



# Līhu'e Business Association February 25, 2021

#### Where Kaua'i Gets Its Power



vkep

## Kaua'i's Renewable Challenge

- 100% of Kaua'i's daytime demand for electricity routinely met by renewables
- Solar and battery limitations
  - Sun dependent
  - Short duration storage
- Long-duration storage needed to achieve 100% renewable at night and during prolonged periods without solar







#### Typical Daily Dispatch



# Why WKEP?

- Kaua'i renewable options limited to solar and hydro
- Will push KIUC above 80% renewable
- Meets up to 25% of KIUC's energy needs
- Long-duration storage capabilities



![](_page_4_Picture_6.jpeg)

![](_page_4_Picture_7.jpeg)

#### **WKEP** Partners

Development, Construction, Operation

![](_page_5_Picture_2.jpeg)

Landowners

![](_page_5_Picture_4.jpeg)

![](_page_5_Picture_5.jpeg)

![](_page_5_Picture_6.jpeg)

![](_page_5_Picture_7.jpeg)

## Solar + Pumped Storage Hydro

- Primary project components
  - Kōke'e diversion & ditch repairs and upgrades
  - Rehabilitation of Pu'u Lua, Pu'u 'Opae, and Mānā reservoirs
  - Two new sections of buried pipeline
  - Two new powerhouses/substations
  - New solar + battery facilities

![](_page_6_Figure_7.jpeg)

![](_page_6_Picture_8.jpeg)

#### How Does It Work?

![](_page_7_Figure_1.jpeg)

![](_page_7_Picture_2.jpeg)

#### Water Resource Protection

- Water is returned to streams at diversions compliance with IFS (instream flow standards)
- Rehabilitation and long term maintenance of reservoirs and Kōke'e ditch system

![](_page_8_Picture_3.jpeg)

![](_page_8_Picture_4.jpeg)

• Improvement and maintenance of access roads – including to Pu'u Lua Reservoir

![](_page_9_Picture_2.jpeg)

![](_page_9_Picture_3.jpeg)

- Support for agriculture and food sustainability on west side
- Enables DHHL to utilize Pu'u 'Ōpae mauka lands for agriculture and homesteads

![](_page_10_Figure_3.jpeg)

![](_page_10_Picture_4.jpeg)

Photo source: DHHL Pu'u 'Ōpae Homestead Final Environmental Assessment, July 2020

Mana Reservoir

• Support for diversified agriculture on Mānā Plain

![](_page_11_Picture_2.jpeg)

![](_page_11_Picture_3.jpeg)

• Fire suppression support

![](_page_12_Picture_2.jpeg)

Photo credit: County of Kaua'i

![](_page_12_Picture_4.jpeg)

## Why a Development Partner?

- AES is trusted partner of KIUC
  - Presence in Hawaii for more than 25 years
- AES is a world leader in renewables; experience with similar projects
  - 6,379 MW of hydro capacity in Central and South America.
- Financial risk shifted from cooperative to development partner
- AES can take advantage of federal and state tax credits; lowering the cost of the project which translates into rate savings for KIUC members

![](_page_13_Picture_7.jpeg)

![](_page_13_Picture_8.jpeg)

# Benefits to KIUC Members

- Member-owned legacy project that will store and generate power inexpensively and reliably
- Rate stabilization solar price at least 34% lower than all current solar facilities
- Bulk storage resource
- Up to 25% of island power
- Generates when solar isn't available
- Increased electrical grid system stability and reliability
- Increased number of jobs available during the construction phase
- Reduces fossil fuel usage by more than 8 million gallons per year with an estimated annual reduction of about 80,000 tons of CO2e.

![](_page_14_Picture_9.jpeg)

![](_page_14_Picture_10.jpeg)

## Chapter 343 Compliance

- Environmental compliance is in progress
- Studies conducted
  - ✓ Stream Studies and Habitat Assessment
  - ✓ Pu'u Lua Reservoir Survey and Assessment
  - ✓ Cultural Impact Assessment
  - ✓ Archaeological Literature Review and Field Inspection
  - ✓ Flora and Fauna Survey
  - ✓ Socio-Economic Survey and Impact Assessment
  - ✓Hydrology analyses
  - ✓ Geotechnical surveys
  - ✓ Solar data collection

![](_page_15_Picture_12.jpeg)

Kaua'ikinana Stream Diversion

![](_page_15_Picture_14.jpeg)

Köke'e Stream Ditch and Diversion

![](_page_15_Picture_16.jpeg)

#### Mahalo and Questions

![](_page_16_Picture_1.jpeg)

![](_page_16_Picture_2.jpeg)

![](_page_16_Picture_3.jpeg)