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SHARED ENERGY



This Chapter provides an initial scan and analysis of the Shared Energy sector of the Sharing Economy. This is a lighter and less-indepth exploration and application of the sustainability filter than previous Chapters.

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There is no agreed upon definition of Shared Energy; however, Jeremiah Owyang, founder of Crowd Companies characterizes Shared Energy initiatives as: “bottom-up, democratized start-ups enabling people to collaborate among themselves for energy creation, storage, and sharing”.¹

Owyang also suggests that the Sharing Economy is “an economic model where technologies enable people to get what they need from each other - rather than from centralized institutions”.²

Currently, Shared Energy projects primarily involve solar and wind, but they have also expanded to include energy efficiency. Decentralized energy systems such as District Energy and micro-grids also represent a shift to a more shared approach to energy.

Renewable Energy Cooperatives are a form of Shared Energy initiatives that pre-date web-enabled platforms, and have played a large role in the deployment of renewable energy. Sharing Economy models are scaling up their potential. For example, Germany, which has been a leader in the deployment of renewable energy, now has about 900 registered renewable energy cooperatives with 90% of members being individual citizens.³

Shared Energy Approaches and Examples

Shared Energy initiatives are being launched by municipally-owned utilities, businesses and non-profit ventures through a range of approaches and arrangements. In most cases a web platform connects renewable energy producers to customers and investors. In some models an investment pool is created to finance up-front costs of renewable energy projects; in others customers participate through an ongoing payment agreement. A growing number of start-ups

are using a Peer-to-Peer (P2P) approach where individuals pay for the installation of solar panels on another person's rooftop, with both parties receiving a bill credit using “virtual net metering”.⁴

EXAMPLES OF PEER-TO-PEER PLATFORMS IN NORTH AMERICA:

US:

- Clean Energy Collective:⁵ www.easycleanenergy.com
- Solar Mosaic:⁶ <https://joinmosaic.com/>
- SolarShare:⁷ <https://www.smud.org/en/residential/environment/solar-for-your-home/solarshares/>
- Sunshare:⁸ <http://mysunshare.com>
- Tangerine Power:⁹ <http://www.tangerinepower.com/edmonds>
- Yeloha:¹⁰ <http://www.yeloha.com>

Canada

- Solshare Energy:¹¹ <http://www.solshare.ca/>
- Solar Share:¹² <http://www.solarbonds.ca/>

In France, the Peer-to-Peer model expanded to other forms of renewable energy with the launch of Lumo, which offers solar, wind, hydroelectric and biomass projects.¹³ Another French organization, Energie Partagée, raises funds from individuals to finance renewable energy and energy efficiency projects.¹⁴ In the US, the privately owned Enlighted uses a unique financing model that connects investors with energy efficiency projects such as lighting retrofits and smart energy systems.¹⁵

Germany's Vandebron connects customers with independent renewable electricity producers. In their model, energy producers set the rates for the electricity they produce and Vandebron receives a flat monthly subscription fee.¹⁶

This approach ensure that the company is not incented to increase individual customers' consumption levels.

How Can Shared Energy Advance Urban Sustainability?

We are at the cusp of a massive transformation in our global energy supply and distribution system, driven by the need to mitigate climate change, and increase local resilience and energy security. This transformation requires a shift from fossil fuels to a low-carbon economy. The Sharing Economy, largely through the proliferation of web-enabled tools, is accelerating the deployment of renewable technologies and in some cases energy efficiency initiatives.¹⁷ These tools are being used to access new markets and connect the financial capital of individuals to Shared Energy projects.

The shift to a low carbon economy is likely to be characterized by a transition from large centralized energy plants and distribution systems to a decentralized approach featuring 'smart' micro-grids, Distributed Energy Resources (which are often wind and solar power), and District Energy systems.¹⁸ Collectively this transformation represents a movement towards a model that facilitates a more shared approach to energy supply and can help foster the creation of compact, complete communities.

There are a range of sustainability co-benefits associated with a transition to renewable energy including green economy jobs and reduced vulnerability to energy shortages and price fluctuations in globally sourced energy.¹⁹

The Sharing Economy adds an equity benefit to the renewable energy transition by enabling participation by lower-income persons who would otherwise be blocked by cost and related structural barriers. For example, in 2008 the US National Renewable Energy Laboratory found that only 22 to 27% of residential rooftop area in the US is suitable for hosting on-site PV systems (due to structural, shading or ownership issues).²⁰ Therefore Shared Solar P2P platforms are opening up this opportunity to the often excluded segments of the population.

RECOMMENDATIONS:

How Can Local Governments Advance Shared Energy Initiatives

There are numerous examples of municipalities engaging in Shared Energy initiatives. Some have created municipally owned renewable or district energy projects, while others have partnered with a local business or non-profit to create or enable P2P marketplaces. Local governments can also help stimulate the renewable energy market through their own purchasing power or by taking shares in local cooperatives.

Many of the pioneering community Shared Energy projects were developed in partnership with local government operated utilities. In Canada, TREC Renewable Energy Co-operative partnered with Toronto Hydro (the municipal utility) to develop North America's first urban-based commercial scale wind turbine on the Toronto waterfront in 2002. TREC then launched SolarShare, which built and operates about 25 solar projects using a web-enabled platform to attract investors.²¹

One of the first community owned solar energy projects in the US was initiated in Ellensburg, Washington in 2003. In this project, the municipal utility used grant money to build a solar array which it then leased to existing utility customers.²² Another early community solar array, and the largest of its kind for an extended period, was installed in 2007 by the Sacramento Municipal Utilities District (SMUD). In this project subscribers enter into a power purchase agreement with the utility and the solar power is credited to their electricity bill.²³

Private and arms-length utilities may have a vested interest in selling higher quantities of energy to increase profits because they have "legacy investments" in fossil fuel infrastructure which they still need to recover.²⁴ The shift to Shared Energy models that are either delivered, or supported, by local governments can prevent this situation since local governments have broader sustainability objectives to achieve, such as climate change mitigation.

Resources

Websites:

- Community Solar Hub: <http://communitysolarhub.com/>
- Shared Renewables HQ: <http://www.sharedrenewables.org/>
- Solar Gardens Institute <http://www.solargardens.org/>

Reports:

- *A Guide to Community Solar*. US Department of Energy, 2011.
See: <http://www.nrel.gov/docs/fy11osti/49930.pdf>
- *New urban economies: How can cities foster economic development and develop 'new urban economies'*.
European Union URBACT Programme, 2015.
See: http://www.urbact.eu/sites/default/files/01_newurb-web.pdf
- *Shared Solar: Current Landscape, Market Potential, and the Impact of Federal Securities Regulation*. US National Renewable Energy Laboratory, 2015.
See: <http://www.irecusa.org/2015/05/shared-solar-sunnyside-up-avoiding-the-pitfalls-of-securities-regulation/>
- Rifkin, Jeremy. *The German Energy Transition: The Internet of Things, Zero Marginal Cost Renewable Energy, and the Third Industrial Revolution*. 2015.
See: <http://tinyurl.com/oodpqug>

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- 1 Jeremiah Owyang, *How the Sharing and Collaborative Economy is impacting the Energy Sector*, Huffington Post Business: The Blog, April 24, 2015. http://www.huffingtonpost.com/jeremiah-owyang/how-the-sharing-and-colla_b_7128908.html.
 - 2 Ibid.
 - 3 Jenny Koutsomarkou, Emmanuel Moulin, Peter Ramsden, and Maria Scantamburlo, eds., *New urban economies: How can cities foster economic development and develop 'new urban economies'*, Saint Denis, France: URBACT, April 2015. urbact.eu/sites/default/files/01_newurb-web.pdf.
 - 4 This latter model is often referred to as a solar garden. See for example: <http://www.solargardens.org/>
 - 5 *Clean Energy Collective*. www.easycleanenergy.com.
 - 6 *Home Solar Panel Loans*. <https://joinmosaic.com/>.
 - 7 *SolarShares*. <https://www.smud.org/en/residential/environment/solar-for-your-home/solarshares.htm>.
 - 8 *Community Solar Gardens*. <http://mysunshare.com>.
 - 9 *Edmonds Community Solar Cooperative: Clean Power, Grown Locally*. <http://www.tangerinepower.com/edmonds>.
 - 10 *Yeloha – The Solar Sharing Network*. <http://www.yeloha.com>.
 - 11 *Solshare Energy – Community Owned Energy for BC*. <http://www.solshare.ca>.
 - 12 *SolarShare – Invest in a brighter future*. <http://www.solarbonds.ca/>.
 - 13 See: <https://www.lumo-france.com/>.
 - 14 *Energie Partagée – Accueil*. <http://energie-partagee.org/>.
 - 15 *Enlighted: Sensors designed to change everything*. <http://www.enlightedinc.com/>.
 - 16 Ben Schiller, *The Sharing Economy Takes On Electricity, So You Can Buy Your Power From Neighbors*, Fast Coexist, September 30, 2014. <http://www.fastcoexist.com/3036271/the-sharing-economy-takes-on-electricity-so-you-can-buy-your-power-from-neighbors>.
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and, Jeremy Rifkin, *The German Energy Transition: the Internet of Things, Zero Marginal Cost Renewable Energy, and the third Industrial Revolution*, 2015. http://www.bee-ev.de/fileadmin/Publikationen/Sonstiges/3_19_2015_Digital_Germany_For_March_26th_German_Energy_Transition_Dialogue_Event.pdf.
 - 18 Saya Kitasei, *Powering the Low-Carbon Economy: The Once and Future Roles of Renewable Energy and Natural Gas – Worldwatch Report 184*, Worldwatch Institute, 2010. http://www.worldwatch.org/system/files/184_natural_gas_FINAL.pdf.
and Arnaud Bouillé, *Doing Business in a Low-Carbon World*, Ernst & Young, 2013. [http://www.ey.com/Publication/vwLUAssets/Doing_business_in_a_low-carbon_world/\\$File/Plug_in_May_Doing_business_in_a_low_carbon_world_DX0175.pdf](http://www.ey.com/Publication/vwLUAssets/Doing_business_in_a_low-carbon_world/$File/Plug_in_May_Doing_business_in_a_low_carbon_world_DX0175.pdf).
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 - 20 Jason Coughlin et al., *A Guide to Community Solar: Utility, Private, and Non-profit Project Development*, U.S. Department of Energy, Energy Efficiency & Renewable Energy, November 2010. <http://www.nrel.gov/docs/fy11osti/49930.pdf>.
 - 21 *TREC Renewable Energy Co-operative*. www.trec.on.ca. And “SolarShare – Invest in a brighter future.” www.solarbonds.ca.
 - 22 *Ellensburg, Washington’s Community Solar Project*. <http://nwcommunityenergy.org/solar/solar-case-studies/chelan-pud>.
 - 23 *Solar Gardens. Largest Community Solar Projects*. December 28, 2012. <http://blog.solargardens.org/2012/12/largest-community-solar-projects.html>
 - 24 Ben Schiller, *The Sharing Economy Takes On Electricity, So You Can Buy Your Power From Neighbors*, Fast Coexist, September 30, 2014. <http://www.fastcoexist.com/3036271/the-sharing-economy-takes-on-electricity-so-you-can-buy-your-power-from-neighbors>.