Recommendations on how to integrate environmental requirements when developing energy crops projects

Findings from a LogistEC workshop on 2 December 2014

The LogistEC project supported by FP7 aims to develop new or improved technologies of the biomass logistics chains. Cost-efficient, environmental-friendly and socially sustainable biomass supply chains are needed to achieve the 2020 EU RES targets. Energy policy will generate high demand for solid biomass and energy crops will participate to additional solid biomass supply. Lignocellulosic energy crops (short rotation coppice, annual and multi-annual crops, perennial grasses) have now reached about 100 000 ha in Europe but their development is stagnating. Still, the new EU Common Agricultural Policy (CAP) offers opportunities to develop lignocellulosic energy crops.

The workshop organized by AEBIOM in the framework of the LogistEC project on 2 December 2014 focused on environmental impacts of energy crops. In order to avoid replicating discussions on biofuels and Indirect Land Use Change (ILUC) and food competition, environmental criteria should be integrated when developing bio-based projects.

A list of recommended actions has been established by the participants of the workshop (NGOs, research institutes, projects developers, policy makers, etc.).

Land Use

What type of land should be used?

- While NGOs recommend that only a restricted selection of land should be available for energy crops (recently abandoned crop land, recently abandoned grassland, fallow land in agricultural rotation, other underutilized land but not permanent grassland and suitable contaminated sites[1]), project

[1] *Space for energy crops – assessing the potential contribution to Europe's energy future*, Allen B, Kretschmer B, Baldock, D, Menadue H, Nanni S and Tucker G (2014).

developers emphasize on the need to increase available land at disposal for energy crops that contribute to the double objective of decreasing GHG emissions and providing local energy. Other land uses (greening, urbanisation, grassland for horses, golf, etc) could also be optimized, together with energy crops lands , to tackle the issue of land availability.

Also, environmentalists underline that arable crops and high biodiversity grasslands should be avoided for growing energy crops. A ghilql lr q r i klj ko elr gl huwh j udvvodqg kdv ilqdqfh ehhq published by the European Commission (find it HERE).

- The **multifunctional aspect** of energy crop should be maximized. In fact, energy crops can have positive impacts on soil erosion, biodiversity, water quality, pollination, etc. It can also be used as protection against flood or to depollute soils. Inter-cropping or agroforestry systems should be promoted.
- For all these proposals, a **local approach** might be preferred, to make sure all local characteristics and environmental considerations are taken into account when making the decision.

Do we need further studies on land potential?

Many studies on land potential in the EU already exist, with very different results depending on initial assumptions, modeling characteristics, etc. The limitation of these studies is recognized and a more local approach, taking into account the specificities and needs of the region, should be favored when it comes to assessing land potential in a specific region.

Crop Management

How to select the relevant species?

The choice of the species should be carefully analyzed. Each species has its own specificities when it comes to water use, CO_2 emissions, biodiversity or soil requirements. A comprehensive analysis of the local specificities and needs (climatic conditions, geography, quality of soils, adjacent and already existing plantations, etc.) would maximize the positive impact of the crop on its environment.

Do we need to ban non-indigenous species?

While environmentalists claim that only indigenous species should be allowed (we already see that in order r ehqhil iur p kh FDS v Hfr fo jlfdol r f v Duhd Hl D, v ssr u r qo lqglj hqr v vshflhv fdq eh grown), project developers called for a more pragmatic and less restrictive approach, not limiting plant breeding. In fact, a wider selection of species offers greater opportunities to adapt plants to our needs (e.g. frost tolerance, disease tolerance, higher yields, better quality, etc.).

Do we need to ban fertilizers and plant protection products (PPP)?

It is very difficult to grow energy crops without fertilizers and PPP. In fact, without fertilizers, yields are lower and threaten the economic and technical viability of the projects. In addition, weed control is much more complicated without PPP.

Instead of banning fertilizers and PPP, we should promote the use of organic fertilizers, grow plants that are less demanding or promote integrated and precision farming practices.

End Use (heat, electricity, CHP, bio-products)

Do we need to regulate the end use of energy crops to maximize CO_2 emissions reduction?

Energy crops have different environmental impacts depending on the use that is done of it. However, it is very difficult to regulate and impose a specific use for energy crops. A well-functioning market should be the regulator, taking into account local and sectorial needs and specificities.

Still, project developers should, as far as possible, take into account energy efficiency and conversion rates standards, as well as CO_2 emissions when designing energy crops projects.

Conclusion

The main outcome of the workshop is that energy crops can have positive impacts on the environment if projects take into account local specificities and needs. And project developers are keen on taking these environmental considerations into account when developing projects.

However, if one goes in line with too idealistic environmental concerns, and many restrictions are applied, it will limit the development of the potential market, economically and environmentally oriented.

Forces should be joined instead of opposing. Support to project developers to help them integrate environmental considerations into their projects should be promoted.

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