



The Northland Solar Commons: An Industry, University and Tribal Community Partnership to Use the Sun's Common Wealth for Reparative Justice in Northern Minnesota

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Abstract. The Northland Solar Commons Project is a creative partnership among the University of Minnesota, the solar manufacturing firm Heliene, Inc., and the Bois Forte Ojibwe Reservation. To make sure that the sun's common wealth is shared with its tribal community neighbors, Heliene will host a 500 kW Solar Commons behind the meter of its manufacturing plant in northern Minnesota. As a Solar Commons host, Heliene accepts a twenty-year obligation to pay forward its solar savings (approximately \$70,000 annually) to a community trust whose beneficiary is the Bois Forte Food Sovereignty Group working on reversing the disproportionate health impacts of colonization and commodity food on its tribal members. Together with the Solar Commons Research Project at the University of Minnesota, Heliene and Bois Forte members will be co-creating and piloting the legal and digital peer governance tools that will make community trust solar ownership—Solar CommonsTM—a robust economic tool for low-income community benefit. In this panel CEO of Heliene and Founder/Director of the Solar Commons Project present their work to test a reparative justice, community economy tool for a more just energy transition.

Keywords: Community solar · Solar ownership innovation · Just energy transition

A Solar CommonsTM array can gather the sun's common wealth by generating clean electricity and accumulating electricity bill savings on a host's electric meter.¹ Thanks to its embeddedness in a community trust ownership legal structure, that array is tied to a social obligation: the host agrees to pass those solar savings (minus any O&M costs) to a community trust fund. Day after sunshining day, investors in that solar array are mitigating climate change while passing on market value solar savings to the trust. Every year for the twenty-some year life of the array, those investors are sustaining

¹ The Solar Commons name and model are used with permission of **Solar Commons**, a 501(c)3 nonprofit corporation (<https://www.solarcommons.org/>).

a trust that converts its social wealth funds into a revenue stream that supports the reparative justice work of its local community beneficiary. The Solar Commons Model is an innovation of community trust ownership for solar energy assets and benefits. At the University of Minnesota, the Solar Commons Project research team is piloting the model in northern Minnesota with Heliene, Inc., the state's only solar manufacturing firm located in Mt. Iron, a rural town on Minnesota's historic Iron Range. Heliene will be the Northland Solar Commons's host. A forty minute drive north from Heliene lies the Bois Forte Indian Reservation. There, the Bois Forte Food Sovereignty Group (BFFSG) has joined our community-based research team as the beneficiary of the Northland Solar Commons Trust. BFFSG is made up of members of the Bois Forte Ojibwe Tribe working to decolonize the industrialized food system and its Standard American Diet (SAD) that displaced Indigenous foodways and practices and brought nutrient-related disease in its wake. Together, university researchers, Heliene administrators, and BFFSG members constitute a "living lab" to pilot a 500 kW Solar Commons array that will use clean solar energy to power Heliene's manufacturing plant and direct an annual revenue stream of approximately \$70,000 for twenty years to grow and empower BFFSG's food sovereignty work. Together, these community partners are co-designing the legal and digital peer-governance tools that will allow them to build transparency and social trust. Together they will creatively deploy 21st century technologies of solar energy and digital platforms and shape them with ancient, enduring social forms of community trust ownership. Together they act as neighbors and share the work of repairing a world that is suffering from impacts of fossil fuel and colonialism.

We are two of the establishing members of the Northland Solar Commons living lab. We bring knowledge from the solar industry and from legal anthropology to the task of shaping solar technology to meet practical, ecological and social needs of our historic moment and place. We are two years into our Northland Solar Commons initiative. All of us on the community-based research team have our day jobs and understand that it takes time to raise the capital, build the peer-governance tools and support the capacity-building that the Bois Forte Food Sovereignty Group is doing to create the physical and social infrastructure to transition their local food system. In this short essay, we offer some thoughts based on our empirical work on the Solar Commons project. For us, Solar Commons brings insight on the economic value and the potential of solar technology in our historic energy transition.

The first point concerns what photovoltaic arrays can teach us about our economic system. With the Solar Commons project, we know that the sun shines freely everywhere for everyone. It is a form of common wealth. If a Solar Commons host accepts an obligation to use the photovoltaic arrays to gather and pass along the sun's common wealth to neighbors, those neighbors will follow the general rules of the Solar Commons Agreement and use the wealth to generate more community wealth. This flow of wealth becomes transparent and visible in the digital peer governance dashboard tools our research team is building for solar commoning partners (see Fig. 1). But what everyone on our research team sees is that the sun's free common wealth passes through values established in the market price of solar. The market price of electricity in the US is dynamic: it depends on the monopoly utility jurisdiction that overlays the land where the sun freely shines. In Minneapolis we have a "value of solar" pricing system and hard

won legislation that compelled the local utility to allow communities to own their own solar arrays. In Minnesota’s Northland we have a different utility, different pricing and no ordinance to compel the local utility to allow third party community ownership. Because of these local rules, a Solar Commons in Minneapolis will make a lot more money for its community trust than a Solar Commons on the Iron Range. Through the prism of a Solar Commons, community partners see the value of common wealth interacting with the values of the marketplace. Suddenly, common wealth is seen in relation to market wealth and market wealth, in the electricity sector, can be viewed more clearly: the market price of electricity appears less related to market competition (the relative costs of generating power from wind or solar versus coal or nuclear) and more subject to the rule-making political power of the local monopoly utility.

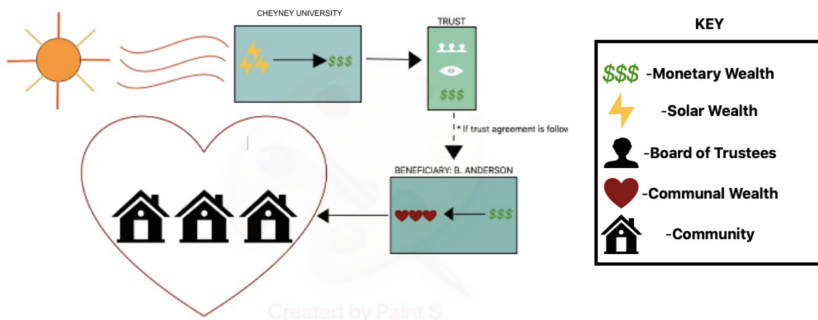


Fig. 1. A design for a Solar Commons flow of wealth dashboard created by students in Prof. Milun’s “New Commons Design” anthropology course.

A Solar Commons dashboard makes visible these interconnected, changing values of solar energy. It shows the radiant flow of sunshine through the kilowatt units generated by photovoltaic technology. It shows the market sector political economy of solar energy pricing transformed into a common wealth trust fund for community good. By the time the flow of solar wealth reaches the Bois Forte Food Sovereignty Group, it appears on the dashboard in photographs and stories of reservation youth-built community gardens for elders and newly flourishing reservation farmers’ markets. The economics of a sustainable energy transition, the dashboard shows, can also support a sustainable food system transition.

Photovoltaic arrays, operating in a Solar Commons system, become part of an institution (dependable, shared rules and tools) in the “commons” sector of our economy. The economist Kate Raworth offers a diagram (see Fig. 2) of a 21st century “embedded economy” where provisioning for needs and wants takes place within an ecological ceiling of planetary boundaries and a social equity floor where basic needs are met. There are four “sectors” of economic activity in this 21st century embedded economy: state, market, household and commons. Solar Commons is a much-needed innovation of the commons sector. Most readers and economists can recognize everyday practices and institutions in the state, market, and household sectors. State sector agencies raise money for public good through taxes. Market sector actors raise funds for private industry through banks. But what institutions do civic groups (in particular historically disadvantaged

civic groups) have to build long-term revenue streams for collective action in their communities? Solar Commons would be an institution in the commons sector. One outcome of the Northland Solar Commons community-based research project will be to create well tested, open source legal templates and free DIY peer-governance dashboard design tools available to civic groups wanting to fund reparative mutual aid work through “solar commoning.” Integrated into our 21st century energy transition, Solar Commons offer a vision of photovoltaic arrays as social-ecological technologies that can help drive a more just, integrated, energy transition.

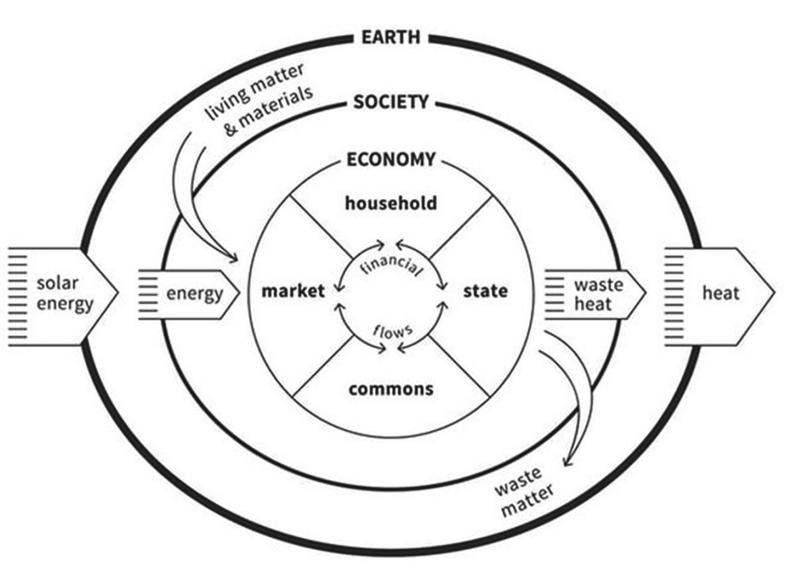


Fig. 2. The commons sector in an embedded economy [1]

A final point that our Northland Solar Commons project allows us to make concerns the potential of solar technology in our historic energy transition. We know that the Solar Commons financial model has the capacity to scale throughout the United States to over ten gigawatts over the coming decade [5]. As it iterates in new ecological and economic niches, Solar Commons will also be showing us an even greater potential of solar technology. The entrepreneur and author Peter Barnes argues that common wealth trusts of the sort we are designing with Solar Commons are “structures of transition.” Barnes notes that “new economic thinking, shifts in consciousness, and grassroots initiatives can set the stage for the needed transition, but without structural change”... such as the legal innovation and experimentation of holding common wealth in social trusts, we will not be able to overcome the double tragedy of inequality and environmental destruction. For Barnes, a system of common wealth (even sunshine itself we might add) properly organized in social wealth trusts can be part of the broad structural innovation we need for the needed transition of the 21st century energy [6].

At global (COP26) and local scales, we urgently need new legal and governance forms to better protect and more equitably share the earth’s common wealth—from the fragile atmospheric zone to the sun’s abundant radiation. The 2009 Nobel economist Elinor Ostrom [2] encouraged experimentation with the property framework of “commons” and peer governed community trusts. The Northland Solar Commons project shows how Ostrom’s theories apply to solar energy by channeling the sun’s common wealth into peer-governed revenue streams for reparative justice ends. For us, a solar industry leader and an academic researcher, our partnership to create an iterable 500 kW “Solar Commons” array in Northern Minnesota is well summed up in the ancient wisdom of *tikkun olam*, “repair of the world,” an aspiration to behave and act constructively and beneficially. Our partnership with the Northland Solar Commons beneficiary, the Bois Fort Food Sovereignty Group is part of the reparative justice work of the world.

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