

Assignment student EnTranCe Energy Transition Community

Project title: Feasibility study into alternative fuel storage capabilities of Natural Gas CNG and LNG in the General and Business Aviation
Suitable for students of: <i>Multiple choices are possible</i>
<input type="radio"/> MBO <input type="radio"/> BuitenWerkPlaats Built Environment (2 nd yr, 1 block, 2 nd yr, 4 block) <input type="radio"/> Vastgoedlab V&M (3 rd yr) <input checked="" type="radio"/> Bachelor graduation assignment (4 th yr) <input type="radio"/> Bachelor internship (limited possibility in daily guidance) <input checked="" type="radio"/> Research assignment in curriculum year..... <input checked="" type="radio"/> Honours research assignment <input checked="" type="radio"/> Master thesis
Study Program: Mechanical Engineering Bachelor/Master
Period: semester 2 february-July 2018
Language: NL en ENG
Client: Clean Tech Aviation BV.; Ben Capelle: www.ctdc.eu
Internal client: Ramon Alberts/Entrance

Background (facts, situation sketch and parent/organization goals)

CTA builds a test and certification company with a test lab on EnTranCe, aircraft maintenance and flight testing and Assembly on Teuge and flight testing of the innovations in the daughter CTA GMBH Braunschweig airport. CTA builds her organization with a Natural Gas consortium with partnership with Gasunie, Gasterra, Ebrahimi, Orangegas, the GA-BA engines and aircraft factories, educational institutions and Hanseatic University Applied Sciences and the NLR Tue both CTA and the MRO allows existing aircraft engines maintenance stations in the GA and BA Market retrofit to hybrid engines that and/vliegtuigen on AVGAS and on CNG can fly. With this innovation we can a 35% cost reduction for the users and 25% CO2 reduction.

Problem (description of the undesirable situation)

The existing aviation as a result of the high cost and complexity and safety regulations are not yet adequate and affordable solution for safe storage and use of green fuel with the existing plane fuel tanks. The sharpened H2020 objectives and emission emissions energy agreement is the following fines and the SER that calls for an innovation and usable technical solution with use of existing fuel storage locations on the plane. Indien de bestaande constructie van het vliegtuig en zwaartepunt posities van het vliegtuig in stand gehouden kunnen worden zijn 1000 uur aan vliegtuigen niet vereist maar slechts 50 uur aan statische testen en 50 uur dynamische testen.



That is possible if only the internal tanks and fuel lines be adjusted on the use and storage of Natural gas making a transition from fossil fuel to Natural Gas is realistic as possible.

Objective (description of the desired situation)

- Patent research on existing innovative developments within Europe and the USA/Canada about Natural Gas storage in the GA and BA aviation.
- Inventory available technical equipment, specific gravity molecular properties and material strengths t.o.v. the necessary strengths/printing at CNG and LNG storage in an aircraft operating in atmospheric conditions of + 40 to-55 degrees and pressure altitudes from sea level up to 12 km high.
- Market research on potential partners in production of the CNG and LNG storage tanks.
- Market research in Europe and USA/Canada with a representative number of (100) plane maintenance stations and go flying schools and BA zakenvliegtuig companies under what conditions they a transition to this green energy solution are willing to can entering into.

Result deliverable/product (what is ready if the project is finished) with list of part results

- Patent bank research existing CNG and LNG storage innovations in aviation with hiring of the Patent Office VO patents and trademark registration in Groningen
- Inventory available technology and materials for the fuel storage CNG and LNG
- Inventory available chain parties who would like to act as a logistical network delivery of Natural Gas (CNG/LNG) on the airports.
- Market research Europe and USA/Canada on potential Maintenance stations and business aircraft companies and owners (minimum 100 100 Maintenance stations and GO and BA users.
- Concurrentie analyse over Europa, USA/Canada

Competence level

2/3

Connected to Change Agency ETC

Multiple choices are possible

- Sustainable Building
- Sustainable Mobility
- Local Communities

Further information

Student will be working in the context Energy Transition Community at EnTranCe. You will be working in a multidisciplinary team. For detailed information on this assignment contact

A.S.J.Joosse@pl.hanze.nl, officemanager (EnTranCe) 050-5954708

A student fee is available.

How to respond to the vacancy

Send a motivation letter and CV to EnTranCe, Energy Transition Community, etc@org.hanze.nl
Attn. Mrs. Jacqueline Jooisse, Office Manager EnTranCe. Note: If the job does not fit directly with
your specific interest, please contact via etc@org.hanze.nl or 050-5954708

Website: <http://en-tran-ce.org/for-students/assignments/assignments-per-study/>