Hanzehogeschool Groningen
University of Applied Sciences

Assignment student EnTranCe Energy Transition Community

Project title: What to do with a surplus of sustainable electrical energy
Suitable for students of: *Multiple choices are possible* O MBO O BuitenWerkPlaats Built Environment (2nd yr, 1 block, 2nd yr, 4 block) O Vastgoedlab V&M (3rd yr) X Bachelor graduation assignment (4th yr) O Bachelor internship (limited possibility in daily guidance) O Research assignment in curriculum year……. O Honours research assignment X Master thesis **Study Program: TB/CE/Mechanical engineering**
Period: Feb 2018 - Jun 2018
Language: Dutch / English
Client: Provincie Groningen
Internal client: Ted Wildenberg

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

Especially in Groningen there have been situations where systems, which generate sustainable electrical energy (windmills and solar panels), had to be switched off to avoid overload of the electrical grid. Many parties are working on this issue but the general question is: what to do with the surplus of energy. A model should be made in which figures like market data, conversion data and local data are the input and key figures like financial gain, CO2-emission reduction and thermal energy should be calculated. This model could be used by different parties but mainly intended for use by policy makers in governmental or commercial organizations.

Problem (description of the undesirable situation)

What do we do when the sun shines a lot or when there's a lot of wind? At this moment we switch off equipment to avoid overload of the electrical grid. What if we are able to store or convert the surplus of sustainable electrical energy and what are the consequences when this? What are the costs for storage or conversion, how much energy is lost etc. These are the questions policy makers ask themselves.

Objective (description of the desired situation)

Several steps are required:

- Analyse which storage or conversion solutions are available.
- Get all the ins and outs (parameters) of these solutions including local storage, local transport etc.
- Create a module that is universal and can be used for all solutions.
- Put all solution modules in one system and order the results.

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- Results should at least be the financial consequences, CO2-emission reduction and exchange of thermal energy.

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

A user friendly system should be made where market and local should be the input, conversions etc. should be build in and the result should help policy makers in making (local) decisions for the problem of surplus sustainable electrical energy.
A universal module should be made in which above data can handled.

Competence level

3

Connected to Change Agency ETC

Multiple choices are possible

O Sustainable Building
O Sustainable Mobility
O Local Communities

Further information

Student will be working in the context Energy Transition Community at EnTranCe. You will be working in a multidisciplinairy team. For detailed information on this assignment contact Ted Wildenberg (EnTranCe) t.b.c.m.wildenberg@pl.hanze.nl 050-5952478

How to respond to the vacancy

Send a motivation letter and CV to EnTranCe, Energy Transition Community, etc@org.hanze.nl Attn. Mrs. Jacqueline Joosse, 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/