



Answer to the European consultation

EU Research and Energy Policy – Reform of the Strategic Energy Technology Plan (SET Plan)

Date: October 2022

The French Atomic Energy and Alternative Energies Commission (CEA) is a public research organisation with significant knowledge and skills in the field of low-carbon energy. Strongly involved in the construction of the European Research Area (2nd largest beneficiary of European projects financed by the Horizon 2020 framework programme), the CEA is also involved in the SET Plan, via the European Energy Research Alliance (EERA). The CEA is active in seven of the eighteen EERA Joint Programmes (Advanced Materials for Processes and Energy Applications, Digitalisation for Energy, Fuel Cells and Hydrogen, Bioenergy, Nuclear Materials, Concentrated Solar Power, Solar Energy), and it participates in the European SUPEERA project in support of the EERA's missions to coordinate and strengthen European cooperation in energy research.

The CEA welcomes the willingness of the European Commission to revise the SET-Plan for a second time. Given the political and technological challenges facing the energy sector, as well as the rich and intense pace of publication of new energy policy initiatives at the European level, the SET-Plan needs an update to ensure its continued relevance. In this sense, the CEA supports the European Commission's determination to align the SET-Plan with all its other plans and programmes (including the ambitions of the Green Deal for Europe). This includes updating the SET-Plan with cross-cutting considerations, in line with the evolution of energy issues (decarbonisation, security of supply, strategic autonomy, affordability, social acceptance, training), and scientific discoveries (digital, materials). The CEA also welcomes the consultation process of the stakeholders of the SET-Plan conducted by the European Commission as of January 2022, while regretting that the European energy research organisations have not been more mobilised.

The objectives set for the SET-Plan at its launch included:

- A new joint strategic planning in the field of energy research;
- A more effective implementation of this planning and cooperation;
- An increase in the resources available for energy research, due to the optimisation and pooling of objectives;
- A new and strengthened approach to external/international cooperation.

The extent to which these objectives have been achieved by the SET-Plan is now questionable. Although the latest report shows a mainly private increase in R&I spending of 24% between 2015 and 2018, it is difficult to see this as a consequence of the SET Plan.

Similarly, despite the important work carried out by the European Commission, Member States and public and private stakeholders in the bodies created for the implementation of the SET-Plan (steering

groups, "Implementation Working Groups", EERA or ETIPs¹), it is challenging to identify the major effects of the SET-Plan in regards to the alignment of research programmes and the coordinated implementation of national and European resources. The Horizon 2020 ERA-NETs and now the Clean Energy Transition Partnership are very useful tools in this direction, but they are potentially not commensurate with the initial ambition of the SET-Plan or the scale of the challenges.

In addition, two major developments have transformed the context in which the SET-Plan operates today.

- For several years, new European political initiatives have strongly contributed to a European structuring in the field of energy technologies. The definition of European strategies for hydrogen, batteries, offshore wind and solar energy have led to the creation of European industrial alliances, often coupled with the definition of strategic research agendas implemented in Horizon Europe R&D partnerships, and, where appropriate, with the launch of Important Projects of Common European Interest (IPCEI) to promote national investments. These new tools have been developed largely outside the framework and governance processes established by the SET Plan, to which there is almost no reference.
- The scale of the energy and climate transition challenges, combined with a major fossil gas supply crisis (and probably oil supply crisis in the future) leading to soaring prices, leads to a regular and rapid redefinition of European ambitions, the realisation of which is largely based on technology. However, the priorities and operating mechanisms of the SET-Plan were set at a different time, and thus certainly deserve to be adapted to the new situation in which the EU finds itself and to the evolution of research and innovation in the field of renewable and low-carbon energies since the launch of the SET-Plan.

In this context, the SET-Plan should provide a benefit to complement the current sectoral initiatives and a capacity to contribute to the objectives of the European Green Deal, Fit for 55 and RePowerEU. From the CEA's point of view, the revision of the SET-Plan could thus aim at:

- Reaffirming the specificity of the SET-Plan by strengthening and building on its systemic approach;
- Redefining the governance of the SET-Plan to increase its readability, transparency and participation;
- Increasing the impact of the SET-Plan by integrating it into the complementarity of existing sectoral initiatives, and in the treatment of cross-cutting challenges, common to the different sectors of the energy field.

Reaffirm the specificity of the SET Plan by strengthening and building on its systemic approach

At its inception, the SET-Plan was conceived as a platform for global cooperation in energy research, aiming at increasing dialogue and synergies between the Member States and the European Commission, to break down the silos between energy sectors by adopting a systemic approach, and to contribute to the implementation of the Energy Union.

After fifteen years of implementation of the SET Plan, this horizontal approach, that guarantees the proper integration of our energy systems, is still relevant for the energy research ecosystem. New challenges have been added: Taking advantage of digital technologies (HPC, artificial intelligence...),

¹ *European Technology and Innovation Platforms*



guaranteeing an adequate supply of raw materials, building independence of the EU's energy supply, developing sustainable materials and processes, increasing the resilience of European value chains, deriving adapted economic models from our uses, and improving social acceptance, in particular. The CEA welcomes the European Commission's inclusion of these new cross-cutting issues, common to all or at least several of the energy aspects, among the priorities of the SET-Plan, as this is where it finds all its added value.

Redefining the governance of the SET Plan to increase its readability, transparency and participation

The governance and activities of the SET-Plan are poorly understood and are not transparent. Experts and researchers within European energy research organisations are only marginally involved in the strategic activities of the SET-Plan Steering Group, and there is no clear point of contact to access information and link their activities within the EERA Joint Programmes, the Steering Group and the Implementation Working Groups.

At national level, the SET-Plan also lacks visibility, and therefore impact. There is scant mention by the Member States in their national policies. The SET-Plan has little influence on the choice of research topics funded by the Member States, where it does not appear as a priority. In order to function, the SET-Plan needs to build on a concrete willingness from Member States to cooperate and align their objectives. The priorities identified through the work of the SET-Plan ought to influence national energy research policies.

In order to structure the mobilisation of Member States, and a fortiori European synergies, the platforms provided by the SET-Plan needs to be more recognised and valued, and their members funded for their activities and travel. Redefining the strategic role and impact of the SET-Plan bodies would also encourage the Member States, less involved in European energy research, to get involved. However, the participation of all European Member States should not become a necessary condition for the capacity of the SET-Plan bodies to move forward or to legitimate the priorities identified.

The composition of the SET-Plan Implementation Working Groups and Steering Group and their activities need to be made known to stakeholders, including the research community, also in the interest of the visibility, participation and impact of the SET-Plan.

The proposed alignment with the European Research Area bodies should not lead to an increased complexity (already significant) of the governance of these two initiatives. On the other hand, the CEA supports the idea that a follow-up of the National Energy and Climate Plans (NECPs) could be carried out within the SET-Plan bodies.

Increase the impact of the SET-Plan by making it complementary to existing sectoral initiatives and addressing cross-cutting challenges common to the different energy fields

Insofar as it aims to provide a forum for cooperation in energy research in the broadest sense, the SET-Plan is indeed of interest, provided that it manages to find its place in an ecosystem that has changed considerably over the last fifteen years. The emergence of new initiatives and bodies on the European scene has contributed to overshadowing the SET-Plan and limiting its impact – all the more so as these initiatives (industrial alliances, partnerships) have been far more successful both in terms of mobilisation and impact. According to the CEA, the challenge is not so much for the SET-Plan to try to



equalize and claim its initial place, but rather to learn from the difficulties encountered in order to define a new and truly effective dynamic, and a strategy to find its new place in this landscape.

In order to increase the impact of the SET-Plan, the CEA supports the Commission's idea of giving it a more general, mission-oriented priority. While thematic and sectoral initiatives are flourishing and are already providing policy makers with structured technology roadmaps for energy research, the SET-Plan could have the following objectives:

- Ensure the systemic coherence of the various sectoral technology roadmaps and their articulation ;
- Identify the more generic R&D and innovation needs that could serve all these initiatives (materials, digital, systems integration, circularity and life cycle analysis, etc.);
- Include all available low-carbon technologies, and not only renewable energies. Similarly, all storage technologies need to be considered (batteries, biofuels, e-fuels and solar fuels, etc.), including (or even especially) when their level of technological maturity is still low, in order to reinforce the complementarity of the SET Plan with existing industrial initiatives. In regards to digital technologies, the CEA calls on the Commission to include solutions provided by modelling and simulation based on high performance computing – both for their potential services for demand management, production and capacity optimisation, and in-silico optimisation of materials and technological solution designs.