets with some retail choice and flexible net metering approaches. In 17 states, for example, large customers can sign direct power purchase agreements (PPAs) with suppliers other than the utility managing the wires to their facilities.<sup>17</sup> In 22 states, third-party solar PPAs allow companies to preserve their capital and buy power from the renewable project owner rather than build their own solar projects.<sup>18</sup>

## WHY THE UTILITY?

In many states, however, companies cannot pursue these strategies. They have to find other options that fit within a traditional utility model—or, as some are doing, seek to open the markets to allow third parties and the approaches they have found so useful.<sup>19</sup>

Meeting companies' renewable energy goals does not necessarily require a movement to retail choice. Even in electric territories with little to no retail choice, customers across many classes could be given the opportunity to buy attractive renewable energy services through affordable and creative service offerings—a green tariff.

WRI research showed companies may be indifferent as to whether a utility or an independent power producer (IPP) owns a renewable asset that provides the power. The utility may even have some advantages in offering renewable energy products:

- Companies spend time and attention (sometimes with assistance from consulting firms) to vet the supply from renewable IPPs. They need to understand and potentially mitigate the risk that the IPP cannot finance, build, or operate the facility as promised. Companies may have greater confidence (and fewer transaction costs) when buying from their traditional utility.
- Although the larger transition facing the electricity sector could threaten this situation, historically utilities have had good access to capital<sup>20</sup> which could both

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## Box 1 | **Avoiding Cost Shifts to Nonparticipating Customers**

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Gaining regulatory approval for a green tariff will likely require demonstrating that the tariff will avoid exposing nonparticipating customers to costs or risks associated with the renewable energy. Proposals by both utilities and companies to date have emphasized this principle.<sup>21</sup> A debate currently rages about whether net metering shifts costs to nonparticipating customers and how the benefits of renewable energy should be fully measured and considered.<sup>22</sup> Similarly complex questions about the allocation of costs, benefits, and risks are likely to emerge as utilities and companies explore green tariffs in more jurisdictions. However, this discussion paper presumes the tariff is intended to limit the exposure of other customers to the costs of the tariff—though this may also mean their access to the benefits, such as reduced fuel price volatility, is limited.

reduce the cost of the renewable energy project and complement the companies' desire to preserve their capital when purchasing renewable energy.

- Utilities may be able to provide increased geographic flexibility for companies. Just as companies today move service from meter to meter as they open, relocate, and close facilities in a service territory, renewable energy provided through a green tariff, theoretically, could be shifted from meter to meter as a company's real estate portfolio evolves within a service territory.
- Some traditional utilities may be able to reduce the overall cost of the renewable energy package for green tariff customers by optimizing the transmission, distribution, and integration of the renewable energy.
- Utilities may be able to offer green tariffs relatively quickly. As discussed above, companies are operating under tremendous urgency and meeting their needs quickly is valuable.

These attributes of a utility renewable energy offering could tap optimizations and efficiencies inherent in the monopoly nature of the traditional utility, with the potential to lower the overall cost to companies and smooth the integration of renewables into the system.

## **HOW TO BUILD AN ATTRACTIVE GREEN TARIFF**

Utilities interested in offering renewable energy to customers will want to consider many issues, including whether the tariff will deliver the basket of energy services and hedges that companies already procure through PPAs and net metering. There is an implicit competition for these customers, even in markets that are not currently open to retail choice or where net metering is very limited. As mentioned earlier, companies' mandates are strong enough that they weigh renewable energy availability when selecting sites and may advocate allowing the models they find useful, such as PPAs, in the regulated service territory.<sup>23</sup>

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## Box 2 | **Why Not a Special Contract per Customer?**

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Some utilities are experimenting with special contracts with a few of their large-load customers to provide renewable energy. In at least three examples, the utility acts primarily as a pass-through for a power purchase agreement. It arranges to buy the power the company seeks from an independent power producer and then passes the full cost of that power to the company. Utilities typically earn no return on these transactions, and do not own the assets.

If these special contracts are limited to large (and new) customers, this approach does little to meet the needs of the many other customers looking to procure renewable energy, including companies with many smaller retail locations in a single territory. It also limits the ability of the utility's scale-economies and other efficiencies to reduce the cost of the renewable energy. Although such an approach may be a useful starting place, moving to a full-fledged tariff based on a pool of resources could deliver more value to the utility, the customers, and the electricity system.

While these special contracts are enabled in some cases by a tariff or rider, a more traditional tariff could allow the utility to bring a group of customers together to optimize renewable energy procurement and share the risk associated with the renewable energy projects while insulating other customers. This aggregation of customers could better unleash the utility's ability to optimize and leverage its investment while meeting a larger base of customer demand for renewable energy.

## Creating a Portfolio of Resources

Green tariff pilots to date have been closely linked to single customers and have resembled special contracts rather than tariffs. In Virginia, Nevada, and North Carolina, the tariffs link a particular load to a particular renewable energy resource with the utility acting as a pass-through.<sup>25</sup> To bring the utility's competitive advantages to bear, another approach would be to develop a slowly growing portfolio of renewable energy projects, both owned by the utility and contracted for with IPPs, that serves customers on the green tariff.

This approach could allow the utility to carefully shop for the investment opportunities and purchases from third-party projects with the best economics (including size, term, and blend of risk) for a broad base of customer loads, rather than fitting only to certain companies' specific requirements. Many companies may prefer that the utility take part of newer vintage projects because they offer new economic development opportunities for the region and important reputational benefits for the companies. The portfolio could be optimized to make best use of transmission and distribution resources to keep other costs low. The final cost of electricity from the portfolio, after the utility has optimized, could be lower than the price of the power from a single project.

## Setting a Price

Companies value the relatively predictable price of renewable energy. Even though many PPAs for renewable sources include a schedule of price increases, they still offer greater predictability than conventional power that includes fuel-price volatility and other risks.<sup>26</sup> To compete effectively, green tariffs may need to offer similar predictability and protect against fuel price volatility. Green tariffs that only charge a premium or the pass-through cost of the PPA but do not limit the customers' exposure to the regulatory, fuel price, and other risks of the current generation mix may be less attractive than a PPA because they offer little in risk mitigation value.

Utility rates do change over time as new investments in generation and the transmission and distribution network are required. A green tariff with predictable prices would not necessarily preclude this sort of rate change. Companies already see these costs passed to them via standby charges and other fees they pay even when they choose to

go renewable via net metering or PPAs. These charges perhaps provide a model for setting and adjusting the portion of the green tariff rate that is related to the network rather than specifically to renewable energy generation.

At a minimum, a green tariff needs to account for the retirement of RECs associated with the supply to companies on this tariff, and could allow for companies to own the RECs through a transfer. From a market perspective (RECs are a market based instrument) this resource pool is thus over and above any Renewable Portfolio Standard (RPS) requirements the utility must satisfy. Care should be taken to discuss this "over and above" aspect of the tariff, as part of its adoption, so that the green tariff does not inadvertently reduce any overall RPS requirements. It will be important in this discussion to be clear that RECs provide a market-based accounting for renewable energy rather than a physical accounting of the mix of power delivered to a customer's facility.<sup>27</sup>

WRI interviews have shown that some companies are concerned that utilities will not procure a least-cost renewable energy portfolio to support a green tariff, thus retail choice may be necessary or at least companies must be closely involved in resource procurement. Innate pressure, and potentially rate design, may help mitigate this concern. The utility green tariff is implicitly in competition with the other options companies could pursue—from relocating to self generating to advocating for an open market—just as the utility's standard power offer is in competition with these options. Rate design could also draw from performance ratemaking and innovations in energy efficiency incentives. A rate could allow the utility to see some upside for delivering least-cost renewables to customers. However, this approach could also imply some risk of a downside for the utility shareholder and thus be unacceptable to the utility.

## Enabling Both Term and Flexibility

Companies are quite accustomed to effectively weighing the value of their long-term commitment (to both their own energy-cost strategy and the renewable energy generator's economics) with the flexibility to make changes in their facilities portfolio. Since a utility, particularly one with a large geographic footprint, could allow a green tariff customer to seamlessly shift its green tariff from meter to meter—given that it is primarily an accounting transaction—utilities could provide more flexibility than the

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instruments companies use today. Utilities offering green tariffs could provide companies with the best of both worlds—long-term fixed prices and maximum flexibility within the utility’s footprint.

In WRI’s interviews, companies report that renewable energy agreements today are rarely less than five years and often between ten and fifteen years, though many companies also report extensive internal procedures for any agreement longer than two to three years. These terms can help lower the utility’s risk of stranded renewable energy assets and potentially the cost of capital, just as they do for IPPs today.

### Managing the Risk of Stranded Renewable Energy Assets

While the challenges associated with broader electricity transition may increase the risk of traditional fossil assets being stranded, there is also a risk that renewable assets procured to support a green tariff may become stranded. The regulatory compact, in prioritizing low cost, low risk, prudent investments, implicitly requires that the costs and risks of these “above and beyond” renewable energy investments do not fall on other ratepayers. Although companies may commit to buy the power and even commit to penalties for early withdrawal, after the scale of economic upheaval in 2008, WRI found some regulators were quick to question these companies are creditworthy. If there is not enough demand to cover the cost of the renewable energy generation assets, regulators may require either the remaining green tariff customers or the utility shareholders bear the cost of those stranded assets.

In addition to declining buyout costs if a company exits early, utilities should have a plan to sell power from the assets on a merchant basis to limit the actual losses (in addition to optimizing the economics despite the intermittent nature of the supply relative to real-time loads served by the tariff). If utilities cannot sell the power, they should consider where it falls in their economic dispatch stack and when it would be wise for the remaining rate base to rely on it. For example, during peak summer use, a solar

asset may be cheaper than another peaking power option. Though if this had to be done on a large scale, for some utilities this strategy may create a risk of stranding other generation assets through overcapacity.

Finally, addressing the more catastrophic failures to pay that regulators are concerned about after 2008, perhaps customers participating in the green tariff could pay a fraction of a penny for the first few years to create an indemnification fund. By reducing the risk that the cost of the asset will not be recovered, the cost of the capital may also be reduced. Once the fund reached a predetermined level or a level indexed to the risk of stranded renewable energy assets, the fee would be removed from the tariff.

### Offering Renewables to Both Existing Load and New Load

Green tariff pilots to date, such as Duke Energy’s Green Rider recently approved by the North Carolina Public Utilities Commission, have centered on new load in the region.<sup>28</sup> The argument is that being new, the load has little historical responsibility for the existing infrastructure so procuring resources for the new customers does not strand assets or shift costs to other customers through excess capacity.<sup>29</sup> Integrated resource planning, and the process of rate basing new investments, does typically plan for load growth. In some regions, new industries are absorbing excess power capacity created by the exit of old industries.

However, as discussed above, companies are moving both new and existing load onto renewable energy to meet their energy and sustainability goals. Done en masse, this could create excess power capacity for a traditional utility, regardless of whether the shift is accomplished through third parties or through a utility green tariff. Overcapacity is part of the challenge that the growth of residential net metering is already posing.<sup>30</sup> Regulators and utilities will be grappling with these economic questions as the demand to go over and above the current grid mix grows. A range of approaches, from tariff restructuring to transition charges to careful benefits accounting, will continue to evolve alongside the debate.

## NEXT STEPS

The emerging experiments in green tariffs are a start but do not yet provide many companies with the suite of energy services and hedges they find in the markets with retail choice. Next steps in the evolution of green tariff design could include:

- Further convening of customers with their utilities to develop pilot tariffs.
- An exploration of how green tariffs can integrate with the traditional regulatory model, which offers the same reliable, inexpensive service to all customers rather than differentiating a pool of resources for a particular customer class.
- Discussion and analysis to better articulate how RPSs, evolving pollution regulation, and customers who want to be served by 100 percent renewable energy add up to a decarbonizing utility sector, particularly at least cost.

As the utility sector faces complex changes, including rapid decarbonization, implementing green tariffs is a step for traditional utilities to evolve their business model, and to potentially increase the deployment of renewable energy while lowering costs. Undertaking these complex discussions is well worth the effort.

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Natural resources are at the foundation of economic opportunity and human well-being. But today, we are depleting Earth's resources at rates that are not sustainable, endangering economies and people's lives. People depend on clean water, fertile land, healthy forests, and a stable climate. Livable cities and clean energy are essential for a sustainable planet. We must address these urgent, global challenges this decade.

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We use our research to influence government policies, business strategies, and civil society action. We test projects with communities, companies, and government agencies to build a strong evidence base. Then, we work with partners to deliver change on the ground that alleviates poverty and strengthens society. We hold ourselves accountable to ensure our outcomes will be bold and enduring.

#### SCALE IT

We don't think small. Once tested, we work with partners to adopt and expand our efforts regionally and globally. We engage with decision-makers to carry out our ideas and elevate our impact. We measure success through government and business actions that improve people's lives and sustain a healthy environment.



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