MINUTES — EMP-E 2019 Focus group: WEF nexus in energy models - the case of biofuel

Date and time: 9 October 2019, 9:30-11:15h - Focus Group, Parallel Session 1C

Event and place: Energy Modelling Platform for Europe (EMP-E); EC–DG Research & Innovation, CDMA Building, 21 Rue du champ de Mars, 1050 Brussels

Format of the workshop: Presentation and group discussion

Participants: 11

Objective:

This session aims at a critical examination of the uncertainties, trade-offs and controversies surrounding the role of biofuels in decarbonization objectives using a biophysical perspective based on the water-energy-food-land-climate nexus. The discussion will be informed by the results of the Horizon2020 research project MAGIC – Moving to Adaptive Governance in Complexity: Informing Nexus Security.
The following specific concerns will be addressed:

- To what extent do biofuels contribute to sustainability (e.g. GHG savings, pressures on land), security of supply and market competitiveness -locally and globally-?
- Is the long-term commitment to biofuels encouraging potentially dangerous loopholes (e.g. favor some unsustainable second-generation biofuels)?
- Do advanced biofuels represent a reliable net energy supply for the future (considering the current and future costs and scalability)?

Expected outcomes:

* Identification of common problems and challenges in modelling the role of biofuels in EU energy policy; evaluating the added value of the WEF-nexus approach.
* Maintaining an open and informed deliberation about the uncertainties and trade-offs inherent in EU policies and related technological innovations in order to guarantee the quality and fairness of the process of decision-making.

Format:

Given the lower than expected turnout, a single group discussion was held instead of using a world café format. Mario Giampietro gave a 15 minutes presentation to prime the discussion presenting results from the MAGIC project: a historical introduction of the topic, discussing the implications of double accounting, the contribution of advanced biofuels introduced by the latest directive, and following, more detailed results questioning the viability, feasibility and desirability of first, second and third biofuel generations. The presentation was followed by a guided discussion.

Main outcomes of the discussion:

The contributions received from participants in relation to the three questions are listed below.

- To what extent do biofuels contribute to sustainability (e.g. GHG savings, pressures on land), security of supply and market competitiveness -locally and globally-?

  -Biofuels cannot contribute to large-scale sustainability, perhaps we have to accept to reduce the requirement of liquid fuels for transportation (e.g. number of personal cars on the road);
  -Large-scale agro-biofuels will likely inevitably mean monocultures, this will be a huge impact on biodiversity;
  -Do algal biofuels work? Why not turn algal blooms to energy? The discussion centered around the fact that it is not a good idea to have large-scale energy systems based on concentrated biological systems. Algal blooms are created because of nitrogen run-offs from agriculture. It is not good to depend on something that should not exist in the first place. Algae is also 90% water, so it is not a good starting point to produce energy carriers;
  -However, we should not be too negative. Biofuels are not a black and white issue. They can work in certain areas and be effective in specific niches. It is a question of scale.
  -Importance of framing or glossary around the quantification of biofuels. For example, how can waste-based biofuels be valued? Are they valuable in the avoided cost of waste treatment (rather than a free, carbon-neutral energy)?
  - Cost of collection of wastes such as straw or used cooking oil is a big constraint
  - Clear metrics, how to account for emissions, upstream processes and the value of waste for wasted-based biofuels?
  - We always see that with high RES deployment, there is a huge pressure on land and impact on biodiversity. Particularly for solid biofuels.
  - Two energy modelers commented that in their team engineers and economists alike share the opinion that biofuels are not very promising, reason why biofuels tend to be ignored in their models.

- Is the long-term commitment to biofuels encouraging potentially dangerous loopholes (e.g. favor some unsustainable second-generation biofuels)?

  - In Italy, there is a push to use the current gas infrastructure for renewable energy (particularly biogas). However, there are examples of people removing pigs from their pig farm because due to subsidies it's cheaper to BUY the feedstock for biogas than use the manure for biogas while producing meat. This is an example of how policy incentives can create odd situations.

  - How to anticipate problems with policy instruments? Should we adopt biophysical accounting to look at what actually is happening in relation to multi-scale constraints?

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- There could be better interaction between energy modelers and policy-makers to actually test out the policy instruments. Energy modelers want examples of policy instruments to be tested, policy-makers want these tested before they fail.

-It is important for biophysical and economic analysis to be integrated in order to complement the information they generate. Not all things can be valued economically, not all processes have an economic relevance. Purely economic thinking is what can create dangerous loopholes in policy.

- Do advanced biofuels represent a reliable net energy supply for the future (considering the current and future costs and scalability)?

- Both for energy modelers and for economic modelers, biofuels are often the last options to be considered and they play a small role in energy scenarios. It is clear they are only a small part of the solution;
- Advanced biofuels are still at a very early-stage. Very few commercial productions around the world, only maybe 2 commercial suppliers of advanced biofuels in Europe? (this refers to the cases the participants were aware of).