SET PLAN: SUPPORT FOR NEW ENERGY TECHNOLOGIES

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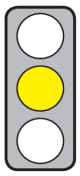
KEY ISSUES

Objective of the Communication: The strategic plan to support energy technology (SET Plan) will focus on the priorities of the Energy Union.

Affected parties: Primarily companies in the energy sector and research institutes.



Pro: (1) A shift away from precisely defined technology roadmaps is better suited to the unpredictability of the development of new energy technologies.

(2) Cross-border cooperation on energy research may accelerate the development of new technologies.

Contra: The provision of EU funds for bringing new technologies to the market must be time limited otherwise there is a risk that permanently unprofitable technologies will become state supported.

CONTENT

Title

Communication C(2015) 6317 of 15 September 2015: Towards an Integrated **Strategic Energy Technology (SET) Plan**: Accelerating the European Energy System Transformation

Brief Summary

- **Context and objectives**
  - The Strategic Energy Technology (SET) Plan aims "to achieve in a cost-effective way a fundamental transformation of Europe's energy system" (p. 2). To this end, the development of certain low carbon technologies has been supported since 2008. This will
    - reduce greenhouse gas emissions in the EU by technology transfer
    - reduce dependency on fossil fuels and
    - strengthen the competitiveness of the European industry and create growth and jobs in the EU.
  - The SET Plan essentially consists of two instruments [COM(2007) 723, p. 10 et seq.]:
    - European Industrial Initiatives (EII) are major technology-specific projects, involving the private sector, Member States and the EU, based on which measurable objectives for the development of certain technologies are to be achieved by 2020.
    - The European Educational Research Association (EERA) is an association of leading European energy research bodies which aims to utilise synergies and establish joint research projects.
  - In this Communication, the Commission proposes changes in the focus and organisation of the SET Plan, designates subject areas for future measures and presents possibilities for supporting the commercialisation of innovations.

- **Changing the focus of the SET Plan**
  - According to the Commission, the SET Plan contributed to the fact that research investment in SET Plan priority technologies more than doubled between 2007 and 2011.
  - The Commission criticises the existing SET Plan for the fact that its technology-specific research support via the European Industry Initiatives (EII) and the European Educational Research Association (EERA) is failing to take sufficient account of the synergies between the various energy technologies. It therefore wants to replace this "technology-specific approach" with an "energy system approach" (p. 4).
  - The Commission wants to adjust the focus of the SET Plan towards the prioritised areas of the "Energy Union" [COM(2015) 80, p. 16; see cep**PolicyBrief**]. These include
    - firstly the four "core priorities":
      - renewable energy (RE)
      - energy systems and consumers,
      - energy efficiency and
      - sustainable transport systems;
    - secondly, two additional technologies with low carbon emissions:
      - carbon capture and storage (CCS) [COM(2012) 341, see cep**PolicyBrief**] or carbon capture and use (CCU) as well as
      - nuclear power.

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- **Future measures**
  The Commission proposes a total of ten measures for the prioritised areas of the "Energy Union":
  – Measure 1: Effective renewable energies (RE) will be supported by way of a technology fund along the entire "innovation chain" from basic research right through to demonstration projects.
  – Measure 2: The manufacturing costs of new RE technologies will be reduced by "coordinated research and innovation" and cooperation between regions where there is common renewable energy potential (p. 11).
  – Measure 3: The development of technologies for optimising energy consumption ("demand-side response technologies") will be expedited by making use of synergies between the energy sector and the information and communication sector (ICT Sector).
  – Measure 4: Energy security will be increased by digitising the energy grids.
  – Measure 5: The energy efficiency of buildings will be increased with funds from the European Fund for Strategic Investment [EFSI; COM(2014) 903, see cep**Input** No. 05/2014] and the European Structural and Investment Fund (ESIF).
  – Measure 6: Energy efficiency in industry will be increased by way of EU-wide cooperation on research into energy efficient technologies such as Combined Heat and Power.
  – Measure 7: Battery research will be stepped up by bringing together SET Plan initiatives with the "Strategic Transport Research and Innovation Agenda" (p. 12).
  – Measure 8: Bringing alternative fuels onto the market – biofuels and hydrogen – will be expedited by coordinating national authorities, fuel producers and "potential users" (p. 13).
  – Measure 9: Member States will increase their efforts to realise CCS demonstration projects in order to benefit from a newly created Innovation Fund.
  – Measure 10: Nuclear research will focus,
    - in the short term, on increasing the safety and efficiency of nuclear energy technology, and
    - in the long term, on developing nuclear fusion.

- **Change to SET Plan management**
  – The Commission wants to develop a new "management" for the SET Plan in order to expand the currently insufficient level of cross-border coordination and cooperation on energy research projects (p. 8 et seq.).
  – The separation between Public Private Partnerships (PPPs) – such as EII – and purely private technology initiatives needs to be removed in order to avoid "duplication of funding and efforts" (p. 8).
  – The existing SET Plan Information System (SETIS) allows the collection, evaluation and cross-border exchange of knowledge in the field of low-carbon technologies in the EU. The Commission wants to expand SETIS in order to (p. 9)
    - ensure a "diligent and intelligent use" of the available data,
    - collect performance indicators - such as research expenditure, patent numbers and the number of researchers - and other key indicators of "Energy Union governance" on an annual basis and
    - be able to evaluate, every two years, technology developments, cost reductions and the systemic integration of new technologies.

- **Supporting the commercialisation of innovations**
  – The high costs of bringing new technologies to market represent a major barrier to investment in these technologies by companies.
  – The Commission and the European Investment Bank (EIB) are making loans and loan guarantees available for "first-of-a-kind, commercial-scale industrial demonstration projects" (p. 14).
  – The European Fund for Strategic Investment [EFSI; COM(2014) 903, see cep**Input** No. 05/2014], which is fed from the EU budget and from EIB funds, will support "close-to-market" projects such as "large-scale industrial demonstrators and building renovation or investment in smart grids" (p. 14).
  – In future, in addition to using existing sources of support from the "Horizon 2020" support scheme, the Commission will award prizes for "breakthroughs" (p. 15).
  – Promoting innovation will be a "key component" of legislative proposals in the coming years. These will also be aimed at achieving the "large-scale market uptake" of innovations (p. 16).
  – In 2016, the Commission will set out, in another Communication, how standards and public procurement can promote innovation.

Policy Context

The SET Plan is the technology-related part of EU energy and climate policy. In 2009, in its first Communication on the SET Plan [COM(2009) 519; see cep**PolicyBrief**], the Commission announced concrete roadmaps for technologies with low carbon emissions by 2020. In its Strategy for an "Energy Union" [COM(2015) 80; see cep**PolicyBrief**], submitted in February 2015, the Commission designated the five action areas ("dimensions") for energy and climate policy in the next five years. These include the action area of "Research, Innovation and Competitiveness" which the amended SET Plan now sets out in concrete terms.

Options for Influencing the Political Process

Directorates General: DG Research and Innovation (leading), Energy, Transport.

ASSESSMENT

Economic Impact Assessment

Ordoliberal Assessment

A secure, low-carbon energy supply at affordable prices – in line with EU energy and climate policy targets – requires the continual improvement of existing technologies and the development of new ones. For this the EU needs to have an innovative research sector and an effective deployment of the available research funds.

At this point, it is difficult to forecast whether a specific form of energy production or a certain energy system will be competitive in the long term, firstly because technical innovations which result in cost reductions cannot be planned, and secondly because competitiveness also depends on the development of complementary energy technologies. **The** planned **shift away from** technology-specific research funding with **precisely defined technology roadmaps** in favour of an energy-system approach **will be better suited to the unpredictability of the development of new energy technologies.**

By refocussing the SET Plan towards the prioritised areas of the "Energy Union", state funded **research projects can concentrate** more **on the long-term EU energy policy targets.**

Any provision of EU funds for bringing new technologies to market will distort competition between technologies in the EU and should therefore be rejected in principle. If market launches are nevertheless going to be supported, this **must be time limited, otherwise there is a risk that technologies that are permanently unprofitable will become state supported over many years.**

Impact on Efficiency and Individual Freedom of Choice

Research funding aimed at reducing the costs of RE facilities may, in the medium and long term, create the conditions to allow RE to compete with other forms of energy production.

The increased digitisation of the electricity grid and growth in the number of electric vehicles is likely to reinforce the linkage between the energy sector and the information and communication sector as well as the transport sector. Possible synergies between the different sectors should therefore be taken into account at the research funding stage.

When it comes to the market penetration of alternative fuels, there is a coordination problem ["Chicken/Egg Problem"; COM(2013) 18, see cep**PolicyBrief**]: On the one hand, the lack of a supply infrastructure for alternative fuels reduces the demand for vehicles which use these fuels; on the other hand, it is not worth expanding the supply infrastructure while too few vehicles are on the market. The Commission calls for greater cooperation between fuel producers, vehicle manufacturers and national authorities which could solve this coordination problem.

With **cross-border cooperation on energy research,** the companies and/or research bodies involved **can** become more specialised, avoid duplication of work and thereby **accelerate the development of new technologies.** In this regard, however, it must be guaranteed that cooperation and the exchange of knowledge take place voluntarily and are not be imposed by the state. Otherwise, internal European competition among research facilities and companies will be reduced, free loading by individual facilities will be encouraged and thus the individual willingness to invest in research will fall.

The Commission, if it really does want to subsidise "close-to-market" projects via the EFSI, should not simply list examples of these – "large-scale industrial demonstrators and building renovation" or "smart grids" – but also clearly specify the limits. Without additional criteria, it is unclear whether and why for example "large-scale building renovations" are worthy of funding in the context of the SET Plan.

The award of prize money for "breakthroughs" cannot be evaluated at this stage. In the Communication, the Commission does not indicate how it will recognise a "breakthrough" at the right time or the amount of prize money it will award and exactly what it will be for.

Public procurement should not, on the one hand, unnecessarily obstruct the deployment of new technologies. On the other hand, it should **be used as an instrument for promoting new technologies if necessary, insofar as this is not detrimental to the efficient provision of public goods** in accordance with public preferences.

Impact on Growth and Employment

Negligible.

Impact on Europe as a Business Location

Negligible.

Legal Assessment

Legislative Competency

Unproblematic. The EU is permitted to take energy policy measures in order to secure the functioning of the energy market, to guarantee security of the energy supply, to promote the interconnection of energy networks as well as to support energy efficiency, energy savings and the development of new and renewable energy sources (Art. 194 TFEU). In this regard, the EU can – in supplement to the measures of its Member States – promote research and technological development (Art. 179-188 TFEU). In particular, the Commission can take initiatives to coordinate the research and technology policy of the EU and its Member States (Art. 181 TFEU).

Subsidiarity

Unproblematic.

Proportionality with respect to Member States

Unproblematic.

Conclusion

A shift away from precisely defined technology roadmaps is better suited to the unpredictability of the development of new energy technologies. By focussing the SET Plan on the prioritised areas of the "Energy Union", research projects can concentrate on the long-term EU energy policy targets. Any provision of EU funds for the market launch of new technologies must be time limited otherwise there is a risk that permanently unprofitable technologies will become state supported. Cross-border cooperation on energy research may accelerate the development of new technologies. Public procurement should be deployed as an instrument for promoting new technologies if necessary, insofar as this is not detrimental to the efficient provision of public goods.