



European Strategic Energy Technology Plan

Consolidation and streamlining Europe's energy resources is key to maintaining its global competitiveness. **Erkki KM Leppävuori**, Chairman of the European Energy Research Alliance and CEO of VTT Technical Research Centre of Finland, outlines the European Strategic Energy Technology Plan and highlights EERA's contributions

As the Chairman of the European Energy Research Alliance (EERA), what does your role involve?

I am in charge of representing EERA to external stakeholders, and I chair the meetings of the Executive Committee which represents the main decision-making body of EERA.

Given the diverse nature and interests of the stakeholders composing EERA and its main body, using an approach that focuses on mediation is crucial to my role: trying to make different positions converge to widely shared ones of high added value in Europe.

Could you provide an insight into the Alliance's work, members and how it contributes to the European Strategic Energy Technology (SET)-Plan?

SET-Plan proposed that European research organisations should strive to improve integration. The final goal is to align, defragment, de-

duplicate and coordinate the respective research efforts with a shared European vision and strategic planning. The result would generate a better use of national resources and help Europe to become more competitive on a global scale.

EERA is currently composed of 150 members from 22 different countries and includes almost all the major players of the energy research field. We are engaged in creating a 'Virtual European Institute on Energy Research', serving as research arm of SET-Plan – in an open collaboration with industrial initiatives which focus on mature technology development.

How does the Alliance streamline R&D activities in different Member States? To what extent have you increased your research impact?

We have established 13 Joint Programmes (JPs) for various research fields. These are strategic, permanent collaborations between research organisations. Participating scientists are willing to share their findings,

by creating a research plan that lasts at least four years. Given the young nature of EERA, trust between the different parties is still developing. The common strategies and the division of tasks is still under continuous refinement but a signal of the success of our approach is demonstrated by the increasing number of organisations willing to share duties and knowledge. I truly believe that in the coming years, the impact of JP activities will be increasingly visible and tangible. Promising results are already emerging: national alliances are currently being created with the aim of mirroring the EERA approach and defragmenting the nationally-based research activities to provide stronger national EERA input.

At its core, EERA consists of 15 top research and technology organisations (RTOs) from 15 EU Member States. What do you offer these members?

Though the idea behind EERA is theoretically easy to understand and share, in practice, it is hard to convince and stimulate the whole European research community to participate because synergies at the research level usually deliver concrete benefits in the medium/long term. Management of the whole initiative is a complex exercise in 'learning by doing' given its novelty and lack of similar past experiences.

We have to remember that there are different cultures and structures in each Member State. Organisations and national funding mechanisms vary, as do research agendas in the various countries, especially in the energy field.

The 15 members have to conceive novel strategies and rules in an effort to create a framework in which different European research groups can agree on the sharing and coordination of their work towards commonly agreed targets. This exercise takes a long time, with additional internal refocusing and reallocation of research activities among the organisations involved.

The challenges we will face include: how to finance shared equipment and how to provide the right incentives to organisations currently participating on a voluntary basis. Overcoming these barriers would lead to an acceleration of the whole process.

How is the SET-Plan establishing an energy technology policy for Europe?

SET-Plan fixes measurable targets and objectives and defines the instruments needed to reach them.

In contrast to other technological areas, energy has clearly benefited from SET-Plan as various stakeholders have a clear direction in which to move in line with SET-Plan objectives. The strategic alignment of research activities with SET-Plan goals is already occurring and can be observed in the incentivising effect of various EU calls for proposals issued during the Seventh Framework Programme.

A challenging aspect of SET-Plan relates to the fact that it addresses three main issues at the same time: security of energy supply for Europe; competitiveness of European industry; and low carbon energy production. These goals are not easily reconciled. The planned revisions to SET-Plan will pave the way for the fulfilment of our goals.

How urgent is the need to make low carbon technologies more cost-effective?

The current price of the kWh produced by renewables is certainly too high compared to the one produced from traditional fossil sources. Renewables are still too dependent on public incentives for their full deployment and their cost-effectiveness must be improved further.

This calls for more research and demonstration activities in order to reduce production costs for energy technologies as well as improved efficiency across all thematic areas. A stronger dialogue with industry is required as well as improved coordination between different technological areas.

SET-Plan provides a solution to this. Combined with a clear International Cooperation Approach and an information management system, it aims to spread information on energy technologies and innovation-related aspects.

What are the goals of the JPs and how do you ensure you have good coverage across a range of energy topics?

The 13 JPs are currently in different development stages as some were launched earlier than others. However, under each topic, JPs aim to create research programmes with European scope by aligning, defragmenting and optimising the national research activities run by each participating stakeholder. The openness of EERA to any organisation willing to enter (and, at the same time, willing to share its own funded activities, knowledge and infrastructures) guarantees a wide coverage at the European level.

A periodic review made by external reviewers contributes to the quality and efficiency of research activities, focusing on issues which include: impact relevance; research community integration; coverage of relevant research themes; and proper allocation of resources over the different tasks. Recommendations provided by the reviewers are translated into corrective actions where possible.

Since SET-Plan involves international cooperation in the field of energy technology, can you highlight the type of challenges associated with this kind of collaboration?

Finding suitable international partners for research in Europe is not easy because of fragmentation. EERA should become the single contact point for international partners in energy research. There is a strong focus on international collaboration (eg. US, Australia, Japan and China) with the Directorate General of Research and Innovation (DG RTD) and EERA through participation in workshops, but no agreement between governmental organisations has been reached.

In fact, the individual organisations participating in EERA have excellent connections to partners worldwide but these contacts are based on a bilateral partnership to offer the best technology available. These bilateral contacts should be fostered by funding authorities, because Europe is benefiting from those collaborations.

At times, political decisions and policies are not orientated in the right direction to fully support research. Have you experienced this and what approach can be taken to negotiate with policy makers so that R&D in this sector increases?

Energy research is performed to make our industry more competitive in the long run, improve the security of supply and lower the CO₂ input in the atmosphere. These are all good reasons to support research, but the payback will show only after a long time, usually beyond four years – the normal duration of a political mandate – making it more difficult to obtain a formal political commitment. Furthermore, the difficult economic situation forces research organisations to optimise the use of available resources both at EU and national level.

EERA is working at streamlining the efforts of research organisations through a more harmonised European energy research system. If successful, we will have a good argument to convince policy makers that EERA funding has been well invested. It is also important to understand that policy makers need a strong scientific foundation upon which to base their decisions. Evidence-based policy is far more important than policy-based evidence!

You have commented that the difficult economic times required EERA to 'do more with less'. At a time when you have had to increase the quality and impact of your research, how has this been accomplished?

The difficult economic times are currently accelerating an integration process in energy technology, leading the system to organise itself in order to 'do more with less'. It is especially important to streamline our activities between research actors – not only in the EU but globally.

EERA had anticipated what the driving process of the future Horizon 2020 programme would be, ie. reinforcing the integration of national funds with European ones. The process is ongoing, but my feeling from the discussions made at the Executive Committee of EERA is that we are close to an overall accepted approach that would make things possible. The role of EC and Member States in achieving this is crucial.

By what means are you communicating with the general public? Who has access to your research findings?

EERA is strongly involved in dissemination activities (ie. delivery of presentations and/or organisation of events). Among them, it is worth mentioning the European Energy conference (E2C), EU Sustainable Energy Week, the SET-Plan conference and our own Annual Congress. A website and bimonthly newsletter sent to registered subscribers completes the dissemination tools at our disposal.

In general, EERA findings are still published under the affiliation name of the involved organisations; however, in a couple of cases, official technical deliverables have been issued by JPs.

As Chairman of EERA and President/CEO of VTT you are aware of the various SET-Plan technologies. How is EERA progressing in terms of meeting SET-Plan goals for 2020 and beyond?

The key SET-Plan goals are not only research-based, but political-based as well (ie. achieving certain levels of energy supply by certain technologies). Within the SET-Plan strategy, EERA was conceived and launched to make energy research more efficient. Now well-established, we can believe we have achieved this SET-Plan goal. It is, of course, too early to measure the impact the alliance will have on the development and deployment of new technologies. I am optimistic but we must ensure EERA becomes fully integrated, within an overarching framework which includes all SET-Plan stakeholders in order to boost the frequency and quality of the interactions with them. To achieve this, the guidance of EC and active involvement of Member States is crucial.

Finally, who can join EERA and how does the Alliance foresee its work progressing?

I have often been asked if EERA is open for all European research organisations. EERA is open to all peer research organisations willing to share and streamline their knowledge and infrastructures, and activities carried out at national level.

The integration and management of all participants requires financial resources, however, no financial incentives have currently been allocated by governments to support EERA. Incentives are thus needed for this 'glueing' process to take place, in order to quickly and more effectively harmonise national activities through a proper coordination of all players. Through well-coordinated processes, energy technology research priorities and gaps in added value within Europe can be promptly identified and lead to more efficient allocation of EU funds. All this will lead to an acceleration of the development of the technologies concerned in line with SET-Plan objectives.



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