

# Harvesting electricity from the greenhouse gas carbon dioxide

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A new method for producing electricity from carbon dioxide could be the start of a classic trash-to-treasure story for the troublesome greenhouse gas, scientists are reporting. Described in an article in ACS' journal *Environmental Science & Technology Letters*, the method uses CO<sub>2</sub> from electric power plant and other smokestacks as the raw material for making electricity.

Bert Hamelers, Ph.D., and colleagues explain that electric power-generating stations worldwide release about 12 billion tons of CO<sub>2</sub> annually from combustion of coal, oil and natural gas. Home and commercial heating produces another 11 billion tons. Smokestack gas from a typical coal-fired plant contains about 10 percent CO<sub>2</sub>, which not only goes to waste, but is a key contributor to global warming. Hamelers' team sought a way to change that trash into a treasure.

They describe technology that would react the CO<sub>2</sub> with water or other liquids and, with further processing, produce a flow of electrons that make up electric current. It could produce about 1,570 kilowatts of additional electricity annually if used to harvest CO<sub>2</sub> from power plants, industry and residences. That's about 400 times the annual electrical output of the Hoover Dam. Like that dam and other hydroelectric power facilities, that massive additional amount of [electricity](#) would be produced without adding more CO<sub>2</sub> to the atmosphere, Hamelers pointed out.

**More information:** [DOI: 10.1021/ez4000059](https://doi.org/10.1021/ez4000059)

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