2016 BECC Conference

THE SOCIAL ACCEPTANCE OF COMMUNITY SOLAR: A PORTLAND CASE STUDY

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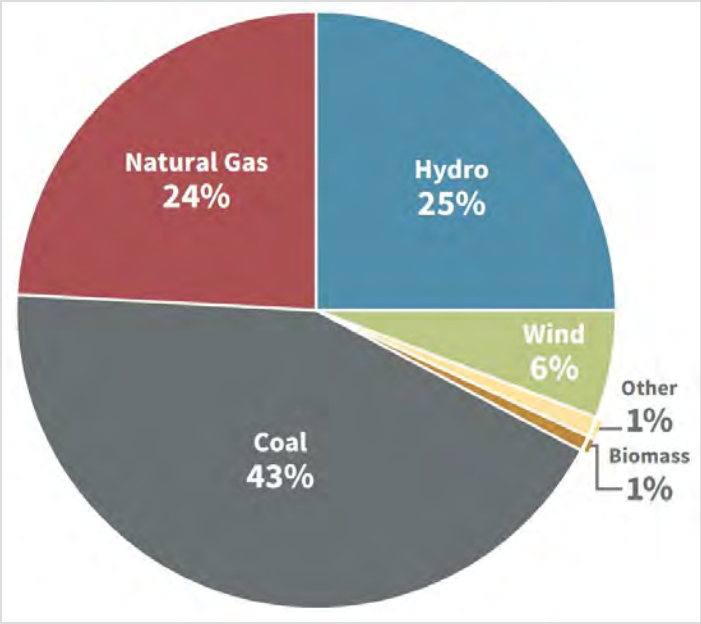
Agenda

- Is Portland really as green as it claims to be?
- Research:
  1. *Framework*
  2. *Community solar background*
  3. *Methodology*
  4. *Anticipated results*
  5. *Next Steps*
- Broader Implications of Community Solar

Portland: are we really that green?

- Portland pioneered the Climate Action Plan legacy in the U.S.; we need to start walking the walk rather than just talking the talk.
- Target: 80% reduction in carbon emissions by 2050
- The "Clean Electricity & Coal Transition Plan" moves Oregon off of coal-fired generation and increases the state RPS to 50% by 2040.
- How can we achieve these goals?



Weighted average of electricity fuel sources in Multnomah County (2010-2012)
Source: Portland Bureau of Planning and Sustainability

How can we reduce our carbon emissions?

- Behavioral change on all scales: individuals to organizations to institutions
- Education and raising awareness about new energy technologies and practices
- Residential and commercial adoption of new practices
- Expanding access to renewable energy for all market segments, not just middle to upper-class homeowners

Residential & commercial adoption of community (shared) solar projects

Graduate Thesis Project: Framework

Vision: to contribute to Portland's climate change mitigation strategy by highlighting consumer interest in community solar. A stratified random sample of Portland residents are currently being surveyed to capture attitudes towards community solar and renewable energy.

Research Questions:

- Will community solar be socially accepted in Portland and elsewhere?
- Will community solar projects help break down the traditional barriers associated with residential adoption of solar-electric systems? How so?
- What are the attitudes of Portland residents in regards to community solar and what attributes will drive intent to participate in community solar projects?
- What framing methods or other project factors will help the diffusion of community solar in Portland? Can these preferences be applied to other cities or municipalities also interested in establishing a community solar program?
- Applicability of community solar to the DOI theory.

Community Solar: the Basics

What: Shared solar-electric systems

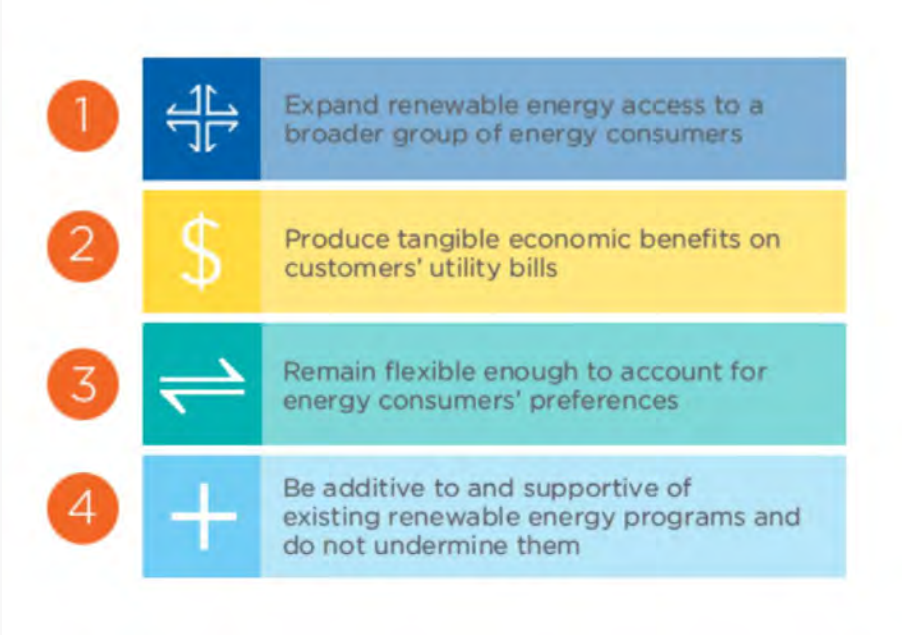
Who: Oregon residents (renters and homeowners), businesses, institutions

When: July 2017

Where: projects can be developed anywhere in the state of OR

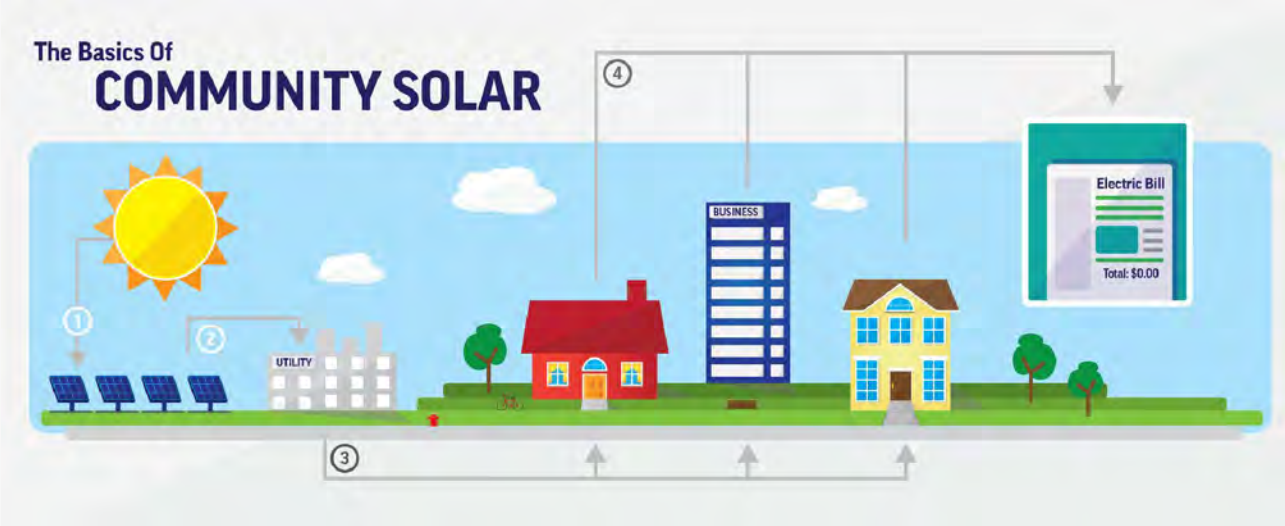
Why: to expand renewable energy access and lower emissions

How: participants will sign up through their utility, either through a subscription plan or an ownership model



The guiding principles being used to establish the community solar program in Oregon.
Source: Northwest SEED / Environment Oregon

Community Solar: How it Works



1. The solar array captures energy from the sunlight.
2. The electricity generated from the sun energy flows to the utility grid.
3. The utility calculates the amount of electricity produced and proportionally distributes the dollar value to the members of the community solar program (residents, businesses, institutions).
4. The value of the solar electricity produced from the array is then applied to each member's utility bill as a monthly credit.

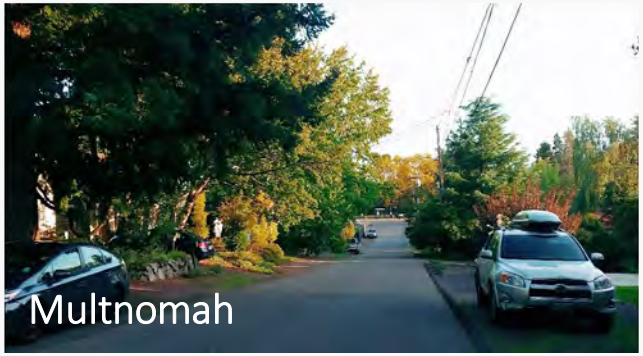
Graduate Thesis Project: Methodology

- Mixed-mode survey of Portland electricity customers.
- 14 different neighborhoods surveyed, displaying a gradient of demographics.
- Survey topics include general energy beliefs, attitudes towards solar energy, preferences and willingness to pay for community solar projects, climate change beliefs, personal energy usage and behavior, and demographics.

Graduate Thesis Project: Anticipated Results

- Preliminary results indicate that most residents are unfamiliar with community solar, but are intrigued and interested in learning more.
- Enrollment costs heavily impact decision to participate. An upfront cost in addition to a higher monthly electricity bill is unpopular with most survey participants (unsurprisingly)
- Portlanders will likely adopt community solar, but affordability of these projects is key to a successful diffusion


Hillside


Multnomah

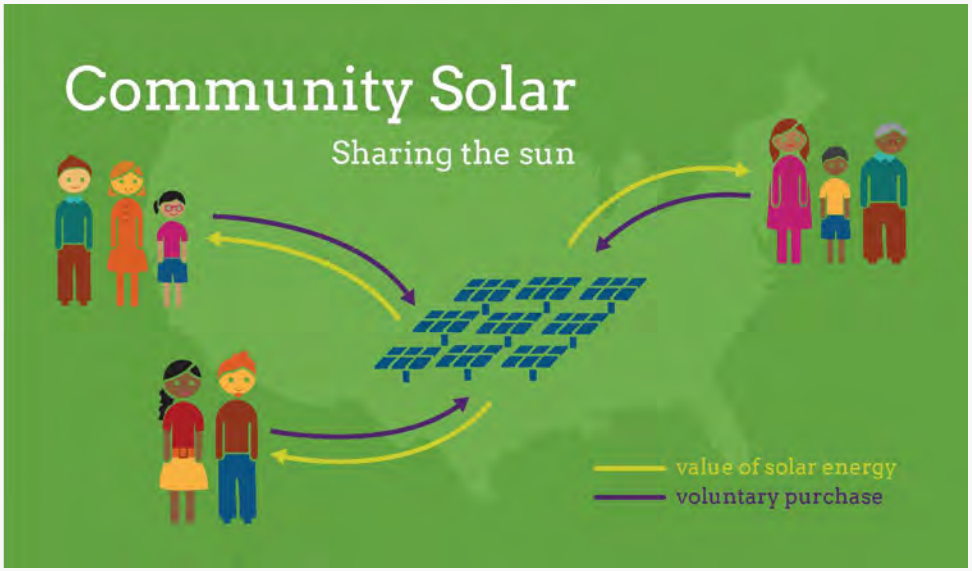

Overlook

Next Steps

- Finish collecting data
- Analyze data (descriptive statistics, cross-tabulation analysis, regression, and other tests)
- Develop summary report and distribute to interested parties
- Write thesis and submit manuscript

Conclusion: Broader Implications of Community Solar

- Potential to advance environmental equity
- Preferred project elements highlighted by survey can be used by the City of Portland and elsewhere.
- How can we make community solar a socially acceptable practice so that it can be rapidly adopted by residents?
- Community solar (if done right) = produce tangible economic benefits for residents + mitigate climate change.



Source: EnergySage

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