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# Lahaina Energy Partnership: Technical Assistance Task Updates and Discussion Part 1

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Presented to the Lahaina Community

By the National Laboratory of the Rockies (NLR) and Local Partners Lāhainā Strong, Hā Sustainability, and Shake Energy Collaborative

Robin Burton, Evan Rosenlieb, Jennifer Daw, Ben Polly, Adam Kanter, Jeff Maguire, and Shanti Pless

Nov. 18, 2025, 5:30–7:30 p.m.; optional talk story 7:30–7:45 p.m.

This presentation was produced when the laboratory operated as the National Renewable Energy Laboratory (NREL). The laboratory is now the National Laboratory of the Rockies (NLR).

# Workshop Series Schedule, Objectives, & Agenda

## Workshop Series Schedule

- **Workshop 1:** November 18, 2025, 5:30-7:45 pm. Topics: Hydropower resource potential, building energy modeling, workforce development
- **Workshop 2:** December 11, 2025, 5:30-7:45 pm. Topics: Microgrids, electric grid hardening, funding and financing

## Objectives

- Share updates by topic on technical assistance in progress
- Request community input to guide next steps.

## Agenda

- Welcome and agenda (5 min)
- Project overview, timeline, technical assistance (TA) overview, and general Q&A (10 min)
- NLR TA updates and Q&A with NLR task leaders
  - Resource assessment (25 min)
  - Building modeling (25 min)
  - Workforce development (20 min)
- NLR TA small group discussions and Q&A (30 min)
- Next steps and adjourn (5 min)
- **Optional:** Talk story with task leads in breakout rooms (15 min).

# Project Overview

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*Photo by Robin Burton, NLR*

# Lahaina Energy Partnership

## PROJECT OVERVIEW

The U.S. Department of Energy (DOE) and NLR initiated a multiyear, community-led project for Lahaina to:

- 1 Identify energy questions** related to rebuilding Lahaina.
- 2 Conduct technical analysis** to support informed, community-led decision-making.



### Community Role:

Local partners convene the Lahaina community to identify energy solutions of interest and inform a scope of TA.

### National Lab Role:

National labs conduct analysis to assist the Lahaina community in assessing opportunities for energy planning and rebuilding.

Learn more (click or scan):



# Lahaina Energy Partnership Local Partners



**Hā Sustainability**  
Empower. Innovate. Thrive.



**SHAKE ENERGY COLLABORATIVE**

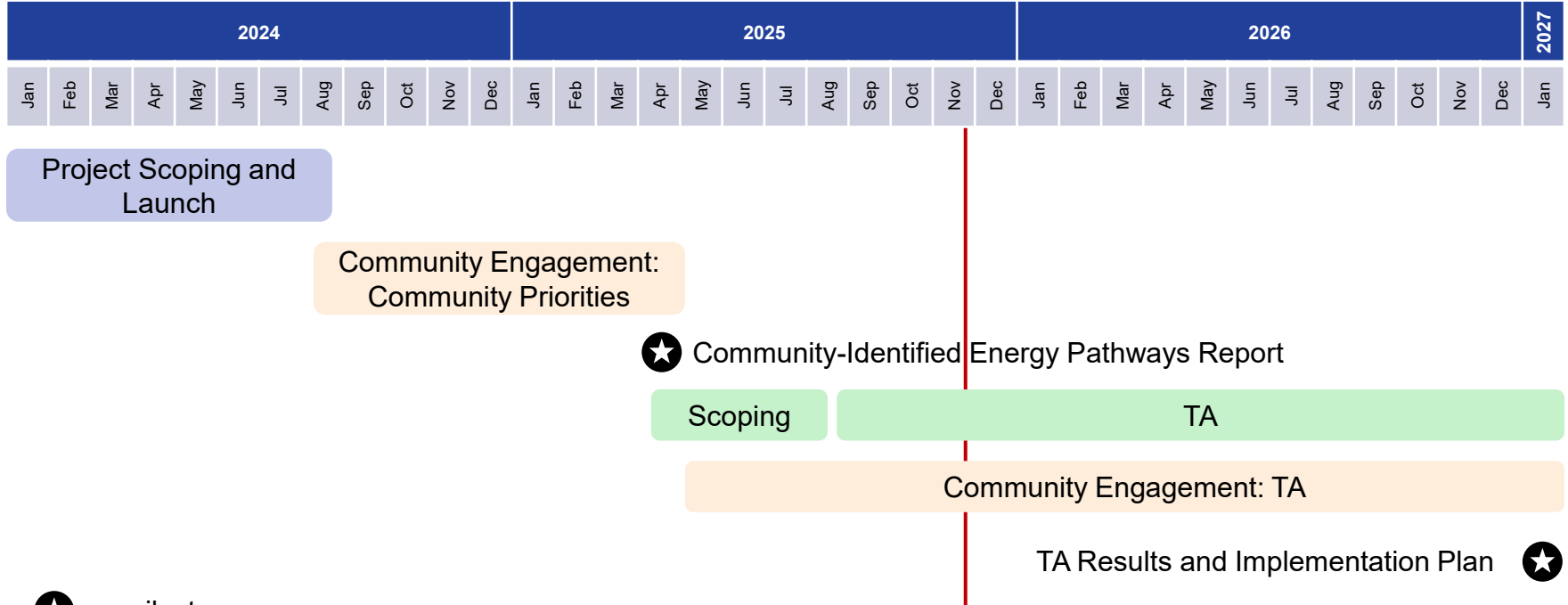
Community-designed renewable energy



Photo caption: Hawaiian Electric-hosted site visit with the Lahaina Energy Partnership, Mā'ālaea Generating Station, Maui. *Photo from Hā Sustainability.*

# Project Phases

 We are here



 = milestones



## COMMUNITY TA PRIORITIES

Low-Impact Hydropower

Community Energy  
Microgrids

Undergrounding and  
Other Grid Hardening

Distributed Energy  
Resources

Community Solar  
(aka Shared Solar or CBRE)

Community Ownership  
Models for Energy System  
Infrastructure

Workforce Development  
and Job Training

Grid Modernization,  
Grid-Interactive Technologies,  
and Demand Response

Waste-to-Energy

Agrivoltaics

## NLR TA TASKS



Task 1.  
Resource Assessment



Task 2.  
Building Modeling



Task 3.  
Microgrids



Task 4.  
Distribution Grid/  
Undergrounding



Task 5.  
Crosscutting Topics

Subtask 5.1

Workforce Development

Subtask 5.2

Policy and Regulatory

Subtask 5.3

Funding and Financing

# General Q&A

What questions or comments do you have on the project overall?



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# NLR Technical Assistance Updates and Q&A by Task

Presented by NLR Task Leads

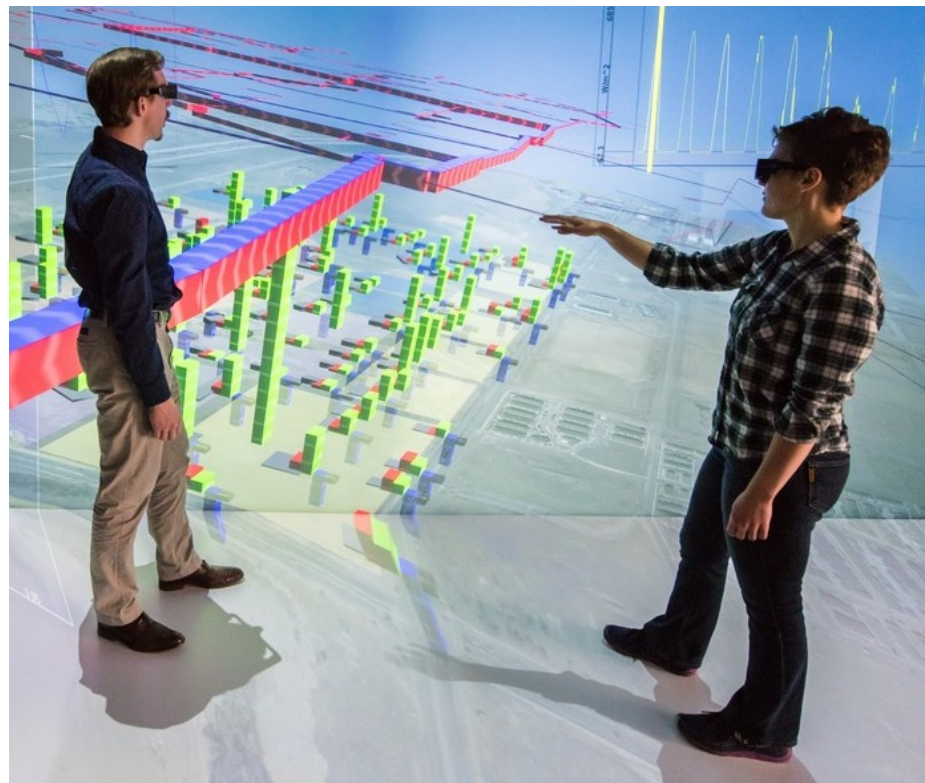


Photo by Dennis Schroeder, NLR 50649

# Task 1. Resource Assessment

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Presented by Evan Rosenlieb, NLR

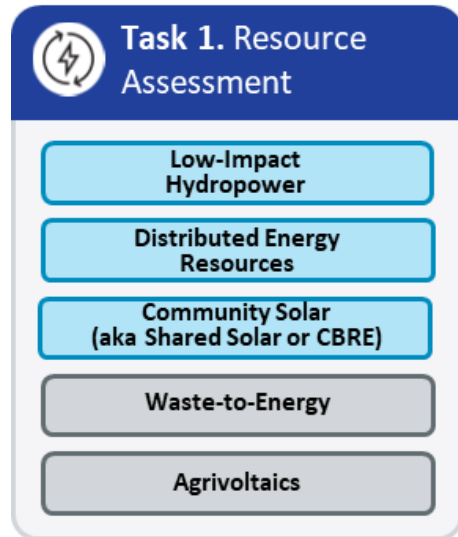


*Photo by Robin Burton, NLR*

# Task 1. Resource Assessment – Overview

## NLR Task Lead:

Evan Rosenlieb



## Activities:

Assess electricity generation technologies of interest.

- Low-impact hydropower (focus on R-1 treated wastewater)
- Distributed solar photovoltaic (PV) generation on rooftops and over parking lots
- **OPTION:** Other energy and storage technologies such as waste-to-energy (or other firm power), community-scale ground-mount solar PV, agrivoltaics, floating solar, or distributed wind paired with batteries. This option will only be pursued if the decision is made not to do additional hydropower analysis.

**Key audiences:** Community members, policymakers, County of Maui departments (water supply, environmental management, etc.), and other TA task teams.

## Pathway to implementation:

- For hydropower, inform decision to request a full engineering feasibility study.
- For other technologies, the approach will depend on results of analysis and community response (e.g., results of other tasks may help show where potential parking lot PV could be sited).

# Task 1. Resource Assessment – Subtasks and Timeline

Subtask	High-Level Timeline*
1.1: First-order bracketing analysis	Months 1–4
1.2: Wastewater treatment plant hydropower assessment	Months 3–8
1.3: Other low-impact hydropower assessment	Months 5–8
1.4: Rooftop and parking lot distributed solar assessment	Months 5–13
1.5: <b>OPTIONAL:</b> Assessment of other renewable generation opportunities (To be done only if local partners and the Lahaina community decide not to pursue Subtasks 1.2, 1.3, or 1.4 based on bracketing analysis results (Subtask 1.1).)	Months 5–8

We are here



\*Project is in month 4 at time of this presentation.



# Task 1.1 Presentation Guiding Questions

Given analysis results and what we have found for potential hydropower generation so far:

- Did we miss anything?
- Would you be more interested in:
  - Learning more about costs and benefits for one of the hydropower options?
  - Learning more about what other technologies could help meet a higher percentage of Lahaina's energy needs?

# Electric Power Examples

In 2024 the average residential solar PV system size in Maui County was 6 kW\*; the average household in the Lahaina/ Lahainaluna/ Kahoma census tracts purchased 6,900 kWh (6.9 MWh) of electricity per year.



Rooftop solar on a home in Hawai'i.  
Photo by Deb Lastowka, NLR 54445.

This rooftop solar PV system in Jacksonville, Florida is 1,890 kW (1.89 MW); the system can be expected to generate 3,311,280 kWh\* (3,311 MWh) per year.



Photo from Chris Gellentien, DOE

\*Generation calculated with NLR's PVWatts Calculator, <https://pvwatts.nrel.gov/>.



Graphic by NLR

The peak amount of energy on the grid in Lahaina pre-fire was about 14 MW; annual electricity demand in areas served by the Lahaina substation was about 95,000 MWh.\*\*

\*16,867 residential PV systems in Maui County with a combined capacity of 101.25 MW. Source: Hawaiian Electric (2025), <https://www.hawaiianelectric.com/hawaiian-electric-sees-steady-growth-in-solar-installations>.

\*\*Peak capacity is from the location-based needs forecasts from Hawaiian Electric's Integrated Grid Plan (IGP); annual demand calculated using a load factor assumption of 0.65.

# Task 1.1 Bracketing Analysis Initial Results

Potential* Electric Generation Source	High-Level Potential Capacity Estimate	General Assessment
R-1 wastewater distribution	~ .15 MW	Not high potential for generation, still potential to use water for PSH.
Drinking water supply or distribution	~ .11 MW	Not high potential for generation.
Makila hydropower	~ .25 MW	Somewhat better potential than R-1 or drinking water, more research into water availability and state of existing infrastructure needed.
Other pumped storage hydropower (PSH)	50+ MWh of energy storage	Definite potential for energy storage, could store solar energy at high solar production times and generate at lower solar production times.
Rooftop and parking lot solar	25+ MW	Definite potential, worth more investigation.

MW = megawatt and MWh = megawatt-hour. Pre-fire the peak amount of energy on the Lahaina grid was about 14 MW.

# Task 1.1 Bracketing Analysis Initial Results

- We estimate that annual electricity demand in areas served by the Lahaina substation before the fire was about 95,000 MWh.
- Community priority technologies should be able to generate more than half of this, but 90% or more would be expected to come from PV, not hydropower.
- Hydropower estimates represent absolute maximum potential; PV generation may be higher due to technology advancements and more available area after rebuild.

Potential* Electric Generation Source	Annual Generation Estimate/Percentage of 2023 Demand
R-1 wastewater distribution	~ 1,300 MWh/1.4%
Drinking water supply or distribution	~ 1,000 MWh/1.1%
Makila hydropower	~ 2,200 MWh/2.3%
Rooftop and parking lot solar PV	44,000+ MWh/47%

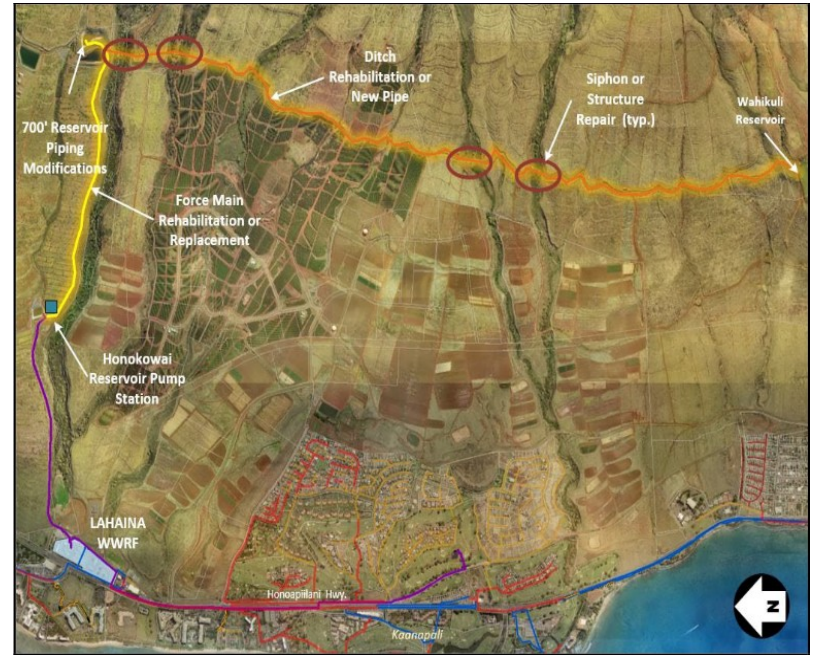
# R-1 Wastewater and Drinking Water Supply

The amount of energy that could be generated from the planned R-1 wastewater system is limited by:

1. Amount of water flowing through the distribution system (max. of 1.9 million gallons per day [MGD])
2. Elevation the water would start at (700 feet).

## Considerations:

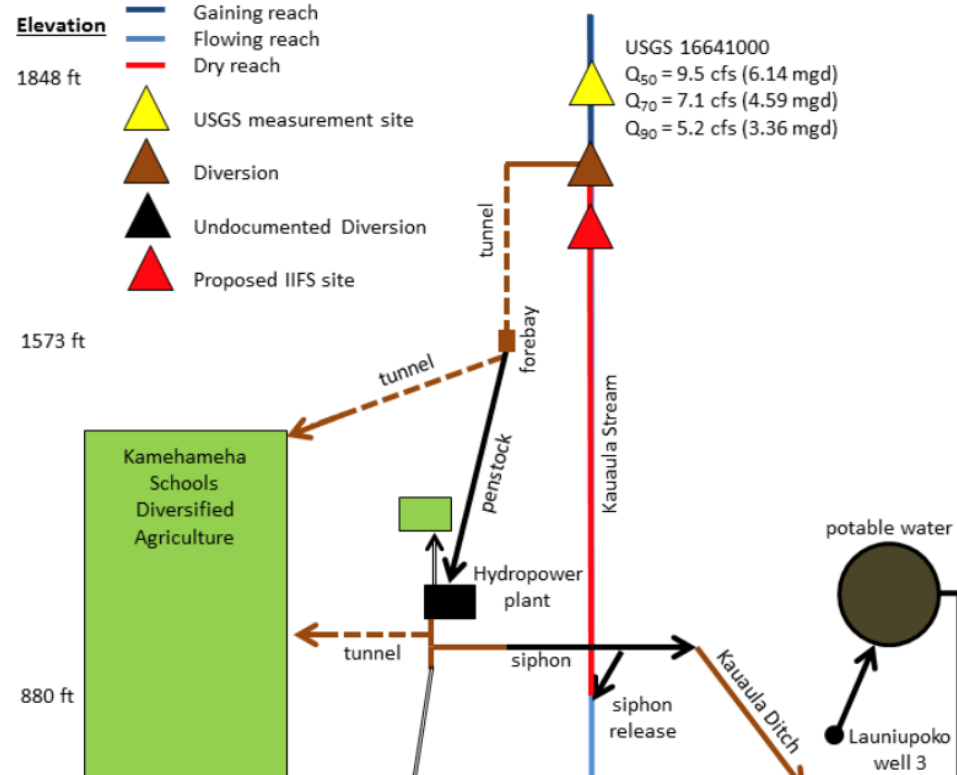
- Planned wastewater system has ~0.15 MW (~150 kW) of electricity generation capacity potential at a constant rate of flow (~equivalent to a rooftop PV system on a large building with higher cost and technical complexity).
- Because the system would use County of Maui infrastructure, if the project was pursued it would likely be used by county facilities than for Lahaina town.
- Drinking water supply system has lower potential than wastewater system (1.65 MGD, 600 ft, ~0.11 MW).



Graphic from County of Maui Capital Improvement Plan

# Makila Hydropower

- Historically able to generate 500 kW (0.5 MW) of power which "provided electricity for mill operations, manager's houses and to operate well pumps" according to the instream flow standard (IFS) assessment report.
- To produce this energy, Pioneer Mill diverted 5.22 MGD on average between 1956–1975 causing the stream bed (red line) to usually run dry.
- The hydropower plant doesn't **consume** water; diverted water is used for irrigation downstream.



Graphic from State of Hawaii

# Makila Hydropower

- Photos on the right are from the 2017 IFS report:
  - Top: Diversion structure for tunnel that feeds the hydropower plant
  - Bottom: Dry stream bed below, caused by the diversion.
- At the dry stream bed location, the IFS requires 3.36 MGD to stay in the stream, **regardless of how much is returned further downstream.**
  - This means the potential for hydropower from this diversion is less than half of what it used to be.
- If the plant was still able to generate 250 kW (0.25 MW) constantly, it would be expected to produce about 2% of Lahaina's energy needs. This compares to our expectation that rooftop and parking lot canopy solar could supply about 50% of the community's energy needs.



Graphic from State of Hawaii

# Discussion Questions

- Did we miss anything?
- Which of these two options are you more interested in (can only focus on one!):
  1. Learning more about one of the possible hydropower options?  
Which option are you most interested in?
  2. Learning more about what other technologies could help meet a higher percentage of Lahaina's energy needs? If so, what technologies other than hydropower and rooftop/parking lot canopy PV are you interested in?

# Task 2. Building Modeling

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Presented by Ben Polly, NLR

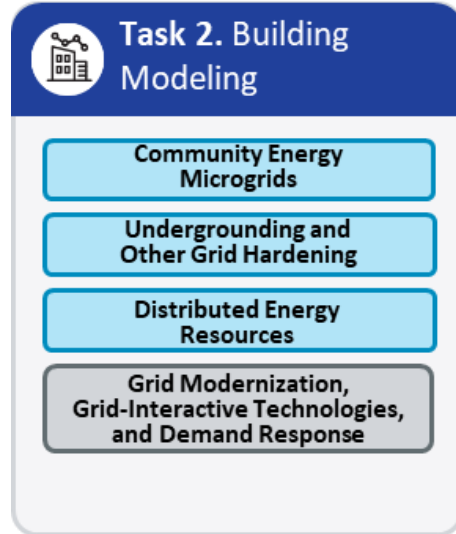


Photo by Robin Burton, NLR

# Task 2. Building Modeling – Overview

## NLR Task Lead:

Ben Polly



## Activities:

- Develop a high-efficiency and solar/microgrid-ready building prototype design to benefit Lahaina in reconstruction efforts.
- Develop Lahaina building load profiles necessary for Tasks 3 (Microgrid) and 4 (Distribution Grid/Undergrounding).

**Key audiences:** Community residents, businesses, and stakeholders/organizations affecting the energy-related affordability and resilience of reconstructed buildings.

**Pathway to implementation:** Provide key technical strategies and considerations for rebuilding including energy efficiency, distributed energy resources, and grid interactivity/demand response-ready building technologies.

# Task 2. Building Modeling – Subtasks and Timeline

Subtask	High-Level Timeline*
2.1: Assess Lahaina building reconstruction landscape	Months 1–2
2.2: Lahaina high-efficiency and solar/microgrid-ready building prototype design	Months 3–10
2.3: Develop Lahaina building load profiles necessary for Tasks 3 and 4	Months 1–6

\*Project is in month 4 at time of this presentation



# Subtask 2.1: Approach and Limitations

**Approach:** Assess Lahaina building reconstruction landscape through Lahaina community meetings (July 2025, November 2025), stakeholder meetings (June–October 2025), and research based on published/online materials.

Stakeholder organizations who provided feedback in meetings to date with Task 2:

- American Institute of Architects (AIA) Maui
- Hawai'i Energy
- Hawai'i Public Utilities Commission (PUC)
- Hawaiian Electric
- Hawai'i Green Infrastructure Authority (HGIA)
- Hawai'i State Energy Office (HSEO)
- County of Maui Dept. of Mgmt. and Env. Mgt.
- County of Maui Dept. of Public Works
- County of Maui Dept. of Water Supply
- WMC Design Build

**Limitations:** Findings are based on meetings, feedback, and research to date; does not include surveys or interviews.

# Examples of What We Heard/Found Regarding Key Challenges

## Residents



- Lahaina residents face overwhelming and complex processes to navigate rebuilding.
- Underinsurance is common and is impacting the designs of rebuilds and what gets included (e.g., solar).

## Progress and Timing



- Residential rebuilding is farther along than commercial, but we heard there can still be value in supporting residential design strategies.
- Permitting and the cost of rebuilding can slow things down substantially, especially for those in the Special Management Area (SMA) or historic district, and those without sufficient funds from insurance for rebuilding.
- Maui has a shortage of contractors relative to the demand for rebuilding.

# Examples of What We Heard/Found Regarding Key Challenges

## Local Incentives/Programs



- There are various applicable Hawai'i Energy, Hawaiian Electric, and HGIA programs but some residents, architects, builders, and contractors may not be familiar with them.
- There are very few, if any, local firms or entities that have in-house capability on Maui to perform needed modeling for the Hawai'i Energy New Construction Energy Model Approach (EMA) Program.

## Architects/Builders/Contractors



- Lahaina rebuilding has a mix of smaller builders/contractors, rather than just a few big-name builders/contractors.
- A common commercial building type is pre-engineered metal.
- Pre-designs are being used in some cases for residential buildings to reduce costs and speed up rebuilding process.

# Next Steps

Develop prototype building energy design strategies fact sheet (Subtask 2.2).

- Focus: residential single-family detached and small commercial (retail or other commercial use type).
  - Timing to align with next wave of residential building with Community Development Block Grant Disaster Recovery (CDBG-DR) funding and commercial area rebuilding.
- Stakeholder input/review of strategies, modeling assumptions, and information linking to programs/incentives/rebates.
- Engage with lighthouse project partner(s).
- Preliminary draft for project partner/building construction stakeholder review and to inform near-term efforts: winter 2025/2026.
- Final fact sheet: summer 2026.

# Discussion Questions

- What about your own rebuilding experience could help make results of this task more useful for others – is there anything you wish you or your rebuilding partners had known about building energy design, available programs or incentives, or other topics?
- Which local rebates, incentives, and financing programs are you aware of to help offset the upfront costs of energy efficiency measures and other equipment (e.g., solar PV and batteries)?
- We're looking to highlight real-life examples of residential and commercial rebuilding projects in Lahaina with enhanced energy efficiency and on-site PV generation, battery storage, and/or backup power that are (or could be) taking advantage of available local rebates, incentives, and financing options (what we're calling "lighthouse" projects). Are you building a "lighthouse" project candidate, or are you aware of one?
- What feedback do you have on the audience for this work, how to provide results in an impactful way, and our overall approach?

# Task 5.1. Workforce Development and Job Training

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Presented by Jennifer Daw and  
Elise DeGeorge, NLR



Photo by Werner Slocum, NLR 74131

# Task 5. Crosscutting Topics

Provide **crosscutting insights** to strengthen and align with Tasks 1–4:

- **Subtask 5.1. Workforce Development and Job Training**
- **Subtask 5.2. Policy and Regulatory Analysis**
- **Subtask 5.3. Funding and Financing.**

# Subtask 5.1. Workforce Development and Job Training – Overview

## NLR Task Lead:

Jennifer Daw

### Subtask 5.1. Workforce Development

#### Workforce Development and Job Training

## Activities:

- Assess existing energy workforce development programs in Hawai'i.
- Identify gaps and local education, training, and partnership needs for Lahaina.
- Provide guidance and resources to support Lahaina's local workforce needs for the new energy systems.

**Key audiences:** HSEO, University of Hawai'i, Hawai'i Energy, developers/planners, apprenticeship programs, and state/local workforce organizations that support energy sector recruiting and job entry.

**Pathway to implementation:** Leverage results to supplement Hawai'i's energy workforce development programs and build the local workforce to own and operate energy systems.

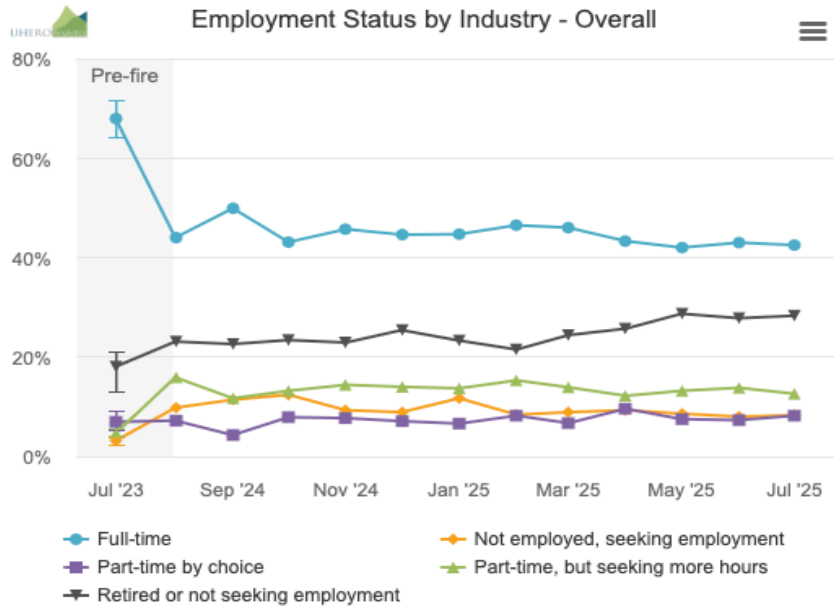
# Subtask 5.1. Workforce Development and Job Training – Subtasks and Timeline

Subtask	High-Level Timeline*
5.1.1: Energy workforce development gaps assessment	Months 1–4
5.1.2: Workforce development guidance	Months 2–6

\*Project is in month 4 at time of this presentation.



# Impact of August 2023 Fire on West Maui Employment



- University of Hawai'i study shows that about 60% of people who worked in tourism before the fires are still employed in the industry, and <50% have full-time roles.
- About 25% of surveyed individuals now earn less than half of their pre-fire incomes.

This graph includes all fire-impacted people (lived, worked, or owned a business in West Maui or Kula). *Graphic from [University of Hawaii Economic Research Organization \(UHERO\) Maui Recovery Dashboard](https://uhero.hawaii.edu/mauis-recovery-1%C2%BD-years-after-the-wildfires)*

Source: UHERO, <https://uhero.hawaii.edu/mauis-recovery-1%C2%BD-years-after-the-wildfires>

# Assessing Gaps and Developing Guidance Through Stakeholder Interviews and Analysis

## Interview List

AES Foundation Grant Program	Hawai'i Community College Consortium	Maui American Job Center
AmeriCorps Kupu internships	Hawaiian Electric and Maui Power Pathways Program	Maui County Office of Economic Development
AmeriCorps Vista	Hawaii Job Corps Center	Maui Economic Development Board
Carpenters Apprenticeship & Training Fund	Hawaii Natural Energy Institute	O'ahu Workforce Development Board (OWDB)
Clean Energy Sector Partnership	Hawaii Solar Energy Association	Re-use Hawai'i
Council for Native Hawaiian Advancement (Hawaiian Council, Hawaiian Trades Academy)	Hawaii State Energy Office	SR Partners
Dept of Labor and Industrial Relations Good Jobs Hawai'i; Hawaiian Trades Academy at University of Hawaii Maui	Ho'ahu Energy Clean Energy Training	UBC Millwrights
Hawaiian Department of Education	Hulihia	University of Hawaii - UHERO
Hawaii Chamber of Commerce	IBEW 1186, 1260	Utility Workers Union of America (UWUA) – Maui office

# Cross-Walking Jobs to Energy Project Workforce Needs

<b>Energy Project Options</b>
Grid, Distributed Energy, and Transmission Planning
High-Efficiency Buildings
Hydropower
Microgrid/Distributed Energy
Solar and Agrivoltaics
Undergrounding Transmission Lines
Waste-to-Energy
Wind

<b>Job Categories</b>
Analysts
Business Support Services
Construction/Trades
Engineers
Modelers
Operators
Planners
Project Managers
Scientists
Specialists
Surveyors
Technicians

<b>Phases</b>
Planning
Design
Construction (mostly temporary)
Operations/Maintenance (ongoing)

<b>Needed Competencies</b>
Education/Certifications
Skills



# A Wide Range of Technical and Business Support Jobs Will Be Needed

Agrivoltaics Site Planners
Building Automation Systems Engineers
Civil Engineers
Combustion Engineers
Construction Laborers (Excavation and Trenching, Crane and Tower, etc.)
Design Engineers
Electrical Engineers
Electronics Engineers
Energy Analysts
Energy Engineers
Environmental Engineers
Heating, Ventilation, and Air Conditioning (HVAC) Engineers
HVAC Technicians
Hydrologists
Mechanical Engineers
Operations and Maintenance/Field Technicians
Power Systems Engineers
Research Analysts
Site Assessors
Transmission Modelers/Planners
Transmission Planning Engineers

Agricultural Specialists
Biomass Feedstock Specialists
Blade Inspection and Repair Technicians
Grid/Transmission Operators
Health and Safety Specialists
Interconnection Managers/Engineers (Grid Interconnection Specialists)
Land Acquisition Specialists
Plant Operators
Policy, Regulatory, and Compliance Specialists
QA/QC Specialists
Right of Way Agents
Surveyors
System Engineers
Vegetation Management Crew Members

Cement Masons
Commissioning Specialists
Construction Foremen/Crew Leads
Control Systems Technicians
Cybersecurity Specialists
Electricians
Installers
Linemen/Cable Installers
Permitting Specialist
Project Managers
Test and Balance Technicians
Transmission Operators
Waste Management/Biomass Operations Specialist
Wind Turbine Technicians

# Understanding Employment Trends Can Reveal Possible Transferable Skills

Other Relevant Energy Occupation Codes	Other Energy Relevant Occupation Sectors	Employment
11-9021	Construction Managers	370
17-0000	Architecture and Engineering Occupations	450
17-2051	Civil Engineers	140
17-2071	Electrical Engineers	60
17-3011	Architectural and Civil Drafters	30
47-0000	Construction and Extraction Occupations	3,670
47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	420
47-2031	Carpenters	770
47-2061	Construction Laborers	650
47-2073	Operating Engineers and Other Construction Equipment Operators	240
47-2111	Electricians	290
47-2152	Plumbers, Pipefitters, Steamfitters	330
47-4011	Construction and Building Inspectors	40
49-0000	Installation, Maintenance, and Repair Occupations	2,940
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	280
49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	70
49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	70
49-9052	Telecommunications Line Installers and Repairers	40
49-9071	Maintenance and Repair Workers, General	1,340
49-9096	Helpers—Installation, Maintenance, and Repair Workers	60
51-0000	Production Occupations	1,640
51-8013	Power Plant Operators	60
51-8031	Water and Wastewater Treatment Plant and System Operators	120

**Source:** U.S. Bureau of Labor Statistics, May 2023 Metropolitan and Nonmetropolitan Area Occupational Employment and Wage Estimates: Kahului-Wailuku-Lahaina, Hawai'i, [https://www.bls.gov/oes/2023/may/oes\\_27980.htm](https://www.bls.gov/oes/2023/may/oes_27980.htm)

# Subtask 5.1 Discussion Questions

- What challenges do **job seekers** face when looking for work in Lahaina?
- What challenges do **employers** face when looking for workers in Lahaina?
- When you think of jobs in the energy sector, what kind of jobs come to mind?
- What is your perception of energy sector jobs? Would you consider working in the energy sector (why or why not)?
- Where would you access education and training to build the knowledge and skills needed to work in energy jobs?
- Are there other needs for Lahaina to support the workforce needs of the community-identified energy priorities?

# Small Group Discussions

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*Photo by Robin Burton, NLR*

# Small Group Discussions

## Objectives

- Continue to learn more about the current status of each task.
- Ask your questions.
- Answer questions from NLR.

## Instructions

- Three breakout rooms: one each for Tasks 1, 2, and 5.1.
- Go to rooms of tasks you are most interested in/want to know more about.
- Two rotations of 15 minutes each (30 minutes total).
- NLR task lead and local partner will facilitate each room and take notes.
- Answer questions verbally or in writing on a Mural board.
  - Go to Mural board: <https://bit.ly/3JJsfmp>
  - Select “Enter as a visitor” (below “Create an account” and “Log in to Mural”)
  - Enter a name or select “Enter as a visitor” again.
  - Use Atl+M (Option+M for Mac) to toggle between moving and editing on the board.

# Next Steps

- Join us for Workshop 2 in this series on December 11, 5:30 p.m.-7:45 p.m. for updates and discussion on microgrids, electric grid hardening, policy and regulation.
  - Join the workshop: <https://bit.ly/LEPWorkshops2025>
- NLR will continue to make progress on technical assistance activities.
- NLR and partners will continue to engage with the community and stakeholders with requests for information and present interim results and products.

# Mahalo!

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This work was authored in part by the National Laboratory of the Rockies for the U.S. Department of Energy (DOE) under Contract No. DE-AC36-08GO28308. Funding provided by U.S. Department of Energy Office of Energy Efficiency and Renewable Energy. The views expressed in the presentation do not necessarily represent the views of the DOE or the U.S. Government. The U.S. Government retains and the publisher, by accepting the article for publication, acknowledges that the U.S. Government retains a nonexclusive, paid-up, irrevocable, worldwide license to publish or reproduce the published form of this work, or allow others to do so, for U.S. Government purposes.

NLR/PR-6A20-98031



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# For Reference: Electric Power Definitions

- **Capacity** is the maximum amount of electric power (electricity) that a power plant or other source can supply at a point in time under specific conditions (measured in watts; energy storage capacity is measured in watt-hours).
- **Generation** is the amount of electricity produced by a power plant or other source (measured in watt-hours).
- **Watts** measure electrical power supplied by a source or consumed by an end-use customer or device (one ampere under a pressure of one volt).
  - 1,000 Watts = 1 kilowatt (kW); 1,000 kW=1 megawatt (MW); 1,000 MW = 1 gigawatt (GW).
- **Watt-hours** measure the amount of power (in watts) supplied to or consumed by a customer or device steadily for one hour.
  - 1,000 watt-hours = 1 kilowatt-hour (kWh); 1,000 kWh = 1 megawatt-hour (MWh); 1,000 MWh = 1 gigawatt-hour (GWh).
- **Load (electric)** is an end-use customer or device that receives power from the electric system.

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Source: "Glossary," U.S. Energy Information Administration (EIA), <https://www.eia.gov/tools/glossary/>