Klimarådet.

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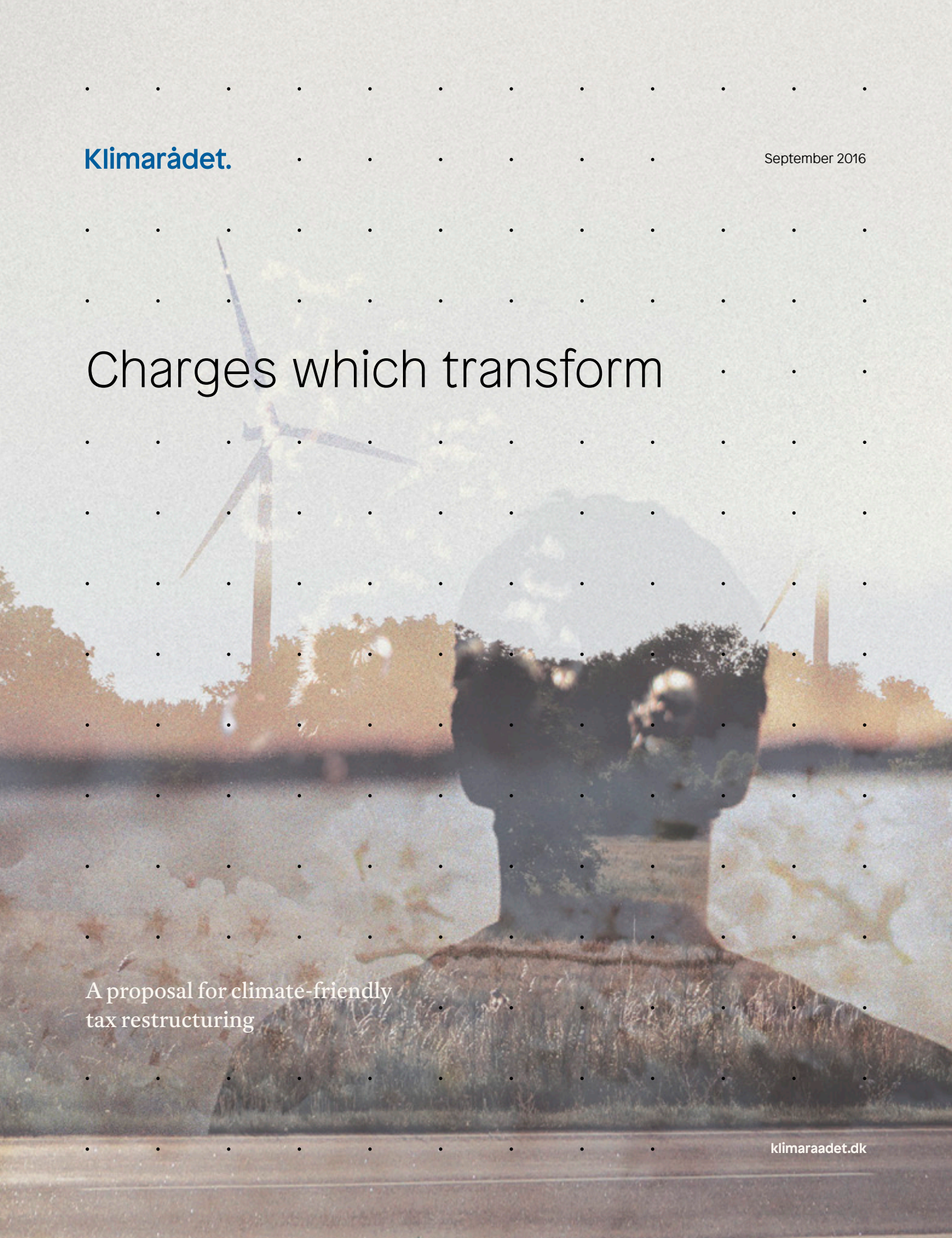
Charges which transform



A proposal for climate-friendly tax restructuring

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Peter Birch Sørensen
Jørgen Elmeskov
Pia Frederiksen
Jette Bredahl Jacobsen
Niels Buus Kristensen
Poul Erik Morthorst
Katherine Richardson

Foreword

Charges are seen by most as a necessary evil - they can be a nuisance, but they may be necessary to fund public tasks. Sometimes charges can also be helpful when it comes to encouraging conduct that we as a society would like to promote. In this context, charges are one of several instruments that fall somewhere between friendly recommendations or outright prohibition and, when used in the right way, they can be effective at achieving the desired effects.

At the Danish Council on Climate Change we have chosen to focus on charges because they can greatly influence the behaviour of households and firms which determine our emission of greenhouse gases. A climate-friendly tax system is essential to the possibility of achieving our goal of a society with very low greenhouse gas emissions.

Denmark has committed itself to the EU's goal of reducing greenhouse gas emissions by 80-95 percent by 2050, in comparison to 1990, and the government has a target that Denmark should also be independent of fossil fuels by 2050. The Climate Act, which in 2014 was adopted by a majority in Parliament, provides a strategic framework that supports Denmark's drive towards becoming a low-carbon society by 2050.

The Danish Council on Climate Change was established as a result of the Climate Act and submits regular proposals for cost-effective climate policy solutions that can pave the way for a society with very low greenhouse gas emissions which at the same time maintains welfare and development. In this context, charges can be an effective means of achieving the climate goals adopted by Parliament and the EU.

In the Report "Charges which transform – a proposal for climate-friendly tax restructuring" the Danish Council on Climate Change looked closely at some of the most acute problems in the current tax system, problems which could potentially make the green transition more expensive than it needs to be or even cause increased emissions of greenhouse gases. The report deals with, among other things, issues such as a tax system which promotes the use of biomass at the expense of heat pumps and levies that inhibit the spread of electric cars which could help to replace fossil fuels in the transport sector as long as they were operated by electricity from renewable sources.

Our recommendations for cost-effective climate policy solutions are based on independent economic analyses, which use as their basis the overarching objectives for 2050 as set forth by the Climate Act. In this context we continuously assess the achievements that make up the stepping stones on the road to 2050. The Danish Council on Climate Change therefore follows the progress of Denmark's fulfilment of its targets very carefully and offers advice based upon what the best solutions are for Denmark in the short, medium and long term, while simultaneously taking into account Denmark's security of energy supply and opportunities for continued growth and development.

With Denmark shortly having to work out how to meet the obligations of the EU's 2030 climate change goals, we have also chosen in this report to look at the expected content of the European Commission's climate and energy package and examine Denmark's advantageous position in the forthcoming negotiations on rules for meeting the EU's 2030 targets in those sectors of the economy not covered by the EU's Emissions Trading System.

We hope that this report will provide some inspiration for a number of adjustments to the existing tax structure so that the green transition can be implemented more efficiently and less expensively for the social economy. The report is also a contribution to the debate on how the EU's climate policy objectives can best be realised.

Copenhagen, July 2016

The Danish Council on Climate Change is composed of:

- Peter Birch Sørensen (Chairman), Professor of Economics at the University of Copenhagen,
- Jørgen Elmeskov, State Statistician at Statistics Denmark,
- Pia Frederiksen, Section Leader and Senior Researcher at the Department of Environmental Science, Aarhus University,
- Jette Bredahl Jacobsen, Professor of Environmental and Natural Resource Economics and Deputy Head of Department of Food and Resource Economics at Copenhagen University
- Niels Buus Kristensen, Transport Researcher (formerly Institute Director with DTU Transport),
- Poul Erik Morthorst, Professor of Energy Economics and Head of Division with DTU Management Engineering,
- Katherine Richardson, Professor of Biological Oceanography and leader of the Sustainability Science Centre at Copenhagen University.

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Main conclusions and recommendations

The Danish Council on Climate Change regularly prepares recommendations for Danish climate policy, including the choice of measures and conversion paths necessary to realise the climate law's objectives. In “Charges which transform – a proposal for climate-friendly tax restructuring”, we look more closely at some of the taxes that should be adjusted soonest. This chapter summarizes the report’s main conclusions and recommendations.

Denmark is facing a comprehensive transition to a society with very low greenhouse gas emissions. This means that some climate policy choices must be taken which will have both long- and short-term impacts. Some of these choices are crucial to the overall conversion, while others serve to minimise society's total expenses for the transition.

In this report, we focus primarily on the imbalances in the tax system in the transport and heating sectors because the charges in these two areas are impeding a cost-effective green transition. Passenger transport must be converted from cars powered by fossil fuels to zero-emission cars and the heating sector must be based more on electricity from renewable sources. In these two areas policy efforts can be targeted to help create a better tax structure that can support the electrification of society and ensure socioeconomic savings on the way to achieving the long-term goals in 2050.

In this report the Danish Council on Climate Change also investigates Denmark's compliance with the current climate targets and the framework of the

forthcoming setting of goals for 2030 by the EU. Denmark's contribution to the 2030 target is expected to be a big task and it will probably require significant greenhouse gas reductions, in particular in the agricultural and transport sectors. The Danish Council on Climate Change elucidates in the context of how Denmark should proceed in the future EU negotiations in respect of the details of the 2030 goals. Denmark has already reduced a portion in the ETS sector, but with the upcoming 2030 targets the country will also face a significant transition in the non-ETS sector. We are therefore entering a new and more challenging phase of the green transition.

Denmark's climate objectives

Denmark will probably realise an overall reduction of 40 percent by 2020 – but the emissions in non-ETS sectors have increased in comparison with previous assessments.

The latest energy and climate projections show that Denmark will fulfil all of its international obligations by 2020 as well as the national reduction target of 40 percent in 2020 relative to 1990 levels as agreed to by a parliamentary majority in 2014. Under the projection from 2014, a reduction of approximately 37 percent was anticipated. The change between the two projections is primarily due to emissions in the ETS sector falling, in part driven by the increased use of biomass in heat production. While a fall in emissions is in itself a positive thing, there is some concern that it is partly due to a bias in the tax system where biomass is favoured over, for example, heat pumps, which are the economically cheapest solution for heating. The new assessment is based on previous PSO funding and the projected expansion of renewable energy, and any amendments to this may therefore alter the outcome.

Concurrently, emissions look to be going in the wrong direction in the non-ETS sector, which can also expect tougher international reduction targets in the coming years. The overall development of the recent energy and climate forecasting accounts is not explicitly positive, although Denmark is on track to achieving a reduction of 40 percent in 2020 relative to 1990.

Moreover, it remains essential for the green transition that there is a political orientation which investors can count on in order to ensure a cost-effective transition towards 2050. Reopening the approved agreements or changing the objectives have a cost in terms of uncertainty among investors that can make the overall transition more expensive.

The rules governing the achievement of targets for the non-ETS sector by 2030 will be key

For the non-ETS sector, Denmark will probably have a target under the EU on reducing greenhouse gas emissions of close to 40 percent by 2030 relative to 2005 levels. It will be a big task to achieve this reduction target - a task that cannot be accomplished without significant reductions in agriculture and transport. When the European Commission has presented its proposal this summer of the rules for fulfilling the 2030 commitment, the EU member states shall negotiate further on the final rules. Of particular importance here is how the rules for the use of flexible mechanisms for goal achievement and management of land use and forestry (LULUCF) end up being designed.

These flexible mechanisms can help countries to meet their targets for the non-ETS sector. Countries can buy Emission Permits in other EU countries and distribute their own Emission Permits from year to year. This allows them to outperform one year and underperform in another and to a limited extent use these allowances from the ETS system to achieve goals in the non-ETS sector. This last option allows the transferral of reductions from non-ETS sector to the ETS sector. One solution to reducing the challenge of the non-ETS sector by 2030, which Denmark could benefit from supporting, would be a redistribution

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of the reduction commitments from the non-ETS sector to the ETS sector for the EU as a whole. This could lead to a noticeable increase in the ETS price and therefore the cost of discharging CO_2.

Member States must adopt a position on how LULUCF can be included in the EU's future climate targets. In order to have the opportunity for a coherent regulation of agriculture, the emissions from agriculture must henceforth be integrated with LULUCF and the possibilities for reductions that exist in this sector. This can happen in two ways. Either LULUCF is merged with agricultural emissions in, for example, a "country block" with a distinct reduction target across the EU, or LULUCF could also be integrated as part of the non-ETS sector.

In practice however, the integration of LULUCF in climate efforts presents a risk that a set of rules for accounting of uptake and emissions are established which result in a significant amount of "hot air" in meeting the EU's climate targets. This means that, although reductions are credited on paper, no further reductions occur beyond what would otherwise have transpired. The real reduction of greenhouse gases in the EU by 2030 is therefore diminished.

Denmark should remember to plan for the future in the forthcoming negotiations on the EU's 2030 target

In the upcoming negotiations with the rest of the EU on the rules for the achievement of the 2030 target, it is important to take into account the long-term goals as laid out by the Climate Act which aim to see Denmark become independent of fossil fuels by 2050. Therefore, it is in Denmark's best interests to work towards rules for achieving the 2030 target which support the most cost-effective way to 2050 rather than merely focusing on what is cheapest in the period between now and 2030. At the same time, as Denmark works within the EU framework, it is also relevant to consider how the rules for achieving these goals will affect the overall climate impact of the EU in the period leading up to 2030. The EU's 2030 target is a step towards the fulfilment of the long-term EU reduction target of 80-95 percent by 2050. It may therefore be counterproductive if the selected rules on how to achieve these goals end up mandating an actual reduction of greenhouse gas emissions to the atmosphere by 2030 which is less than the agreed 40 percent across the EU. In that case, it may be difficult to achieve the 2050 target.

Once the Commission has presented a framework for the individual countries' targets, future Danish Climate Council studies will look closer at how Denmark can best meet the 2030 target.

The role of taxation in the green transition

Taxes are one of the most important tools in the green transition
If taxes are properly designed, they can encourage businesses and consumers to choose economically sensible solutions based on renewable energy.

Taxes on energy and cars today generate about 68 billion kr. a year for the treasury, but as Denmark shifts to renewable energy, there may be a fear that this income will fall. The Danish Climate Council's analysis shows that this decline will not necessarily be very great. The annual revenue from energy and environmental taxes, where car taxes are excluded, is estimated to only decline by about 2.5 billion kr. in 2050 compared to today if current rates are maintained. This is because the green transition leads to an increased use of electricity, which is subject to energy taxation.

With total revenue from energy and environmental taxes of almost 40 billion kr., there is thus no question of a drastic drop. Unchanged rates of taxation are not necessarily optimal since they are unlikely to be able to ensure effective electrification. The Danish Climate Council recommends a reduction in the tax on electricity for heating, which will further lower revenue from energy taxes slightly. If the purpose of energy taxation is to tax fossil fuels, the taxes on all electricity must gradually be decreased in line with the phasing-out of fossil fuels from electricity production. The State will then need to rely more on other sources of revenue.

Charges must take harmful effects into account
Ideally charges should reflect only the so-called externalities which represent the cost of damages from such things as traffic noise or pollution, which includes greenhouse gas emissions. This repositions a product's price to reflect the true socioeconomic cost of production or consumption. If there are political or practical constraints on the possibilities of using other sources of revenue, there may also be a political desire to recover some revenue via the tax system. Finally, there may be policy objectives for energy and climate policy that go beyond what is socio-economically optimal, which means that taxes can play an even greater role.

Clear policy objectives and forethought are the basis for optimal charges. If the politicians do not have a clear idea of what might be accomplished with taxes, there is no possibility of designing an appropriate tax system.

Electric cars and taxes

Transportation is facing a major challenge in the run up to 2030
Transport is part of the Danish non-ETS sector, which altogether is expected to have a target for a reduction in emissions of close to 40 percent in 2030 compared to 2005. If the area of so-called "passenger transport" must also reduce its emissions by 40 percent, this will likely require close to 1 million electric vehicles or other zero-emission cars in 2030, representing more than 30 percent of the vehicle fleet.

The electric car is currently undergoing rapid technological development, and already in a few years the total costs of ownership for many electric vehicles are expected to be lower than for a comparable petrol-powered car. Both the electric car's limited range and the current tax system for cars brakes, however, have inhibited the spread of electric cars, and the Danish Climate Council's guess is that Denmark, under the current tax system, will only have between 200,000 and 300,000 electric cars by 2030. The Danish Climate Council's analysis therefore indicates that under current initiatives and charges Denmark cannot transform the "passenger transport" sector in time to achieve the Danish part of EU's 2030-target.

The tax system creates barriers to the spread of electric vehicles
Electric cars fared disproportionately poorly under the tax system when they were phased into the vehicle registration tax in 2016. It is unreasonable that the cost of the battery be levied through the vehicle registration tax as a premium as the battery does not reflect an increased consumption value of the electric car compared to a comparable petrol or diesel car in the same class. The cost of the battery should rather be seen as an investment that is needed to achieve the high-energy efficiency and consequent lower running costs that characterise the electric car. It is also inappropriate that electric cars in the micro category do not receive a full rebate for their high energy-efficiency due to minimum fee commanded by the vehicle registration tax.

Analysis by the Danish Climate Council shows that electricity consumption for transport is not overtaxed in comparison to gasoline and diesel, if the charges are calculated per kilometre. As the negative externalities of transport mainly depend on the number of kilometres driven, there is no reason to lower the tax on electricity for personal vehicles. Generally, however, one must work towards a tax system for passenger transport based on road pricing. Such fees may be gainfully introduced as soon as they are practical and administratively possible.

Below are some initiatives that the Danish Climate Council believes can help get developments in passenger transport on the right track. The measures are far from sufficient to enable us to achieve the goals of 2030. This will require targeted policy action in the coming years to ensure the dissemination of zero-emission vehicles such as electric cars.

”If taxes are properly designed, they can encourage businesses and consumers to choose socioeconomically sensible solutions based on renewable energy.

Transition of heating

Heat pumps are a cheaper socioeconomic source of heat than biomass
In 2014, individual heating and district heating production resulted in the release of about 5 million tonnes of CO_2. With the current regulations this emissions figure is estimated to be reduced to less than 2 million tonnes in 2030. This assumes that the biomass used for heating is fully CO_2-neutral. The heating sector is therefore well on track to be fossil fuel independent by 2030.

Heat pumps based on 100 percent green energy are a socioeconomically cheaper heat source than biomass, but tax rates make biomass cheaper for private economies. Reducing the tax on electricity for heating by 29 øre per kWh could achieve a social gain of almost 1 billion kr. and CO_2 emissions would be reduced slightly. Households and businesses can save around 1.3 billion kr. on heating bills, although through their electricity bill they would pay around 0.1 billion kr. extra to support renewable energies in order to ensure that the extra electricity consumption for heat pumps is 100 percent green. The Treasury would lose about 0.2 billion kr. in charges in 2030.

Moving the financing of the PSO-funding from the electricity bill to the Finance Act will realise part of the gain, which would be achieved by lowering the tax on electricity, however there is still an additional benefit to be attained through a small reduction of electric heating charge of approximately 10 øre per kWh.

The Danish Climate Council's recommendations

The Danish position in the negotiations on the EU's 2030 targets.

- In its approach to determining the rules for achieving the targets in the non-ETS sector, Denmark should adopt a 2050 perspective rather than only look at what is cheapest in the period up to 2030. At the same time, Denmark should take into account the impact of these rules on the total climate effect within the EU moving towards 2030.

- It is more expensive for Denmark to reduce emissions outside of rather than within the ETS sector. In order to address this problem, Denmark should work towards changing the distribution to allow a bigger part of the reduction to be within the ETS sector for EU as a whole. This would contribute further to an increase in the ETS price as well as increasing the political credibility of the ETS system. Any change in the distribution of the reduction obligation between the two sectors can, however, only happen to the degree that it will make the total transition leading up to 2050 cheaper. In other words, it must not delay the transition in the non-ETS sector to a degree which makes the total transition towards 2050 more expensive.

- In the event that a changed distribution between the sectors should not prove possible, Denmark should work towards ensuring flexibility in the rules for goal achievement. This would permit Denmark to subsequently establish a target for the achievement of the 2030 goal, which would ensure a cost efficient transition towards 2050.

- Denmark should work towards the integration of the land use, land-use change and forestry (LULUCF) with the other emissions from the agricultural sector, either in a "country block", with an adequately ambitious target, or in the non-ETS sector. Both will require a bookkeeping method which ensures that the included reductions from LULUCF represent additional offsetting and emissions.

Climate related taxes in general

- If the purpose of the energy charges are to place a tax on fossil fuels, the fee on electricity should be phased-down as the electrical production becomes less fossil-based. In this case, the lost proceeds may preferably be taken from broader tax bases. If there is a wish to save energy, however, this may speak in favour of holding on to a certain amount of energy fees.

- It should be clear which targets and considerations are the basis of each individual fee, and the different components in the total tax burden should be specified as clearly as possible, just as it is today in, for example, the CO_2 tax. This will ensure the highest possible degree of transparency in the tax system.

Electric cars and taxes

→ A tax deduction of approximately 2000 kr. per kWh of battery capacity should be introduced in the base of the vehicle registration fee for electric and rechargeable hybrid cars. The deduction should be phased down as technological developments make batteries cheaper. The deduction may, when necessary, be expanded to other climate-friendly extra costs such as fuel cells in hydrogen cars or flexible-fuel engines for bio fuels.

→ The minimum fee of 20,000 kr. in the vehicle registration tax should be removed to allow cheap and very energy-efficient cars a registration fee as low as 0 kr.

→ The current process flow system for the charging of electric cars should not be extended when it expires by the end of 2016. However, an analysis of the need for public policies to promote the charging infrastructure for electric vehicles should be initiated.

The transition of heating

→ The tax on electricity for heating should be reduced by approximately 30 øre per kWh. If the PSO-tariff is removed from the electric bill, the reduction should be lessened accordingly. The tax reduction should happen as soon as possible in order to avoid socioeconomically unsound investments in biomass over the coming years.