



YOUNICOS

WEBINAR

HOW TO SELECT THE BEST BATTERIES FOR YOUR PV WITH STORAGE PROJECT

Dr. Burak Türker, Sales Solution Engineer

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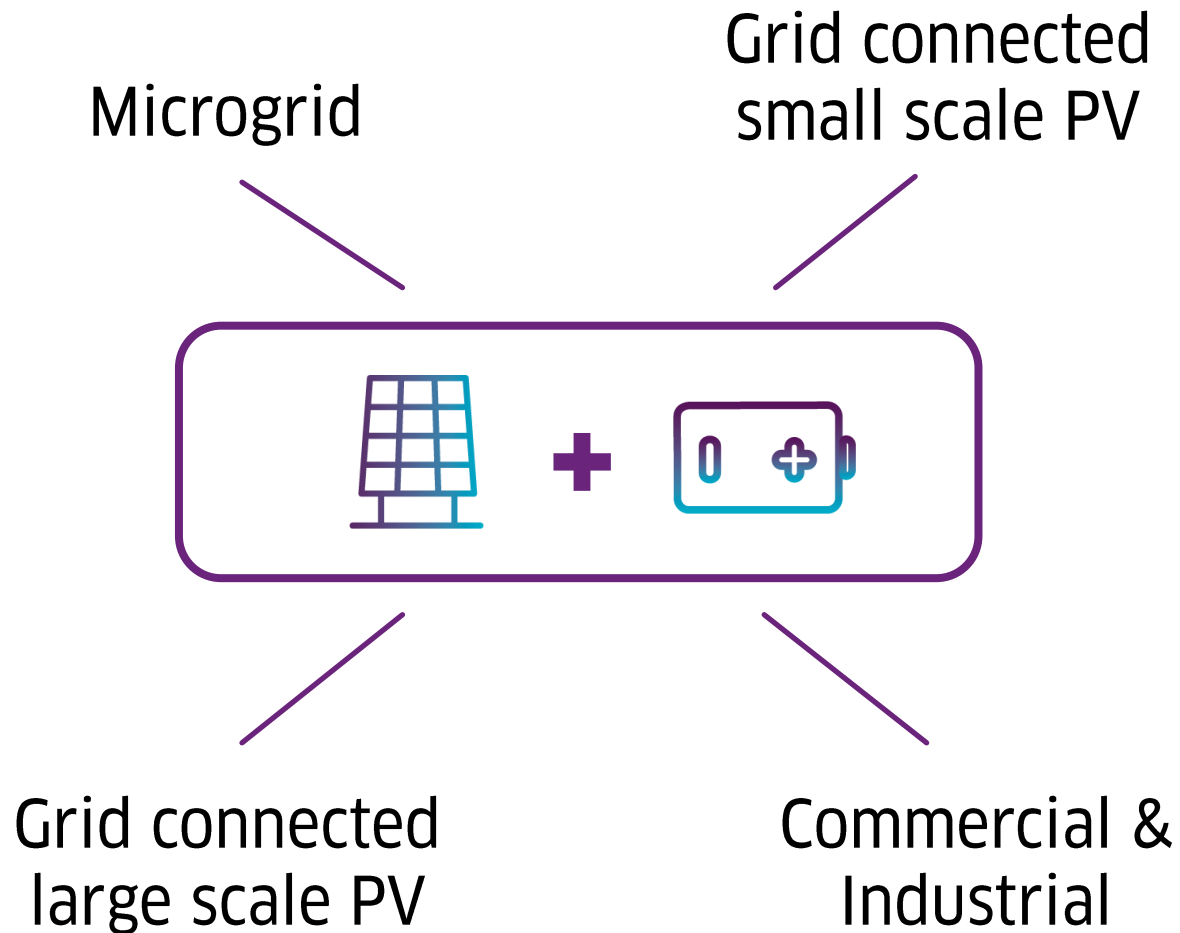


PV+S – WHY DO WE NEED THAT “S” ?



- Reduce curtailment
- Increase self consumption
- Achieve higher RE shares by shutting down fossil fuel generators
- Ramp rate improvements
- Comply with DSO/TSO requirements resulting from variable generation nature of PV
- Demand shifting, peak shaving
- Arbitrage

PV+S – IN WHICH SETUP IS IT RELEVANT?



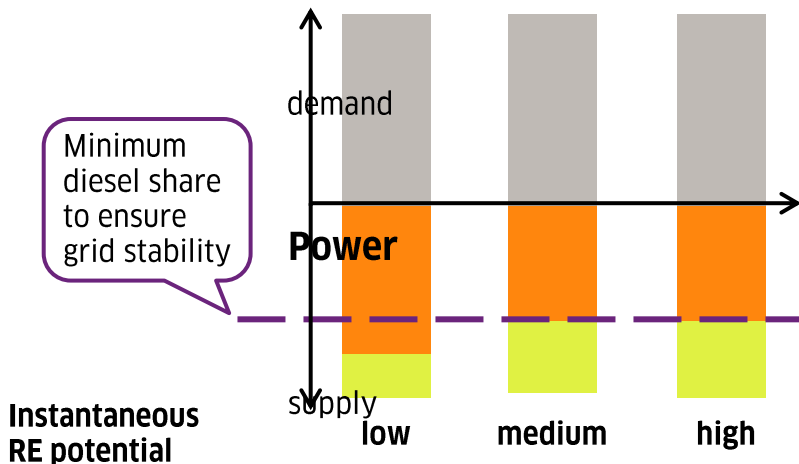
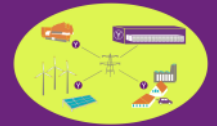
OUR SOLUTION ENABLES HIGHER RE SHARES THAN CONVENTIONAL HYBRID SYSTEMS



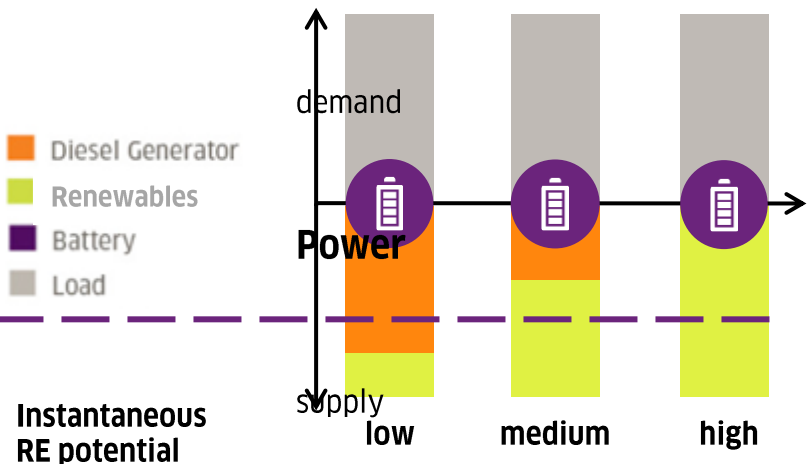
Renewables + standard diesel gen-set



Younicos Island Solution



- Diesel generator responsible for grid stability
- If RE supply exceeds a threshold share on consumption, RE have to be curtailed
- Therefore, total RE share on annual consumption is limited to 15%



- Younicos Battery Power Plant provides grid stability
- In times of high RE supply, diesel can be switched off
- Switching of the diesel is the leverage to high RE share on annual consumption

AN ISLAND POWERED BY WIND AND SUN



Graciosa (Azores), Portugal

Graciosa Battery Park

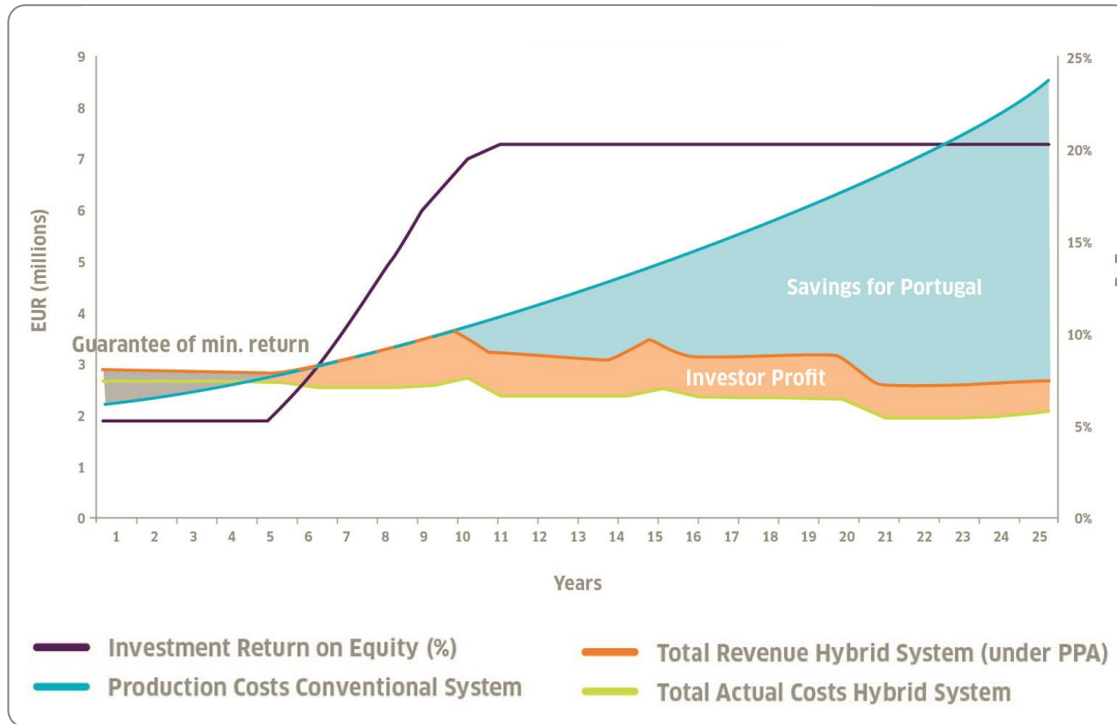
- 4 MW/3.2 MWh
- Lithium-Ion
- Diesel substitution, grid stability services e.g. voltage and frequency control
- Younicos delivered turnkey battery power plant
- Commissioning: 02/2017
- Client: Graciolica



PUT INTO PRACTICE: OUR MICROGRID SOLUTION ON THE ISLAND OF GRACIOSA



Financial analysis Graciosa project



Core assumptions

- Diesel Price Inflation: 5% p.a.
- Load : 3 MW/ 12,85 GWh
- Load Growth : 1% p.a.

Results

- Project IRR: 11% (Base case)
- Payback Period: < 15 years
- 2,397,376 l diesel saving p.a.
- 6,305 t CO₂ avoided p.a.

Our Microgrid Solution is highly competitive against the current diesel-based system

WE HELP REALIZING REVENUE VIA CAPACITY PAYMENTS AND ENERGY PRICING



San Antonio, Texas , United States

- 1 MW/15 min
- Lithium-Ion
- Commissioning: June 2016
- Client: OCI solar power

