KESLA C860H

full hybrid wood chipper

HYBRID SYSTEM

- It has been made from the perspective of improving the performance of the machine as well as the fuel economy

- The system offers the optimal solution to save fuel and to lower emissions and noise levels

- The first version of the Kesla C860H hybrid wood chipper to be launched will be a truck-mounted model

- The electric drivetrain powers not only the wood chipper but all loads from the operation, including the Kesla 2112T crane used for feeding the wood into the chipper. This makes the diesel engine an independent power source and makes the variable-speed power generation possible

- The needed energy is generated by the diesel engine with the support of super capasitor energy storage

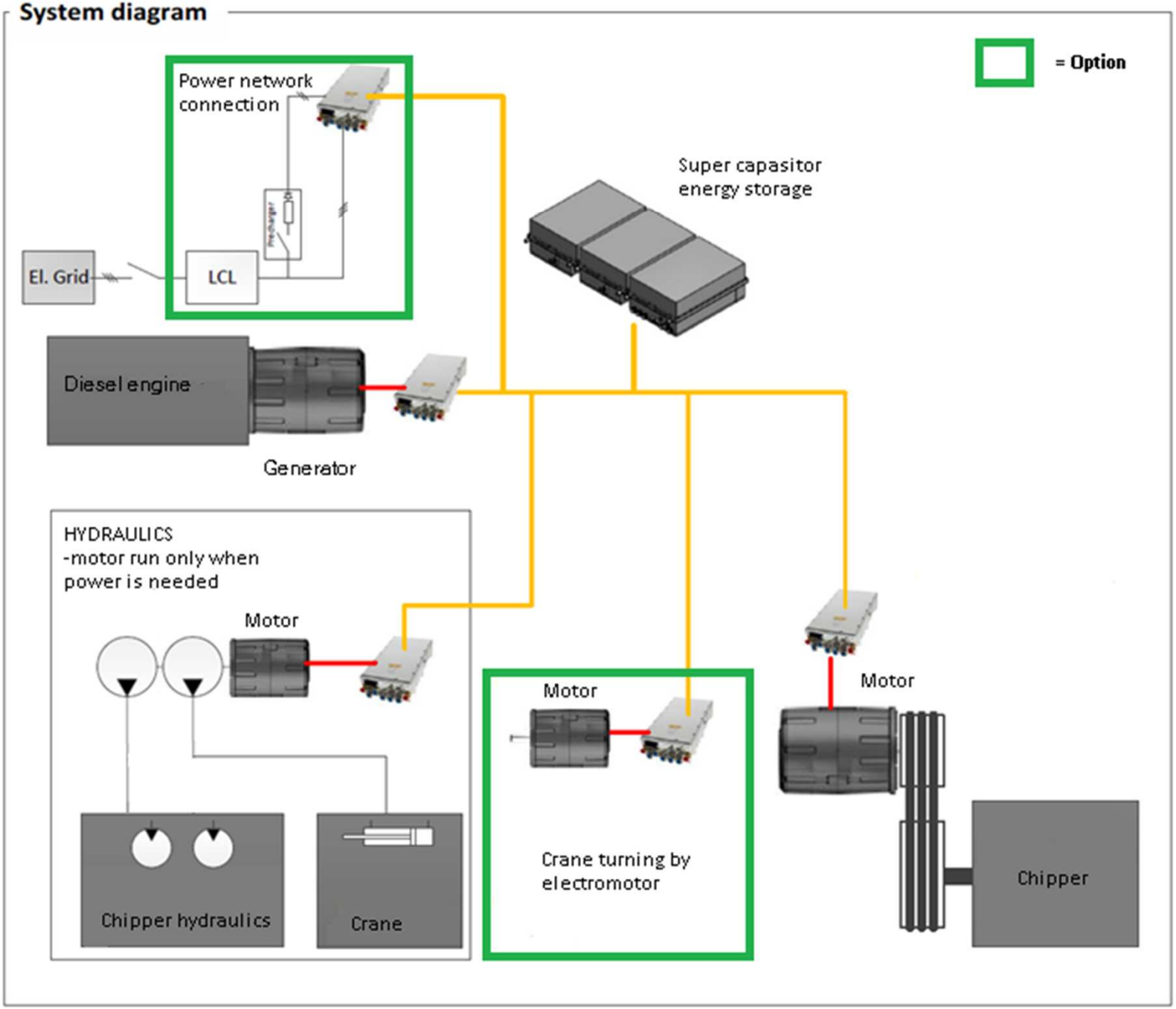
- The motors driving the chipper and hydraulic pumps are permanent-magnet motors, and the total system minimizes loss of energy and provides high energy efficiency

- There is no mechanical connection between diesel engine and chipper

SPECIFICATION

- The Kesla C860 Hybrid weighs 8200 kg and chipper unit has a production capacity of over 180 m^3/hr
- The size of the feed opening is 800 x 600 mm, and there are eight chipping blades
- The diesel engine is Volvo Penta TAD572VE (160kW, 5,1L), complies with EU Stage 4 and U.S. Tier 4 final emissions standards
- The electric generator and motors are from Visedo's PowerDRUM XSe and XXS frames. Visedo also provides the PowerMASTER M-frame inverter for the generator and motor control

System diagram



BENEFITS

- needed diesel engine power can be about 50% smaller
    - smaller diesel engine (external dimensions)
    - smaller emissions
    - smaller waste energy
    - smaller weight (10-15% less than traditional chipper)
- system is designed to deliver an estimated 20 to 40% lower fuel consumption than a traditional wood chipper
- efficiency is better, because there is no mechanical connection between diesel and chipper
- vehicles can be smaller, because carrying capacity and needed cargo space is less than usual. Same time on-road driving fuel consumption is less

- diesel engine working revolutions is easy to optimize fuel-efficient level and diesel-engine can work most of working time by optimal
    - engine life time increase
    - noise level is lower
- unnecessary diesel engine running disappear
    - diesel engine can drop revolutions to idle
- possibility to get energy from power network, then pollution is not local

CURRENT STATUS

- Chipper is working full time in Finland - about 100 working hours and 6500m³ wood chips

- Client has calculated **total fuel savings** about 0,2L/m³ (produced wood chips) compared Kesla C1060A chipper. It is about **25% less**

- Total savings during the year about 25 000€ (in Finland)- including insurance costs, etc... – when chipping about 80 000m³/year

- Next step is increase power for the rotor

  → 60% more power with same fuel comsumption

  → total fuel savings aim after uptade is **35-40%**

- Installation is going on in Finland and result is in SkogsElmia exhibition 4 – 6 June 2015, Jönköping Sweden

Development continues…