



Climate Project Overview



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Purpose of the Climate Project Overview

The Climate Project Overview provides a guide on how to identify project opportunities, short- and long-term examples, and a brief introduction to types of climate projects—building decarbonization, renewable energy, and climate resilience. This tool is best suited for community foundations (CFs) who are considering the resource mobilizer role, as it serves as a reference for understanding the landscape of climate project opportunities in your community.

Climate Project Types Overview

What is Climate Smart Housing?

The following is a basic description of building decarbonization:

Efficiency	Zero Over Time	Near Net-Zero	Net Zero
• Installation of building features that use less energy to perform the same task or produce the same result • Does not involve switching fuel sources	• A plan to move from the current state to a future state of being a net-zero-emissions building • Partial electrification or solar PV	• A near net-zero building has very high energy performance • The amount of energy required should be significantly covered by energy from renewable sources produced on-site or nearby	Also known as a zero-emissions building • DOE Definition: A building verified to be ◦ highly energy efficient ◦ free of on-site emissions from energy use ◦ powered solely from renewable energy sources



Building Decarbonization Scopes



Health & Safety

- Ventilation and Indoor Air Quality
- Electrical System Upgrades
- Hazard Abatement
- Safety Considerations
- Roof Replacement



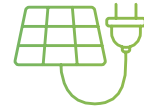
Weatherization & Building Envelope

- Insulation
- Air Sealing
- Window and Door Replacement
- Ventilation (ERV and HRV systems)



Electrification & Mechanical

- Full Building Electrification
- HVAC (heat pumps for space heating/cooling)
- Domestic Hot Water (DHW) (heat pump for water heater)
- Electric Appliances (cooking/laundry)
- Water Efficiency



Renewable Energy

- Solar (rooftop or ground mounted carports)
- Geothermal Ground Source Heat Pumps
- Battery Storage

Prioritize scope from left to right

Climate Resilience

Definition: The ability to prepare for, recover from, and adapt to the impacts of climate change, including severe weather events, extreme temperatures, etc. Examples include:

• Farming Resilience:

- Reduces the impact of agriculture on climate change and increases the resiliency of farms.
- Includes water management to prepare for floods and drought, soil health management, and manure storage cover and flare systems to reduce GHG emissions.
- Benefits: Helps stabilize crop yields and reduce drought impacts.

• Green Infrastructure:

- Captures, absorbs, and reduces runoff; filters stormwater; and delivers other environmental, social, and economic benefits.
- Benefits: Improves water and air quality, provides flood mitigation, and reduces heat island effect.



- **Cooling Centers:**

- Provides safe, air-conditioned spaces during extreme heat events.
- Includes backup power, water, and medical supplies.
- Cities like New York City, New Orleans, and Los Angeles are expanding resilience hubs.
- Benefits: Prevents heat-related illness and death, especially for vulnerable populations, and provides emergency support.

How to Identify Project Opportunities

Short- and Long-Term Project Opportunities and How to ID Them

Short-Term / Quick Win Projects	Long-Term Projects
• Solar on Rooftops: quick payback and revenue generation • Community Solar Projects: at a smaller scale (below 1 MW) • Decarbonization / Retrofits: affordable housing	• Infrastructure Projects: waterfront / methane recapture, etc. • Predevelopment to Help Plan • Convening Role: leverage multiple sources of capital

Short-Term Example Capital Stack: Rooftop Solar

Opportunity: Demonstrated need due to federal solar tax credits expiring, CF's can identify rooftops with existing affiliates

Benefits: A small-scale project with quick construction timeframe

Uses: CF equity (low-interest loans)

Typical		CF Injection	
%	Source	%	Source
30%	Investment Tax Credit (ITC)	30%	Investment Tax Credit (ITC)
10%	Owner's Equity	10%	Owner's Equity
5%	Utility Rebates	20%	CF Equity
55%	Debt	5%	Utility Rebates
		35%	Debt
100%	Total	100%	Total
~8-year Payback Period		Payback Period is cut down to ~5 years * With less debt to service, cash flow from solar yields positive returns faster	



Quick Win Example Capital Stack: Community Solar

Opportunity: Demonstrated need due to federal solar tax credits expiring, CF's can identify land with existing affiliates

Benefits: Larger scale projects than rooftop solar, but can be completed in a similar timeframe

Uses: Land grants, CF equity (low-interest loans)

Typical		CF Injection	
%	Source	%	Source
30%	Investment Tax Credit (ITC)	30%	Investment Tax Credit (ITC)
10%	Owner's Equity	10%	Owner's Equity
5%	Utility Rebates	20%	CF Equity
55%	Debt	5%	Utility Rebates
		35%	Debt
100%	Total	100%	Total
*10-year Payback Period		Payback Period is cut down to ~5 years * With less debt to service, cash flow from solar yields positive returns faster	

Long-Term Example Capital Stack

Opportunity: Provide low-cost predevelopment loans or grants to help mission-driven organizations explore innovative projects—land acquisition, feasibility studies, stakeholder convenings, etc.

Benefits: Mission-oriented capital for systems change, provides developers with capacity and capital for starting complex and riskier projects, and unlocks larger financing

Uses: PRI impact capital (high risk, low cost), Predev, and convening disparate stakeholders

Typical		CF Injection	
%	Source	%	Source
40%	Grants/Incentives/Tax Credits	40%	Grants/Incentives/Tax Credits
50%	Debt	40%	Debt
10%	Owner/Sponsor Equity	10%	Owner/Sponsor Equity
		10%	CF Equity
100%	Total	100%	Total

Project Example:

Rooftop Solar

Description: Adaptive reuse of senior affordable housing with rooftop solar.

Project Details:

- Scope: The project utilizes a 279 KW rooftop solar array

Funding Sources:

- Total Project Cost: \$824,000
- Federal Solar Tax Credit (50%): \$412,000
- State and Federal Low-Income Housing Tax Credits (LIHTC): \$430,000

Key Takeaway: Financed solar repaying investment from boost in rents that comes with removing utility allowances.



Project Example:

Community Solar

Description: Community solar project on a warehouse in Maryland. The system is designed to generate electricity for off-site subscribers, in accordance with community solar program requirements.

Project Details:

- Scope: The project consists of both rooftop and carport-mounted solar arrays
- 1.5 MW project

Funding Sources:

- Total Project Cost: approx. \$7,784,000
- Construction to Permanent Loan from Green Bank: \$6,227,000
- Grant from State Energy Association: \$274,160
- Tax Credits
- SRECs

Key Takeaway: Blended finance by using green bank and state energy office partnerships for commercial community solar projects.



Project Example:

Decarbonization Retrofit

Description: NY transformed a historic school into 42 energy-efficient affordable apartments while meeting New York State Historic Preservation Office requirements.

Project Details:

- \$525,000 Clean Energy Initiative financing
- Complete electrification with high-efficiency heat pumps
- Energy Star Multifamily New Construction standard exceeded by 25%

Funding Sources: HCR's Clean Energy Initiative program

Key Takeaways: First historic preservation project in CEI program — requires sophisticated approach with strong team including sustainability experts, engineers, and electrification contractors.



Project Example:

Methane Recapture

Description: New York dairy farm installed manure storage cover and flare system to capture and burn methane emissions.

Project Details:

- Manure storage cover with methane flare system
- Second phase of ongoing waste reduction project
- Prevents 3.4M gallons of rainwater from entering storage

Impact:

- GHG Reduction: 27,047 MTCO₂ equivalent / year

Funding Sources:

- State Funding: \$423,403
- Total Cost: \$604,834

Key Takeaways: Provides multiple benefits, including methane capture and water management. The public-private partnership model allows the project to successfully enhance existing infrastructure for efficiency.

