Islanded Power System Operations on a Highly Renewable Grid

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Cameron Kruse

Kaua'i Island Utility Cooperative (KIUC)

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OVERVIEW

KIUC has operated an islanded power system with a high penetration of renewable energy sources. This presentation delves into the unique challenges and innovative solutions KIUC has implemented to achieve its impressive progress toward a 100% renewable energy grid. This presentation will discuss the inherent challenges of managing an isolated grid without the stability benefits of interconnected mainland systems, explore the diverse mix of renewable resources utilized by KIUC, including solar, wind, hydroelectric, and battery storage. The presentation will highlight innovative solutions like grid-forming inverters and share valuable insights gained from KIUC's experience and discuss the roadmap for achieving 100% renewable energy target.

BIO

Cameron Kruse received his B.S. in electrical engineering from the University of Arizona in 2008. Upon graduation, he started working at Kaua`i Island Utility Cooperative (KIUC) as a staff engineer in Transmission and Distribution. He was promoted to supervise operations on the island's electrical substations in 2011, and in 2020 he was promoted to Engineering and Technology Manager. During his time at KIUC, he has worked toward transforming the grids renewable generation from 8% renewable to 70% renewable in 2021. He is a licensed Professional Engineer in the state of Hawaii.