



Green EVs: *Pairing electric vehicles with renewable energy*

I. The Initiative

Center for Resource Solutions (CRS) is working to promote renewable energy as the way to make electric vehicles truly emissions free (www.resource-solutions.org/ev). Instead of being powered by undifferentiated electricity from the grid, which derives nearly half its generation from coal on average nationwide, electric vehicles can easily use renewable energy instead.

There are a number of ways this could happen:

1. **EV owners can buy clean energy** from their local electricity provider if a program is available, or they can buy renewable energy certificates for 100 percent of the electricity used by the car on an ongoing (generally monthly or annually) basis.
2. **EV manufacturers can offer clean energy to new-car owners.** This could take the form of a long-term contract at purchase time, a standard "feature" of the new car, or manufacturers could act as resellers and offer a branded green-power product to EV owners monthly or annually.
3. **Municipal and other EV fleet owners can enter into a contract** for a local utility green-pricing program or purchase renewable energy certificates.
4. **Charging station owners can purchase renewable energy** for all electricity used by the stations' customers. This is one way charging stations can differentiate themselves—by buying renewable energy, a charging station can offer a cleaner mix than its competitors, even if they are in the same building or adjoining stalls.
5. **Rental car agencies can offer a "clean energy upgrade"** to customers who rent EVs or offer it with the standard rental contract.
6. **Car-sharing companies** can offer a clean-energy option to their members.
7. **EV support organizations** such as owners' groups, service stations, dealers, or mapping services could create the ability to have centralized renewable energy purchasing for actual electricity

used based on the car's own data, or mapping services could display the "shade of green" of the charging stations nearby, for example.

II. Buying Renewable Energy

Renewable energy is available anywhere, regardless of whether your utility offers it or not, through renewable energy certificates. There are a few ways to buy it:

- **Utility Green Pricing Programs and Competitive Electricity Products.** Many utilities and power providers offer an opt-in program for residential and commercial customers to get a cleaner mix of electricity, usually for an additional fee.
- **Renewable Energy Certificates (RECs).** RECs are created when a megawatt-hour of renewable electricity is generated, and embody all the "renewableness" of the underlying electricity. The owner of the REC is matching it with a megawatt-hour of regular "brown power" out of their outlet, and it is considered renewable electricity. RECs are bought and sold nationwide, and accounting for them in electronic tracking systems is sophisticated and accepted (*see chart, Renewable Energy Tracking Systems*).

III. Opportunities for the EV Industry

As long as a REC is retired for every megawatt-hour (1,000 kWh) of electricity used by an EV, that EV is powered by renewable energy. Using RECs to green your power is supported by CRS, the U.S. EPA and the U.S. Department of Energy, and the many states that have renewable energy portfolio standards. The car can be located anywhere, and the RECs can be sourced from any renewable resource type located on the U.S. power grid. With Green-e Energy certification, EV owners who purchase renewable energy and RECs receive high-quality new renewables that meet the *Green-e Energy Standard* and are third-party verified (*see www.green-e.org/find for a list of providers*). The transaction can be done completely electronically.

Your Electricity Mix

Nationwide, electricity generation on average is about 43% coal, 21% natural gas, 20% nuclear, and only about 10% comes from clean power. To find out the electricity mix in your area, including emissions per MWh of major pollutants from your electricity provider, see the [EPA Power Profiler](#).

If you'd like to learn more about this initiative or become a partner, contact Jeff Swenerton at 415-561-2119 or jeff@resource-solutions.org.