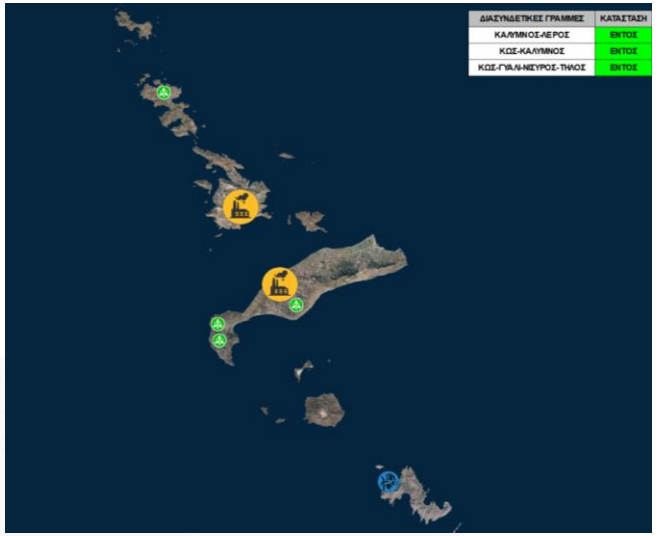
HEDNO

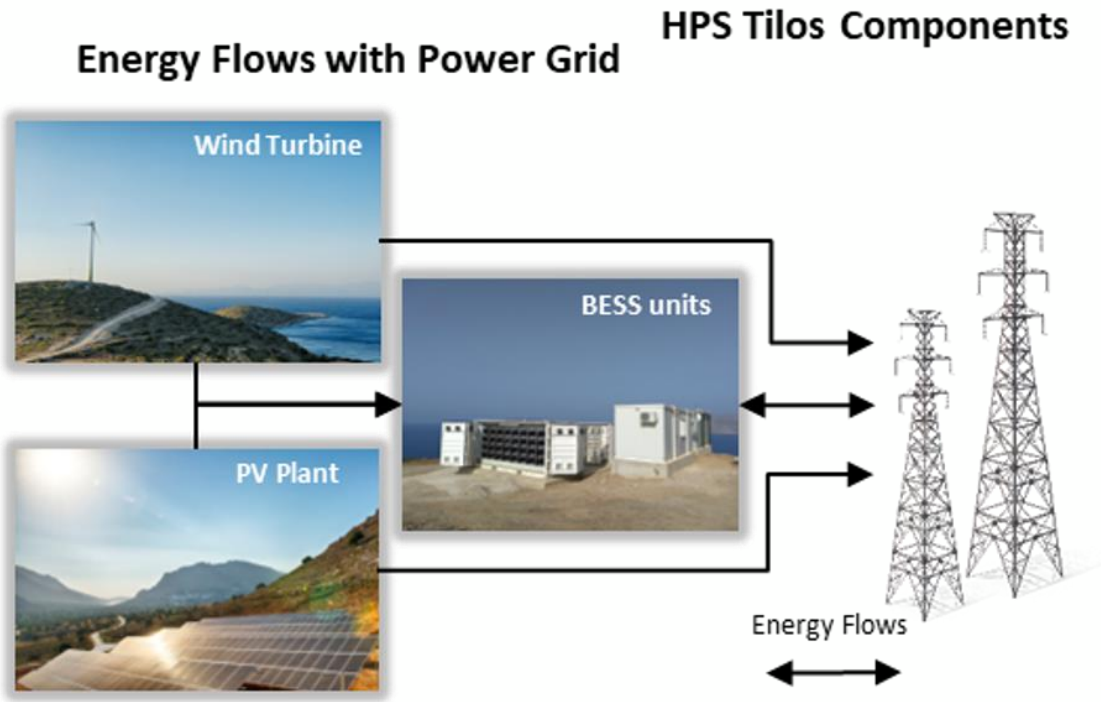
Greek Island of Tilos - Hybrid Power System TILOS

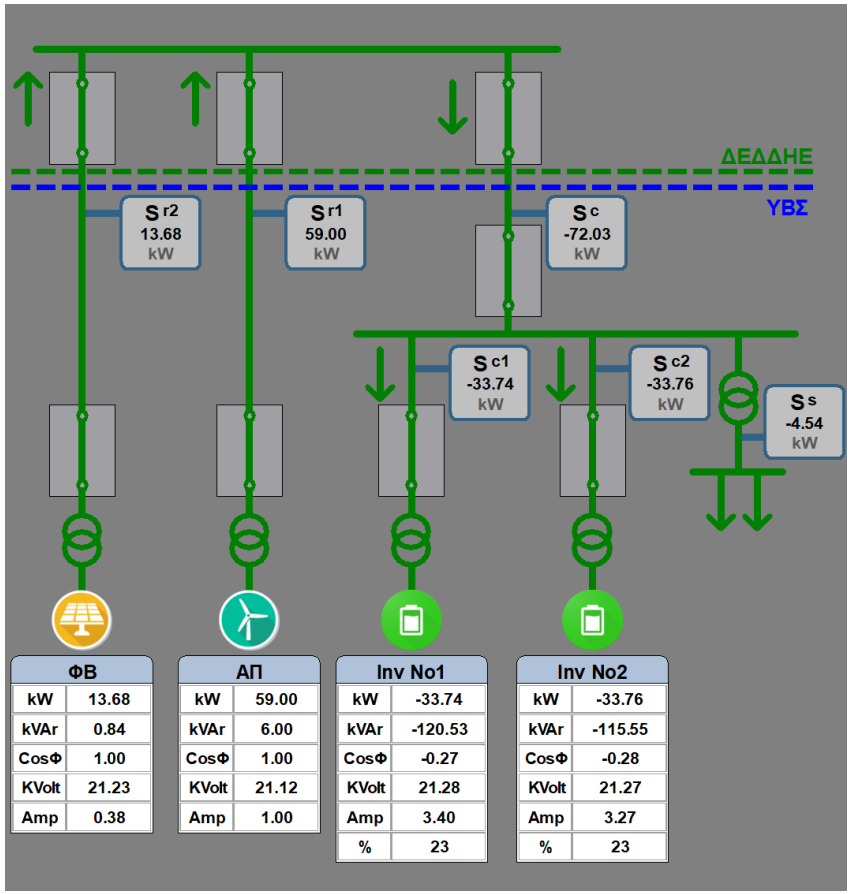
Hybrid Power System TILOS

- Tilos is a tiny island of the Dodecanese complex.
- Submarine interconnection to Kos (ES of Kos – Kalymnos consists of 9 islands)
- Average Peak Load Demand of ES of Kos-Kalymnos : APD_5 = 94,8MW
- Batteries of NaNiCl2 : 2,4MWh
- Wind turbine of rated power 800kW
- Photovoltaic of rated power: 160kWp
- Guaranteed power of HPS 400 kW
- Licensed and operative since October 2019



Single line diagram of TILOS System

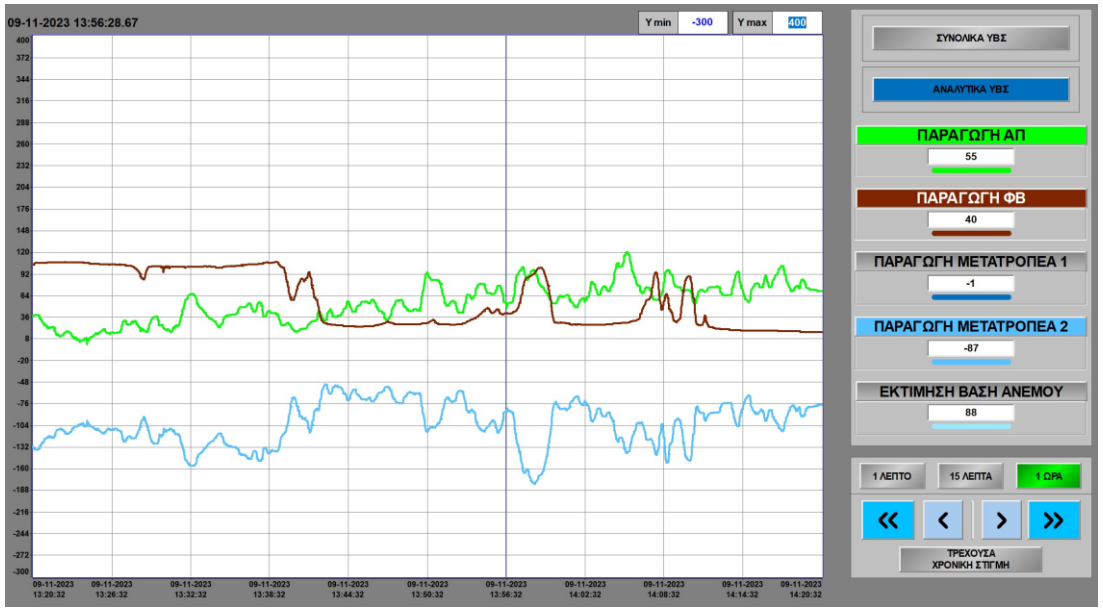


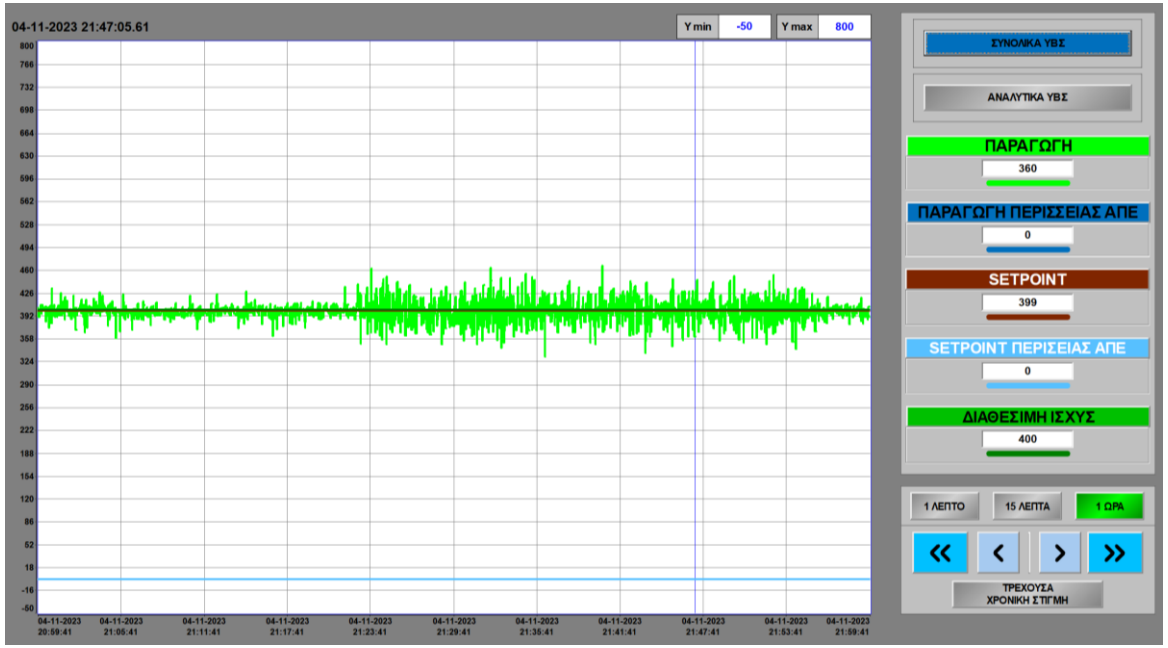


Operation of the HPS

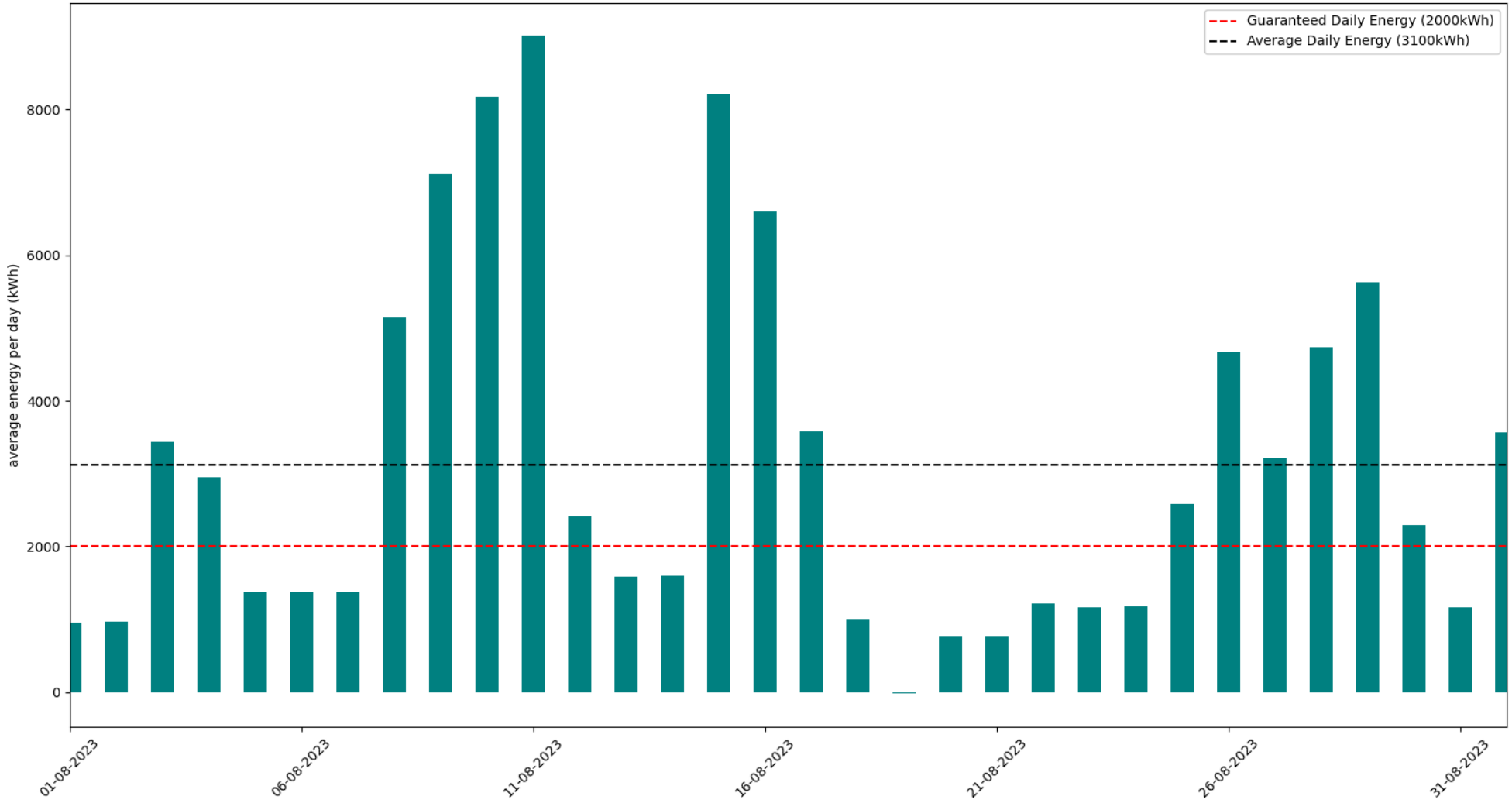
- Operation of HPS in grid connected scheme with the NII System. 100% Compliance with the regulations and operation protocols of HEDNO NII Grid Code.
- Participation in the specific day-ahead and intraday markets of the NII System of Kos – Kalymnos by following NII system's hourly setpoints through the Day Ahead Schedule (DAS).
- RES production is mostly used for the substitution of the scheduled production, then for storage and finally for direct injection via the surplus set-point.
- Operation Modes:
  - Steady State: HPS follows hourly production setpoints by optimally combining available RES production and stored energy.
  - Transient Response: HPS rapidly responds in transient modifications (≈1min) issued in case of NII system exceeding real time constraints.

Operation mode of the HPS - Power production based on program and HEDNO's dispatch order



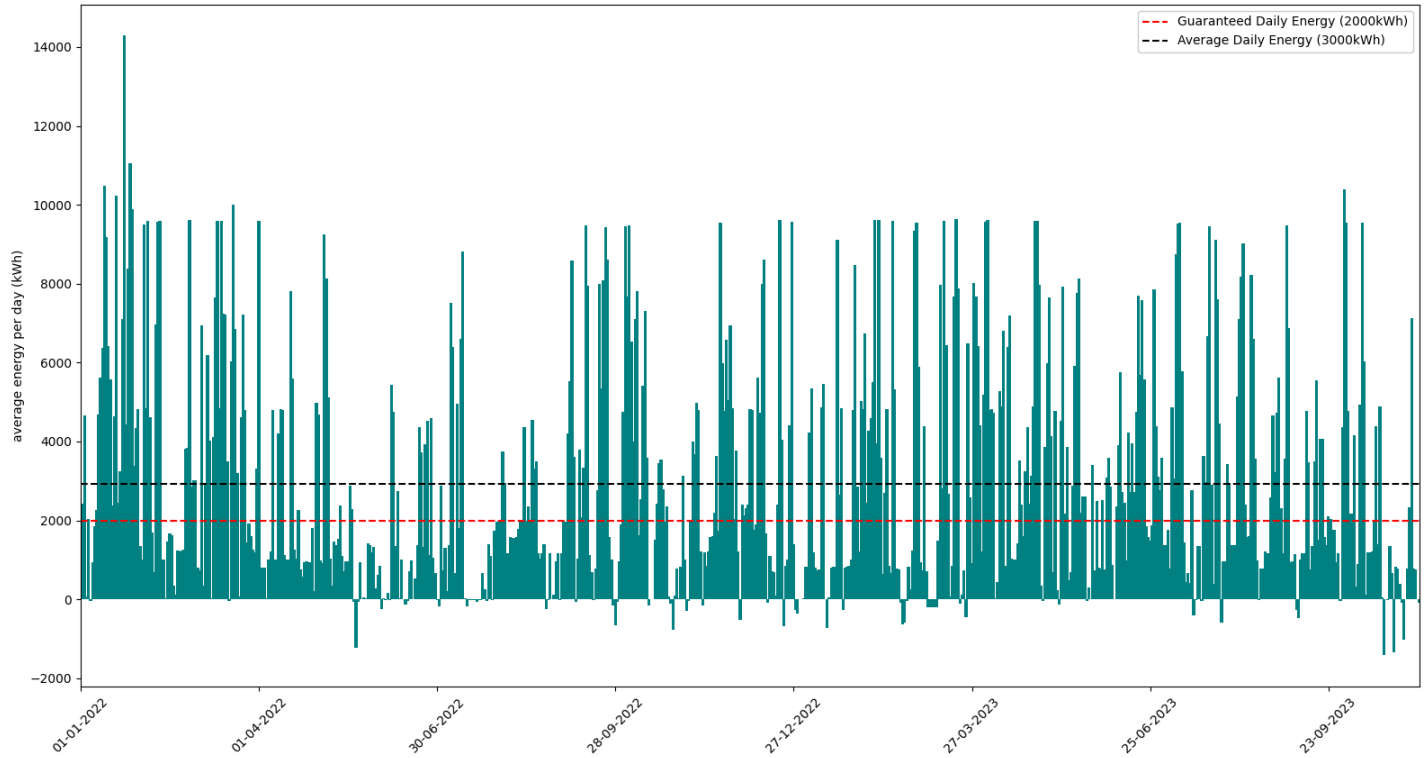


Average HPS energy production August 2023



Conclusions - Challenges & outlook

- High RES utilization
- First fully operational HPS in Greek islands
- Black start and Grid forming capabilities under investigation
- Combination of demand response schemes



Thank you for your attention.