



WAIKOLOA HAWAII: HOW EKS ENERGY DROVE THE TRANSITION TOWARDS SUSTAINABLE ENERGY AT AES HAWAII

Introduction

AES Hawaii, located in Waikoloa, is a power plant that has provided electricity to Hawaii for decades but heavily relies on fossil fuels. With the goal of reducing carbon emissions and promoting energy sustainability on the island, AES Hawaii sought the collaboration of eks Energy to implement renewable energy and storage technologies.

Analysis situation

Waikoloa faced significant energy challenges, including high dependence on imported fossil fuels and a lack of infrastructure to harness renewable energy sources. Additionally, the island was exposed to the impacts of climate change and sought to reduce its carbon footprint.

Problem identification

AES Hawaii and eks Energy identified the need to transform the plant into a more sustainable and clean energy source. The objective was to reduce carbon emissions, increase energy resilience, and promote the adoption of renewable energy on the island.

Implemented solutions

1. Installation of Solar Panels: eks Energy designed and installed a solar panel array at the AES Hawaii plant site. These solar panels capture energy from the sun and convert it into electricity, reducing reliance on fossil fuels.

2. Energy Storage Technology: To address the challenge of solar energy intermittency, eks Energy implemented advanced energy storage systems. These systems store excess energy generated during the day for use during the night or periods of high demand.

3. Smart Grid Integration: eks Energy developed a smart grid infrastructure that enables efficient management of the energy generated by the plant. This optimizes the distribution of renewable energy and helps minimize energy losses.

Results and Benefits

This project has caused a reduction in carbon emissions thanks to the implementation and storage of solar energy; greater energy resilience since it stores and maintains energy despite blackouts; and finally a promotion to the population on the adoption of renewable energy.



AES HAWAII	
Location	WAIKOLOA - Hawaii - United States
Model of the plant	hybrid: photovoltaic and battery storage
Rated Power	30MW
Capacity	160MWh
Number of AMPS	13
Clients	AES
Duration	2020-2023
Main objectives	Sustainability goals, carbon emissions reduction and renewable energy storage

“ AES’ Waikoloa solar plus storage project began commercial operations in April 2023 and is the largest project of its kind on Hawai’i Island. The project’s energy storage system is improving the reliability of the island’s power grid while providing low-cost clean energy to customers when they need it.”

Conclusions

AES Hawaii and eks Energy collaborated to transform the Waikoloa power plant from a fossil fuel-dependent facility into a sustainable and resilient energy source. This case study highlights the important role of eks Energy in promoting renewable energy and storage solutions, benefiting the overall sustainability and energy resilience of Waikoloa and Hawaii.

The project began with a thorough assessment of energy needs and analysis of efficient transition options. AES Hawaii and eks Energy designed a customized solution, incorporating a combination of renewable technologies and energy storage systems tailored to local conditions. Solar panels and wind turbines were installed to generate clean energy, supported by advanced storage technology.

The transformation focused not only on clean energy generation but also on energy efficiency. Infrastructure improvements, optimized energy distribution, load management technologies, and energy conservation practices were implemented. These measures reduced energy consumption and enhanced the plant’s operational efficiency, ensuring a stable energy supply for Waikoloa.

The project significantly decreased the community’s reliance on fossil fuels, reducing environmental impact and improving energy resilience.

