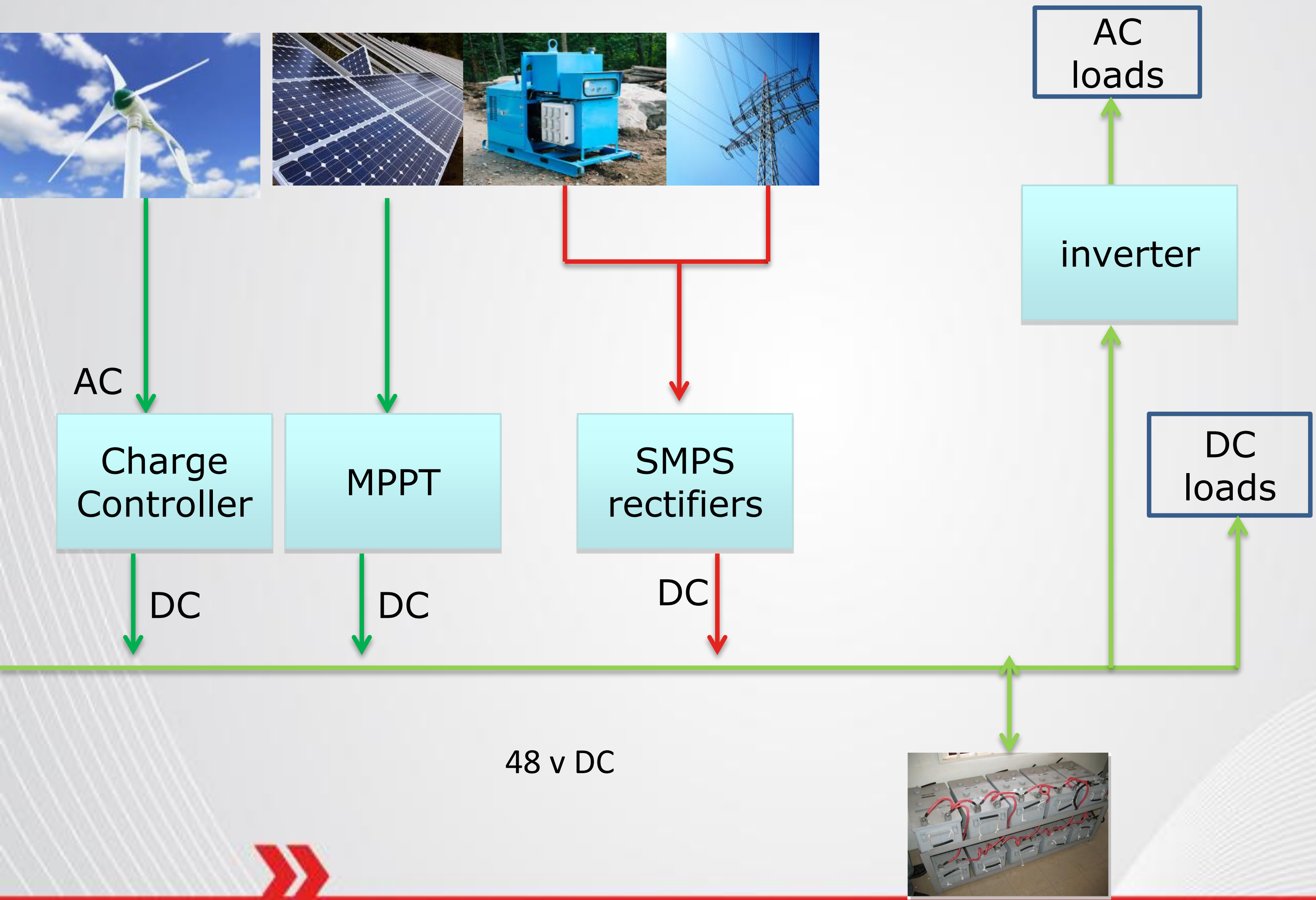
Leading AC Backup Technology

State of Art Power Converters for Wind/Solar Powered mobile towers

Ram

Bridge between the Source & Load

Present Scenario



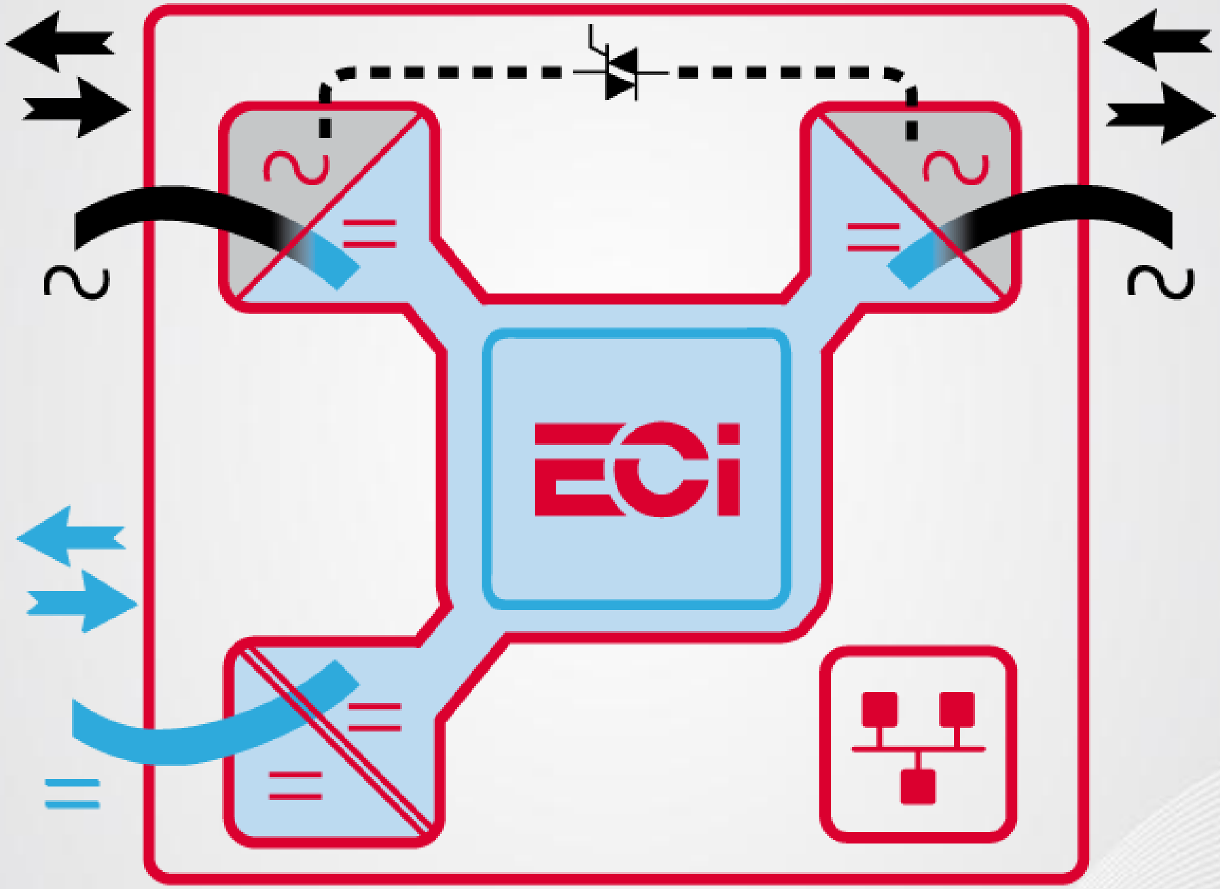
Future Scenario

Wind Turbine

Grid/DG

AC LOADs , Air Conditioners

Grid Feed



DC Loads

Batteries

Fuel Cells

Converters Challenges

Renewable Sources : Stochastic
(Analysed statistically but can never be predicted accurately)

Handling and control of multiple sources (Wind, Solar,DG, Batteries)

Handling of both DC & AC loads

Maximizing Renewable energy usage by `prioritizing sources

MPPT for PV, Wind and even DG can be explored.

Converters Challenges - Contd

More challenging if Air- conditioners are part of AC loads

Batteries key fulcrum and hence ability to manage batteries effectively.

Fuel & Health monitoring of batteries

Remote Monitoring

Bi-directionality for Grid Feed and Smart Grids

Features

Efficiency across the load spectrum

Full Galvanic Isolation

Multi Port Bi-Directionality

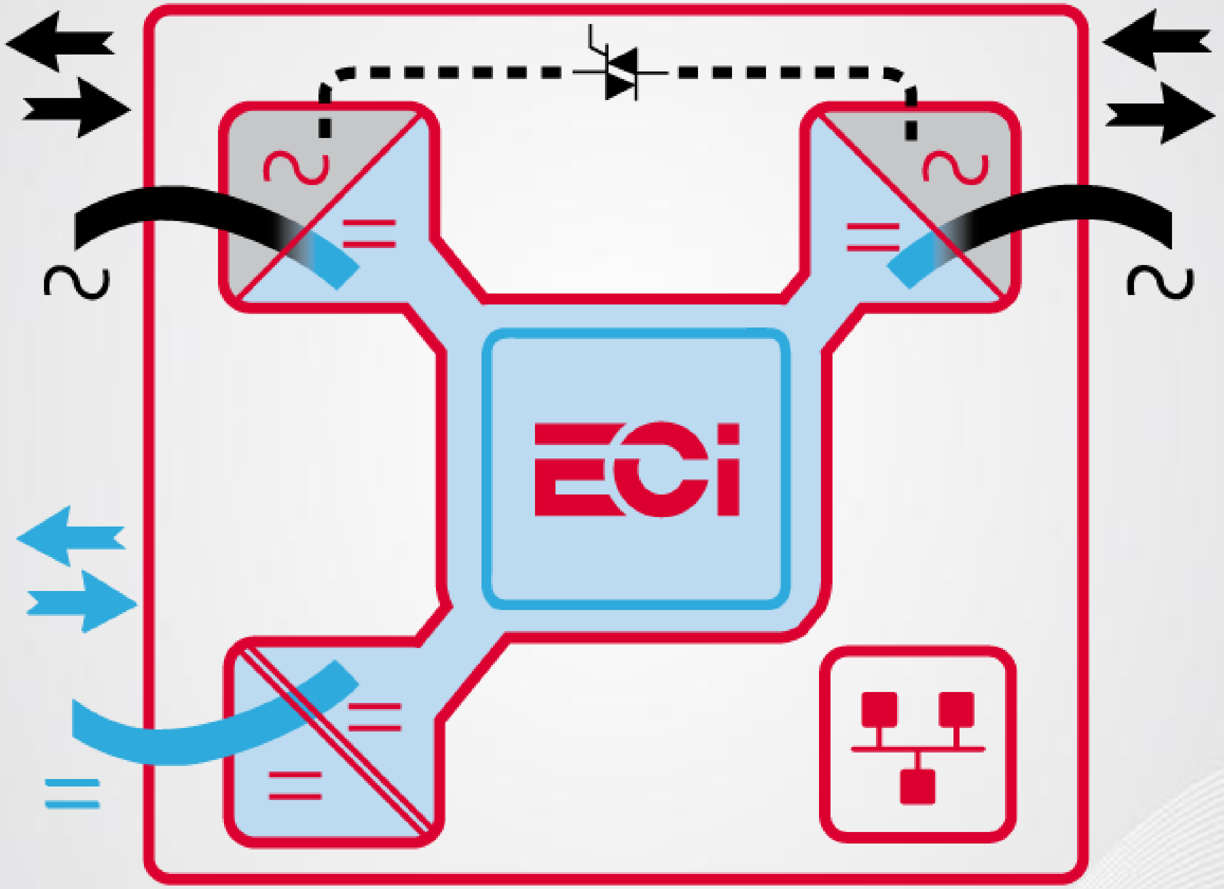
Reliability and no single point of failure

Seamless transfer between sources

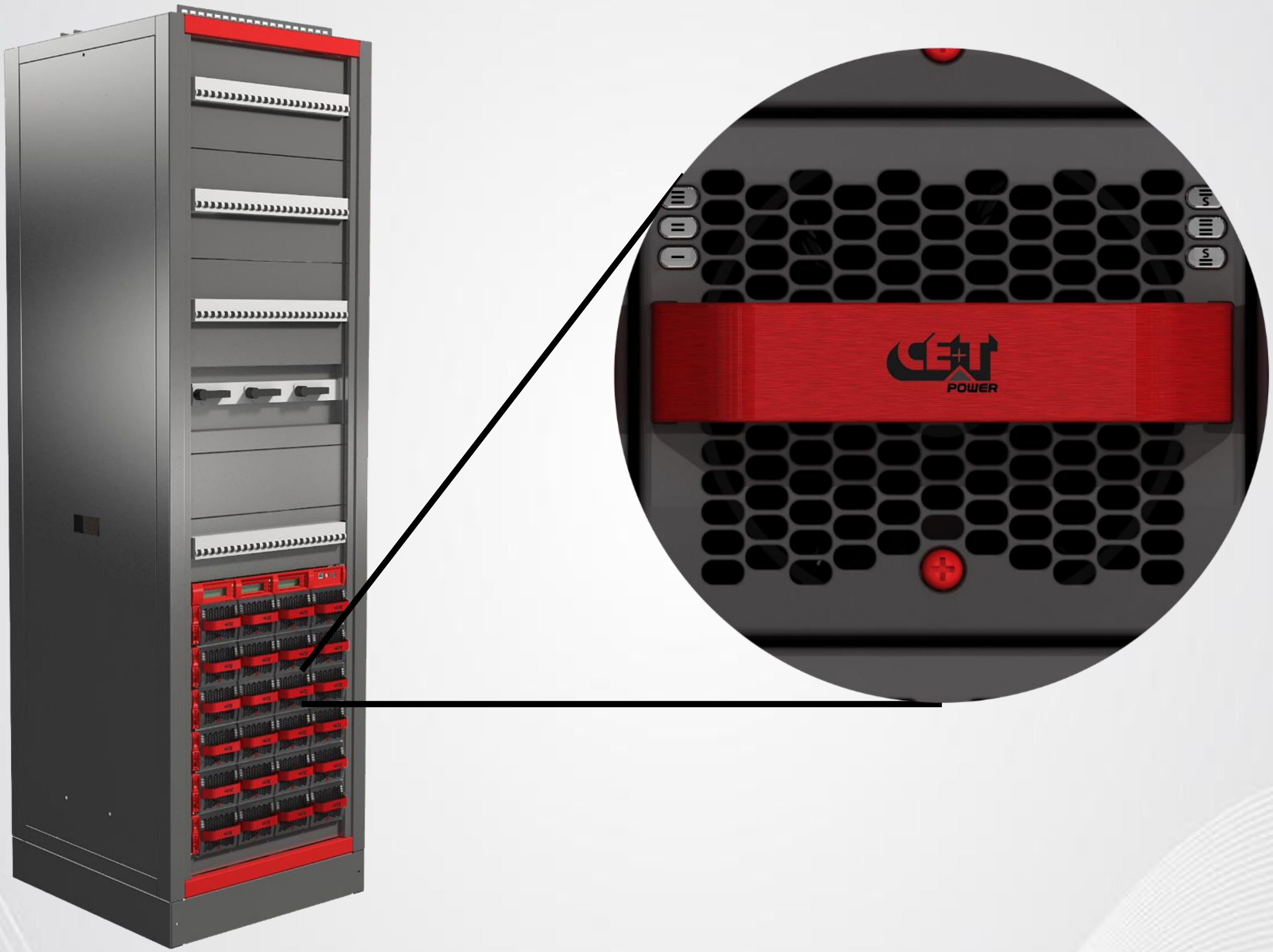
Max utilization of Renewable Energy

Grid feed options & peak load shavings

The future of power conversion



System integration



Trends in Critical Power Backup

Challenge accepted, Google!

INTRODUCING THE LITTLE BOX CHALLENGE

An open competition to build a (much) smaller power inverter, with a $1,000,000 prize.

Design and build a kW-scale inverter with the highest power density (at least 50 Watts per cubic inch).

Know what that means? Have a healthy disregard for the perceived limits of engineering?
Then you're exactly who we're looking for.

What Google requested

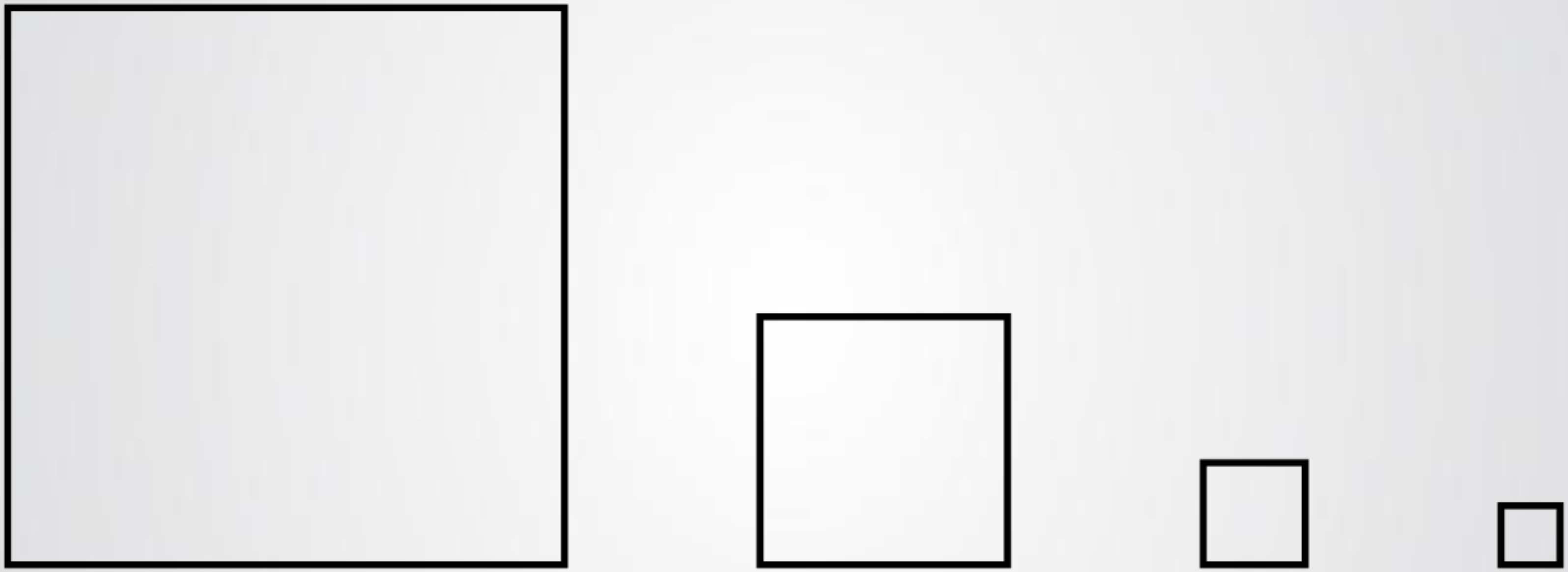
Parameter	Request
Maximum Power Tested	2000VA
Volume of enclosure	40 in³/655 cm³
Power density	3050W/litre
DC voltage range	399.5 V
AC voltage (RMS) output	240V +/- 12Vac
Efficiency (CEC Method)	Min 95 %
Max Temp of Enclosure	60 °C
Ambient T° of test	30 °C
EMI compliance	FCC Part 15 B

Google’s Requirement

Result


TSI Bravo 2kW
LITTLE BOX CHALLENGE
Google
IEEE
LITTLE BOX CHALLENGE
Google
IEEE
LITTLE BOX CHALLENGE
Google
IEEE
Effy

Is it small ?

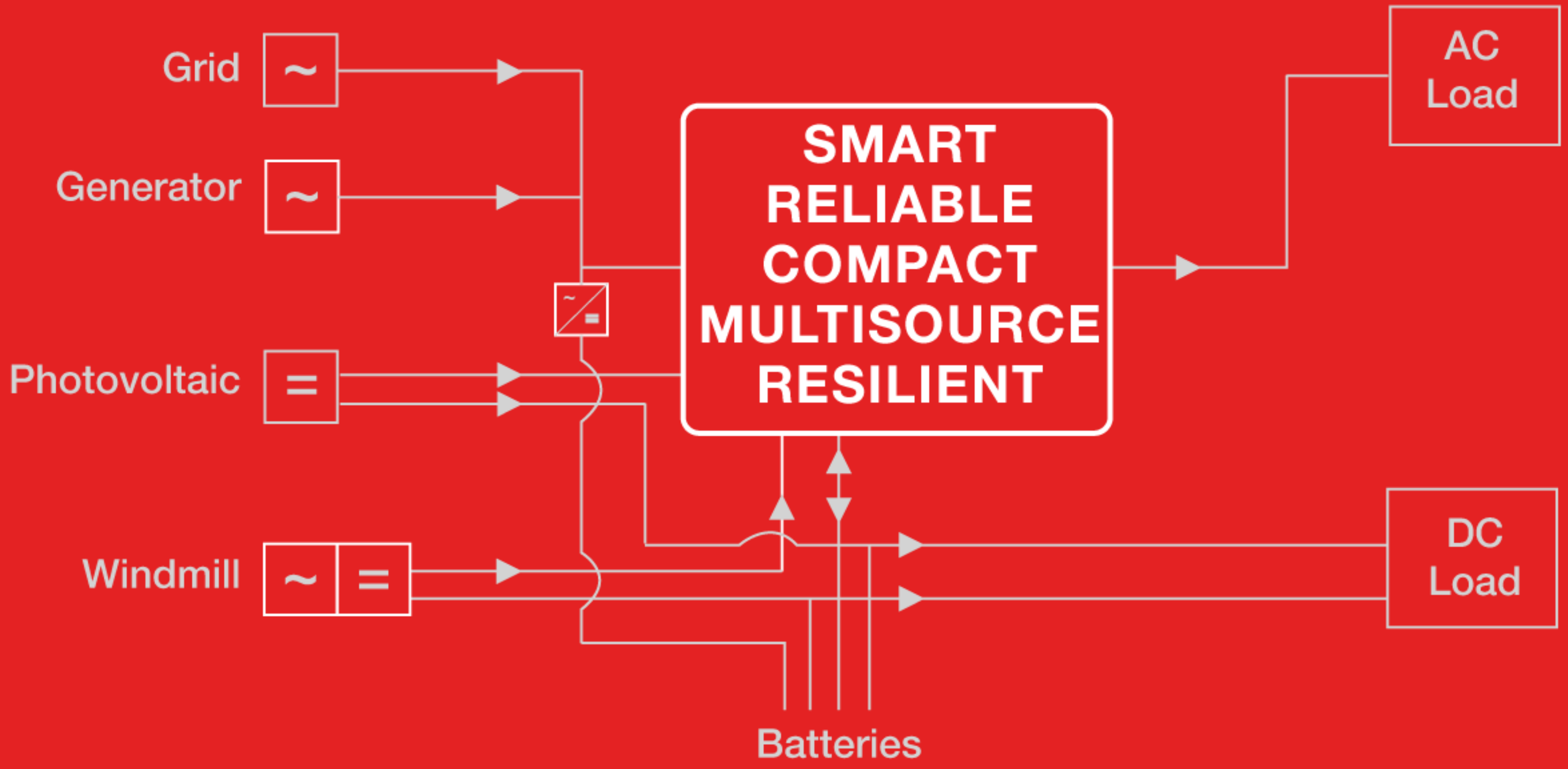


SMA Sunny Boy 2,5kW

TSI Bravo 2,0kW

Google request

Effy


Grid
~
Generator
~
Photovoltaic
=
Windmill
~
=
SMART
RELIABLE
COMPACT
MULTISOURCE
RESILIENT
AC
Load
DC
Load
Batteries

SMART