NATIONAL ASSOCIATION OF Community Health Centers®

Building Clinic Resilience and Reducing Utility Costs with Solar Power (PWB1)

Audience Participation

Chat
(use to talk with peers)

Polling/Q&A
(participate in polls, ask questions to faculty)

PWB1
Building Clinic Resilience and Reducing Utility Costs with Solar Power
2022 NACHC Policy and Issues Forum
February 16, 2022

Leveraging opportunities: Puerto Rico's Community Health Center's Transition to Solar Power

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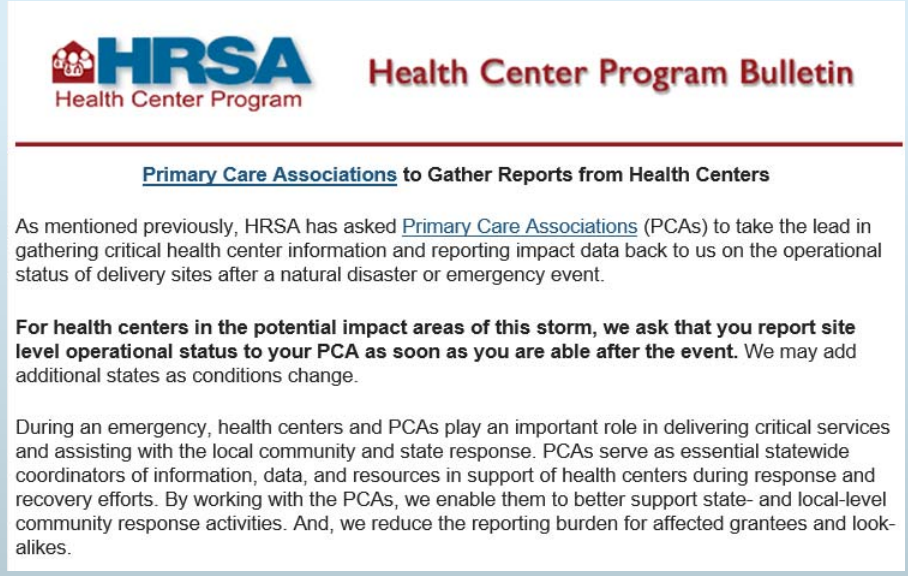
ASPPR
ASOCIACIÓN DE SALUD PRIMARIA DE PUERTO RICO, INC.

Session Objectives

1. Discuss continuity of operations gaps post-disaster
2. Present rationale to pursue solar-powered microgrids
3. Share impact and challenges experienced during transition to solar energy systems

Puerto Rico Primary Care Association (PR-PCA) *Asociación de Salud Primaria de Puerto Rico (ASPPR)*

- Non Profit Private Organization, funded in 1984 by BPHC-HRSA.
- Provide representation to HRSA Health Center Grantees in PR
  - 21 Community Health Centers (CHC's) (FQHC's)
  - 66 primary care clinics
  - >105 delivery sites; including mobile units, school-base and homeless programs.
  - Located in 76% municipalities; 2 minor islands



HRSA Health Center Program

Health Center Program Bulletin

Primary Care Associations to Gather Reports from Health Centers

As mentioned previously, HRSA has asked Primary Care Associations (PCAs) to take the lead in gathering critical health center information and reporting impact data back to us on the operational status of delivery sites after a natural disaster or emergency event.

For health centers in the potential impact areas of this storm, we ask that you report site level operational status to your PCA as soon as you are able after the event. We may add additional states as conditions change.

During an emergency, health centers and PCAs play an important role in delivering critical services and assisting with the local community and state response. PCAs serve as essential statewide coordinators of information, data, and resources in support of health centers during response and recovery efforts. By working with the PCAs, we enable them to better support state- and local-level community response activities. And, we reduce the reporting burden for affected grantees and look-alikes.

Contextual Snapshot: Puerto Rico 2017

Patient population demographics

Total patients 358,528 (UDS, 2017)

- 27.74% <18
- 59.52% 18-64 years
- 12.73% 65+ 99.
- 38% Racial/Ethnic Minority
- 97.68% Patients at or below 200% Federal Poverty Guideline
- 11.65% Uninsured
- 67.4% Medicaid

Chronic Illness management

Contextual Snapshot: Puerto Rico 2017

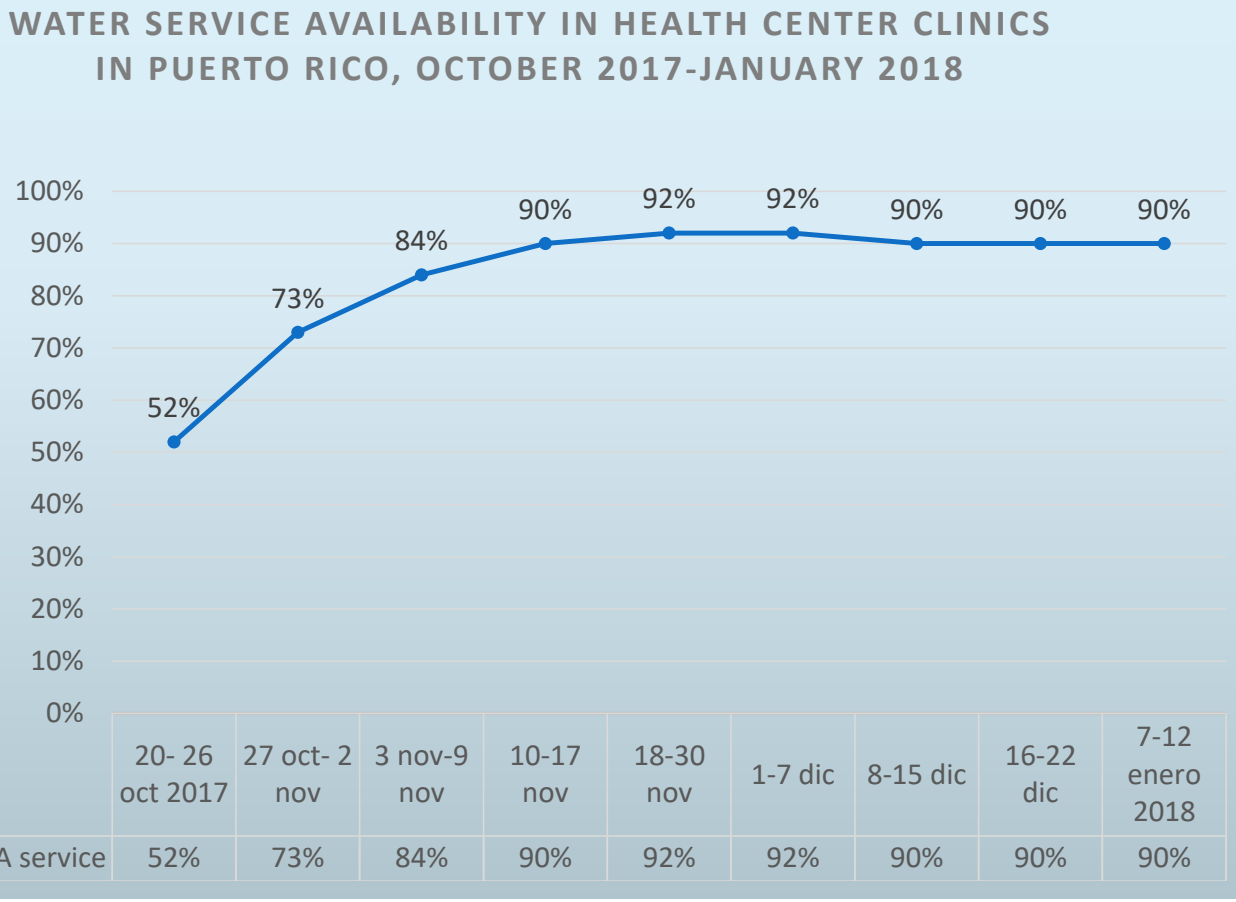
September 2017 Hurricane Season

Fragile power systems

- Re-focus on adverse climate effects on health
- Need for resilient power sources

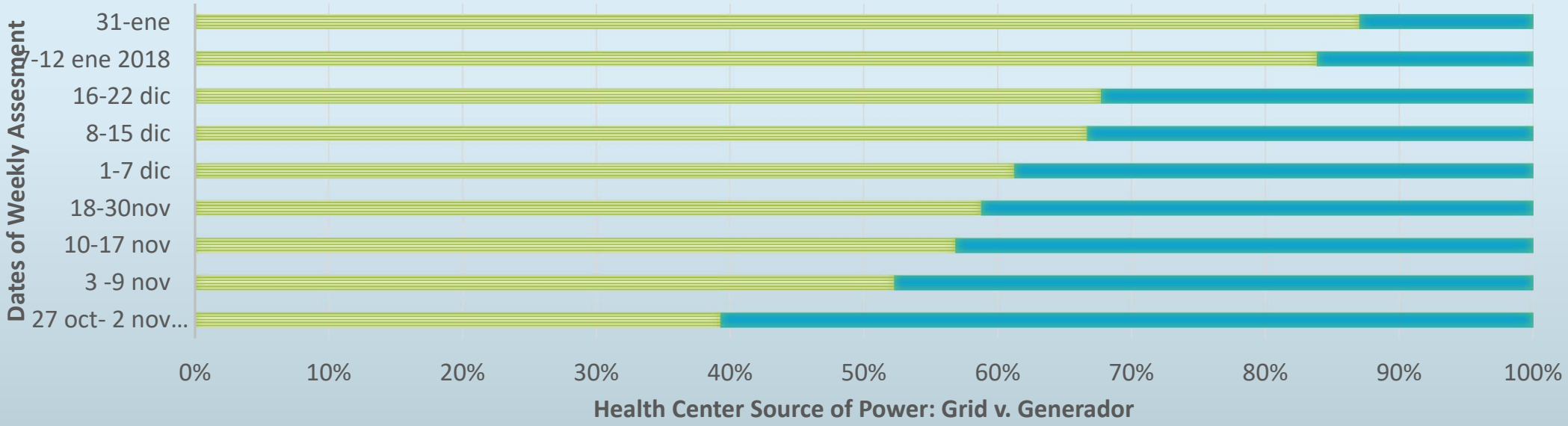
Post-Disaster Snapshot

In the weeks spanning October 2017 through January 2018, Health Center clinics consistently reported operational status of over 90% of the health center clinics.



	20- 26 oct 2017	27 oct- 2 nov	3 nov-9 nov	10-17 nov	18-30 nov	1-7 dic	8-15 dic	16-22 dic	7-12 enero 2018
With AAA service	52%	73%	84%	90%	92%	92%	90%	90%	90%

Post-Disaster Snapshot



n=83

Key Highlights

Access (blocked roads and debris)

- Strategically located facilities

Cost and access to fuel

- Community partnerships, use of tents and mobile units

“Hierarchy” of providers in response

- Claim to be included as critical infrastructure

Communications

- Service Area penetration (Zika experience)

Tremendous commitment to response

95% of health centers (n=20) informed cumulatively that 247 employees had partial or total losses of their homes.

Resiliency and COOP Capacity Pre and Post-Disaster

Before Hurricane María

Fuel-dependent generators

Cisterns

No solar equipment

Some interruption to COOP (within the week, depending on gravity of event)

Varying phases of implementation of solar power systems

Cisterns

Redundant Interoperable Communications

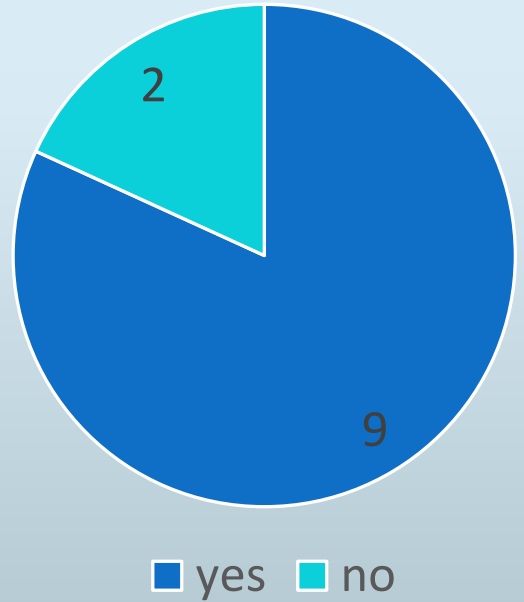
Improved relationship with state response

Today

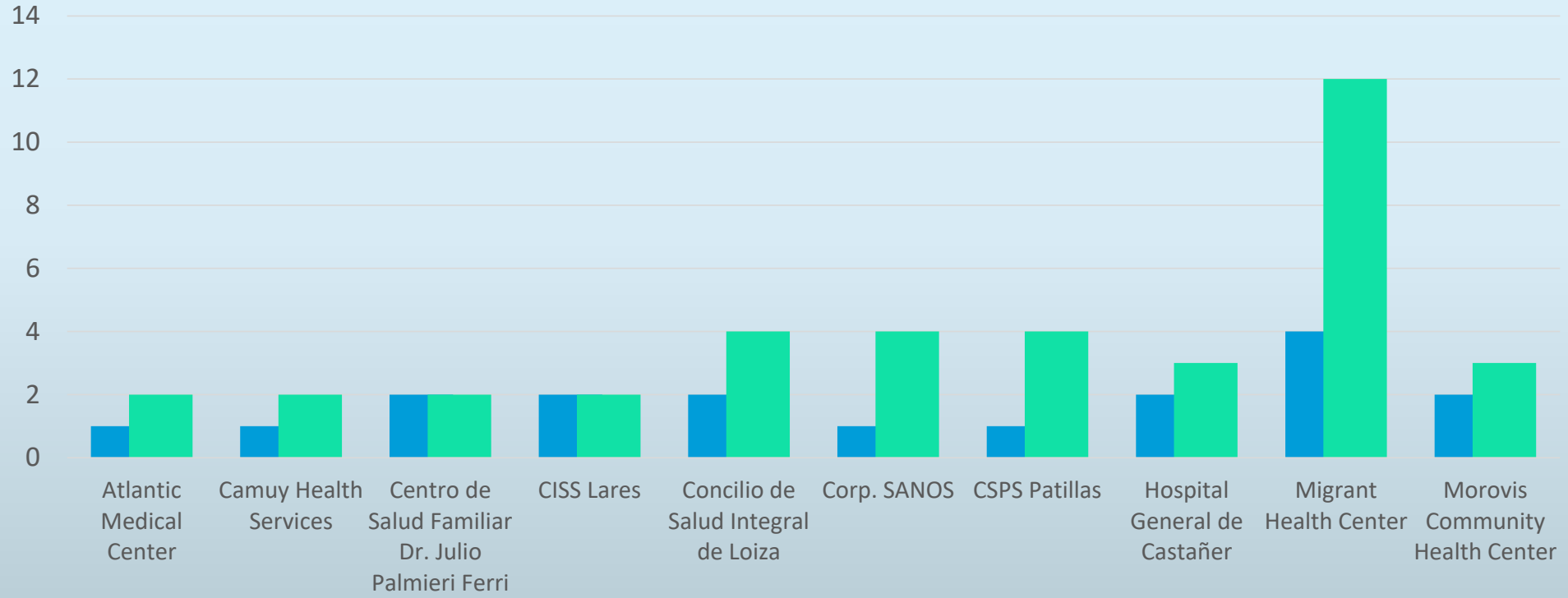
CHC's in Puerto Rico, January 2022

Solar power systems acquisition

Plans to fully transition to solar power



Presence of Solar Power Systems in CHC's in Puerto Rico, January 2022



57% cumulative average

N=10

Rationale to pursue solar-powered microgrids

Patient profile and comorbidities of population served

- Require services such as oxygen supplies, Dialisys, temperature-controlled medication, such as Insulin.

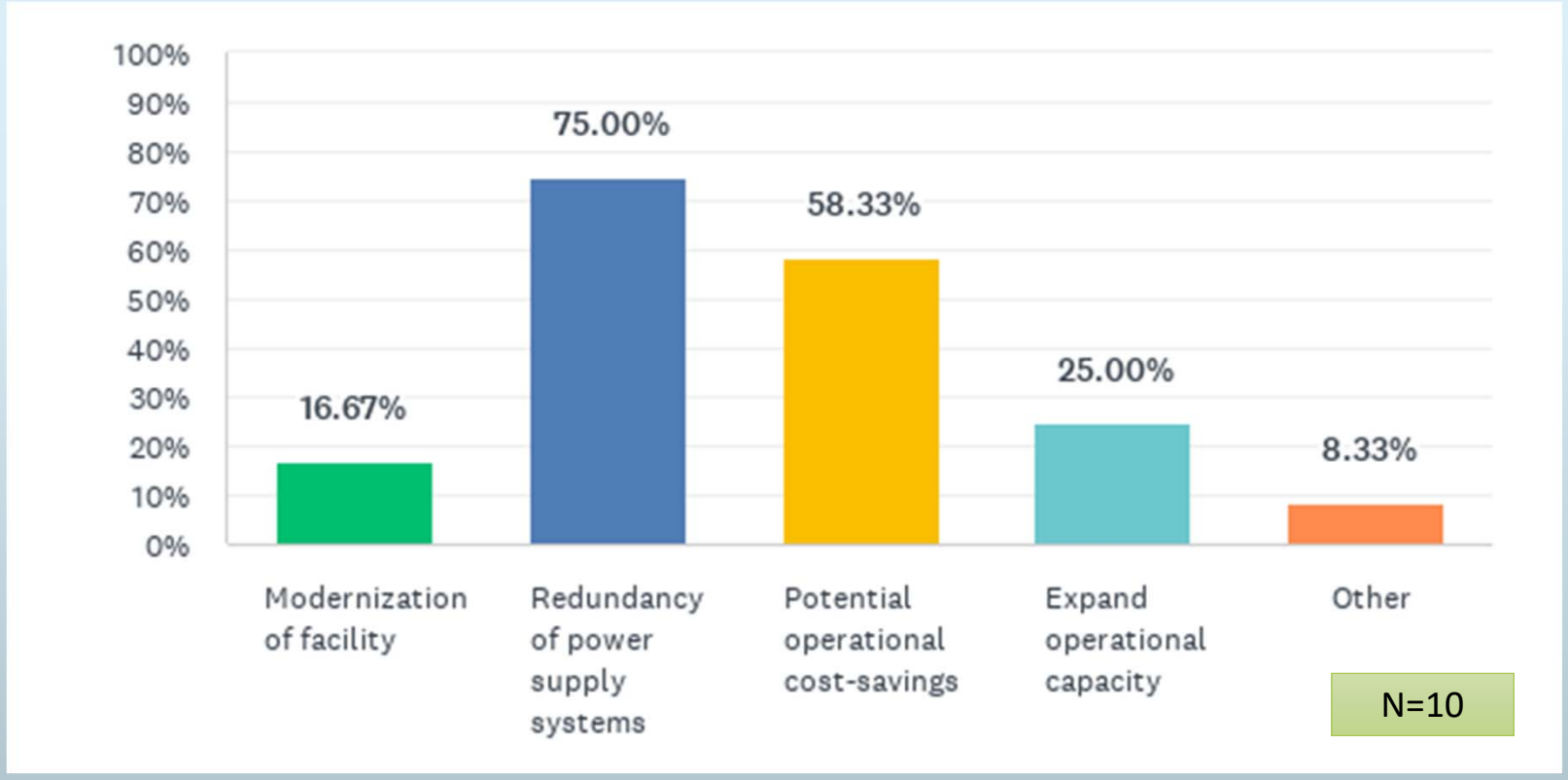
Leverage of geographical and location advantages

- Puerto Rico is a tropical island with direct sunlight throughout the year. No shortage of power source!

Cost savings

- In addition to providing energy savings, solar energy systems have the potential to make homes, commercial buildings, and entire communities more resilient.

Motivations to implement solar energy systems CHC's in Puerto Rico, January 2022



American Red Cross

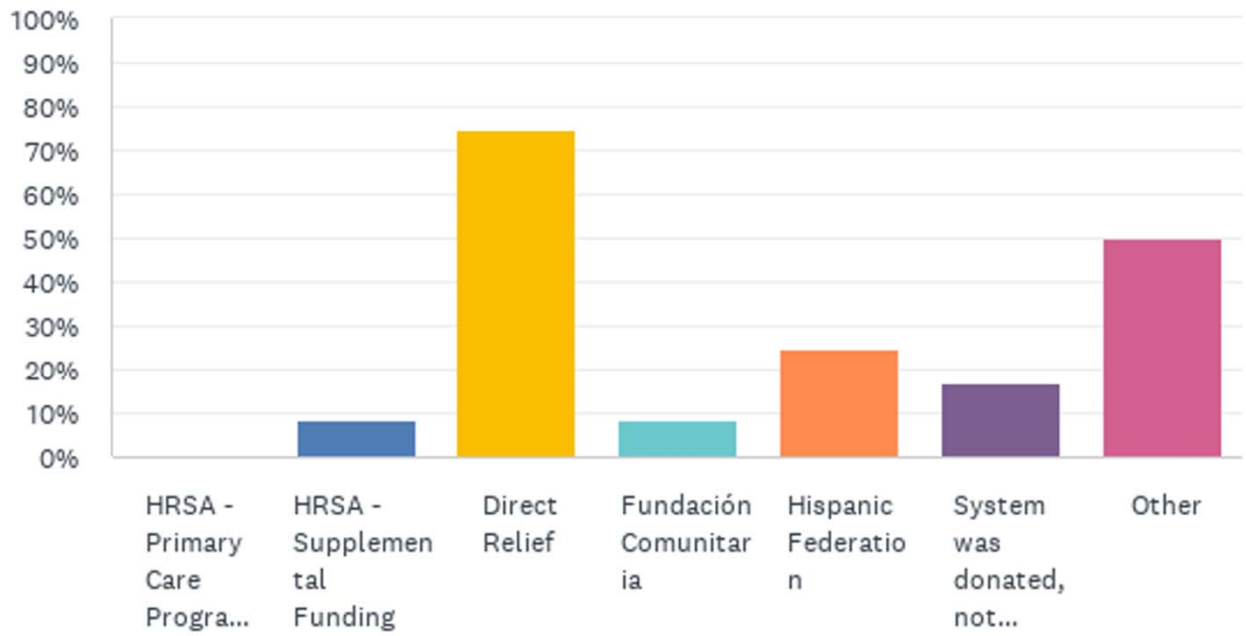
Donor organizations to CHC's in Puerto Rico, January 2022

CLINTON FOUNDATION

FUNDACIÓN COMUNITARIA DE PUERTO RICO

DirectRelief

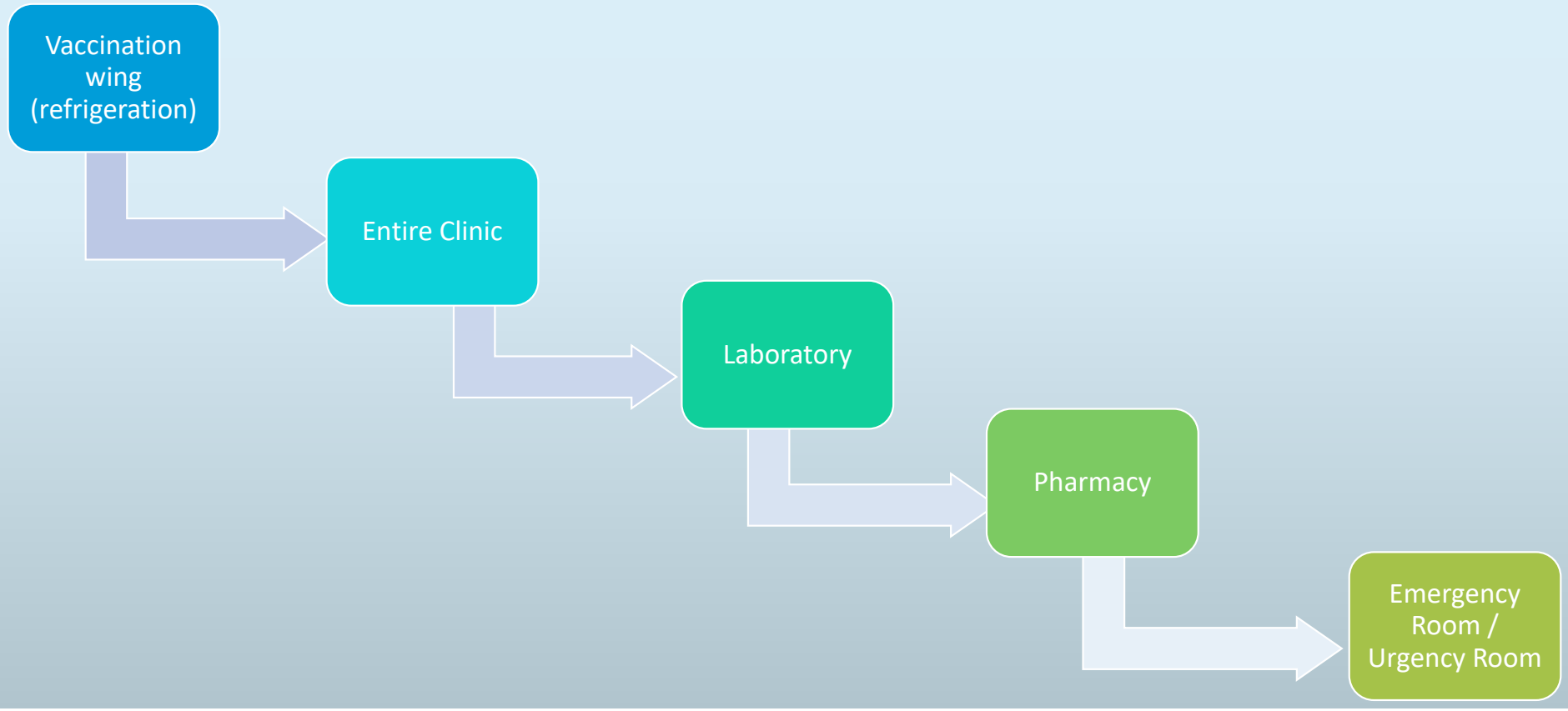
americares



Current and Potential Cost Savings: Solar Energy Systems

Back up power / Redundancy	Consistent COOP	Redundancy for pharmacy/refrigerators
Substantial savings / projected savings	Avoid service interruptions during emergencies	None yet

Areas prioritized with solar power redundancy systems



Impact and challenges during the transition

Contract/onboard an engineer (SME)	Coordination of several sub-contractors	Compatibility issues	None
Require implementation process from contractors – get familiar with contractor	Maintenance/ upkeep	Measuring consumption savings	Preparation

Moving forward

- Battery Storage
- More funding for expansion
- Purchase of more panels to expand clinic areas supplied by solar
- Donated solar systems
- Diagnostic and testing to validate operation and estimate voltage and duration of operating only on solar
- Cost-effective analysis of solar systems on clinics that are renting (not on owned property)

Lessons learned

Importance of partnerships with humanitarian organizations

- Continuity of funding

Imperative action to face and mitigate climate change

- Island vulnerabilities

Resilient Solutions for population health

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RED PREVENCIÓN y SALUD PRIMARIA 330

Thanks!

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collective ENERGY company

Power for Health

Reliable power is essential to providing quality patient care…

however….

Power outages are becoming more frequent, not less….

but……

There is a solution! (Hint: it's clean and will save you money)

Who am I?


DirectRelief


KEEP COLD- DO NOT FREEZE
GLASS-WITH CARE
KEEP COLD-DO NOT FREEZE

Puerto Rico

- Hurricane Maria devastated much of the infrastructure in Puerto Rico and heavily damaged the already fragile electrical grid.
- Longest blackout in US History
- 80% of the island's transmission lines were damaged, leaving communities without access to essential facilities including medical clinics, fire stations, schools, water pumps for months.
- Since Hurricane Maria, hundreds of solar and storage projects have been implemented in Puerto Rico


yo te veo

Resilient Energy for Health Centers

Power shutoffs: populations at risk

Power outages can be life-threatening for medically vulnerable

2 million residents lost power during last year's California's PSPS

- 180,000 are registered as electricity-dependent for medical devices
- Gas and diesel generators pose problems

Critical facilities don't always have a ready backup power system

In a survey conducted by Direct Relief, only 44% of California health clinics surveyed had backup power

- Clinics lost temperature-regulated vaccines and medications
- Lost patient revenue
- Inability to provide healthcare

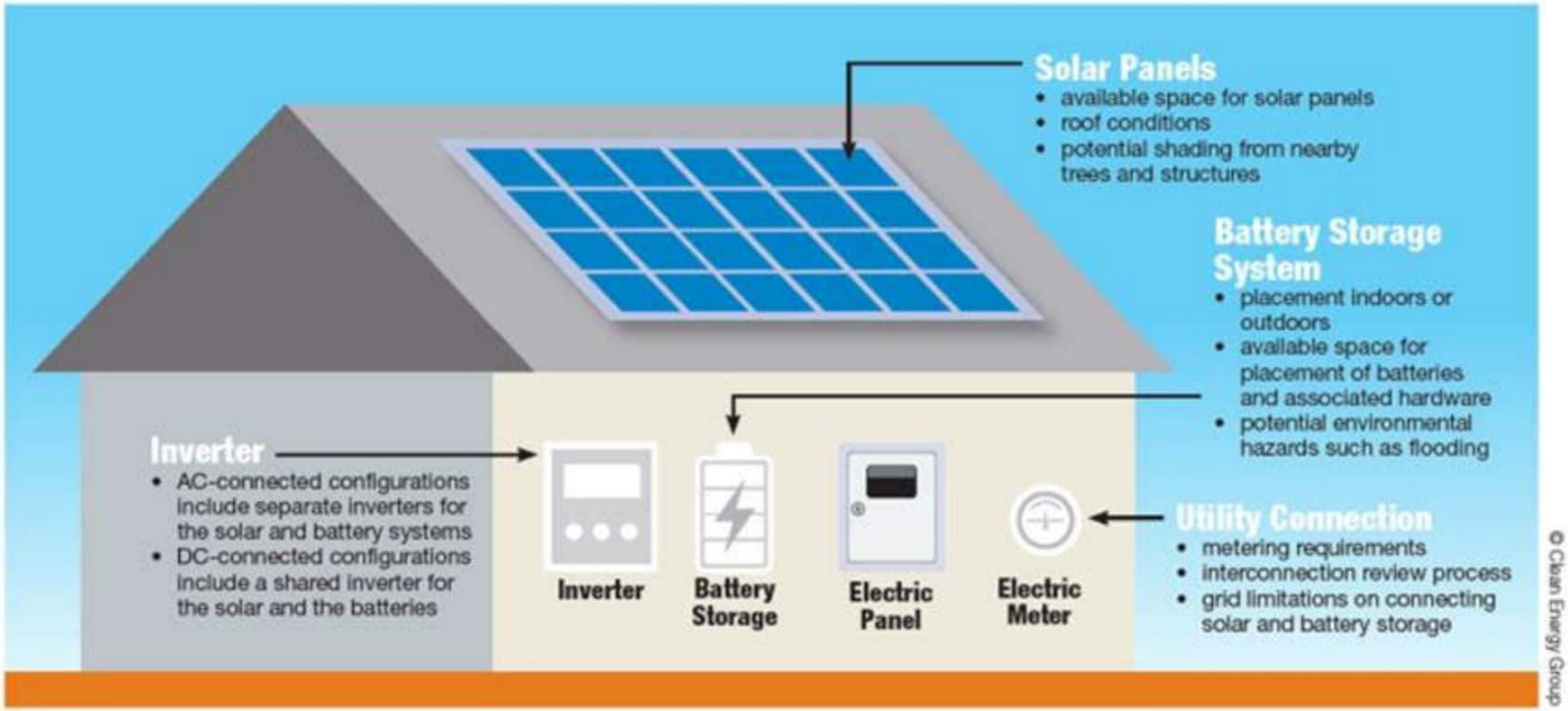
Causes of power shutoffs

- Heat Waves
- Fires
- High Wind
- Hurricanes
- Tornadoes
- Cold Snaps
- Utility, Grid, Transmission Line Failure
- Demand
- PSPS

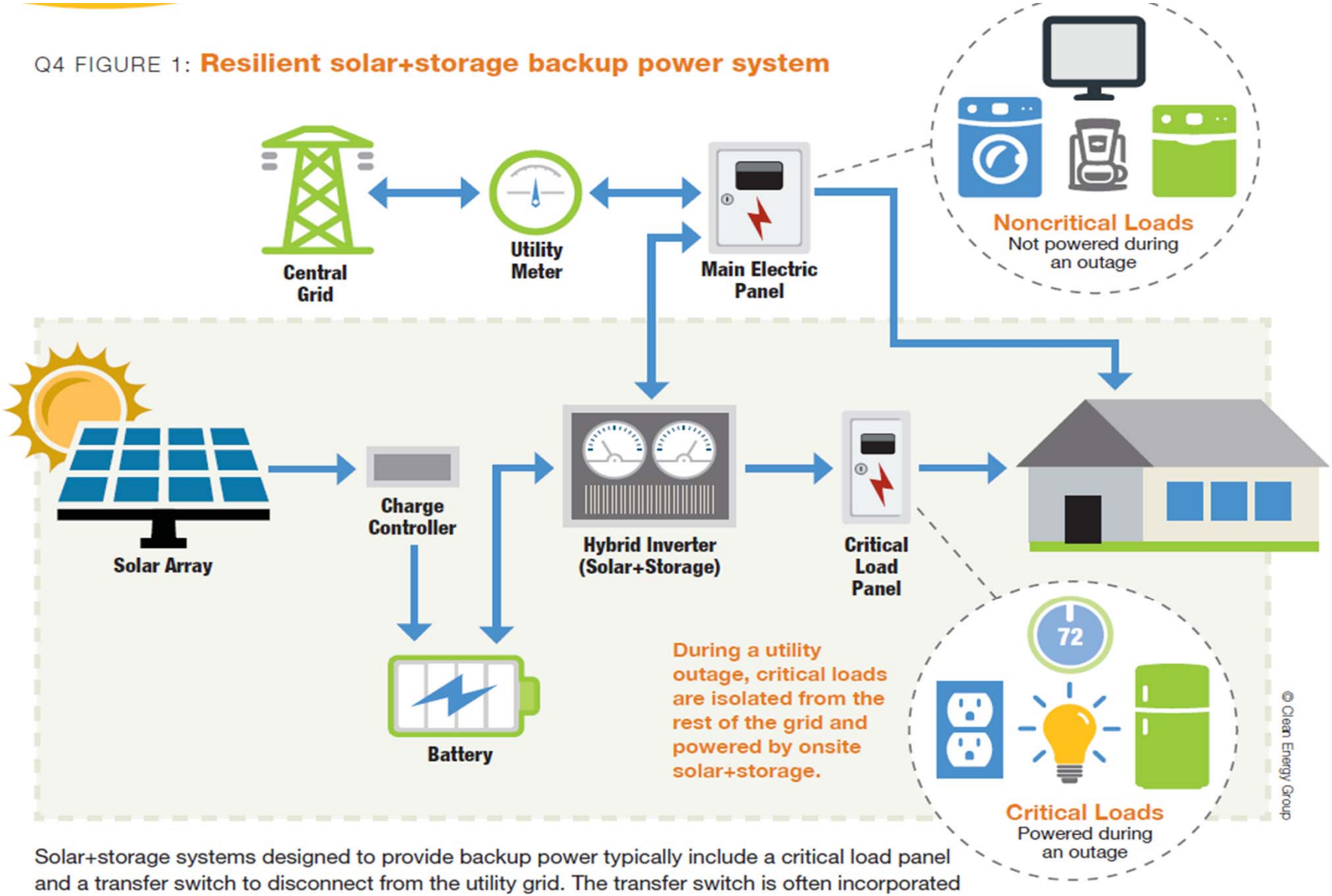
Mendocino Community Health Center

Direct Relief Builds a Self-Contained Power Island

What is a microgrid?



Q4 FIGURE 1: **Resilient solar+storage backup power system**



Solar+storage systems designed to provide backup power typically include a critical load panel and a transfer switch to disconnect from the utility grid. The transfer switch is often incorporated

Battery Storage

The Value of Solar+Storage

Montetizable Benefits

- Energy savings from $10k-$100k per year
- Avoided lost revenue from closure and medicine spoilage
- No ongoing maintenance or fuel costs

Nonmontetizable Benefits

- No downtime
- Advanced warning
- Recharged by the sun
- Avoided CO2 emissions

Sustainability – Annual Environmental Benefits

Sustainability benefits are driven primarily by solar electricity production.

Offsets 113 metric tons of carbon dioxide

Offsets 284,000 miles driven

Avoids 159,887 kWh of electricity production

Equivalent to 138 acres of forest planted

*Estimates are shown for a 100kw PV system

Size+Cost=Savings

- **Solar + storage** lowers the institutions' regular utility costs year-round

Facility Size	Solar+Storage Size	Solar+Storage Cost	Electricity Savings Per Year*	Electricity Savings Over 30 Years
2,000-4,999sq ft	30kw/65kwh	$150,000	$10,000	$300,000
5,000-9,999sq ft	75kw/150kwh	$375,000	$20,000	$600,000
10,000-19,999sqft	125kw/250kwh	$625,000	$30,000	$900,000
20,000+sq ft	250kw/500kwh	$1.1M	$50,000	$1.5M

*Amounts are estimates as utility costs vary greatly across the country

Federal and State Incentives

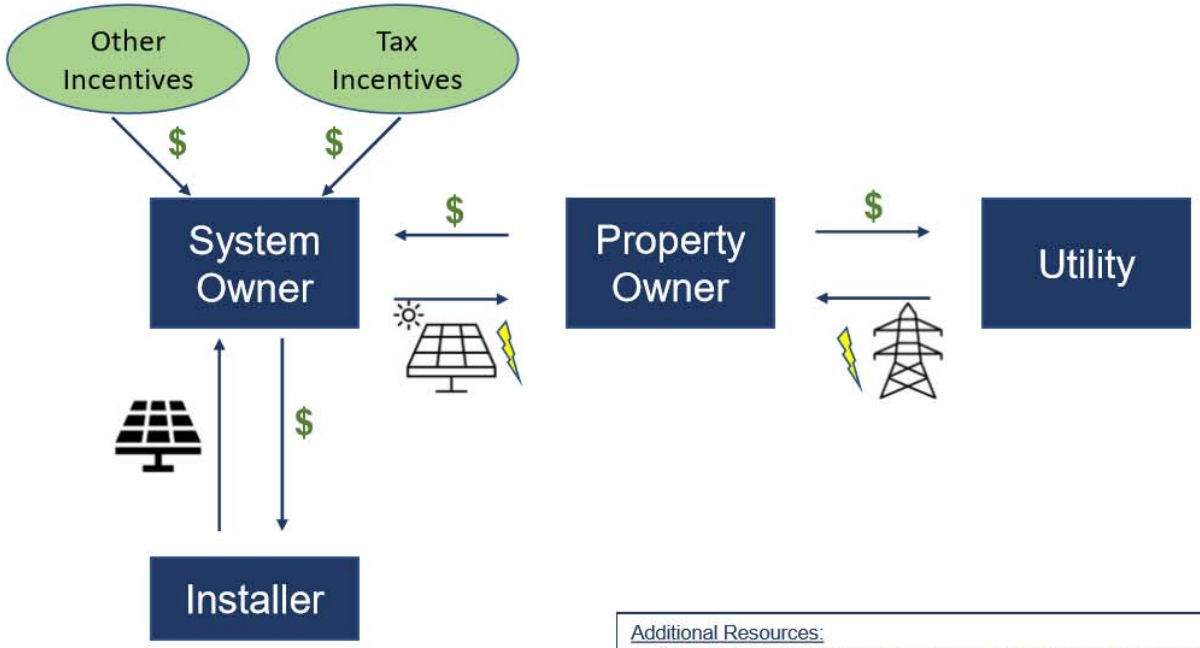
Federal Investment Tax Credit (ITC)	Federal tax credit (not deduction) of 26% of the installed cost of the solar array or solar plus storage systems	Non-taxpaying owners do not receive any benefit from the ITC.
Modified Accelerated Cost Recovery System (MACRS)	Allows full 100% tax benefit of depreciation to be claimed in the first year thus increasing its value	Non-taxpaying owners do not receive any benefit from bonus depreciation
State Program (examples)	• California Self-Generation Incentive Program (SGIP) • Massachusetts SMART Program • https://www.dsireusa.org/ shows every program by state	
Local Utility and Community Choice Aggregators	• Community Choice Aggregators (CCAs) currently exist in 10 states to purchase cleaner power and often offer rebates and credits	• www.leanenergyus.org/cca-by-state

How to Pay for It?!

3rd Party Financing	• Power Purchase Agreement (PPA) • Lease • Prepaid PPA
Loans	• PACE Loan • Rural Energy for America (REAP) • Community Banks
Federal Programs	• Infrastructure and Jobs Act • Build Back Better
Grants	• Direct Relief's Power for Health

Power Purchase Agreement (PPA)

- A PPA is a special type of lease.
- The System Owner pays for and owns the system; the Property Owner purchases all the power from the system's operation. The system must produce power for the System Owner to receive a payment.



Additional Resources:

- https://www.epa.gov/greenpower/solar-power-purchase-agreements
- https://www.seia.org/research-resources/solar-power-purchase-agreements

collective ENERGY company

Formed out of the realization that power is a prerequisite for health, Collective Energy brings resilient power and low-cost energy solutions to health centers that serve the most vulnerable and are at the most risk for power outages.

Since 1948 Direct Relief has worked to improve the health and lives of people in the United States and around the world. The Power for Health Initiative was created to help ensure health centers don't have to close their doors when the power goes out.

Direct Relief

collective ENERGY company

Working in partnership, we will connect the trusted FQHC of Direct Relief with new funding streams and the expertise of Collective Energy to build resilience for health centers and the people they serve.

This innovative and leveraged model will ensure Power For Health

Partnerships

CAPITAL LINK

THE KRESGE FOUNDATION

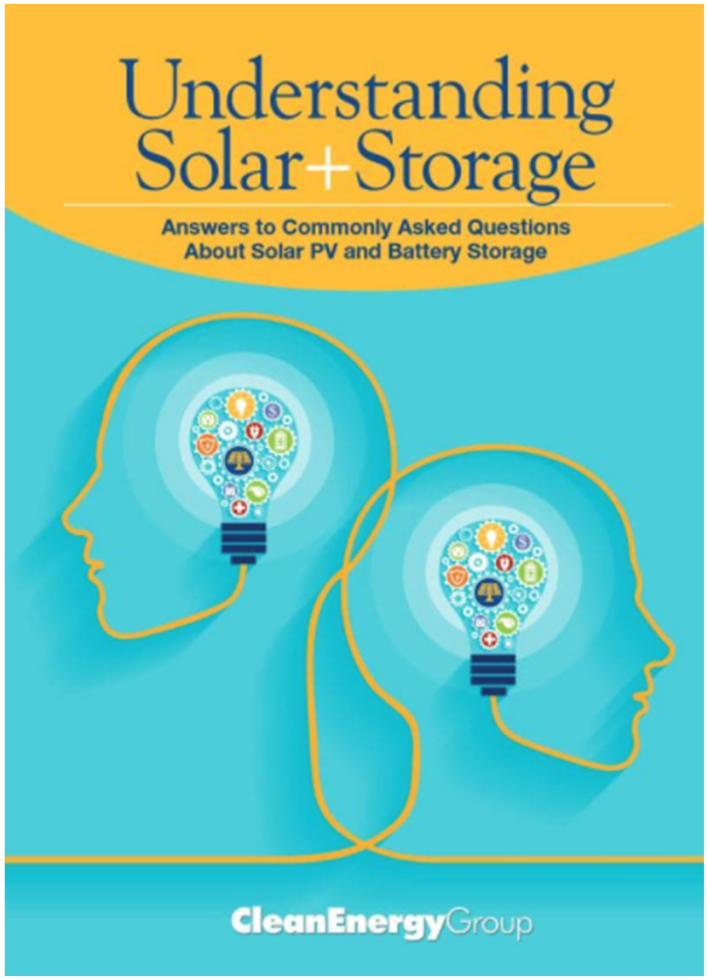
NATIONAL ASSOCIATION OF Community Health Centers®

CleanEnergy Group

Community Environmental Council

BOLD CLIMATE ACTION
ACCIÓN CLIMÁTICA AUDAZ

Clinicas del Camino Real Inc, Fillmore CA



Further Reading:

Understanding Solar+Storage: Answers to Commonly Asked Questions about Solar PV and Battery Storage

THANK YOU!!

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Questions & Answers

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