

Position Paper: Renewable energy

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Description

Energy sources that will be (virtually) available for an unlimited period of time are generally described as sustainable or renewable energy sources (RES). With the worldwide increasing attention for the climate issue and the wish to reduce CO₂-emissions, RES become more and more the focus of attention to the prejudice of fossil fuels, whose world reserves are by the way limited.

We mainly distinguish the following renewable energy sources:

- **Solar energy**
The sun is in fact a huge nuclear fusion reactor which will on estimate produce energy for another 5 billion years. Its radiation can be transformed in different ways into energy that is usable by human kind (solar panels, collectors ...). About 0,01% of the solar radiation that reaches the earth is sufficient to provide everyone with energy, solar energy has thus an enormous potential.
- **Wind energy**
Wind can be transformed into mechanical energy or electricity by means of mills or turbines. The output is, of course, dependant on the wind speed, and that is the reason why not all places are suitable for wind farms. More and more, turbines are placed in the open sea (*offshore*), where they often reach a higher efficiency.
- **Biomassa**
Plants, plant waste, fats and oils of vegetal or animal origin are used world widely as or transformed into usable fuels for heating, electricity production or in combustion engines. The CO₂ released during their combustion is absorbed from the atmosphere by the plants during their growing process. In order to avoid competition with food supply, non edible raw materials are used still more often. Some raw materials that are used in the production of biofuels are moreover also raw materials used for certain industrial processes, causing sometimes their prices to rise strongly. For the future development of biofuels, large surfaces of farming-land are required, which are not available everywhere. Plants with a larger energy potential are also in development.
- **Water and tidal energy**
Water can be used as an energy source in different forms:
 - Geothermic energy from warm water layers (or cold water for cooling);
 - Hydraulic plants on rivers and/or reservoirs, where energy is transformed into electricity out of water discharge;
 - Tidal energy, where streams at low tide and high tide are used in order to produce electricity.
- **Nuclear fusion**
In nuclear fusion, light atomic nuclei (eg. hydrogen isotopes deuterium and tritium) are transformed into even heavier ones (eg. helium). Lots of quantities of energy are thus released. This technology is still in an experimental phase. It is not determined yet whether nuclear fusion can be considered as a sustainable energy source or not.

Objectives of Febeliec

Febeliec fully supports the development of renewable energy sources for different reasons:

- To the extent that the energy can be produced in Europe, it reduces the energy dependency of our continent on the exporting countries of fossil and nuclear fuels; Europe does not have sufficient own reserves in order to satisfy her own demand;
- In time, we will need to seek alternatives for fossil fuels, whose world reserves are limited;
- RES produce energy without CO₂-emissions and contribute in this way to climate policy.

Febeliec insists, however, on a balanced policy concerning SER and the choice of primary fuels, which take each of the three “E” into account in an optimal way:

- *Energy*: does the energy source contribute to the security of supply? Indeed, intermittent sources such as wind and solar energy are not always available, and therefore need to be completed by the required back-up capacity from other sources or by the development of storage. The industry has, moreover, a specific need for base load capacity, which is available at all times, in order to be able to use its installations in an optimal way.
- *Economy*: the energy price is of crucial importance for the industry. For the moment SER have (with a few exceptions) a higher system cost than the classic energy sources. The industry therefore insists that the impact of higher costs of SER be limited in order not to jeopardize its competitive position.
- *Environment*: Just like for all energy sources, the entire life cycle of SER must be taken into account when judging their impact on the environment. The production of energy from SER is indeed CO₂ neutral, but other elements can still play a role in their life cycle, such as
 - the environmental impact (including the CO₂-emissions) in the production phase of the SER installations and the fuels;
 - the impact on town and country planning (cfr. the NIMBY-syndrome or the Not In My BackYard syndrome);
 - the impact of possible backup installations;
 - ...

For biomass specifically, Febeliec pleads moreover for a clear hierarchy in the use of materials: food supply is prior to the use of raw materials, which in its turn is prior to energy valorization (scale of Lansink).

Finally, Febeliec insists that the necessary attention be paid to Research and Development in SER and storage. Actually, technologies that are not yet competitive enough, are still brought onto the market by means of large subsidies. This leads not only to notable surcharges for the energy consumer, but it reduces moreover the incentive to do additional research in order to further develop the technology and make it competitive, compared to the other classic energy sources. Febeliec asks the authorities to orient its support for those technologies especially on R&D, and less on production.