

Community-Led Energy Resilience:

Lessons from the Clean Energy Incentive

Navigator

December 11, 2025

Webinar Logistics

All attendees are in "**listen only**" **mode** – your webcam and microphone are disabled. The Chat function is also disabled.

Submit questions and comments via the Q&A panel



Automated **captions** are available



Speaker bios will be made available in the Chat

This webinar is being recorded. We will email you a webinar recording within 48 hours. This webinar will be posted on CEG's website at www.cleanegroup.org/webinars

We encourage you to provide feedback for us via post-webinar survey or email.



Affordable, reliable, clean energy for all.



Community Health



Distributed Energy Access and Equity



Energy Storage and Flexible
Demand



Fossil Fuel Replacement



Resilient Power Project

Building the foundation for energy resilient communities.





footprintproject org





Rooftop solar installation in Dorchester, MA. Credit: Resonant Energy



Clean Energy Incentive Navigator Program

Navigator organizations will serve as local knowledge hubs for solar and battery storage technologies and available incentives.

Step 1: Needs Assessment

Step 2: Resource Development

Step 3: Navigator Launch



Solar installation in Puerto Rico, Credit: Solar Responders

Webinar Speakers

- Garrison Davis, Director of Community Energy, PUSH Buffalo
- Peter Drummond, Executive Director, Forward Together Wisconsin
- Nick DeMarsh, Technical Assistance Director, Forward Together Wisconsin
- Lynn Pinder, Director of Baltimore Green Jobs Academy, Baltimore Green Justice Workers
- Kimberly Armstrong, Director of Strategic Partnerships, Baltimore Green Justice Workers
- Maya Bornstein, Program Manager, Green Building United
- Labaron Lenard-Palmer, Director of Sustainable Building Strategies, Green Building United
- Isabelle Coupet, Program Manager, Green Building United
- Mary Pettigrew, Resilience Hub Team Leader, Empower Our Future
- Anna Adamsson, Project Manager, Clean Energy Group (Moderator)





Thank You



Anna Adamsson
Project Manager
Clean Energy Group
Anna@cleanegroup.org



FORWARD TOGETHER WISCONSIN

Clean Energy Incentive Navigator



Organization Overview



FTW Executive Director Peter Drummond



Web Resources

Storyteller Guide



At a Glance: Library Resilience Hub

Year Commissioned: April 2019 Solar: 11-kilowatt rooftop solar array Storage: 27-kilowatt lithium-ion battery Funding Source: grants, donations, Investment Tax Credit

Project Partners: Ethos Green Power, Current Electric

As a community safe haven, solar+storage provides backup power for residents to use the internet, charge phones and power electricity dependent medical equipment.

Lawton Memorial Library in La Farge, WI Featuring Solar+Battery Storage

Details about State & Federal Clean Energy Funding

Clean Energy Incentive Navigator Hub

The Clean Energy Incentive Navigator program is a nationwide network of solar+storage learning hubs. Learn more on Clean Energy Group's website: www.cleanegroup.org/initiatives/navigator.

The following resources detail types of investments that entities such as schools, local governments, churches and community centers might be exploring to reduce their energy expenses, while reducing emissions for operating their facilities. The resources are broken down across four category types: 1) energy efficiency, 2) soin, 3) battery storage, 4) geothermal.



Navigator Launch









Lessons Learned

- Existing awareness about battery storage is mixed
- Energy resilience is a helpful framing of the benefits of solar+battery storage because power loss from extreme weather is a concern
- There are powerful examples of solar+battery storage in the state and palpable interest for additional projects



Community-Led Energy Resilience: Lessons from a Clean Energy Incentive Navigator

Baltimore Green Justice Workers Cooperative (BGJWC) - Clean Energy Incentive Navigator Hub

Email: info@greenjusticeworkers.org

Telephone: (443) 449-5288





www.greenjusticeworkers.org

BGJWC Introduction

Building Community

- Building Bridges from Dar Es Salaam (Tanzania) to Baltimore, MD (USA)
- Climate Change/Community Conversations
- Climate Change/Horticulture Apprenticeship



GREEN JOBS GREEN ECONOMY

- Baltimore Green Jobs Academy/ Offshore Wind Worker Safety
 Training Pilot (career development)
- Baltimore Green Jobs Academy/The Avenue Learning Initiative/City of Abraham Church & Ministries (ABE/GED Program)

Founded in December 2022 in the spirit of collective work & responsibility (Ujima) and cooperative economics (Ujamaa), Baltimore Green Justice Workers Cooperative (BGJWC) is a Baltimore-based nonprofit that provides education and skills training that helps adults jumpstart pathways into green careers and build climate resilience.

In 2024, BGJWC partnered with 11 other community-based organizations in Baltimore City to launch the Clean, Green & Beautiful Baltimore Community Change Collaborative (CG2B3C).

In 2025 with the help of Clean Energy Group (CEG), BGJWC launched its Renewable Energy Initiative and the Clean Energy Incentive Navigator Hub.

BGJWC Vision & Mission

June 29, 2024 - Mission/Vision Statements Reboot

Revised BGJWC Mission Statement:

Baltimore Green Justice Workers Cooperative (BGJWC) equips those of us from historically marginalized and underserved communities to have a hand in creating innovative, sustainable, green solutions that help us shift power dynamics by creating more beautiful, resilient and thriving communities.

Revised Vision Statement:

Baltimore Green Justice Workers Cooperative (BGJWC) envisions a world where people of color from marginalized and underserved communities are no longer negatively impacted by environmental, social and/or economic injustices. Through education, training, professional development, advocacy and outreach, we will be empowered to design, create, establish, implement and sustain high quality green career/jobs programs, projects, co-ops, businesses, organizations and initiatives that will equip us and other stakeholders with the power, confidence, skills, resources and influence to make every community across the globe a better place to live, work, play, pray, learn and earn.



Lynn Pinder
Director of Baltimore Green Jobs Academy;
Clean Energy Incentive Navigator Hub
Administrator & BGJWC Co-Founder





Kimberly Armstrong, Director of Renewabl Energy Initiatives;
Clean Energy Incentive Navigator Hub Coordinator & BGJWC Co-founder



Feben Abiy
Fall 2025 Climate Change
Intern & Graduating Senior at
University of Maryland,
Baltimore County





CG2B3C Overview:

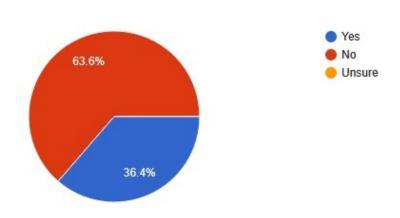
The Clean, Green & Beautiful Community Change Collaborative (CG2B3C) is a citywide collaborative of 13 neighborhood/community associations and community-based nonprofits whose aim is to work with residents, in nine historically marginalized and underserved communities, to address the adverse effects of climate change and build community resilience. Additionally, CG2B3C exists to help CG2B3C partners build their capacity to provide green resources and support to residents in Baltimore City.

CG2B3C Partner Needs Assessment: Solar Power & Solar Battery Storage

At the time of this survey, there were only 12 CG2B3C (Clean Green & Beautiful Baltimore Community Change Collaborative) partners. 11 of the 12 completed this needs assessment. Here are some of their responses:

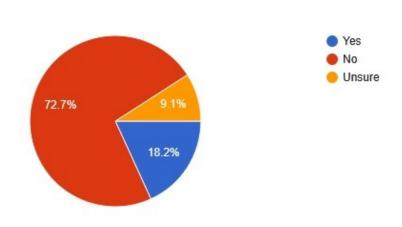
(5) Do you utilize solar power in your home?





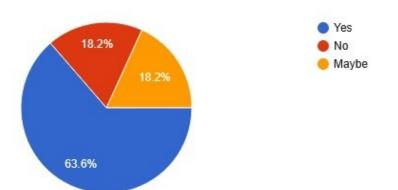
(7) Do you have access to solar battery storage?

11 responses

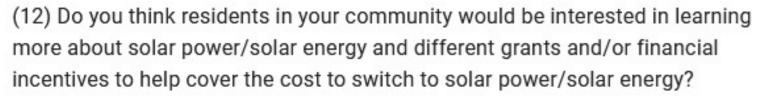


(8) If you were provided information about grants and other types of incentives to help you pay for solar power, would you be more likely to purchase solar power for your home?

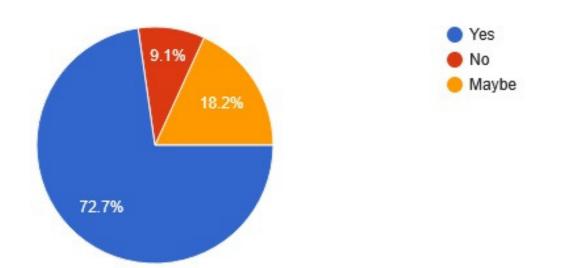
11 responses



As part of this CEG grant, Baltimore Green Justice Workers Cooperative (BGJWC) developed a needs assessment to get a better understanding of CG2B3C partners' interest in solar power and solar battery storage.



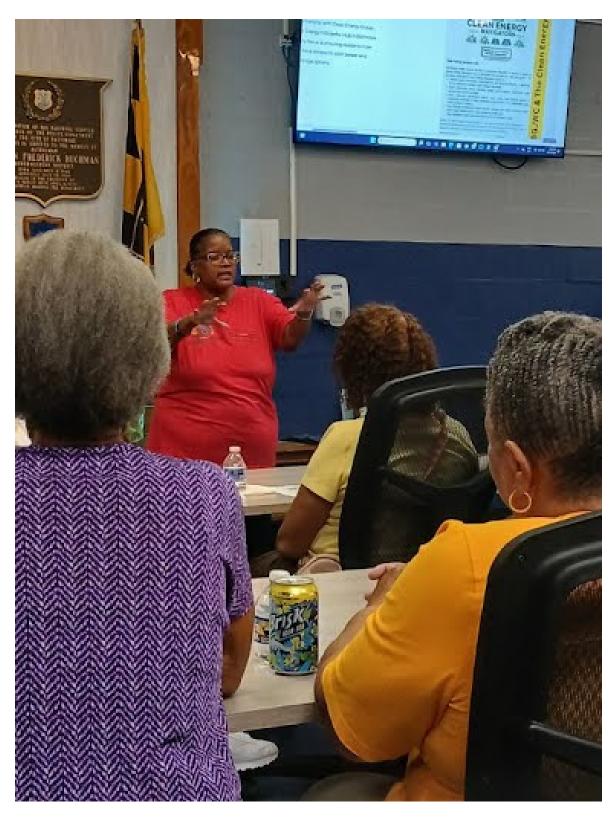
11 responses



The responses we received from this needs assessment helped BGJWC identify the type of outreach and support that were needed by CG2B3C partners.

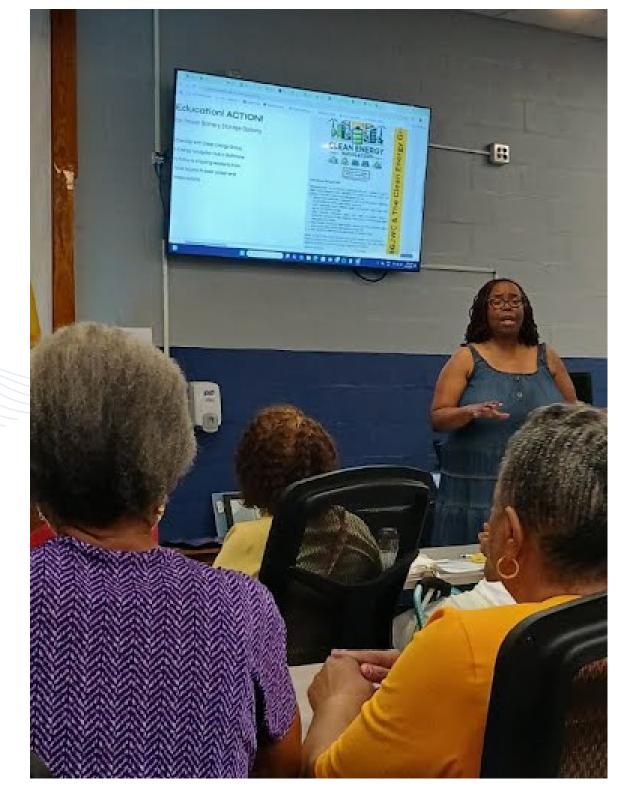
CG2B3C community partners who completed the survey, participated in BGJWC-sponsored Lunch & Learns, Happy Hours and/or invited BGJWC to speak at one of their community meetings received a \$700 community stipend.

CG2B3C training partners who completed the survey and worked with BGJWC as part of the White Paper series received a \$1000 community stipend.



CG2B3C Partner: Hilltop 4100



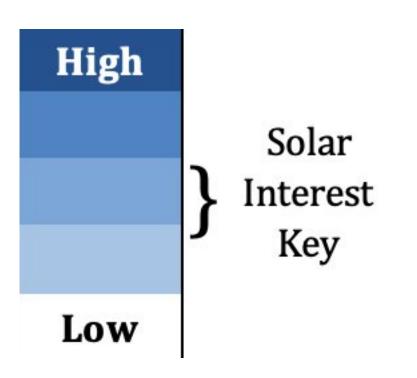


Ms. Minerva Eaton, President of the Hilltop 4100 Community Association, invited BGJWC co-founders to a Hilltop 4100 neighborhood association meeting to share solar resource information and an introduction to BGJWC's Clean Energy Incentive Navigator Hub.

www.hilltop4100.com

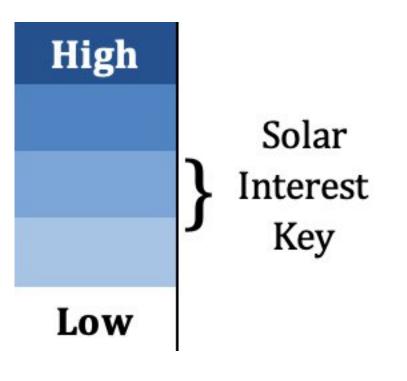
Oliver Neighborhood: Interest in Solar

Cost / Financing	Savings Benefits	Incentives/ Rebates	Battery Storage	Maintenance/ Life span	Enviromental Benefits	Connection to Electric grid
TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
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FALSE	FALSE	FALSE	FALSE	FALSE	FALSE	FALSE



Hilltop Neighborhood: Interest in Solar

Cost / Financing	Savings Benefits	Incentives/ Rebates	Battery Storage	Maintenance/ Life span	Enviromental Benefits	Connection to Electric grid
TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE
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Interest in Solar

Cost / Financing	Savings Benefits	Incentives/ Rebates	Battery Storage	Maintenance/ Life span	Enviromental Benefits	Connection to Electric grid
TRUE	TRUE	TRUE	FALSE	FALSE	TRUE	TRUE
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FALSE	TRUE	FALSE	FALSE	FALSE	TRUE	FALSE
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Langston Hughes

Park Heights



Baltimore Green JusticeWorkers Cooperative

www.greenjusticeworkers.org



Purpose of the Clean Energy Navigator Hub:



Expand access to resilient clean energy



Raise awareness of solar + battery storage



Connect the community to grants and incentives



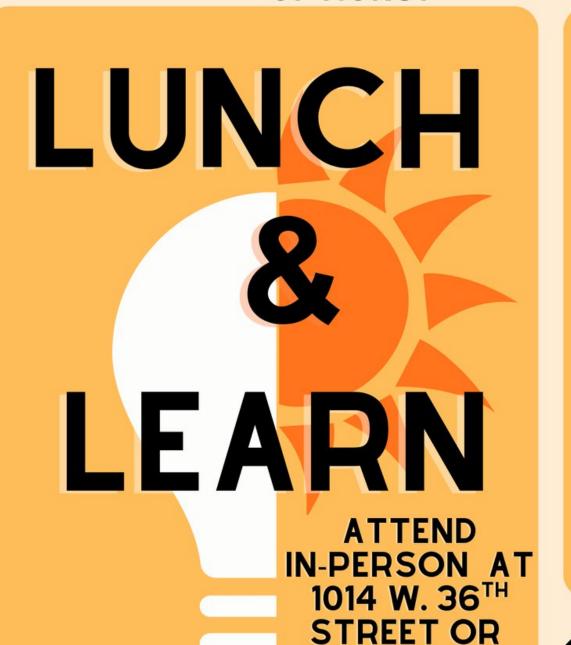
Support local innovation and leadership



Educate on the role of Resiliency
Hubs in community safety

CALLING HOMEOWNERS OR RENTERS IN BALTIMORE CITY!

INTERESTED IN LEARNING ABOUT SOLAR POWER & SOLAR BATTERY STORAGE OPTIONS?



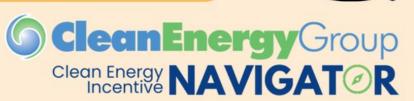
To R.S.V.P

CALL: 443-449-5288

ONLINE VIA ZOOM

EMAIL: karmstrong@greenjusticeworkers.org

Baltimore Green Justice Workers Cooperative



12PM -

1:30PM

MAKE SURE

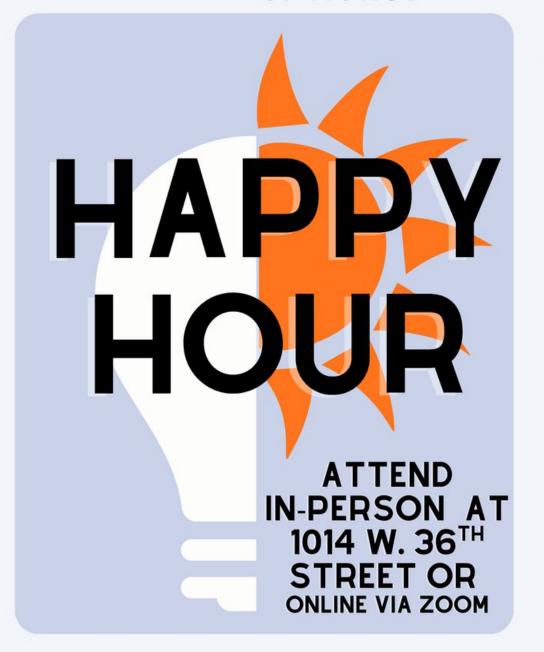
TO BRING

YOUR OWN

LUNCH

CALLING HOMEOWNERS OR RENTERS IN BALTIMORE CITYI

INTERESTED IN LEARNING ABOUT SOLAR POWER & SOLAR BATTERY STORAGE OPTIONS?



Shodwe Company

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6PM -7:30PM



CALL: 443-449-5288

EMAIL: karmstrong@greenjusticeworkers.org



Baltimore Green Justice
Workers Cooperative



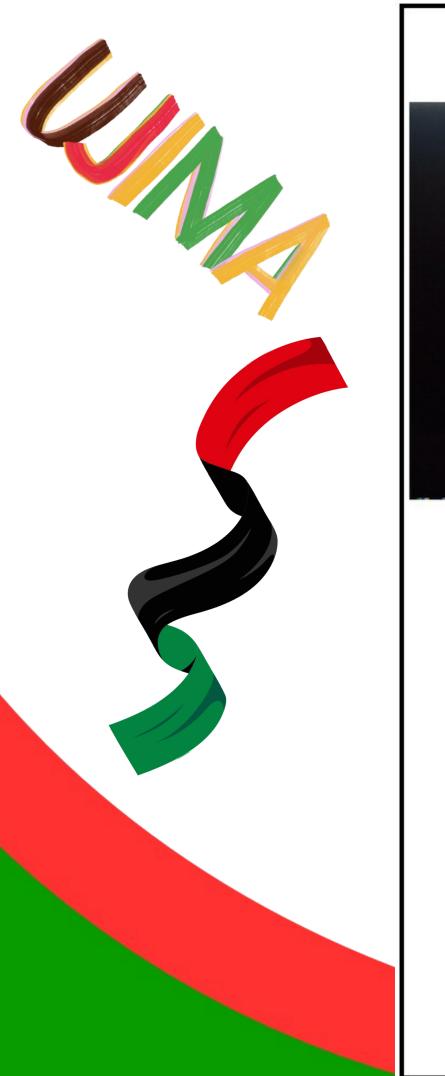
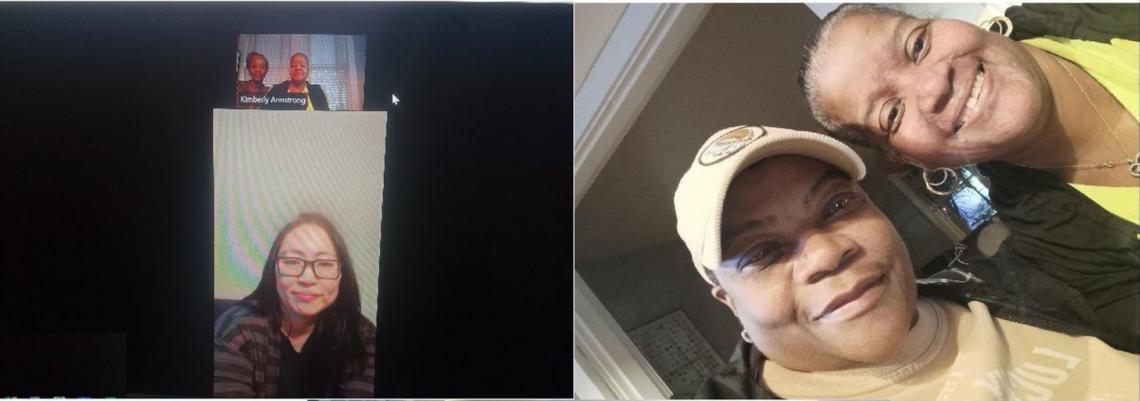
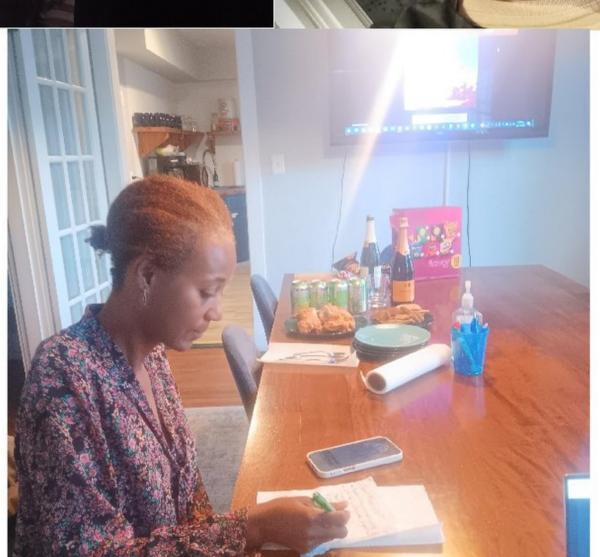
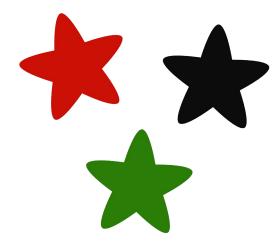
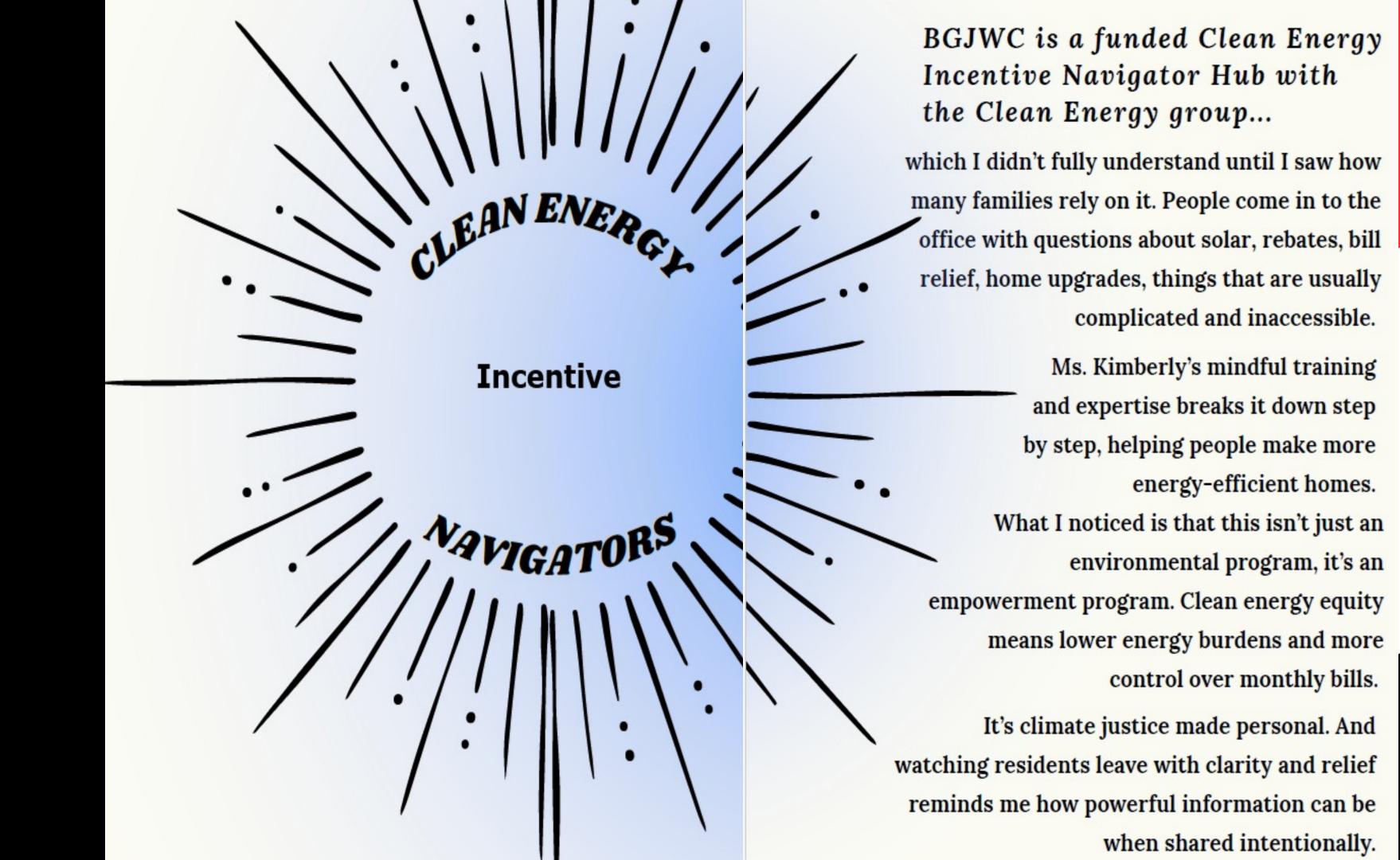


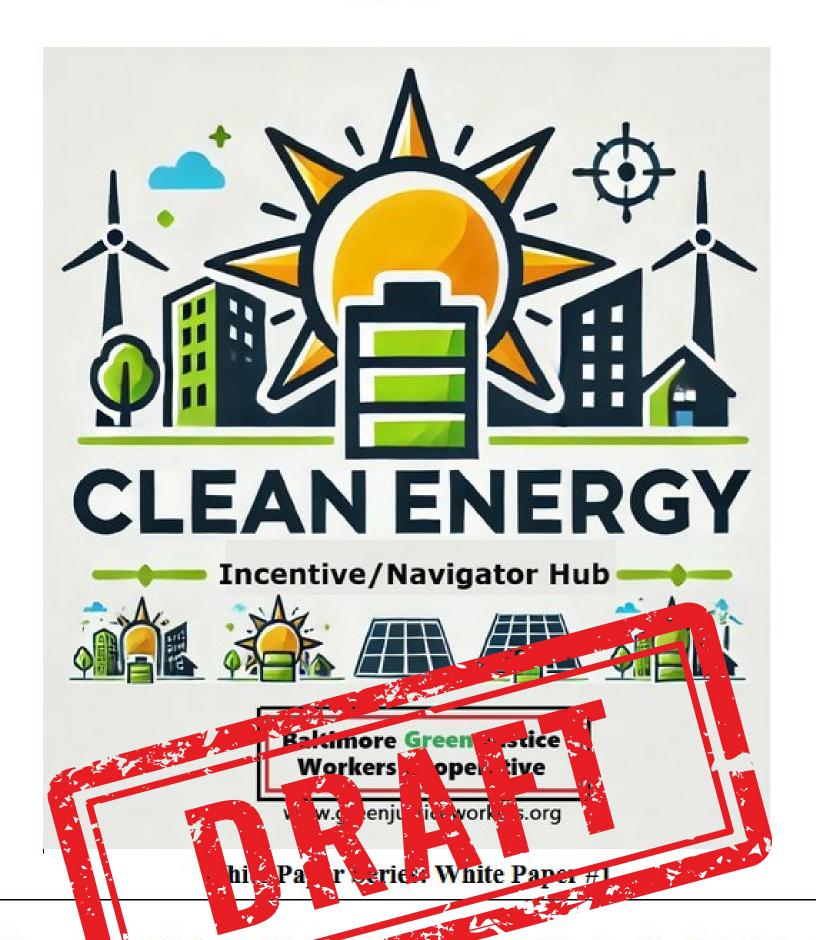
Photo Highlights from Solar Power Lunch & Learns and Happy Hours











Funding from this grant made it possible for Baltimore Green Justice Workers Cooperative (BGJWC) to collaborate with several Clean, Green & Beautiful Baltimore Community Change Collaborative (CG2B3C) partners to develop and publish a series of white papers that examine solar power and solar energy storage from a community-centered perspective.

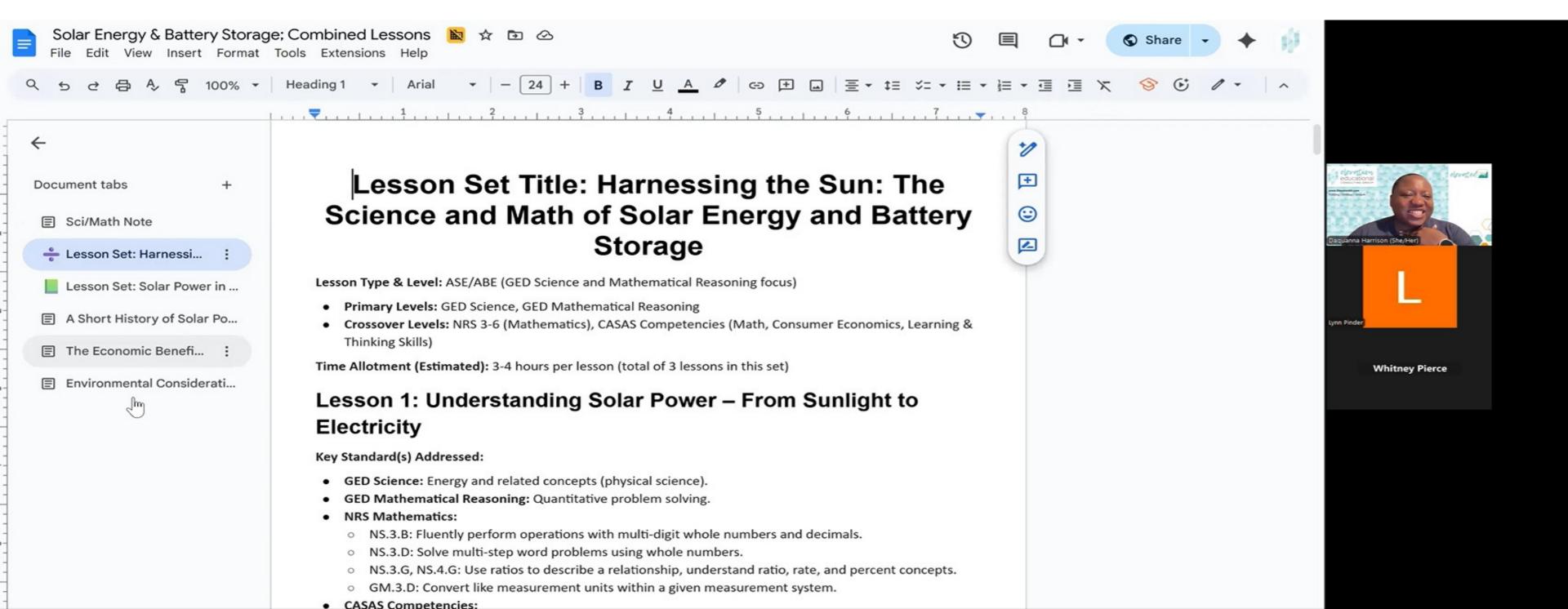
This white paper series will highlight local experiences, opportunities, challenges, legal and financial considerations to help residents and community leaders from frontline communities make more informed decisions about solar power and battery storage.

To date, BGJWC has met with: :

- Community Law Center (CLC) to complete a first draft of a white paper detailing the legalities of solar power and energy storage in Baltimore City;
- Plantation Park Heights Urban Farm (PPHUF) to develop an outline and concept for a white paper about solar power and/or battery storage use at urban farms;
- Network for Developing Conscious Communities (NDCC) to discuss the concept of writing a white paper about solar power co-ops;
- Maryland Justice Project (MJP) to discus the concept of writing a white
 paper about creating solar workforce development opportunities for returingning citizens.

BGJWC's Baltimore Green Jobs Academy

Funding from this CEG grant also made it possible for BGJWC to partner with Elevated Educational Consulting Group to develop a set of ready-to-use solar power and solar storage activities/lessons that pair Science/Math competencies and Social Studies/Reasoning through Language Arts (RLA) for ABE/GED instrutors who teach adult learners.



What's Next?

Solar Energy & Battery Storage Action





Host at least one Lunch & Learn & Happy Hour monthly in the New Year at a CG2B3C partner site.



Taking it to the Streets

Seek out more opportunities to speak at neighborhood/community association meetings.



Complete the White Paper Series

Complete final version of at least one white paper by the end of 2025. Work with CG2B3C partners to complete final version of the other three white papers before March 2025.



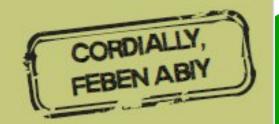
Seek out different funding opportunities

Seek out collaborative funding opportunities to support more advocacy and outreach activities via BGJWC Clean Energy Incentive Navigator Hub and to develop more solar power lesson plans for ABE/GED Instructors.



BALTIMORE CITY IS A COMMUNITY YEARNING FOR THE JUSTICE IT DESERVES. OVER TIME, RESIDENTS HAVE REALIZED THAT NO ONE IS COMING TO SAVE THEM, AND SO THEY'VE TAKEN ACTION INTO THEIR OWN HANDS. PEACE IS UNREACHABLE TO THE IDLE. BGJWC HAS EMBRACED THIS PHILOSOPHY, **EMBODYING THE TRUE BALTIMOREAN SPIRIT** AS IT FIGHTS FOR THE RESOURCES IT KNOWS THIS CITY DESERVES. I'VE HAD THE GREAT PLEASURE OF LEARNING

FROM AND WORKING ALONGSIDE THEM.
THROUGH THEIR GRASSROOTS STRATEGIES,
I'VE GAINED A DEEP SENSE OF EMPATHY AND
COMPASSION THAT I KNOW WILL STAY WITH ME
FOR LIFE. THANK YOU, BGJWC, FOR THE
IMPACT YOU CONTINUE TO MAKE.



Thank You

Baltimore Green Justice Workers Cooperative

www.greenjusticeworkers.org

Strengthening Communities ... One Green Job at a Time!





Main Telephone Number

443-625-1073

Main Office

1014 W. 36th Street, #612 Baltimore, MD 21211



Green Building United's Clean Energy Navigator

Helping our community navigating renewables

Clean Energy Group • December 11, 2025







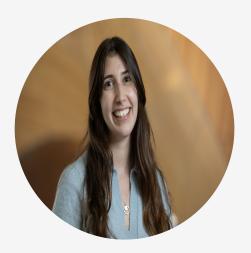
Labaron Lenard-Palmer



Director of Sustainable Buildings Strategies

Better Buildings Hub Director

Maya Bornstein



Program Manager
Climate Ready Capital
Projects, Better Buildings Hub

Isabelle Coupet



Program Manager
Better Buildings Hub, BEPP,
2030 District





Our Team

The Better Buildings Hub

Imagine a *healthier*, more resilient Greater Philadelphia for all.



A one-stop resource center to help buildings become:

Energy Efficient

Climate-Ready

People-Centered



BETTER BUILDINGS HUB

of Greater Philadelphia

The Better Buildings Hub

Imagine a *healthier*, more resilient Greater Philadelphia for all.



Our Aim:

- To be a reliable and flexible resource that helps buildings be better for occupants, owners, and their environment in the greater Philadelphia region
- To provide easy-to-understand education and practical tools for numerous audiences
- ♦ To connect people with funding opportunities at the federal, state, and local levels.
- ♦ To support for small businesses, nonprofits, building operators, affordable housing providers, and communities most impacted by climate challenges

Community Assessment

- Year long information gathering
- Survey on Solar and Battery storage
- 1-on-1 conversations

Collecting Feedback

Identifying Needs

- Financing models in Southeast PA
- Battery storage with site constraints
- Case Studies and example projects

- FAQ Guide
- Library of clean energy stories
- Database of funding and technical assistance opportunities

Resource Development





Cultivating Clean Energy and Resiliency Projects

After identifying the pain points of solar and battery deployment we decided to develop the following resources

Clean Energy Stories and Library

A database of clean energy projects, funders, installers, and resource providers in the Southeast PA region

Resiliency Center Guide

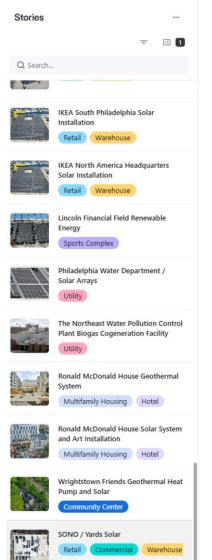
A guide that helps community-based organizations become spaces that can serve their constituents during a disaster

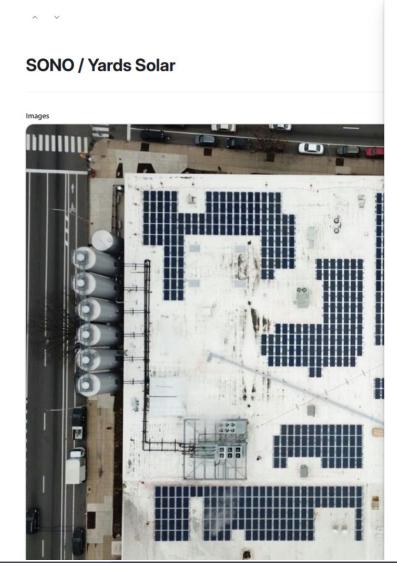
Solar FAQ

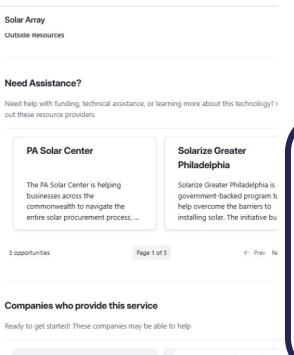
A frequently asked questions guide relating to solar and battery storage in Southeast PA



Resources: Clean Energy







NW Philly Solar Co-op

Educate & convince more folks to rooftop solar; Obtain a bulk buy di from solar contractors; Advocate for better policies on renewable energi

3 contracts

Exact Solar

Exact**Solar**

Exact Solar is leading installer of solar energy systems in the Philadelphia area.

We install photovoltaic (PV) and solar

thermal systems in residential and ...

Page 1 of 2

← Prev N

A library that showcases clean energy projects, solar installers, funding opportunities and more.

Resources: Resiliency Center Infographic

When working with our community-based organizations, many were offering the services of a resiliency center without knowing, so we created an infographic to:

- Explain resiliency centers & steps to become one
- Promote renewable backup power
- Support energy independence during grid outages
- •Demonstrate a community model for clean energy adoption

THE ROLE OF RESILIENCY CENTERS CENTER IN OUR COMMUNITIES What is a Resiliency Center: Resiliency centers are trusted spaces that offer support services and resources to individuals, families and local residents to build resources and power, and recover from Backup Clean distress. They are usually located within Water Stations Power communities and aim to address disasters, strengthen bonds, and offer support systems.

HOW CAN A COMMUNITY-BASED ORGANIZATION BECOME A RESILIENCY CENTER:

- DEVELOP A RESILIENCY PLAN
 Create a clear action plan with roles, responsibilities,
 and operating procedures. Identify community needs,
 how your space will meet them, and what investments
 are needed to ensure it can safely operate as a
 resiliency center in an emergency.
 - INSTALL BACKUP POWER
 Secure a reliable backup system, such as solar panels
 with battery storage. If resiliency centers have access
 to clean and renewable energy, they don't need to rely
 on the grid when there are power outages, and battery
 storage offers a cleaner, quieter, and lowermaintenance alternative to gas generators.
- OFFER ESSENTIAL SERVICES
 Provide internet, refrigeration for medical supplies,
 charging stations, clean water, tood, and other critical
 support.

- UNDERSTAND COMMUNITY NEEDS
- Identify the essential resources your community will need to function effectively, such as reliable electricity, heating and cooling systems, internet and phone connectivity, and access to clean water and food supplies.
- 4 ENSURE A SAFE & ACCESSIBLE SPACE Make sure your location is safe, welcoming, and coessible during a crisis by providing clear entryways, ramps, good lighting, and multillingual signage. Equip the space with basic safety features, first aid supplies, and trained staff to assist visitors.
 - BUILD STRONG PARTNERSHIPS
 Reach out to partners such as local business, emergency
 services, and schools to support building resiliency plans,
 technical assistance and funding opportunities



Resources: Solar FAQs

Our team brainstormed frequently asked questions when it comes to exploring and installing solar in the region

This guide is on our website and will eventually be embedded so we can add to it as more questions arise and site visitors can click through.



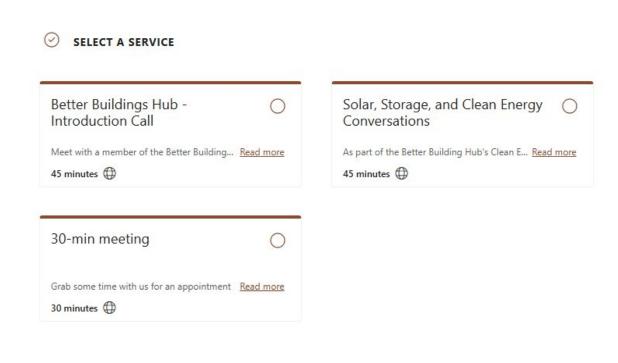


Resources: Office Hours & Appointments

Interested parties are now able to book an appointment with Better Buildings Hub staff to discuss opportunities for clean energy in their project.

Drop-in office hours will also soon become available

Better Buildings Hub



Select a service to see available dates and times



What's Next

Refine and expand resources

Continue updating solar and battery storage materials as incentives change and partner feedback comes in.

Continue Engagement

Regularly engage with partners to keep materials accurate and grounded in real-world practice.

Inform Future Funding

Use what we learn to identify gaps in existing funding and shape the next-phase of funding requests.

Strengthen Technical Assistance

Develop tools based on the most common questions.





Thank You

Maya Bornstein – <u>mbornstein@greenbuildingunited.org</u>
Labaron Lenard-Palmer – <u>llenardpalmer@greenbuildingunited.org</u>
Isabelle Coupet – <u>icoupet@greenbuildingunited.org</u>

GREEN
BUILDING
UNITED

Community Assessment – Identifying Needs & Challenges

- Collecting Feedback
 - o Build off our 12-month long discovery process from the Better Buildings Hub development
 - Survey on storage and battery needs with collection from 16 people including City of Philadelphia partners, Community serving institutions, design partners
 - 1-on-1 conversations with resource providers such as the City of Philadelphia, Solarize Greater Philadelphia, PA Solar Center, Good Energy Collaborative
- Needs Identified
 - FAQ for Pennsylvania specific concerns such as financing and leasing models that are actually allowed in PA
 - Storage concerns over site constraints in an urban landscape
 - Case studies for people to use as examples when it comes to financing models, project looks, convincing other stakeholders
 - Also discuss constraints such as geography and other things





Who we are (2-3 slides) (Labaron)

- What is GBU & the Better Buildings Hub
 - Based in Philadelphia region
- What needs did we identify (1 slide)(Isabelle)
 - Urban context
 - Smaller sites
 - Financing and lower energy costs make things harder
 - Historical limitations
- How we went about meeting these needs (2 slides)
 - Developing resources for providers and building owners (Isabelle if we keep it)
 - Philadelphia has a network of people trying to help each other access solar solutions so we developed resolution only the building owners but also other financial and technical assistance providers like our green banks are based organizations
 - What resources did we create (3-4 slides)
 - Posting things on our website
 - Resiliency center guide (Maya)
 - Clean Energy Library (Isabelle)
 - FAQs (Maya)
 - Explore resources
- What have we heard from people so far and what should we do next (2 slides)
 - Starting to host office hours and appointments & Feedback (Isabelle)
- Buildings Continuing to look for next steps and the iterative process (1 slide) Labaron



Outline



GREEN BUILDING UNITED

OUR VISION

A sustainable, healthy, and resilient environment **for all**

WHO WE ARE

Architects, engineers, planners, community advocates and neighbors

WHAT WE DO

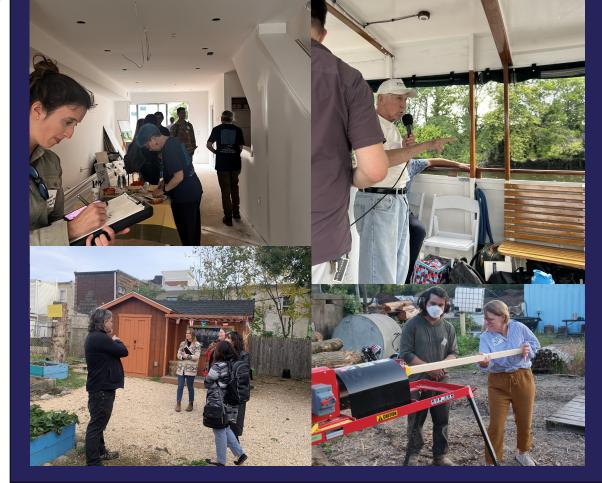
BUILDING

UNITED

- Support people, communities
- Educate elected officials and leaders

Better Buildings

• Bring people together



EOF's Clean Energy Incentive Navigator Grant:

Community Resilience Team Update

Grant Timeline February 15, 2025 - December 20, 2025



EOF's Community Resilience Team

- Mary Pettigrew, graphic designer, owner ampersand graphic design, longtime community climate activist
- Jim Gilbert, a retired medical device engineer, who has turned his brainpower to the electric grid, and refers to himself as a community energy advocate
- Scott Miller, JD, MBA, worked in law and big tech, now committed to accelerating the equitable transition to affordable, reliable, clean energy







Clean Energy Incentive Navigator Grant goals: Create educational materials to raise awareness about value of solar power + storage for:

- Energy resilience
- Reduced utility bills

+ Identify: possible community hub locations funding options industry vendors

Outreach to community-facing businesses, organizations, houses of faith with physical buildings (not individuals)

- "Top-down"
- Community Umbrella Groups
- Community Serving Groups and non profits
- Business Community
- Targeted Communities



- Colorado Energy Office:
 - Colorado Resiliency Office | Microgrids for Resilience
 - Solar for All Colorado
- Boulder Dept. of Climate Initiatives
- City of Boulder Policy advisor
- Boulder County Office of Sustainability, Climate Action and Resilience (OSCAR)
- Partners for a Clean Environment (PACE)
- Boulder Housing Partners

Business community connections

Seeking expertise for future Resilience Hubs:

- Design of the solar + battery systems
- Financial analysis of costs/savings of a potential system
- Sell, install, maintain the solar + battery systems (i.e., Namaste)
- Fund or finance the solar + battery systems through grants, loans, or rebates (i.e., OSCAR, Brightwell, Xcel)





Community connections

 Collaboration partners - to expand efforts (i.e., Colorado Jewish Climate Action)

Green Faith and numerous Houses of Faith

 Disproportionately impacted communityserving groups (Our Center, FLOWS, Monarca)

- Mapleton Home Association (MHA) HOA
 - we attended their block party to share information about solar + storage, answer questions, etc. (see photo of the MHA block party)







Community connection and

opportunity
Isabel Sanchez, Mapleton Home Association (MHA) HOA leader and, coincidentally, an emergency preparedness trainer with relationships to the area's manufactured housing community 'got' our mission.

Together, EOF and MHA applied for an OSCAR **Equity Grant for:**

- Individual resilience
- Community resilience



We got the Grant to create Energy Resilience at MHA!

Individual resilience

Solar panel battery, and solar-powered items for each homeowner



Community

Solar + storage at community building; Installation of semi-permanent structure to act as community center, powered by the solar + storage





2026 Focus: Realizing the Community Energy Resilience Grant Mission

- Our team is meeting now to clarify how city, county, state resources can be leveraged,
- Lining up vendors
- Planning work flows
- Setting up oversight / advisory panel
- We plan to be providing regular community updates about the project progress: successes, learnings, etc.





While Grant fulfillment is 2026 Item No. 1, We will continue to:

- Seek resilience hub locations, vendor partners, financial resources, etc. for future hubs
- Develop a map of Boulder County highlighting:
 - Existing and planned City/County emergency energy resilience centers
 - Lower-income and disproportionately impacted communities, wildfire risk, flood risk areas
 - Color-code locations (based on stage of resilience hub development at potential sites)
 - ...To better see where resilience is lacking
- Create a network of potential resilience hubs based on the New Orleans Lighthouse project and other shining examples! Empower

Our Future



Please see EmpowerOurFuture.org/energy-resilience for more information and resources

- Web page is in process and will continue to be updated
- We hope to stay in touch with CEG and this cohort, to continue to learn from eachother's experiences
- Know of a potential resilience hub location? Want to learn more about any part of the project? Have a trusted vendor to recommend? Contact us via the EmpowerOurFuture.org website.

We'd love to hear from you!





The following are 'if-needed' slides





Outages cost money: Value of Lost Load (VoLL)

A direct outage damages estimate:

VoLL (\$) = Lost Revenue +

Lost Labor Productivity +
Damaged Goods +
Recovery Costs

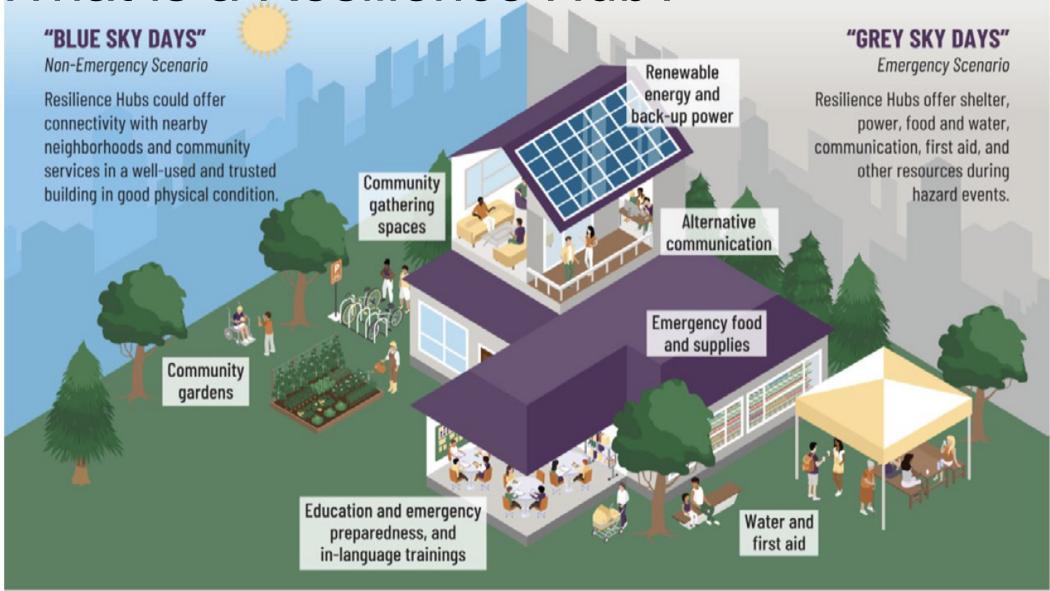
E.g., see Customer Damage Function Calculator, NREL, https://cdfc.nrel.gov/







What is a Resilience Hub?



e: Puget Sound Resilience Hubs, Seattle Office of Emergency Management, last accessed February 6, 2025, https://experience.arcgis.com/experience/

The direct cost of outages in Boulder is

rising
Small businesses and their employees disproportionately

impacted over \$24M

Reliability Inputs:

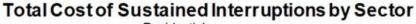
recommend to pare.			
SAIFI	1.670		
SAIDI	350.0		
CAIDI	210		

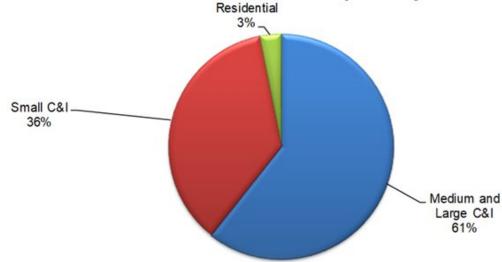
Number of Customers:		
Non-Residential	3,700	
Residential	44,000	7
CPI 2024/2016 Ratio	1.22	*Added by Jim Gilbert

Main Output:

Sector	No. of Customers	Cost Per Event (2024\$)	Cost Per Average kW (2024\$)	Cost Per Unserved kWh (2024\$)	Total Cost of Sustained Interruptions (2024\$)
Medium and Large C&I	891	\$9,975	\$255	\$73	\$14,842,613
Small C&I	2,809	\$1,892	\$1,709	\$489	\$8,876,847
Residential	44,000	\$10	\$10	\$3	\$754,181
All Customers	47,700	\$307	\$181	\$52	\$24,473,640

Wildfire Mitigation Plan Proceeding, 24A-0296E, HE 602, Answer Testimony of Warren L. Wendling, Attachment













Boulder resilience case study: BHP HQ installed solar plus storage in 2018

"Boulder Housing Partners estimated \$2,500 in downtime costs for the headquarters per every hour of power outage."

- Based on the 2018 system outage average of 151 minutes, annual outage costs (VoLL) were \$6,295 for BHP in 2018
- System average outages increased to 166 minutes by 2023, and to 702 minutes in Boulder by 2024, resulting in an estimated \$36,521 in losses in 2024 for BHP
- Inflation adjusted outage losses for 2018-2024 were \$87k
- The battery cost in 2024 \$ was just over \$67k

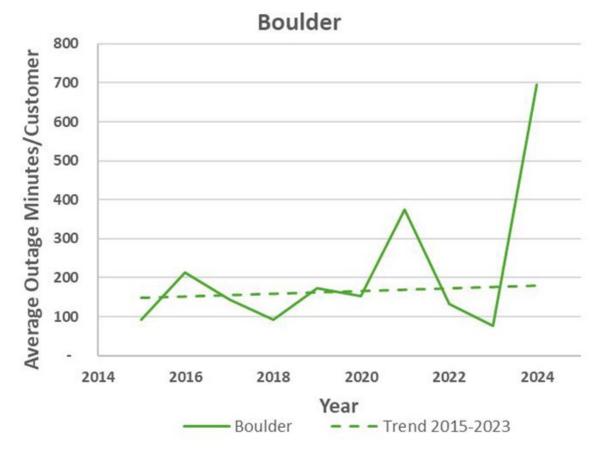




The direct cost of outages in Boulder is

rising
• Xcel's Boulder region experienced 700 minutes of outages

in 2024







The CEG Grant was a great seed that sparked us. We are thrilled to have a pilot

• 12/13/25 Awarded a Boulder County Office of Sustainability, Climate Action and Resilience (OSCAR) Equity Grant with MHA:

...for Individual and Community Resilience

We will continue to:

- Map out our vision of Resilience Hubs around Boulder County
- Build relationships: potential resilience hubs, designers, installers, funding sources
- Collaborate with government and local organizations to alignment and scale resilience hub and other electrification efforts