

Course Project Part 2 (Assignment 2)

DTU Course 46770: Integrated Energy Grids

February 2026

In the second part of the course project, you are asked to carry out the tasks described below.

Write a short report (maximum length 10 pages) in groups of 4 students, including your main findings, and upload it to DTULearn. This report should include your revised version of the course project part 1, as well as the new tasks described below.

Deadline for submission: May 1, 2026, 23:55

It is assumed that you have completed tasks a)-g) from the first part of the course project.

- h) Assume that the countries are now also connected via gas pipelines transporting either H_2 or CH_4 . Use a linear approach to represent gas transport in pipelines. Optimize the network again and discuss your results, including in the discussion which of the two energy transport networks modelled is transporting more energy.
- i) Select one target for decarbonization (i.e., one CO_2 allowance limit). What is the CO_2 price required to achieve that decarbonization level? Search for information on the existing CO_2 tax in your country (if any) and discuss your results. Is the model in agreement with the existing CO_2 tax? Why or why not?
- j) Connect the electricity sector with, at least another sector (e.g. heating or transport), and co-optimize all the sectors. Discuss your results.
- k) Finally, select one topic that is under discussion in your region. Design and implement an experiment to obtain relevant information regarding that topic. E.g.
 - What are the consequences if Denmark decides not to install more onshore wind?
 - Would it be more expensive if France decides to close its nuclear power plants?
 - What will be the main impacts of the Viking link?
 - How does gas scarcity impact the optimal system configuration?