Utility-Owned Distributed Generation: Emerging Business Models

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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

- **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

• Facilitated by community solar legislation and/or virtual net metering regulations

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

NREL photo database
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.

https://www.greentechmedia.com/articles/read/utilities-have-invested-over-2-9-billion-in-distributed-energy-companies#gs.I5oJHr0
Additional Resources:

Utility-Owned Solar:
• 2018 Utility Solar Market Snapshot, a report on the state of the US community solar market

Community Solar:
• 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
• https://www.nrel.gov/docs/fy16osti/65670.pdf

DG Business Models:
• http://greeningthegrid.org/Distributed-photovoltaics
• https://www.nrel.gov/docs/fy16osti/65670.pdf