OUR RECOMMENDATIONS

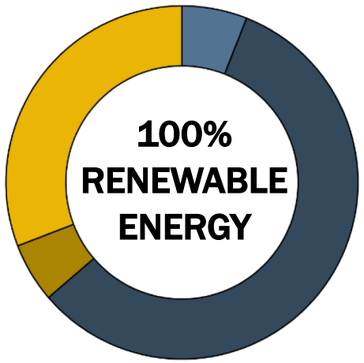
Our recommendations for all CBS facilities comprise of the following combination of renewable energy purchase options. These renewable energy options were recommended across the diverse profile of CBS facilities across the nation, which comprise of the following.

ON-SITE SOLAR: 6%

GREEN POWER PROGRAM: 56%

COMMUNITY SOLAR: 5%

VIRTUAL PPA: 33%



27 LOCATIONS

10 TRANSMITTERS

13 STATES

ESTIMATED SAVINGS

With the application of our standardized method for assessing renewable energy options and implementation of our recommendations above, CBS Corporation could expect to capture significant financial and environmental value in the range of:

AVOIDED COST FROM BUYING UNBUNDLED RECs — $100 THOUSAND+

If CBS were to purchase unbundled RECs to match 100% of their load, it could expect to pay over $100,000 in additional costs for going renewable.

ESTIMATED COST SAVINGS FROM RECOMMENDATIONS — $3 MILLION+

However, if CBS implemented our renewable energy purchase recommendations above, it could expect approximately over $3 million in financial savings from its electricity costs.

GREENHOUSE GAS EMISSIONS OFFSET — 60,000 TONS CO_2e

Finally, if CBS implemented our renewable energy recommendations above, it could expect to offset over 60,000 metric tons of carbon emissions, equivalent to taking over 13,000 cars off the road in one year.

ACKNOWLEDGMENTS

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PATHWAY TO 100% A CORPORATE RENEWABLE ENERGY PROCUREMENT STRATEGY

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Online at: https://www.cbseyeontheenvironment.com/cbs100-project

WHY RENEWABLE ENERGY?

Climate change is one of the most significant and defining issues faced by our planet today. Greenhouse gas emissions from the burning of fossil fuels are directly linked to climate change. Renewable energy, such as wind or solar, presents a key solution to climate change because it emits zero carbon emissions when producing electricity and there is an unlimited amount available for harnessing! Corporations are motivated to buy renewable energy to power their operations for the following three reasons.

DECLINING COSTS
Wind and solar technologies are becoming increasingly cost competitive with fossil fuels

STAKEHOLDER PRESSURE
Investors, consumers, and employees are demanding companies be more sustainable

INDUSTRY TRENDS
99% of all U.S. non-utility renewable energy purchases have been from corporations

THE PROBLEM

Corporations want to purchase renewable energy to reduce their environmental impact, create business value, and potentially save on electricity costs.

BUT PURCHASING RENEWABLE ENERGY IS A COMPLEX PROCESS!

WHY? There are numerous renewable energy purchase options, and there is no "one-size-fits-all" solution for all businesses. Also, the availability and implementation of renewable energy purchases is determined by many factors, including:

1. electricity regulations that differ on a state-by-state basis,
2. feasibility based on physical infrastructure or geographic location,
3. financial mechanism for purchasing renewable energy.

Furthermore, there are standards for how companies should purchase renewable electricity to have positive environmental and societal impacts. This means there are "good" and "bad" ways for a company to purchase renewable energy. Companies are under pressure to adhere to these standards in order to avoid public criticism.

OUR GOALS

1. **Develop a streamlined and standardized method for evaluating renewable energy purchase options for corporations.**
2. **Recommend the most cost-effective combination of renewable energy options that will increase the procurement of renewable energy for CBS facilities nationwide.**

ENERGY OPTIONS

The following four renewable energy purchase options are the most popular options among corporate renewable energy buyers. Thus, we evaluated implementation of these four options to match 100% of a company's electricity load.

ON-SITE SOLAR PHOTOVOLTAIC SYSTEM

Renewable power generation systems consisting of PV panels and auxiliary systems that supply electricity directly to the facility. Solar PV panels can be installed on the building's rooftop, parking lot cover, or ground area.

GREEN POWER PRODUCTS

Optional service products for customers to purchase renewable energy offered by their local utility or a third-party supplier. Green power products allow customers to buy RECs and physical electricity from the default utility.

COMMUNITY SOLAR PROGRAMS

Large, shared solar PV systems that are located away from the customer's facility. Customers of a community solar project would subscribe to a portion of the generation from the project to match their electricity demand.

VIRTUAL POWER PURCHASE AGREEMENT

Financial contracts between a customer and third-party developer where a customer agrees to purchase a project's renewable energy output and RECs at a fixed price, while the developer sells the energy to the wholesale market.

PRINCIPLES

We considered the following four principles when evaluating the implementation of each renewable energy option because of the financial, environmental, and reputational benefits they provide to a company.

ATTRIBUTION

Ability to claim the attributes of using renewable energy through renewable energy credits (RECs)

COST

Capital and operational costs of the project, measured in net present value (NPV)

PROXIMITY

Projects that will operate and deliver renewable energy on the same grid as the facility

ADDITIONALITY

Projects that have not yet been constructed and will add new renewable energy to the grid

OUR SOLUTION

In order to navigate the complex process of corporate renewable energy procurement, we developed a standardized three-step process for evaluating different energy options.

1 REGULATORY ASSESSMENT

There are many renewable energy regulations across states. Regulations govern how companies can sell on-site solar energy back to the grid, how much energy can be purchased from a community solar project, and types of utility green power programs available.

Example: Green Power Programs

States have either regulated or deregulated electricity markets. A regulated market means utilities control all aspects of energy generation, transmission, and distribution. Since the utility has control in a regulated market, a company likely has to purchase renewable energy from a utility green power program.

Map of Regulated and Deregulated States

Deregulated Energy Market (Blue)
Regulated Energy Market (White)

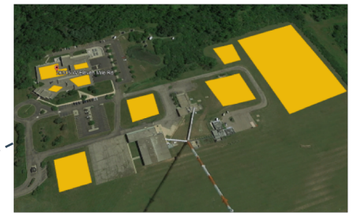
2 FEASIBILITY ASSESSMENT

The feasibility of renewable energy options vary across the U.S. because of (1) regional availability of intermittent renewable energy sources, (2) varying federal and state policies that enable or prohibit renewable energy development or procurement, and (3) numerous third-party renewable energy project developers who offer competitive contract prices.

Example: On-Site Assessment

After filtering out states without enabling state policies, each facility was assessed for their physical feasibility to host an array on their roof, ground space, or parking lot. Suitable host facilities were further assessed for their usable area, solar system size, and generation potential.

On-Site Roof and Ground Feasibility Assessment



$$\text{Specific Production} = \frac{\text{PVWatts Expected Production}}{\text{Max. System Size}}$$

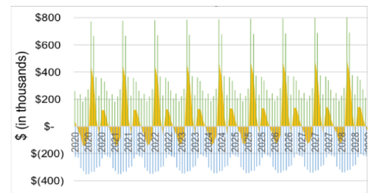
3 FINANCIAL ASSESSMENT

We modeled each procurement option's NPV to evaluate its financial profitability and first-year financial return per unit of procured energy to be used as the common metric to compare options. We recommend the option(s) that had the highest first-year net savings per unit energy for a facility.

Example: Virtual Power Purchase Agreement

To financially assess our simulated Virtual Power Purchase agreements, we developed a forecasted financial model displaying term cash flows. To do this, we had to compare the hourly difference between projected wholesale market prices and the fixed contract price over a period of time.

Forecasted Cash Flow for a Simulated VPPA Project



$$\text{Net Present Value} = \sum_{t=0}^{\text{time period}} \frac{\text{Cash flow}}{(1+\text{discount rate})^{\text{time period}}}$$