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UP TO THE CHALLENGE: COMMUNITIES DEPLOY SOLAR IN UNDERSERVED MARKETS

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National Renewable Energy Laboratory (NREL)

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plus more than
400
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World-class
facilities, renowned technology experts

nearly 750

Partnerships
with industry, academia, and government

Campus
operates as a living laboratory

$872M annually

National economic impact

Background and Research Agenda

- DOE supported over 170 teams across 40 states in developing innovative community solar business models for underserved markets
  - low- and moderate-income (LMI) residents, nonprofits, and other community serving entities.
- Research Agenda
  - How did teams vary within the challenge?
  - What were the top challenges faced by teams in achieving their objectives?
  - What were some of the most innovative/replicable business models or approaches to support solar deployment?
  - What key takeaways can be gathered from these teams' experiences for other projects?

Methods

- NREL conducted interviews with 40 subject-matter experts
  - DOE personnel, program consultants, coaches, and team members
- In consultation with interviewees, NREL selected 10 teams with innovative/replicable business models to profile
- NREL then generated a set of lessons learned from the interviewees and team profiles for others' considering projects that serve these market segments

Up to the Challenge: Communities Deploy Solar in Underserved Markets

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1 National Renewable Energy Laboratory
2 International City/County Management Association (ICMA)

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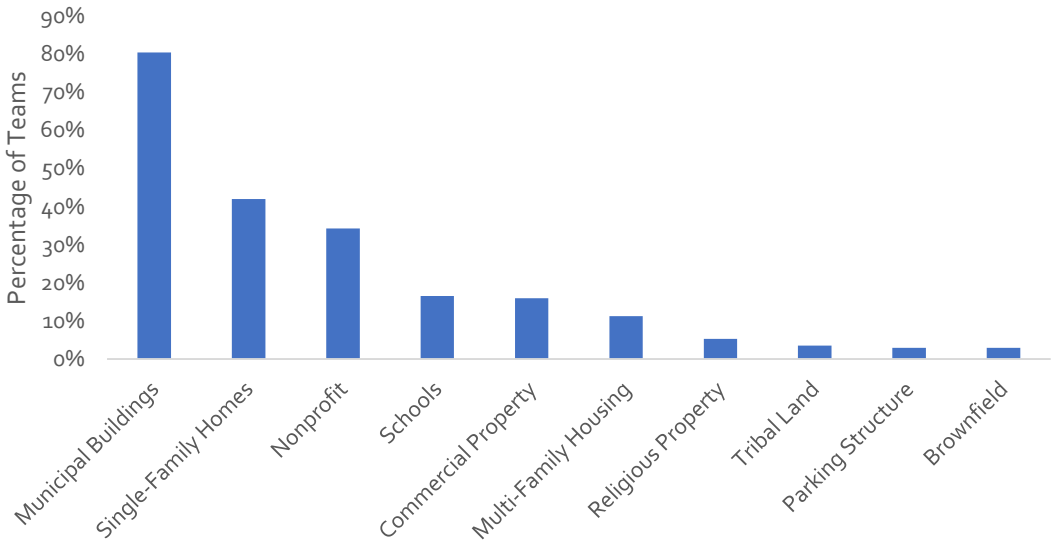
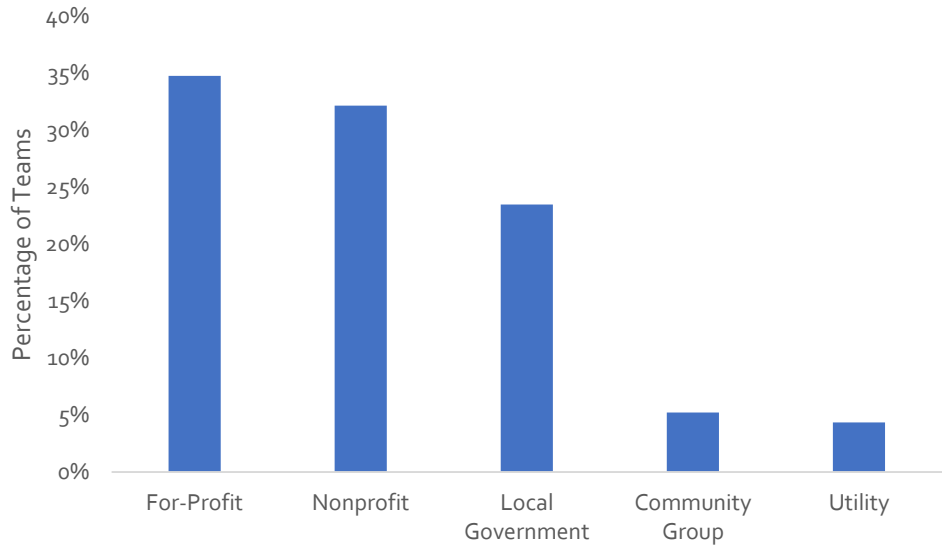
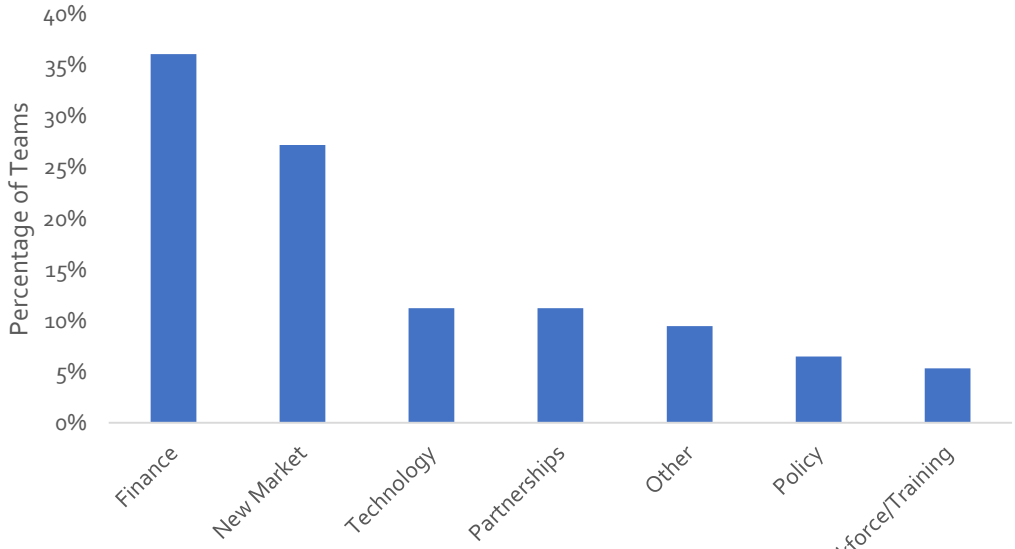
Variation across Teams



Solar Site Locations



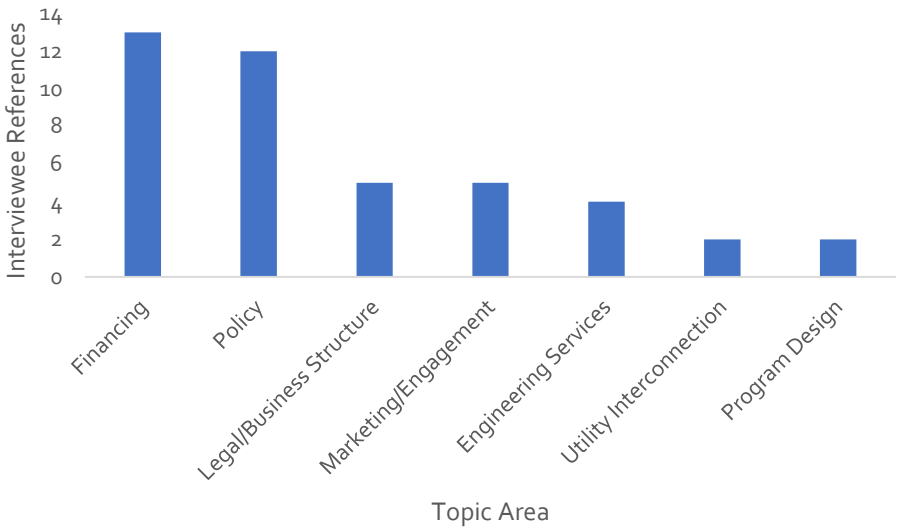
Teams by Lead Organization



Innovative Approaches Taken by Teams

Top Challenges Referenced by Interviewees

- Financing
  - Small projects and tax equity issues
- Policy
  - State and local policy landscape impacts project design
- Legal/business structure
  - Innovative project concepts required new ownership models



Challenges Identified by Interviewees

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PROFILED TEAMS

Profiled Team	Target Market(s)	Business Model/Approach	Financing Approach							
			Tax Incentives	PPA	Loan	Demand Response	Crowd-sourcing	Fees	Renewable Energy Certificates	Other
Boston Solar Access	LMI households and nonprofits	Community solar hosting	●	●						
Duluth Community Solar Coalition	Nonprofits and municipal governments	Crowdsource social impact investing					●[a]			
FAC Solar—Gowanus Grid & Electric	LMI households and nonprofits	Solar financing for nonprofit multi-family housing	●	●						●[b]
Kerrville Area Solar Partners	LMI households and nonprofits	LMI community solar rate design	●	●		●[c]				
Power52 Foundation	LMI households	Anchor-supported LMI community solar	●	●						
Solar Access UpGrade Ohio	Municipal governments	Community-choice-aggregation-supported solar deployment						●[d]		
Solar Holler	Nonprofits	Workforce training and place-based solar deployment			●	●	●		●	
Solar Synthesizers Meriden	LMI households, nonprofits, and public housing	Low-income-housing-tax-credit-supported solar financing	●	●					●	●[e]
Solarize Philly	LMI households	Solarize program fees to support LMI solar leases	●					●		●[f]
Sun Shares (VEIC)	LMI households	Employer-offered solar program	●[g]		●					●

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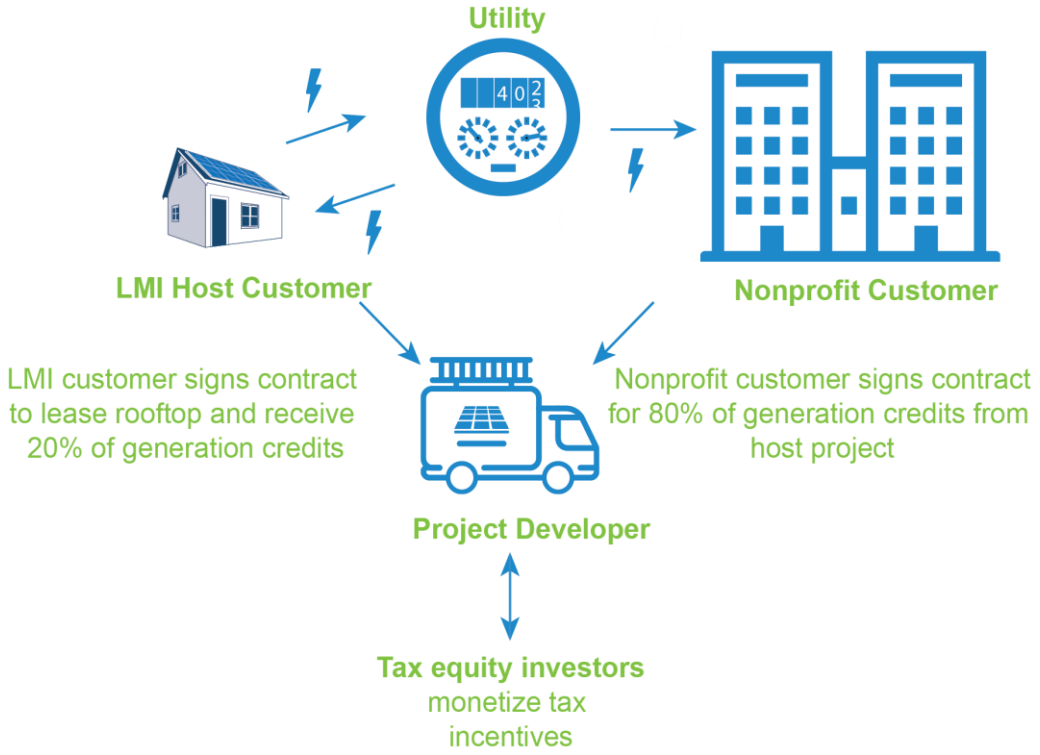
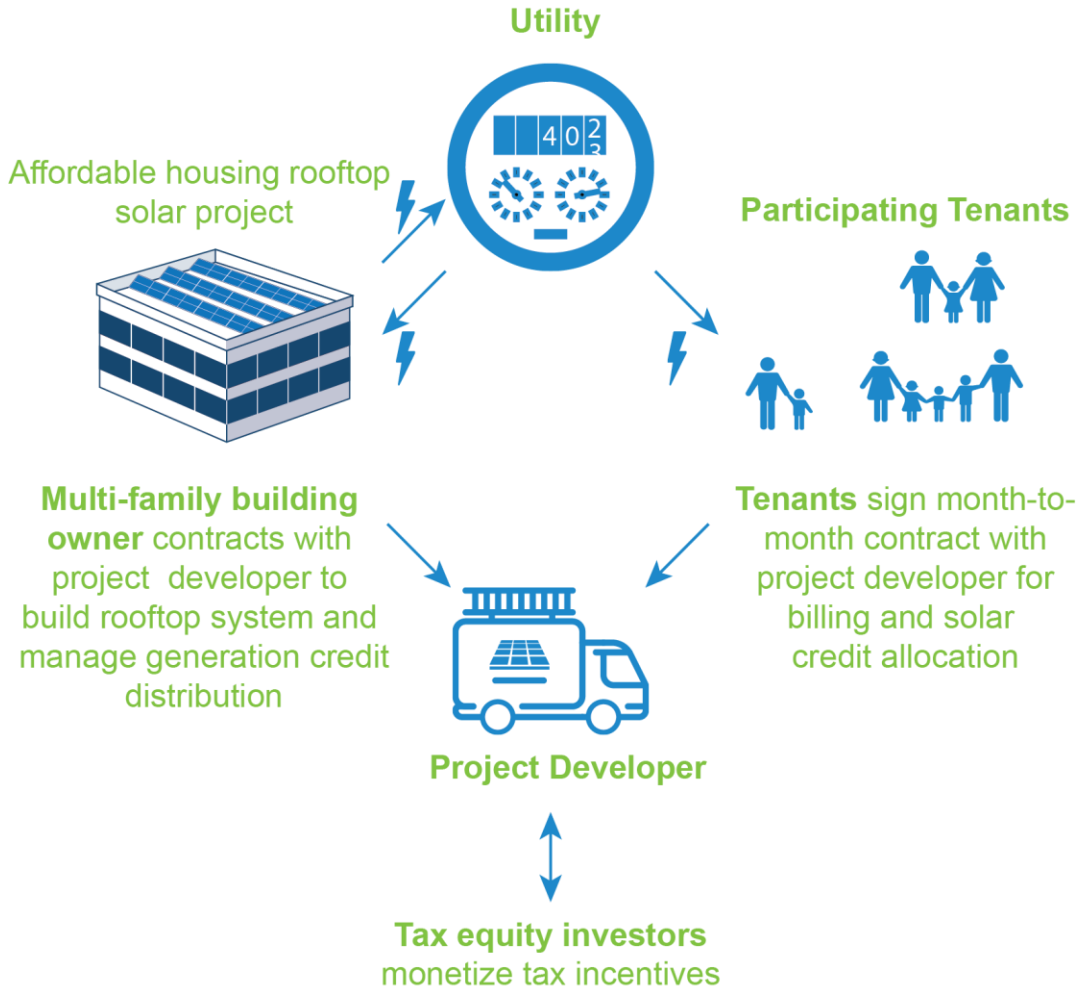
Select Business Models or Approaches

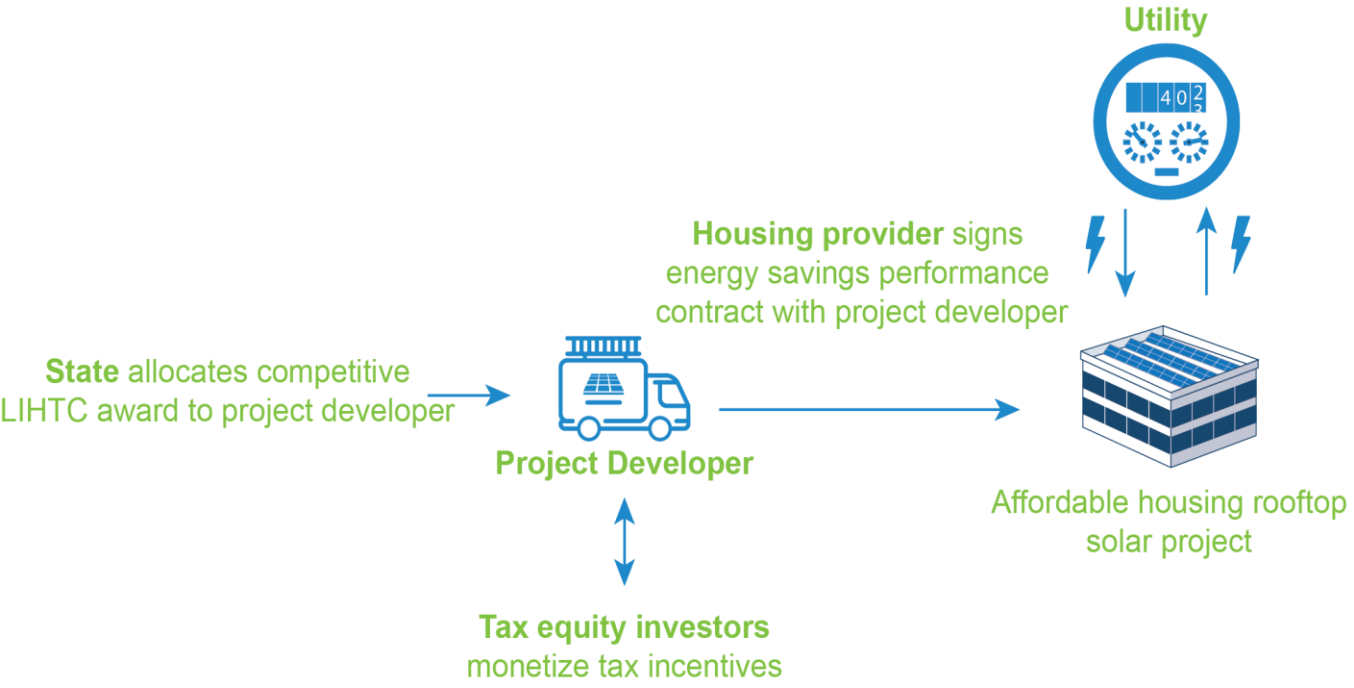


Ex 1: Boston Solar Access Model

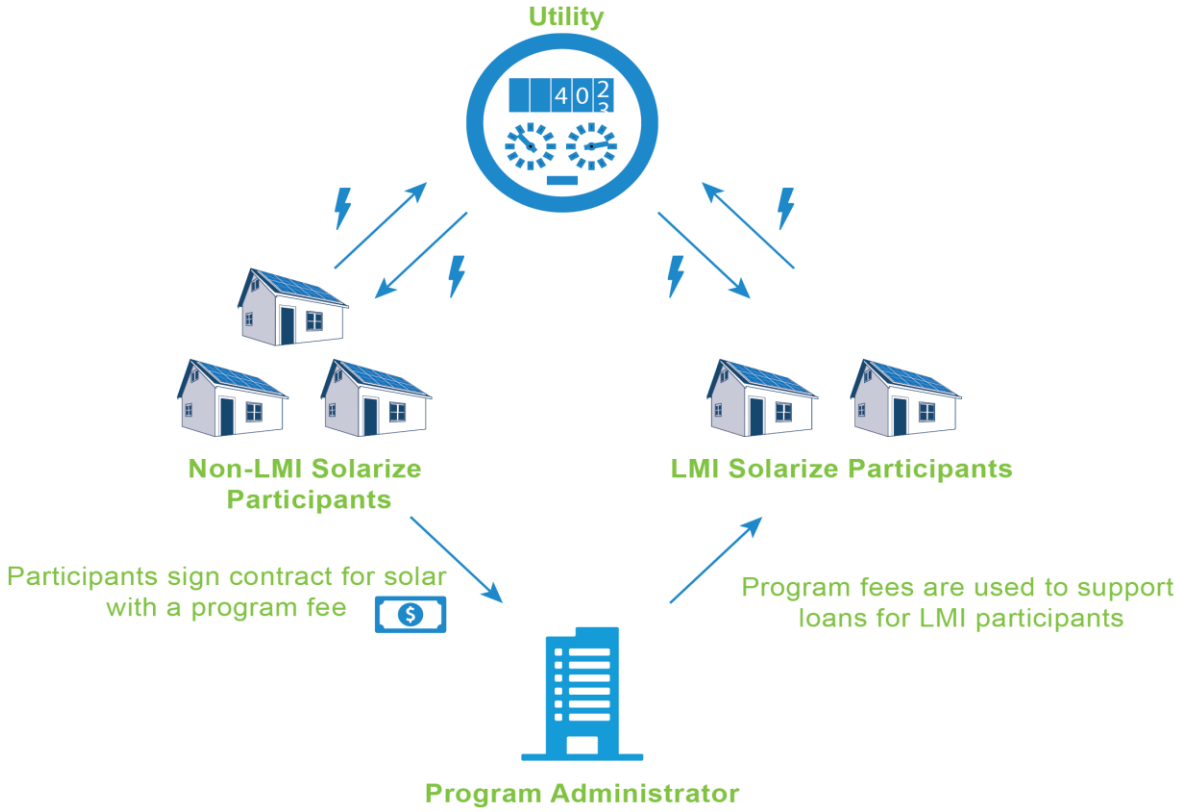


Ex 2: FAC Solar Model

Select Business Models or Approaches



Ex 3: Solar Synthesizers Model



Ex 4: Solarize Philly Model

Key Takeaways

- The challenge demonstrates that expanding solar access to underserved markets is economically feasible in a variety of markets.
- When replicating these approaches, jurisdictions might consider:
  - Developing a clear understanding of how federal, state, and local policy enable local solar projects.
  - Fostering durable and long-term partnerships with community members and solar stakeholders.
  - Building a creative portfolio of financing solutions for small and medium sized solar projects.

Publication Link

https://www.nrel.gov/docs/fy19osti/72575.pdf

Related NREL Resources

https://maps.nrel.gov/solar-for-all

https://www.nrel.gov/docs/fy18osti/70477.pdf

https://www.nrel.gov/docs/fy18osti/70901.pdf

https://www.nrel.gov/docs/fy18osti/70965.pdf

https://www.nrel.gov/docs/fy18osti/72135.pdf

THANK YOU!

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