Denmark needs a clear and ambitious energy and climate policy in order to achieve the long-term goal of becoming a low-emissions society based on renewable energy by 2050.

Summary

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Denmark needs a clear and ambitious energy and climate policy in order to achieve the long-term goal of becoming a low-emissions society based on renewable energy by 2050. Therefore, the Energy Commission recommends a paradigm shift in energy policy, where focus is on an international perspective, increased electrification and on developing efficient market-based solutions.

Denmark needs an ambitious energy and climate policy after 2020, when progress towards the goal of transition to a low-emissions society based on renewable energy by 2050 is to be realised. At present, the share of renewable energy in final energy consumption is approx. 30 per cent, and thus fossil fuels still cover a substantial amount of energy consumption in Denmark. It is crucial that energy and climate policy development after 2020 takes the 2050 perspective into account. Denmark needs a clear and ambitious policy to set the right course for achieving the long-term goal in an intelligent way that at the same time ensures growth and employment.

The Energy Commission considers the Danish Government's objective of at least 50 per cent renewable energy by 2030 as a stepping-stone towards the 2050 goal. In the assessment of the Energy Commission it is not feasible, nor would it be rational, today to set a rigid route towards 2030. Moreover, in order to achieve the objective, it is absolutely crucial that the energy policy includes a cost-effective combination of energy-efficiency improvements, renewable energy deployment and electrification of the energy system. In the assessment of the Energy Commission, the costs of reaching the target of 50 per cent renewable energy are manageable for Denmark, provided Denmark can succeed in continuously reducing the need for subsidies for renewable energy deployment, and in the long term making the development market-driven.

In order to ensure an effecitive implementation of the transition to a low-emissions society, Denmark needs clear changes in the energy policy currently being pursued.

Internationalisation is a central framework for Danish energy and climate policy. Danish energy supply should be seen in the context of developments in neighbouring countries and in the EU, which are increasingly setting the framework for expansion of renewable energy, energy-efficiency improvements and climate efforts.

Marketization of measures is central to achieving a cost-effective transition to a low-emissions society in which technological opportunities are fully exploited. Electricity and gas markets must be further developed, the deployment of renewable energy must increasingly be market-based, and cost-effective, market-based instruments must be applied in energy-efficiency efforts.

Energy supply costs constitute a significant cost for consumers, businesses and society. Consequently, efficiency improvements are needed in the energy supply sector as an important contribution to a cost-effective realisation of a green transition.

Further deployment of renewable energy is necessary. Denmark has the largest share of wind in electricity production in the world, until now driven by targeted subsidies for onshore as well as offshore wind. Energy supply from renewable energy will become the cheapest form of energy, and within a few years, renewable energy expansion will be market-based and without subsidies. Thus, the ambition is to phase out renewable energy subsidies as part of a cost-effective green transition. While progressing towards a non-subsidised energy system, independent of fossil fuels, for a while there will still be a need to subsidise deployment of renewable energy. This support should no longer focus on individual renewable energy technologies, but should instead be based on a principle of technology neutrality in order to support renewable energy deployment, taking into account the overall energy system. The market must be used to achieve lower prices, and different renewable energy technologies must compete with each other.

Denmark is already an energy-efficient country, but from a socio-economic perspective, profitable energy-efficiency improvements are still crucial for the transition to a low-emissions society. Priority must be given to cost-effective initiatives at EU level, and national efforts must be reorganised to ensure a more market-based and technology-neutral effort so that the best and most inexpensive energy savings are realised first.

Electrification is vital in order to integrate an increasing proportion of renewable energy into the energy system. The Danish energy system must be reorganised to make it possible to use electricity to cover heating, production and transport needs. Consequently, it is essential to remove the distortions resulting from the current tax system.

Furthermore, increased electrification will create a need to develop a more flexible energy system. More flexible consumption is required as a result of increasingly fluctuating electricity production from renewable sources. Flexible electricity consumption should be promoted and barriers should be removed. Additionally initiatives are needed to prepare the integration of electric vehicles into the energy system.

Digitisation is rapidly developing and must be used to support the transition to a more flexible energy system.

For a transitional period, biomass may contribute to green energy supply, but biomass is also a scarce resource, and increased sustainability requirements are likely to lead to price increases. Reliance on biomass up to 2050 is therefore associated with several major uncertainties.

The district heating system must undergo continuing conversion from fuels to electricity through heat pumps and improved exploitation of surplus heat, provided this is rational from a socio-economic perspective.

Denmark has a well-functioning and well-maintained natural gas system. The natural gas system offers good potential during the phase-out of fossil fuels. In the longer term, the natural gas system will be able to exploit renewable energy gases, provided these become competitive.

Denmark's role as an energy-technology front-runner provides a strong basis for cost-effective green transition that, at the same time, will benefit Danish growth, employment and exports. Therefore, it is important that Denmark maintain and expand this role. Funding for research, development and demonstration must be increased considerably and reach a level of DKK 0.8-1.0 bn. per year. Furthermore, it is essential to ensure continuity in efforts throughout the value chain.

The Danish climate commitment outside the ETS sector up to 2030 must primarily be fulfilled through continued ambitious and early efforts towards a transition of the energy system. However, the energy system alone cannot meet the shortfall. Consequently, it is necessary to draw on cost-effective national initiatives outside the energy system as well as on contributions from LULUCF and possibly from CO_2-allowances, if required.

All areas involve considerable uncertainties concerning price developments for fuels, CO_2-allowances and not least technological developments. Therefore, it makes no sense at this juncture to decide on a specific route towards 2030, let alone 2050. Developments must be monitored closely in more or less all areas, and the overall situation must be assessed regularly to ensure that society benefits as much as possible from technological developments.

SUMMARY OF THE COMMISSION RECOMMENDATIONS

EFFICIENT INTERNATIONAL ENERGY MARKETS MUST ENSURE SECURITY OF SUPPLY

- Security of supply must be safeguarded through enhanced cooperation across national borders and must be based on the energy-only model.
- The electricity markets must be developed in order to ensure competition on the flexibility market.
- Regulation of distribution and transmission companies must be implemented in order to ensure efficiency improvements and reduced tariffs.
- The EU emissions trading system must be strengthened.

RENEWABLE ENERGY MUST BE DEPLOYED ON MARKET TERMS

- Renewable energy subsidies must be phased out as the technologies become competitive on market terms.
- In the transitional period, the allocation of subsidies must be based on market-based tendering procedures based on the principle of technology neutrality.

AN INTEGRATED AND FLEXIBLE ENERGY SYSTEM MUST ENSURE AN EFFICIENT AND STABLE ENERGY SUPPLY

- Integration of the Danish energy system must be promoted through increased electrification.
- Flexible consumption should be promoted.
- Initiatives to prepare the integration of electric vehicles into the energy system.
- Digitisation must be exploited to support an efficient energy system.
- The district heating system must exploit renewable energy and surplus heat.
- The gas system continues to play a role in the green transition.

ENERGY EFFICIENCY IMPROVEMENTS MUST CONTINUE TO BE AN IMPORTANT PART OF THE SOLUTION

- Energy efficiency improvements should be given priority when these are more cost-effective than renewable energy deployment.
- Denmark must work to achieve common ambitious EU frameworks, obligations and standards.
- Energy saving initiatives must be reorganised to ensure more market-based and technology-neutral efforts.
- Energy efficiency improvements must be implemented in conjunction with other changes.

DENMARK'S POSITION AS AN ENERGY TECHNOLOGY FRONT-RUNNER MUST BE STRENGTHENED

- A national strategy must set the course and ensure coordinated efforts.
- Energy research funding must be increased and the continuity of efforts must be safeguarded.
- Priority must be given to more unique demonstration projects and test platforms.

EFFORTS OUTSIDE THE ETS AREA MUST BE FOCUSED ON THE TRANSITION OF THE ENERGY SYSTEM

- Transition of the energy system must be a priority focus.
- Cost-effective initiatives outside the ETS sector must be launched at an early stage.
- The initiatives must be reassessed on an ongoing basis.