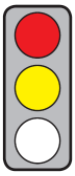
LOW CARBON TECHNOLOGIES (SET-PLAN)

Status: 16.11.2009

MAIN ISSUES

Objectives of the Communication: The Commission substantiates its plans for the promotion of low carbon technologies and their future market share targets.

Parties affected: Power suppliers and technology ventures, research institutes, Member States.



Pros: The Commission would like to support basic research.

Cons: (1) The investment plans and time schedules for the development of certain technologies and their future market shares are based on knowledge that does not exist yet. The development of market-ready technologies should be left to the industries.

(2) Detailed planning objectives for the individual energy sources lead to greater losses in growth and employment than necessary.

CONTENT

Title

Communication COM(2009) 519 of 7. October 2009: Investing in the Development of **Low Carbon Technologies (SET-Plan)**

Brief Summary

- **Background and targets**
  - The EU's primary energy supply is 80% dependent on fossil fuels (oil, coal, gas). According to the Commission, this represents a threat to:
    - the security of energy supply in the EU due to its dependency on energy imports;
    - EU competitiveness due to increasing energy prices and
    - the global climate system due to greenhouse gas emissions.
  - In order to attain independence from fossil fuels, the EU is planning to accelerate the development and introduction of various low carbon technologies with the help of the European Strategic Energy Technology Plan of 22. November 2007 ("SET-Plan") [COM(2007) 723].
  - The Commission considers the development of low carbon energy technologies as the key contributor to growth and employment in Europe.
  - This Communication serves the further implementation of the SET-Plan. In so-called "technology plans" ("roadmaps") [SEC(2009) 1295] the Commission substantiates the strategic and technological targets, the planned measures and an estimation of how much private and public investment will be required for the research and development of low carbon technologies until 2020.

- **European Industrial Initiatives**

  The Commission announces concrete economic plans for which low carbon energy source with which investment volume is to cover what percentage of the future energy demand and by when. These aims are to be achieved through "European industrial initiatives" which concentrate measures in the private sector, the Member States and the EU for the research and development, testing and market entry of low carbon technologies [COM(2007) 723, p. 10].
  - **The European wind initiative**
    - Wind energy is to become cheaper and it should be easier to feed it into the power grid.
    - The goal is that by 2020 up to 20% of EU electricity is generated by wind energy.
    - For this, a total private and public investment of EUR 6 billion is needed by 2020.
  - **The solar Europe initiative ("Solar Europe")**
    - Solar energy is to become cheaper and it should be easier to feed it into the power grid.
    - The goal is that by 2020 up to 15% of EU electricity is generated by solar energy.
    - For this, a total private and public investment of approximately EUR 16 billion is needed by 2020.
  - **Initiative for sustainable bio-energy ("Bio-energy Europe")**
    - The large-scale sustainable production of biofuels and highly efficient combined heat and power from biomass are to become possible.
    - The goal is that by 2020 at least 14% of EU electricity is generated by bio-energy.
    - For this, a total private and public investment of approximately EUR 9 billion is needed by 2020.

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– **The sustainable nuclear fission initiative**
  - A new generation of reactor types ("generation IV") with maximum safety, higher efficiency and less radioactive waste is to be developed and deployed commercially as of 2040.
  - The goals for 2020 are
    - to put into operation the first prototypes of generation IV and
    - to put into practice the first combined heat and power reactors as demonstrators.
  - For this, a total private and public investment of approximately EUR 7 billion is needed by 2020.
– **The European electricity grid initiative**
  - Electricity grids in the EU are to create an efficient internal electricity market and to integrate a massive increase of "intermittent" energy sources.
  - The goal is that by 2020, 50% of networks in the EU will enable the integration of renewables and operate along "smart" principles.
  - For this, a total private and public investment of approximately EUR 2 billion is needed by 2020.
– **The European CCS initiative**
  - In order to achieve "almost zero carbon power generation" (p. 6) in the EU by 2050, carbon capture and storage technologies (CCS) have to be widely commercialised. Therefore, industrial demonstration projects are planned for various carbon capture and storage options.
  - The goal is that by 2020, the abatement costs of CCS are reduced to EUR 30–50 per tonne.
  - For this, a total private and public investment of approximately EUR 13 billion is needed by 2020.
– **The fuel cells and hydrogen initiative**
  - In order to develop market-ready fuel cells and hydrogen technologies
    - more large-scale demonstration projects and
    - portable, stationary and transport applications are required.
  - The goal is to build up a competitive fuel cell chain and a hydrogen infrastructure by 2020.
  - The Joint Technology Initiative (JTI) for fuel cells and hydrogen (2008–2013) will be funded by the EU to the sum of EUR 470 million, whereby the industry is to provide at least the same sum again in addition. By 2020, additional public and private funding of approximately EUR 5 billion is needed.

► **"Smart Cities" Initiative**
– The EU intends to support cities which by 2020 are willing to reduce greenhouse gas emissions in the building, energy and transport sector by 40%, as compared to emissions in 1990.
– The goal is that by 2020 up to 30 European cities can play a leading role in the transition towards a low-carbon future.
– For this, a total private and public investment of approximately EUR 11 billion is needed by 2020.

► **European Energy Research Alliance (EERA)**
– The European Energy Research Alliance (EERA) is to enable national research institutes to plan and implement joint research programmes.
– EERA will in particular
  - implement the key challenges of the SET-Plan;
  - set up strong links with the European industrial initiatives;
  - set concrete technological targets and
  - manage a public EU and Member States' budget of approximately EUR 5 billion by 2020.

► **Basic Research**
– The Commission criticises the fact that basic research in the EU is underfunded. It further points out that the USA is setting up 46 research centres for "Frontier Research" in the field of energy, which are to be given a budget of USD 777 million (EUR 555 million) in the next five years.
– In order to strengthen EU competitiveness, the Commission proposes that an additional investment of EUR 1 billion be made in basic research by 2020.

► **Financing**
– According to the Commission, EU investments would have to be raised from EUR 3 billion per year to approximately EUR 8 billion in order to reach the targets of the SET-Plan [SEC(2009) 1297]. This would equal an additional public and private budget of EUR 50 billion by 2020.
– In 2007, the overall energy research financing (non-nuclear) was 70% private to 30% public. It is to be explored whether a short-term rise in the public share of up to 50% would be possible.
– Currently, 80% of the public financing of (non-nuclear) energy research has been at national level and 20% at EU level. It is to be explored whether an increase in the investment share at EU level is possible.
– In the medium and long-term, the EU should develop a framework to ensure a "more significant, predictable and stable financing approach" for the development of low carbon technologies (p. 12).
– As a response to the financial crisis, the European Investment Bank (EIB) increased its lending target in the energy field from EUR 6.5 billion in 2008 to EUR 9.5 billion in 2009, and in 2010 to EUR 10.25 billion. According to the Commission, EIB lending has the ability to mobilise further public and private sector resources for financing the SET-Plan.

Statement on Subsidiarity

According to the Commission, action at Community level can take on high risk, high cost, long-term programmes beyond the reach of individual Member States. EU action can address cross-border challenges and generate an "optimum" programme of activities and "maximise" knowledge sharing and information dissemination, thus lowering the overall costs of achieving a given objective.

Political Context

The Commission views the SET-Plan as the technology development pillar of the EU's climate policy. In view of the international climate change negotiations at Copenhagen in December 2009 [cp. CEP Policy Brief on Communication COM(2009) 39; CEP Policy Brief on Communication COM(2009) 475], for 2020 the EU Member States have committed to reducing their greenhouse gas emissions by 20% compared to 1990 levels and to increasing the share of renewables by up to 20% and that of biofuels by 10%. The policy directions for implementing these climate targets are set out in the "EU Energy and climate package" of 23. April 2009 (cp. CEP Dossier, in German only). It comprises the EU-ETS-Directive 2009/29/EC on the extension of the EU emission trading scheme (EU-ETS), the Effort-Sharing-Decision No. 406/2009/EC on greenhouse gas emission reduction commitments in sectors outside the EU-ETS, the Renewable Sources Directive 2009/28/EC and the CCS Directive 2009/31/EC on the geological storage of carbon dioxide.

Options for Influencing the Political Process

Leading Directorate General:	DG Energy and Transport
Consultation Procedure:	A consultation procedure is not scheduled.

ASSESSMENT

Economic Impact Assessment

Ordoliberal Assessment

The target to reduce significant amounts of greenhouse gas emissions in a short period requires adjustments in almost all economic sectors. New technologies are likely to play a decisive role in power generation and in the use of energy.

Since the EU's reduction targets are quite ambitious, the choice of highly efficient technologies for the reduction of greenhouse gas emissions is a prerequisite for the implementation of such targets. However, for the moment, **the question of which new technological procedures can ensure efficient reductions remains unanswered**. **The precise plans for which energy source and with which investment volume is to cover what percentage of the future energy demand and by when** ("roadmaps") represent an unjustified presumption of knowledge. There is no objection to the fact that the Commission provides information on the status of investments into research and development and presents an outlook on the following five years. The seemingly planned economic objectives, however, clearly go too far and **go against the need to first find out which possibilities even exist to reduce greenhouse gas emissions in a cost-efficient manner**.

Impact on Efficiency and Individual Freedom of Choice

Should the submitted plans be interpreted as fixed requirements, then it cannot be ensured that efficient technologies actually attain marketability. This can be achieved only through market mechanisms. For as a result of the EU's climate protection policy, and in particular of the EU-ETS and energy taxation (cp. CEP-Dossier, in German only), the development of abatement technologies promises significant profits, and therefore the decision on marketability should be left to private investors. Any additional funding of private investments through public funding is not necessary.

Public funding should instead focus on basic research without prescribing specific technology paths. **The support of basic research is justified as private financing is rare in this field** (cp. CEP Study on state aid control, in German only). Hence, the respective plans by the Commission are to be welcomed.

Impact on Growth and Employment

The Commission paints an incomplete picture by maintaining that the development of low carbon energy technologies is a key contributor to growth and employment. For even the Commission expects the GDP in the EU to shrink by 1.2% as a result of the climate protection policy, accompanied by a drop in employment of 0.4% by 2020, if an international climate protection agreement is concluded which includes the content striven for by the Commission [Communication COM(2009) 475 on the EU blueprint for the Copenhagen deal; cp. CEP Policy Brief]. Therefore, the allegedly positive growth and employment effects created by the development of new technologies should not obscure the fact that the abatement of climate change and the adaptation to climate change is related to substantial costs for the economy which will have a negative impact on growth and employment.

Moreover, **the detailed planning objectives for the individual energy sources lead to greater losses in growth and employment than necessary**. For due to the ex ante stipulation it is not ensured that the most cost-efficient technologies will prevail.

Impact on Europe as a Business Location

Though it may be true that the promotion of low carbon energy technologies set investment incentives, it is also true that the promotion of such technologies financed by public funds are promoted either at the expense of other public investments or at the expense of an increase in the tax burden on Member States. The net impact on Europe as a business location can thus not be foreseen.

Legal Assessment

Legislative Competence

Pursuant to Art. 163–171 TEC the EU is entitled to support – complementary to measures by the Member States – research and technological development. In particular, the Commission may, pursuant to Art. 165 TEC, take the initiative to coordinate EU research and technology policy in the EU.

Subsidiarity

Unproblematic.

Proportionality

Unproblematic.

Compatibility with EU Law

Unproblematic.

Compatibility with German Law

Currently not foreseeable.

Alternative Policy Options

The setting of detailed investment plans and time schedules ("Roadmaps") should be waived. The development of market-ready technological procedures should not be supported through public funding. Instead, basic research should be promoted.

Possible Future EU Action

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Conclusion

For the moment it is still not known which new technologies will ensure an efficient carbon dioxide reduction. The detailed planning objectives regarding which low carbon energy source with which investment volume is to cover what percentage of the future energy demand and by when ("roadmaps") contravene the aim to first find out which possibilities exist to reduce greenhouse gas emissions in a cost-efficient manner. As a consequence of climate change protection, they lead to even larger losses of growth than necessary – the Commission itself expects a minus of 1.2%. The proposed public funding of basic research, however, is justified.