



Easter morning
1900:
5th Avenue NYC

Spot the
Automobile!





Easter morning
1900:
5th Avenue NYC

Spot the
Automobile!



Easter morning
1913:
5th Avenue NYC

Spot the
Horse!



Generating clean energy & cost savings

Through Community Solar

Clark Reed – National Program Manager, ENERGY STAR Commercial Buildings, U.S. EPA

Dr. Anna Goldman – Medical Director of Climate and Sustainability, Boston Medical Center **Bob Biggio** –
Chief Sustainability & Real Estate Officer, Boston Medical Center

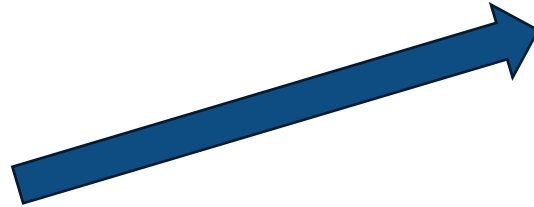


Agenda

1. What is community solar? Where is it available?
2. What are the different roles and models of how it works?
3. How do hospitals benefit?
4. Boston Medical Center's *Clean Power Prescription*
5. BMC financial analysis
6. Q & A

Renewable Energy Procurement Opportunities open to healthcare systems

- Unbundled RECs
- On-site solar
- Community solar
- Physical and Virtual PPAs
- Utility solutions
- CCA



- Projects within the **customer's utility service area** and connected to the distribution grid.
- **Output is credited and divided** among multiple subscribers.
- Customers receive **bill credit based on energy produced** by solar array.

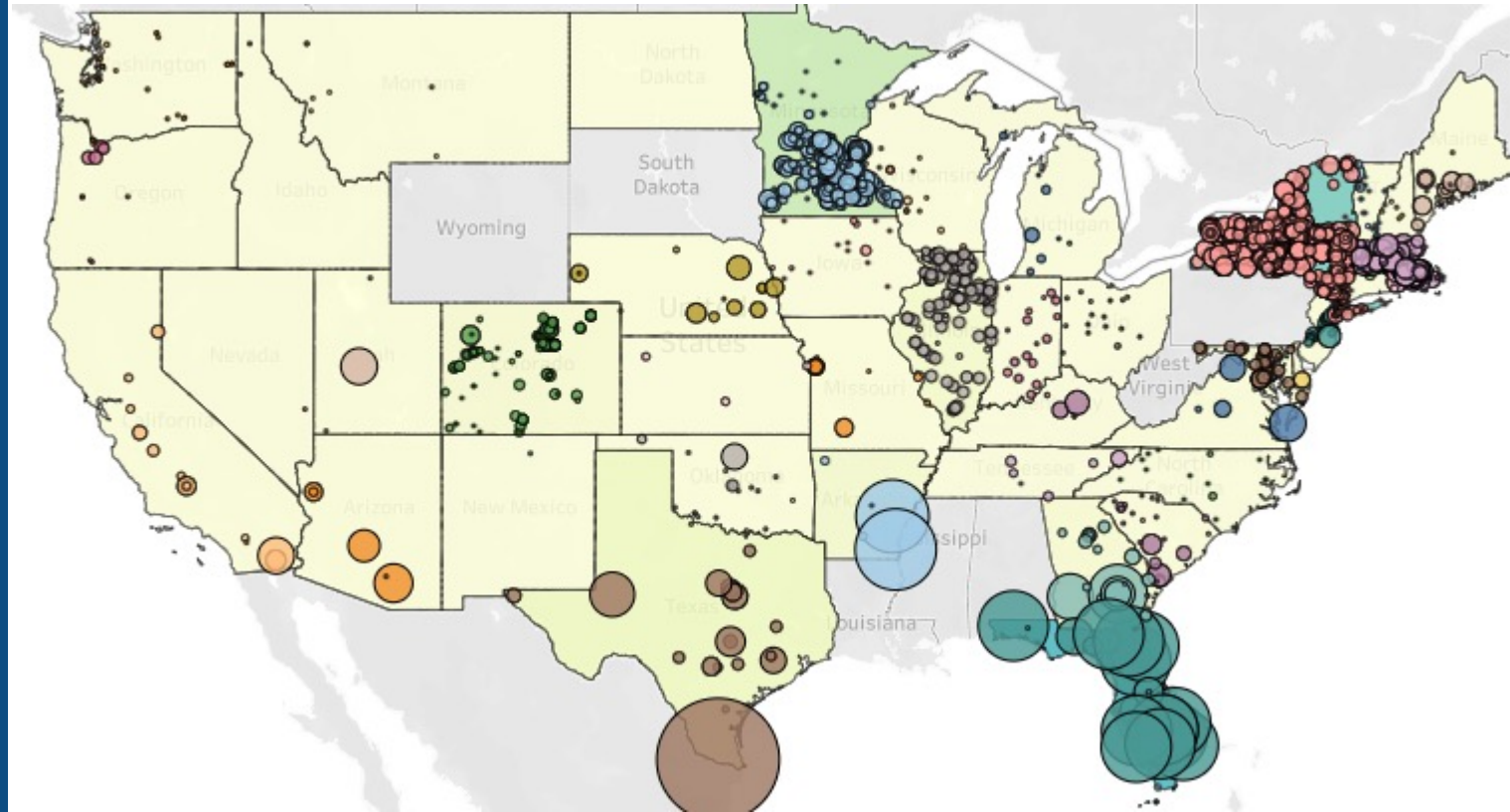
Implementing Community Solar

- **Net metering** – crediting owners for power their systems add to the grid
- **Virtual Net Metering** – allows customers to receive credit on bills for an offsite solar energy system
- Typical ownership models
 - Utility sponsored
 - Non-profit sponsored
 - Special Purpose Entity

Source: NREL <https://www.nrel.gov/state-local-tribal/community-solar.html>

U.S. Community Solar Projects as of Jan 2024

2,500 Community Solar projects (7.3 GW) in 43 states with another 2 GW in the planning stages



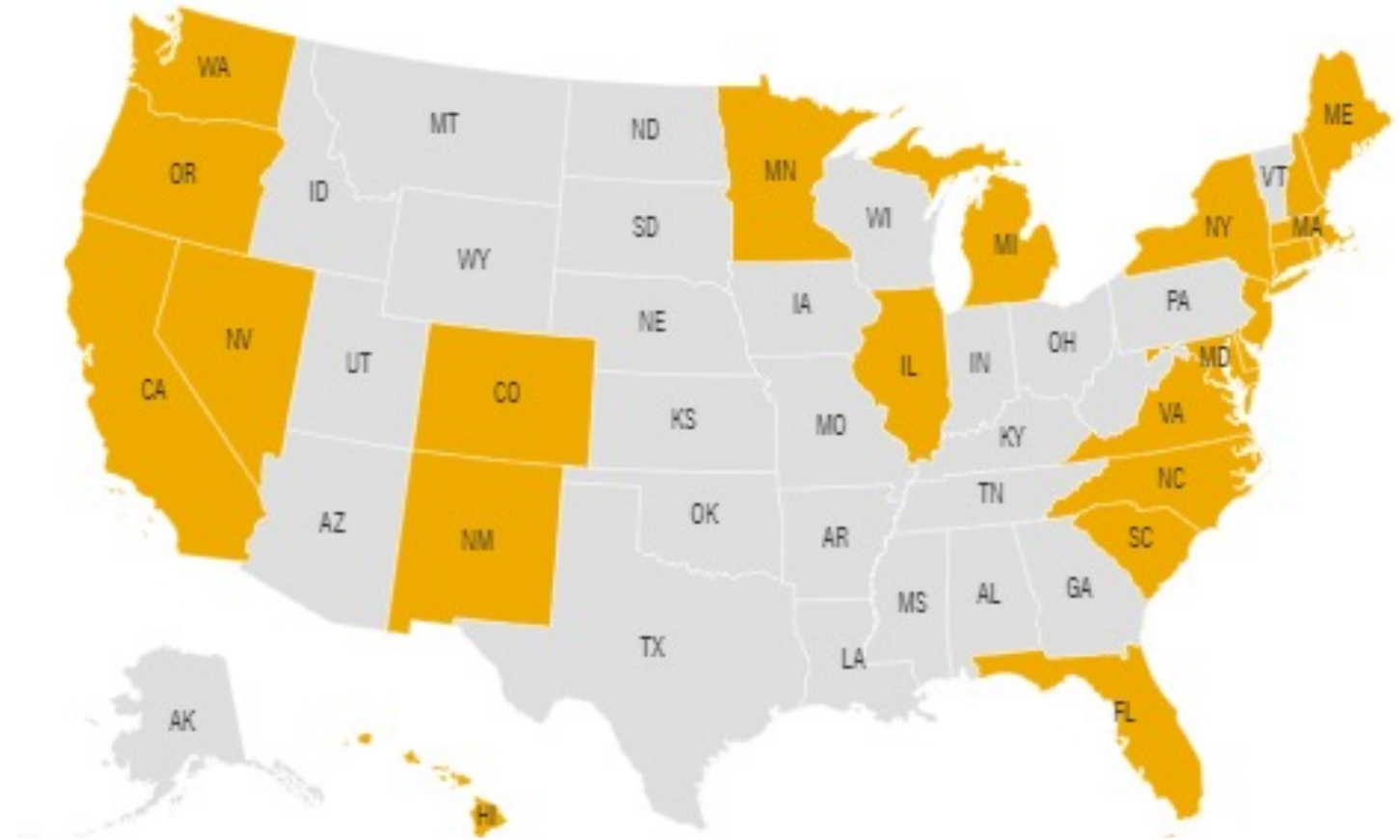
Source: DOE <https://www.energy.gov/communitysolar/community-solar-market-trends>



Is my hospital in a state that supports Community Solar?

- 23 states and DC have enacted legislation that enable community solar projects

States with enabling legislation that establishes Community Solar



NREL March 2022

Audience poll

- Does your organization participate in the HHS Climate Pledge or have public decarbonization goals?

(Y/N)

- Does your hospital now have or is considering participating in (check all that apply)
 - on-site solar, off-site solar, buying Renewable Energy Credits, community solar, PPAs

- Does your organization own hospitals or other buildings in states that have enacted community solar legislation?

(Y/N)





Duke Realty warehouse in Perth Amboy, NJ powers more than 400 local homes.

Commercial building owners support **COMMUNITY SOLAR** projects by:

- Acting as a **Solar Site Host**
- Acting as an **Anchor Tenant**
- Or **both**



Anchor Tenants



Source: Blue Wave

Anchors can subscribe to 40%-50% of total capacity, leaving the rest to be filled with smaller subscriptions from families and small businesses.

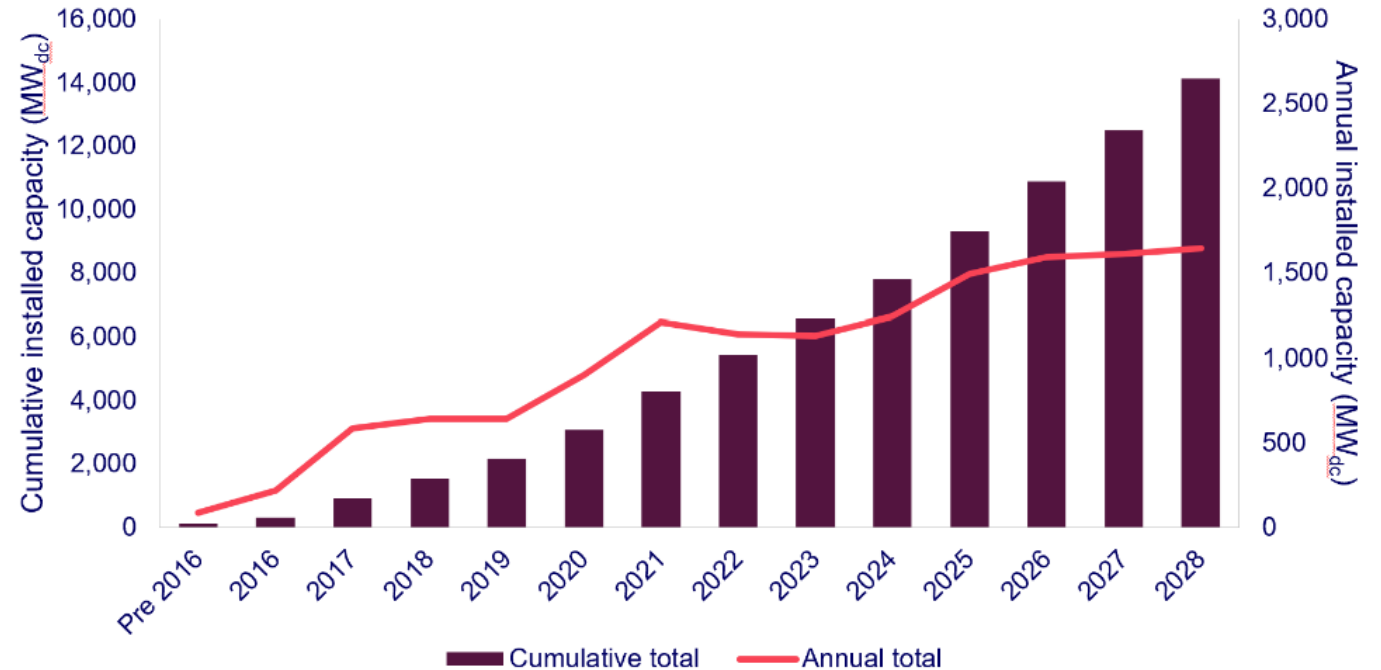
Achor institutions make it possible

- **Worthy credit** rating, enabling favorable financing.
- **Large power user** can cover required minimums.
- **Longer term planning horizons** allow 20-year purchasing contracts.
- They can reduce their energy cost **AND enable their community to participate in solar.**

Community Solar's growth is strong

- Forecasted 8% annual growth through 2028
- Comprised 40% of non-residential solar in 2023
- U.S. DOE target: 5 million new households with community solar by 2025, an increase of more than 700% since 2020.

Cumulative installed community solar capacity, 2010-2028



Source: Wood Mackenzie

Source: Wood Mackenzie "US community solar market outlook" Feb 2024



Potential Community Solar Benefits to Hospitals

- **Earn Passively.** Earn long term lease payments on properties that would otherwise go unused.
- **Save energy costs.** Contracts often price energy below what is being purchased from the grid.
- **Reduce GHGs.** Offset grid power with clean energy.
- **Enable community to go solar.** Being an anchor tenant makes it work.
- **Community Benefit.** Help local families reduce their energy burden.



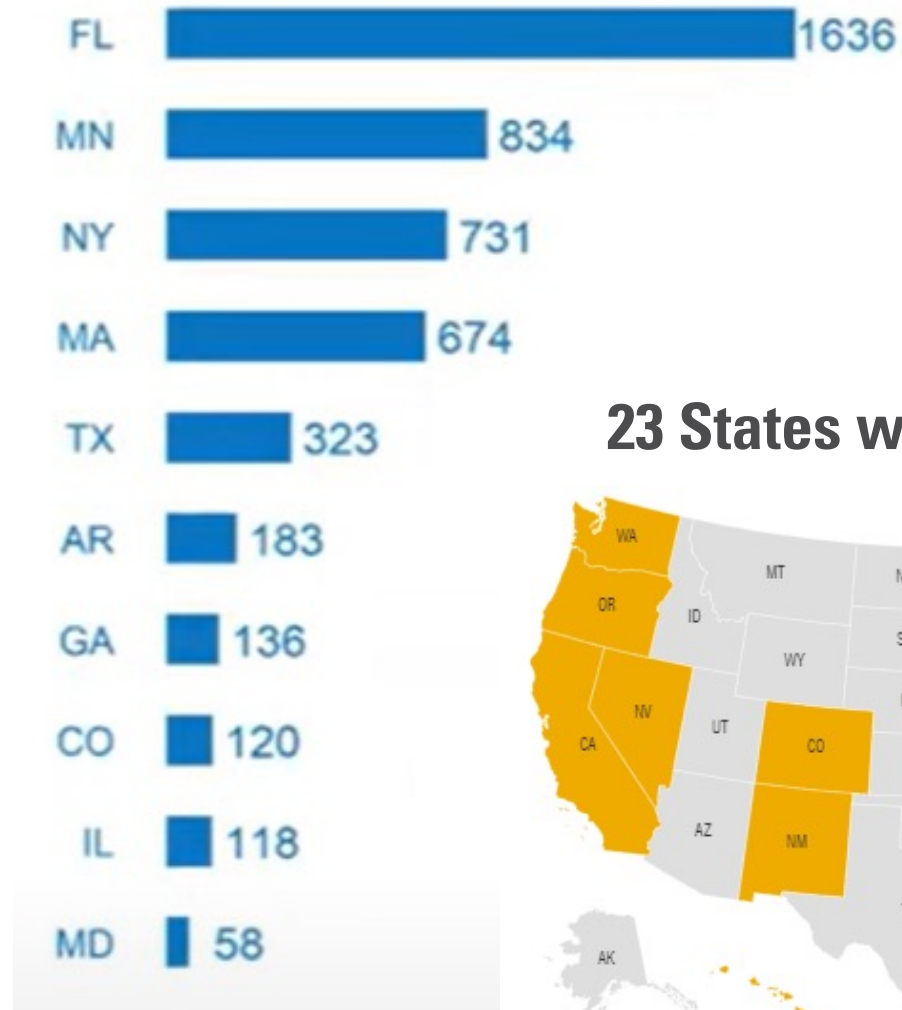
Children's National Research & Innovation Campus' (Washington DC) parking canopy provides 325 LMI families with solar energy & electricity savings.

Community Solar helps Low-to-Moderate Income (LMI) families

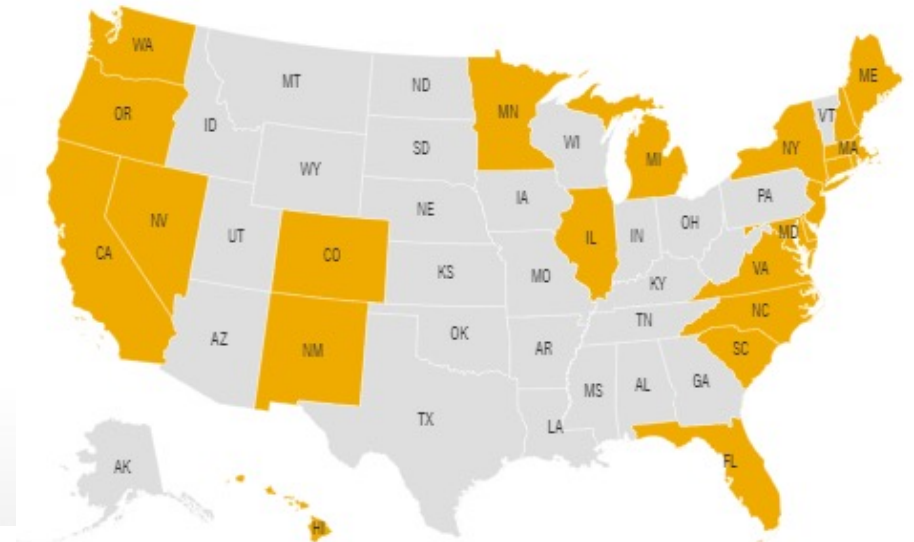
- States mandate or incentivize projects for low-to-moderate income (LMI) families.
- Subscriptions often save LMI families **25% - 50%** compared to grid pricing.
- LMI customers grew nationally from **2% in 2022 to 10% in 2023.**

NREL National Community Solar
Partnership March 2022 webinar

Top 10 States (MW capacity)

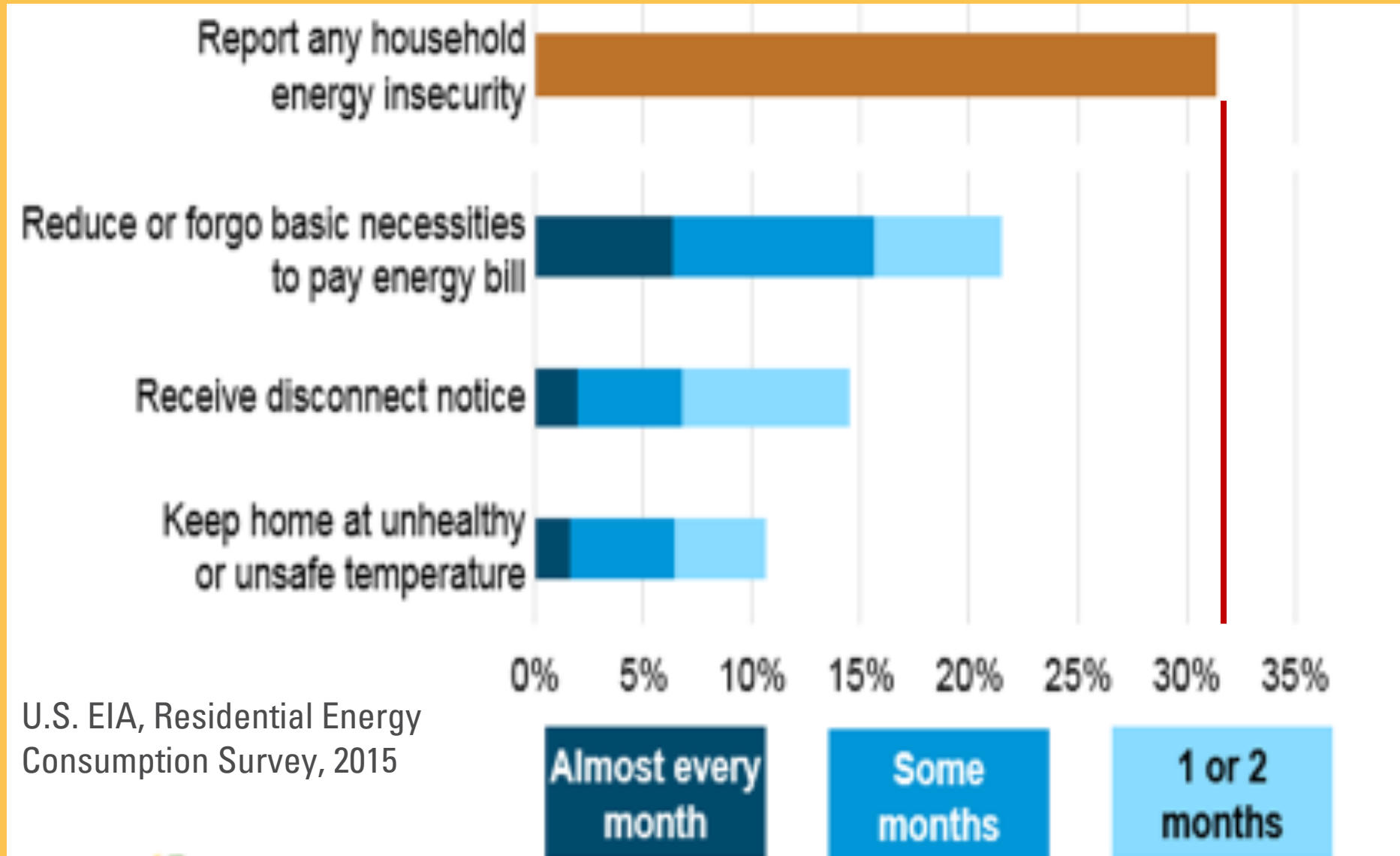


23 States with LMI provisions



One in three U.S. Households are energy insecure

Households experiencing energy insecurity



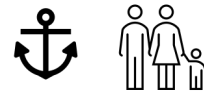
Leading Hospitals in Community Solar



- [Albany Medical Center, New York](#)



- [Boston Medical Center, Massachusetts](#)



- [Children's National, Washington DC](#)



- [Saratoga Medical Center, New York](#)

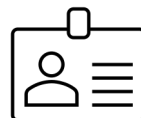


- [Southern Illinois Healthcare, Illinois](#)



- [University of Md Medical Center, Maryland](#)

Key:



Employee subscription



Anchor institution



LMI families



Patient subscription





Clean Power Prescription Pilot Program at BMC Health System

CleanMed 2024

Bob Biggio, SVP of Sustainability and Real Estate

Anna Goldman MD, MPA, MPH

**Boston Medical Center
HEALTH SYSTEM**

Introduction to Boston Medical Center Health System

fact

616

bed
academic
medical center

fact

Nearly
10K
employees

fact

750K
member
health plan

fact

1.2M
annual patient
visits

fact

Principal
teaching
affiliate of Boston
University School
of Medicine

fact

Largest
safety net
hospital in
New England

fact

Largest trauma and
**emergency
services**
provider in New
England

fact

#4
most racially
inclusive hospital in
the U.S. by the Lown
Institute

Why We Do This Work?

- BMC's vision is to “**make Boston the healthiest urban population in the world**”
- Most of our patients live in communities that are **disproportionately vulnerable to the effects of climate change**.
- Our sustainability strategy is to maximize the **efficiency** of our operations and invest in cleaner, lower-cost **renewable energy**, both of which generate **savings**
- This allows us to **reinvest in patient care** and **increase access** for those who need it most



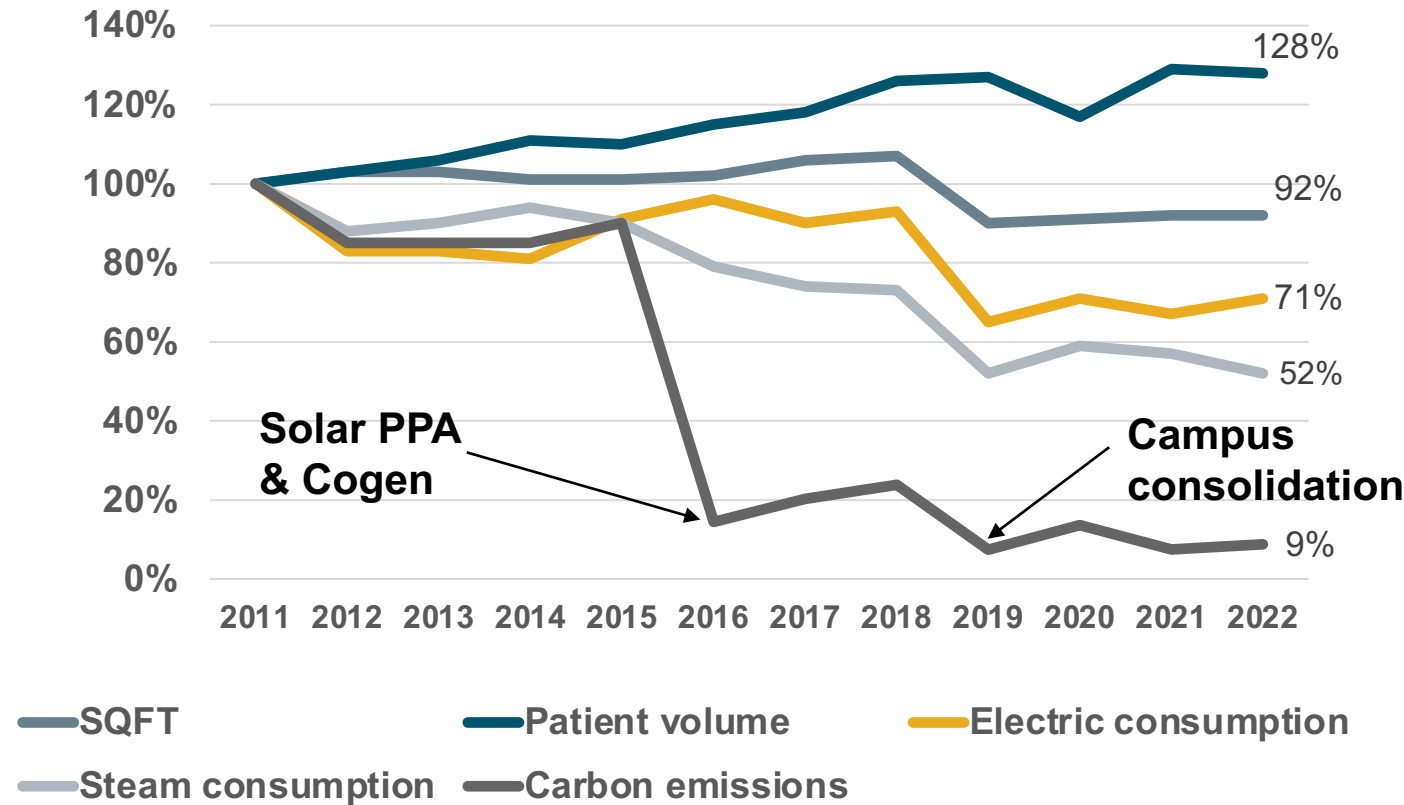
You must be willing to lead

- **2014** the first hospital in the country to issue **green bonds** to finance the redesign of our main campus
- **2014** BMC launched the **\$350m redesign** of its main campus to make the organization more financially and environmentally sustainable
- **2016** the first hospital in Boston to install a cogen plant with **black start and islanding** capability so that it could protect its patients
- **2017** BMC opened the first ever hospital-based **rooftop farm** in the country
- **2017** BMC executed the largest **collaborative solar power purchase** agreement through a partnership of diverse buyers, ever done in the US
- **2022** BMC opened the first **net-zero inpatient behavioral health hospital** in the US
- **2023** the first hospital in the country to issue **sustainability bonds** to fund its main campus expansion
- **2024** BMC launches its first in the nation **Clean Power Prescription** program



The Responsible Use of Square Footage Yields Results

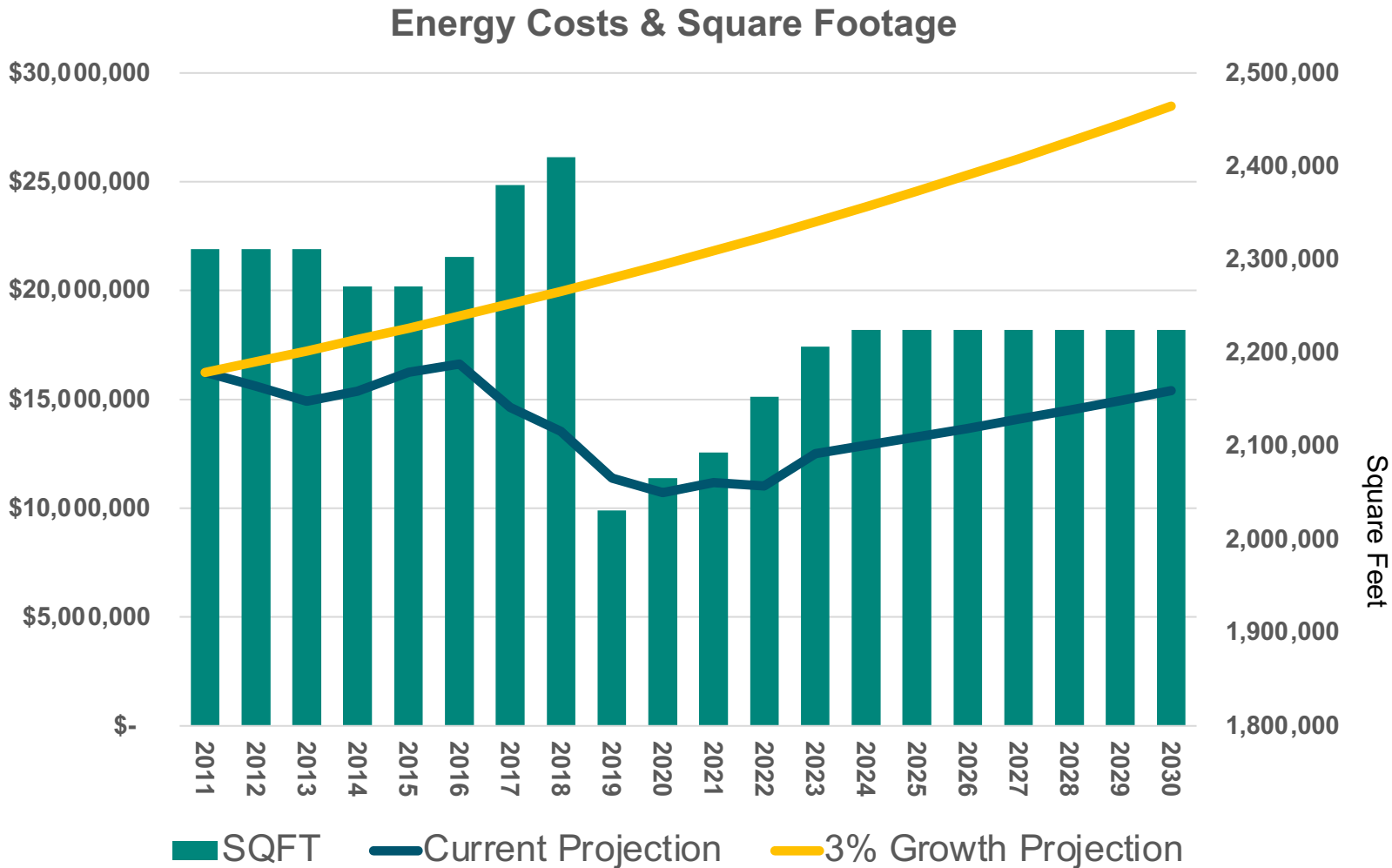
Changes to energy consumption, physical footprint
and environmental impact since 2011
Indexed to 100; 2011 = 100%



BMC over the last decade:

Patient volumes increased	29%
Square footage decreased	8%
Electric consumption decreased	29%
Steam consumption decreased	48%
Carbon emissions decreased	91%

Sustainability & Square Footage Go Hand-in-Hand



- BMC's projected energy savings from 2011-2030:
- Totals over **\$150 million**
- Equivalent to over **\$3.0 billion of revenue***

Increased Access is The True North of Our Sustainability Work

New Brockton Behavioral Health Facility



80
beds

Net Zero
design

60,000
sf

100%
repurposed

Open
Oct 2022

Sustainability is Core to our Mission

**SUSTAINABILITY
IS ~~NOT~~
HEALTHCARE**





***REWRITING* HEALTHCARE**



Energy Insecurity at Boston Medical Center

- “Thrive Screening” is a screening tool to assess social determinants of health
 - We screen all patients seen in primary care, pediatrics, and the emergency department
- In 2022, more than 6500 patients screened positive for energy insecurity
- In 2023, providers wrote letters to prevent utility disconnection for more than 1340 patients

- The average low-income family in Massachusetts spends 10% or more on home energy costs.¹

	Within the past 12 months, you worried whether your food would run out before you got money to buy more.	Often true / Sometimes true / Never true
	Is this an emergency, do you need food for tonight?	Yes / No
	Do you have trouble paying for medicines?	Yes / No
	Do you have trouble getting transportation to medical appointments?	Yes / No
	Do you have trouble paying your heating or electricity bill?	Yes / No
	Do you have trouble taking care of a child, family member or friend?	Yes / No

Origin Story: A Community Solar Program at Boston Medical Center?



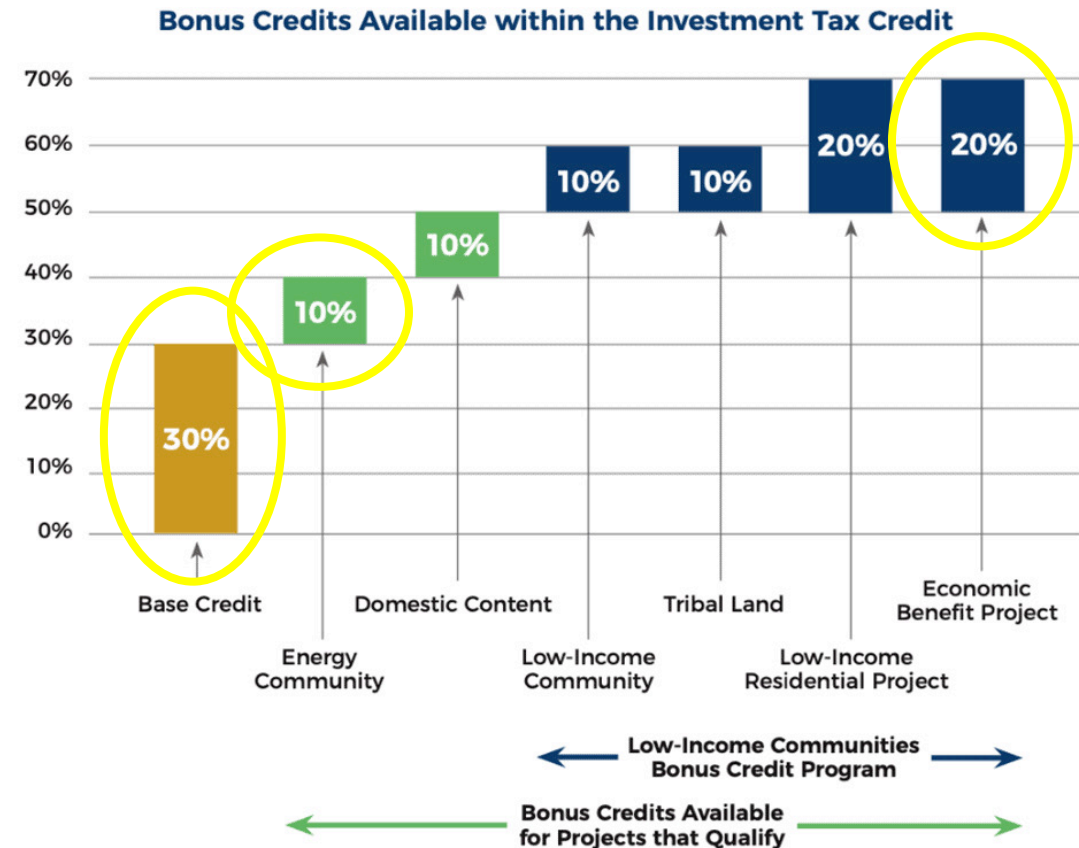


Clean Power Prescription: Program Details

- Pilot Program launched in October 2023
- 356 kW solar array on the roof of a BMC administrative building generates solar electricity
- Electric bill credits are generated and are then applied directly to patients' electricity bill for a period of 12 months.
 - Households will receive a total of \$600 in credits per year, averaging \$50 per month.
 - To be eligible, patients must live in the Northeastern Massachusetts load zone and have Eversource as electricity provider.
- Pilot program is being run through our the WellSense Complex Care Management Program
- Enrollment goal: 80-100 households

IRA Investment Tax Credit and Low-Income Communities Bonus Credit

- The IRA's Low-Income Communities Bonus Credit Program played a decisive role in the birth of Clean Power Prescription.
- Our facility has been approved for a Low-Income Communities Bonus Credit (Category 4), which covers an additional 20% of the cost of solar installation.
 - Total ITC for our array=60%
- Elective pay (also known as “direct pay”) mechanism allowed BMC as a non-profit to take advantage of the subsidy.



The federal Investment Tax Credit and its six bonus credits authorized through the Inflation Reduction Act could reduce eligible solar+storage project costs by up to 70 percent.

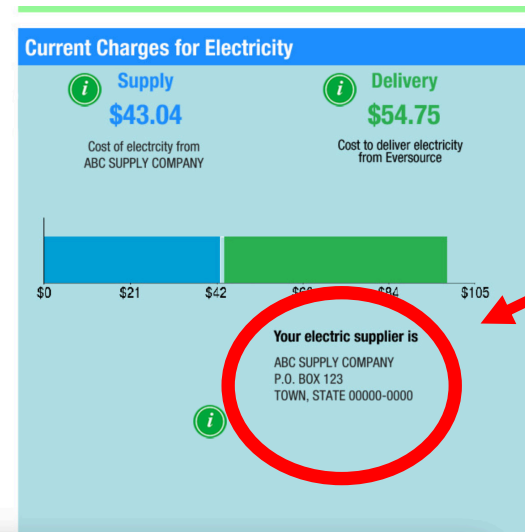
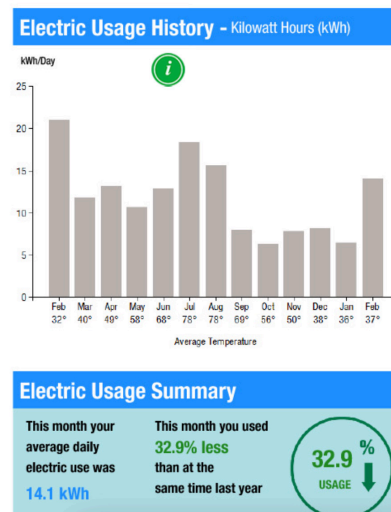
Source: Clean Energy Group

Community Partnerships to Improve Energy Efficiency and Affordability

Patients are referred to **Action for Boston Community Development (ABCD)** Energy Division when they enroll in Clean Power Prescription. Patients will be offered:

- Low-Income Heating Energy Assistance Program (LIHEAP)
- Discount electric rate
- Home energy efficiency upgrades
- Home weatherization
- Free Air Source Heat Pump installation (if they currently have oil or propane heat)

We will also assist patients get out of “competitive supplier” contracts, which can significantly increase electric bill costs without providing any tangible benefits.



Energy supplier is shown here on an Eversource bill

Clean Power Prescription: Vision & Values

- Anti-Poverty Program
- Engages historically-marginalized community in the effort to fight climate change
- Takes a step toward a more “Just Transition” as we decarbonize our economy
- Leverages Inflation Reduction Act subsidies to address environmental Justice
- Future goals:
 - Get more solar build to expand the Clean Power Prescription using IRA subsidies and external partnerships
 - Spread this model to other institutions
 - Consideration of cooperative ownership models





How to build your own version of Clean Power Prescription: Considerations

- Community need/interest:
 - Who would benefit?
- State policies
 - Does your state have policies to facilitate community solar?
- Siting and Interconnection:
 - How feasible is it to interconnect to the electrical grid at your site?
- Financing:
 - How to pay for the project?
- Institutional support:
 - How to convince health system leadership to support a community solar project



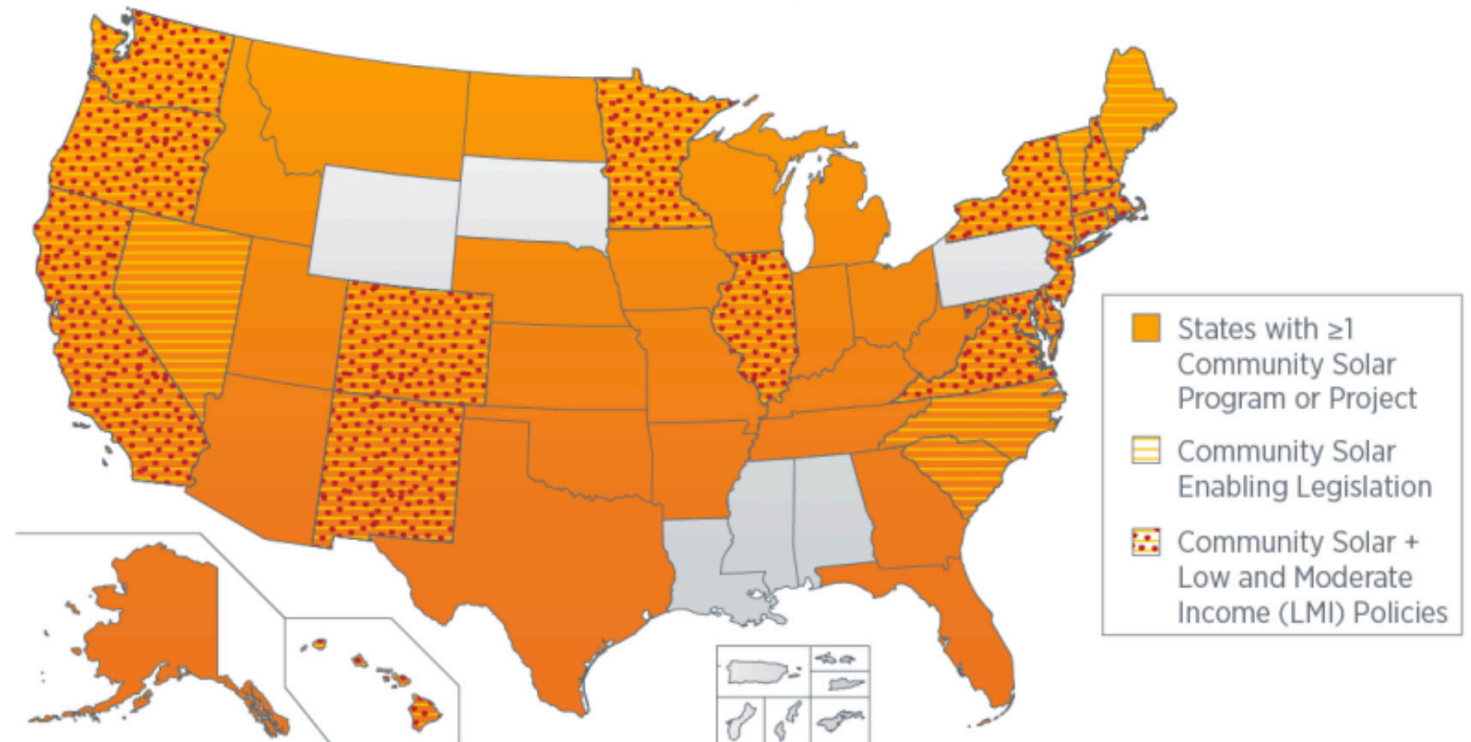
Who would benefit?

- Are there health system patients, staff, or local community members that would be likely to be off-takers of solar energy credits?
 - Does your health system currently screen for “energy insecurity” as a social determinant of health?
- Low-income focused project?
 - If applying for the Low Income Communities Bonus Credit, enrollment in Medicaid counts as a categorical eligibility for low-income classification
- Would participants pay for credits?
 - Clean Power Prescription participants do not pay for credits
- Short vs. long-term enrollment?
 - Many community solar contracts are multi-year.
 - Clean Power Prescription currently enrolls participants for 12 months at time in order to allow more families to participate

Does your state have policies to facilitate community solar?

- As Clark Reed explained, state policies are crucial for community solar.
- If your state does not have community solar policies in place, consider an alternative:
 - Microgrid
 - Behind the meter solar
 - Out of state anchor tenant agreement

Where is community solar available?



Source: <https://www.energy.gov/eere/solar/community-solar-basics>

Siting and Interconnection

- **Siting decisions:**
 - Sun exposure
 - Age of roof (if roof-top solar)
 - Other options are canopies over parking lots or community gardens; undeveloped land
- **Interconnection** can be a challenge in areas where the electrical grid is near capacity
 - In some cases, new grid infrastructure must be built to allow large renewable facilities to interconnect, which can cause major delays



Image Source: <https://www.greentechmedia.com/articles/read/how-solar-developers-can-cut-the-time-and-cost-of-installing-a-substation>

How to pay for the project?

- IRA Tax Credits cover part of the cost
- Green Bonds
- Power Purchase Agreement
- Anchor Tenant in an Offsite Community Solar Facility
- Capital Investment
- Creative financing structures
 - Off balance sheet



Image Credit: <https://newprojectmedia.com/news/goldman-sachs-renewable-power-locks-in-usd-600m-portfolio-financing-deal-as-solar-footprint-expands>

Gaining the support of your institution

- Mission-alignment:
 - Address economic and environmental justice
 - Improved financial performance
- Other benefits:
 - Philanthropy
 - Faculty recruitment
 - Faculty/staff/trainee morale
- Renewable Energy Credits (RECs):
 - Hospital may be able to retain RECs produced by the solar, depending on the ownership model



Image Credit: <https://illinoisshines.com/exploring-solar/>

Solar: Federal financial support

Inflation Reduction Act funding

- **Tax incentives**

- *Investment Tax Credit for Energy Property (26 U.S. Code § 48)*
- *Production Tax Credit for Electricity from Renewables (§ 45)*
- *Energy Credit for Solar and Wind Facilities Placed in Service in Connection with Low-Income Communities (§ 48(e) and § 48E(h))*

- **Loan and Grant funding**

- *Rural Energy for America Program (REAP)*
- *Greenhouse Gas Reduction Fund* provides funding to nonprofit lending institutions to fund RE

- **Climate Resilience grants**

- *Environmental and Climate Justice Community Change Grants*

Source: HHS, Office of Climate Change Health Equity, **Quickfinder for Leveraging the Inflation Reduction Act for the Health Sector**

Tools and Resources

1. [EPA Green Power Markets](#)

- Technical feasibility
- Economic considerations
- Policy Considerations



2. [DOE National Community Solar Partnership](#)

- Technical assistance
- Networking, events
- Resources

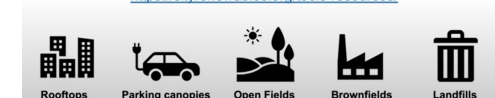


3. [RMI Municipal Solar Site Selection tool](#)

- Workbook helps to efficiently identify promising sites for solar installations

Municipal Solar Site Selection Tool
(MSSST)

<https://cityrenewables.org/tools-resources/>



ENERGY STAR® NextGen™ Certification



- A new level of ENERGY STAR certification.
- Recognition for energy-efficient, **low-carbon buildings.**

Scheduled to launch Fall 2024!

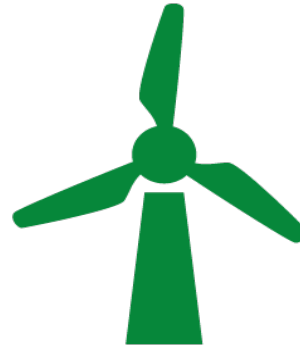


Set a Goal for your GMS hospital or MOB to earn ENERGY STAR® NextGen™ from the EPA



Efficiency

ENERGY STAR
certification



Renewable Energy

Procure 30% of energy
from renewable sources



Electrification

Meet target for onsite
GHG emissions

Eligible RE: Unbundled RECs, Power Purchase Agreements (PPAs), and any other renewable electricity procurements not conveyed through the utility electric bill. **Community Solar must be Green-e certified.**



Questions