



Guide to Green Energy Adoption for Transit Agencies

WHAT IS GREEN ENERGY?

Green energy is defined by the Environmental Protection Agency as, “electricity supplied from a subset of renewable resources that provide the highest environmental benefit...Green power generally does not include some resources that are often considered as renewable energy including large hydropower and municipal solid waste” (EPA, 2020).

- **Solar** — One of the most common forms of green energy production and is already in use by many transit agencies.
- **Wind** — Often installed at large scale by utilities, but smaller installations could be an option for transit agencies with access to adequate wind resources, such as those in some rural areas.
- **Biomass** — Agencies in areas with a sufficient source of local biomass, such as wood pellets, agricultural residues, or animal manure fuel can consider biomass electricity.
- **Geothermal & Low-Impact Hydropower** — These energy resources are location dependent and may not be widely available to transit agencies.

Solar and wind will likely be the most applicable green energy sources for most transit agencies. But agencies in locations with access to biomass, geothermal, or low-impact hydropower should explore those options as well.

WHY IS GREEN ENERGY IMPORTANT FOR TRANSIT AGENCIES?

ZERO EMISSIONS FROM “WELL-TO-WHEEL”

Powering transit operations with green energy ensures that zero-emission vehicles not only eliminate tailpipe emissions, but emissions associated with the production of vehicle fuel.

CHARGING & ENERGY MANAGEMENT

Transitioning to zero-emission vehicles often results in increased electricity consumption, especially for battery electric buses. In some cases, adopting green energy can provide more insight and control over energy use related to vehicle charging and facility energy consumption.

MICROGRID OPTIONS

On-site green energy can be an integral part of microgrid operations for transit agencies and can provide enhanced resilience with green energy sources.

Total U.S. Greenhouse Gas Emissions by Economic Sector, 2018

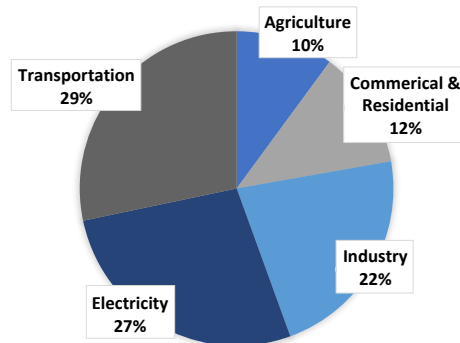


Figure 1: The transportation and electricity sectors produce the most greenhouse gas emissions in the United States (EPA)

OBTAINING GREEN ENERGY FOR TRANSIT OPERATIONS

ON-SITE ENERGY GENERATION

Energy generation infrastructure is installed at a transit agency facility, and power is produced at or near the site of consumption. Many on-site energy systems are considered “behind-the-meter”, or on the customer side of the utility meter. See the *Green Energy Guide* for more information on the challenges and opportunities presented by on-site green energy installations.

UTILITY PROGRAMS

The easiest place to start exploring green energy procurement options is exploring what your local electric utility or electric provider offers. Common utility green power offerings are:

Green Tariffs: Programs that offer commercial and industrial customers, like transit agencies, the option to buy green energy under a special utility tariff rate.

Green Power Products: Shorter-term programs through which customers pay a cost premium on their utility bill to support the supply of electricity from a mix of renewable or green energy sources.



ENERGY-AS-A-SERVICE

Energy as-a-service (EaaS) is the catch-all term for a category of business models that can provide green power to customers beyond what the local utility might offer. Green energy project developers can build and operate energy infrastructure and sell the power to a transit agency under various contractual terms. Typical EaaS models that transit agencies may be interested in are **solar leasing**, **community solar**, and **power purchase agreements**. For more details on these green energy procurement options, check out the *Green Energy Guide*.

ABOUT N-CATT

N-CATT provides small-urban, rural and tribal transit agencies with practical, replicable, resources that help them apply technological solutions and innovations. Access this white paper and other resources from N-CATT's website at n-catt.org



The Center for Transportation and the Environment developed this factsheet and the corresponding white paper for N-CATT. For more information on or questions about ZEV deployments, contact us at www.cte.tv



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