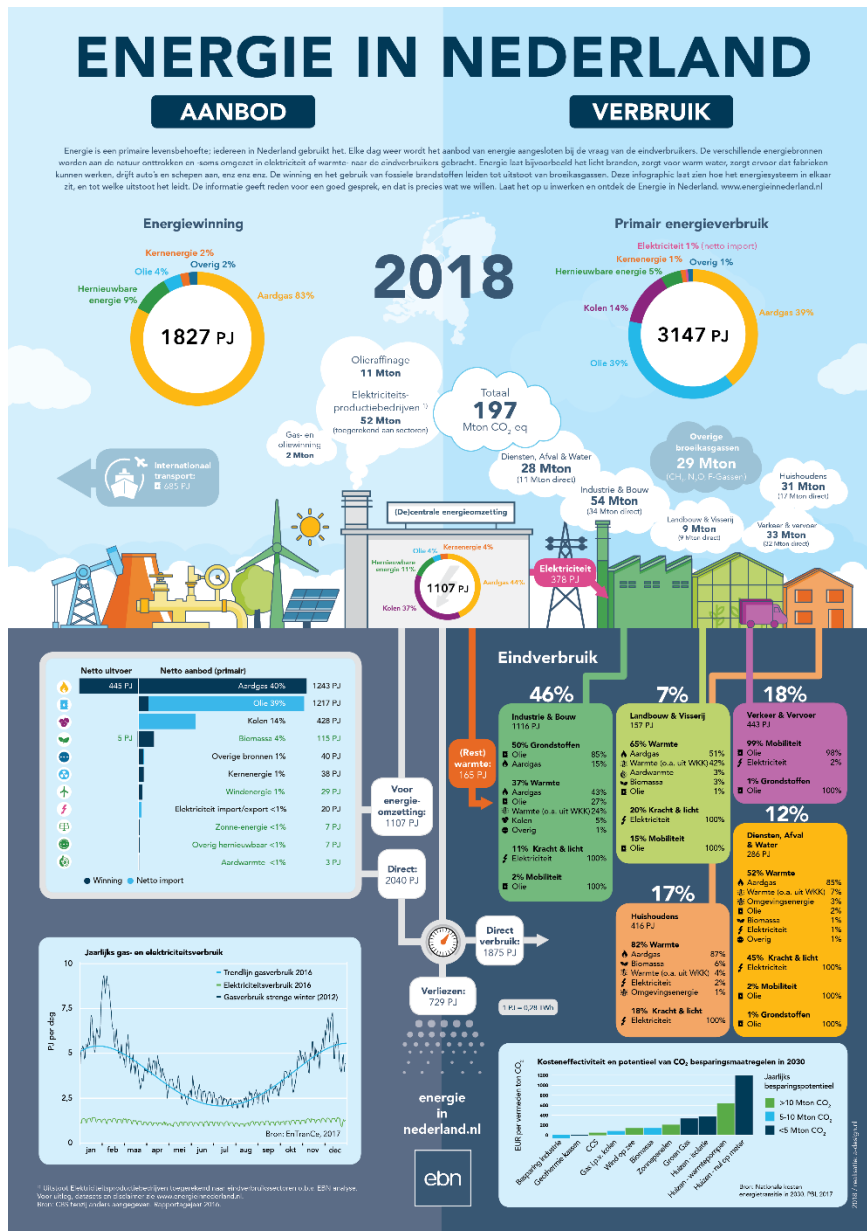


Huisman - Company case Joint Interdisciplinary Project Geothermal

1 Introduction

Briefly describe the background of the company case:

- What does the organisation do?
 - o Huisman designs, manufactures and services step changing technical solutions and for the energy industry
- What recent (internal / external) developments led to selecting this case?
 - o Huisman recently started a separate business line for the geothermal energy market to focus on one of the potential biggest sustainable renewable energy sources that is available all over our planet.
- Describe the case as a problem statement
 - o Could Geothermal Energy play a role in the Dutch energy demand for the existing built environment, taking the technical- and socioeconomic into account?
- Benefits of the proposed change/opportunity
 - o If we could make this feasible, we will have one of the biggest opportunities to renew our energy demand, achieve the Paris climate agreement and truly reduce our dependency of natural gas
- If possible include an image / drawing describing the case



2 Objective

- Describe the objective
 - o The objective is to find an optimal techno-economic solution to use geothermal energy to replace the current energy demand in the built environment
- Define criteria to which the final result should adhere to
 - o The result should consider:
 - techno- as sociaaleconomic cost-benefits

- Comparison against currently available alternatives
- Currently available infrastructure
- Heat and Electricity energy
- The typical heat and electricity demand during the year
- Any further questions to add?

3 Scope

- Location, asset, unit (be as specific as possible)
 - o Focus on dens built environment (Randstad)
 - o Excising houses and buildings
- Provide several sub-questions that will need to be resolved as part of the problem statement
 - o Can geothermal energy act as a base load energy source?
 - o What to do in the periods of low energy demand (heat in Q2 and Q3)?
 - o What should the minimal temperature be to supply the required demand taking current state of technology into account?
- Timescope (is this case part of a larger initiative?)
 - o This case is part of a large initiative which looks at the complete potential of geothermal energy in the Netherlands and Europe.

4 Student selection

- What faculties would fit this case:
 - o Aerospace Engineering
 - o Mechanical, Maritime and Materials Engineering
 - o Civil Engineering and Geosciences
 - o Technology, Policy and Management
 - o
- What specific capabilities are required?
 - o To address this case a truly multidisciplinary approach would be required as it touches all technical disciplines as well as geological and policy matters. This means the participants must be open and respect to each other's background and viewpoints

5 Business coach

- Who will coach the student team (if possible include a short bio)
 - o Remco van Ee
 - Remco has a background in Mechanical engineering, philosophy and business administration and is currently responsible to develop the geothermal business case for Huisman together with a focus group of high potentials
- Which department(s) will be involved?
 - o All relevant departments may be involved when and if required. From our operations, R&D and engineering to business development, legal etc.

6 Partner companies and research organisations

- Mention any other companies involved in this company case
 - o None at the moment, but this may change
 - o Other companies may also be looking into this case
- Mention any research organisations involved
 - o None at the moment, but this may change
 - o Other research organisations may also be looking into this case