Abstract: Transformation from a conventional fossil-fueled energy system to a 100% renewable energy system is not an easy task, however, it is a necessary goal to be attained. For this goal, the Danish energy system will be changed more significantly in the future than it has been changed in the past. Power plants based on fossil fuels will be phased out to counter the anthropogenically enhanced greenhouse effect. Renewable energy resources such as wind power, solar and biomass will replace the fossil fuels in the future. For this large scale transformation, scenario analysis is an imperative tool or technique since the transformation of the energy system and the impacts brought from the change need to be assessed and prepared for beforehand.

The contributions of this PhD dissertation are in three main areas. In the first main area, existing energy scenarios - The Danish Society of Engineer’s IDA 2050, the large research project CEESA, and the Danish Climate Commission’s CC2050 are compared. Second, energy system analyses for the important but uncertain areas biomass and flexible demand are performed. Thirdly, modelling-related issues are investigated with a focus on the effect of future forecasting assumption and differences between a predefined priority order and order determined by given efficiencies and constraints.

The department will host a reception after the defence at Vestre Havnepromenade 9, third floor
If you plan to join the defence and/or the reception please report your participation to:
http://doodle.com/m3b43rf3fzrz6k55 or by email to annelle@plan.aau.dk, not later than November 9