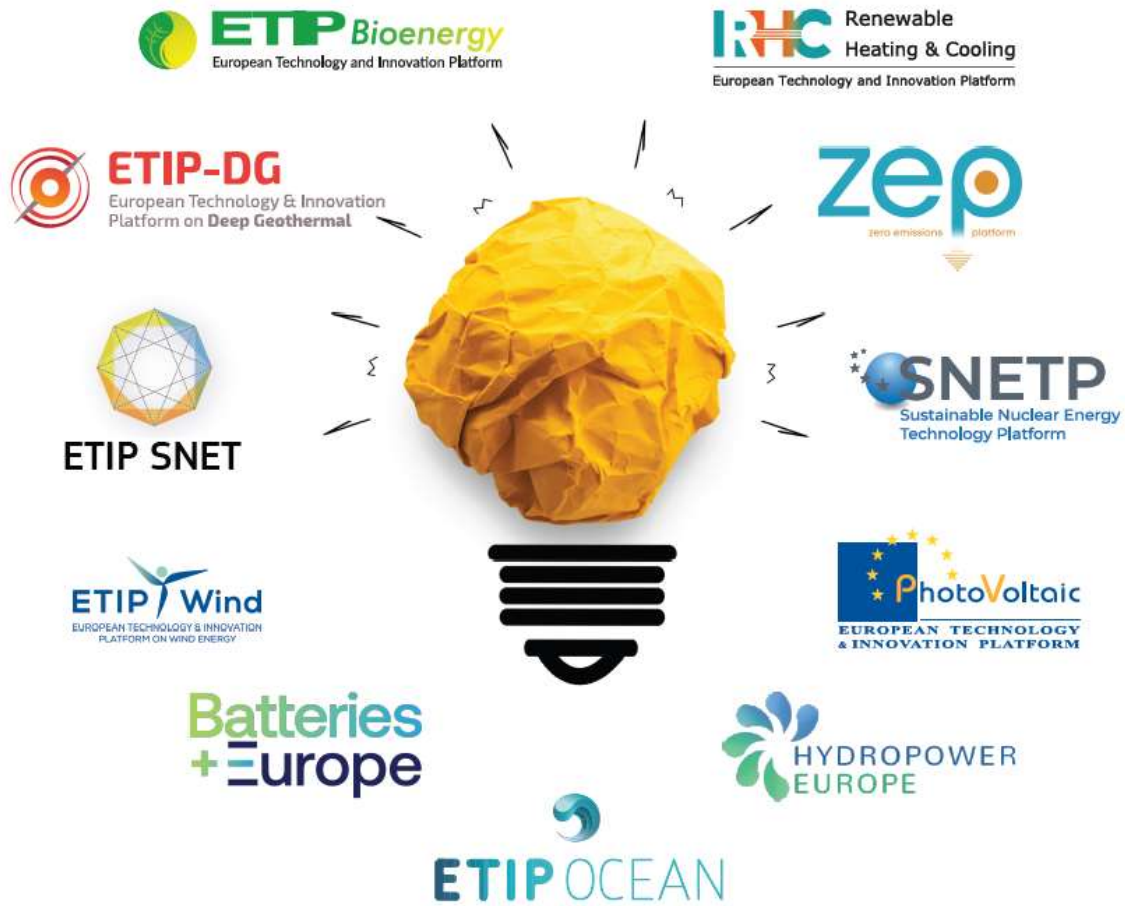


ETIPs FORUM



In collaboration¹ and with the support EERA – The European Energy Research Alliance



¹ In this FORUM it is also included the CSP represented by ESTELA.

1st Position Paper and recommendations for the SET Plan review process

2nd November 2022

Table of Contents

Background	4
Methodology used for this 1st Position Paper – Structure and Main findings.....	5
TOPIC 1 - “To which extent do you consider that your ETIPs’ SRIA (or equivalent) is incorporated into the existing Implementation Plans of the respective IWG?”	5
TOPIC 2 - “How would you rate the SET Plan impact in providing a collaborative mechanism (e.g., networking, funding, platforms et sim.) for the execution of the SRIAs?”	5
TOPIC 3 - “To the already existing technological and cross-thematic areas (i.e. energy efficiency, digitalisation etc.), which non-technological topics should be addressed by one or more IPs?”	5
TOPIC 4 - “Indicate at least three barriers and obstacles that prevent the smooth integration of ETIP’s priorities into respective Implementation Plan”	6
TOPIC 5 - “In addition to specific ETIP’s priorities, which in your understanding are the most important overarching strategic objectives and targets per technology that should be covered/included in the SET Plan?”	9
TOPIC 6 - “Which actions would you consider as more effective to improve the impact of the [SET Plan]?”	12
TOPIC 7 - “Given the strategic importance of the recent EC communication on the REPowerEU plan, what are in your opinion the long-term (>5 years) R&I challenges that you would like to see integrated into the revised SET Plan IPs?”	14

List of Figures

Figure 1 “To the already existing technological and cross-thematic areas (i.e. energy efficiency, digitalisation etc.), which non-technological topics should be addressed by one or more IPs?”	6
Figure 2 – “Which actions would you consider as more effective to improve the impact of the [SET Plan]?”	12

List of Tables

Table 1 - Barriers and obstacles to the smooth execution of EU energy R&I objectives identified by ETIPs.	8
Table 2 - Overarching strategic objectives and targets for the energy sector identified by ETIPs”	11
Table 3 – “Given the strategic importance of the recent EC communication on the REPowerEU plan, what are in your opinion the long-term (>5 years) R&I challenges that you would like to see integrated into the revised SET Plan IPs?”	16

Background

The role and contribution of ETIPs and organisation that formally act as ETIPs in the SET Plan

In view of the ongoing review process of the Strategic Energy Technology Plan (SET Plan), the ETIPs namely, [ETIP Wind](#), [ETIP PV](#), [ETIP Ocean](#), [ETIP Deep Geothermal](#), [Smart Networks for Energy Transition](#), [ETIP on Renewable Heating and Cooling](#), [ETIP Bioenergy](#), [ETIP Batteries](#), [Zero Emissions Platform](#), [Sustainable Nuclear Energy Technology Platform](#) and the organisation that formally act as ETIPs even if not formalised as such (Hydropower initiative and CSP) ²drafted the present position paper to inform the European Commission (EC) and other stakeholders involved in the process, about the common position on the SET Plan implementation and recommend possible pathways for a more efficient and inclusive implementation and an effective interaction between all partners.

The present document represents the announced supporting document to the 8 preliminary recommendations delivered to the EC on 28th October.

Within the SET Plan framework, the European Technology and Innovation Platforms (ETIPs) play a key role at bringing industry and academia for the coordination of R&I in low carbon technologies through a fast and cost-competitive way and also giving ad hoc advice on crucial industrial policies. Capitalising on their hands-on experience from the actual implementation of the SET Plan, ETIPs are well positioned to identify any relevant drawbacks and recommend possible pathways to address them.

In order to achieve the described goals, and in the framework of the [SUPEERA](#) project, coordinated by the [European Energy Research Alliance](#) (EERA aisbl), the ETIPs were solicited via a questionnaire to express **their view on the current implementation** of the SET Plan and **suggest recommendations** for its improvement.

The responses that were collected between 16th May and 26th June, were discussed with the ETIPs coordinators during the ETIP Forum meetings on 23rd May 2022 and on 11th October at EERA premises in Brussels.

*This document collected and gathered first recommendations and feedback. This needs to be considered **not as the last one or definitive one**. Other rounds of discussions will take place within the ETIPs FORUM and update to the present document and additional input will be collected and shared in the next months with the relevant stakeholders.*

² Please note that these entities will be included in the document in the category ETIPs

Methodology used for this 1st Position Paper – Structure and Main findings

The above mentioned questionnaire was structured in order to collect the ETIPs' feedback on both their experience of the SET Plan framework and on its role in the Clean Energy Transition. It was structured along 7 topics, classified into three categories:

- a) SET Plan Implementation Plan(s),
- b) SET Plan's at general level
- c) ETIPs and REPowerEU communication.

TOPIC 1 - *“To which extent do you consider that your ETIPs' SRIA (or equivalent) is incorporated into the existing Implementation Plans of the respective IWG?”*

The majority of ETIPs consider their SRIAs to be well integrated into the Implementation Plans (IPs) of the Implementation Working Groups (IWGs). This is particularly true for those ETIPs that have contributed directly to the elaboration of the IPs, which in some cases it is a very similar document as their Strategic Research Innovation Agendas (SRIAs). In contrary, some ETIPs also report that there are several R&I topics that are not currently included in the IPs and sometimes some duplications.³

TOPIC 2 - *“How would you rate the SET Plan impact in providing a collaborative mechanism (e.g., networking, funding, platforms et sim.) for the execution of the SRIAs?”*

The collaboration is not perceived as a priority, since some ETIPs recognised the low impact and 4 of them did not even reply to the question.

TOPIC 3 - *“To the already existing technological and cross-thematic areas (i.e. energy efficiency, digitalisation etc.), which non-technological topics should be addressed by one or more IPs?”*

Beyond the established technological cross-thematic areas (i.e. the three cross-cooperation areas organised by IWG 6 on the topics of the integration of electrical and heat renewable energy sources, including flexibility and storage and on the topic of circularity, Life Cycle Assessment (LCA) etc.), the ETIPs agree that most recurring non-technological topics common for ETIPs are the issues related to policy & regulation and education & training,

³ CSP stressed that this mismatching has been done to a large extent, considering the existing CSP Implementation Plan, however an important update of the CSP Implementation Plan is expected shortly. The Hydropower Europe Forum (followed now by ETIP Hydropower) has established an RIA and SIR. Recent announcement regarding Cost Actions and CETO reports reveal that both document are considered.

followed by social awareness, acceptance and engagement. Though, the areas of R&I funding programmes, standardisation and socio-economic policies should not be overlooked, the latter being perceived by respondents as a high priority. ⁴

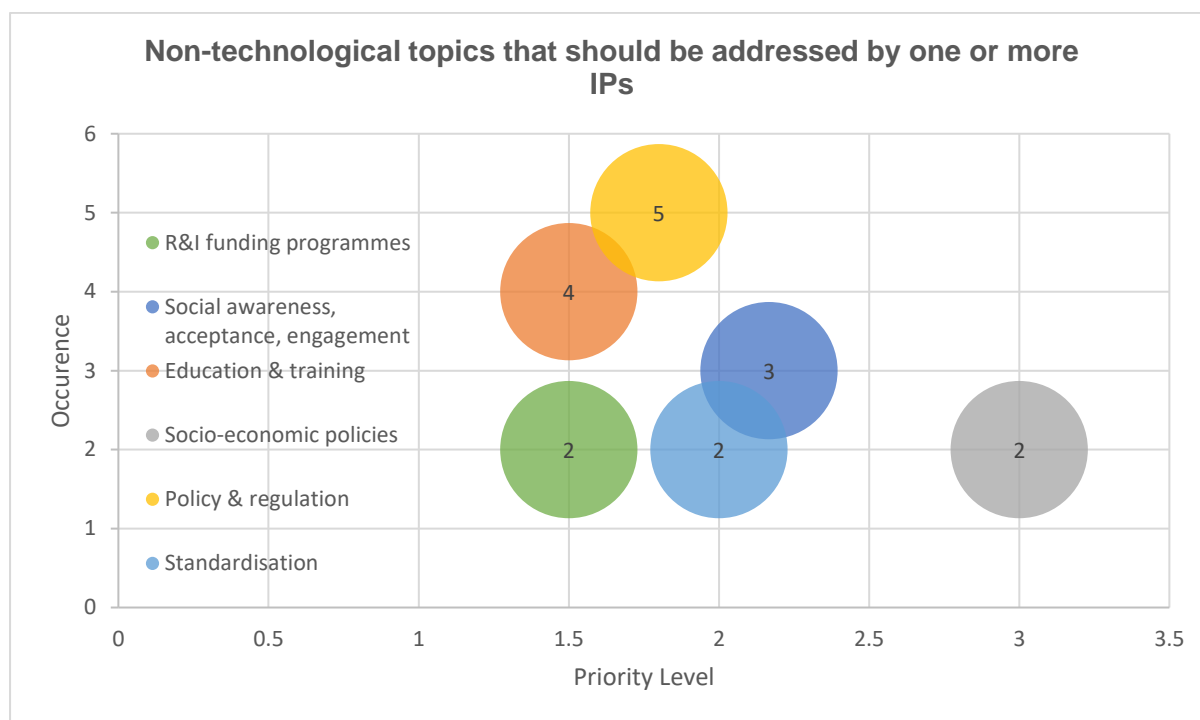









Figure 1 “To the already existing technological and cross-thematic areas (i.e. energy efficiency, digitalisation etc.), which non-technological topics should be addressed by one or more IPs?”

TOPIC 4 - “Indicate at least three barriers and obstacles that prevent the smooth integration of ETIP’s priorities into respective Implementation Plan”

When it comes to the perceived obstacles on the execution of the EU energy R&I objectives, the ETIPs call for a **better collaboration between the different SET Plan entities and better coordination between stakeholders at national and EU level**. The answers are shown in the following table: ***Barriers and obstacles to the smooth execution of EU energy R&I objectives identified by ETIPs.***

⁴ ETIP HYDROPOWER commented: The electricity market has been distorted in the past by subsidises which resulted for example in unfavourable low spot market prices hindering the uprating of hydropower including storage increase. With the energy crisis there is a tendency to intervene strongly into the market which may hinder the investment in renewables including storage and pumped-storage hydropower highly needed for grid safety.



	<p>ETIP Photovoltaic</p>	<ul style="list-style-type: none"> • Need for a higher level of engagement by MS representatives. • Need for direct communication between ETIPs and Steering Group members. • Need for better communication between ETIPs and the EC (e.g. in the form of a side event during the SET Plan conference).
	<p>ETIP Wind</p>	<ul style="list-style-type: none"> • Need for a better alignment of IPs with the European policy ambitions and the NECPs. • Need for increased communication between the ETIPs, the EC and the SET Plan Steering Group Members. • Member States representation in SET Plan with direct responsibility in R&I budget allocation, policies implementation and NECP preparation.
	<p>ETIP Deep Geothermal</p>	<ul style="list-style-type: none"> • Need for a better definition of roles between the different agencies: Too many agencies are dealing with the same themes and often there is an overlapping of competencies.
	<p>ETIP Ocean Energy</p>	<ul style="list-style-type: none"> • Need of better integration of the SET Plan to national and EU policies & priorities.
	<p>ETIP Smart Networks for Energy Transition (SNET)</p>	<ul style="list-style-type: none"> • Need for better coordination between SET Plan stakeholders, efficient and continuous information exchange, and direct communication links among all SET Plan stakeholders (ETIPs, MS/ACs, JPs etc.). • Need of technical expertise within the SET Plan Action 4 to translate technology-specific challenges to concrete R&I actions.
	<p>ETIP Renewable Heating and Cooling</p>	<ul style="list-style-type: none"> • Need for a dedicated IWG, as at the moment is linked to IWG5 under action 5.2 on Cross cutting heating and cooling technologies for buildings. However, the scope of renewable heating and cooling technologies go beyond the scope of buildings. This results to underrepresented technologies and the partial exclusion of ETIP SRIA priorities to the IWG5 IP.
	<p>ETIP Batteries</p>	<ul style="list-style-type: none"> • Need for better collaboration between ETIPs (e.g. sharing activities, timelines etc.)





	<p>ETIP Bioenergy</p>	<ul style="list-style-type: none"> • Need for closer collaboration with the national funding agencies.
	<p>Zero Emissions Platform</p>	<ul style="list-style-type: none"> • <i>Contributions will be added in a second step</i>
	<p>ETIP Sustainable Nuclear Energy (SNETP)</p>	<ul style="list-style-type: none"> • Need for better collaboration with the other ETIPs , especially on cross-cutting activities (security of supply, resources, Digital, Robotics, Materials, energy sector integration, health...). • Need for long-term vision and therefore more resources on the sustainable, affordable and secure energy mix both at the MS and EC levels. • Need for not siloed approach of EU energy strategy and utilisation of all available tools to reach the net-zero goals. • Need for public awareness for societal acceptance of the role of Nuclear energy in the decarbonisation strategy of the EU.
	<p>ETIP Hydropower</p>	<ul style="list-style-type: none"> • Need for more clarity on the SET Plan structure and the roles of the different actors.
	<p>CSP</p>	<ul style="list-style-type: none"> • Lack of support by Member States with a potential for CSP deployment, resulting in low participation of stakeholders in the IWG activities • Lack of awareness about other uses of CSP technology, e.g., industrial process heat applications and solar fuels production • Inadequacy of procurement mechanisms for new renewable capacity (tender design)

Table 1 - Barriers and obstacles to the smooth execution of EU energy R&I objectives identified by ETIPs.

TOPIC 5 - “In addition to specific ETIP’s priorities, which in your understanding are the most important overarching strategic objectives and targets per technology that should be covered/included in the SET Plan?”

Regarding the overarching objectives and targets for the energy sector that should be covered by the SET Plan, the responses as shown in **Error! Reference source not found.** below, were rather technology specific and the proposals were hardly shared between different ETIPs, showing that there are often no points of common interest (and no interaction) between them and therefore **there is a need to initiate and strengthen cross-sectorial collaboration and cooperation. The replies collected are reported in the following table: “Overarching strategic objectives and targets for the energy sector identified by ETIPs”**

	<p>ETIP Photovoltaic</p>	<ul style="list-style-type: none"> • Transversal: digitalisation, electrification, integration of renewable energy and storage technologies across energy sectors, training and skill development of the workforce • PV centric: integrated PV technologies, diversification of PV technologies, European manufacturing, continued costs reduction (O&M, new technologies...), sustainability profile of PV
	<p>ETIP Wind</p>	<ul style="list-style-type: none"> • Transversal topics : Digitalisation, electrification, industrialisation, human resources. • Wind energy specific : grid & system integration, operations and maintenance, next generation technologies, offshore balance of plant and floating offshore wind. • The SET-Plan should be aligned with the REPowerEU 2030 targets and the 2050 climate and energy targets of the EU Climate Law. The European Commission envisages 510 GW of wind energy by 2030, 60 GW more than the impact assessment of the Fit-for-55 package, and over 1,000 GW of wind power by 2050. The SET-Plan should be the vehicle to align R&I efforts across Europe to deliver those ambitions.
	<p>ETIP Deep Geothermal</p>	<ul style="list-style-type: none"> • RED target of 40% RES share for heating must be a priority and can be enhanced by geothermal resource development and Seasonal heat storage deploying DG technology in conjunction with the

		<p>development of District heat network infrastructures</p> <ul style="list-style-type: none"> • Installing new renewable energy capacity (power and direct heat) • Electrification of domestic and industrial users through the implementation of heat pumps (geothermal)
	ETIP Ocean Energy	<ul style="list-style-type: none"> • Real-sea demonstration, pilot arrays, operations & maintenance, moorings & connections.
	ETIP Smart Networks for Energy Transition (SNET)	<p>It should be on :</p> <ul style="list-style-type: none"> • Deep electrification • Integration of new generation RES and new type of loads • Ensure flexibility • Chemical storage technologies and P2X (e.g. H₂): Improve efficiency and costs. • Thermal storage technologies: improve energy density, cost and lifetime at different working temperature. • Pump hydropower: Development of small-scale solutions and marine solutions, reduction of time for deployments.
	ETIP Renewable Heating and Cooling	<ul style="list-style-type: none"> • 2030 RED target of 40% RES share for heating must be a priority. H&C accounts for half of all energy consumption and continues to be neglected. This target (and sub-targets) covers a wide range of technologies. • Highly energy-efficient and climate neutral EU building stock”: a) “Accelerated fuel switch fuel from gas to RHC in buildings” b) “Accelerated fuel switch fuel in District heating and cooling systems” 3) “Switch fuel in industry: H&C supply for low- and medium-temperature processes”
	ETIP Batteries	<ul style="list-style-type: none"> • Skills and education: Attract the most prominent experts from all value chain with a focus on domains recently emerging, notably recycling and manufacturing. • New thematic areas: Bring new thematic areas, facilitated by the creation of new Task Forces (such as Social Science &


		<p>Humanities, Standardization and Hybridization), as well as strengthening the effort on current critical domains: Digitalization among all.</p> <ul style="list-style-type: none"> • International cooperation: Facilitate the establishment of a dialogue at a global level around selected topics to influence the international battery agenda with EU priorities and values. • Citizens' Engagement: citizens and stakeholders and promote STEM disciplines to push societal transformation towards a climate neutral economy.
	<p>ETIP Bioenergy</p>	<ul style="list-style-type: none"> • An adequate energy portfolio to reach the net-zero goals by 2050 in which the Nuclear can play its role as low carbon, affordable, sustainable, and secure energy source • Use of Nuclear energy to support non-electric applications and energy conversion systems <p>Cross-sectorial industrial cooperation between electricity, heat, hydrogen generation and energy intensive sectors will be a key element to drive success.</p>
	<p>Zero Emissions Platform</p>	<p><i>Contributions will be added in a second step</i></p>
	<p>ETIP Sustainable Nuclear Energy (SNETP)</p>	<ul style="list-style-type: none"> • Assessment of the competitiveness of various technologies used for system backup • Assessment of the procurement mechanisms • A true system-integrative support to cross-sector RES projects
	<p>ETIP Hydropower</p>	<p><i>Contributions will be added in a second step</i></p>
	<p>CSP</p>	<p><i>Contributions will be added in a second step</i></p>

Table 2 - Overarching strategic objectives and targets for the energy sector identified by ETIPs”

TOPIC 6 -“Which actions would you consider as more effective to improve the impact of the [SET Plan]?”

The ETIPs view on the most needed actions to improve the impact of the SET Plan is shown on the figure 2 below. Their answers are based on four main options:

1. Improve flexibility of both European and national strategies and action plans’ revision processes
2. Enhance collaboration/involvement or on-time mobilisation of the relevant stakeholders (industry, Members states, research etc..)
3. Increase the accessibility to funding and partnership opportunities to address emerging R&I collaboration needs
4. Ensure more influence for the JPs and relevant Platforms (e.g. ETIPs) in the governance of the SET PLAN

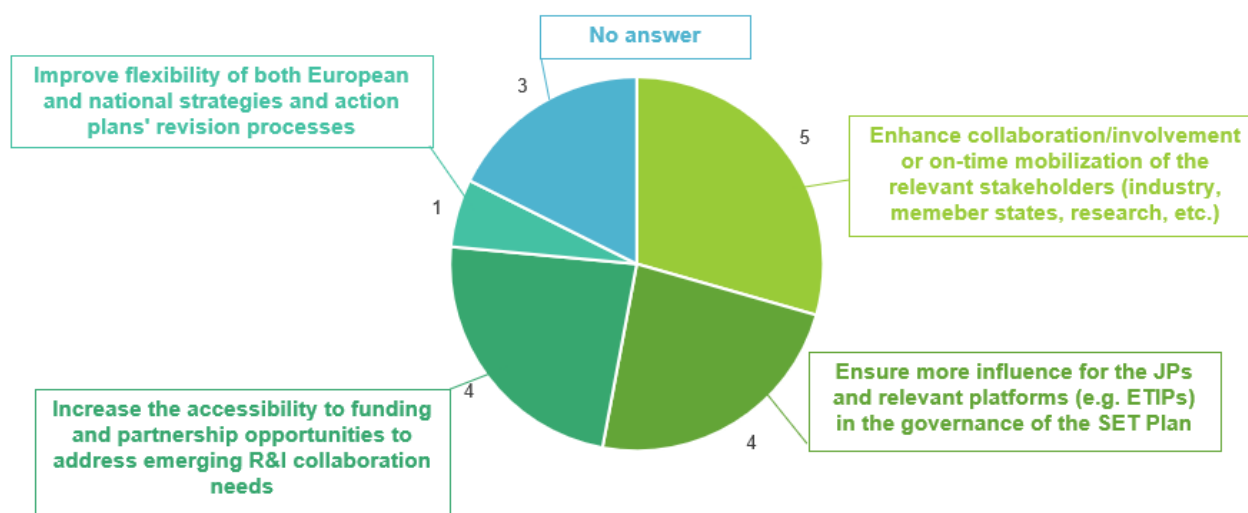


Figure 2 – “Which actions would you consider as more effective to improve the impact of the [SET Plan]?”

As shown in 2, the **enhancement of collaboration or on-time mobilization of the relevant stakeholders (industry, MS, research etc.)** was noted as the most needed action to improve the impact of the SET Plan.

This opinion was widely voiced from several ETIPs representatives.

The ETIP Bioenergy underlined the importance of **collaboration between ETIPs and national funding agencies**, especially since the current collaboration scheme does not allow for an efficient **acknowledgment of ETIP’s SRIA by policy makers**.

In the same note, the ETIP PV mentioned that **higher engagement from MS/ACs representatives** would enable a more efficient workstream, recommending that a new SET Plan structure should foresee a **better communication channel between ETIPs and the**

Steering Group members. This view was also expressed by ETIP SNET, asking for more engagement from the MS/ACs side.

Moreover, they highlighted the need for **closer collaboration between the ETIPs and the EC** – proposing that this collaboration could possibly materialise through a side event during the SET Plan conference with the participation of all ETIPs representatives.

The ETIP WIND stressed that

- The European Commission and Member States should collaborate closer with ETIPs in the implementation of the R&I priorities (more frequent interactions)
- The European Commission and the Joint Research Centre should organise at least one meeting each year between the chairs of the ETIPs, the IWGs and the SET-Plan Steering Group.
- The annual SET-Plan Conference should host at least one dedicated session with ETIP representatives exclusively
- The role and mandate of IWGs should be formalised in an official agreement between the different entities involved (EC, MS, ETIPs). The participation in this IWG should be from Member States representatives with a clear mandate for setting and coordinating R&I policies and budgets at national level.

Lastly, there was a consensus among ETIPs that **closer and more frequent collaboration between ETIPs** is needed. The ETIP SNETP mentioned the need to **address collectively cross-cutting challenges** and ETIP Batteries expressing the need for a forum to share experience, best practices and receive feedback from each other.

According to ETIPs, one of the second most effective action to improve the SET Plan impact is the increased **accessibility to funding and partnership opportunities** to address emerging R&I collaboration needs. As noted by the ETIP RHC, renewable heating and cooling technologies must significantly increase in the next years (also in face of the current energy crisis), and the allocated funding should allow for the development of several actions to switch fuels. This should be addressed at different TRL levels.







Increasing the influence of relevant platforms (e.g. EERA Joint Programmes, ETIPs, National and Regional Coordination Groups - NRCGs) was also seen as a solution to improve the impact of the SET Plan (voted as second most effective action), mentioning that increased influence in the governance of the SET Plan would improve coordination and alignment between different entities, while it was suggested that the strategy adopted for the ETIP Batteries should be replicated to other technology ecosystems across SET Plan. Additionally, the ETIP Batteries suggested to **assign the role of observer to the ETIPs and EERA Joint Programmes (JPs)** to ensure a continued dialogue with the SET Plan's main stakeholders.

Other important suggestion is that **the IPs should be in alignment with the NECPs**, and the SET Plan should be the instrument to support delivering the European policy ambitions and climate objectives of 2030 and 2050. In that extent, the **SET Plan should be more politically visible** and be seen as such by the national governments.

TOPIC 7 - “Given the strategic importance of the recent EC communication on the REPowerEU plan, what are in your opinion the long-term (>5 years) R&I challenges that you would like to see integrated into the revised SET Plan IPs?”

The ETIPs provided their view on the long-term R&I challenges that should be included into the revised SET Plan IPs, also in the light of the REPowerEU communication. Their answers can be seen in the Table below: **Long-term challenges (>5 years) of the energy system expected to impact energy R&I priorities (in relation to the EC communication on the REPowerEU plan) as identified by ETIPs.**

	<p>ETIP Photovoltaic</p>	<ul style="list-style-type: none"> • Energy system integration around variable renewable electricity production • Domestic manufacturing/employment capacity to bring innovation to market • Social and economic consequence of the transition • Supply chain sustainability (scarce/hazardous material use, recycling)
	<p>ETIP Wind</p>	<ul style="list-style-type: none"> • Permitting & co-existence of wind energy, the environment and society. • Supply chain sustainability • Grid infrastructure build out.
	<p>ETIP Deep Geothermal</p>	<ul style="list-style-type: none"> • Meeting winter heating demand: Geothermal reservoirs in sedimentary basins, can provide an excellent heat source and seasonal storage for district heating networks in urban environments • Transfer of hydrocarbon industry data and expertise (and infrastructure) to enhance resilient development • Integration of electrification options and power balancing (i.e. Heat pumps, PV etc) • Permitting & co-existence of geothermal energy, the environment and society. • Building infrastructures for electric mobility and renewable energy utilisation (including geothermal energy).
	<p>ETIP Ocean Energy</p>	<ul style="list-style-type: none"> • Deploying 1 GW of ocean energy in Europe by 2030

	<p>ETIP Smart Networks for Energy Transition (SNET)</p>	<p><i>Contributions will be added</i></p>
	<p>ETIP Renewable Heating and Cooling</p>	<ul style="list-style-type: none"> • Meeting winter heating demands in the absence of Russian gas together with the development and scale up of alternative, low-carbon heating solutions. • Boosting resilient and renewable technologies and sector coupling to reduce dependence from fossil fuels across several heating and cooling intensive sectors, ensuring that: <ul style="list-style-type: none"> - 100% of new and refurbished H&C installations in buildings are with RHC technologies. - 100% of new low to medium temperature industrial processes are with RHC. - 100% of new H&C systems in the agri-food industry are with RHC.
	<p>ETIP Batteries</p>	<ul style="list-style-type: none"> • The long-term challenges on electrochemical storage as key enabler of RES efficient use. In the long term, R&I community has to provide new concept of batteries, more cost effective or more integrated into the use (i.e. in the “zero emission houses”). Important keywords will be flexibility, interoperability, hybridization (on energy storage (ES) technologies) and sustainability. Another important aspect will be digitalization at all level: from research data management to digital tools enabling the efficient integration of RES and ES in the grid.
	<p>ETIP Bioenergy</p>	<p><i>Contributions will be added</i></p>
	<p>Zero Emissions Platform</p>	<p><i>Contributions will be added</i></p>
	<p>ETIP Sustainable Nuclear Energy (SNETP)</p>	<ul style="list-style-type: none"> • Striking the right balance between nuclear energy and renewables to ensure security of supply and energy independence. • Support and accelerate the emergence of advanced technologies such as small modular reactors. • Enabling the nuclear sector to play its role in the production of low carbon



		<p>Hydrogen, industrial heat, domestic heat,</p> <ul style="list-style-type: none"> • Public awareness for societal acceptance of an adequate energy mix including nuclear
	<p>ETIP Hydropower</p>	<p>The question of storage is not addressed. Replacing gas-fired plants, which could produce on demand, by volatile solar and wind will create a storage problem which can not only be solved by batteries. New pumped-storage hydropower will be needed to ensure electricity supply and grid safety in Europe.</p>
	<p>CSP</p>	<ul style="list-style-type: none"> • Research on the adequacy of procurement mechanisms for new renewable capacity (tender design) • Research on new operational patterns of RES technologies • Research on how to accelerate the scaling up and speeding up of renewable energy.

Table 3 – “Given the strategic importance of the recent EC communication on the REPowerEU plan, what are in your opinion the long-term (>5 years) R&I challenges that you would like to see integrated into the revised SET Plan IPs?”