Attachment: Syllabus

1. Name of the Teaching Module

Philosophy And Ethics Of Energy Development

2. Brief description of the subject matter

The development of energy technologies is linked with a more general view of natural sciences and technologies and their function in modern societies. Environmental values of contemporary European societies often seem to be in conflict with their industrial past. Exploitation of energy resources brought about an unprecedented improvement of standards of living. At the same time, the expansion of technologies for energy production and distribution also had a number of large social and environmental impacts and generated risks and unintended consequences. Today the awareness of these problems encourages search for future strategies of energy development not only in terms of new efficient technologies, but also in terms of cultural values and reorganization of social relations. This process carries along ethical challenge including various dimensions of responsibility. In contemporary world, where energy becomes an ever-present precondition for most of our activities, it is also about time to start to think about energy justice.

3. Complete SSH problems description

- The function of science and technology in modern societies; social impacts, risks and unintended consequences of technologies; citizens as users of technologies.
- Historically inherited energy infrastructures, raising environmental awareness; current political and economic uncertainties; social and cultural contexts of future energy development; renewables and nuclear energy as competing strategies.
- Application of ethics in the field of energy; energy justice and responsibility, evolving ethical and cultural values related to energy.

4. Prerequisites

There are no prerequisites except the interest for the theme. The module is intended for master and PhD students. But also bachelor students may attend.

5. Learning outcomes

a. Knowledge

Students will learn how social sciences and humanities understand the relationship between natural sciences and technologies on the one side and modern societies on the other. They will discover historical, social and cultural conditions influencing current discussions about energy transition. And they will familiarize basic terminology for gaining insights into ethical aspects of energy issues.

b. Skills

Group works and discussions will encourage students in their own exploration of social impacts of natural sciences and technologies. They will build competences to perceive social, cultural and ethical aspects of energy issues. They will be guided to reason about values lying behind energy policies and decision-making.

c. Social competencies

Group works and discussions will help students to verbalize their non-technical observations and to articulate and defend their views in communication with others.

6. Form of classes

- The module consists of three interlinked sessions. To explore thoroughly the area of energy and the public, it is recommended that the stages follow one after another connectedly or in three single days. However, each stage is optional and it is also possible to select only one separate stage without going through the others.
- Sessions combine guided lectures with interactive elements and group exercises. Sessions 1 and 3 are scheduled for 90 minutes (two teaching hours). Session 2 includes organization of the Oxford-style debate and takes 180 minutes (four teaching hours). Recommended pre-class readings and additional sources for self-study are available for each session.
- Each session is accompanied with pre-readings, which help teacher to prepare for the class. Pre-readings may also be suitable and useful for students attending the class. Teacher may assign students to read some of them before the class. Additional references to specialized literature and other sources give both teacher and students hints for expanding their knowledge in particular fields of interest.
- Optimal number of students is from 6 to 15 in the class.

7. Teaching methods

- PP presentations,
- case studies,
- group exercises,
- Oxford debate,
- class discussion,
- pictures,
- videos.

8. Detailed classes plan

Stage 1: Natural sciences, technologies and modern societies
Contents:

- modern conception of science and technology,
- modern societies and the role of scientists and technicians,
- technologies as generators of social change,
- risks and unintended consequences of technologies,
- citizens as users of technologies,
- technocratic and participative decision-making.

Stage 2: The conflict between industrial past and environmental values
Contents:

- environmental awareness and sustainable development,
- historically inherited industrial infrastructures and energy production,
- uncertainties in today's energy markets and policies,
- social and cultural contexts of energy centralization and decentralization,

- competing strategies: nuclear energy and renewables.

Stage 3: Energy and ethics
Contents:

- ethical dimension of energy issues,
- general ethics and energy ethics,
- energy projects as actions intervening in the environment and in the social relations
- responsibility concerning energy issues and its temporal dimensions
- energy justice.

Required materials & equipment

- Power Point presentation,
- computer, projector,
- flipchart or board,
- internet connection.

9.Literature and other materials

1. Natural sciences, technologies and modern societies

1.1. Beck, Ulrich. 1992. Risk Society. Towards a New Modernity. London: SAGE.
1.2. Felt, Ulrike et al. 2017. The handbook of science and technology studies. Cambridge – London: The MIT Press.

2. The conflict between industrial past and environmental values

2.1. Hvistendahl, Mara. Coal ash is more radioactive than nuclear waste. "Scientific American" December 2007. https://www. scientificamerican.com/article/coal-ash-is-more-radioactive-than-nuclear-waste/.
2.2. Mackay, David. 2009. Sustainable energy without the hot air. Cambridge: UIT Cambridge. https://www.withouthotair.com/.
2.3. Meadowcroft, James et al. 2019. Sustainability. Encyclopædia Britannica. https://www.britannica.com/science/sustainability

2.4. Morris, Craig, Arne Jungjohann. 2016. Energy democracy. Germany's Energiewende to renewables. Cham: Palgrave Macmillan.
2.5. Papaefthymiou, George, Ken Dragoon. Towards 100% renewable energy systems: Uncapping power system flexibility. "Energy Policy" 2016, Vol. 92, pp. 69–82. DOI: 10.1016/j.enpol.2016.01.025.
2.6. Piria, Raffaele et al. 2014. Greening the heartlands of coal in Europe. Insights from a Czech-German-Polish Dialogue on Energy Issues. Heinrich Böll Stiftung. https://www.boell.de/sites/default/files/greening_the_heartlands_of_coal_in_europe.pdf.
2.7. United Nations Economic Commission For Europe. 2014. The Aarhus Convention. An implementation guide. Geneva: UNESCO / UNECE. https://www.unece.org/env/pp/implementation_guide.html.

3. Energy and ethics

3.1. Kermisch, Celine. Specifying the concept of future generations for addressing issues related to high-level radioactive waste. "Science and Engineering Ethics" 2015, Vol. 22, Issue 6, pp. 1797–1811. DOI: 10.1007/s11948-015-9741-2.
3.2. Singer, Peter et al. 2018. Ethics. Encyclopædia Britannica. https://www.britannica.com/topic/ethics-philosophy.
3.3. Soutar, Iain, Cetherine Mitchell. Towards pragmatic narratives of societal engagement in the UK energy system. "Energy Research & Social Science" 2018, Vol. 35, pp. 132–139. DOI: 10.1016/j.erss.2017.10.041.
3.3. Soutar, Iain, Catherine Mitchell. Towards pragmatic narratives of societal engagement in the UK energy system. "Energy Research & Social Science" 2018, Vol. 35, pp. 132–139. DOI: 10.1016/j.erss.2017.10.041.
3.4. Sovacool, Benjamin et al. 2014. Energy Security, Equality, and Justice. London – New york: Routledge.
3.5. González-Eguino, Mikel. Energy poverty: An overview. "Renewable and Sustainable Energy Reviews" 2015, Vol. 47, pp. 377–385. DOI: 10.1016/j.rser.2015.03.013.