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Green Power of Innovation and Cooperation



Welcome to the final edition of our *Making Every Day Earth Day* series, in which we present a variety of inspiring, fascinating, and jaw-dropping examples of innovation and cooperation toward a just, sustainable, and renewable energy-fueled future.

From local efforts to organize communities and businesses toward self-sufficiency and sustainability to wholesale terraforming of entire regions, renewable energy is enabling opportunity everywhere. The amount of effort and passion currently being unleashed in the sector is astonishing, and often lacking from our mainstream media sources.

This edition seeks to address that oversight, celebrating just a fraction of the fine work being done all around the world. It's our hope that the following examples can provide some much-needed hope and inspiration to you all.

SunSmart Community Solar Project

SunSmart is the first community solar farm in Ames, Iowa. The recently opened 2 MW solar farm has more than 800 different Ames Electric Services customers invested in it and is currently delivering electricity to the grid.

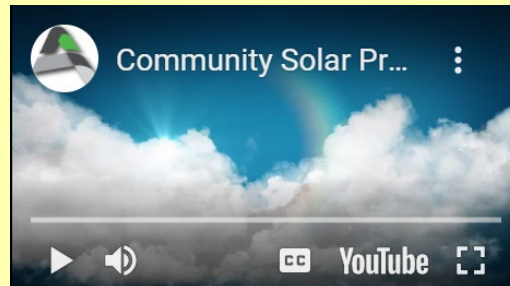
Shares in the solar farm are called "Power Packs," each representing 175W of generating capacity. They cost \$300 apiece and are expected to yield a return on investment within 16-18 years through monthly electricity bill credits.

Power Packs are also transferable: they can be applied to a new home within the Ames Electric Services utility territory, be donated or sold to another customer, remain with the home should the owner move outside the service territory, or be sold back to the utility.

Over the 20-year customer contract, a single Power Pack is expected to reduce CO2 emissions by about five tons. In total, the SunSmart Ames solar farm output could be responsible for saving about 57,000 tons of CO2.

“One of the aspects of this project that I love is how so many people came together to make it happen. Getting the farm started was a grassroots effort of committed Ames Electric customers who wanted to add to our renewable energy portfolio.”

– [Kayley Barrios Lain](#), Energy Services Coordinator, City of Ames (April 2021)



Various organizations and governmental entities have participated in the design and development of the [SunSmart Community Solar Project](#). These collaborations include ecosystem restoration: the Parks and Recreation Department helped plant native shrubs from the Iowa State Forest Nursery around the farm to provide habitat for local wildlife.

Additionally, the [Bee and Butterfly Habitat Fund](#) has designed a seed mixture to support local pollinator species. The seed mixture is to be planted at the solar farm this autumn. Following a three-year establishment period, SunSmart plans to have sheep primarily controlling vegetation on the farm.

Sunrise Movement Against Greenwashing

Earlier this month, the Iowa City SunRise Movement organized a community picnic and banner drop to launch their campaign for the University of Iowa (UI) to achieve carbon neutrality by 2030. This campaign responds to UI's extensive greenwashing of its energy production and consumption that primarily portrays the "sustainability" of its energy sources in terms of dependability (e.g. renewable supply) rather than eco-friendliness.

UI's Facilities Management's renewable energy strategy is to transition away from burning coal by 2025. As described in the [renewable energy](#) portion of their website, UI has "implemented an innovative and sustainable strategy to transition off coal while focusing on providing reliable energy to the campus, research facilities, and the University of Iowa Hospitals and Clinics."



Members and allies of the SunRise Movement see UI's efforts as woefully insufficient. While UI's use of biofuels and the burning of pellets derived from non-recyclable trash may be a sustainable energy source *for the university*, they are far from environmentally-friendly. The burning of any organic substance pollutes the environment and negatively impacts human health.

You can support this campaign for UI to live up to its stated principles of valuing health and doing its part to prevent climate change by signing this petition: "[UI Should Be Carbon Neutral by 2030](#)." SunRise Iowa City will present the petition with its signees to

the University of Iowa administration as "evidence of community support for a climate plan that is recent, adheres to science, and acknowledges the urgency of this issue." It also calls on UI to "immediately begin the necessary research and infrastructure construction to be carbon neutral by 2030."

Energy Districts: The Power of Local

In 2010, the first Energy District in the nation was established by Winneshiek County, Iowa residents. Energy Districts are local institutions that lead, implement, and accelerate a locally-owned, inclusive, clean energy transition. The principle strategies include energy planning, market transformation, public engagement, advocacy, and readiness.

Their Energy District “universal local” model is based on the Soil and Water Conservation District (SWCD) approach of FDR’s New Deal. In this model, state and federal agencies collaborated with local leaders and partners in every county.

Nine additional counties across Iowa have adopted the Energy District’s grassroots approach to action, and more are in the works. While Winneshiek County has been leading the network growth to date, an association of Energy Districts will be the next step. The aim is to spread the universal local Energy District model across the state and nationwide.

The Winneshiek County Energy District has been a sponsor of Green Iowa AmeriCorps (GIA) since 2010. Their teams do basic home energy upgrades, especially for lower-income, elderly, disabled, and veteran households. Their outreach and education program highlights the importance of energy conservation and how collective change in energy use habits benefits the entire community. Their activities range from hosting “do-it-yourself” workshops to educating preschoolers.

The following are among other Winneshiek County Energy District’s achievements:

- Helped install over 350 locally-owned solar systems in Winneshiek County, representing more than \$18 million invested.
- A rate of solar adoption ten times the Iowa per capita average and one of the highest adoption rates in the nation.
- Provided technical assistance and energy planning services for hundreds of farms and businesses.
- Created a first local carbon offset program in the Midwest, called Oneota Tags, allowing local investment in locally-owned clean energy.
- Hosted and participated in countless education events, advocacy missions, and lobbying efforts.
- Helped build a stronger, more resilient, and more connected community.

Greening the Kubuqi Desert



While the above examples show what communities can do when they work together, some projects are so large and ambitious that state support is needed. One such project is the Kubuqi Ecological Restoration Project in China. Covering almost 20,000 square kilometers and home to around 750,000 people, the land had long been stripped of vegetation by grazing, and desertification was a growing problem. Yet now, three decades after work first began to step the dunes, plant trees, and replace nutrients, one-third of the desert is no more, replaced instead by trees and grasslands.

A huge contributor to this greening process has been China’s largest solar farm, consisting of over 600,000 panels that provide enough shade and water (when they are cleaned) to turn desert into grassland. This allows for the return of livestock, which replenishes nutrients in the soil, which allows for greater biodiversity and variety of crops, which then creates sustainable livelihoods. It’s a proof of concept that should redraw the boundaries of our imagination and aspiration: generating huge amounts of clean energy *and* terraform a barren, degraded landscape into a rich, productive, biodiverse habitat that can also fuel human development.

The success of the project has already inspired others to think big. Drawing from the lessons learned in China, a team of engineers and scientists are hard at work devising [plans to regreen](#) the Sinai Peninsula. As with Kubuqi, grazing and deforestation have turned what was once lush, green landscapes into deserts, and the resulting degradation of the land has contributed to political and social upheaval. Hopefully, this region and others can be saved from desertification and provide further hope that even the most degraded of landscapes can be brought back from the brink.

Wind-powered freight ships may seem an old-fashioned idea. Still, combined with new “sail” technologies and artificial intelligence, it’s back in vogue as a potential way to reduce fuel costs and emissions. Computer-controlled kite systems and vertical aerofoils are being retrofitted onto existing ships to reduce emissions, but a new generation of zero-emission ships is on the way. One such design is the “With Orca” project led by Norwegian Ship Design. Combining hydrogen-powered internal combustion with two large [rotor-sails](#) - vertical spinning cylinders powered by the wind which produce propulsion via the Magnus effect - it is hoped the ship will be ready by 2024. As an important proof of concept, the design will hopefully spur widespread adoption and further innovation in this highly polluting sector.



Renewables and Cycling

When the pandemic forced entire nations into lockdown, the full impact of cars, trucks, and buses on urban landscapes became hyper-visible by its absence. Cities were quieter, with cleaner air and birdsong replacing the fumes and the sounds of engines and horns. People realized that it wasn't *cities* that were loud, but motor vehicles. This has led to a surge in calls for permanent reforms that center people rather than cars by expanding pedestrianization and cycle/public transport infrastructure.

This was especially true in Paris, a city notorious for its intensive traffic problem. Partly as a result of the lockdown, the French government recently [announced](#) that it is offering almost \$3000 toward the purchase of an electric bicycle if people choose to scrap their old cars. It's the first scheme of its kind in the world, according to the French Federation of Bicycle Users, who see the development as a long-overdue acknowledgment of the need not only to make cars greener but to reduce their numbers as well.



In South Korea, bicycles have met renewable energy differently, with solar installations doubling as a bike lane along the center of a major highway. Shielded on both sides by impact rails and sheltered from above by solar panel roofing, this 20-mile stretch is accessible for bicycles via tunnels. The electricity generated powers the street lights and provides recharging points for electric vehicles. Another benefit of this approach is that it uses only the central portion of existing highways and so does not require any further

degradation of the surrounding environment.

San Benito Health Foundation

When the San Benito Health Foundation (SBHF) president, Rosa Vivian Fernández, visited Puerto Rico following Hurricane Maria, she found hospitals and clinics working tirelessly for weeks at a time with no electricity. Determined to avoid such a fate ever befalling her own patients in disaster-prone California, SBHF partnered with the [Romero Institute's Greenpower project](#) to build a solar mini-grid for the clinic. Solar panels on the roof combine with battery storage to ensure that the clinic would maintain its functionality even if there were no sun for 10 straight days.

It is the first zero-carbon healthcare facility in the state, and besides the ecological benefits, the solar grid has dramatically reduced energy costs. Beyond providing healthcare, the vision is for the clinic to be a hub for the entire community - mostly Latin American farmworkers - should an earthquake or wildfires leave residents without power. Greenpower is soon to be renamed [Let's Green CA](#), and they are seeking to replicate this model across the state.



Learn more

[South Korea Has a 20 Mile Solar Bike Lane Covered in Solar Panels in the Middle of a Highway](#) (August 2, 2020) *Uplift Guide*

[Bicycles Are Pushing Aside Cars on Europe's City Streets](#) by Richard Weiss (July 4, 2020) *Bloomberg*

[Brief Guide to Sail-Assisted Cargo Ships](#) by Nic Gardner (n.d.) *Thetius*

[A Geography of Change](#) (January 2019) *Winneshiek Energy District*

[China's Greening of the Vast Kubuqi Desert is a Model for Land Restoration Projects Everywhere](#) by Charlie Campbell (July 27, 2017) *Time Magazine*

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