List of Reading Materials for the Course AAE-E1000 Autumn 2023

Each reference is marked either as ***[P]***re-reading for the lecture or as ***[A]***dditional material

1. **Introduction to energy systems** - Ilkka Keppo
    a. Grubler A., Johansson TB, Mundaca L et al. (2012) Chapter 1 - Energy Primer. In *Global Energy Assessment - Toward a Sustainable Future*, Cambridge University Press, Cambridge, UK and New York, NY, USA and the International Institute for Applied Systems Analysis, Laxenburg, Austria, pp. 99-150. https://iiasa.ac.at/web/home/research/Flagship-Projects/Global-Energy-Assessment/GEA_Chapter1_lowres.pdf ***[P]***
    b. Unruh G.C (2000) Understanding carbon lock-in. *Energy Policy* 28(12): 817-830. DOI: 10.1016/S0301-4215(00)00070-7 ***[A]***

2. **Industrial Energy Systems** - Henrik Holmberg
    a. Siitonen S, Tuomaala M and Ahtila P (2010) Variables affecting energy efficiency and CO2 emissions in the steel industry. *Energy Policy* 38(5). Greater China Energy: Special Section with regular papers: 2477–2485. DOI: 10.1016/j.enpol.2009.12.042. ***[A]***

3. **HVAC technology and energy in buildings** – Risto Kosonen
    a. Watch the video available under "Lecture 3" in "Lecture slides ***[P]***
    b. Go through the slides "HVAC- Technology for Healthy Buildings and Sustainable Society" under "Lecture 3" in "Lecture slides ***[P]***
    c. Hirvonen J, Heljo J, Jokisalo J, et al. (2021) Emissions and power demand in optimal energy retrofit scenarios of the Finnish building stock by 2050. *Sustainable Cities and Society* 70: 102896. DOI: 10.1016/j.scs.2021.102896. ***[A]***

4. **Transport systems and fuels** – Milos Mladenovic & Annukka Santasalo-Aarnio
    a. Santasalo-Aarnio A, Nyari J, Wojcieszyk M, et al. (2020). Application of Synthetic Renewable Methanol to Power the Future Propulsion. *SAE Technical Papers* 2020-01-2151. https://doi.org/10.4271/2020-01-2151 [available here: https://acris.aalto.fi/ws/portalfiles/portal/54829278/ENG_Santasalo_Aarmio_et_al_Application_of_Synthetic_Renewable_SAE_Technical_Papers.pdf] ***[A]***
    b. Schwanen T, Banister D and Anable J. (2012) Rethinking habits and their role in behaviour change: the case of low-carbon mobility. *Journal of Transport Geography* 24. 522-532. DOI: 10.1016/j.jtrangeo.2012.06.003. ***[A]***

5. **Thermal power plants and renewable energy sources** – Mika Järvinen

a. Gülen SC (2021) Steam Turbine—Quo Vadis? *Frontiers in Energy Research*. 8::612731. DOI: 10.3389/fenrg.2020.612731 ***[A]***

6. **Introduction to Wind Power** - Mika Järvinen
    a. Hvelplund F, Østergaard PA and Meyer NI (2017) Incentives and barriers for wind power expansion and system integration in Denmark. *Energy Policy* 107: 573–584. DOI: 10.1016/j.enpol.2017.05.009. ***[P]***

7. **Introduction to Solar Power** - Mika Järvinen
    a. Flowers ME, Smith MK, Parsekian AW, et al. (2016) Climate impacts on the cost of solar energy. *Energy Policy* 94: 264–273. DOI: 10.1016/j.enpol.2016.04.018. ***[A]***

8. **Renewables inside the power infrastructure** - John Millar
    a. Glassmire et al. 2020. Using energy storage to stabilise grids and increase revenues. *IET Conference Publications*, 2020 (CP767), pp. 484-486. https://doi.org/10.1049/oap-cired.2021.0096 ***[P]***
    b. Kachirayil et al. 2022. Reviewing local and integrated energy system models: insights into flexibility and robustness challenges. *Applied Energy* 324: 119666. https://doi.org/10.1016/j.apenergy.2022.119666 ***[A]***

9. **Energy storage and Material dependency**- Annukka Santasalo-Aarnio
    a. Dehghani-Sanija AR, Tharumalingam E, Dusseault MB et al., 2019. Study of energy storage systems and environmental challenges of batteries. *Renewable and Sustainable Energy Reviews* 104: 192–208. DOI: 10.1016/j.rser.2019.01.023. ***[A]***

10. **Energy system in transition** - Ilkka Keppo
    a. Wilson C, Grubler A, Bento N, et al. (2020) Granular technologies to accelerate decarbonization. *Science* 368(6486). American Association for the Advancement of Science: 36–39. DOI: 10.1126/science.aaz8060. ***[A]***
    b. Geels FW. (2002), Technological transitions as evolutionary reconfiguration processes: a multi-level perspective and a case-study. *Research Policy* 31(8-9): 1257-1274 https://doi.org/10.1016/S0048-7333(02)00062-8 ***[A]***

11. **Interactions between energy and other systems** – Ilkka Keppo
    a. Cronin J, Anandarajah G and Dessens O. (2018) Climate change impacts on the energy system: a review of trends and gaps. *Climatic Change* 151: 79-93. https://doi.org/10.1007/s10584-018-2265-4 ***[A]***
    b. Carley, S., Evans, T.P., Graff, M. et al. (2018) A framework for evaluating geographic disparities in energy transition vulnerability. *Nature Energy* 3:

621–627. https://doi.org/10.1038/s41560-018-0142-z ***[A]***

12. **Modelling and scenarios for the energy system – and beyond** – Ilkka Keppo
    a. Trutnevyte E, McDowall W, Tomei J, et al. (2016) Energy scenario choices: Insights from a retrospective review of UK energy futures. *Renewable and Sustainable Energy Reviews* 55: 326–337. DOI: 10.1016/j.rser.2015.10.067. ***[A]***
    b. Hall LMH and Buckley AR (2016) A review of energy systems models in the UK: Prevalent usage and categorisation. *Applied Energy* 169: 607-628. https://doi.org/10.1016/j.apenergy.2016.02.044 ***[A]***
    c. Hughes N, Strachan N, Gross R (2013) The structure of uncertainty in future low carbon pathways. *Energy Policy* 52: 45-54. https://doi.org/10.1016/j.enpol.2012.04.028 ***[A]***