



Utility-Owned Distributed Generation: Emerging Business Models

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Agenda



**DISTRIBUTED GENERATION
IN STRATEGIC REGIONS**

A CAMPAIGN OF THE CLEAN ENERGY MINISTERIAL

1 Overview

2 Utility-Owned Business Models

3 APS Case Study

4 Xcel Case Study

5 Holy Cross Case Study

6 Q&A

Utility-Owned DG Business Models



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Rooftop Leasing

Utility-owned
rooftop solar PV



Utility-Led Community Solar

Utility-owned
system, to offset
multiple individual
households'
consumption



DG Facilitator Model

Utility-led
platform to
connect DG
market
participants

What is Rooftop Leasing?

Rather than simply facilitate interconnections of DPV systems on their grids, some utilities have developed business models where they own and operate DPV systems on customer rooftops.

Benefits:

- Can rate-base the assets
- Can strategically locate PV for T&D deferral, local voltage support
- Increased generation diversity (more distributed)

Costs:

- More expensive than utility-scale solar projects
- Requires upfront capital investment
- Faces competition from third-party solar developers
- Regulatory structure may limit progress

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
- Emerging vehicle for including low-income customers in solar projects



NREL photo database

- Facilitated by community solar legislation and/or virtual net metering regulations
- Also known as solar gardens, shared solar or roofless solar

Facilitation Business Model

- Residential customers are at a significant disadvantage during procurement, leading to higher system pricing
 - Potential justification for monopolistic force entering into competitive/private market (customer protection)
- Utility plays role of:
 - Periodic aggregation of customer interest
 - Competitive procurement (and financing) facilitator on behalf of customers
 - Can offer both individual and community DPV systems



Utility investments in distributed solar

Utilities have made significant investments both in distributed solar companies as well as in tax equity funds that invest in solar projects.

- According to market research from GTM* since 2010, nearly \$3 billion has been invested by utilities in both North America and Europe into distributed energy companies, including distributed solar.
- Utility-affiliated companies have also made investments in investment funds that invest in residential solar projects. Benefits from such investments include tax benefits as well as a better understanding of distributed solar markets and customers.

Additional Resources:

Utility-Owned Solar:

- [2018 Utility Solar Market Snapshot](#), a report on the state of the US community solar market

Community Solar:

- [A Guide to Community Shared Solar: Utility, Private, and Nonprofit Project Development](#), a report published by the U.S. Department of Energy's Sunshot initiative
- [Model Rules for Shared Renewable Energy Programs](#), a website published by the Interstate Renewable Energy Council (IREC)
- [Community Solar Scenario Tool](#), a recorded webinar presented by NREL's Solar Technical Assistance Team
- [Community and Shared Solar](#), a website published by the U.S. Department of Energy's Office of Energy Efficiency & Renewable Energy
- [Utility Community Solar Handbook](#), published by the Solar Electric Power Association.
- <https://sepapower.org/resource/community-solar-program-designs-2018-version/>
- <https://www.nrel.gov/docs/fy17osti/67442.pdf>

DG Business Models:

- <http://greeningthegrid.org/Distributed-photovoltaics>
- <https://www.nrel.gov/docs/fy16osti/65670.pdf>