Holthausen Clean Technology

Aldwin Oechies

GPU Diesel to H-GPU electric Hydrogen with fuel cell and small Battery.

Goal:

- A proof of concept as a Hydrogen GPU from a diesel GPU.
- Build in the same unit as the diesel.
- Same voltage and capacity as diesel.

Learnings:

- Capacity H2 needs to be learned for the consumption of hydrogen, for space and purpose first 10kg H2 on 350bar.

Dismounting all diesel components.

Goal:

- Dismounting everything including diesel driven generator at Eelde Airport and Kes Schiphol.

Learnings:

- The dismounting of the diesel generator is needed for the space and the use off the fuel cell to be constructed in a new way.
- Direct energy power from the fuel cell through an extra programmed inverter to the existing inverter.

Consequence there is no mechanical drive train present!

Transport from Eelde to Hoogezand.

Assembling all parts; the Hydrogen storage, fuel cell, battery pack and all other components.

Goals:

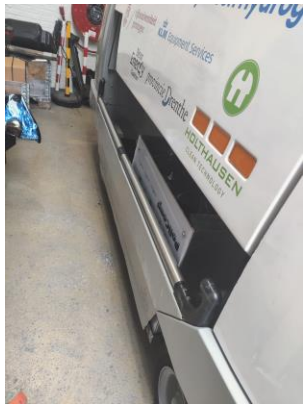
- Placing all the components on a constructed rack in the existing unit.
- 2 times 350 bar cilinders with totall 10kg Hydrogen as a start on the bottem.
- Connecting to the existing electrical unit for the needed electrical power.
- The fuel cell 40kW with a limited battery pack.



Learnings:

- All components can be placed in combination with the existing original Transformer with the electrical unit for the exact output 28volt Dc and 1200A peak.
- The connection with the existing electrical unit is contructed through the mounting off a programmed inverter componend for DC to AC.
- A bigger battery pack 70kWh is mounted for the endurabilty and continuity of the GPU.
- Because off the size of the battery pack the both storage spaces off the cabels is used and a small space is left for cabels.





Still to go: Testing at KES Schiphol.

- To check the electrical power on a test unit of KES.
- To check the working off the fuel cell under endurance with KES.
- To proof the concept of Holthausen by KES.

Excluded in this project :

The proces of validating the GPU for airside.

Parties involved:

- KES Schiphol for support.
- Airport Eelde dismounting diesel by airport mechanics.
- Noorderpoort College with Student internship Vincent Fennis.
- Entrance Groningen Practitioner Cor Scholte mounting parts.
- Different local suppliers for components.
- Engineers electrical, hydrogen and mechanical from Holthausen Clean Technology for developping en mounting.

HOLTHAUSEN
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On behalf of Holthausen uit Hoogezand.

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