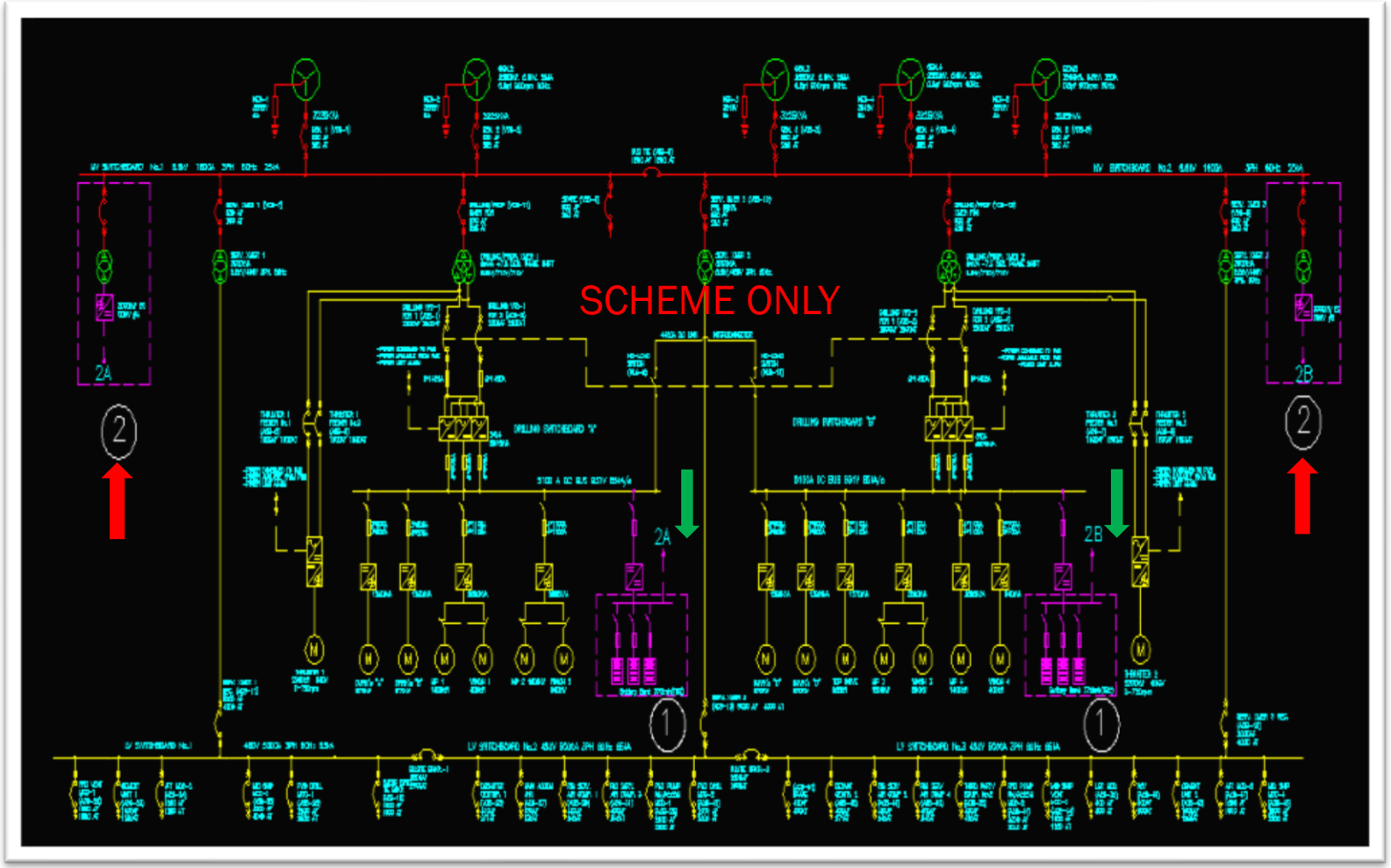
Hybrid Power System

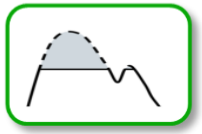
For Tiger Drillship

01.06.2018

Energy Storage Systems to Tiger Drillship

Integrating Energy Storage into Power System

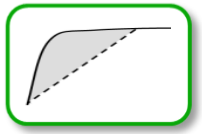




①

Peak Shaving

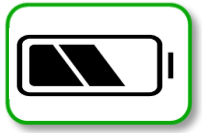
- Level the power seen by engines
- Offset the need to start new engine
- Improved fuel efficiency
- Reduced engine running hours



①

Enhanced Dynamic Support

- Instant power in support of running genets
- Fuel Saving



②

Safety-power back-up

- As UPS like functionality for all or portions of power system
- Higher power system availability

①+②

Zero Emission Operation

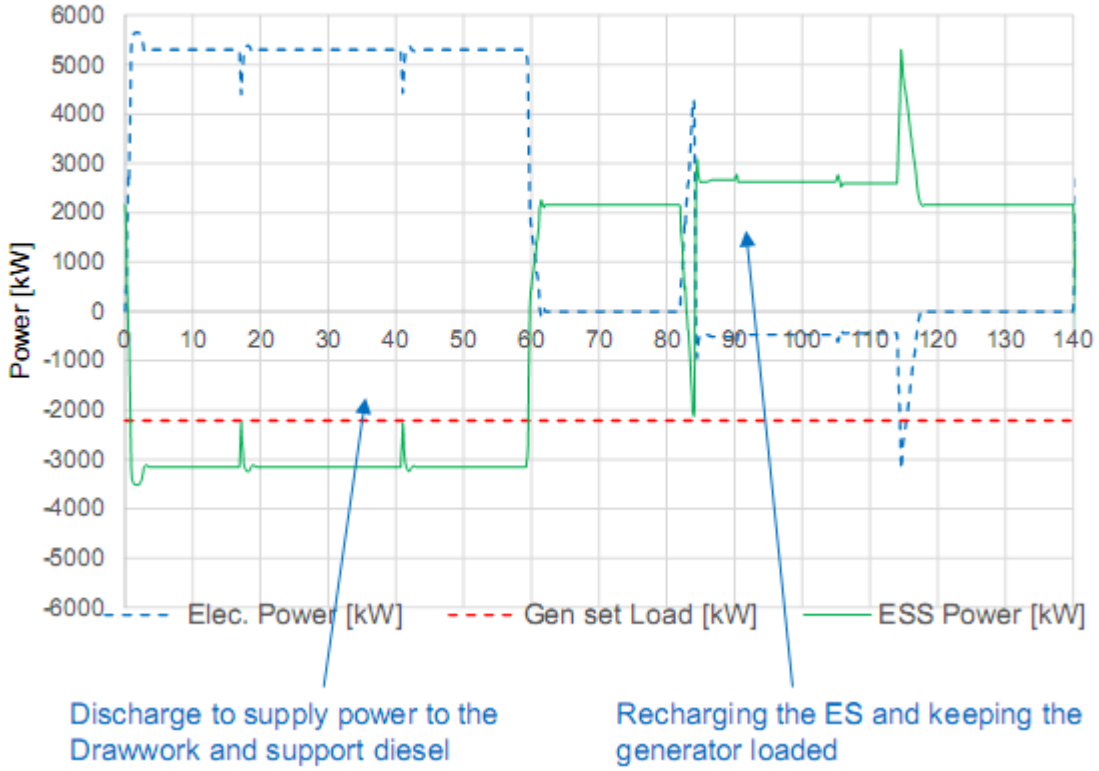
- Zero emissions in harbour
- Quiet engine room

Energy Storage Systems to Tiger Drillship

Simulation Result for 750st DW on Tiger Drillship

*Hoisting; example 750 short tons hook load (theoretical curves); 30-40 cycle per hour, 20h operation once/twice in a week

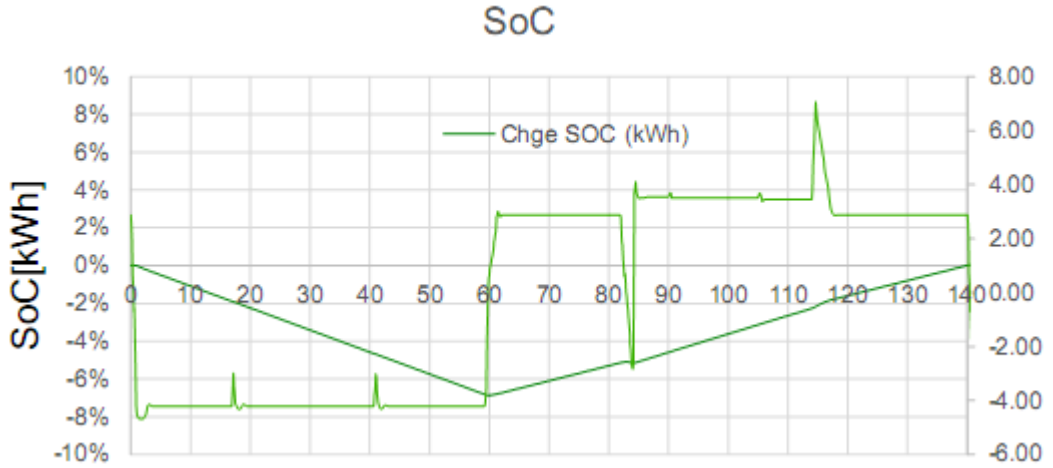
SCHEME ONLY



*Energy storage compensates for all dynamic load on the drawwork keeping the generator power constant

Hoisting: Drawwork generator power demand is reduced from close to 5,8MW to 2,2MW

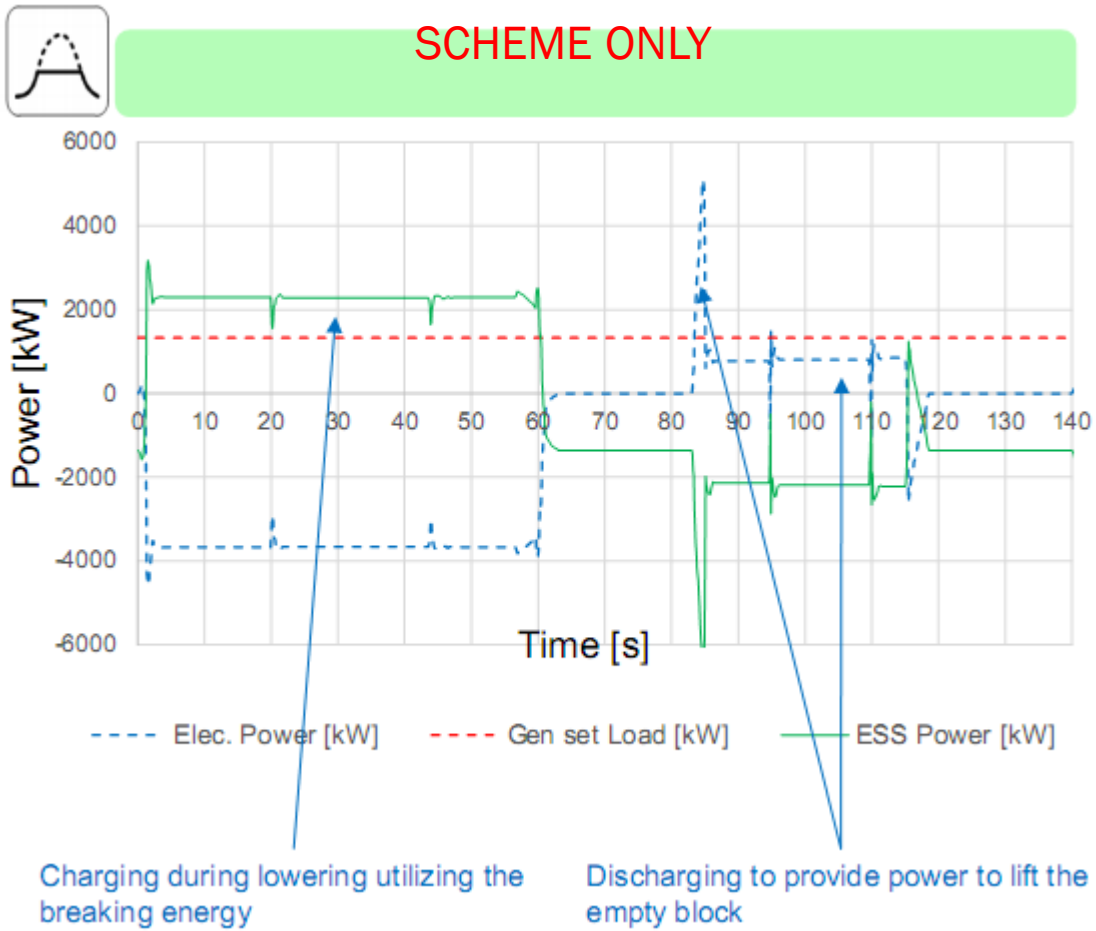
With a battery of 2*370kWh, One Cycle will cause following SoC change



Energy Storage Systems to Tiger Drillship

Simulation Result for 750st DW on Tiger Drillship

*Lowering; example 750 short tons hook load (theoretical curves); 30-40 cycle per hour, 20h operation once/twice in a week



*Energy storage compensates for dynamic load on the drawwork keeping the generator power constant

Lowering: Operation of the drawwork can be maintained on by using stored energy during a braking cycle. Drawwork generator power demand is reduced from close to 5MW to close to 0

With a battery of 2*370kWh, One Cycle will cause following SoC change