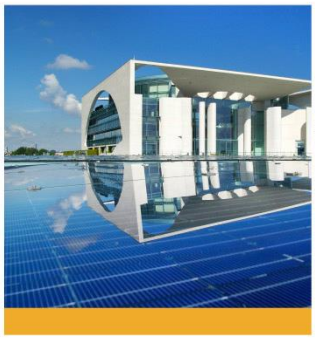
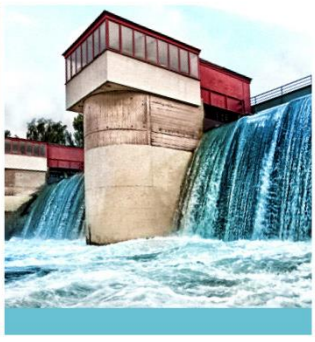
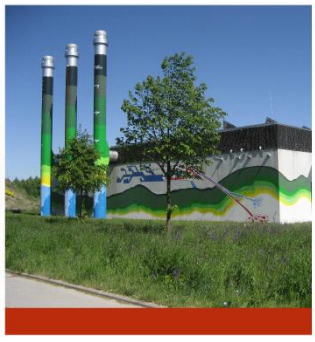
BEE
German Renewable Energy Federation

Background paper

on the BEE's statement to the EU's long-term green-house gas emission reduction strategy

Berlin, 8th October 2018



Renewable Energy: key driver for fully decarbonizing the energy sector by 2050

1. Benefits of a fast and complete transition to renewable energy

Accelerating the transition **towards an energy system fully based on renewables and efficiency** is the most promising way to comply with the Paris Climate Agreement. A long-term decarbonization strategy needs to have ambitious targets at its core, underpinned by linear trajectories and supported by enabling policies and measures to achieve the required emission reduction targets of the Paris Agreement. Striving to achieve a 100% renewable energy system as soon as possible should be facilitated by binding and detailed trajectories, **including a rapid phase-out of subsidies for fossil and nuclear energy**. A meaningful **price on carbon** and other greenhouse gases as well as other toxic and pollutant substances should be set as soon as possible.

Renewable energy will be the main driver for decarbonizing the energy system, and at the same time they offer huge opportunities for modernising the economy through the development of an innovative and future-oriented industry and the creation of more than a million jobs in Europe alone. After rapid cost and price decreases, **renewable energy technologies are the most cost-efficient option** for newly installed generation capacity and they will **drive up innovation of industrial processes, enhancing the competitiveness** of Europe's economy. By reducing import dependencies, domestic renewables can minimize exposure to price volatility of imported commodities and improve security of supply. This strengthens the resilience of the energy system and the economy as a whole. An ambitious and clear transition to a renewables-based system will drive innovations, maintaining the EUs position in **technology leadership** and providing new export opportunities.

A rapid shift towards a renewables-based energy supply will significantly improve quality of life by increasing air quality, reducing indoor pollution and reducing adaption costs of climate change impacts. **Renewables driven electromobility** can significantly reduce pollution and noise in urban areas. The shift also provides chances for more **participation of citizens in production and consumption of energy**. Energy communities and prosumers will be a strong part of the future energy system based on renewables and efficiency.

2. Policies for an ambitious and unambiguous transition

Ambitious policies need to set out and implement clear and unambiguous targets. There is no one-size-fits-all tool for the energy transition, but there are some **principles which can help accelerate the shift towards a clean energy system** – always adapted to specific local and regional conditions.

- Policies and measures should be developed to implement agreed targets, including early and relevant milestones. Phasing out unsustainable energy sources and **increasing the shares of renewables and energy efficient** are no-regret options.

- **Renewable energies are widely cost competitive. A meaningful CO2 price** – accounting for the external costs of fossil energy – as well as **adaptations in the tax- and fees-system** will help to bring the benefits of renewables to household and industrial consumers while creating business cases for renewable energy producers and to facilitate an increased use of renewable energy in other sectors.
- Further **adaptions of market rules** and technical standards to the requirements of an increasingly variable renewables-based energy system, e.g. by enabling real time trade, and the reduction of inflexible must-run capacities will increase opportunities for renewables to participate in all energy market segments and to provide further system services, including i. a. balancing, secondary reserves, voltage control. As long as there is no level playing field, priority for renewables including last curtailment regulations will need to be maintained to enable further market penetration of clean energy sources.
- Facilitating **market development for storage and flexibility services from e.g. demand response and sector coupling** will be further key elements for fully market and system integrated renewable energies providing system security and security of supply.
- **Coupling of different end-use sectors**, technically and by developing common markets, will accelerate the development and deployment of renewable energy across the board. Increasing flexibility within and between the sectors, technically and by adapting market design will strongly support sector coupling and a more efficient energy production and consumption.
- **Electrification** of end-use sectors, such as transport and heating and cooling with renewable energy will reduce direct pollution from combustion engines as well as noise from conventional machines and vehicles. The resulting increased demand for electricity will be another driver for more efficient sector coupling.
- Developing and establishing **innovative solutions**, e.g. storage options, power-to-x, smarter grids for electricity and/or heating and cooling supply, will be another central part of a flexible, secure and cost- and resource-efficient energy system based on renewables.
- **Digitalization** can play an important role e.g. in optimizing industrial and operational processes for further increase of efficiency and cost reductions. By forecasting and matching supply and demand for innovative marketing options, system flexibility, security of supply, as well as working conditions can be improved.
- The **energy demand of buildings** should be drastically reduced with the objective of achieving net-zero-energy balance of new buildings and **plus-energy buildings** as the standard in the next few years. For the building stock, efficiency increase, and renewables use should be triggered through incentives for higher refurbishment rates and through the obligation to include renewable energy applications wherever reasonably feasible.
- **There should be timely decisions on a swift and structured phase-out of coal with a clear date** to reduce uncertainty for potentially affected stakeholders, to reduce inflexible must-run-capacities and to provide the highest possible degree of reliability for investment decisions for the clean energy future. This will enable a better organisation

of the necessary structural change flanked by measures such as capacity building, new industry development and financial support where necessary.

- For the use of **biomass and biogas,** it is important to **implement existing sustainability requirements** as enshrined in the Renewable Energies Directive and to further develop them according to recent research. In which sectors and to which extent biomass should be used, depends on policy decisions about the energy mix based on clear rules and objectives. The impact on greenhouse gas reduction for the entire energy system should be an important criterion. A meaningful price on carbon would be useful to let the market decide where and when it is used. There should also be incentives to enhance flexibility of bioenergy production in den electricity sector. This would result in considerable higher back-up-capacities from renewables for wind and solar energy production.
- **Dedicated research and development policies** are essential for innovations that enable a CO2-neutral, competitive and future-oriented energy system and economy. R&D should not only address single innovative technologies but encompass the combined utilization of cross-sectoral integrated holistic solutions. Innovative energy storage technologies are of particular importance combined with smart grids as well as off-grid solutions for deeper electrification of transportation, as well as industrial processes and the building sector. Digitalisation should be a central part of R&D policies as it can play a major role in exploiting innovation potentials (see above). Further R&D is also needed i. a. on materials and recycling technologies to enhance the circular economy approach as well as on solutions for improved grid integration.

3. Outlook

The replacement of all polluting fuels with renewable and efficient energy should be the highest priority. A mix of different renewable sources is available and provides a solid basis for an affordable and clean energy supply in Europe and beyond. A carbon price, the broader applied the better, including all end use sectors would be instrumental for driving climate protection and innovative industry, environmental benefits and positive health impacts in a market-based manner. An energy market design driven by flexibility would enhance this impact, facilitating corporate power purchase agreements as well as energy communities and private and industrial self-generation and -consumption across Europe. Generally, the consent of citizens, local value creation and education will remain to be the key factors for a successful decarbonization of the energy system and the wider economy.

Europe's clear and unambiguous commitment to an ambitious pathway towards a full decarbonization of the energy sector – away from fossil fuels towards a fully renewables-based system – is a precondition for achieving the necessary transition across all end-use sectors

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