



CHAPTER

5

Using Organizational Goals to Guide Green Power Purchases

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



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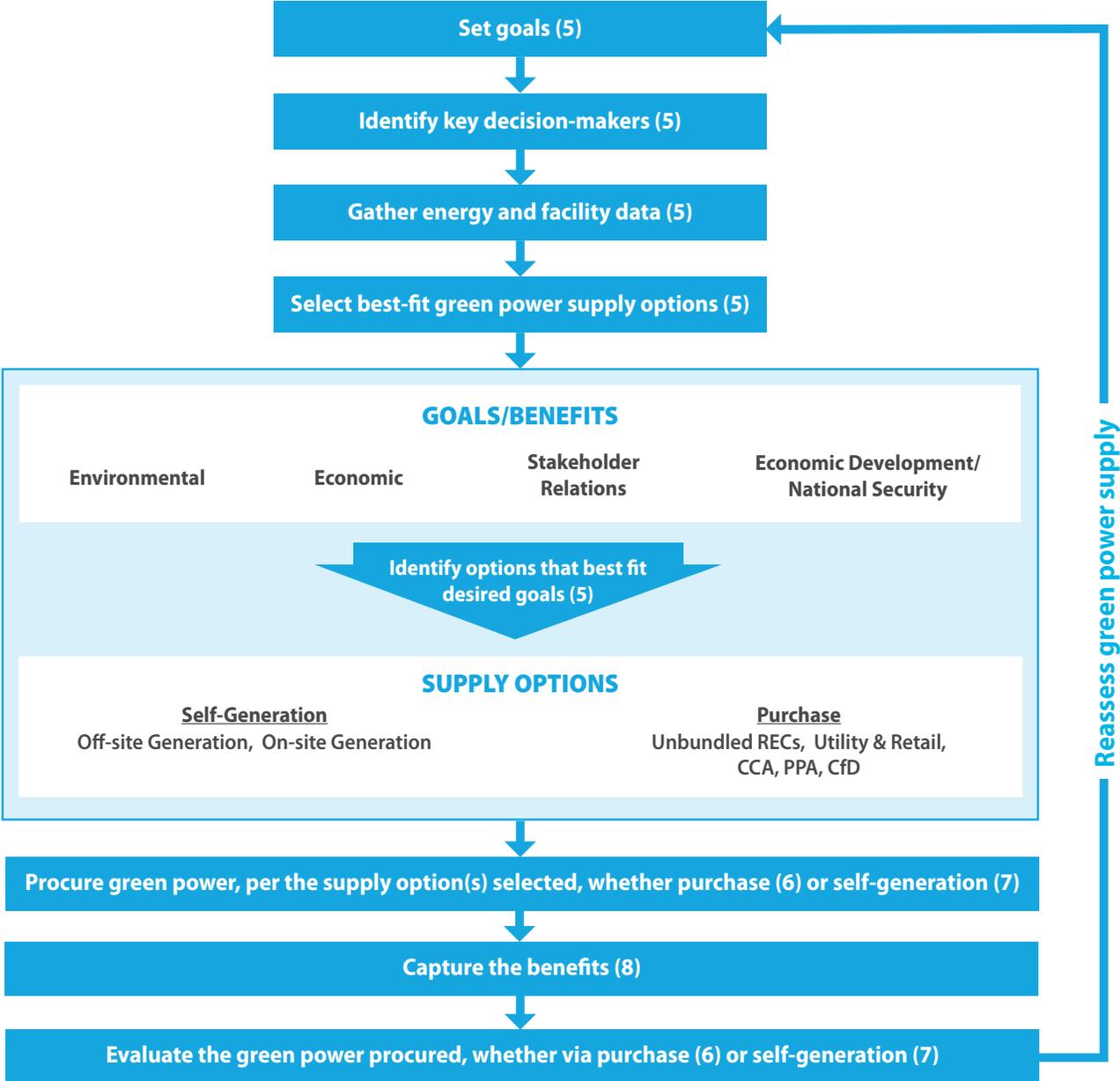
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Determining an organization’s renewable energy goals is the first step to selecting the appropriate green power supply option(s). Using key decision-makers’ goals to guide the process will help an organization successfully select a green power purchase. Gathering energy use data for each facility will help the organization understand the amount of renewable energy that must be purchased to meet its goals. Knowing each facility’s total energy use will also provide the basis to evaluate whether self-generation is a viable option. Once these steps are completed, an organization can develop a green power procurement strategy that aligns the available supply options with its goals. This process is illustrated in Figure 5-1 and further explained below.

Figure 5-1. Steps for Selecting Green Power Supply Options Based on Organization Goals



Note: Numbers in the figure refer to chapter numbers where more information can be found.

Setting Goals

Questions to consider

Clear goals are critical to purchasing the best-fit green power option, identifying metrics that will help evaluate progress and communicating a plan for green power within and outside an organization. At a minimum, the organization should consider the following questions when setting goals:

- Why is the organization considering purchasing green power? What does the organization hope to get from it?
- What selection criteria are important to the organization?
- Does the organization have significant experience and expertise with energy procurement and management, or is it a passive electricity consumer looking to choose a unique energy product and provider for the first time?
- What selection criteria are most important (e.g. visibility, resource type, independent certification and verification, low cost and low involvement)?

Motivation of organization and types of goals

An organization's goals will be driven by its motivations for purchasing green power. The questions above will serve to bring management objectives and stakeholder inputs into the process of establishing an organization's overall energy and environmental goals. Some examples of goals are shown below:

- Achieve 100 percent green power use by 2030. Reduce emission footprint by 50 percent by 2020.
- Supply 50 percent of electricity use from on-site generation and the remainder from green power purchases.
- Add 10 megawatts of new green power capacity to serve electricity needs.
- Lower electricity costs by 10 percent compared to 2017 baseline, by 2025.
- Mitigate purchased electricity price increases.
- Hedge against electricity price volatility (if exposed to the wholesale market).
- Establish predictable electricity cost budgets through 2030.
- Increase reliability and security of supply for specific facilities or processes.
- Build brand recognition for specific products that can be marketed as "Made with Renewable Energy."
- Increase shareholder satisfaction by reducing emission risk or liability.
- Take visible actions in the community to demonstrate civic leadership and environmental commitment.
- Qualify as part of a green supply chain serving a larger business.

These sample energy and environmental goals fit into the four broad categories of green power benefits highlighted earlier in Chapter 3: environmental, economic, stakeholder relations and development of domestic energy resources.

Once the organization's goals are established, it is important that the organization document and communicate them to the public. These actions will help the organization ensure that there is internal agreement and awareness of the main motivations for purchasing green power, inform stakeholders (customers, business associates and the local community) of the organization's objectives, provide justification the organization can use to support its pursuit of green power as time passes, evaluate progress toward achieving green power goals, and adapt those goals over time. Organizations that clearly document and communicate these goals inspire and sustain the structural change that is needed to achieve those goals. Those goals and motivations will ultimately inform which green power supply option (see Chapter 4) is best.

Identifying Key Decision-Makers

The organization must identify key decision-makers who can approve the purchase of green power on a sustained basis over time, as well as the implementers who will assess the gathered energy, facility and energy market data to identify feasible options and obtain support from the organization and its stakeholders for green power purchases.

Importance of having a champion

The people in an organization who are interested in green power may be high-level decision-makers (such as senior C-level executives) as well as staff from departments such as the following:

- Purchasing
- Facilities/energy management
- Environmental health and safety
- Legal
- Corporate relations
- Marketing

A high-level green power champion is often critical to achieving green power goals, particularly because these decisions stretch across departments. This champion can help align the interests of the other key decision-makers and garner support from other important stakeholders.

Knowing key decision-makers

All of the interests and concerns of key decision-makers must be addressed early in the planning process. Not doing so may lead to disagreements later in the process. The list below identifies potentially influential C-level executives who may need to be involved in the decision to purchase green power.

- Chief Executive Officer (CEO) – The CEO is the integrator of the organization’s growth, management and environmental objectives, and a key decision maker in approving green power purchasing options.
- Chief Financial Officer (CFO) – Because buying green power is ultimately a financial decision, it is important to have the CFO involved in and supportive of the decision.
- Chief Operating Officer (COO) – The COO may have overall responsibility for assessing the organization’s emissions footprint and for determining the feasibility of different green power options, including whether to purchase or self-generate.
- Chief Marketing Officer (CMO) – The CMO leverages the green power activities of the organization to build the brand or the relationship with key target stakeholders.
- Chief Commercial Officer (CCO) – The CCO aligns green power procurement with the organization’s commercial strategy and development.
- Chief Sustainability Officer (CSO) – The CSO is often charged with driving the environmental business actions of the organization and often possesses the decision-making power to move green power decisions forward

In addition, other departments may also be involved with the purchase of green power if such a decision aligns with their responsibilities. Facilities/energy management staff might be interested in how procuring green power could improve the efficient operation of facilities. Human resources might be interested in corporate sustainability efforts that may boost employee morale or attract better talent. Sustainability officers naturally have an interest in environ-

mental beneficial purchases. In some cases, all else being equal, decision makers will support green power if they can be convinced that it will not have a detrimental impact on their responsibilities.

Strategies for coordination with key decision-makers

Designating a contact person who can draw on experts from throughout the organization is an important step. Additionally, this primary contact can form and lead a cross-functional team to develop and implement a green power plan. The departments that are ultimately chosen to participate will depend on the type of green power supply options being considered. However, all departments that are relevant to the green power purchase decision should be identified and consulted early in the process. It also is important to involve senior management in planning and decision-making. Some organizations further involve their employees (or students, in the case of educational institutions) in selecting green power products.

A simple matrix like the one shown in Table 5-1 below is a useful tool for identifying high-level staff who have the most influence on an organization’s decision to purchase green power. As Table 5-1 shows, gauging each stakeholder’s level of interest and relative influence within the organization helps determine who must be on board with the decision. A stakeholder’s influence within the organization can come in many forms: ability to influence or make a purchasing decision, to implement the purchase after it is made, to unlock financial and staff resources, and to evaluate legal and financial risks. Those that have high interest and high influence will need more frequent updates and consultations on progress towards the goal.

Table 5-1. Matrix for Internal Stakeholder Analysis

	Level of Interest: Low	Level of Interest: High
Level of Influence: Low	Monitor (Minimal Effort) e.g., Human Resources, CCO	Keep Informed (Supporters) e.g., COO, Facilities Mgt., Environmental Compliance
Level of Influence: High	Keep Satisfied (High Effort) e.g., CFO, CMO, Legal, Board Members	Key Players (Champions) e.g., CEO, Sustainability Officers

Note: Assignment of individual decision-makers to different quadrants in Table 5-1 may vary depending on organization and leadership structure.

Gathering Energy and Facility Data

Obtaining reliable energy use data is important for developing goal metrics since total energy use is the denominator of any “percent green power” goal. Gathering energy use data is also a good way to focus attention on energy management and opportunities for efficiency. Gathering energy and facility data is important whether the organization is interested in purchasing green power or pursuing on-site or off-site self-generation.

Evaluating facility opportunities

Organizations may wish to organize data on renewable energy possibilities by building. As a preliminary step, organizations considering on-site generation can conduct a renewable energy survey of their properties to consider the following:

- Do the buildings have flat roofs or south-facing roofs with good solar access?
- Is the site windy enough to consider on-site wind, and is there enough acreage to install it?
- Are there other unique renewable energy opportunities either on or adjacent to the site (e.g., a sustainable source of methane gas that could be converted to energy, or feedstock for biogas digester)?

Later, these opportunities can be evaluated more rigorously if self-generation is consistent with the organization's goals.

Electricity use data collection

The organization should measure its facilities' energy use, including electricity and thermal, over at least the last two years to make an informed decision about its supply options. Annual electricity use can be calculated from the utility bills for each facility or business unit and for the entire organization. These data will help:

1. Evaluate the organization's energy performance and compare to local, state and national level energy use patterns and trends.
2. Determine the amount of green power that must be purchased or self-generated to match the organization's goals.
3. Evaluate the environmental impacts (e.g., GHG emissions) of the organization's current electricity use.¹

The ENERGY STAR Portfolio Manager[®] tool can aid in comparing the organization's building energy usage with that of similar buildings nationwide while normalizing for other variables that influence energy use patterns.² Portfolio Manager also allows users to track electric demand, which is an important financial consideration and one that may guide the choice of a green power product. Portfolio Manager also facilitates the tracking of green power use allocated across a building portfolio.

Each organization should study its energy consumption data from the past few years, to evaluate variation and patterns in energy consumption on a seasonal, monthly and daily basis. Adjustments should be made for known acquisition or divestiture of assets. Monthly electricity consumption data are the most important, while peak demand and interval-meter data, if available, are useful in interpreting demand charges and tracking variation in energy usage with time. These detailed data can also help with selecting green power options that have the desired impact on the organization's energy use patterns.

Building ownership status

An organization's ownership of its building or facilities may also have implications for electricity use data collection. An organization that does not own or operate its building may pay for its electricity as part of an aggregate leasing cost and may not receive a separate bill. In such cases, the organization would need to estimate its electricity use by

¹For guidance on how to conduct a GHG emissions inventory, see: Greenhouse Gas Protocol, A Corporate Accounting and Reporting Standard. World Resources Institute and World Business Council for Sustainable Development, March 2004. Available at <http://www.ghgprotocol.org/standards/corporate-standard>. Also Greenhouse Gas Protocol, Scope 2 Guidance. World Resources Institute, 2015. Available at http://www.ghgprotocol.org/scope_2_guidance.

²ENERGY STAR. (n.d.). Use Portfolio Manager. Retrieved from <https://www.energystar.gov/buildings/facility-owners-and-managers/existing-buildings/use-portfolio-manager>

calculating the floor area of the facility in question and applying a national average electricity intensity use factor on a kilowatt-hour per square foot basis for that particular building type. A best practice is to be transparent about how the organization calculates electricity use when actual consumption figures are unavailable.

Case Study: Riding in the Slipstream of a Bigger Deal

Large corporations are leading the charge in direct renewable electricity purchasing, but medium-sized firms can benefit from power purchase agreements (PPAs) as well. Tech giant Amazon.com contracted to purchase about 90 percent of a new 253-MW wind farm in Texas. This was followed by Boston data storage firm Iron Mountain Inc., which contracted with the wind farm for the remaining 10 percent of output, sufficient to power all of its Texas operations—more than 75 facilities in total—as well as operations across additional states, providing long-term rate stability and allowing Iron Mountain to save \$1.5 million annually. The purchase will cover about 30 percent of Iron Mountain’s North American electricity footprint.

Other data collection considerations

Other relevant information to collect may include a general assessment of the energy market in which the organization operates, the organization’s existing energy efficiency and sustainability efforts, and available resources. For example:

- Existing energy consumption and cost reduction objectives, and their effects on the procurement strategy for green power.
- Resources (time, staff, financial) that can be set aside for procuring green power, both in the short and long term.
- Electricity cost and rate information where the organization’s facilities are located.
- Whether the organization operates facilities in a regulated or restructured energy market.
- Available incentives for self-generation, such as state or utility financial incentives. To identify available incentives, consult the Database of State Incentives for Renewables and Efficiency at <http://www.dsireusa.org>.

Choosing Green Power Options

Using goals to guide supply option choices

The next step is to determine the green power solutions that meet the organization’s goals, factoring in the preferences of key decision-makers along with the energy use and other gathered data. For example, an organization that wants to manage fuel price risk might be more interested in entering into a physical or financial power purchase agreement (PPA). An organization that finds the reliability of its power supply to be most important might be more interested in on-site renewable generation coupled with storage. Likewise, organizations with facilities in multiple locations must determine whether to procure green power from one supplier for all of their operations, or whether to procure green power from different suppliers for each site based on a unique green power supply option that might be available to only specific sites. Selecting just one supplier tends to minimize transaction costs and the complexity associated with multiple contracts, while selecting a unique supplier for each site might maximize utility bill savings if some sites have access to less expensive green power products than others.

All green power product options are covered in more detail in Chapter 4. The section below identifies how well each green power supply option generally aligns with common organizational goals. It is important to note that ownership of renewable energy certificates (RECs) is required to substantiate an organization’s environmental claims regardless

of the green power product option selected. Also, each option may be structured or designed differently to provide different benefits and have different impacts. Shared renewables may be offered in several different purchase options.

- **Self-generation options.** The initial high capital expenditure for self-generation is often recovered over the green power project's lifetime by avoided utility electricity costs, avoided purchases of RECs and financial incentives offered by utilities and government agencies. Self-generation can also serve as a financial hedge against rising electricity prices and volatile REC prices as self-generation locks the generator into a known electricity and REC cost over the life of the project.
 - » **On-site generation.** Due to siting constraints, most on-site self-generation options are limited to solar photovoltaics and, in a few cases, biomass or wind. On-site green power generation can provide a visual demonstration of an organization's commitment to achieving environmental goals.
 - » **Off-site generation.** Off-site options can potentially meet the organization's goals more effectively as they may be able to scale and generate more power while encountering fewer constraints than on-site generation. Off-site options may also qualify for various state or federal financial incentives.
- **Purchase options.** If self-generation is not a viable option due to limitations such as resource siting, capital financing, human resources and technical expertise, organizations can meet their environmental goals by purchasing green power. The type of energy market (regulated or restructured) can also determine the green power product options available.
 - » **Unbundled RECs.** Unbundled RECs are the most prevalent and flexible product option used in the market. They are accessible to all organizations, as they avoid the challenges of siting, capital financing, complex transactions and technical expertise, but they add cost on top of electricity expenses since the organization is buying RECs in addition to paying for its conventional electricity use. Unbundled RECs can be sourced locally or nationwide, from a variety of different project types and sizes, from both new and older projects, and through long-term and short-term agreements. Purchasing an unbundled REC product that sources from a small group of local, new projects with a long-term purchase agreement may have similar environmental benefits to on-site self-generation or local PPA options.
 - » **Utility retail products.** Off-the-shelf products, such as fixed blocks of green power or percent-of-use choices, allow organizations to buy small to large quantities of green power at very low transactional costs, but as with unbundled RECs, usually add incremental cost on top of electricity expenses. Different utility products will be structured differently in terms of where projects are located, the size and types of projects used, the age of projects used, and the length of the purchase terms. Some utilities combine unbundled RECs with their own electricity service, essentially offering a credible green power option through a single billing.
 - » **Utility green tariffs.** Organizations can sometimes procure electricity and RECs through green tariffs, often referred to as a "sleeve" contract, through their utilities. Green tariffs in most cases offer a fixed price for green power, which provides predictability for budgeting, and may provide cost savings depending on the tariff negotiated. Green tariffs are available in a limited number of states at this time, but are the focus of continued interest by larger electricity consumers.
 - » **Community choice aggregation (CCA).** CCAs allow certain jurisdictions (such as a municipality or county jurisdictions) to aggregate electricity consumers and procure electricity on their behalf from suppliers other than the local utility. The purpose may be to offer electricity at a price lower than the local utility, or to offer a product with more green power than is available from the utility. CCAs can therefore provide economic benefits and environmental benefits at a very low transaction cost to organizations within the CCA jurisdiction. Although participation is easy, electricity consumers have little to no control over the type of supply secured by the CCA on their behalf (the same is true for utility retail product suppliers). The type of green power purchased by some CCAs can change frequently and may not meet national voluntary consumer quality standards. CCAs are currently authorized in only a few states.

- » **Physical PPAs.** Physical PPAs for green power convey RECs and deliver power to the purchaser, usually via the shared grid. PPAs are long-term contracts that provide price stability and, potentially, financial savings in some regions where conventional electricity prices are high. Substantial purchases may provide branding and marketing opportunities even though the renewable project is owned by someone else. Depending on the market where the facility receiving the green power is located, PPAs may be signed for both on-site and off-site generation options.
- » **Financial PPAs.** Financial PPAs enable organizations to enter into an agreement with a third party that combines a downside electricity price hedge with an unbundled REC contract. Financial PPAs (also known as virtual PPAs or contracts for differences) do not include the delivery of physical power to the electricity consumer. Similar to physical PPAs, financial PPAs provide potential dollar savings and branding opportunities for the purchasing organization.

Organizations may have multiple goals related to green power procurement, and there are usually multiple options available to satisfy these goals. Table 5-2 illustrates how the various options are likely to satisfy some typical organizational goals.

Table 5-2. Alignment of Options and Goals

	Goals/ Options	Environmental: Make green power claims; reduce emission foot- print	Economic: Mitigate electricity price rises; ensure predictable budget	Stakeholder relations: Respond to environmental con- cerns and interests	Direct or indirect impact on new supply	Considerations
Self-Generation	On-site	Yes; generates green power; must keep RECs	Yes; depends on the levelized cost of electricity over project life, project size relative to load	Yes; direct project involvement shows commitment; size matters for emissions footprint mitigation	Direct impact on new supply	Mostly solar; policy risk falls on owner; often net-metering dependent; size might not provide enough green power
	Off-site	Yes; generates green power; must keep RECs	Yes; ownership provides power sales revenue at market clearing price	Yes; branded renewable energy generators yield public awareness; larger projects offer greater benefits	Direct impact on new supply	Off-site may mean larger projects, which require Orgs. with access to capital and expertise; may require managing and integrating generation
	Shared Renewables	Yes, if RECs convey to participant	Yes; share of ownership provides power at known cost through bill credit	Maybe; RECs must be retired; often RECs do not convey to participants	May result in direct or indirect impact on new supply	Mostly solar; driven by state policy; may involve penalties for participant exit

	Goals/ Options	Environmental: Make green power claims; reduce emission foot- print	Economic: Mitigate electricity price rises; ensure predictable budget	Stakeholder relations: Respond to environmental con- cerns and interests	Direct or indirect impact on new supply	Considerations
Purchased Product Options	Unbundled RECs	Yes	No; REC purchases are in addition to electricity costs and require two separate billings	Yes, but may vary depending on stakeholder interests	Most often an indirect impact on new supply; depends on contract design	Easy to purchase larger amounts too; cost is often additional to electricity cost; can limit transaction costs and barriers to engagement
	Utility Supply	Yes; utility must retire RECs on consumers' behalf	No, for off-the-shelf products that charge green premium; involves a single billing.	Yes; may vary depending on stakeholder interests; RECs must be retired	Most often an indirect impact on new supply; depends on utility program design	Easy purchase; cost is additional to electricity cost.
	Utility Green Tariff	Yes, tariff must transfer to or retire RECs on customer's behalf	Yes, for green tariff, depends on negotiation	Yes; RECs must be retired on customer's behalf	May directly impact new supply	Green tariff is similar to PPA, but with utility rather than generator
	CCA	Yes; CCA must retire RECs on consumers' behalf	Varies depending on wholesale supply costs (market conditions)	Yes; RECs must be retired on customer's behalf	Generally, an indirect impact on new supply; depends on CCA design	Must take what CCA offers; limited flexibility
	Physical PPA	Yes; RECs must convey to consumer	Yes; depends on negotiated price	Yes; RECs must be included	Power purchase and REC contract offers a direct impact on new supply	Requires good credit rating, large load requirement, ability to agree to long-term contract
	Financial PPA	Yes; RECs must convey to consumer	Yes; depends on negotiated settlement price and wholesale-to-retail market correlation	Yes; RECs must be included	Financial PPA coupled with unbundled REC contract offers a direct impact on new supply	Requires deep understanding of wholesale markets and future price movements

