



# Energy System Monitoring Made Easy

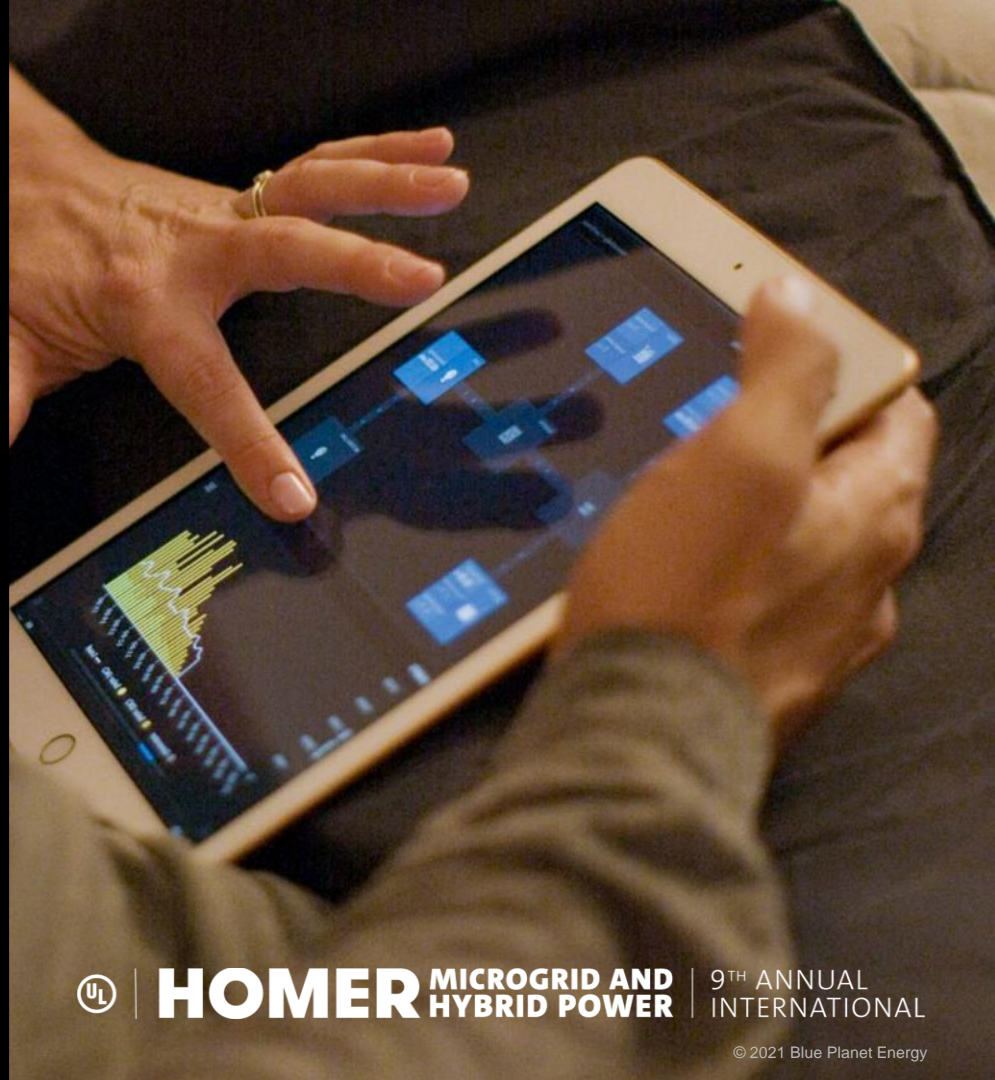
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Date

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**HOMER MICROGRID AND  
HYBRID POWER**

**9<sup>TH</sup> ANNUAL  
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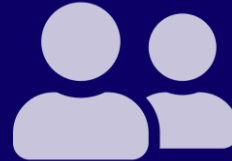
# Who is Blue Planet Energy?



Founded in  
Hawaii in 2015



35+ MWh Installed  
-  
4 GWh Energy  
Delivered



30+ staff  
-  
250+ partners



Operations in  
Hawaii, California,  
Illinois & Puerto Rico



# Microgrid Challenges



Access to Data



Site + Safety  
Concerns



System  
Inefficiencies

# Monitoring Capabilities



Name	Connectivity	Solar Production		Grid		Load		Battery Charge/Discharge		Battery State				
Residential - San Francisco, CA		Power (kW) 2.3 0.2 2.4	Energy (kWh) 4.2 5 minutes ago	Power 0 0.3	Energy (kWh) 9.6 3 minutes ago	Power 2 0.3	Energy (kWh) 12.2 2 minutes ago							
Residential - Kona, HI		Power (kW) 2.7 0.4 2.7	Energy (kWh) - -	Power 0 0.4	Energy (kWh) - -	Power 1 0.4	Energy (kWh) 6.6 43 seconds ago							
Residential - Mountain View, CA		Power (kW) 12.3 0.0 12.3	Energy (kWh) 3.0 7 minutes ago	Power -9 -9.4	Energy (kWh) - -	Power 12 -7 14	Energy (kWh) 19.2 7 minutes ago	State Charging	Time to Full Charge -	Power (kW) -0.1 -11.6 0.1	Discharge Time Remaining 41 days 25.7 29.3	Temperature (C) 30.4 26.3 31.3	Cycles 118	State of Charge (%) 100 98 100
Residential - Waimea, HI		Power (kW) 0.9 0.1 0.9	Energy (kWh) - -	Power 0 0.0	Energy (kWh) - -	Power 1 0.3	Energy (kWh) 14.2 43 seconds ago	State Charging	Time to Full Charge -	Power (kW) -0.1 -11.6 0.1	Discharge Time Remaining -	Temperature (C) 30.4 26.3 31.3	Cycles 118	State of Charge (%) 100 98 100

# 1 DATA MANAGEMENT

- Accurate Reporting and Assessment
- Access Anytime, Anywhere, and All Sites
- End User Education and Empowerment
- System Health
  - SoC
  - Voltage
  - Temperature

## SAFETY

- Assess Temperature in Real-time
- Warranty Assurance
- Alarms and Alerts

# 2



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## SYSTEM SUCCESS

# 3

- Better System Management
- Increase System Uptime
- Energy Savings
- Cost Savings



# Historical Data



- Drill down into site-specific power systems and power flows
- Interactive graphs and easily adjusted queries allow you to view historical data
- Reset parameters to optimize system performance



# Case Study: Off-grid Home in Kona, Hawaii

**Monitoring:** Namaka

**Battery System:** (1) 12kWh Blue Ion HI

**Inverter:** (1) Sol-Ark 12K

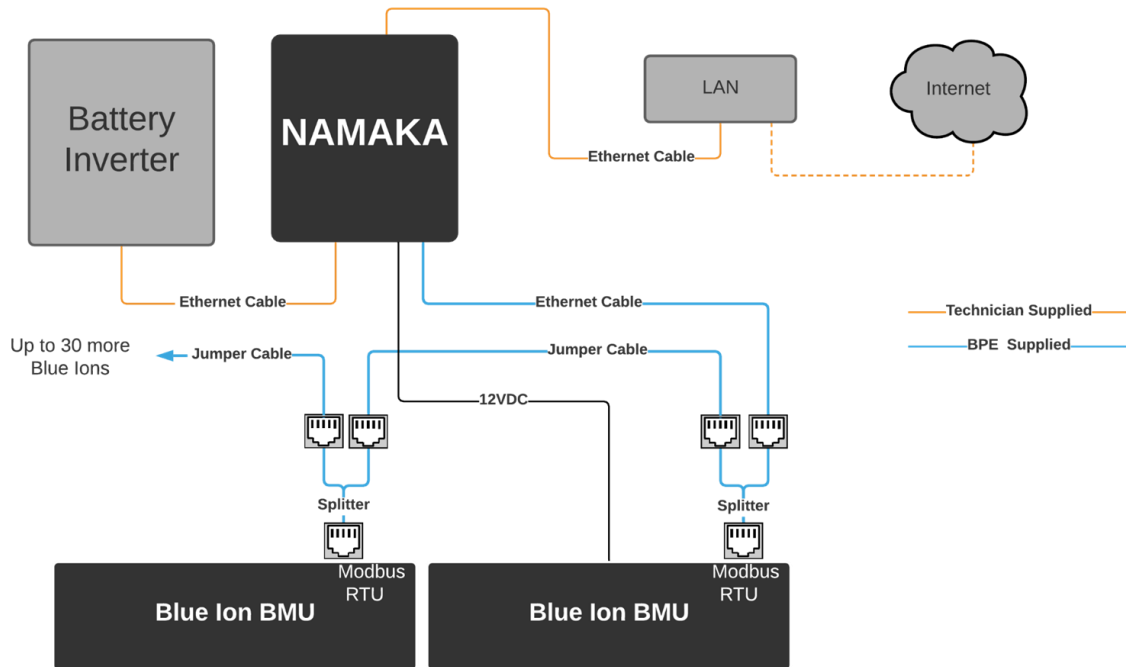
**PV Array**

**Controlled Loads:** AC, water heater, fan



VIDEO HERE

# Bidirectional Communication Solution



## Communications: A two way street

- Battery information is given to the inverter to optimize inverter system level control
- BMU's talk to Namaka via standard ethernet cable
- Namaka talks to the LAN or cell modem to our cloud

# Case Study: On-Grid Home in San Francisco, California

Monitoring: Namaka

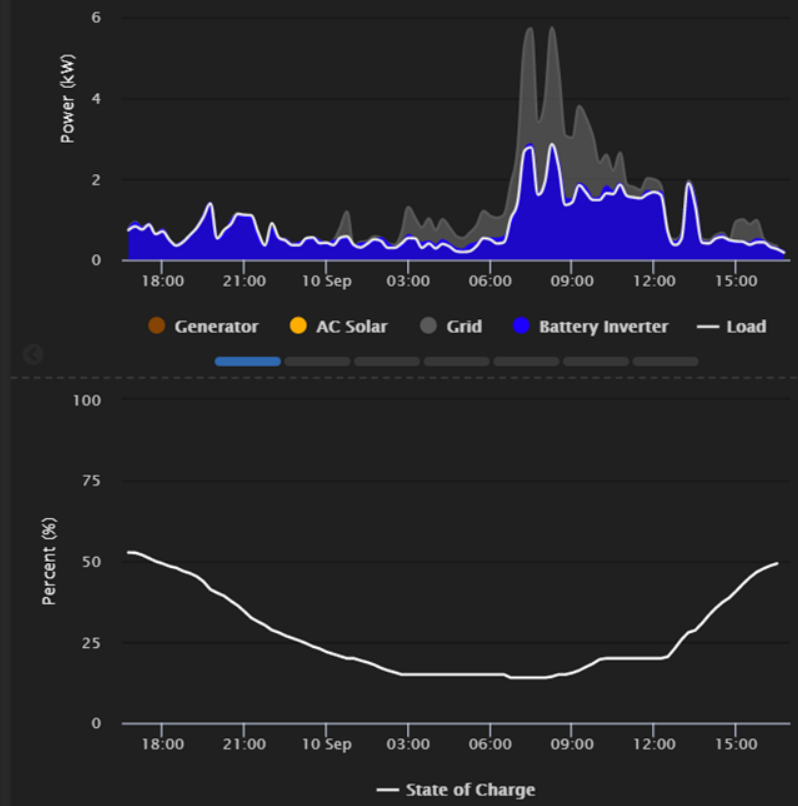
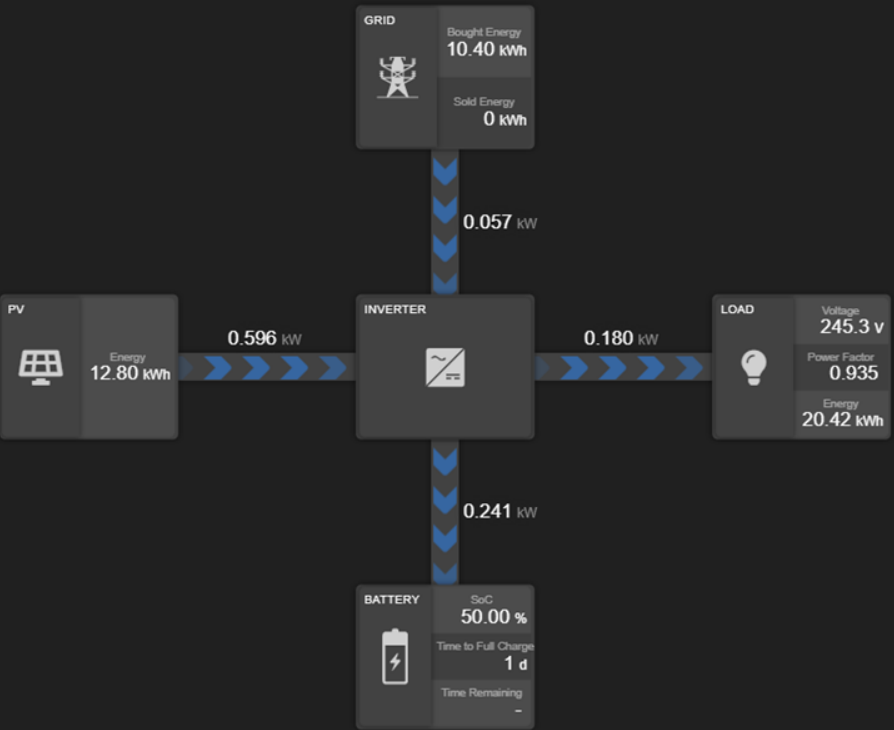
Battery System: 16kWh Blue Ion 2.0

Inverter: (1) Sol-Ark 12K with CTs on grid side of panel to monitor backfeed to grid

PV Array: 4.7kW PV array

ATS system with backed up loads panels (includes all circuits to house), includes multiple CTs on this panel





# MAHALO

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