



Clear Sky Tampa Bay: Pre-Release Webinar

Alana Todd and Sarah Vitale

Tampa Bay Regional Planning Council

NREL Technical Monitor: Sara Farrar

**NREL is a national laboratory of the U.S. Department of Energy
Office of Energy Efficiency & Renewable Energy
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June 2024



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Clear Sky Tampa Bay

Pre-Release Webinar

June 30, 2021 | 9:30am -11:00am EDT



Who we are:



Tampa Bay Regional Planning Council (Project Lead)

Mission Statement

To serve our citizens and member governments by providing a forum to foster communication, coordination, and collaboration in identifying and addressing needs regionally.

Who We Serve (Members)

- ❖ 6 Counties
- ❖ 21 Municipalities
- ❖ 13 Gubernatorial Appointees
- ❖ 3 Ex-Officios



Housekeeping



- This webinar is being recorded.
- The recording will be available at www.tbrpc.org/clearsky.
- Please post your ideas and questions in the chat or Q/A window.
- We'll have Q&A and discussion at specific points in the webinar.

What you'll learn about:

1. Development of the **Clear Sky Toolkit** over the last 15 months through the Solar Energy Innovation Network.
2. **Tips and best practices** to apply the Clear Sky Toolkit in your community.
3. **Opportunities for involvement** in energy resilience webinars and activities.



Agenda



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WELCOME

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PROJECT OVERVIEW

03

SITING TOOL WALKTHROUGH

04

PARTNER FISHBOWL

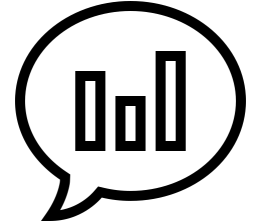
05

NEXT STEPS

Connecting with colleagues

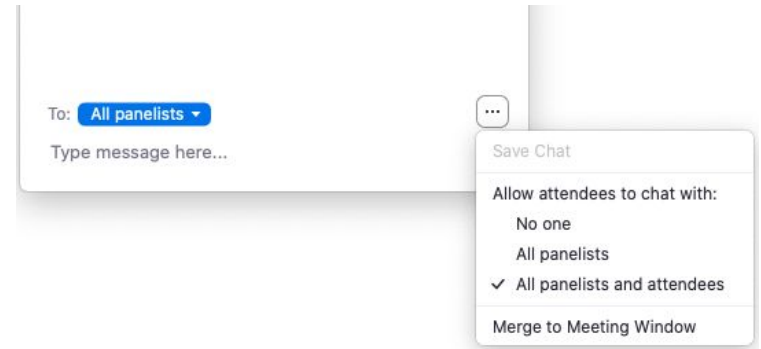
Respond via poll:

1. Which focus areas best describe your current work?
2. Which sector do you work in?



Post into the chat:

1. Name, title, organization, email
(optional)



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NEXT STEPS

Keeping the lights on when bad things happen



After the Hurricane, Solar Kept Florida Homes and a City's Traffic Lights Running

By using energy storage with solar panels, some homeowners were able to go off-grid, showing how distributed power could speed future storm recovery.

BY LYNDSEY GILPIN, INSIDECLIMATE NEWS
SEP 15, 2017



Source: [Inside Climate News](#)

10-09-19

To keep the lights on during California's blackouts, people are using solar power

As long blackouts become more common in California to reduce the risk of devastating wildfires, more people are turning to solar power and battery storage.



Source: [Fast Company](#)

MCAS Miramar uses renewable energy to prevent blackouts

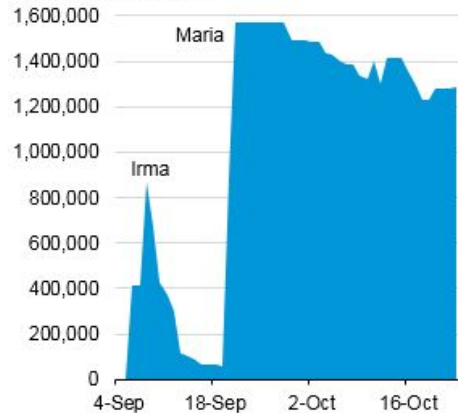


Source: [ABC - 10News - San Diego](#)

Coastal communities are vulnerable to extended power outages

Hurricane-related power outages in Puerto Rico

number of customers

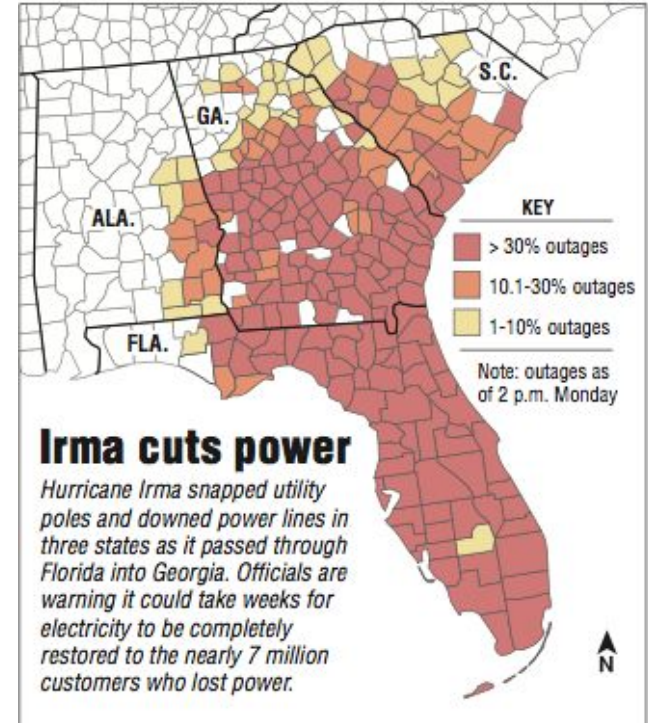


Source: U.S. Department of Energy, [Situation Reports](#)

percent of total customers



Hurricane Irma struck Florida on September 10, 2017, and **knocked out power to 6.7 million electricity customers—64% of all customer accounts in the state**—according to reports compiled by the [Florida Division of Emergency Management](#).



Irma cuts power

Hurricane Irma snapped utility poles and downed power lines in three states as it passed through Florida into Georgia. Officials are warning it could take weeks for electricity to be completely restored to the nearly 7 million customers who lost power.

SOURCE: PowerOutage.US

Arkansas Democrat-Gazette

Moving the needle on s+s for resilience



Solar + storage (s+s) has multi-benefits, for sustainability and disaster mitigation, but it is not being deployed for resilience in the Tampa Bay Region. **Why not?**



Observed Barriers:

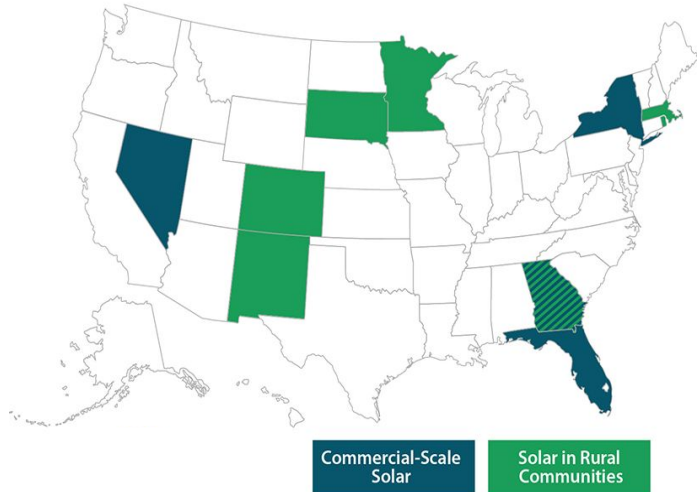
1. Emergency management professionals do not typically consider renewable energy as a strategy to mitigate the impacts of disasters.
2. Lack of technical expertise among municipal staff for conducting s+s assessments which include disaster risk reduction.
3. No standardized process for prioritizing s+s resilience investment decision making that is consistent across the region's many jurisdictions.
4. Political and policy barriers to implementation of solar projects.



[Pause for poll question]

Key word: Innovation

The **Solar Energy Innovation Network (SEIN)** is a collaborative research effort led by the National Renewable Energy Laboratory (NREL) and supported by the U.S. Department of Energy's Solar Energy Technologies Office.



Source: National Renewable Energy Laboratory (NREL)

Competitive grant provides green light to study solar solutions in Tampa Bay region

JESSI SMITH | TUESDAY, SEPTEMBER 29, 2020

SHARE    



Courtesy of USF

Attendees at the Global Climate Resiliency Summit in January 2020 before the pandemic started.



Considering scenarios that once seemed unthinkable feels like a daily exercise in 2020 – so much so that in the wake of a globe-sweeping pandemic, nationwide civic unrest and wildfires smoldering the length of the Pacific coast – it's understandable, this fall, that even the most storm-seasoned Floridians may on some days forget we sit neatly at the annual hurricane season halfway-mark. So far, we've been lucky.

But what happens when a natural disaster blacks out entire regional power grids – such as the case of lower Manhattan in the wake of Hurricane Sandy in 2012, or the devastating Hurricane Maria, which left civic infrastructure in tatters across the island of Puerto Rico in 2017? What happens when backup generators fail in hospitals; when ventilators fall silent in critical care

Clear Sky Tampa Bay SEIN Team



Lead



**Local Govt.
Partners**



**Hillsborough
County Florida**



**Academic
Partner**



**Technical
Advisors**



Guiding Project Questions



1. **What resources are out there already?**

- How can we develop a standardized process that leverages these existing resources to help cities/counties with s+s decisions?

2. **Where should we prioritize s+s future analysis/investment to mitigate the impacts of disasters?**

- What types of buildings and systems provide the maximum resilience benefits? How can local governments identify and prioritize these sites within their jurisdictions?

3. **What is the value of energy resilience for public safety?**

- How might we incorporate societal variables in siting and making the case for s+s for resilience?

Engagement Process

FIRST-TOUCH SURVEY



Identify stakeholders that would want to participate in the future data call and workshops

NEEDS ASSESSMENTS



18 qualitative, semi-structured interviews

DATA CALL



Gather existing documents, policies, frameworks, plans, and processes

WORKSHOPS



Two virtual workshops to elicit stakeholder feedback on the framework design

CASE STUDIES



Continual engagement with govt. partners and University of South Florida to develop and test toolkit

Resilience assessment methodology built on models, plans, research, and tools



Emergency Management

- FEMA Community Lifelines Toolkit
- FEMA Emergency Support Function (ESF) #14 Doctrine
- FEMA Flood Insurance Rate Map (FIRM)
- FEMA P-1019: Emergency Power Systems for Critical Facilities
- FEMA Threat and Hazard Identification and Risk Assessment (THIRA)
- Florida Department of Agriculture and Consumer Services (DACCS) "Mapping the Energy Landscape of Water and Wastewater Treatment Plants"
- Florida Statutes on "Alternate generated power capacity" Requirements
- State and County Emergency Operations Plans (EOPs)
- United States Army Corps of Engineers (USACE) Emergency Power Facility Assessment Tool (EPFAT)
- U.S. Department of Health and Human Services (HHS) emPOWER Map 3.0
- U.S. Environmental Protection Agency (EPA) Power Resilience Guide

Research

- Clean Energy Group: Understanding Solar + Storage
- Lawrence Berkeley National Laboratory (LBNL) Interruption Cost Estimate (ICE) Calculator
- National Renewable Energy Laboratory (NREL) PVWatts Tool
- NREL Renewable Energy Integration and Optimization (REopt) Lite Tool
- Renew300 Solar Site Selection Tool
- Rocky Mountain Institute (RMI) Municipal Solar Site Selection Tool (MSSST)
- Smart Electric Power Alliance (SEPA): The Microgrid Playbook: Community Resilience for Natural Disasters

Utilities

- NARUC National Association of Regulatory Utility Commissions (NARUC) Papers:
 - Resilience in Regulated Utilities
 - Advancing Electric System Resilience with Distributed Energy Resources
- North American Electricity Reliability Corporation (NERC) Papers:
 - System Average Interruption Duration Index (SAIDI)
 - System Average Interruption Frequency Index (SAIFI)
 - Customer Average Interruption Duration Index (CAIDI)
- U.S. Department of Energy "Assessing Critical Loads" Tool

What's critical? Start with Lifelines



FEMA *Community Lifelines*

 Safety and Security	 Food, Water, Shelter	 Health and Medical	 Energy (Power & Fuel)	 Communications	 Transportation	 Hazardous Materials
 Law Enforcement/Security	 Food	 Medical Care	 Power (Grid)	 Infrastructure	 Highway/Roadway	 Facilities
 Fire Services	 Water	 Patient Movement	 Fuel	 Alerts, Warnings, and Messages	 Mass Transit	 HAZMAT, Pollutants, Contaminants
 Search and Rescue	 Shelter	 Public Health	 911 and Dispatch	 Railway		
 Government Services	 Agriculture	 Fatality Management	 Responder Communications	 Aviation		
 Community Safety	 Medical Supply Chain		 Finance	 Maritime		



A lifeline enables the continuous operation of **critical government and business functions** and is essential to **human health and safety or economic security.**

[<https://www.fema.gov/emergency-managers/practitioners/lifelines>]



S+S Siting Assessments

1. Decision Support Template
2. User Guide
3. Case Studies

Where should we prioritize s+s future analysis/
investment to mitigate the impacts of disasters?



Digital Resource Library

1. S+S Siting and Policy Resources
2. Resources for Assessing the Value of Resilience
3. Additional Tools & Programs

What is the value of energy resilience for public safety?

Applying the Toolkit



Like a revolving conveyor belt- take what you need, when you need it.
More resources will be added as our knowledge base evolves.

S+S Siting Assessments



Digital Resource Library



SOLAR ENERGY
INNOVATION
NETWORK
U.S. DEPARTMENT OF ENERGY





S+S Siting Assessments



1. Decision Support Template

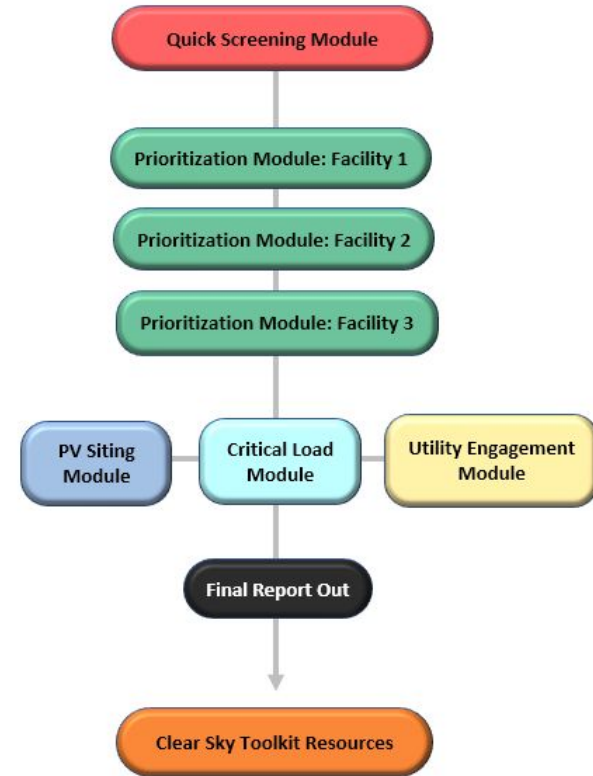
- Excel-based Template that guides s+s for resilience investment decision making.

2. User Guide

- Walks users question-by-question through the Template, the rationale behind the questions, and how to interpret the answers.

3. Case Studies

- Manatee County, Hillsborough County, Pinellas County, and the City of Largo





1. Solar + Storage Siting & Policy Resources

- Florida Energy Resilience Policy Landscape
- Battery Siting Considerations
- Severe Weather Checklist

2. Resources for Assessing the Value of Resilience

- REopt Lite Resources:
 - REopt Lite Web Tool
 - Using the Clear Sky Decision Support Template with REopt Lite Slidedeck
 - REopt Lite User Guides, Training Videos, and Resilience Fact Sheet
- Clean Coalition VOR123: Value of Resilience
- Societal Resilience Metrics

3. Additional Tools & Programs

- NREL City and County Solar Photovoltaics Training Program
- Building Resilience with Solar+Storage

Clear Sky Toolkit – Observed Outcomes



Overarching Goal: Advance commercial- scale solar + storage for resilience throughout the Tampa Bay Region and beyond!

1. Learning and Screening

- Increase technical capacity of users to conduct energy self-assessments.

2. Communication and Relationship Building

- Improve interagency and outside communications with stakeholders.
- Bridge the emergency management and sustainability divide / silos.

3. Storytelling / Justification

- Assist users in justification of s+s projects for resilience purposes.
- Greater opportunities to fund projects that address EM priorities.



[Pause for poll question]

A photograph showing three construction workers installing solar panels on a roof. The workers are wearing hard hats and safety vests. One worker in the foreground is wearing a bright green hard hat and a grey shirt. Another worker in the middle is wearing a white hard hat with a 'RENTCH' logo and a grey shirt. A third worker in the background is wearing an orange safety vest. The solar panels are mounted on a metal frame. The background shows a clear blue sky and some dry grass.

Project Partners Exchange

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SITING TOOL WALKTHROUGH

Clear Sky Decision Support Template



Excel-based tool that guides s+s for resilience investment decision making

- Walks users through specific questions for screening facilities and siting considerations, and points to where to find that information to yield a more robust, streamlined assessment process
- Assess the feasibility of commercial-scale s+s while incorporating public safety, disaster preparedness, and post-disaster recovery objectives.
- Integrate emergency management, community planning, grid benefit analyses, and facility energy data into s+s assessments.

Who should use the Decision Support Template?

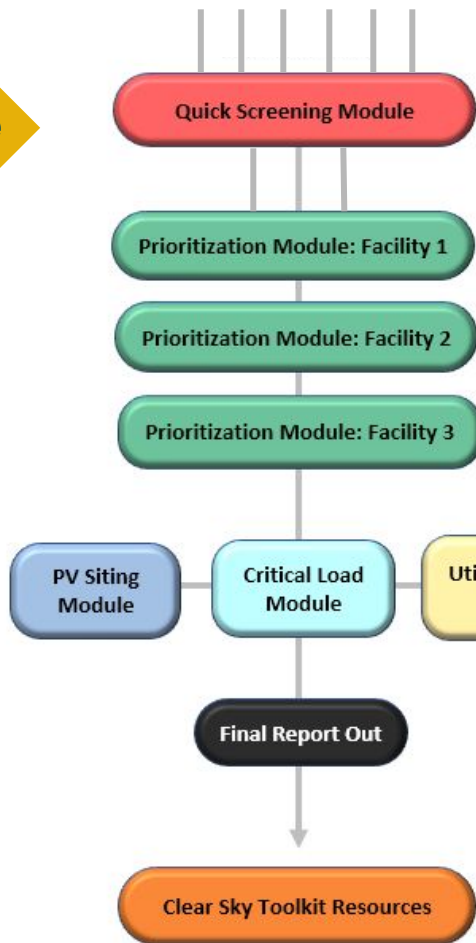
- **Municipalities, county, regional, and state governments** –
Ex. critical facility managers, energy and/or sustainability managers/coordinators, and emergency managers
- **Private sector** – utilities and other entities investing in energy solutions for resilience



Hillsborough County Courthouse

Modules Overview

Start here



1. Use the **Quick Screening Module** to narrow from multiple facilities to no more than three.

2. Use the **Prioritization Module** to narrow from three facilities to the highest priority facility.

3. Use the **remaining modules** further assessment of the highest priority facility.

4. **Share insights gained** with decision makers and stakeholders.

5. **The Clear Sky Toolkit** includes a digital library of solar + storage siting and resilience valuation resources (tbrpc.org/clearsky) to continue assessing priority sites for energy resilience solutions.





Quick Screening Module



- First layer of site screening for resilience need and site suitability for s+s
- “Critical pathway questions”

Quick Screening Module



The Quick Screening Module is designed to assist users in narrowing down a large number of facilities to three with which to carry forward into the Prioritization Module. The questions are “critical pathway questions” that appear within each module but are front-loaded here as a first layer of site screening. Users are able to create a ranked list of the facilities to prioritize for further assessment for a resilient solar + storage system based on criteria for whether a site meets basic technological requirements for installation. Enter the facility names in the leftmost column with each facility getting its own row. After responding to each question, the cell will turn green, indicating that the facility may be a good candidate for solar and storage for resilience benefits upon further analysis, or red, indicating the facility may face challenges or that solar and storage may not be the best solution for its current needs. The last column provides a score for each facility based on a binary classification of the answers, which facilitates comparison to determine the top three facilities to continue assessing.

Note: To add more rows for additional facilities click the “Add Facilities” button below and insert the number of facilities to be assessed.

See pages 23-30 in the User Guide.

*If you require macros to be disabled, facilities can be added by unprotected the sheet, right clicking row 16, selecting “Copy,” right clicking row 16 again and then selecting “Insert copied cells.” Copy and paste row 16 for each additional facility.

Quick Screening Module	Prioritization Module		PV Siting Module			Critical Load Module	Utility Engagement Module	Comparison Score
Critical Pathway Questions	How quickly does the facility’s functionality need to be restored following an electricity disruption to meet its stated purpose within a FEMA Community Lifeline?	Is the facility considered a high risk for flooding?	When will the roof need to be replaced?	What percentage of the day is the PV system shaded?	What is the proposed PV system’s orientation to the sun?	Does the facility require a backup generation strategy according to FEMA Guidelines?	Are there feeder limits or hosting capacity constraints for solar on the feeder that serves the facility?	A score will calculate below when responses to all critical pathway questions have been identified.
How do I know?	The Critical Facility Index (CFI) is a useful benchmark to determine a facility’s level of criticality according to the maximum acceptable amount of down time following a power loss. The CFI ranges from CFI 1 (most important) to CFI 5 (least important). The user should determine the amount of time a facility can sustain a power loss and select a CFI rank that corresponds with that level of criticality. A service disruption does not factor in the presence of a back-up generator or Uninterrupted Power Supply (UPS). It is based on the ability of the facility to function without electricity.	Utilize the FEMA FIRN Mapping Tool and enter the address of the facility to determine the flood risk. The tool will provide a map of the site with layers indicating Special Flood Hazard Area designations. Additionally, the NOAA Sea Level Rise and Coastal Flooding Impacts Data Viewer can provide insight into risk from rising sea levels using GIS mapping.	Commercial building rooftops last 20-30 years before they need to be replaced. PV systems should not be installed on roofs that are more than 10 years old to avoid the costs of having to remove and reinstall the PV systems when the roof is replaced. For PV siting purposes, a roof should have 16-20+ years of life remaining – or it should have 1-2 years of life remaining so that the roof replacement and PV system installation can happen concurrently. Consult with the facility manager to determine when the roof needs to be replaced.	Shade reduces PV system output. A PV system should be at least 3 times the height away from the tallest obstacle to the south. For example, a tree that is 20 ft higher than the PV system should be at least 60 ft away. PV systems should not be more than 10% shaded throughout the day. If possible, search the address in Google Project Sunroof . If the useable space you are considering for this site is shaded purple or dark orange, mark your response as “More than 10%”.	The ideal orientation for a PV system is due South facing the sun. If the roof or terrain is flat, then the PV system can be oriented optimally. If the roof is sloped and rotated significantly East or West, PV electricity generation will be reduced. A roof orientation that is angled further away from the sun than due East or due West is not viable.	Review and complete the “Emergency Power Flowchart” located in the FEMA P-115 toolbox on page 1-8 to determine if the facility requires a back-up generation strategy.	This information is available from the utility provider.	A comparison score for each facility is provided as a means of assessing the comparative feasibility of a facility as a function of its ability to accommodate a solar + storage system for resilience. Therefore, the score of any one facility does not have significance on its own. Rather, the scores enable the user to see which facilities warrant further investigation.
Facilities:								
Building 1	Critical Facility Index 1: Uninterrupted	Zone C or Zone X (Unshaded)	11-15 years	Less than 10%	South West	Yes	No	7
Building 2	Critical Facility Index 2: Less than 24 hours	Zone A or V (Blue Shading)	16-20+ years	More than 10%	East or West	No	Yes	1
Building 3	Critical Facility Index 5: Greater than 72 hours	Zone B or Zone X (Gray or Orange Cross Shading)	1-2 years	Less than 10%	South East	Yes	No	6
Building 4	Critical Facility Index 3: Less than 48 hours	Zone B or Zone X (Gray or Orange Cross Shading)	16-20+ years	More than 10%	East or West	No	No	3
Building 5	Critical Facility Index 1: Uninterrupted	Zone B or Zone X (Gray or Orange Cross Shading)	10 years or sooner	More than 10%	South East	No	No	4

Next Step:

Take the three (or fewer) highest-scoring facilities into the Prioritization Module (one sheet each) to continue the assessment.

Continue the assessment:

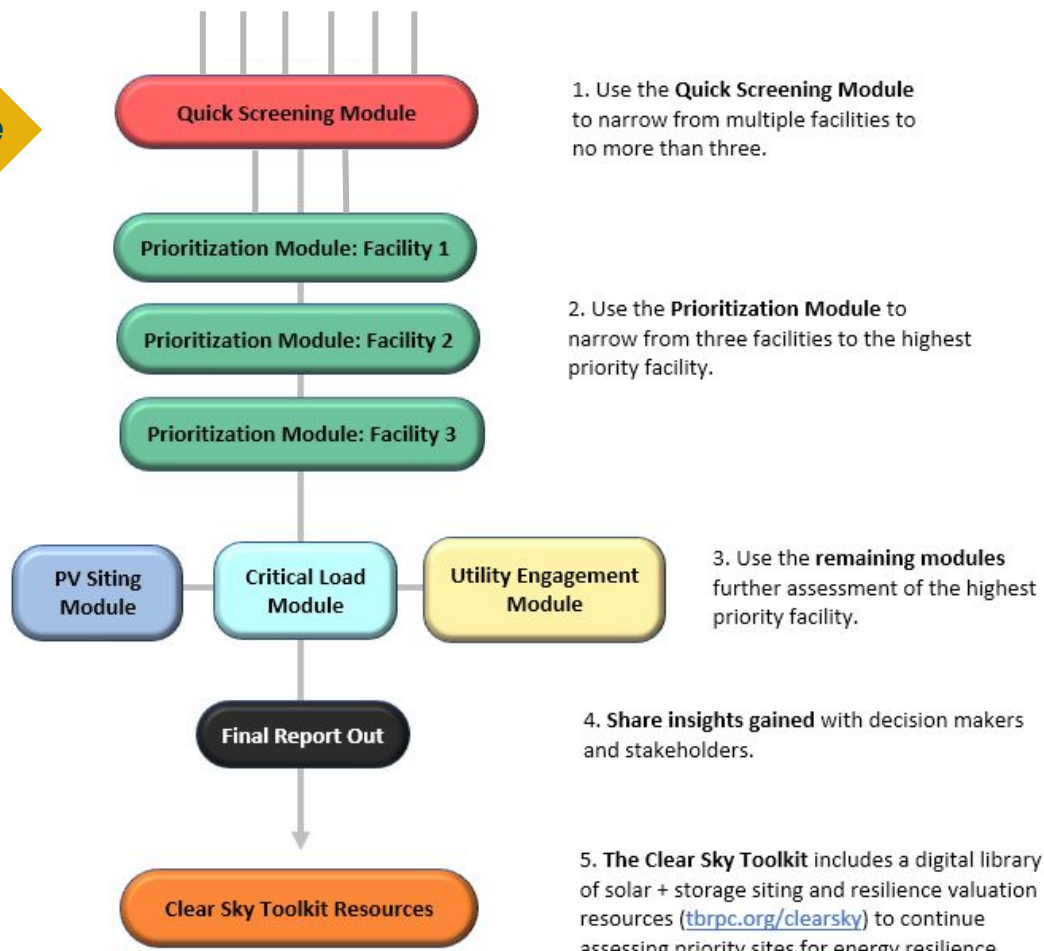
Prioritization Module: Facility 1

Highest-Scoring Facility	2nd-Highest Scoring Facility	3rd-Highest Scoring Facility
Building 1	Building 3	Building 5

*** If facility scores are tied, select a facility of your preference for further analysis.

Modules Overview

Start here





Prioritization Module



- Tie the facility to its role in supporting FEMA Lifelines.
- Assess lifeline interdependencies.
- What is the relative criticality of community functions performed by the facility?

Question 4: A) How many FEMA Community Lifelines does the facility rely on to maintain its missions?

Response:

2 Community Lifelines

How do I know?

Review the [FEMA Community Lifelines Model](#) and select which Lifeline the facility belongs to based on your knowledge of the facility.



FEMA **Community Lifelines**



Safety and Security



Food, Water, Shelter



Health and Medical



Energy (Power & Fuel)



Communications



Transportation



Hazardous Materials

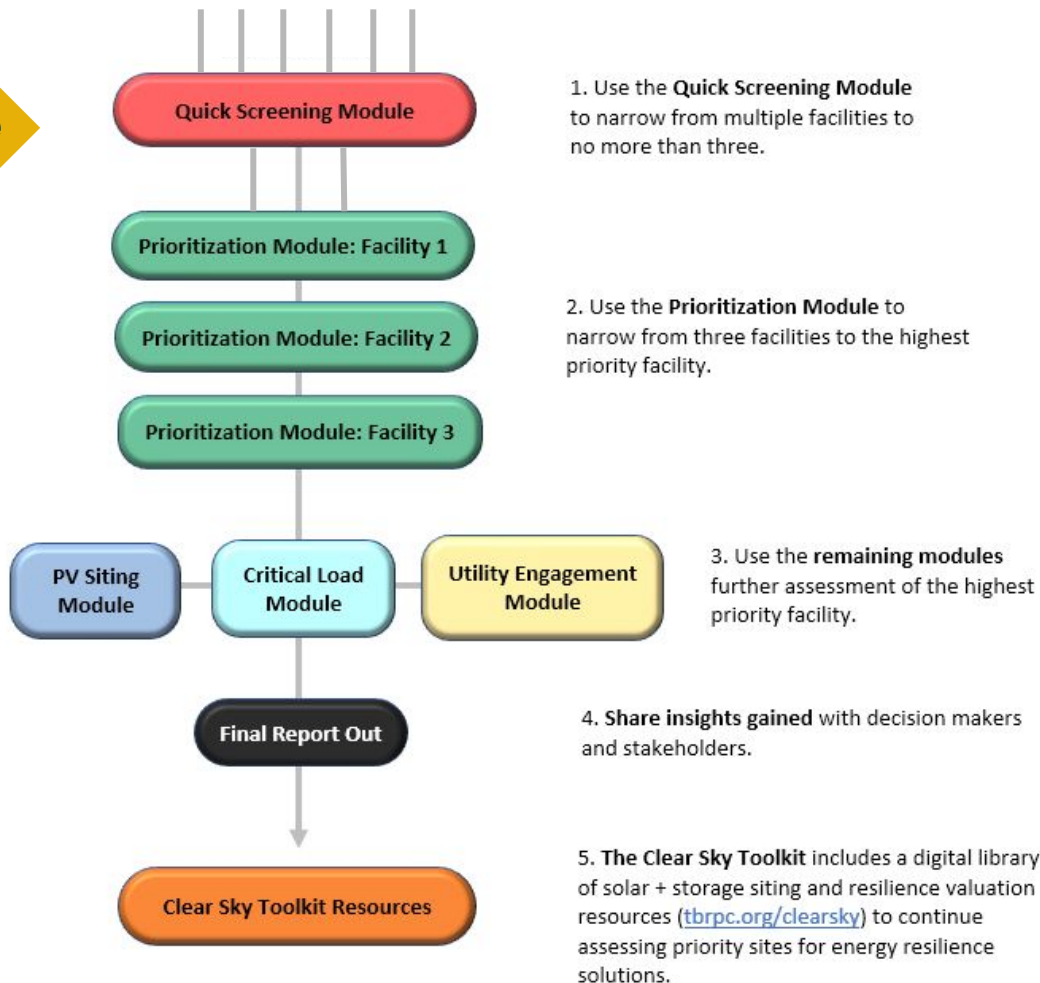
Example Question

How many FEMA Community Lifelines does the facility rely on to maintain its missions? What are they?

Modules Overview



Start here





PV Siting Module



- Does the facility meet essential installation requirements?

Question 4: Will future nearby property developments cast shade on the proposed solar PV at this site?

Response:

No

How do I know?

Solar PV systems can generate electricity for more than two decades. During this time, the built environment around PV systems can change dramatically. Consider if the area to the south of the PV system may someday be developed with structures that may shade the system in the future.

Next Step:

Proceed to the next question.

Example Question

Will future nearby property developments cast shade on the proposed solar PV at this site?



Critical Load Module



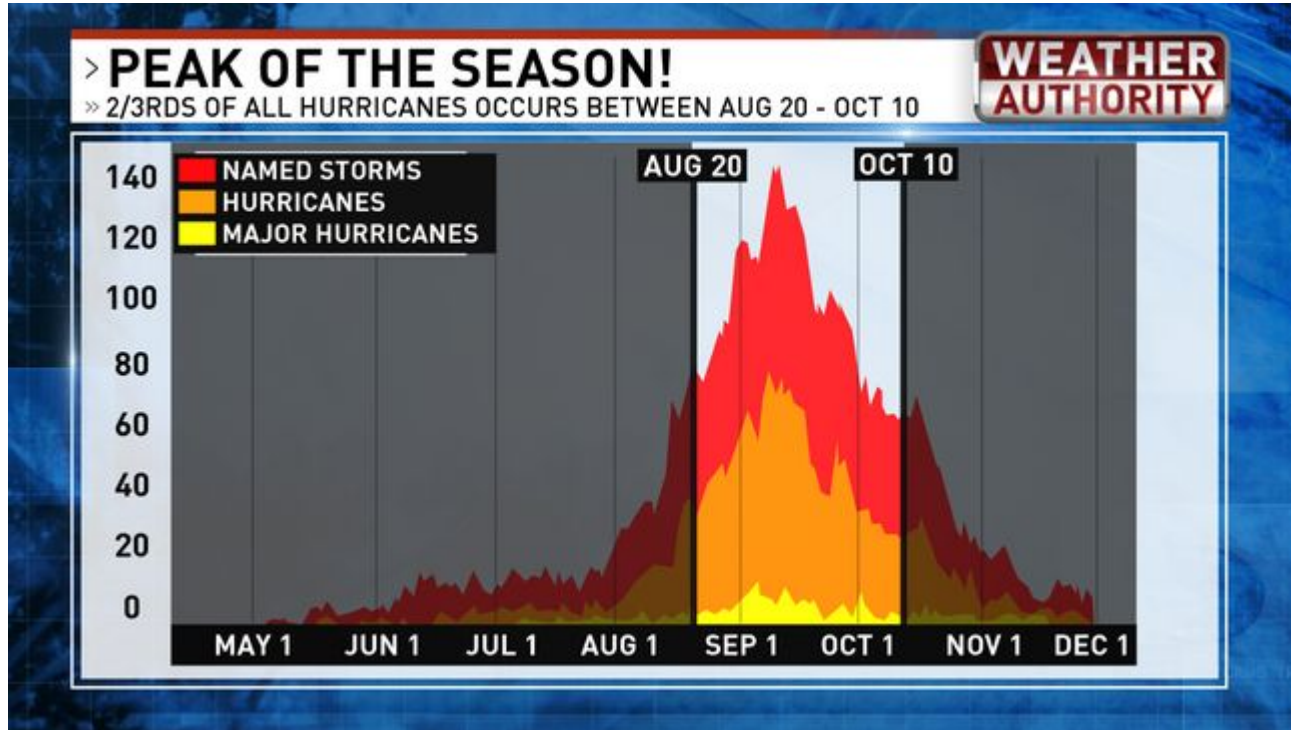
- What are the facility's critical functions and associated power requirements?
- ID emergency circuit, facility's energy profile, and peak critical load

Question 8: A) Does the facility's occupancy and corresponding energy needs change under emergency conditions?	
Response: <input type="text" value="Yes"/>	How do I know? This information will reside with the facility manager based on Continuity of Operations (COOP) plans or "surge" capacity requirements outlined in local Emergency Operations Plans (EOPs).
B) What are the conditions when the peak load is expected?	
Response: <input type="text" value="Summer season, outdoor temperatures 80-110 degrees F"/>	How do I know? This information can be attained from the servicing utility or facility manager.
Next Step: The answers to questions A and B provide important points of reference for solar+storage project scoping and development.	

Example Question

Does the facility's occupancy and corresponding energy needs change under emergency conditions? What are the conditions when the peak of energy consumption is expected?

Understanding Outage Conditions



Source: ABC 15 News



Utility Engagement Module



- Does the utility identify the facility for priority restoration?
- What does the electricity infrastructure around the facility “look like”?

Question 6: Where in the system does this project improve resilience (e.g., bulk power system, distribution system, individual facility)? (Select all that apply)

Response:

Bulk Power System	^
Distribution	
Individual Facilities	
Multiple Levels	
Other	
	v

How do I know?

Information regarding the project scale and the potential energy resilience impacts will require discussion with the servicing utility to understand the difference between each type of system benefit.

Next Step:

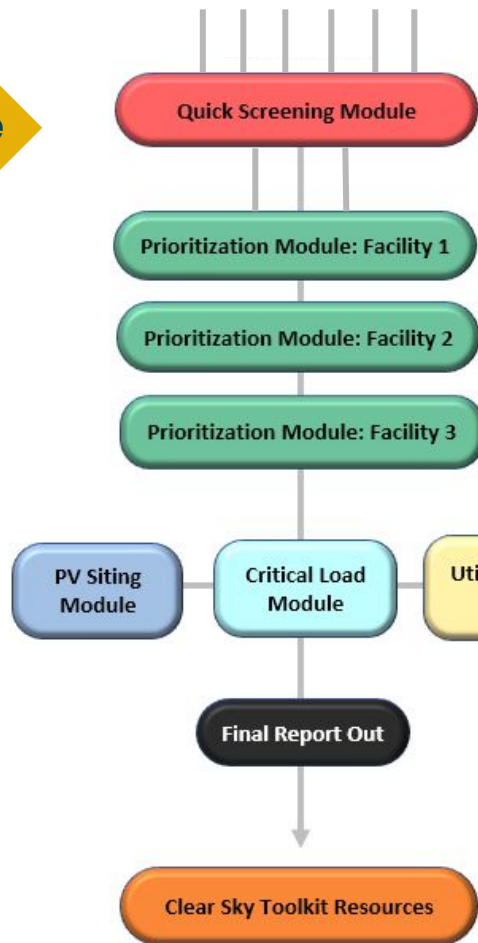
Watch the Reliability Metrics video by the U.S. Energy Information Administration on utility reliability metrics before proceeding to the next question.

Example Question

Where in the system does this project improve resilience (e.g., bulk power system, distribution system, individual facility)?

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Start here



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4. **Share insights gained** with decision makers and stakeholders.

5. **The Clear Sky Toolkit** includes a digital library of solar + storage siting and resilience valuation resources (tbrpc.org/clearsky) to continue assessing priority sites for energy resilience solutions.



Module Summary Sheets & Final Report Out



AutoSave On Clear Sky Decision Support Te... - Saved Sarah Vitale

File Home Insert Page Layout Formulas Data Review View Help Acrobat Share

K30

Utility Engagement Module Summary

Firehouse 44

Question	Response
1 Are there feeder limits or hosting capacity constraints for solar on the feeder that serves the facility?	No
2 A) Does the servicing utility have a priority ranking for critical facilities? B) Is the facility explicitly identified by the utility provider as a priority for restoration?	No Yes
3 Are there separate interconnection rules or queues for PV, energy storage, or microgrids for the utility that provides service to the facility?	Yes
4 Does the facility have a redundant distribution line feed?	Yes
5 Does the utility have a demand response program with storage participation?	Distribution
6 Where in the system does this project improve resilience (e.g., bulk power system, distribution system, individual facility)? (Select all that apply)	Distribution
7 System Average Interruption Frequency Index (SAIFI)	.51-1.00 (3)
8 System Average Interruption Duration Index (SAIDI)	0.26-0.50 (4)
9 Customer Average Interruption Duration Index (CAIDI)	100.01-125.00 (2)
10 How many times has the servicing utility declared a Major Event (ME) in the past ten years?	2

Utility Reliability Statistics & Assessment		
Index	Response	Score
SAIFI	.51-1.00 (3)	3
SAIDI	0.26-0.50 (4)	4
CAIDI	100.01-125.00 (2)	2
ME	2	3
Average Utility Rating		3

Reliability Statistics:
Scoring a utility's rating with reliability statistics provides the user with a better understanding of overall utility performance in the context of energy resilience, with an average score greater than four indicating above-average performance and an average score lower than two indicating below-average performance. Additionally, the average rating can be used to support the cost justification of an energy resilience investment and an opportunity to improve the operational effectiveness of a utility through the joint benefit of an investment.

Brief-Out:
Engagement with utilities can be a complicated and time-consuming process if the right questions are not being asked. The module is designed to structure outreach and engagement to ensure important topics are raised that can impact the viability and priority of an investment and establishes the foundation for collaborations that emphasize dual-benefits. The results can be used as a de-facto agenda for initial meetings and advise leadership regarding the relative technical, operational or economic benefits of projects to the user and the utility.

Notes
Scoring process revealed that the utility had prioritized investments in critical infrastructure and facilities for the northeast sector because of a greater vulnerability in the grid. Further discussions clarify the need to strengthen grid capacity throughout the remaining sectors. Firehouse 44 is located in an area that is well suited for utility interconnection.

Final Report Out

Overview Getting Started Quick Screening Module Prioritization Mod. Facility 1 ...

Key Insights and Takeaways



1. No comparative standardized process.

- Every entity prioritizes things differently (different critical facility list) which also includes defining “critical” differently.

2. Challenging to value resilience.

- Resilience isn’t factored into traditional CBAs; projects require justifying “how much money” and it’s difficult to bring in resilience to the money piece.

3. You need to talk with utilities early in solar projects.

- They have the data you need; aligns planning processes

A photograph showing the aftermath of a natural disaster, likely a hurricane or typhoon. The scene is filled with debris, including large logs of wood, twisted metal, and fallen power lines. In the background, there are bare, skeletal trees and a partially destroyed building with a curved roof. The sky is clear and blue. A dark, semi-transparent banner is overlaid across the middle of the image, containing the text "Clarifying Questions?" in a large, white, sans-serif font.

Clarifying Questions?

Agenda



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NEXT STEPS

Project Partners Fishbowl



Instructions for Fishbowl participants:

1. Have your conversation with each other as if the audience wasn't there and you were sharing stories around a campfire or stuck in a van on the way to the airport.
2. **Check the chat for conversation prompts.** These questions aim to provide a starting point, but please do not feel bound by them as long as you continue to discuss relevant considerations.
3. After about 20 min, I will jump in to open it up for questions from the Q/A window.



Everyone else:

1. Listen and jot down questions, but hold off on putting them into the Q/A window until prompted to.

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NEXT STEPS

- **What's next:**

- Toolkit in pre-release review
- Anticipated release July 2021 – www.tbrpc.org/clearsky

- **Directions for future research:**

- How can this type of analysis be expanded to include microgrids?
- What socio-economic metrics should be included in a s+s cost-benefit analysis?
 - How do you put a value on them?

Getting Involved



- **Look out for the post-webinar email to join the Clear Sky email list**
 - Release announcement in July
 - Solar Energy Innovation Network Projects
 - Potential collaboration with USF Graduate Course in Fall 2021
 - Regional Resiliency Action Plan – The Leadership Summit



**SOLAR ENERGY
INNOVATION
NETWORK**
U.S. DEPARTMENT OF ENERGY



tbrpc.org/clearsky



**Toolkit testing in a
USF Graduate Course**
Fall 2021



The Leadership Summit
January 27–28, 2022

Toolkit Pre-Release Review
June 2021

Toolkit Published Online
July 2021



Thank you!

Visit our website:

www.tbrpc.org/clearsky

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CLEAR SKY TAMPA BAY