

**NiBS**

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standby power...

# Meres and Mosses Bridgnorth

## Energy Storage Systems

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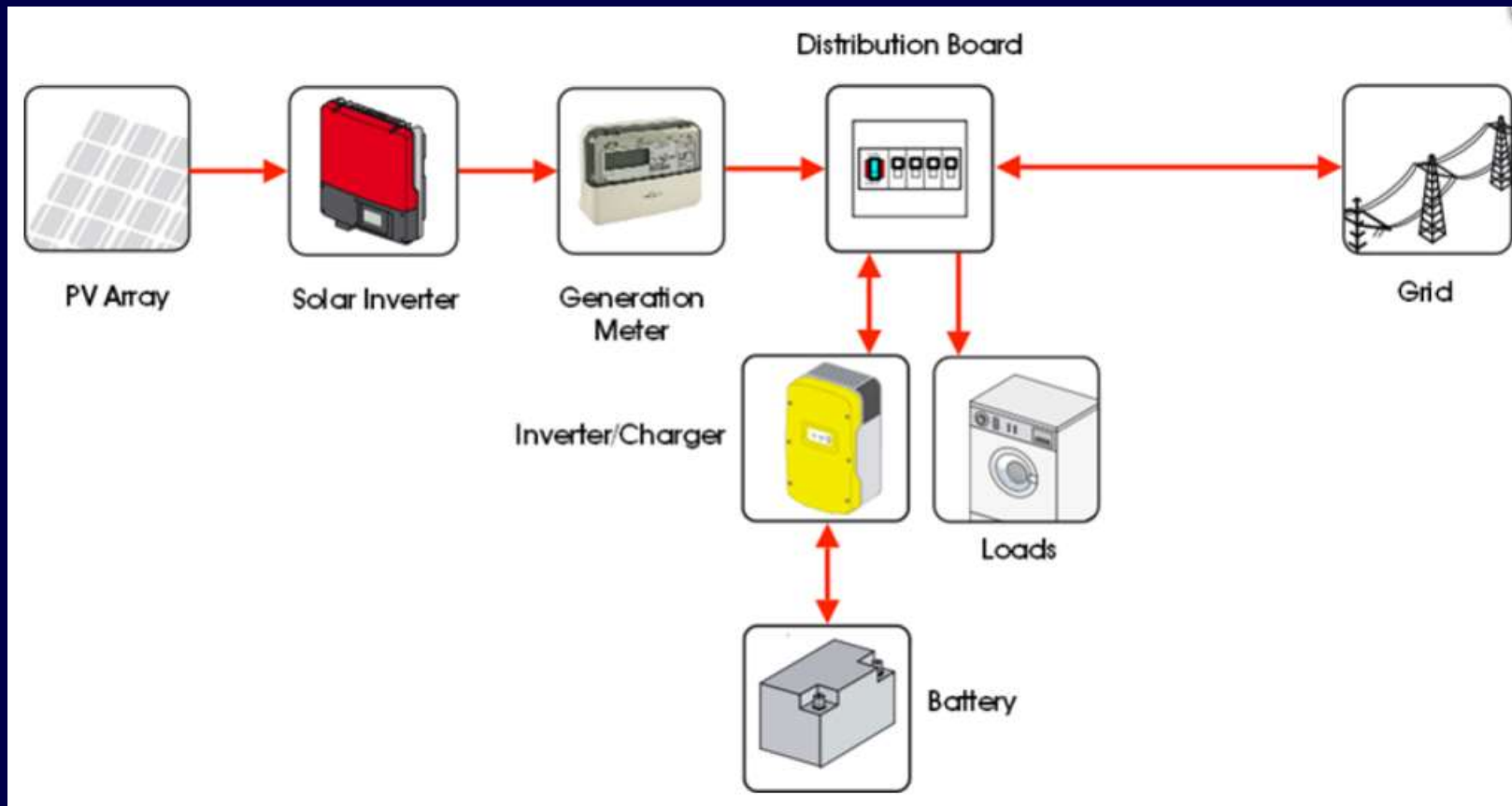
# Agenda

- SMA Sunny Island Solar Installation with FIT
- Off grid solar system for small loads
- Energy Recovery System for battery charging

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# Standard System



# SMA Sunny Island Solar Overview

- System as above layout
- Located in the Training Centre
- FIT tariff agreed 5 years ago
- On grid storage system
- Compatible with Lithium and Lead acid batteries
- Suitable for single- and 3-phase systems

# SMA Sunny Island System Overview



# SMA Sunny Island System Components



- Solar PV inverter



- SMA Sunny Island Inverter



- Sunny Remote Control

# SMA Sunny Island System Components



- Energy Meter



- Home Managers and Routers (now one only)



# SMA Sunny Island Battery Components



- Hoppecke net.power 12V 170



- Energys Powersafe SBS 170F



- Hoppecke Sun Powerpack  
Lithium

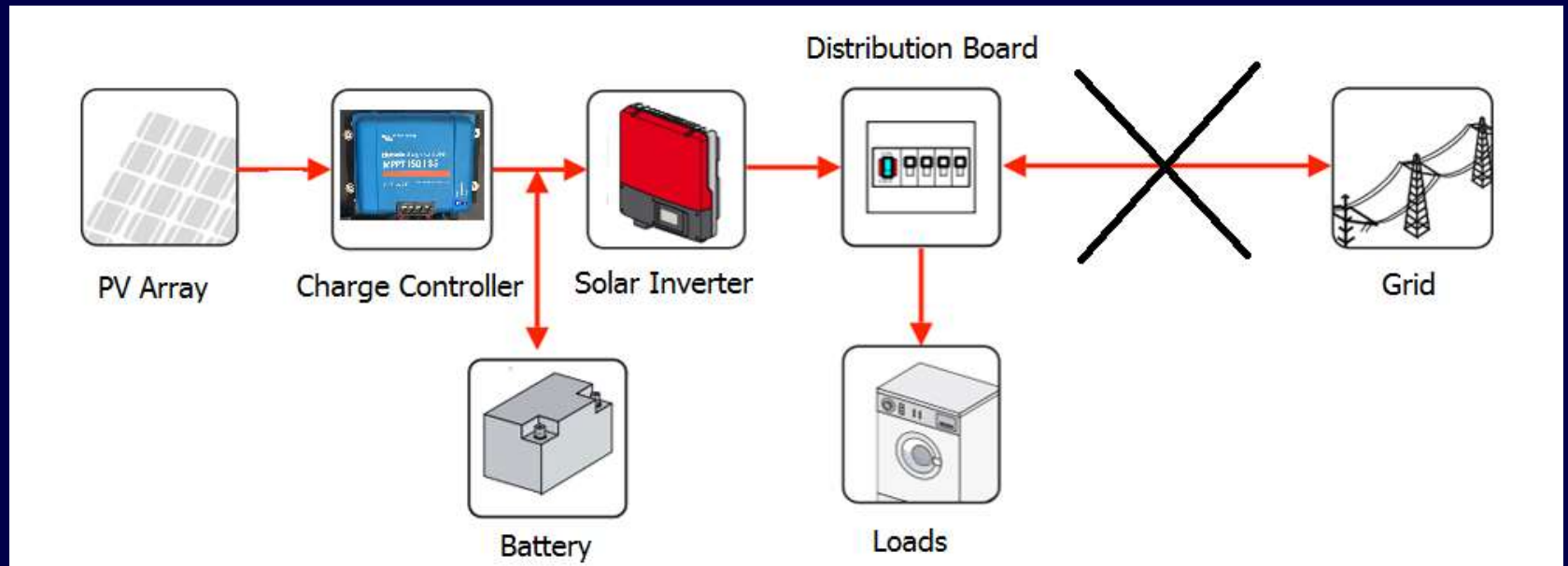
# Purpose of the installation

- Experience and learn about Solar storage systems
- Evaluate battery performance, comparing competing manufacturers products, and a lithium battery
- Support training facility in case of outage
- Training on solar and battery systems

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# Off Grid System



# Off Grid System

- Spare panels to trial an off grid system
- Old fork lift battery for storage – tubular lead acid cells ideal for cycling activity
- Victron charger to maintain the batteries correctly
- Loads
- Boiler in canteen
- Fork truck charger for daily use

# Details of System

- Panels at front of production unit



- System



- System configuration to include
  1. Charge controller
  2. Inverter for supply
  3. Distribution
  4. Sockets and timer
  5. Connection to battery

# Details of System

- System inverter to supply mains for loads



- Tubular battery designed for cyclic use



# Purpose of the installation

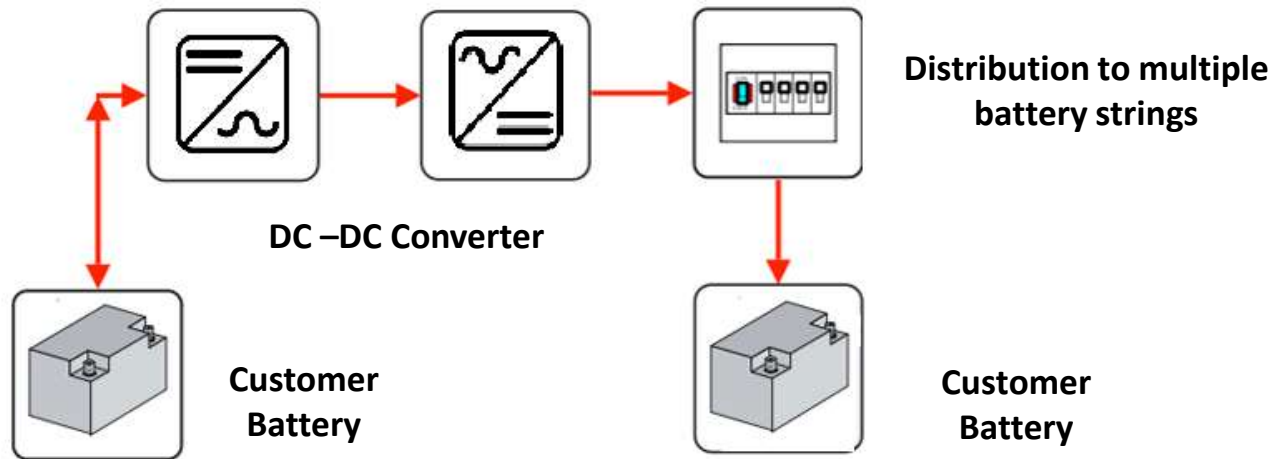
- Save money and supply 2 key loads for production facility
- Evaluate an off grid storage system
- Evaluate tubular batteries on a variable cyclic application including PSOC



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# Energy Recovery System



# Energy Recovery System

- We currently discharge and recharge many battery systems during testing for clients
- The discharge units are giant toasters (resistance frames) which turn the energy produced into heat
- How could we conserve this energy?

# Energy Recovery System

- DC DC Converter -  
External



- DC DC Converter -  
Internal



# Energy Recovery System



- 40' Container being fitted out



- 40' Container

- 6 x 250 270Ah Tubular Cells

# Purpose of the installation

- Use tubular lead acid battery as a storage system, in which to discharge customer batteries
- DC/DC system to control and manage voltage from Discharge to Recharge (and vica versa)
- Save energy by discharge/recharge into a battery
- Evaluate the use of lead acid tubular in PSOC
- Establish the logistics and costs for this activity
- Be able to continue working in case of mains failure

# Questions?