

Course Project – a scenario for a low carbon transition

Mitigation of climate change requires the energy system to adapt and transform into a low carbon system at an unprecedented pace. In this assignment, you will focus on a specific country, assess the current state of its energy system and emissions, and create a scenario to map out the way forward to a carbon neutral energy system.

The essay should include all the following elements:

- **Pick a country** for your analysis (not Finland, or the country you're from)
- **Describe the current state of the energy system in the country**, the key energy demands, resources and vectors, sources and drivers of emissions, key technologies and the national context (e.g. why and how did the system develop to this specific state?).
- **Identify a sector** that is particularly critical for reducing energy related emissions in the country (e.g. a major source of emissions and/or central for the economy of the country). Justify your choice with data and argumentation.
- Based on your analysis, **create a qualitative scenario narrative** for the low carbon evolution of the sector to 2050, including all the critical steps, events, and decisions by various actors between now and then, eventually leading to the final state.
 - Describe the mitigation **technologies and activities**, including their economic feasibility, and required policies
 - Describe also what happens in the **rest of the energy system** and how this affects your chosen sector
 - Consider in your scenario narrative and discussion also the development of **drivers** other than technology (e.g. economic growth and development, changing behaviours and norms etc). Would some of these drivers or trends be critical for your scenario to be feasible at all?
 - Discuss the **barriers** related to your mitigation scenario, i.e. what kind of barriers of today would need to be overcome for your scenario to be feasible? What plausible mechanisms and actions (by whom?) could lead to them being overcome?
 - Roughly **quantify** the key elements of your narrative, calculate the expected emission reductions, and present your methodology for doing so.

This project will be the main synthesis point of all the material you will be learning on the course, do reflect the lectures and the reading materials in your work, whenever suitable. The project should be multidisciplinary in approach and illustrate the complexity of perspectives involved in planning and designing for the future. Read also carefully the "Course Project Q&A" document, which, among other things, includes some general information about what scenarios are.

Outcome:

Written report: **Max 2500 words** – use MS Word's word count tool and **type the word count at the end of the essay**. Word count does not include the abstract, table of contents,

bibliography or appendixes, but does include words in footnotes, endnotes, captions, diagrams and tables. Do note that appendixes should be used sparingly and they will not be considered in the marking. Going above the word limit will be penalised in the marking. 1,5 row spacing, 12 p font recommended.

Please include on the first page your name, student number, course code and date (none of which are included in the word count).

The essay **must** include the following sections (with subsections added as appropriate):

- Introduction
- Main Body [rename as you see best fit]
- Conclusion
- Bibliography

Deadline:

16th of December Final Course Project submission to MyCourses [graded 0-5, with 0.25 grade increments, weight in final course grade 75%]

Any other questions? First see the “Course Project Q&A” document under “Materials” and if your question is not covered, ask it on the *General Discussion* board on MyCourse (<https://mycourses.aalto.fi/mod/forum/view.php?id=924522>). Please do not email your questions, using the board ensures that all students get the same information and advice.

Please include your name, student number, course code and date