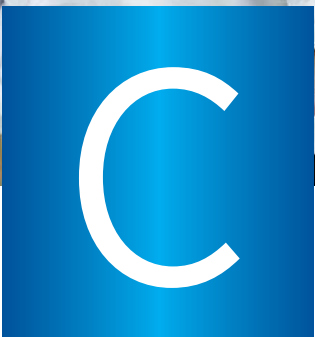




APPENDIX



Purchasing renewable energy as a residential customer

Co-Authored by the U.S. DOE and U.S. EPA

To view the full Guide, visit <https://www.epa.gov/greenpower/guide-purchasing-green-power>



DOCUMENT MAP

Summary

Chapter 1. Introduction

Chapter 2. Introducing Green Power

What is Green Power?
Introduction to Renewable Energy Certificates
Introduction to the Voluntary Market
Certification and Verification
Tracking Systems

Chapter 3. The Benefits and Costs of Green Power

The Benefits
The Costs
Public Relations Considerations

Chapter 4. Green Power Product Options

Purchase Options
Self-Generation Options
Green Power Supply Options Summary

Chapter 5. Using Organizational Goals to Guide Green Power Purchases

Setting Goals
Identifying Key Decision-Makers
Gathering Energy and Facility Data
Choosing Green Power Options

Chapter 6. Contracting for Green Power

Developing Criteria for Screening Green Power Suppliers and Products
Collecting Product Information
Creating a Procurement Plan

Chapter 7. Planning a Self-Generation Renewable Project

Screening the Options
Obtaining Resources and Assistance
Creating a Project Plan
Installing and Operating a Renewable Generation Project

Chapter 8. Capturing the Benefits of the Purchase

The Environmental Benefits
Promoting the Organization's Purchase

Chapter 9. Conclusion

Chapter 10. Resources for Additional Information

Glossary

Appendix A. Green Power Considerations for Federal Agencies

Appendix B. Commercial Solar Financing Options

Appendix C. Purchasing renewable energy as a residential customer



Residential consumers can drive demand for green power

Residential electricity consumers looking to reduce their environmental impacts and increase the demand for cleaner sources of power can contribute to the growing green power industry. Depending on their location, there are several ways that residential electricity consumers can purchase green power and drive demand-side change on the grid.

Renewable Energy Certificates (RECs) are used in the United States to track the delivery and consumption of renewable energy and substantiate all green power generation and use claims, something that would otherwise not be possible on a shared distribution network or utility grid. Each REC represents the environmental attributes associated with one megawatt-hour (MWh) of renewable energy generation, and can be sold together with or separately from physical electricity. These energy attribute certificates include the location and type of generation (e.g. wind, solar, geothermal, hydropower) and any emissions associated with generation source. In aggregate and over time, RECs allow electricity consumers to choose renewable energy, which can drive change in the electricity market through the increased development of renewable energy source to meet increasing REC demand.

All green power purchasing options must include RECs in order for consumers to claim the environmental attributes and use of green power and to have an impact on transforming the market towards cleaner sources of energy. The options below allow consumers to purchase green power from the electric grid without having to install renewable generation equipment themselves, such as rooftop solar photovoltaic panels.

Purchasing Options for Residential Consumers

Purchasing green power through a retail electricity supplier

In some areas of the U.S., residential customers may be able to sign up for an optional green power service to procure a bundled electricity and REC product from their utility or default service provider. These types of default utility provider supply options are called “green pricing programs” and are often structured in a range of ways to include a small premium of up to a few cents per kilowatt-hour above the utility’s standard electricity service, be sold in blocks of kilowatt-hours or as a percentage of the consumer’s total electricity use at a fixed cost.

In other areas of the country, some residential customers have the option to choose an electricity provider who may not always be their local distribution utility. Consumers that can competitively choose a retail supplier who is not their local distribution utility do so through “green power marketing programs.” Consumers will often pay a premium for green power marketing products, though in some regions, competitive green power products may be price competitive with default electricity options.

In either case, suppliers will often offer a range of green power products, allowing customers to choose levels of renewable energy often up to 100% green power. In either case, all green power products involve renewable energy certificates. Many consumers will seek out suppliers and products that are third-party certified (see below).

Receiving green power through a community choice aggregation

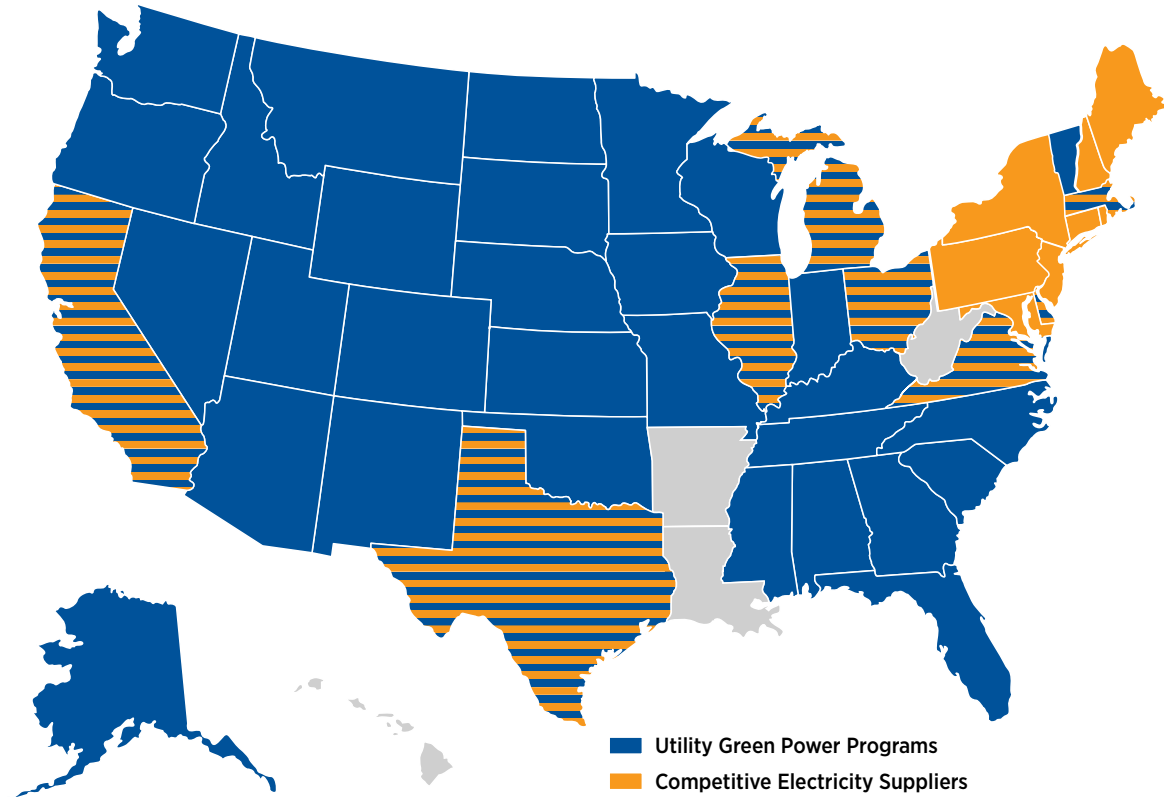
Some residential customers may be automatically enrolled in a green power option that has formed under a “community choice aggregation.” This occurs in a few states where policy or legislation have authorized community choice aggregation, which allows a municipality or local jurisdiction to purchase green power on the behalf of the community at-large. Community choice aggregations are generally structured as an “opt-out” option for residential customers, meaning that residential consumers will receive green power unless they choose to not participate, which tends to be uncommon. Due to the ability of community choice aggregations to drive scale, some customers may receive their green power service at or below standard electricity rates. Residential consumers generally have little to no control

over the green power selected under a community choice aggregation approach, including the ability of the consumer to choose the resource type or location.

Direct Purchase of Renewable Energy Certificates

All electricity consumers have the option to purchase renewable energy certificates as a stand-alone product that are unbundled, or sold separately, from the physical electricity delivered to the consumer over the grid. Because RECs can be unbundled from the underlying electricity at the point of generation, RECs can be sold and consumed anywhere within the U.S. electricity market. REC instruments help solve the challenge of knowing the origin or source of the electricity delivered over the grid, since physical electricity is undifferentiated (e.g., it all looks the same). REC instruments are used to assign ownership to generation delivered to the grid, while offering consumers the flexibility to specify among other things, exactly what type of resource and the location of the generator they prefer to have serving their demand. Buying RECs separately does not affect the consumer’s existing utility service relationship, but does result in two separate billings from both their electricity and REC suppliers, unlike retail utility supply options that involve bundled products. Consumers that buy RECs as a green power product can legally claim to be using renewable electricity based on the attributes conveyed by the RECs and the generator that produced them to meet demand. All green power supply options include RECs, so there is little difference if you purchase the REC bundled or unbundled from the underlying electricity.

Figure C-1. U.S. Residential Green Power Purchasing Options



Notes

1. Unbundled Renewable Energy Certificates (RECs) are available nationally
2. Community Choice Aggregation (CCA) programs are available in CA, IL, MA, NJ, NY, OH, and RI
3. Not all indicated options are available statewide

Verification and Certification

Because voluntary sales and purchases of renewable energy are not subject to governmental oversight, it is important that residential customers look for green power options that are certified by an independent third party. The non-profit Center for Resource Solutions developed the Green-e standard and certification program to help consumers identify high quality renewable energy products. Green-e verifies that all green power product sales are substantiated with RECs and that ultimately each REC is only issued to one buyer or consumer. This also involves making sure that RECs purchased by voluntary residential consumers are also not counted towards a mandate, which gives consumers assurances that their purchase goes above and beyond what would otherwise have occurred due to regulation (also known as regulatory surplus). Finally, Green-e requires that customers receive accurate and transparent disclosures about what they are purchasing (including resource types and facility locations). Additionally, Green-e conducts regular reviews of marketing and promotional materials for truth in advertising by certified suppliers. It is considered a consumer best practice to seek out third party certified green power products from eligible suppliers. To learn more about Green-e or find a certified product in your area, visit <http://www.green-e.org>.

Green Power Purchasing Preferences

Residential customers may express preferences for certain green power options and products in terms of the following:

- Resource Type – for example, generation from solar, wind, geothermal, or low-impact hydropower.
- Resource emissions rate – for example, a resource type that generates electricity at a low or zero emissions rate.
- Facility Location – for example, a specific project, generation from the same state, a certain region of the country, or national (no preference).
- Facility Age – for example, generation from facilities that were built in the last 5 to 10 years or that are new or yet to be built.
- Facility Size – for example, generation from large, utility-scale facilities vs. small, distributed generation.
- Length of Commitment – for example, enrollment in a utility program to pay monthly with the option to opt out at any time vs. entering into a 5-year purchase contract vs. making a one-time purchase of unbundled RECs.
- Other Considerations – for example, supporting generation from renewable facilities that may have broader system effects such as job, security, and reliability benefits. Some buyers may choose to support local renewable facilities or facilities in regions where the grid is considered to be more polluting.
- Cost – the cost of green power will vary based on all of the preferences listed above, as well as other factors.

Residential consumers may also find some of the information in the Guide to Purchasing Green Power useful when selecting a supply option despite the Guide being focused on non-residential consumers.