DLR contribution

Public consultation to the Green Paper on a 2030 framework for climate and energy

DLR

Introduction

DLR is the national aeronautics and space research centre of the Federal Republic of Germany. Its extensive research and development work in aeronautics, space, energy, transport and security is integrated into national and international cooperative ventures. In addition to its own research, as Germany's space agency, DLR has been given responsibility by the federal government for the planning and implementation of the German space programme. DLR is also the umbrella organisation for the nation's largest project execution organisation. DLR has approximately 7400 employees at 16 locations in Germany.

In our opinion the EU's "20-20-20" objectives were a major influence on starting the process towards a low carbon society and greener Europe. This process will not only help to reduce Europe's impact on the global climate but will also help Europe in its economic growth and sustainable future. DLR supports the idea to start the discussion about the 2030 framework for climate and energy policies to continue this process.

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General

- **Which lessons from the 2020 framework and the present state of the EU energy system are most important when designing policies for 2030?**
  The shift to a low carbon society is a necessary but huge endeavour. Several sectors need to change their setup excessively in order to achieve the envisioned goals. In order to establish and conduct the necessary investments and the stakeholders need a clear and secure framework to work with. Though a framework helps to setup and work on long term perspective & technology development, the framework needs to be flexible. In general the example of ACARE has shown that the definition of European Research strategies needs to be done on European level with the involvement of all relevant stakeholders like European Commission, Member States, industry, research organisations, universities, regulators and users, whereas the implementation of these research strategies need to be executed in a coordinated way, but under individual responsibilities according to the capabilities and possibilities of the various actors, in order to create efficient and user oriented programmes. Clear 2030 targets need to be developed in a process which involves all relevant stakeholders. Furthermore, it is important to keep in mind that a "one target fits all" approach will not likely succeed, actual might hinder Europe's sustainable growth priority (Europe 2020 strategy), as the feasible potentials of the different sectors can vary quiet heavily. Working on developing a pan-European RTD and i.e. internal energy market is a good way to facilitate that development.

Targets

- **Which targets for 2030 would be most effective in driving the objectives of climate and energy policy? At what level should they apply (EU, Member States, or sectoral), and to what extent should they be legally binding?**
  Targets for the timeframe up to 2030 need to be binding but overarching goals rather than precise, very detailed parameters. As fore- or back-casting provide guidance and helps identify crucial developmental stages and necessary step for implementing the strategy, it is important to keep in mind that the accurateness will decrease strongly with the length of the timeframe. Furthermore, all the scenarios will be made with a current understanding and mind set, only partially being able to take into account possible new and disruptive ideas or changes in the global economic landscape.
  As mentioned above, working with larger (EU wide) targets will allow the MS and sectors to find their specific, appropriate approach rather than forcing them towards a solution that might not work for them. During the whole process the economic European competitiveness must be guaranteed as a prosperous society is a precondition for essential public support.
  Nevertheless a strong "need for action" should be implemented on all levels. Targets could include:
  - % of CO2 emission reduction (same as 2020), EU target
  - % of renewable energy in primary energy production (same as 2020), EU target
  - Additional targets of % of renewable energy by sectors (especially applied to transport) or % reduction of energy intensity (in residential sector)

  But these targets need to be discussed and agreed upon together with the respective sectors.

- **Have there been inconsistences in the current 2020 targets and if so how can the coherence of potential 2030 targets be better ensured?**
  The current targets are understandable and broad enough to be achieved by all stakeholders and in particular the MS in their own and suitable way. A further development in this direction to achieve the already announced 2050 targets seems to be appropriate. Overall the established targets need to be reassessed and potentially new targets taken up. In the last years especially Europe's competitiveness and the security of supply was seen as an important concern and targets addressing these issues (i.e. market shares for competitiveness, import shares for supply security) should be discussed.
  More attention has to be paid to activities accompanying and facilitating solid establishment of new technologies (e.g. socio-economic, environmental and energy systems analysis, regulations, codes and standards, manufacturing methods, public awareness and acceptance), as it is the case in the FCH JU setting containing cross-cutting issues supportive pillar as part of its structure.

- **Are targets for sub-sectors such as transport, agriculture, industry appropriate and, if so, which ones? For example, is a renewables target necessary for transport, given the targets for CO2 reductions for passenger cars and light commercial vehicles?**
  As mentioned above targets for sub-sectors might be set, but they have to be discussed and agreed upon together with the respective sectors. In particular in the transport sector specific environmental targets are set in relation to other relevant political goals like European leadership and competitiveness (e.g. Flightpath 2050, reduction of CO_2 by 75% compared to 2000).
  These discussions/negotiations with other sectors will have to take into account that different sectors are only able to contribute to a certain extend to the overall goals depending on necessities and mechanisms, as has been described in several systems analysis scenarios.

Land- and water transportation might finally run without any use of fossil (carbonaceous) resources in the near future, whereas this looks implausible, even until 2050, for air transportation and especially for some industries like chemical and metallurgical.

At the moment the CO_2 reduction for cars is only taken into account at the vehicle level. The air transport (Flightpath 2050) for example shows, that not only the CO_2 emissions directly produced by transport means but also by the production processes need to be taken into account. The sectors may also set particular goals for production processes. However, as these issues are handled within the sectors under different boundary conditions (e.g. European competitiveness), overall targets covering the entire process cycles should be set in agreement together with the different sector communities.

- **How can targets reflect better the economic viability and the changing degree of maturity of technologies in the 2030 framework?**
  In order to maintain a steady flow of new and innovative technologies the entire research and innovation process needs to be maintained and supported. Using the notion of technology readiness level (TRL) the innovation process will have to include smaller projects to develop new ideas and technologies (up to TRL 3), medium sized projects to integrate new technologies (TRL 3-5) and big projects to demonstrate the new technologies on system level (up to TRL6 and under pure private funding even higher). A mechanism to evaluate the impact of new technologies (as it is being used in the Clean Sky Joint Technology Initiative) may help to identify the achievement of the targets and to adapt the targets according to the available technologies.

  Though a regulatory framework should be technology neutral, the even spread of support for all ideas & technologies should be given to the lower TRL levels while a more strategic and focused support is provided to the higher TRLs. This way a sustainable “idea rich” basis is created from which a strong portfolio of technologies can be selected and provided with the critical funding levels needed to advanced it further towards market introduction. Market penetration could be used as an indicator for the success of different technologies. It is important to understand that this setup favours already “established technologies” and special care needs to be given to still allow innovate and disruptive ideas & technologies to be developed further.

- **How should progress be assessed for other aspects of EU energy policy, such as security of supply, which may not be captured by the headline targets?**
  In order to be able to support Europe’s economic growth and sustainable future it is highly important to guarantee the energy and raw material supply needed by our industry. Therefore, a focus was placed in last years on Europe’s energy and material security of supply &, independency by Europe and the Member States. It is only logical to develop specific targets (share of imported energy, number of importers etc.) to address these issues further. The above mentioned joint definition of targets together with all stakeholders will allow to include other aspects into the target setting process (example Flightpath 2050: Maintaining global leadership and serving society’s needs).

Instruments

- **Are changes necessary to other policy instruments and how they interact with one another, including between the EU and national levels?**
  As outlined in the definition of H2020 a closer link between policy targets and the research and innovation process is necessary, so that R&I supports the achievement of political targets. Therefore, a close link between H2020, the connecting Europe facility and the structural funds are necessary, in order to focus European funding according to European goals. In addition to that the joint definition of European strategies by all stakeholders will lead to a voluntarily harmonised programming of private and public, European, national and regional resources in order to reach the common targets (harmonised implementation under individual responsibility).

- **How should specific measures at the EU and national level best be defined to optimise cost-efficiency of meeting climate and energy objectives?**
  As outlined for the previous question the joint definition of European strategies by all stakeholders will lead to a voluntarily harmonised programming of private and public, European, national and regional resources in order to reach the common targets (harmonised implementation under individual responsibility).

- **How can fragmentation of the internal energy market best be avoided particularly in relation to the need to encourage and mobilise investment?**
  Using common and agreed targets and establishing contacts and discussions amongst all involved stakeholders will lead to overcome fragmentation by voluntarily harmonised programming.

- **Which measures could be envisaged to make further energy savings most cost effectively?**
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- **How can EU research and innovation policies best support the achievement of the 2030 framework?**
  EU wide policies should aim at providing a stable frameworks & targets to encourage long term technology research and development. Horizon 2020 together with the Connecting Europe facility and the structural funds should provide such a European stable framework for research and innovation. Furthermore, policies like the European Emission Trading Scheme (ETS), may help to bring new low CO_2 technologies into the market. Though in order for them to function correctly a constant monitoring and, if necessary, adjustment of those schemes needs to be implemented too. ETS provides a good example for a good policy setup. Europe, in its role as leader and innovator, started the scheme it is now taken up internationally and is mirrored by other important industrial countries like i.e China. As the ETS scheme is struggling at the moment due to an excessive surplus of ETS certificates at the global market the intended goal 1) to drive the demand and incentivising the market to use new, CO_2 low technologies 2) provide additional funding for research and development cannot be fulfilled as envisioned. Therefore, it is important to "fine tune" the scheme and adjust the setup (i.e. create a stronger scarcity of the certificates to ensure the market uptake of an available, CO_2 reduced technology) or the ETS will not be able to achieve its full potential and help drive the market towards a low carbon future.

Competitiveness and security of supply

- **Which elements of the framework for climate and energy policies could be strengthened to better promote job creation, growth and competitiveness?**
  Europe main strength is its ability as technology leader allowing Europe to maintain its front position in the global competition. The goal of a low carbon economy offers the opportunity to have Europe at the forefront of technological developments in sectors that are decisive for sustainable economic growth and inclusive employment. It is imperative to invest in innovative technologies and help establish these sectors in order to be able to open up the employment potential of a more sustainable economy based on skills and innovation, ultimately leading to sustainable growth.

  In order to implement Europe's political vision for a low carbon society a clear financial engagement in favour of clean technologies must be started. Today's decisions select the technologies which will be used for the next 20 to 40 years. Therefore, the policy and funding decisions taken today need to send a clear and strong signal that European policy maker are serious about a low carbon future in Europe. Postponing hard choices now will weaken all the efforts taken so far and undermine credibility and predictability that users, manufacturers, technology providers or investors need.

- **What evidence is there for carbon leakage under the current framework and can this be quantified? How could this problem be addressed in the 2030 framework?**
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- **What are the specific drivers in observed trends in energy costs and to what extent can the EU influence them?**
  The integration of renewable energy into the energy mix is strongly impacting the energy costs and technology demands. The gradual change of the energy system from demand driven production to a supply oriented approach needs a well thought through approach. This is, as such, nothing new as establishing new technologies and their markets always needed aid during the establishing phase (see research and grid development for nuclear). It is furthermore important to invest into a portfolio of different renewable technologies.
  This will help guarantee a stable supply of renewable energy and allow to further develop and integrate renewable technologies like concentrated solar power (CSP) which can provide their energy dispatchable at (almost) economically viable costs. To lessen this initial burden a smart information flow (i.e. best practise & lessons learned) is important and strongly needed. Europe can facilitate this discussion and foster an open exchange between MS. Another important factor is the advancement of the single European energy market. As seen with the telecommunication sector the establishment of an open European market will help to bring in new ideas, investors and solutions (i.e. Europe wide energy production/storage options). In the end an open market will offer new options to choose the most efficient way forward in terms of societal benefits and price.

- **How should uncertainty about efforts and the level of commitments that other developed countries and economically important developing nations will make in the on-going international negotiations be taken into account?**
  As all the discussed low CO_2 solutions are “no regret” options once Europe has established a common approach and level of commitment it should maintain it even if other countries vary their approach. This does not mean that the approach should not be revised on a regular base to adapt to technology/political or environmental changes taking place. But it is important to provide the necessary stability needed for the long term investments required for a successful change.

- **How to increase regulatory certainty for business while building in flexibility to adapt to changing circumstances (e.g. progress in international climate negotiations and changes in energy markets)?**
  As mentioned above a regular revision of the targets needs to be implemented. Furthermore, those revisions need to be able to recognise the evolution of new technologies and, if beneficial, include them into the setup.

- **How can the EU increase the innovation capacity of manufacturing industry? Is there a role for the revenues from the auctioning of allowances?**
  The Horizon 2020 programme, the connecting Europe facility and the structural funds should be used to increase the innovation capacity of the manufacturing industry. However, the dedicated use of revenues coming from the auctioning of allowances for research and innovation will increase the available funding for research and innovation and support the initiatives created under the current framework programme. The aviation sector already proposed to use the revenues coming from ETS certificates in air transport to increase the available public sources in order to achieve the environmental goals of Flightpath 2050.

- **How can the EU best exploit the development of indigenous conventional and unconventional energy sources within the EU to contribute to reduced energy prices and import dependency?**
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- **How can the EU best improve security of energy supply internally by ensuring the full and effective functioning of the internal energy market (e.g. through the development of necessary interconnections), and externally by diversifying energy supply routes?**
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Capacity and distributional aspects

- **How should the new framework ensure an equitable distribution of effort among Member States? What concrete steps can be taken to reflect their different abilities to implement climate and energy measures?**
  European climate and energy policy needs to encompass and involve all relevant stakeholders in its setup discussion. Once a consensus is found it is important to define a policy which, on the one hand has clear goals but on the other hand is flexible enough that the stakeholders (i.e. MS and sectors) can realize the given objectives by their own specific and economically sound means. Only by this approach can an active and functioning endorsement of the policy be safeguarded.
- **What mechanisms can be envisaged to promote cooperation and a fair effort sharing between Member States whilst seeking the most cost-effective delivery of new climate and energy objectives?**
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- **Are new financing instruments or arrangements required to support the new 2030 framework?**
  From DLR's point of view all needed financing instruments or arrangements are established in Europe. What is more important is the fine-tuning and coordination of these efforts. At the moment most funding/financing mechanism are "stand alone" options which help support a certain step along the innovation chain. The real added value can only be achieved by interlinking these single efforts into a "chain of support" and provide the researches and industry with clear & precise information about those opportunities and how to apply to them. This holds true in particular for the European instruments Horizon 2020, Connecting Europe Facility and Structural Funds.