



NSF's National Solar Observatory

DKIST Maui ZEV/LEV

HEATHER MARSHALL

TECHNICAL OPERATIONS MANAGER



Maui Utility Infrastructure

- Maui Renewable energy percentage: 35.4%
- Renewable peak: 70.0% on June 10, 2023*



- Hawaii/DOE MOU:
 - 70% renewables by 2030
 - 100% renewables by 2045

<https://www.hawaiianelectric.com/about-us/power-facts>





Daniel K. Inouye Solar Telescope

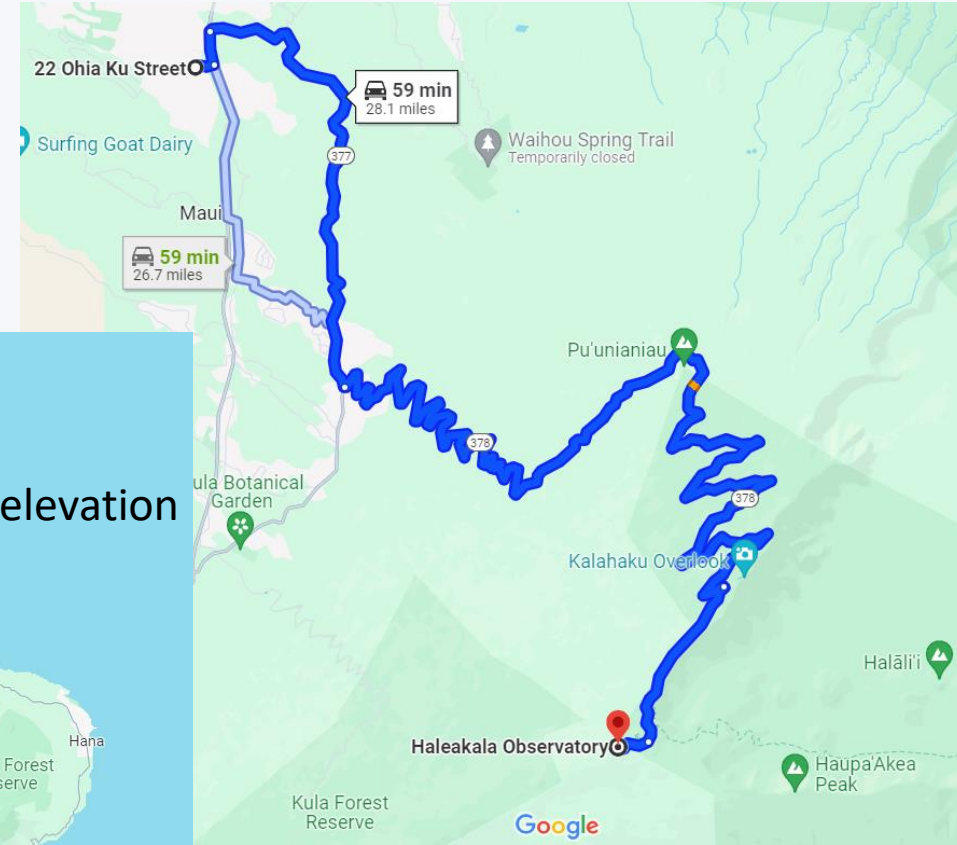
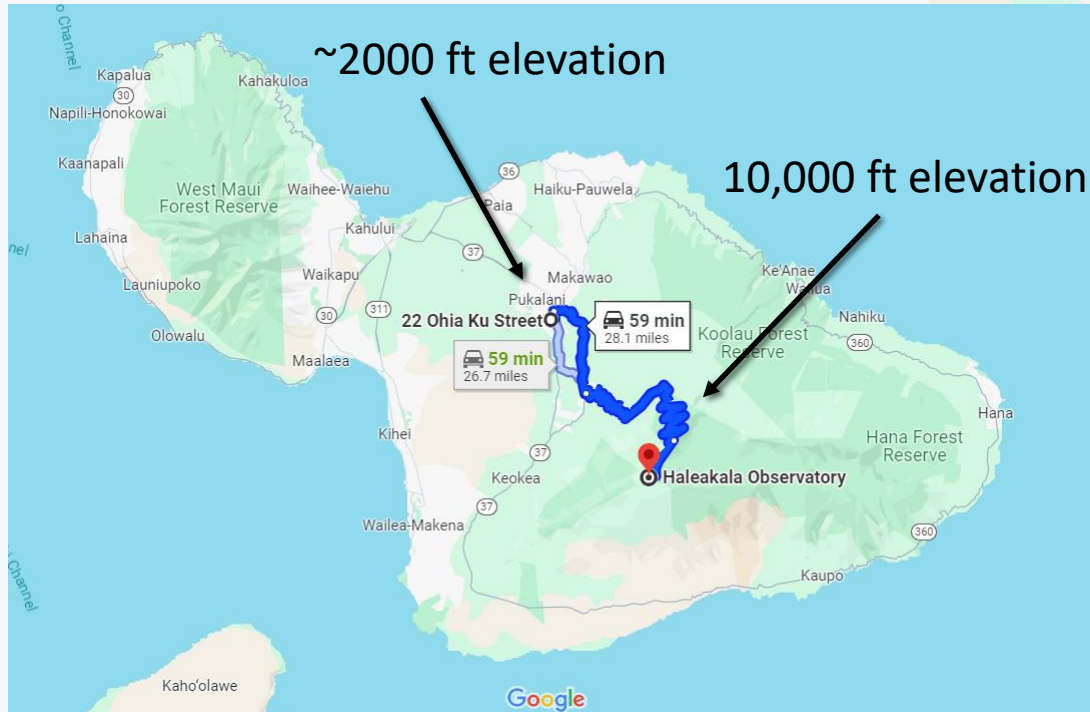


*24 KW PV in place at DSSC
(750 KVA Service)*



DKIST Science Support Center to Observatory Site

Approx. 30 miles each way
Approx. 1 hour each way





NSO/DKIST Maui Fleet

	Seats	Daily Staff Transport	Inclement Weather Transport	Material Transport
15-Passenger MiniBus	10-12	YES	NO	NO
Hybrid Minivans	6	YES	TBD?	NO
SUVs (AWD/4WD)	4	YES	YES	Small
Trucks (4x4)	4	YES	YES	Medium
Flatbed (4x4)	2	NO	Maybe	Large/XL

PROGRESS:

- FY23 – SFR \$30,777 – Trade
 - 1 Transit Minibus for 1 Chrysler Pacifica Hybrid Minivan
- FY24 – SFR \$59,095 – Trades
 - 2 Transit Minibus for 2 Chrysler Pacifica Hybrid Minivans





Operational Advantages / Challenges

- + Staff game – get to 100% battery charge by return to base
- + Refill tank once per 2wks vs once per wee

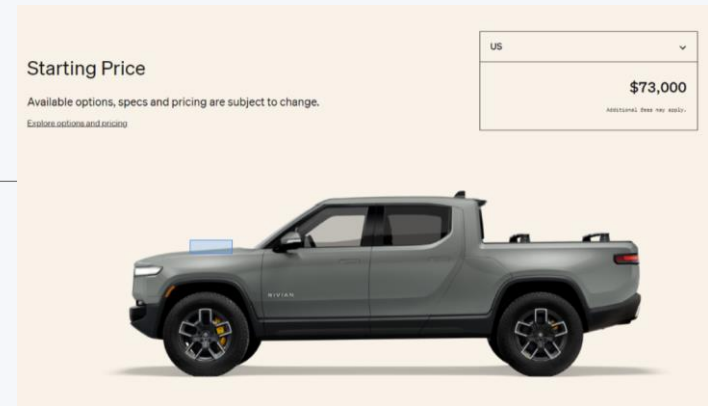


- Availability of Vehicles in Maui
- Occasional extended utility outages (e.g., severe winter storms)
- Policy Concerns:
 - Required to track elec. costs, as with fleet fuel/mileage?
 - Charging for staff/public (policy/procedure/\$\$ handling/overhead)



Goals / Plans

- Monitor the Market
 - Availability of LEV 4x4 SUVs, Trucks
 - Reliability / Consumer Reviews of new brands (e.g., Rivian?)
- Charging Ports in development
- Battery Storage TBC
- Potential PV at Summit Utility Building
 - Conceptual Design/ Development
 - Dependent upon;
 - Funding
 - Stakeholder & Regulatory approvals
 - Staff availability



Potential 20KW PV (3400 KVA Service)

