

Power-to-Heat

Case Study: GenSet optimization

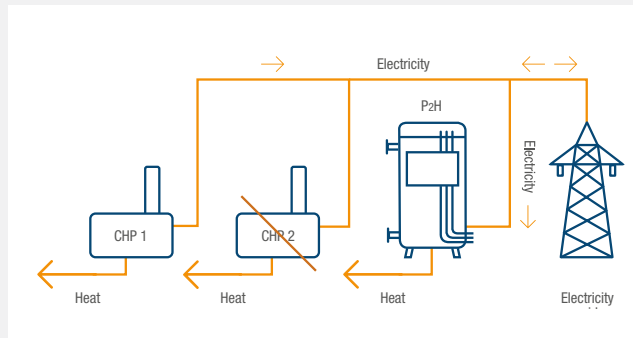
Electricity generation with GenSets in Offgrid applications or with CHP when grid-connected has become widespread. Flexibility and independence are the key decision facts for the investment. On the other hand, operating costs (OpEx) depend mainly on the fossil energy market and thus are unpredictable.

ELWA P2H systems have been designed to bring down OpEx. Renewable energies as the cheapest free scalable energy source can be perfectly combined with GenSets/CHPs and ELWA P2H systems.

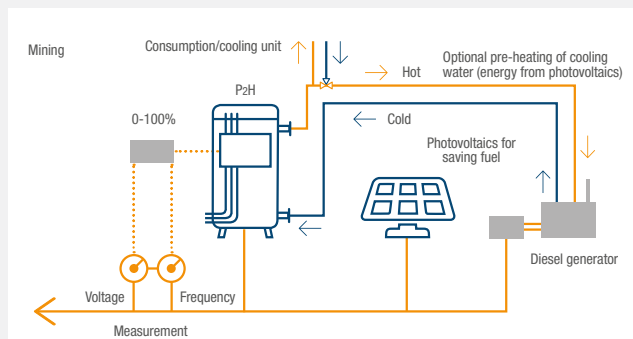
Grid-connected CHP or GenSet systems (Pict. 1) supporting the grid don't have to start the next generator in a cascaded array if short-time power or heat demand is higher. Less operating hours extend maintenance intervals, avoiding several engines running in partial load saves fuel and material stress. At very low electricity market prices, excess renewable energy from the grid or electrical power from the CHP is supporting heat production. With short-time electricity demand, the P2H system can reduce its power automatically in order to avoid the start of the next generator in the cascade. Installed generator power can be higher than the grid connection lines allow, especially with frequent peak heat demand.

Offgrid systems (Pict. 2) have to run at a minimum load for frequency stabilization and lower material stress. Unlike dump loads, the ELWA P2H system can vary its power infinitely in a split second, helping to stabilize frequency and voltage level when switching on powerful loads (inrush currents). Different to battery systems, grid perturbations will be lowered and the design rated power of the GenSet will not be reduced. OpEx-saving PV can easier be integrated. Additionally, PV can keep GenSet cooling water temperature at quick-start level in off-grid emergency power stations.

Planners, developers and system integrators are welcome to contact us at ELWA for more details.



Pict. 1: grid-connected: avoiding cascade start



Pict. 2: offgrid: stabilization



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