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SMEG – Sustainable and Mobile Energy Generator

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In today's modern society, we face a need to reduce the use of fossil fuels and thus we see an increased focus on sustainable and environmentally friendly technologies as part of the solution.

Our contribution to this global development is to develop a sustainable "Green" mobile off-grid generator, which could prove superior in numerous applications:

- Emergency backup for remote off-grid institutions (military, humanitarian aid, research centers)
- Repurpose used battery pack from electric vehicles
- Balance the power grid infrastructure when on-grid
- A platform to showcase the state of technological advancements in the field of sustainable technologies

Initially we expect a finished product to deliver and hold enough power and energy to support a stage at the Summer Festival in Copenhagen Harbor (our partner during the development).

In order to design a mobile system, we have to look for lightweight, robust and cost-efficient technologies. In recent years, the industry has mostly been focusing on advancing technologies to harvest sun and wind energy. Thus, our design relies on an intelligent storage solution supplied by solar panels and small wind turbines in combination with an energy management system.

By measuring data at the DTU Annual Commemoration Day, we will be able to estimate desired energy capacity and power transfer capabilities of the energy storage for the energy management system. Our prototype consists of a Tesla Smart ED battery for electric vehicles, which we analyzed and reconfigured extensively.

We have yet to finish our analysis of the battery pack and to determine how to intelligently store the energy obtained from the photovoltaic and wind turbine system, but we expect to have a finished design to showcase at the GRØN DYST conference day.

Furthermore, we hope that our project will inspire future students at DTU to engage themselves in the development of green technologies.