

BEE Statement

on “*an EU strategy for smart sector integration*” by the
European Commission

Berlin, 3rd June 2020



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1. What would be the main features of a truly integrated energy system to enable a climate neutral future? Where do you see benefits or synergies? Where do you see the biggest energy efficiency and cost-efficiency potential through system integration?

The smart sector integration strategy provides the chance to be the much-needed roadmap for an integrated energy system for a climate-neutral Europe. Core element of an integrated energy system fit for a climate neutral future is an energy supply based on 100% renewable energies in all end-use sectors. Such an energy system will be much more decentralised and building on much more distributed supply and demand, including a large number of active customers, individuals and businesses, prosumers who produce and use energy from their own premises. Their making use of power and gas grids, storage and demand response will be very different from the old and centralised system mainly based on big and widely inflexible power plants. The energy system of the future will be more electrified than today, but it will also include heating and cooling grids fed by direct solar thermal or geothermal heat. Renewable gas and hydrogen will be part of the gas grid and interacting technically and economically with the power grids and building on much deeper digitalisation. Strategies against the background of sector coupling or sector integration must be able to map this decentralization pathway and combine it in a smart system.

Other important features are flexible generation and consumption of electricity, a link of relevant markets and sectors and the direct use of electricity in all end-use-sectors where its physically and efficiently possible. Furthermore, in a truly integrated energy system direct or indirect subsidies or other financial support will be aligned with the CO₂-emissions and other hazardous impact of the respective energy carrier. Major benefits lay in raising cost efficiency, because of the direct use of electricity and higher grid stability because of battery electric vehicles, heatpumps e.g. being used as storage devices. Main features of the energy markets of EU member states are still based on and following the logic of fossil and nuclear oriented widely centralised and inflexible energy supply. The EU lacks a regulatory framework to effectively develop the single European energy market and systematic. So far, there is no comprehensive system of regulations and incentives to stimulate rapid growth towards dominant shares of renewable energies in all end-use sectors. The smart sector integration strategy must define an integrated strategy and an enabling roadmap for enhancing the legal framework to achieve a more resilient, efficient, safe, secure and competitive energy system and thus to strengthen the economic and industrial competitiveness at all levels.

2. What are the main barriers to energy system integration that would require to be addressed in your view?

Main barriers for sector integration in a renewable energies-based system are the still existing direct and indirect subsidy schemes for fossil and nuclear energy. Effective carbon pricing and implementing the polluter-pays principle would facilitate a much faster uptake and effective and efficient integration of different renewable energy sources in a smart system. It needs to be avoided to financially reward or support fossil and nuclear energy while supporting to increase the renewable energies at the same time. It is necessary to evaluate any policy measures beforehand on whether the impact would lead to fossil fuel lock-in. Furthermore, the current EU-ETS does not yet provide a sufficient high cost level to stimulate electricity produced from renewable energies being used in all end-use sectors. Therefore, a minimum CO₂-price and a more ambitious reduction target should be addressed by the smart sector integration strategy. Furthermore, inflexible baseload power plants are hampering system stability and reliability as well as market functioning through negative pricing and are therefore disturbing and delaying the development of a smart and flexible energy system driven by renewable energies.

- **How could electricity drive increased decarbonisation in other sectors? In which other sectors do you see a key role for electricity use? What role should electrification play in the integrated energy system?**

Renewable electricity is the key to decarbonizing our energy system. Electricity should be used directly to decarbonize other sectors, which is widely the most efficient way with little conversion losses only, for example in the heating sector heat pumps or wind-based power-to-heat solutions are very effective. However, some processes cannot be decarbonized by using electricity only, e.g. due to the need for high energy densities. These applications could be decarbonized using green hydrogen, produced from renewable electricity. The development of renewable energies and the installation of renewable energy capacities need to be increased significantly – to produce enough green electricity for all the electrified end-uses and for the production of green hydrogen and synthetic fuels and gases.

To avoid a carbon lock-in it is key to synchronize the ramp-up of the European hydrogen market to the development of renewable energy capacity. This is necessary to avoid unnecessarily continued and increased demand for fossil or decarbonized fossil gas, assets locked-in are likely and subsidy schemes or programmes could be diverted to conventional energies (fossil/nuclear) instead of renewable energies.

- **What role should renewable gases play in the integrated energy system?**

Renewable gases such as green hydrogen, biogas, biomethane and synthetic fuels, play a central role in building a European energy market while creating jobs and realizing CO₂ reductions not only in the electricity sector but in the heating, mobility and industry sector. They can be used for end-uses and processes with high temperature needs and for completing variable renewable energy supply and storage. A combination of gas grid solutions like injecting both biomethane and hydrogen into the gas grid and off grid solutions is needed to fully decarbonise the energy system. Renewable gases can store and transport energy over time, they can be used to meet seasonal and peak demands, and thus can be used to maximise the integration

of intermittent renewable electricity by means of efficient hybrid appliances such as hybrid heat pumps or power-to-gas facilities.

- **What measures should be taken to promote decarbonised gases?**

There must be a long-term vision for the role of renewable gases in the European energy system. It is especially important to agree on a clear definition of renewable hydrogen in the smart sector integration strategy. Only green hydrogen should be considered and promoted in the smart sector integration strategy. Therefore, analysing and transparently advertising the different carbon footprint of hydrogen production must be part of the criteria as well. Transparent sustainability criteria enable the customers to make conscious decisions and set the framework for further development of the hydrogen market and further industries. There is also a need for a definition of renewable gases. In our opinion it would make sense to divide renewable gases in two categories: Gases that are climate-friendly and gases that are not climate-friendly. Climate-friendly gases should be defined as biogas, biomethane or other biogenous gases and electricity-based gases like green hydrogen and synthetic gases won from renewable sources like biomass or direct air capture. All gaseous hydrocarbons won from fossil-based carbon or blue hydrogen should be defined as “not climate-friendly”. Harmonized technical standards, including blending rules, will be needed to prepare for a future use of parts of the existing gas infrastructure.

- **What role should hydrogen play and how its development and deployment could be supported by the EU?**

Sustainability criteria are mandatory to enable the development of a transparent and sustainable hydrogen market. These criteria should ensure that green hydrogen is always produced using renewable energy and that electrolyzers using renewable power contribute to a secure and efficient energy system. As a flexible electricity consumer, electrolyzers should only start hydrogen production when a high share of renewable energies is available and in a way that supports the stability of the energy systems by contributing flexibility to balance electricity production and demand.

- **How could circular economy and the use of waste heat and other waste resources play a greater role in the integrated energy system? What concrete actions would you suggest to achieve this?**

Waste biomass from agricultural waste and residues, municipal waste, animal by-products and forestry waste and residues is an important source of biogas / biomethane production with significant greenhouse gas savings. The Smart Sector Integration Strategy should provide policy on sustainable products to integrate these in terms of intelligent sector coupling. The EU Commission must oblige Member States to comply with the European objectives for waste separation and recycling. The EU legislation should also promote the use of digestates as organic fertilizers because recycling of essential nutrients contributes to a circular economy.



- **How can energy markets contribute to a more integrated energy system?**

Future energy markets must be driven and guided by the flexibility needs of the future energy system. They must be focused around variable renewable energy and aim at providing incentives to grow renewable energy capacities and thus contribute to the integration of various renewable energy sources in an integrated energy system across all end-uses. Non-discriminatory grid access and unbundling requirements need to remain and applied also stringently to hydrogen production and the ownership and operation of electrolysers. A smart combination of electricity and renewable gases seems the most effective way to achieve a climate neutral energy system.

- **How can cost-efficient use and development of energy infrastructure and digitalisation enable an integration of the energy system?**

Sector coupling is the next phase of the energy transition and smart digitization is a key element to successfully implement it. Since generation, consumption, storage and operation of energy networks must be combined in a resilient and efficient system approach, the digital link between all components is indispensable. Cost-efficient use and development of energy infrastructure and digitalisation holds high potential for new actors, especially in the fields of renewable energies. Fluctuating and decentralized energy generation in an integrated energy system can be brought together with fluctuating consumption through new concepts and business models based on digitization and artificial intelligence.

3. What policy actions and legislative measures could the Commission take to foster an integration of the energy system?

In the German context, we identified a lot of barriers which hold back the necessary sector coupling. Thus, the design of a forward-looking and practical regulatory framework for sector coupling is an important task for legislators and the regulatory authorities on national and EU level. The smart sector integration strategy therefore should focus on the following regulatory actions.

- Ensure a level-playing field for all actors from the renewable energies industry i.a. through clear unbundling rules.
- Removing legal and administrative barriers for renewable gases and creating a long-term vision for the role of renewable gases in the European Energy System.
- Establishing a European legal framework, harmonised with national legislation, to economically enable the production and transport of green hydrogen to kick-start sector coupling and hydrogen markets.
- Establishing a European legal framework, harmonised with national legislation to encourage and facilitate integrated renewable energy applications, such as virtual power plants, and decentralised and region wide energy sharing.
- Creating a level playing field for renewable gas- and electricity-based solutions. Renewable gases and electricity will interact with and complement each other.
- Synchronise an ambitious increase of renewable generation capacity in accordance with the 1,5-degree goal of the Paris climate agreement and the hydrogen market framework to avoid fossil fuel or decarbonised fossil gas lock-in.
- Establish a European fixed minimum price per tonne of CO₂ and extend and apply meaningful carbon pricing to all end-use sectors to factor in the real costs of the respective energy carrier. This will stimulate the use of renewable energies in all end-use sectors and therefore foster an integration of the energy system.

As German umbrella association for the renewable energy sector, the German Renewable Energy Federation (BEE) bundles the interests of 55 specialised associations and companies. We connect the wind, bio, solar, geothermal and hydropower sector with each other. That way, we represent 30,000 individual members, among them more than 5,000 companies, 316,000 jobs and more than 3 million power plant operators.

Our goal: 100 percent renewable energy in electricity, heating and transportation.

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