

OPPORTUNITY

ELECTRIC BUSES AND GRID SUSTAINABILITY

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HAWAI'I'S CULTURE OF TECHNOLOGY AND SUSTAINABILITY



- We live on an island
- We readily adapt technology for advancement and sustainability
- Our monarchy brought electricity to 'Iolani Palace in 1886, five years before the White House was wired
- This gave birth to our utility, Hawaiian Electric



HONOLULU: A TRANSIT-RICH CITY

- TheBus, TheHandi-Van, and rail (under construction)
- 5th-highest in the nation in per capita transit travel
- Historic transit in Honolulu led to good land use in the dense urban core
- Returning to our strong transit background with enhanced complementary pedestrian and bicycle infrastructure
- Desire to electrify transit and transportation for health, sustainability, and the environment



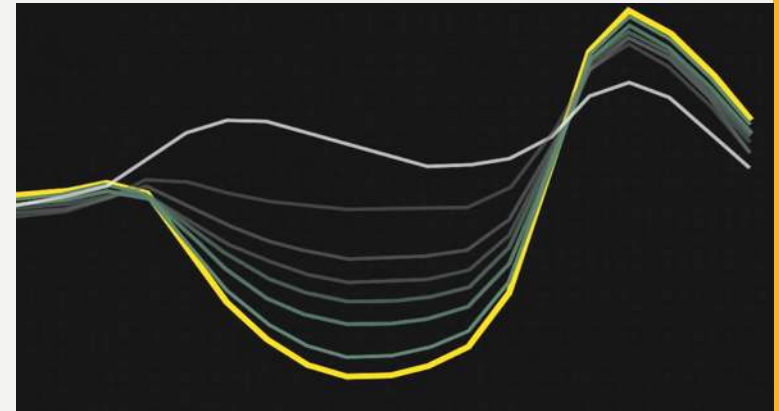
WHY ELECTRIFICATION?

- All four Hawai'i county mayors pledged to transform public and private ground transportation to 100% renewable fuel sources by 2045
- City and County of Honolulu's Mayor Kirk Caldwell pledged to a complete public fleet transformation by 2035
- State of Hawai'i mandated that 100% of electricity must be generated by renewable sources by 2045 and committed to the goals of the Paris Climate Agreement



THE PROBLEM: TRANSIT VERSUS THE DUCK

- Hawai'i residents want more access to photovoltaic (PV) solar energy
 - Hawai'i has the highest electricity rate in the US (\$0.33/kWh)
 - In 2017, one out of seven occupied housing units had a solar photovoltaic system
- Grid saturation and grid management
 - The dreaded “duck curve”
 - Nobody is home to use the power that PV is producing
 - Oversaturation of grid and risk of damage to grid infrastructure
- Electrification of transportation (EOT) can save the day
 - Changes required to 100 years of good transit scheduling
 - **WE CAN MAKE IT WORK!**



THE SOLUTION: WIN-WIN-WIN FOR ALL

- **WIN: Transit**

Electric buses can be charged outside of the utility's peak-demand for a lower rate

- **WIN: Utility and Consumers**

Electric buses spend down the mid-day abundance of solar power off the grid, letting the utility can permit more rooftop solar to consumers

- **WIN: Environment**

The public benefits from zero-emission, environmentally-friendly buses

Buses, Solar Energy, and Energy Cost
by Time of Day

