

Federal \$\$ for W-WWTP Microgrids

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What are Microgrids?



Microgrids are localized grids, installed redundantly with grid infrastructure, that can disconnect from the traditional grid to power water and wastewater plants and other city-owned facilities, and operate autonomously during outages. They can strengthen grid resilience and help mitigate grid disturbances as well as function as a grid resource for faster system response and recovery.

What are Microgrids?



Combining a city's hookups, including water and wastewater plants, with a utility would allow a city-owned resiliency hub with battery backup and solar panels. When the grid is operating, it would allow the city to produce a lot of power to replace utility kilowatt hours. When there is a disaster, you could separate from the grid and supply electricity for essential services.

What are Microgrids?



The Energy Act of 2020 establishes a Department of Energy storage and microgrid grant and technical assistance program to help rural electric cooperatives and public utilities design energy storage and microgrid projects that use renewable energy.

What are Microgrids?



What are Microgrids?



Greenhouse Gas Reduction Fund



**Greenhouse Gas Reduction Fund
as part of the Inflation Reduction
Act has \$27 Billion dollars in 3
categories.**

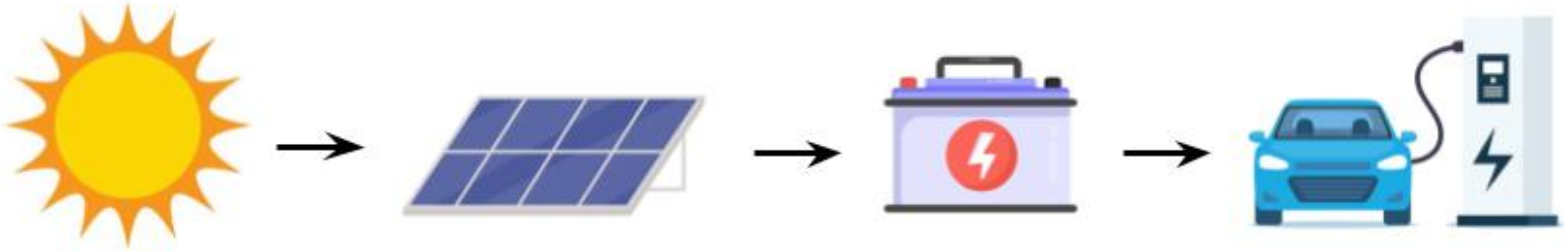
Greenhouse Gas Reduction Fund



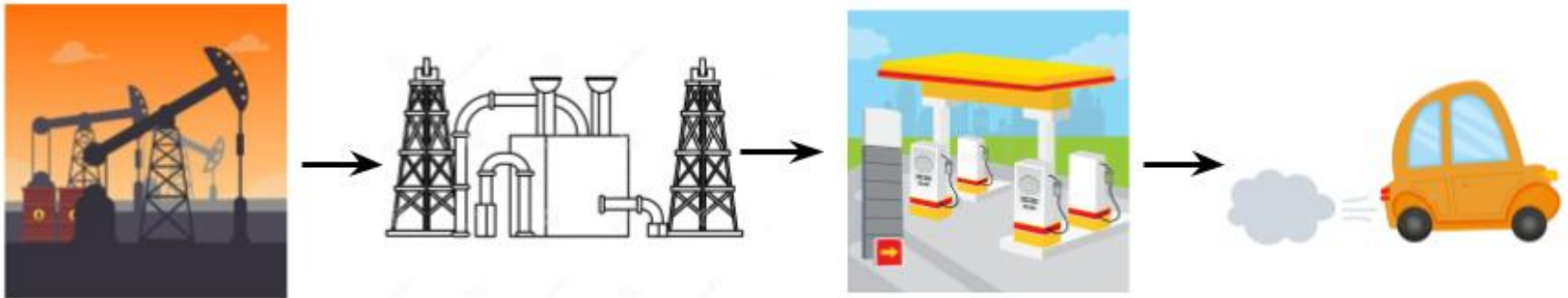
EPA releases framework for the implementation of the Greenhouse Gas Reduction Fund. EPA will hold three complementary grant competitions to invest \$27 billion: the \$14 billion National Clean Investment Fund, the \$6 billion Clean Communities Investment Accelerator competition, and the \$7 billion Solar for All competition. The EPA expects to open competitions for funding by summer 2023. It seems Iowa would fit all three categories.

Greenhouse Gas Reduction Fund

Solar Microgrid



Fossil Fuels



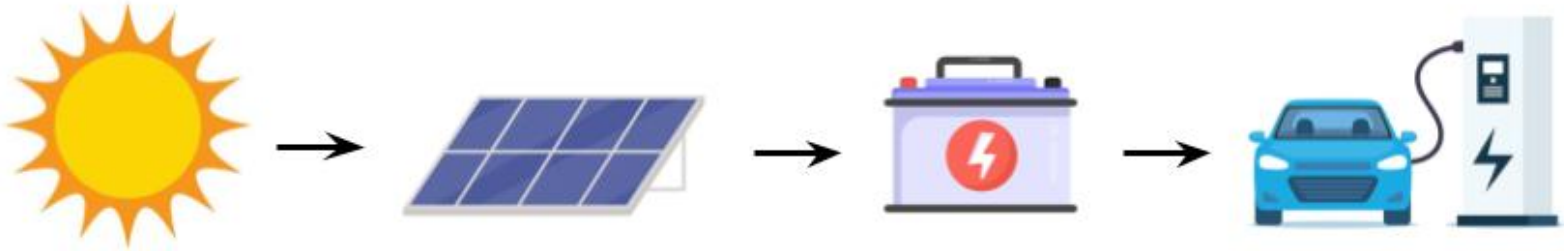
Ways GHG Fund Helps



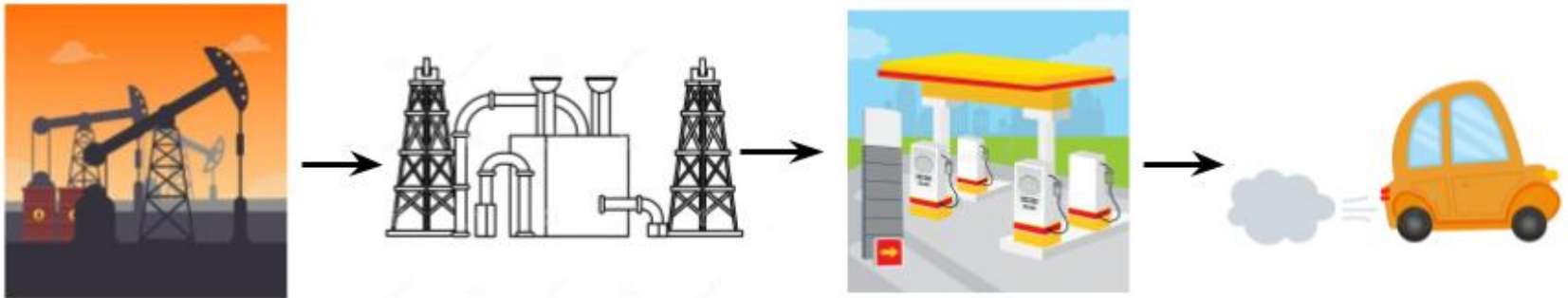
- 1. Helps the US go from fossil fuels to solar (renewable) electric energy.**
- 2. Helps eliminate greenhouse gas pollution from fossil fuels.**
- 3. Helps better production: Costs go down as equipment costs go down as more are manufactured.**
- 4. Helps if the grid goes down. Microgrids can keep water and wastewater plants running, making sure we have safe drinking water, and that we can continue to have treated wastewater going into our rivers.**
- 5. Helps keep other city-wide critical infrastructure going if part of a city-wide microgrid.**

Greenhouse Gas Reduction Fund

Solar Microgrid



Fossil Fuels



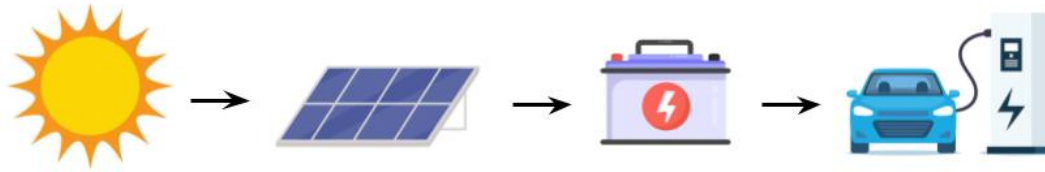
Greenhouse Gas Reduction Fund

You may remember a few years ago I did a presentation on putting solar panels at wastewater plants to help with energy costs. The problem that stunted those efforts was the peak demand costs that utilities charged plants. To offset the reduced electricity that plants were using because of having solar production, utilities changed the peak demand costs. Plants ended up using less grid electricity, but paid the same monthly energy costs. There was no financial gain from putting in solar.

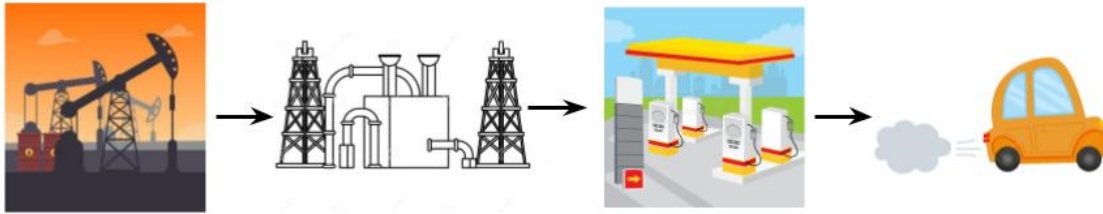


Greenhouse Gas Reduction Fund

Solar Microgrid



Fossil Fuels



Storage batteries can be programmed to provide electricity during peak demand times so you do not need more grid electricity during those times eliminating peak demand costs. Costs of batteries are offset by the GHG Reduction Fund.

GHG Funding



Gresham, CA, WWTP

As the EPA was not directly funding the projects, the EPA offered each state \$3 million to set up programs/entities in the state that would handle the competitive grant proposals and disburse the money to the proposals that won the competition. As I said, Iowa could put in proposals in each category of the \$27 billion available.

How many of you think your city might want to be part of the competition for this money? How much money do you think Iowa might get from this \$27 billion?

GHG Funding

\$ ZERO

Dollars

GHG Funding

... Because Governor Reynolds and Iowa Finance Authority Director Debi Durham joined Florida, Kentucky and South Dakota in “declining” the \$3 million federal dollars to set up the GHG funding program, Iowa will get no part of the \$27 billion dollar GHG Reduction Fund. Or, any of the other federal funds that this money could leverage.

You can kiss this dream goodbye.

Elections matter.

GHG Funding



Des Moines, Cedar Rapids, and Iowa City, as large cities, each requested \$1 million dollars from this GHG Fund. But, ALL of Rural Iowa, which has the least money and the most needs, has been left out of this competition by our Governor.

Future

Not wanting to leave you on a down note knowing what water and wastewater plants in other states will be able to do with this money, I want to discuss a new energy technology that Honda of Japan has produced that will make this inability to access this money a little less painful.

Future

You know that Honda builds hydrogen-powered cars. They have a new system, the circulative renewable energy system, which combines Honda's original high differential pressure water electrolysis system and a fuel cell system, which continuously produces oxygen, hydrogen and electricity from solar energy and water. The high differential pressure water electrolysis system uses electricity generated from solar power during the daytime and electrolyzes water to produce oxygen and hydrogen which will be stored in tanks. During the night, the fuel cell system uses the stored hydrogen to generate electricity.

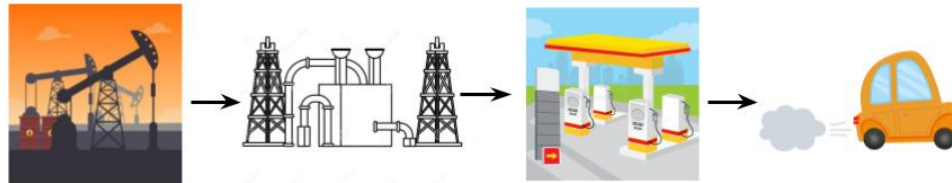
I have heard that Honda put this system in a car and the car ran 600 miles on a tank of water. There is a bright future if we can just get there in time.

Questions & Comments

Solar Microgrid



Fossil Fuels



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