Win-Win: Photovoltaic-Diesel Hybrid Systems

Off-grid systems are mainly deployed when the laying of power lines is problematic and expensive. The great advantage of such systems for operators is the increased reliability that they offer for planning. This is because self-supply brings significant savings on energy running costs. In particular, photovoltaic-diesel hybrid systems represent reliable, resource-saving, and efficient alternatives for energy-intensive applications that operate beyond the scope of regular electricity networks.

Whether it's mining, agriculture, or seawater desalination plants – energy-intensive raw material processing operations are generally situated in remote areas that are not connected to the grid. Nonetheless they require electricity systems that can be deployed quickly and retain the highest levels of stability and supply reliability. The same goes for companies who, for reasons of power fluctuation or electricity outages, are subjected to higher productions costs.

To fill these gaps, industrial consumers are, in the main, still using diesel generators (gensets). The disadvantages of such systems include high operating costs and the release of damaging CO2 emissions. The combination, however, of diesel generators and photovoltaic systems, offers significant potential economic and ecological savings.

Cost saving through the reduction of diesel running times

PV-diesel hybrid systems are generally comprised of a PV-installation, diesel generators, and an intelligent control unit. This control unit ensures the provision of the required amount of solar energy, maximizing potential PV-supply. Unlike regular off-grid systems (<300 kW), the master function is undertaken, not by an inverter, but rather by a diesel generator that, in turn, is supported by the photovoltaic installation.

In the case of high load cycles, the system can either provide additional energy or assist the generator in minimizing its fuel consumption. Any excess PV-electricity can be stored in batteries. Users and applications can then fall back on this stored energy in the non-daylight hours.

Through reduced diesel running times and the associated reduction in the cost of both fuel and maintenance, solar generators can be very quickly amortized. This remains true even in the face of the cheap oil prices that we are currently seeing. This is because the use of diesel often goes hand in hand with high transportation and storage costs, while the system prices for photovoltaic technology and batteries keep on falling.

Do speak to us if you have any questions – we'd be pleased to advise you.

Yours,
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