

## HIA – Module 3

Read the instructions and each question carefully and write your answer in the respective green box. **Remember to always cite your sources to the information you provide!** You'll find a reference box after each answer box. Please use the Harvard referencing style.

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For this assignment you are supposed to reflect and replicate what you have learned about society and energy transition. Before you start this assignment, please read the papers in the study guide as well as chapt. 3,6 and 10 of the course literature.

1. What is NIMBY and why can that be a problem when building new renewable energy sources? What hinders citizens to take action in the energy transition and what can be done to encourage citizens according to Lennon, Dunphy and Sanvicente (2019). What role do energy communities play? Write ca. 500 (+/- 20%) words.

**Answer:** NIMBY (Not In My Backyard) is an umbrella term for a wide category of local resistance behaviours against development of new infrastructure or transformations related among others to energy, industry, landscape changes etc. Of course in this context we focus on the NIMBYism against RES (renewable energy sources).

Lennon, Dunphy and Sanvicente (2019) discuss common motivations against renewable energy deployments. They point towards high local costs compared to perceived local benefits, inappropriate scale of development and limited citizen involvement in energy planning. That last point is echoed by Mulvaney (2020), citing Pasqualetti's (2011) research showing that participatory approaches including the communities in the decision process yield better results than the "decide-announce-defend" approach.

Large-scale projects, such as wind-farms create also negative side-effects such as (Lennon, Dunphy, Sanvicente 2019):

- Detriments to human health;
- Biodiversity loss, for instance due to bird collisions wind turbines (Mulvaney, 2020 citing Bernardino et al. 2018);
- Landscape degradation;
- Negative impact on tourism and property prices, though research shows that this effect can be only temporary and in the long run wind farms may have positive impact on property prices (Mulvaney 2020, citing Pasqualetti 2001);

Unfortunately in some cases, transition to renewable energy sources is disincentivized by the government, even when people are already motivated to undertake such change. We see an example in the "Sun Tax" implemented in

Spain, creating a financial burden on citizens for consuming energy from their own solar panels (Patagonia, 2021). In other cases, the institutional set up may simply not be ready yet to empower energy communities (Magnusson and Palm, 2019).

RES projects can be also opposed by indigenous people when they feel their rights or their land are not respected. Native Americans have directed several lawsuits against solar developers building infrastructure over their sacred sites and burial grounds (Mulvaney 2020 citing Mulvaney 2019). Sámi people have been fighting wind farm plans on the areas traditionally used for reindeer herding, for example in Fosen, Norway. In 2021 (after the wind farms had been completed) the Supreme Court of Norway determined these projects to indeed violate the indigenous people's rights to enjoying their culture (Amnesty International, 2025).

Speaking of wind power, a commercial wind farm project described by Lennon, Dunphy and Sanvicente (2019) as PBM 2 in their study received the worst assessment out of 6 described business models. It failed to give control to the local community or encourage participation, didn't create benefits for the community and the generated wealth left the community to be accumulated by individuals at (inter-)national levels instead (Lennon, Dunphy and Sanvicente 2019).

Lennon, Dunphy and Sanvicente (2019) emphasize the importance of local participation and ownership, perception of fairness and trust towards the leaders of change. These are crucial not only to incentivize people to work together, but also to prevent conflicts and winners-losers situations from arising in the communities. From this point of view, the traditional distinction between customers and suppliers should be challenged in favour of more inclusive consideration of stakeholders.

A common thread between successful business models was feeding the profit back to the local community, for example providing free home insulation to the financially vulnerable members or insulation upgrades in public schools and hospitals (Lennon, Dunphy, Sanvicente 2019).

Finally, Lennon, Dunphy and Sanvicente (2019) point to the paradox in the facts that 1) energy is crucial to nearly every human activity and 2) people feel alienation and lack of agency in relation to energy systems.

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2. What makes the energy transition a wicked problem according to Köppel (2024) and how can we deal with these kinds of problems, according to De Tombe (2002)? Write ca. 500 (+/- 20%) words.

**Answer:** Köppel (2024) provides 10 properties characterizing wicked problems. 5 of the proposed characteristics essentially state that wicked problems have extremely fuzzy definitions (no definitive formulation; no stopping rule; no test for solution; solutions are good-or-worse rather than true-or-false; every wicked problem is a symptom of another one). 4 properties concern the limited/not well defined methodology at our disposal (solutions are one-shot; each problem is unique; set of solutions is not described; nature of the solution depends on the interpretation of the problem). Finally, wicked problems place a huge responsibility on the planners, since the consequences of their actions will be borne by populations at regional, national or even continental level.

The statement that every wicked problem is a symptom of another problem (#7 in the list presented by Köppel, 2024) is interesting when taken to its logical conclusion. It implies that going up the chain of problems (that is, from symptoms to the underlying problems), we either 1) end up in a non-wicked

problem, or 2) we find a circular dependency of wicked problems. Since option (1) is self-contradictory (because if a wicked problem was only a symptom of non-wicked problem, then it could be solved by resolving the underlying problem, which has a well-defined solution by the virtue of not being wicked), we are left with option (2). For example we can observe such circular causation between global warming and increased use of AC, in turn contributing more carbon emissions. The example provided by Köppel (2024) is the pair of problems: 1) adoption of small modular nuclear reactors and 2) management of nuclear waste.

To elaborate on another point, Köppel (2024) gives an example of how the interpretation of the problem determines the nature of the resolution: in 2011, Germany introduced an absolute upper limit on subsidized PV capacities of 52 GW. Amnesty International (2025) shows how indigenous people's rights were neglected due to treating energy transformation solely as environmental problem and not paying enough attention to the social dimension.

Let us now move to De Tombe's (2002) characterization of Complex Social Problems (CSP). While there is a large overlap between CSP and wicked problems, CSPs also emphasize political agendas, emotions, and variety of cultural traditions at play. De Tombe (2002) also points out that the group of actors working against the problem often changes during the process.

De Tombe (2002, citing De Tombe, 1994) proposes a 6-step COMPRAM method of dealing with CSPs, intended to be democratic, transparent and structured. According to this framework, the process should take 6 to 12 months, involve diverse teams and engage all actors from the very beginning. The 6 steps of COMPRAM are: 1) analyze and describe the problem by a team of neutral content experts; 2) analyze and describe the problem by different teams of actors; 3) find interventions by experts and actors together; 4) anticipate the societal reactions; 5) implement the interventions; 6) evaluate the changes. The problem is approached at 7 layers, split between 3 normal verbal language layers, 3 visual mental model layers, and mathematical language model layer (De Tombe, 2002).

Finally, De Tombe (2002) makes two important linguistic remarks. First, COMPRAM should be considered a framework, meaning that it is a high-level approach but the exact methodology must be determined separately for each scenario. The second, perhaps more important, note is to avoid the term "problem solving" when talking about CSP, because problems of this class rarely get completely resolved. Instead, De Tombe (2002) suggests to speak of "changing" the problem.

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4. After what you have learned in Module 3, what do you think is society's role in sustainable energy transition. You are asked to give your own opinion. You are of course allowed to refer to the course literature to strengthen your arguments and perspectives. Write ca. 500 (+/- 20%) words.

**Answer:** I will begin my answer by emphasizing that when discussing the role of society in sustainable energy transition, we should recognize the responsibility of the developed countries, whose unhindered growth through the industrial age has both (in varying degrees depending on the country) placed them in more privileged position to lead the change now, and contributed large historical emissions (Kurzgesagt, 2020).

The society's role in sustainable energy transition has multiple dimensions:

1. pressure on the policymakers
2. consumption patterns
3. energy communities

#### **Pressure on the policymakers**

One example of grassroots movements shaping the country-level politics on energy transformation is the anti-nuclear movement in Germany (Hockenos, 2012). The first protests broke out in 1970s in reaction to planned nuclear plant construction in a small village of Wyhl, where wine farmers joined forces with activists in civil disobedience. Their success in stopping the construction helped grow and inspire the movement and the today's Green Party in Germany carries their legacy in advocating for renewable energy instead of atom (Hockenos, 2012). The same approach is adopted by the Greens in some other EU states, for example Sweden (Miljöpartiet, 2025) and Poland (Partia Zieloni, 2025).

Another example is a group of elderly activists "Senior Women for Climate Protection" who sued the state of Switzerland in the European Court of Human Rights for not implementing sufficient climate policies, and won (Jorio, 2024).

## Consumption patterns

While consumption patterns don't drive the transition, they can help reduce the energy demand, which in turns makes the transition goals more realistic. This is especially true in transportation, where the share of renewable energy is still low: 33.6% in Sweden according to Eurostat (2024). BBC (2019) reported that a drop in the number of passengers at the biggest Swedish airports by 8% was believed to be caused by the "flygskam" movement.

## Energy communities

Finally, let us discuss the role of energy communities. A great source to read about successful energy community transitions is the website of REScoop, the European federation of energy communities.

For instance, a cultural community centre in Budapest gave birth to an EC based on a 60 kW rooftop solar plant. This happened in a challenging circumstances, where government heavily subsidizes private solar panels and traditional energy consumption, making it difficult to defend a collective democratic ownership model (REScoop, 2025).

Another story comes from my home country of Poland. Łądek Energy Cooperative established in the spa town of Łądek-Zdrój has built a 1MW solar farm to power municipal buildings and streetlights and decided to open membership to town's citizens (REScoop, 2024). Poland is one of the major adopters of solar energy in Europe, having surpassed 1M private installations in 2022 (Biernaciak, 2023). Unfortunately the clear demand for this technology hasn't translated to a growth of energy communities yet. Two reasons cited by REScoop (2024) are 1) distrust towards cooperatives due to historical association with communist regime and more importantly 2) legal landscape that prevents energy cooperatives from selling their surplus production and from being established in urban areas. A better legal framework would empower RECs to decarbonise the country's electricity, which is currently sourced 60% from coal (IEA, 2024).

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**AI  
Declaration:**

I did not use any generative AI tools.