

Welcome speech

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Main messages of the speech:

1. In order to achieve the Paris climate target, all industrial sectors including transport must be decarbonised by 2050.
2. Greenhouse gas neutrality in 2050 is technically possible with today's technologies.
3. The use of resources must be considered in the transition towards greenhouse gas neutrality, as savings in fossil fuels require investments in “new” infrastructure
4. The vision of a greenhouse gas neutral and resource efficient Germany offers great potential for innovation, modernization and sustainable development.

Ladies and Gentlemen,

It is my pleasure to welcome you to the conference “Decarbonisation and Resource Efficiency – 100% Renewable Energy and more”.

Only days ago, on the 4th of November, the Paris Climate Agreement entered into force. This week, the first session of the Conference of the Parties to the Paris Agreement (CMA 1) kicked off in Marrakech.

The Paris Agreement set a new goal to reach net zero emissions in the second half of the century. With that it sent a powerful signal to global markets that the transition away from fossil fuels to a clean energy economy is here to stay. This goal - the “decarbonisation of the global economy” - will now need to be firmly anchored in countries' mitigation strategies.

To contribute to this process, the German Environment Agency focuses on facilitating the exchange of ideas and experiences between the EU Member States and beyond. That is why we are here today. We also work on developing and implementing decarbonisation strategies. We look at different sectors and countries within the European Union to identify approaches that could be applicable to other countries or regions. To make progress in the transition of our economies, we need to collaborate and share experience on methods and pathways of decarbonisation. It is important to explore challenges and possible synergies as well as to discuss these at national and international level.

We have to be aware that decarbonisation is more than “just reducing greenhouse gas emissions”. It is also a shift and change in the selection and use of materials. With regard to this aspect, let me mention two other important political milestones that were achieved since we organised this conference for the first time last year:

First, the G 7 put resource efficiency on their agenda during the Elmau summit in 2015. The G 7 founded an alliance on resource efficiency. And, the G 7 will now reinforce the topic at its Ise-Shima summit.

The second landmark that I want to mention is first of all a national one. However, I believe it is noteworthy for the European level as well. That landmark is the update of the German Resource Efficiency Programme in early 2016.

The German Resource Efficiency Programme, called ProgRes, was originally adopted in 2012. This made Germany one of the first countries to lay down guiding principles and solutions for conserving natural resources. Our Parliament, the Bundestag, asked our government to report every four years on the development of resource efficiency in Germany, assess progress made and update the programme. This update, ProgRes II, was adopted by the Cabinet earlier this year.

ProgRes II's main innovation is that it follows an integrated perspective on material and energy flows. This enables decision-makers to harness synergies. It also allows conflicting targets to be identified and addressed at an early stage. ProgRes II is one of the first policy instruments in Germany that addresses the resource efficiency-energy nexus.

And, the interactions that we need to consider are manifold. Let me give you an example: It would be feasible to transform Germany into a greenhouse gas neutral or nearly neutral country by 2050. We showed this with our study titled "Greenhouse gas neutral Germany 2050". But this transformation is not possible without completely getting rid of fossil energy carriers. These fossil fuels will have to be substituted by alternative energy carriers. And these renewables need a different kind of infrastructure to transport electricity from the places of generation to the consumer. More concretely, we would have to switch from centralized fossil fueled mega power plants in Eastern and Western Germany to electricity grids that bring wind energy from the North Sea to the South. But building this new grid can only be achieved by using new materials. Which means, we have to exploit or better reuse more resources as much as possible. The energy needed for this purpose, and the material needed for constructing the windmills, solar panels and so on must also be taken into account.

This example not only shows the complexity of the issue. It also underscores the importance of a holistic consideration of resource efficiency and the decarbonisation of the energy sector when deciding how to transform our way of living. There are many potentially conflicting interests – environmental, social and economic - that we need to balance.

It becomes clear that the use of materials and the restructuring of the energy sector cannot be seen as two separate issues.

Decarbonisation cannot and must not be addressed in isolation. Instead, we must consider decarbonisation and resource efficiency, 100% renewable energy and other aspects together.

Let me now give a brief outlook on the work that is ahead of us:

Currently, we have both, the technical feasibility of transformation and, with the Paris Agreement, the political basis for assessing the different options for designing the transition towards greenhouse gas neutral and resource efficient societies.

Our study "Greenhouse Gas Neutral Germany 2050" which I already mentioned illustrates how a 95% reduction of greenhouse gas emissions by 2050 could be achieved in our country. The study is neither exclusively focused on the reduction of greenhouse gas emissions nor on the energy sector. Rather, all relevant emitting sectors are taken into account and technological solutions are highlighted.

In an ongoing research project the German Environment Agency is exploring the link between greenhouse gas neutrality and resource demand. With the 2050 target scenario at hand, we are now looking at viable transformation paths towards a carbon neutral and resource efficient future for Germany.

A greenhouse gas neutral society in 2050 means a lot more than 100% renewable energy. It means a tremendous change and challenge. Therefore we need to foster public acceptance and close collaboration throughout Europe and beyond.

If we want to achieve the goal to limit global warming to well below 2 degrees Celsius, Germany has to reduce its greenhouse gas emissions by 95% by 2050 compared to 1990 levels. And since some emissions from industrial and agricultural activities cannot be mitigated, other sectors, including the transport sector, must reduce their GHG emissions by 100%. And we have to hurry, because the longer we wait the more we will have to reduce in a shorter time. And the more we have to cope with

the consequences of high GHG concentrations in the atmosphere and their impact on life on our planet.

For further illustration, let us take a look at the transport sector: by the middle of this century, cars, trucks, trains, ships and even airplanes have to run entirely carbon-neutral. We think that this is feasible. And therefore the second session of today`s conference is dealing with precisely this topic: a greenhouse gas neutral and resource efficient transport sector.

Which means a complete switch from fossil to electricity-generated fuels from regenerative energy sources such as power-to-liquid (PtL) or power-to-gas (PtG) and to electric traction. However, this transition can only be successful if the energy demand is substantially reduced using technical and non-technical measures.

Besides achieving the climate targets we need to keep the resource footprint of transport and its energy supply as small as possible. On one hand electric vehicles require more resources, for example for the battery systems. On the other hand, the vehicles need to be constructed in lighter ways and with new composite materials. Here the question of recycling has to be addressed in depth. Comparing purely electric vehicles with PtL-vehicles, electric ones require about four times less electricity. These few examples demonstrate that gains in energy efficiency can easily be offset by additional material needs and vice versa.

Keeping this in mind, the importance of non-technical measures cannot be overemphasized. They reduce both - the climate as well as the resource impact of transport.

Ladies and Gentlemen,

we are very glad to share with you today further examples and recent developments addressing the nexus between decarbonisation, resource efficiency and greenhouse gas mitigation. Two sectors will specifically be highlighted during this conference: Energy and Transport. And, we will discuss how to better address these nexus debates in current and future policies.

I am proud to welcome to this conference experts from the International Energy Agency,

European institutions, like the European Environment Agency, the Joint Research Centre, research institutes like Wuppertal Institute, Öko-Institute, Delft University, Iceland University or Quantis and last but not least political institutions like the UNEP International Resource Panel, Friends of Earth, Club of Rome and the German Advisory Council on Global Change.

I would also like to thank the Ecologic Institute for its kind assistance in organizing the conference.

We are now looking forward to the presentations and the exchange with you – the experts – in this field. I wish you a nice and insightful conference.

Thank you very much.

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Section I 1.1 Fundamental Aspects, Sustainability Strategies and Scenarios, Sustainable Resource Use

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