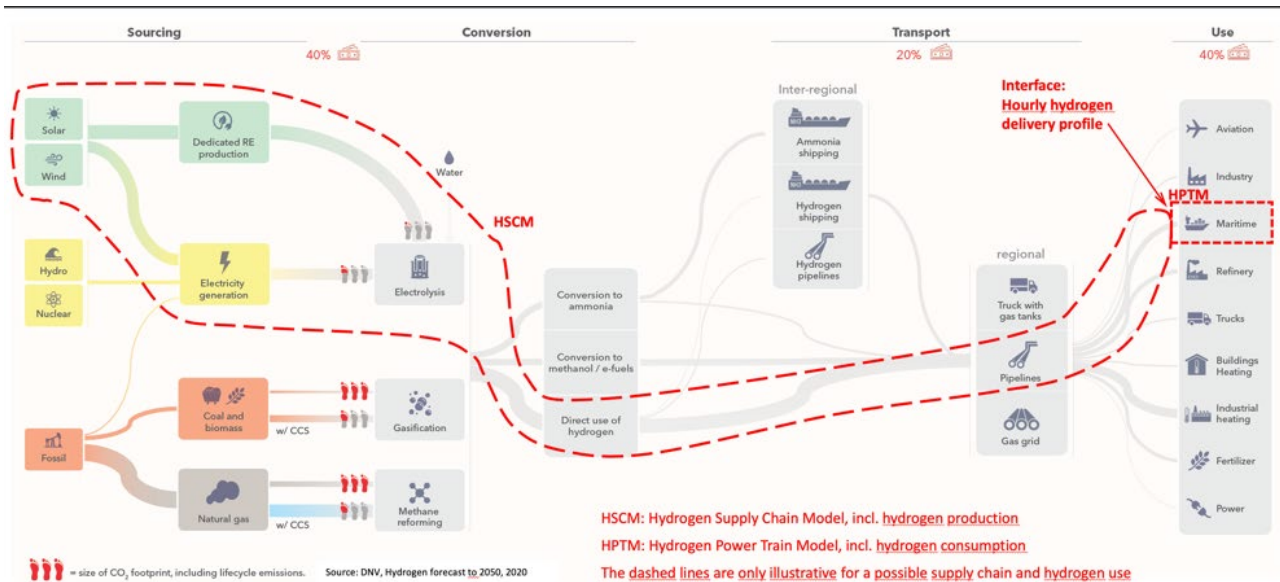


Assignment Name

Client	ENTRANCE
Related project	Just Transition Fund – Hydrogen Train & Learn Hub
Start date	Flexible
Suitable for training course(s)	EMRE, SESyM, Operations Research, Physics, Mathematics
Learning Community	

Assignment context

We aim to model, analyse, design, and optimise hydrogen supply chains and hydrogen power trains for companies in the Northern Netherlands. The objective is a hydrogen configurator, developed in Python, which can be used to analyse companies' needs to make the switch from fossil fuel to hydrogen. The chain covers green hydrogen from renewables to the conversion of hydrogen in an application. Models are validated with experimental data. Applications vary from vehicles to industrial processes. This is schematically shown in the figure below. Although the focus is on technical feasibility and economic viability, the environmental impact is taken into consideration as well. Within this supply chain, the student has multiple options to define a thesis with us, corresponding to his/her interest.



Assignments

Examples of Master thesis topics (e.g., EMRE, SESyM, Physics, Operations Research, Mathematics):

- Development and implementation of optimisation models (e.g. MFO, PSO, GWO, LP)
- Development and implementation of control models (e.g. MPC, Rolling horizon)
- Including and investigating stochasticity in models
- Validation with experimental (ENTRANCE) data
- Influence of component behaviour, e.g. degradation, change of efficiencies, in system model behaviour
- Compare heuristic optimisation results to linear programming results
- Find optimal heuristic optimisation parameters to reach the optimal configuration values within a reasonable amount of time and with a reasonable accuracy

General information

Final Product	Working models
Location	ENTRANCE
Parties involved	Tbd
Contact person	Corina Vogt: c.b.vogt@pl.hanze.nl
Supervision	Jan Bekkering or others depending on the selected topic

Who are we and where can you find us?

ENTRANCE is a learning knowledge community, where students and professors from various programmes work together with researchers, companies, governments and civil society organisations to accelerate the energy transition.

ENTRANCE is the place where you, as a student, work together with lecturers, researchers, businesses, governments and/or civil society organisations on complex issues. We do this at the following locations:

- Location Proeftuin, Zernikelaan 17
- Location Energy Academy Europe, Nijenborgh 6.

What do we offer?

ENTRANCE offers you a multidisciplinary, inspiring learning, working and research environment where you can develop the competencies needed to shape and accelerate the energy transition. There is room for collaboration with professors, researchers, lecturers and the professional field.

In addition, you will be supervised by professionals who are part of the ENTRANCE Learning Communities (ELC).

Contact us

Are you interested in the vacancy? Do you have questions or would you like to apply directly?

- Jacqueline Joosse, Coordinator ENTRANCE Learning Communities.
- T: (050) 595 4708
- E: ENTRANCElc@org.hanze.nl