

# Utility Green Tariff Programs in the U.S.: Overview and Opportunities for Cost Savings

Jenny Heeter, Senior Energy Analyst, National Renewable Energy Laboratory

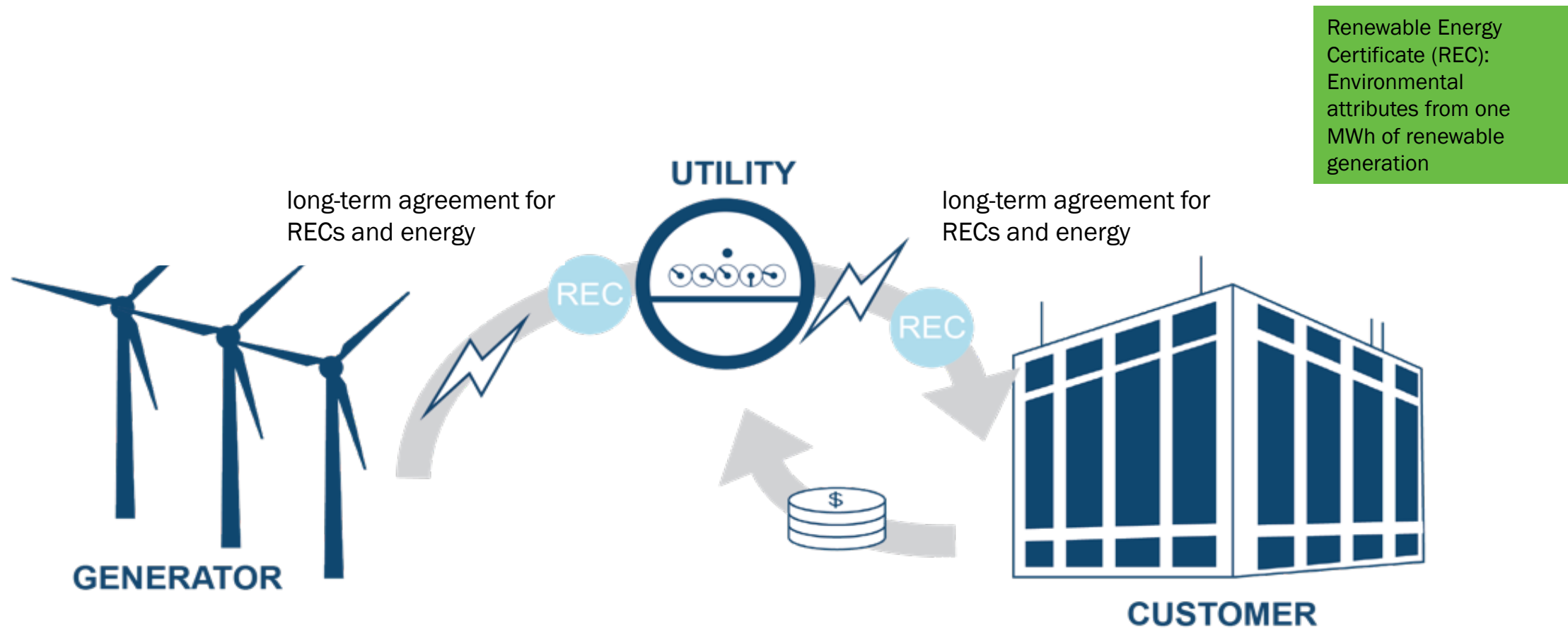
EPA Federal Green Challenge Webinar, June 19, 2019

NREL/PR-6A20-74211



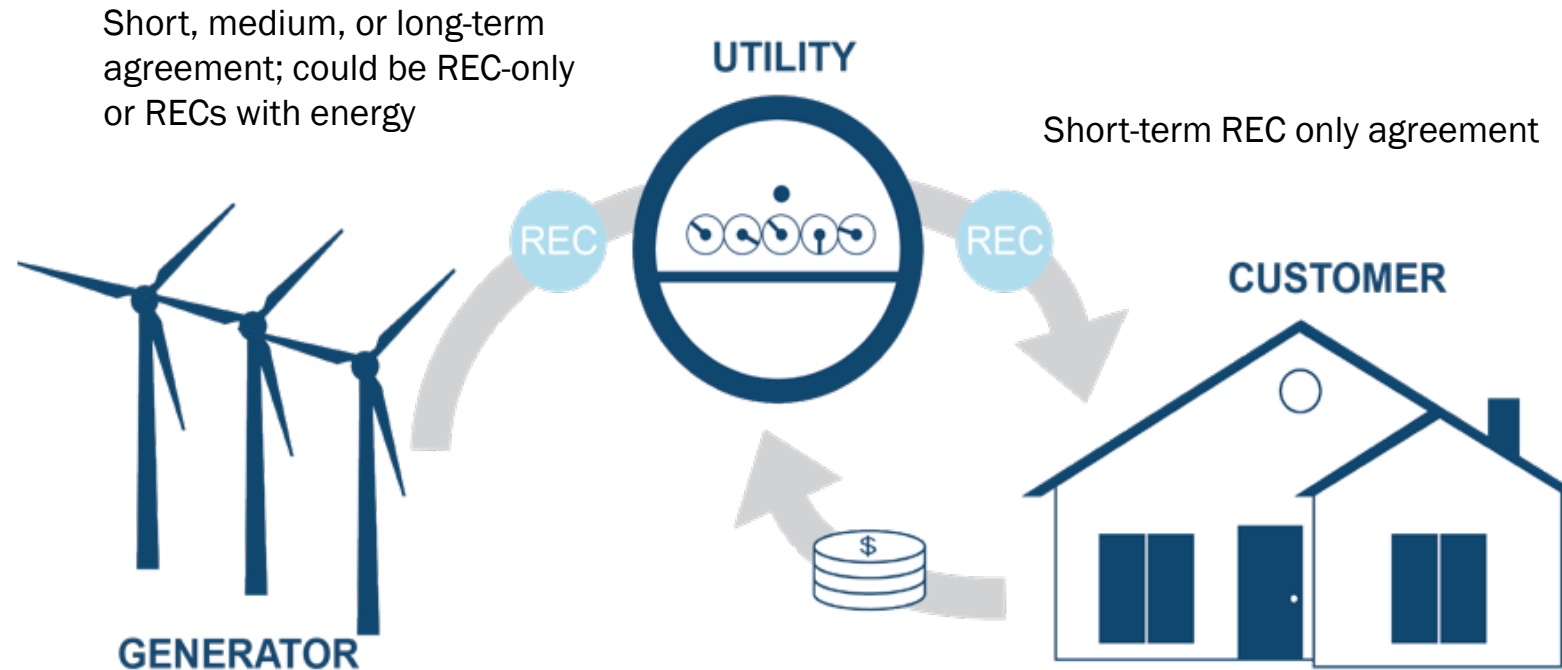
# Defining Green Tariffs

# What are Utility Green Tariff Programs?



Key components of typical utility **green tariff**:  
Customer may have input into renewable energy (RE) source; customer commitment time is longer (multi-year); RE charge on bill, with credit of regular energy charge

# What are Utility Green Pricing Programs?



Key components of typical utility **green pricing** program:

Utility procures renewables on behalf of customer; customer commitment time is short (typically monthly); premium in addition to current utility bill (no bill credit); utility may purchase RECs separately from electricity

# Comparison of Green Pricing vs. Green Tariffs

- Green tariff products have a longer contract term and potential utility cost savings, while green pricing products involve a premium and shorter contract term.
- Some convergence of products is occurring (e.g. green tariffs that have some attributes of green pricing, like shorter contract lengths).

Program Characteristics	Green Pricing	Green Tariff
Cost savings potential	No, products average around 1.5 cents/kWh premium	May be cost-competitive, depending on structure and term
Price stability	No, continue to pay utility rate that is subject to change	Possible under certain program structures
Contract length	Shorter contract terms (typically month-to-month)	Longer agreements possible (10-20 years)
Ease of joining	Typically a simple sign-up process	Often limited availability, longer contract is potential barrier
Choice of RE resource	Utility determines	Customer may have input

# Why Should Federal Agencies Be Interested in Utility Green Tariff Programs?

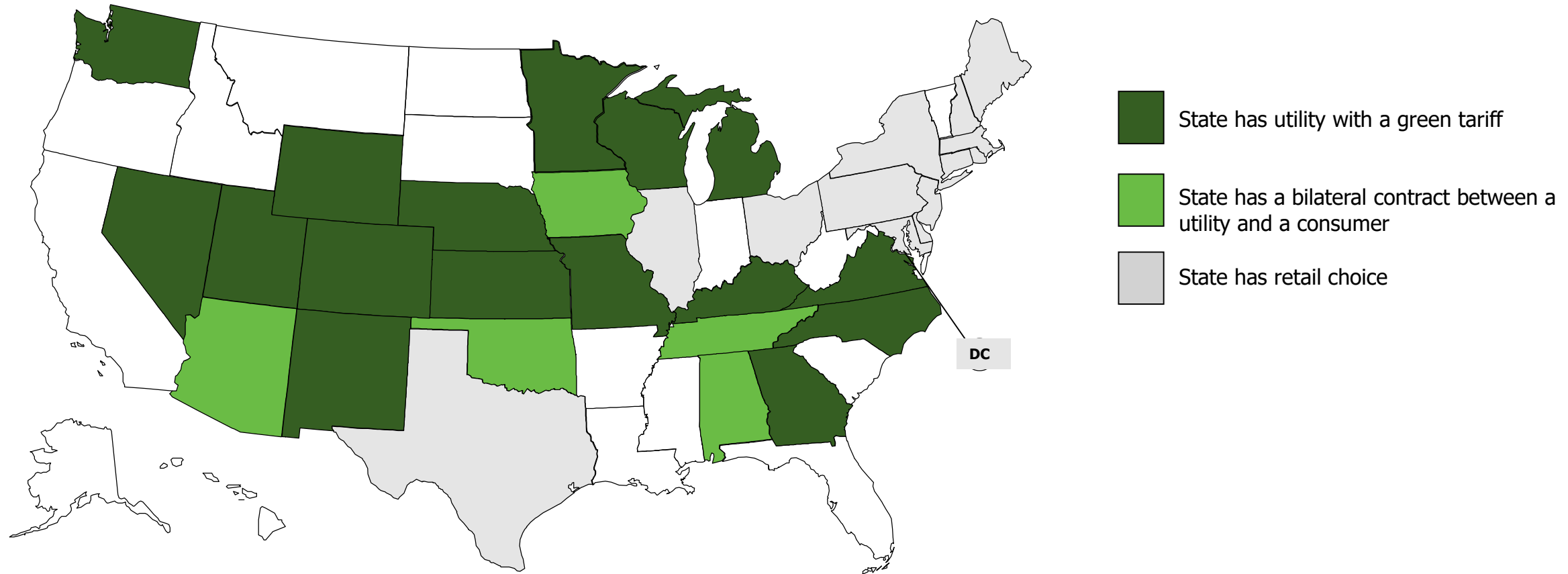
---

- **Federal agencies are required to purchase renewables under the Energy Policy Act of 2005. The federal renewable goal is 7.5% of electric energy in fiscal year 2013 and thereafter.**
- **Green tariff programs are an emerging RE purchase method that could result in federal agency cost savings.**



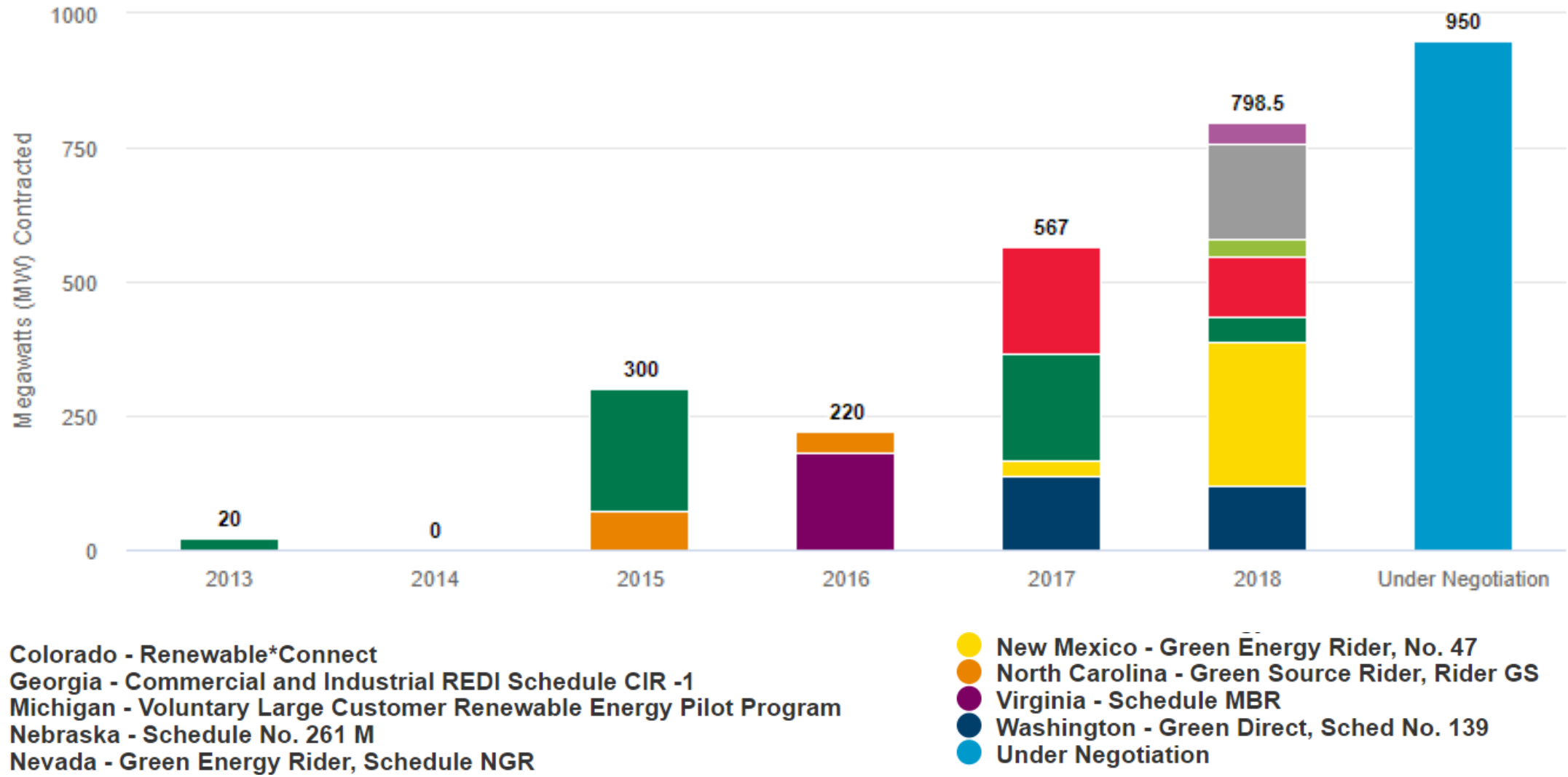
# Utility Green Tariff Programs are Expanding

- Map is rapidly expanding, with new green tariffs and bilateral contracts every year.



Data Source: World Resources Institute. <https://www.wri.org/resources/maps/us-re-corporate-buyers-map>. Accessed June 10, 2019.

# Contracted Capacity Under Green Tariffs Continues to Grow



Source: WRI (2019). Green Tariff Deals. <https://www.wri.org/resources/charts-graphs/grid-transformation-green-tariff-deals>



# Total Utility Renewable Contracts Are Small Portion of Total Voluntary Market Sales

- In 2017, about 2.7 million MWh of green power were sold during 2017 via utility renewable contracts, which includes both green tariffs and bilateral agreements between a utility and a customer.
- The customer count has expanded since 2017 with the introduction of more residential-focused green tariffs.

Green Power Option	2017 Sales (MWh)	2017 Participants
Unbundled RECs	51,744,000	192,000
Power Purchase Agreements	21,271,000	273
Competitive Suppliers	18,133,000	1,691,000
Community Choice Aggregations	8,882,000	2,726,000
Utility Green Pricing	8,850,000	885,000
Utility Renewable Contracts	2,788,000	15
Community Solar	80,400	4,700

Source: O'Shaughnessy, Eric, Jenny Heeter, and Jenny Sauer. 2018. Status and Trends in the U.S. Voluntary Green Power Market: 2017 Data. Golden, CO: National Renewable Energy Laboratory. NREL/TP-6A20-72204. <https://www.nrel.gov/docs/fy19osti/72204.pdf>.

# Federal Agency Considerations

# Utility Green Tariffs – Considerations

---

- When must customers enroll?
- Who can participate? (e.g. minimum customer size, new or existing load)
- What are the rate components and net cost?
- What length of contract must be signed?
- What are the program limits?
- Who owns the RECs?

# Understanding Value Proposition

- **Value is determined by estimating the net costs/benefit of participation over the life of the term.**
  - What do you pay to participate (Typically a fixed \$/kWh)
  - What do you credit for? (Avoided energy costs, avoided capacity)
- **Which prices and credits are fixed vs. floating/uncertain?**
- **How complex is the structure to understand and to estimate value?**

# Types of Utility Green Tariffs

- **Subscription programs: Pay for RE and get credit on your bill**
  - Puget Sound Energy's Green Direct
  - Xcel Energy's Renewable\*Connect
  - Georgia Power's Commercial & Industrial Renewable Energy Development Initiative program
  - Consumers Energy's Large Customer Renewable Energy Pilot
- **Market-based rates (MBR): Pay an electricity rate that is pegged to the wholesale market and sign a separate contract for RE.**
  - Dominion's Schedule MBR
  - Omaha Public Power District's Schedule No. 261M

# Screening Green Tariffs for Federal Agencies

---

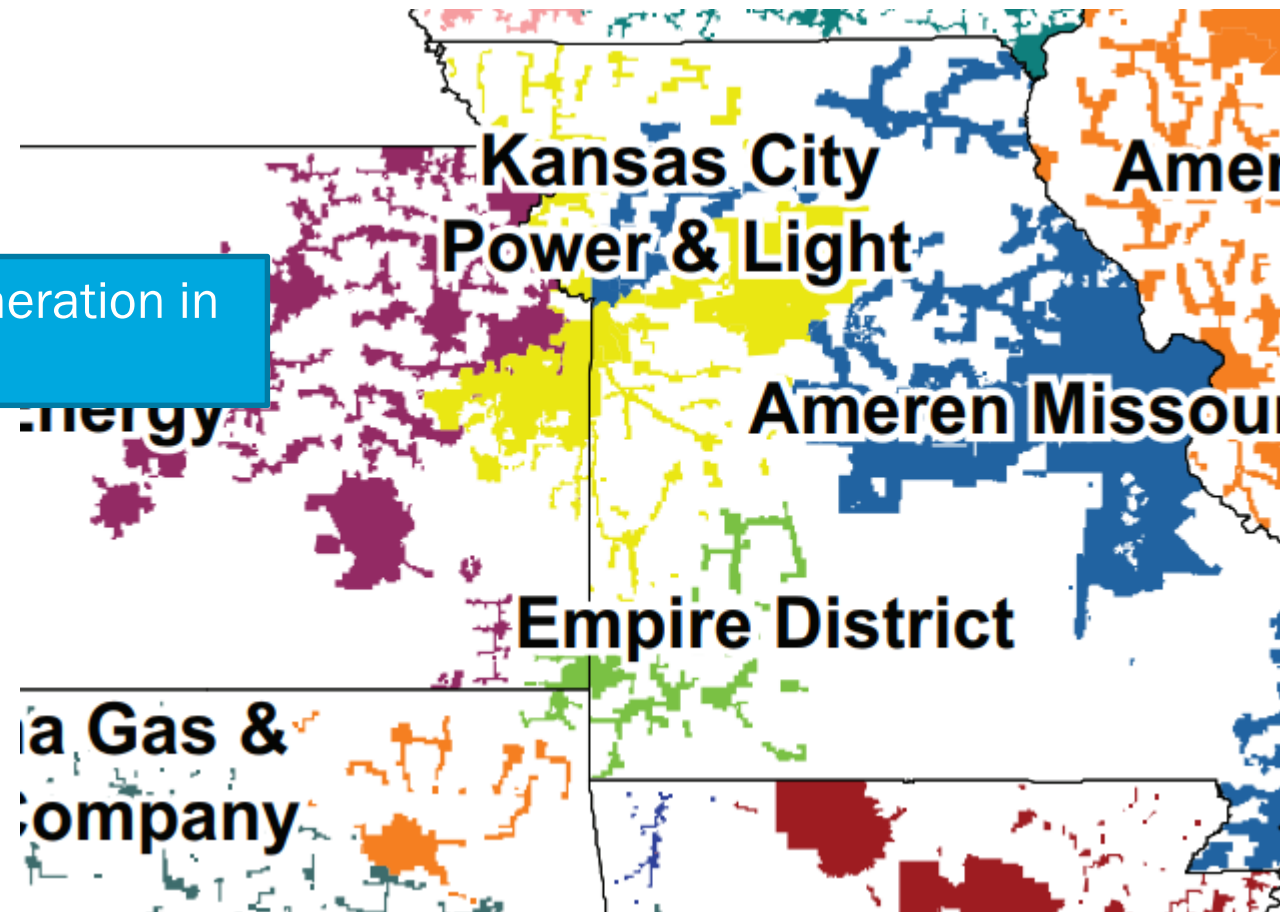
- Is the program currently open or planning a new phase?
- What is the cost savings potential?
- What are the minimum customer size restrictions?
- What is the minimum contract length required?
  - How does the pricing structure vary with contract length?



# Case Studies

# Kansas City Power & Light (KS): Renewables Direct

New program; the utility is expecting to procure generation in 2019.



# Kansas City Power & Light (KS): Renewables Direct

- **Who can participate?**
  - Need to have at least 740,000 kWh in annual usage
  - Subscriptions start at 200 kW up to 1 MW; then 500 kW increments thereafter.
- **What are the rate components and net cost (if available)?**
  - Replaces the fuel factor charge on your bill (ECA), with a Renewable Participation Charge.
  - The Renewable Participation Charge will be no more than 2 cents/kWh and be fixed for the life of your agreement.
  - The utility says it is “expected that the Renewable Participation Charge will be lower than KCP&L’s current fuel factor rate.”

Sources: [https://www.kcpl.com/-/media/files/\\_save\\_energy\\_and\\_money/\\_business/530195286-renewables-direct-faqs-ks-web.pdf?la=en](https://www.kcpl.com/-/media/files/_save_energy_and_money/_business/530195286-renewables-direct-faqs-ks-web.pdf?la=en) and [https://www.kcpl.com/-/media/indexedmedia/my\\_bill/ks/detailed\\_tariffs\\_ks/ksdt\\_65\\_renewableenergyrider\\_20181220.pdf?la=en](https://www.kcpl.com/-/media/indexedmedia/my_bill/ks/detailed_tariffs_ks/ksdt_65_renewableenergyrider_20181220.pdf?la=en)

# Kansas City Power & Light (KS): Renewables Direct

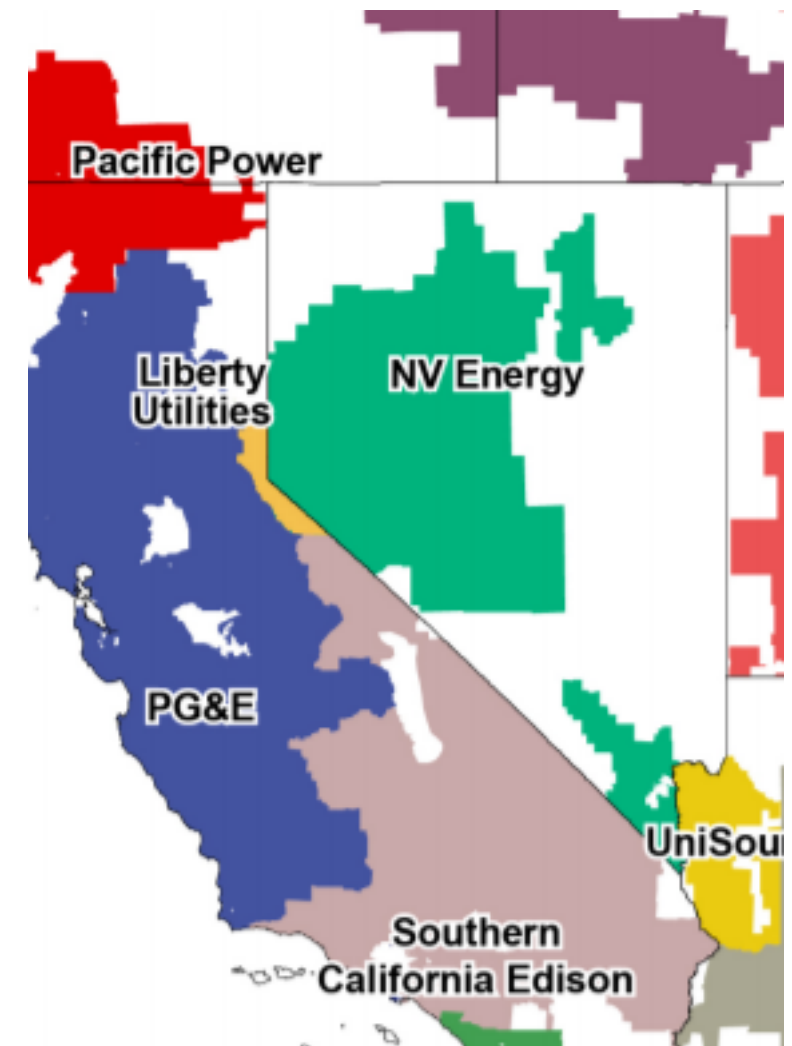
- **What length of contract must be signed?**
  - 5, 10, 15, or 20 year
    - If signing up more than 20% of renewable resource, then 10 year minimum
- **What are the program limits?**
  - No minimum or maximum
- **Who owns the RECs?**
  - RECs owned by / retired for customers

Sources: [https://www.kcpl.com/-/media/files/\\_save\\_energy\\_and\\_money/\\_business/530195286-renewables-direct-faqs-ks-web.pdf?la=en](https://www.kcpl.com/-/media/files/_save_energy_and_money/_business/530195286-renewables-direct-faqs-ks-web.pdf?la=en) and [https://www.kcpl.com/-/media/indexedmedia/my\\_bill/ks/detailed\\_tariffs\\_ks/ksdt\\_65\\_renewableenergyrider\\_20181220.pdf?la=en](https://www.kcpl.com/-/media/indexedmedia/my_bill/ks/detailed_tariffs_ks/ksdt_65_renewableenergyrider_20181220.pdf?la=en)

# NV Energy GreenEnergy Rider

## Existing capacity signed:

- Apple: 20 MW solar and 50 MW solar projects
- Switch: 180 MW solar
- City of Las Vegas: Share of the 100 MW Boulder Solar Power Project



# NV Energy GreenEnergy Rider

- **Who can participate?**
  - N. Nevada: GS-2 or larger, with 50-500 kW demand or monthly usage >10,000 kWh
  - S. Nevada: LGS-1 and larger
- **What are the rate components and net cost**
  - Pay existing rate schedule
  - Pay RE cost
  - Credit is negotiated with the utility

Sources: [http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS\\_2010\\_THRU\\_PRESENT/2012-11/21480.pdf](http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2010_THRU_PRESENT/2012-11/21480.pdf) and [http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS\\_2010\\_THRU\\_PRESENT/2014-6/39059.pdf](http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2010_THRU_PRESENT/2014-6/39059.pdf)



# NV Energy GreenEnergy Rider

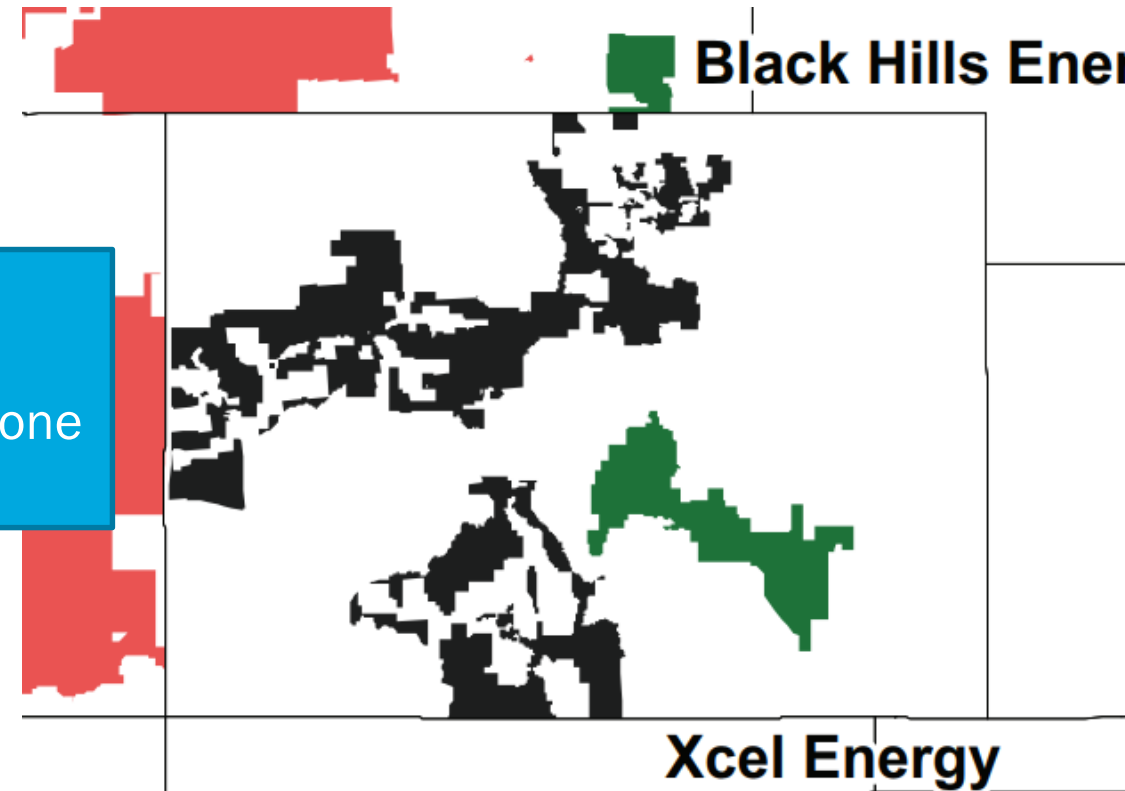
- **What length of contract must be signed?**
  - Negotiated with the utility (at least two years)
- **When must customers enroll?**
  - No specific enrollment period, but NV Energy opens up an “Open Season Event” periodically. See <https://www.nvenergy.com/ngr> for more information.
- **What are the program limits?**
  - Annual subscription limit: 250,000 MWh for N. Nevada, 250,000 MWh for S. Nevada, though NV Energy is allowed to exclude special contracts from the cap
- **Who owns the RECs?**
  - The utility will first retire RECs for the customer’s share of the RPS (e.g. 20% in 2017); all RECs in addition to those retired for the RPS will be retired on behalf of the customer (e.g. 80%).

Sources: [http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS\\_2010\\_THRU\\_PRESENT/2012-11/21480.pdf](http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2010_THRU_PRESENT/2012-11/21480.pdf) and [http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS\\_2010\\_THRU\\_PRESENT/2014-6/39059.pdf](http://pucweb1.state.nv.us/PDF/AxImages/DOCKETS_2010_THRU_PRESENT/2014-6/39059.pdf)

# Xcel Energy (CO): Renewable\*Connect

Existing capacity signed:

- 50 MW subscribed
- 10 MW of residential, 40 MW of commercial, including one federal agency



# Xcel Energy (CO): Renewable\*Connect

- **The first round is fully subscribed and Xcel is in the process of developing a second round.**
  - Anticipated schedule: Summer 2019 - File for approval; 2020 - RFP completed; Early 2022 – Generation begins.
- **Who can participate?**
  - Schedules: R, RD, C, SG, SGL, PG, and TG.
  - One federal agency participates in Renewable\*Connect.
- **What are the rate components and net cost (if available)?**
  - Pay existing rate schedule plus a subscription cost; receive avoided energy and capacity credits

Contract length	Payment (\$/kWh)	Credit (\$/kWh) (2018)	Net payment (\$/kWh) (2018)	Credit (\$/kWh) (2019)	Net payment (\$/kWh) (2019)
Month-to-Month	\$0.0440	\$0.04077	\$0.003230	\$0.037	\$0.00700
5-year	\$0.04157	\$0.04077	\$0.000800	\$0.037	\$0.00457
10-year	\$0.04077	\$0.04077	\$0.000000	\$0.037	\$0.00377

Source:

[https://www.xcelenergy.com/programs\\_and\\_rebates/residential\\_programs\\_and\\_rebates/renewable\\_energy\\_options\\_residential/renewable\\_connect\\_for\\_residences/renewable\\_connect\\_price\\_terms\\_and\\_conditions](https://www.xcelenergy.com/programs_and_rebates/residential_programs_and_rebates/renewable_energy_options_residential/renewable_connect_for_residences/renewable_connect_price_terms_and_conditions)

# Xcel Energy (CO): Renewable\*Connect

- **What length of contract must be signed?**
  - Month-to-month, 5 year, 10 year
- **What are the program limits?**
  - The program was capped at 50 MW.
- **Who owns the RECs?**
  - RECs owned by / retired for customers

# Case Study Comparison

Program Characteristics	Xcel Energy (CO)	NV Energy	Kansas City Power & Light
Eligible participants	Residential and commercial customers (Rate classes R, RD, C, SG, SGL, PG, and TG)	Certain classes of large customers	Customers with >740,000 kWh in annual usage
Potential cost savings	Potential exists, determined by future avoided energy credit rate	Determined by final agreement with RE supplier	Likely, as expressed by utility
Length of contract	Month-to-month, 5 years, 10 years	At least 2 years	5, 10, 15, or 20 year
REC treatment	RECs owned by / retired for customers	Retired against customers' share of RPS obligation; beyond that, RECs are retired on behalf of customer	RECs owned by / retired for customers
Enrollment period and program limits	Program full but Xcel is taking expressions of interest now for a second round. The first program was limited to 50 MW.	No specific enrollment period Annual subscription limit: 250,000 MWh for N. Nevada, 250,000 MWh for S. Nevada	Ongoing expressions of interest before the RE resource is procured.

# Green Tariff Enrollment – Use of GSA Areawide Contract

- General Service Administration (GSA) establishes long-term (10 year) government-wide Areawide Contracts (AWCs) with regulated public utility companies
- Determine if the AWC can be used for Green Tariff program enrollment
  1. Does GSA have an AWC with your serving utility (check GSA website <https://www.gsa.gov/portal/content/184627>, ask utility)?
  2. Does your agency utilize the AWC for utility services?
  3. Ask GSA and utility whether AWC can be used for Green Tariff program enrollment
- Additional AWC information available on GSA website (<https://www.gsa.gov/portal/category/105971>)



**Thank you!**

**General green tariff information:**

**Jenny Heeter**

**Jenny.Heeter@nrel.gov**

**303-275-4366**

**Help signing up for green tariffs:**

**Chandra Shah**

**Chandra.Shah@nrel.gov**

**303-384-7557**