Community Solar Discussion

NCSL & NASEO Solar Energy Bootcamp

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August 24th, 2016
NREL Snapshot

• 40 years of accomplishments and market impact in energy efficiency and renewable energy technology R&D

• 1,700 employees

• $357MM total funding in FY15

• More than 684 partnerships

• International benchmark for sustainability
NREL Community Solar Activities

Activities

• Policy documents and guides
• Technical assistance to states (STAT), local governments (SolSmart) and muni utilities (SMP)
• Basic financial modeling
Key Issues for today

• What is community solar
• Why all the buzz
• Where is it taking place
• How is it structured
What is Community Solar?

- A jointly-owned system, or a third-party-owned (TPO) system, to offset multiple individual businesses’ or households’ consumption participating in the program (DOE/NREL 2015).

- Participants (“subscribers”) purchase a share of the total energy produced by the site and receive the benefits on their electric bill (GTM 2015).

- Upfront payment or pay as you go, monthly payments

- Utility-led or solar developer-led business models

- Facilitated by community solar legislation, virtual net metering regulations or utility decision-making

- Also known as solar gardens, shared solar or roofless solar

- Doesn’t always result in lower utility bills
Why Community Solar?

There are many potential consumers of solar who are unable or don’t want to install a PV system on their roof.

Who are they?
- Individuals, businesses, non-profits and governments.

Why?
- Renters
- Condo owners
- Shaded or old roofs
- An entire system may be too costly
- Not allowed (HOA restrictions)
- Less than ideal roof orientation
- And others....
Why all the excitement?

Large potential market

Potential solar consumers
  - DOE/NREL Shared Solar Report*
    - 49% of households are currently unable to host a PV system
    - 48% of businesses are unable to host a PV system

Utilities
  - Responding to customer demand
  - Guide optimal siting of systems
  - Potentially preferable to roof-top solar
  - Keep customers/revenue

Local governments
  - Opportunity to address low income participation
  - Opportunity to use brownfields and other disturbed lands

Market Potential for Community Solar

Current Market

Current cumulative market size (YE15): ~150-200 MW

Total Solar Market (SEIA/GTM):

- 7,260 MW in 2015
  - 2,099 MW Residential
  - 1,011 MW Non-Residential

Future Market

DOE/NREL Report:
32%–49% of the distributed PV market in 2020
2-4 GW of annual capacity by 2020

Greentech Media:
465 MW cumulative capacity by end of 2016
By 2020, ~500 MW per year

Community Solar Enabling Legislation

States with Active or Proposed Community Solar Legislation

- Legislation passed in 2015
- Active legislation
- Proposed legislation
Community Solar Installed Capacity

Installed Community Solar Capacity (kW) by State
Minnesota Community Solar Queue

### Active Applications
- 800+ projects
- 820 MW

### Completed Projects
- 3
- 370 kW

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*Updated 8/4/16*
Typical Third Party Developer Model

Subscriber

Upfront payment or monthly payments

Bill credits and possibly SRECS or other incentives

Developer

Utility

Delivery of electricity

Examples of Program Variables
- SREC treatment
- T&D charges
- Transferability
- Minimum subscription times
- Minimum number of subscribers (e.g. 10)
- Low Income participation (e.g. 5%)
- Maximum subscription size (e.g. 40%)
- Unsubscribed power
Typical Utility Sponsored Model

Third Party Developer sells power to the utility under a PPA

Utility structures Community Solar program around power acquired under PPA

Utility Customers make monthly payments in return for bill credits
Typical subscriber questions
What if I move within utility district?
What if I leave the state?
How long do I have to be a member?
What’s my payback?
Do I get a tax credit?
Do I own my panels?
Will I save money?
Discussion
Community Solar

Case Studies
Distribution of Models Used

- Green tariff
- Utility-led
- Third-party led
- Subscriber-owned
Green Tariff: PG&E

• Solar Choice (Green Tariff Shared Renewable Program – SB43)
  - PG&E will purchase solar from a pool of local projects
  - 2.8 - 3.6 ¢/kWh premium
  - Customer can buy 50% or 100% of electricity
  - Can leave at any time; not eligible to re-enroll for one year
Utility-led: Rocky Mountain Power - Utah

• **Subscriber Solar Program**
  - 20 MW to be completed by end of 2016
    - Customers purchase 200 kWh block at a cost of $0.117/kWh
  - RMP summer peak tariff is $0.145/kWh
  - May save money in the summer but pay extra in the winter
  - 3 year subscriptions (or pay a termination fee-$50)

https://www.rockymountainpower.net/env/bssssp/ussfaq.html
Utility-led: Orlando Utility Commission

- 400 kW PV Project
- OUC buys the electricity at $0.18/kWh under a PPA from private solar developer
- Subscriptions: 1 to 15 kW
- Cost: $0.13/kWh (avg. $14.56/month per kW)
- Solar rate roughly $0.015-0.025/kWh more than retail rates but fixed for up to 25 years.
- $50 up-front fee
- 2-year minimum participation