



# Ke‘āmuku Solar + Storage Project



July 2024

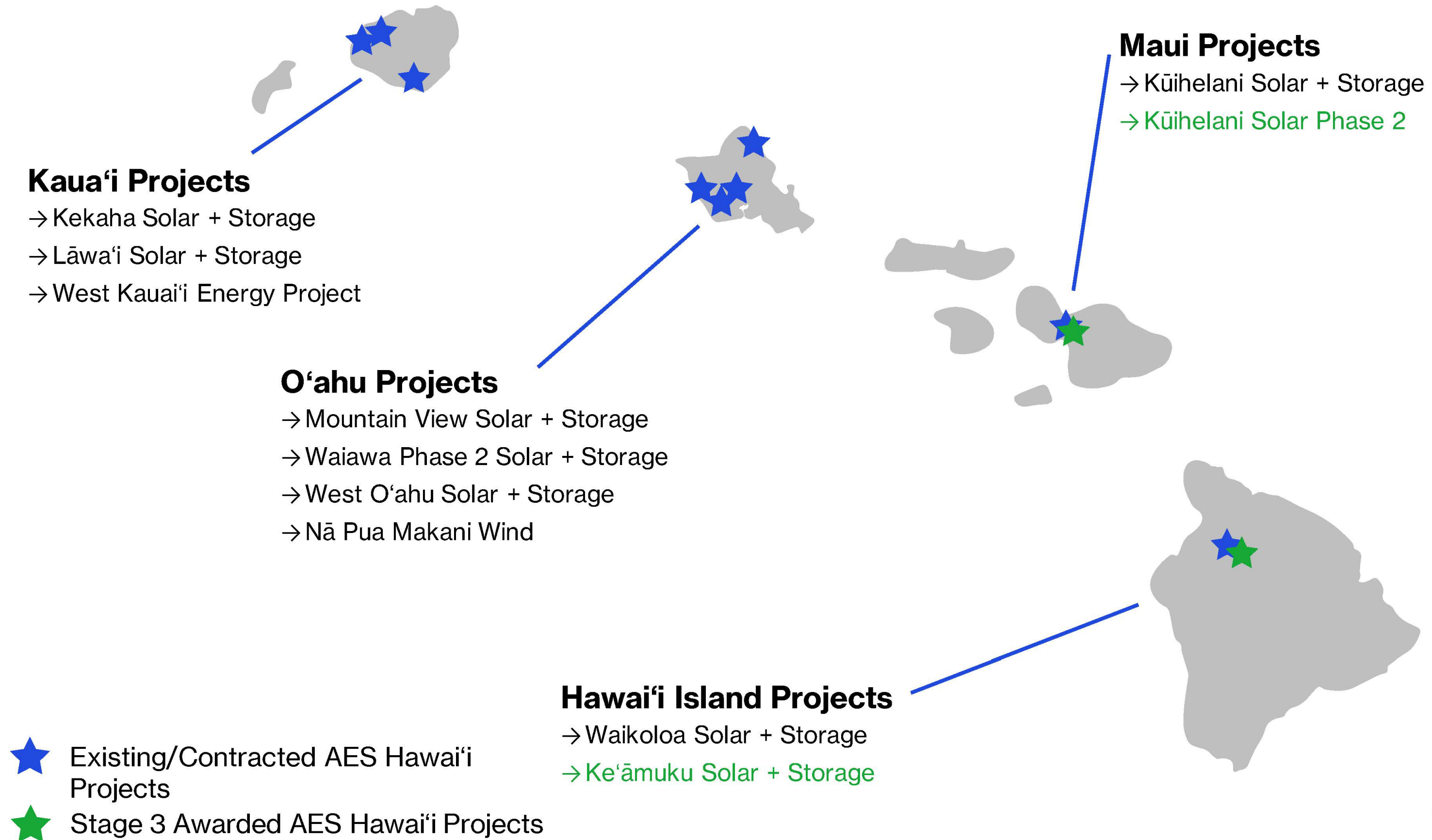


# Agenda



- AES Hawai'i
- Project Specifications
- Project Benefits & Preliminary Feedback
- Anticipated Project Timeline
- Studies and Design Considerations
- Community Benefits

# AES Hawai'i's Statewide Presence

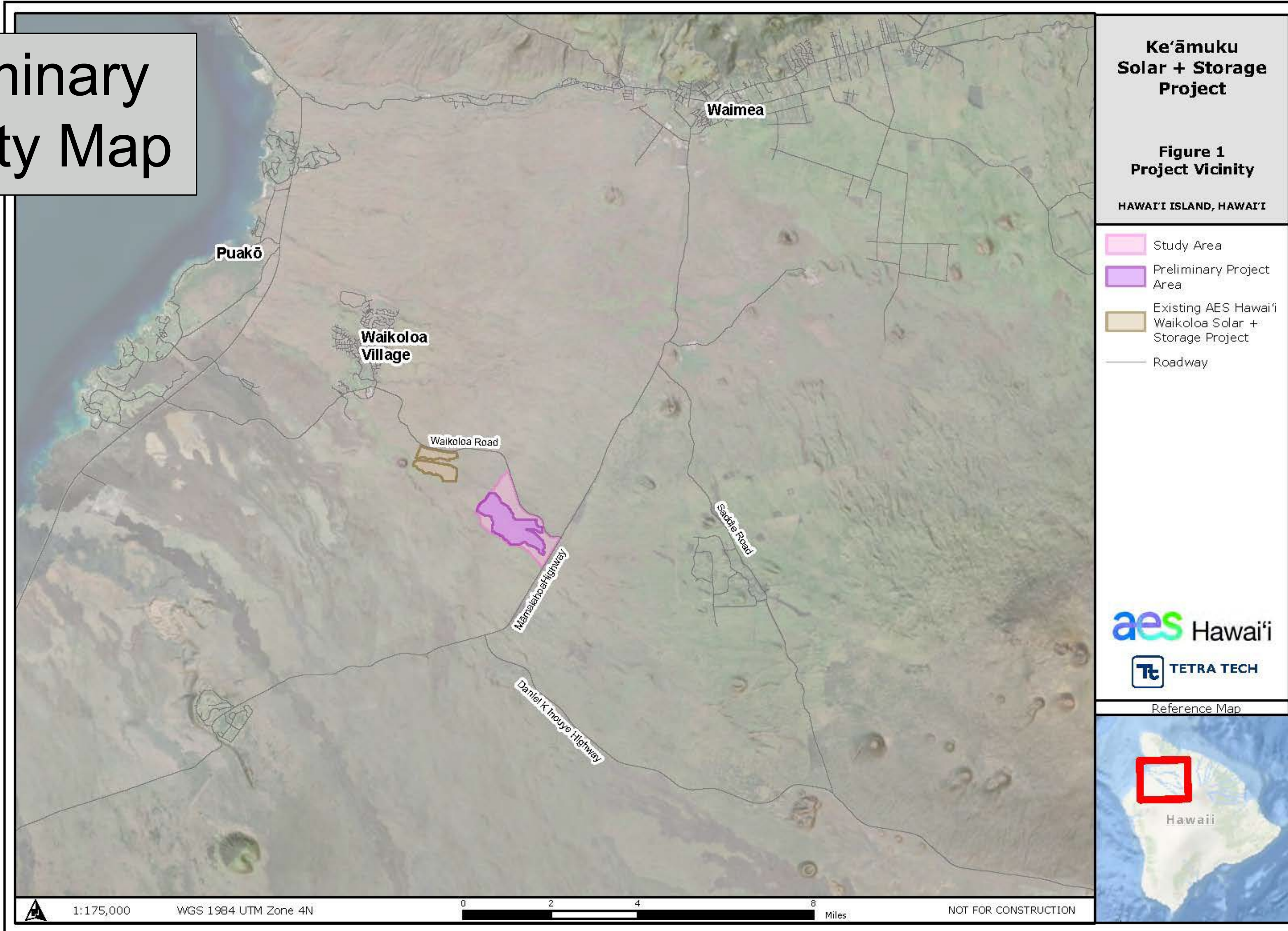


# Project Specifications

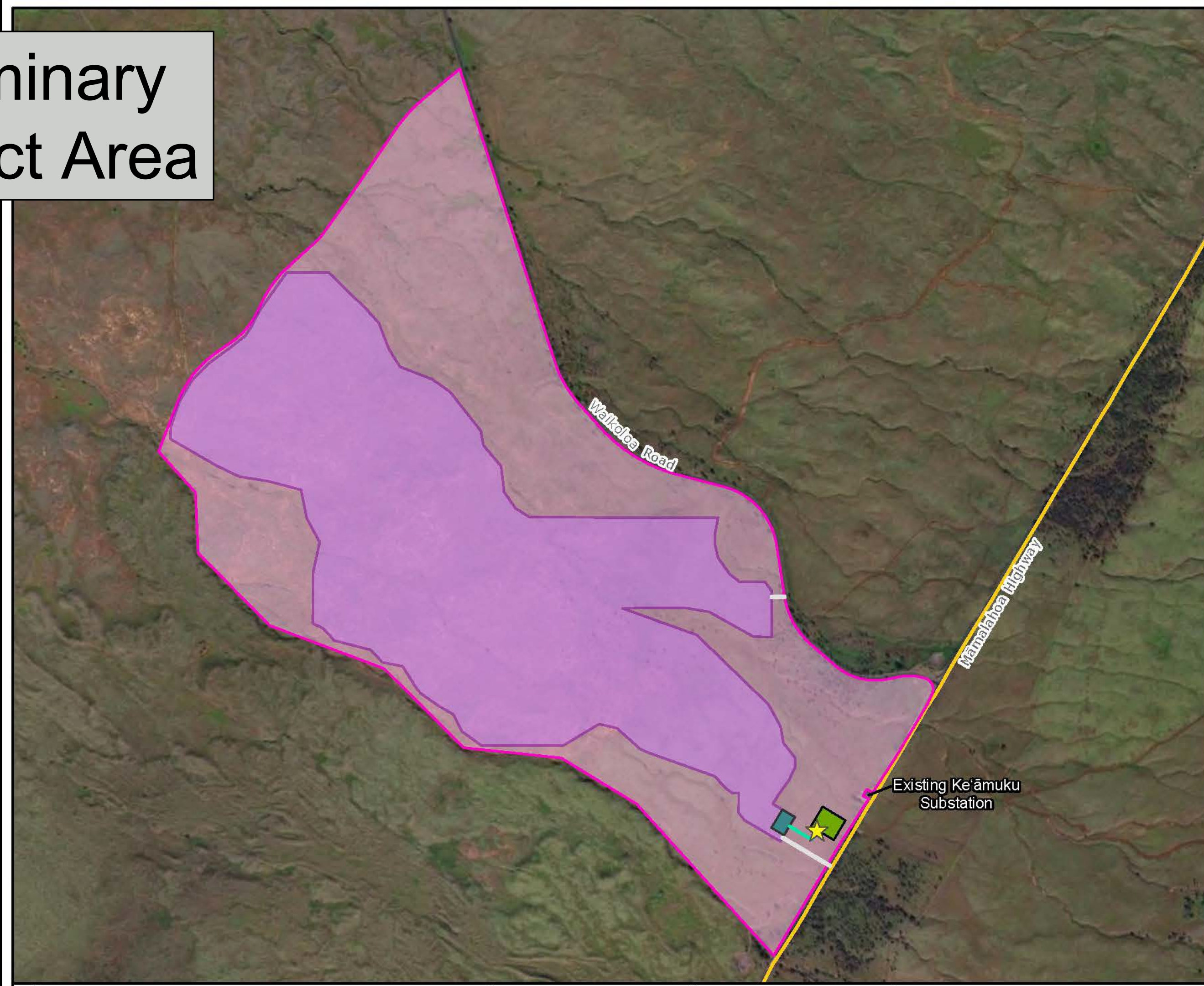
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- 86 MWac solar photovoltaic array
- 344 MWh Battery Energy Storage System (BESS)
- Developed and operated by AES Hawai'i
- ~700 acres on 1,090 acres of land owned by AES Hawai'i
- 25-year Power Purchase Agreement (PPA)
- Requires operations in 2030 (GCOD)
- Decommissioning – restore land to its existing condition (or comparable) at the end of lifespan

# Preliminary Vicinity Map











# Preliminary Project Area



**Ke'amuku Solar + Storage Project**

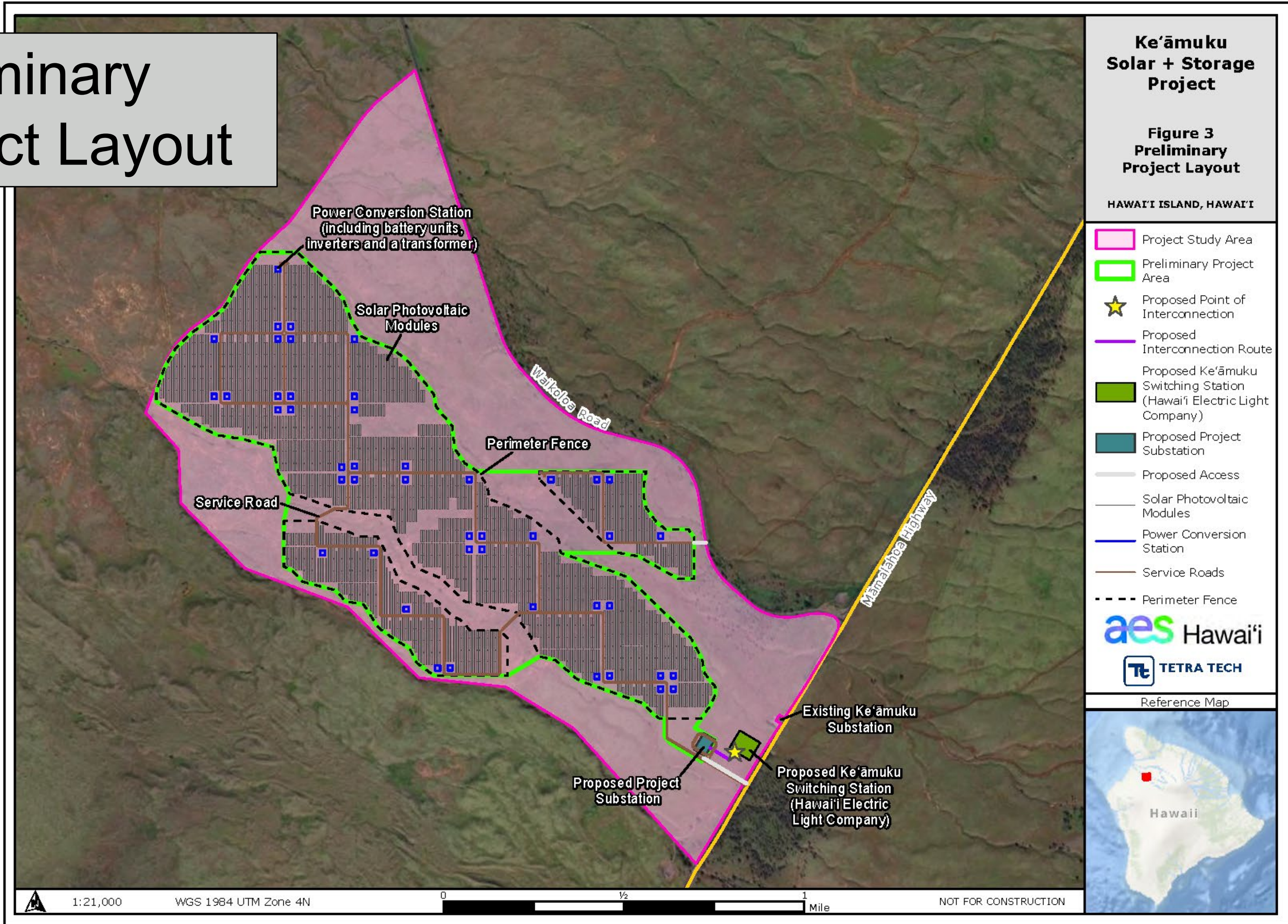
**Figure 2 Project Location**

HAWAII ISLAND, HAWAII

-  Project Study Area
-  Preliminary Project Area
-  Proposed Point of Interconnection
-  Proposed Interconnection Route
-  Proposed Ke'amuku Switching Station (Hawaii Electric Light Company)
-  Proposed Project Substation
-  Proposed Access
-  State Highway



# Preliminary Project Layout



**Ke'amuku Solar + Storage Project**  
**Figure 3 Preliminary Project Layout**  
 HAWAII ISLAND, HAWAII

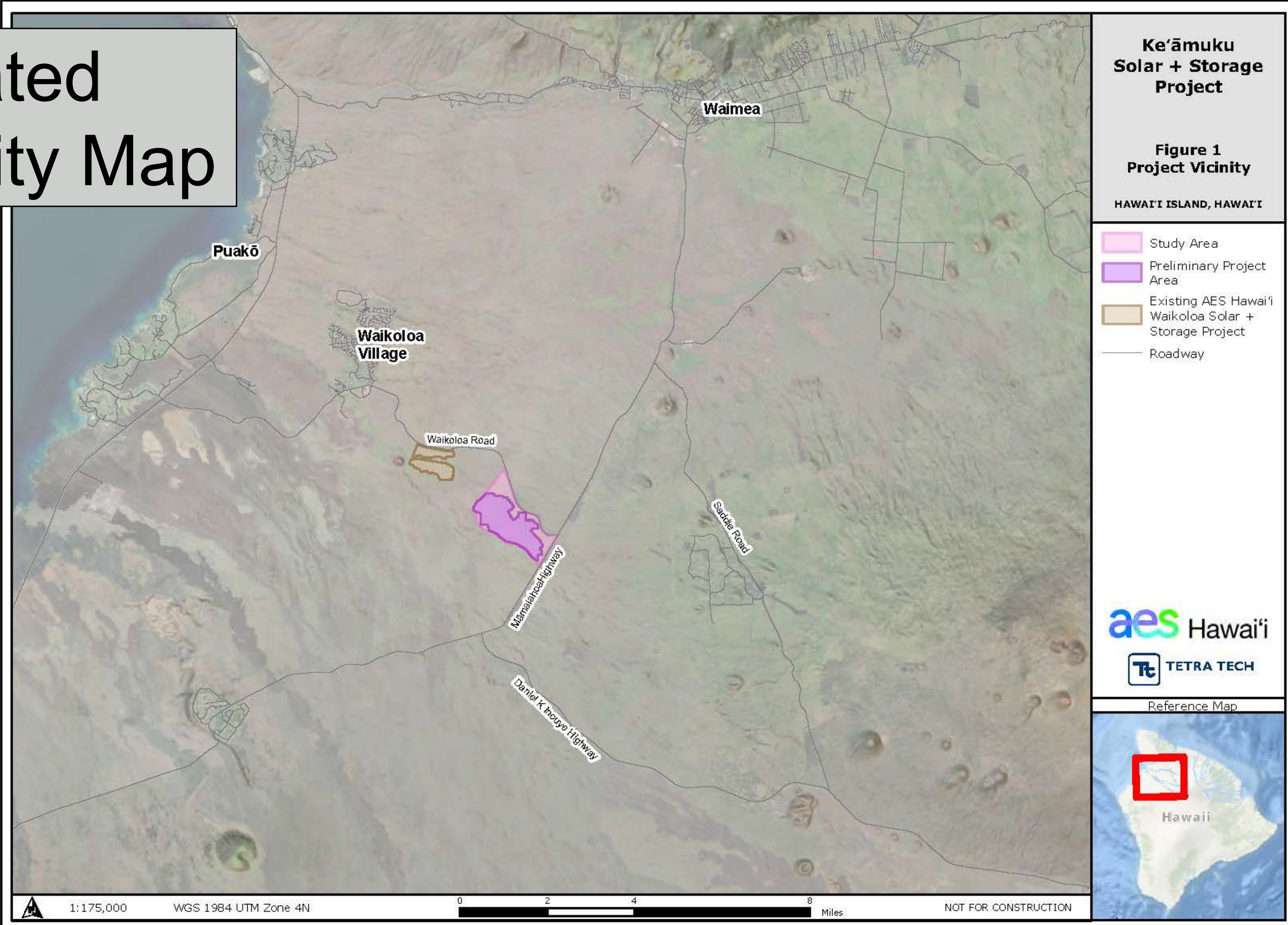
- Project Study Area
- Preliminary Project Area
- ★ Proposed Point of Interconnection
- Proposed Interconnection Route
- Proposed Ke'amuku Switching Station (Hawai'i Electric Light Company)
- Proposed Project Substation
- Proposed Access
- Solar Photovoltaic Modules
- Power Conversion Station
- Service Roads
- Perimeter Fence



Reference Map

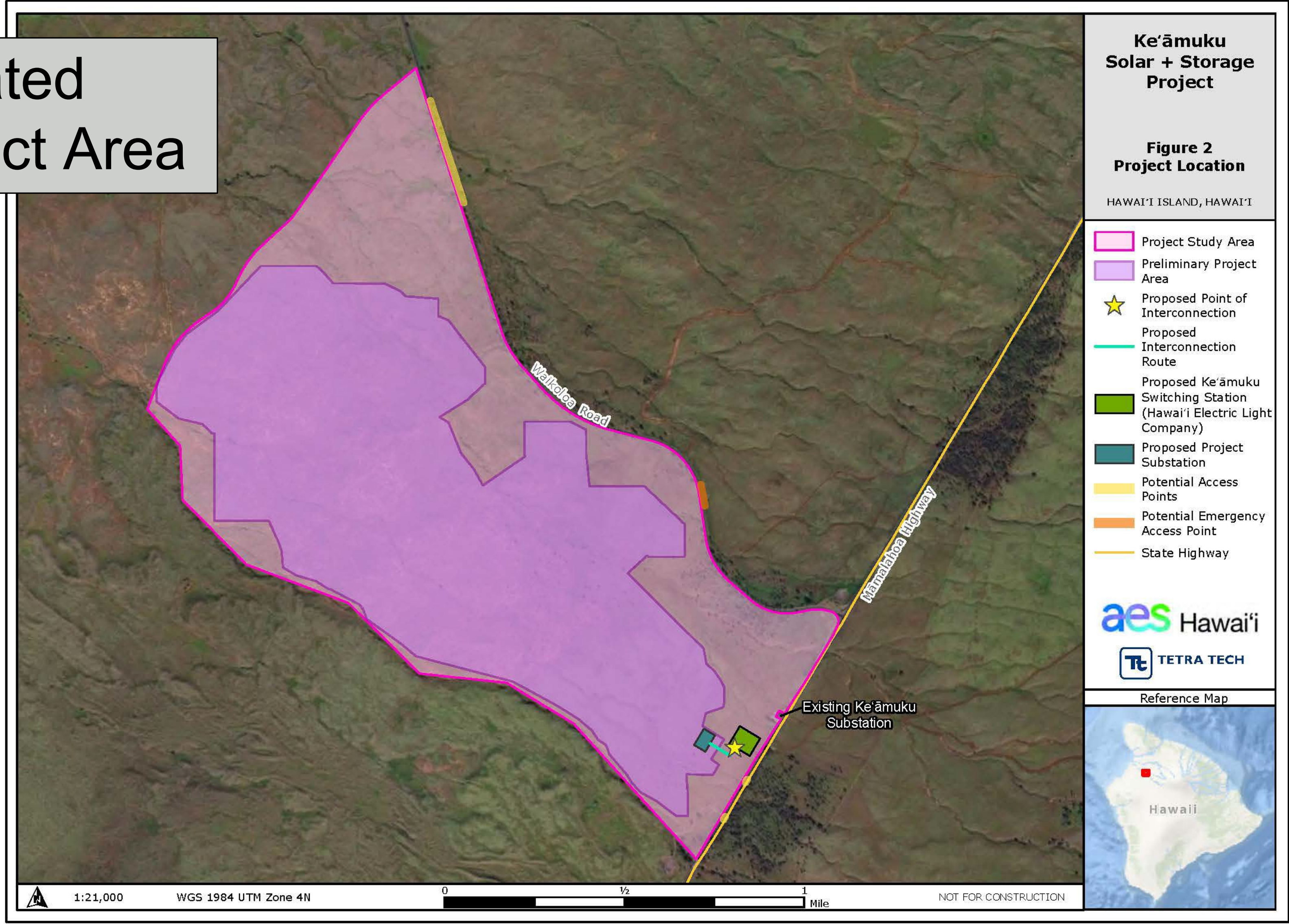


# Updated Vicinity Map





# Updated Project Area



**Ke'amuku Solar + Storage Project**

**Figure 2 Project Location**

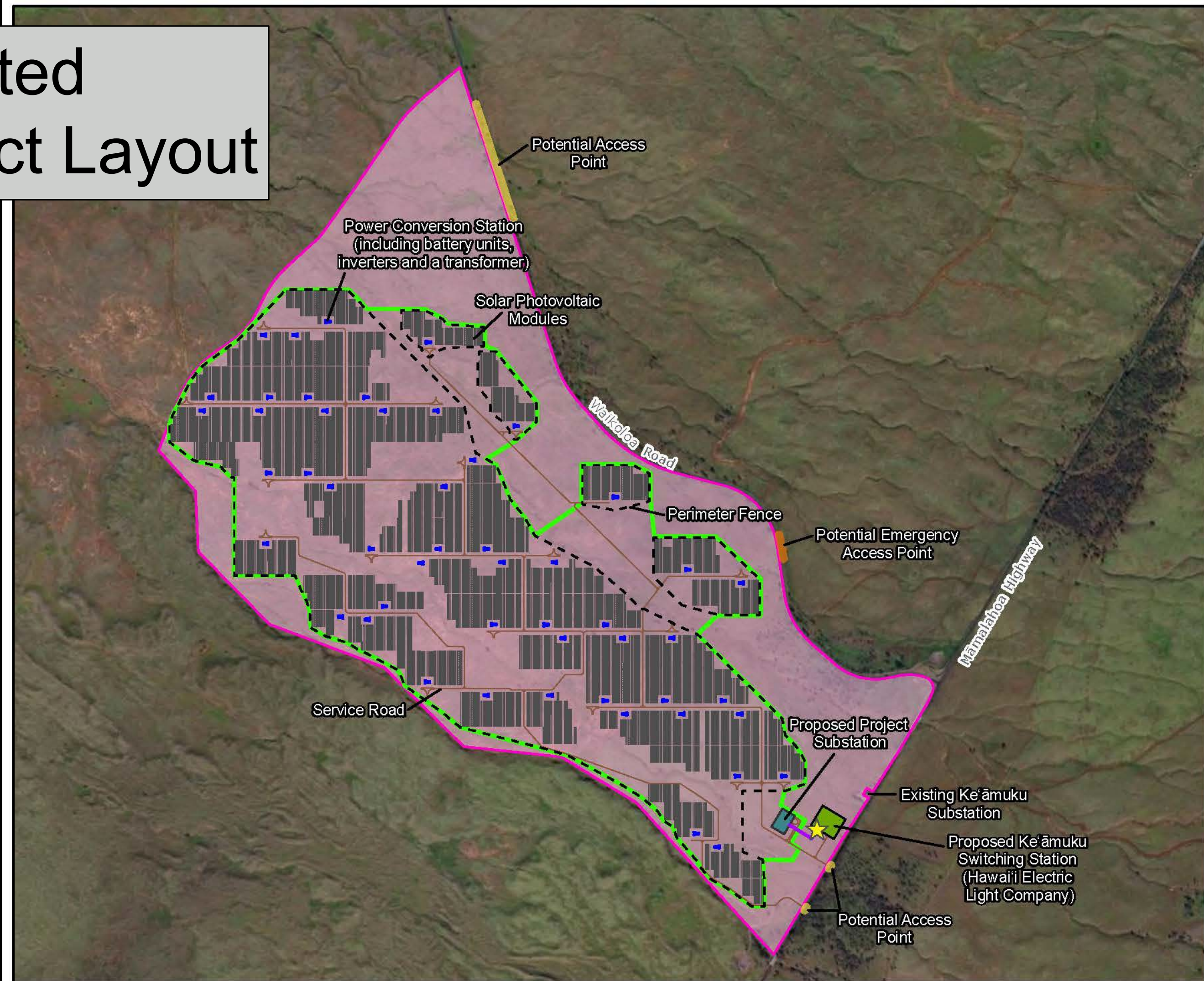
HAWAII ISLAND, HAWAII

- Project Study Area
  - Preliminary Project Area
  - Proposed Point of Interconnection
  - Proposed Interconnection Route
  - Proposed Ke'amuku Switching Station (Hawaii Electric Light Company)
  - Proposed Project Substation
  - Potential Access Points
  - Potential Emergency Access Point
  - State Highway
- aes** Hawai'i
- Tt** TETRA TECH



1:21,000 WGS 1984 UTM Zone 4N 0 1/2 1 Mile NOT FOR CONSTRUCTION

# Updated Project Layout



**Ke'āmuku Solar + Storage Project**

**Figure 3 Preliminary Project Layout**

HAWAI'I ISLAND, HAWAI'I

- Project Study Area
- Preliminary Project Area
- ★ Proposed Point of Interconnection
- Proposed Interconnection Route
- Proposed Ke'āmuku Switching Station (Hawai'i Electric Light Company)
- Proposed Project Substation
- Solar Photovoltaic Modules
- Power Conversion Station
- Service Roads
- Perimeter Fence



Reference Map



# Representative Photos of Equipment

Solar Panels



Battery  
Energy  
Storage  
System

# Representative Photos of Equipment



# Waikoloa Solar + Storage





# Project Benefits & Preliminary Feedback



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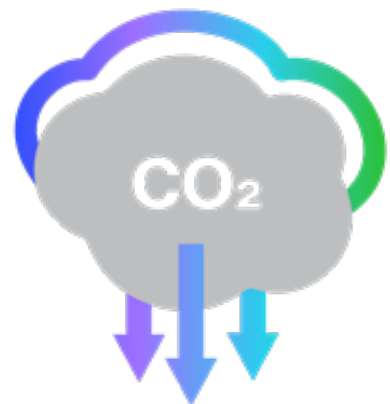
# Project Benefits - Environmental



~ **20%** of Hawai'i Island's energy needs\*



**35,336** homes powered annually\*



**8.4M** Barrels of oil avoided\*

\*Subject to Change

# Project Benefits – Economic



**\$353 million\***

- Direct, indirect, and induced economic activity



**1,908 jobs\***

- Direct, indirect, and induced full-time-equivalent (FTE) jobs

\*Subject to Change



# Project Benefits - Cost



## Low, stable price

- Power at a fixed price over its 25-year lifespan, cheaper than current fossil fuel prices and hedges against price volatility.



## Supports sunseting of traditional fossil fuel plants

\*Subject to Change


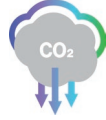

# Pre-Award Public Sentiment Survey

→ 249 West Hawai'i residents surveyed

- Survey conducted from September to October 2022
- Hāwī, Kapa'au, Hōlualoa, Waikoloa, Kailua, Kamuela/Waimea, Kealahou, and Captain Cook
- Margin of error +/- 6.21 percentage points, 95% confidence interval

→ **71% support**, 16% neutral, 10% oppose, 3% don't know

→ Top 3 reasons for support:

- Reduce the cost of electricity 
- Cut down on fossil fuel use 
- Good for the environment 

# Anticipated Project Timeline

Q1 2024 – Q1 2026

Project design, due diligence, and engineering

Q4 2024 – Q1 2025

PUC PPA review and approval

Q1 2025 – Q4 2026

Agency consultation, approvals, and permitting

2027 – 2030

Construction and commissioning

2030 Operation

Proposed commercial operation date



# Studies and Design Considerations



# Cultural and Archaeological Studies



- **Literature Review and Field Investigation (LRFI) - Completed**
- **Cultural Impact Assessment – In process**
  - Consultation
    - Lineal and cultural descendants
    - Kūpuna, kama‘āina, cultural practitioners
    - Community groups
- **Archaeological Inventory Survey (AIS) – In process**
- **Archaeological Monitoring Plan**

# Traffic Study

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- **Traffic Study** - Traffic Impact Analysis Report (TIAR) in process
- **Construction Traffic - Best Management Practices**
  - Deliveries during off-peak hours
  - Construction Traffic Management Plan
- **Minimal new traffic once operational**
  - 4-5 Vehicles/Day

# Wildfire Mitigation



- Clearance Zones
- Vegetation Management
- Fire Breaks
- Innovative Fire Suppression and Alarm Technology
- Emergency Response Plans
- Emergency Ingress and Egress
- County Fire Codes and State Regulations
  - Continuous engagement with the local fire departments throughout permitting, construction and operations
  - Project plans are reviewed by county fire officials prior to permit approvals

# Visual Simulations

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- Representative simulations from publicly accessible viewpoints
- Focal length to simulate view from naked eye
- Photograph taken from human-scale height
- Glint/Glare analysis



**Existing Conditions**



**Ke‘āmuku  
Solar Project**

*VISUAL SIMULATIONS*

Viewpoint 1

Near Waikoloa Village  
Pua Melia Street



**Simulated Conditions**

Highlighted



**Views of the Project Area, shown overlaid in green,  
are obstructed by foreground terrain and vegetation.**

**Photograph Information**

**1 - Near Waikoloa Village**

Time of photograph: 1:50 p.m.  
Date of photograph: 11/12/2023  
Weather condition: Partly Cloudy  
Viewing direction: Southeast  
Latitude: 19.926288° N  
Longitude: -155.787196° W

**Existing Conditions**



**Simulated Conditions**



**Ke‘āmuku  
Solar Project**

*VISUAL SIMULATIONS*

Viewpoint 2

Waikoloa Rd



VICINITY MAP

**Photograph Information**

**2 - Waikoloa Rd**

Time of photograph: 1:40 p.m.  
Date of photograph: 11/12/2023  
Weather condition: Partly Cloudy  
Viewing direction: Southeast  
Latitude: 19.900017° N  
Longitude: -155.740290° W



**Existing Conditions**



**Ke‘āmuku  
Solar Project**

*VISUAL SIMULATIONS*

Viewpoint 2

Waikoloa Rd



VICINITY MAP

**Simulated Conditions**

Highlighted



**Photograph Information**

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**Existing Conditions**



**Simulated Conditions**

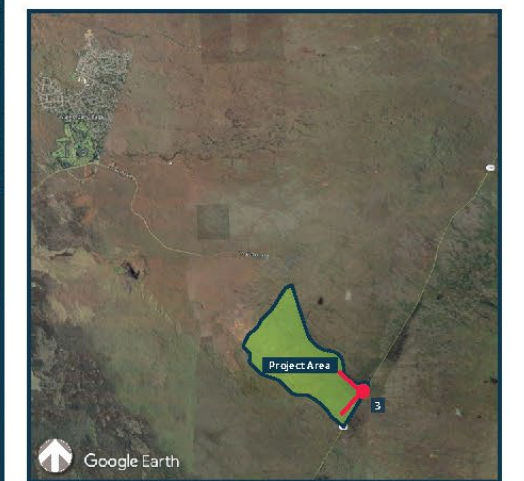


**Ke‘āmuku  
Solar Project**

*VISUAL SIMULATIONS*

Viewpoint 3

Māmalahoa Highway  
near Waikoloa Road



VICINITY MAP

**Photograph Information**

**3 - Māmalahoa Hwy**

Time of photograph: 12:30 p.m.  
Date of photograph: 11/13/2023  
Weather condition: Partly Cloudy  
Viewing direction: Northwest  
Latitude: 19.874970° N  
Longitude: -155.722786° W

**Existing Conditions**



**Simulated Conditions**

Highlighted



**Ke‘āmuku  
Solar Project**

*VISUAL SIMULATIONS*

Viewpoint 3

Māmalahoa Highway



VICINITY MAP

**Photograph Information**

**3 - Māmalahoa Hwy**

Time of photograph: 12:30 p.m.  
Date of photograph: 11/13/2023  
Weather condition: Partly Cloudy  
Viewing direction: Northwest  
Latitude: 19.874970° N  
Longitude: -155.722786° W



**Existing Conditions**



**Ke‘āmuku  
Solar Project**

*VISUAL SIMULATIONS*

Viewpoint 4  
Māmalahoa Highway



**Simulated Conditions**



**Photograph Information**

**4 - Māmalahoa Hwy**  
Time of photograph: 12:15 p.m.  
Date of photograph: 11/13/2023  
Weather condition: Partly Cloudy  
Viewing direction: Northwest  
Latitude: 19.867566° N  
Longitude: -155.727458° W



**Existing Conditions**



**Ke‘āmuku  
Solar Project**

*VISUAL SIMULATIONS*

Viewpoint 4  
Māmalahoa Highway



**Simulated Conditions**

Highlighted



**Photograph Information**

**4 - Māmalahoa Hwy**  
Time of photograph: 12:15 p.m.  
Date of photograph: 11/13/2023  
Weather condition: Partly Cloudy  
Viewing direction: Northwest  
Latitude: 19.867566° N  
Longitude: -155.727458° W



**Existing Conditions**



**Ke‘āmuku  
Solar Project**

*VISUAL SIMULATIONS*

Viewpoint 5  
Māmalahoa Highway



VICINITY MAP

**Simulated Conditions**



**Photograph Information**

**5 - Māmalahoa Hwy**  
Time of photograph: 12:00 p.m.  
Date of photograph: 11/13/2023  
Weather condition: Partly Cloudy  
Viewing direction: Southwest  
Latitude: 19.907719° N  
Longitude: -155.705220° W





**Existing Conditions**



**Ke‘āmuku  
Solar Project**

*VISUAL SIMULATIONS*

Viewpoint 5

Māmalahoa Highway



VICINITY MAP

**Simulated Conditions**

Highlighted

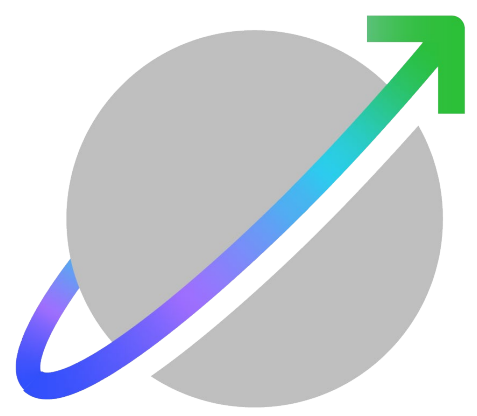


**Photograph Information**

**5 - Māmalahoa Hwy**

Time of photograph: 12:00 p.m.  
Date of photograph: 11/13/2023  
Weather condition: Partly Cloudy  
Viewing direction: Southwest  
Latitude: 19.907719° N  
Longitude: -155.705220° W





# Supporting the Community



**aes** Hawai'i

# Community Benefits Package (CBP)

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- Implementations - 6 Mo. After Operation Date
- \$258,000/year
- 25 years - PPA Duration
- Community-Identified Beneficiaries
- AES Hawai'i Foundation - No-Cost Administration
- Input Welcome

# Project Summary

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- 86 MW solar PV + 344 MWh Battery Storage
- 35,336 homes powered
- 20% of the island's energy needs
- ~1,908 jobs generated
- ~\$353M in economic output
- 25-year PPA term
- 2030 online
- \$258,000/year in Community Benefits
- 71% support



# Mahalo!

Contact us

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[www.aes-hawaii.com/keamuku-solar](http://www.aes-hawaii.com/keamuku-solar)

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