EU R&I Framework Programme 10
(2028-34)

Position Paper
by the
European Sustainable Energy Innovation Alliance
ESEIA

Adopted by ESEIA GA, 14 March 2024

ESEIA, the European Sustainable Energy Innovation Alliance, is a European association of cross-sector organisations leading the field of sustainable energy systems, from energy provision to energy consumption in research, education, and innovation.

5 Key Recommendations:

1. Enhance role of European Alliances
2. Foster Global Eco-System Partnerships
3. Prioritize horizontal topics
4. Ensure actionability of the Framework Programme
5. Provide room for self-organisation and entrepreneurship

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1. Introduction by the President

*I am pleased to dedicate this ESEIA FP10 Position Paper to all those working in the European Commission services and in the agencies of the EC to come up with a new design for the R&I FP10. ESEIA is a **European thematic cross-sector alliance in the field of renewable energy innovation**. Cooperation is in our DNA just as much as a fundamentally systemic approach which focuses on climate neutral solutions encompassing a multitude of disciplines, sectors, and actors from all parts of society. I hope our contribution will be well received.*

Harald Kainz, President of ESEIA

2. Executive Summary

2.1 Introduction to ESEIA

Founded in 2009 by TU Graz, Austria, the European Sustainable Energy Innovation Alliance - ESEIA - is a European association of cross-sector organizations in the field of sustainable energy systems, from energy provision to energy consumption in education, research, and innovation.

Today the ESEIA umbrella covers the full value chain integrating research, education, industry, and government. ESEIA initiates and manages European sustainable energy innovation projects, engages experts in five European working groups, funds the ESEIA Education and Training Programme (ESEIA ETP), a leading European entrepreneurial education program, fosters international cooperation, and promotes dialogue with European citizens.

2.2 Purpose of the Position Paper

As HEU is reaching mid-term, ESEIA is planning and setting the direction for future activities, by launching a new project named **New ESEIA_34**, designed to extend its impact and initiatives until 2034.

The New ESEIA34 Strategy positions ESEIA and her members to play a more influential role in policy-making, amplifying their voices in shaping the future of science, technology, and innovation in Europe.
Every year, ESEIA is seeking inputs from her members to jointly design the ESEIA Work Programmes for the coming year. In addition to these yearly forecasts, the **ESEIA FP10 Questionnaire** was designed to collect inputs from members about their experience with HEU and their future ideas for FP10 for the period 2028-2034 revealing R&I gaps, and addressing future challenges and trends.

The present Position Paper reflects the survey data obtained from the ESEIA membership from November 2023 until February 2024, internal discussions, and feedback from the **ESEIA General Assembly in Brussels, 14 March 2024**. This meeting was attended by a representative from the **European Commission, DG RTD**, **G3 – Common Strategic Planning & Programming Service**. The Position Paper outlines experiences of ESEIA´s members within the current Horizon Europe, discusses future challenges and presents recommendations on the design of FP10.

2.3 Scope of the survey

The ESEIA FP10 Questionnaire elicited **responses from 39 ESEIA members**, **representing 21 organisations across 11 European countries** (Annex A - Table 2.2.1). Among the respondents, 74% were men while 26% were women.

Within the 11 European countries represented in the survey, a noteworthy observation is that six of them are categorized as **widening countries,** including Cyprus, Croatia, Lithuania, Portugal, Romania, and Slovenia. This regional diversity underlines the comprehensive nature of the study, providing valuable insights across a broad and varied landscape within the European context.

ESEIA received responses from across sectors, including from Higher Education Institutions (HEIs), Research Organizations (RO), and businesses. In response to the **ESEIA FP10 Questionnaire** (Annex B), 5 businesses (24%), 13 HEIs (62%), and 3 ROs (14%) participated, reflecting dynamic engagement across these sectors. The robust involvement highlights a **remarkable 1/3 ratio of businesses to the combined entities of HEIs and RO, indicating diverse and dynamic contributions across the sectors**.

An introduction of ESEIA is included in Annex A. The ESEIA FP10 Questionnaire sheet is appended in Annex B. Additionally, the statistical tables and charts presenting the questionnaire results can be found in Annex C. Furthermore, Annex D contains a comprehensive list of the Horizon Europe projects undertaken by ESEIA members, offering a detailed overview of the diverse areas our community is contributing to within the Horizon Europe framework.

3. Analysis of ESEIA FP10 Questionnaire

3.1 Past Experience with Horizon Europe

HEU Project Experience

The ESEIA umbrella and ESEIA members have highlighted **a total of 51 Horizon Europe projects**, of which 49% are presently ongoing (Annex D). 3 members from the ESEIA Governing Council (8%), 3 from the General Assembly (8%), 4 Working Group coordinators (10%), 4 Focus group leaders (10%), and 25 Working group members (64%) shared insights regarding their project involvement with Horizon Europe.

When it comes to their **roles in these projects**, a breakdown shows that 76% of our members are engaged as partners, and 12% as coordinators. Notably, the majority of members are involved as partners.

A closer examination of the **Type of action** reveals that ESEIA members are actively engaged in various actions, with 26% involved in Coordination and Support Actions (CSA), 27% in Research and Innovation Actions (RIA), 29% in Innovation Actions (IA), 6% in Marie Skłodowska-Curie Actions (MSCA), and 12% in other actions. The latter category encompasses participation in EIT Manufacturing, EIT RawMaterials, LIFE initiatives, NetZeroCities, and ERA-Net Smart Grids Plus Project.

The **thematic areas** within these projects encompasses critical fields such as clean energy transition, energy system modelling, sustainable resource utilization, multi-scale governance, biodiversity, biomass value chain, recycling, critical raw materials, geothermal energy, circular economy, energy communities, inclusive education, artificial intelligence, autonomous vehicles, international co-operation, smart grids, energy intensive industries, and sustainable building practices. Each of these areas represents a vital facet of the overarching goal to foster sustainability and environmental responsibility.

These projects align seamlessly with the objectives of the **ESEIA Working Groups (WGs)**, providing a comprehensive and synergistic approach to addressing contemporary challenges. In **WG1 on Biorefineries, Biobased Economy, and Bioresource Utilization**, members actively contribute by providing a framework to contextualized and rational use of bio-resources focusing on the role of bioenergy systems innovation and bio-economy in the energy transition. In **WG2 on Energy Transition in Urban Regions**, members play a pivotal role in advancing clean energy transitions within urban landscapes, emphasizing sustainable climate-friendly living in modern society. Under the umbrella of **WG3 on Smart Energy Materials**, members contribute to the development and implementation of cutting-edge materials that enhance energy efficiency and sustainability in various applications. **WG4 on Governance, Business Models, and Legal Frameworks**, focuses on the radical shifts that energy transition brings about in governance, social and business models, and related regulatory and legal regimes. **WG5 on Education and Training** fosters capacity-building of people and institutions in Europe and abroad. It conceives and implements cooperative training courses under the ESEIA Education and Training Programme (ETP). Collectively, the diverse thematic areas covered by the projects underscore a holistic approach towards sustainability, emphasizing collaboration across the ESEIA Working Groups to address multifaceted challenges and contribute to the advancement of a more sustainable and resilient future.

Our members' participation in the HEU Work Programme illustrates the varied and meaningful contributions made by ESEIA members to a broad spectrum of Horizon Europe projects. This underscores our dedication to fostering innovation and collaboration within the European research in different parts of the work programme.

Evaluation of HEU Project Experience

In pursuit of gaining valuable insights into the **personal experiences** of our members participating in the **HEU Work Programme**, we conducted a comprehensive survey comprising seven pertinent questions. The respondents were prompted to evaluate each query by selecting from a scale of five options, ranging from "Not Important" to "Very Important" (Annex B).

The results are additionally meaningful because a high proportion of respondents act in the role of project partner rather than coordinator. Upon collating the cumulative responses indicating the levels of importance (ranging from "Important" to "Very Important") attributed to each question, it became evident that a **clearly structured program** is highly important (87%). This encompasses the clarity of objectives and goals, type of actions, coherent Work Packages, and the establishment of milestones. Furthermore, our members place great emphasis on **active participation during the design phase of Work Packages** (87%). Considering the involvement of working groups facilitated by the European Alliance in shaping the work packages is a viable consideration. Additionally, there is notable acknowledgment of the value that the **contributions of European Alliances such as ESEIA can enhance call intelligence** (82%). ESEIA members with diverse expertise and skills, in particular, assign high value to ESEIA's role in providing call intelligence. On the other hand, amending the rules of engagement to include partnerships appears to be less important (43%) compared to other questions (Annex C - T3.1.1).

3.2 Future Challenges

The identification of **future challenges** by ESEIA members reflects a discerning evaluation of various issues, with members singling out the most significant topics among a set of seven challenges. The leading challenges, as determined by the ESEIA members, are "Adapting to the effects of climate change (24%)" and "Fostering Renewable Energy Sources (RES) production in the EU and abroad (23%)". In contrast, other challenges appear to have received relatively less emphasis from ESEIA members. The "Soil deal for Europe" ranks notably lower, with only 6% of respondents identifying it as a top concern (Annex C - T3.2.1).

The upcoming future topics were selected by members from a comprehensive list of 115 topics derived from the HEU Work Programme. Members selected the most pertinent upcoming themes. **The top 13 upcoming future topics** as determined by the members are listed below.

1. Smart Cities (WG2)
2. Life cycle assessment of bioeconomy (WG1)
3. Circular Economy (WG1)
4. Waste management and recycling (WG1)
5. Education and sustainable development (WG5)
6. Artificial Intelligence (AI) (WG2)
7. Materials for energy storage / CCS (WG3)
8. Business models of future smart grids (WG2)
9. Sustainable social, business and governance models (WG4)
10. Zero pollution, zero-waste Biorefineries (WG1)
11. Business model on bioeconomy and circular economy (WG1)
12. Electric vehicle charging systems and grid integration (WG2)
13. Lifelong learning (WG5)

The selected topics are well aligned with all five ESEIA Working Groups. The results further reveal that most of these selected topics exhibit a horizontal orientation. In this context, "horizontal" means that these topics are not limited to a specific domain but instead have relevance and applicability across multiple areas. The mentioned horizontal topics include circular bioeconomy, LCA, business models, governance, education and training, AI, and smart cities (Annex B - T3.2.2).

Therefore, the interconnection of the chosen upcoming future topics indicates the need for FP10 to facilitate a collaborative and integrated approach across diverse areas of interest. This approach likely facilitates knowledge exchange, interdisciplinary collaboration, and a comprehensive exploration of the selected themes within FP10.

The survey results regarding the **prioritised actions** among the six available options that is considered to drive the future in FP10. The results show that applied research (36%) was the top priority followed by innovation actions (22%). When the two are combined, the cumulative total exceeds 50%. Other prioritized actions include fundamental research (18%), capacity-building of people (13%), and R&I infrastructure (11%). (Annex B - T3.2.3).

3.3 Future Design of FP10: How to Avoid Mission Impossible

We have undertaken a comprehensive survey to assess the key considerations for the **future design of FP10**, focusing on the following top-down and bottom-up design considerations. Both considerations delve into strategic considerations at the EU policy level, EU portfolio level, and project levels. Participants assessed the list of key considerations on a scale of five, spanning from "Not Important" to "Very Important".

The results of the survey show that the key considerations, as well as their acquired level of importance, ranged from 'important' to 'highly important' (Annex C).

Top-down Design Considerations

> **EU Policy level**: In particular, a clear emphasis is placed **on clarifying the role of missions and European partnerships in line with the overall objectives of the Green Deal** (82%)

In addition, enhancing significance of the programme for Climate Neutrality by Linking SDGs directly to the actions as overarching strategy (set SDG Target Indicators for FP10) (69%), and increasing international Relevance by creating World-Wide Partnerships of multiple actors in other world regions supporting FP10 (71%) on **policy level** is received great importance.

> **Project level: strengthening the role of multiple actors, particularly European Alliance (74%), and enhancing the program's action-ability through new types of actions** (for example, VALUE-S involving all stakeholders of an ecosystem or ALL-IN which could be an enhanced CSA, for European Alliances or KICs were identified as key priorities (69%).

The considerations on the **EU Portfolio level** were considered in the lower third of the range. Members did not consider EU portfolio as important as the other aspects and new portfolio creation was considered least important (41%) by the members though still a total of 16 members considered this aspect important.

Bottom-up Design Considerations

> **EU Policy level**: The results of bottom-up design consideration showed that **involving European partnerships and partnerships from other world regions is important** (81%).

> **EU portfolio level:** The results highlighted the **pivotal role of European alliances, such as ESEIA, in the development, management, and exploitation**, accounting for a remarkable **95% of its importance**.

> **Project level**: **involving Working Groups run by European Alliances in defining Work programmes for FP10** is important (82%).

The results highlight that the interventions on both project and policy levels were considered equally important in the top ranks, namely the role of multiple actors and European Alliances (bottom up) and specifying the role of missions and European Partnerships (top down).

Innovation Cycle

In order to comprehend the pivotal considerations that **enhance the role of FP10 in fostering innovation for climate-neutrality, specifically within the Innovation Cycle**, participants assessed the significance of the acquired a level of importance ranged from 'important' to 'highly important'.

> As a result, **supporting the maturation and validation of novel ideas from lab to business, a bridge between research and application development** is considered highly important (85%).

The analysis recognized that supporting research and deep tech projects (77%), start-ups and small and medium-sized enterprises (76%) are also very important. The analysis also indicates ensuring a seamless handshake between portfolios targeting different Technology Readiness Levels (TRLs) are important (74%). Moreover, promotion of joint exploitation activities among EIT KICs and relevant European Alliances, such as ESEIA, is acknowledged as significant (72%). It's worth noting that these considerations were deemed important by more than two-thirds of the members involved in the analysis.

The findings highlight the importance of linking idea to market in FP10 as a key link connecting research and the development of practical applications. This underscores the alliance's pivotal role in nurturing and propelling the growth of entrepreneurial ventures, thereby making meaningful contributions to both economic and technological progress. It also highlights the alliance's adeptness in strategically aligning efforts across various stages of technological development, ensuring a holistic approach to innovation. This emphasises the collaborative essence of innovation alliances, fostering synergies and partnerships that magnify the impact of collective endeavours in achieving climate-neutrality goals.

4. Conclusions

In summary, the analysis results strongly affirm the integral role of European thematic cross-sector alliances, positioning them as key facilitators in driving innovation across multiple fronts – from research and development to market implementation – and emphasizing their importance in the broader context of achieving climate-neutrality objectives. The challenges identified, particularly in adapting to climate change and advancing renewable energy sources, underscore the forward-thinking approach in tackling urgent global issues.

Furthermore, it can be concluded that the perspectives shared by ESEIA members regarding **future challenges** underscore a distinct emphasis on prioritizing climate change adaptation and advancing the production of Renewable Energy Sources (RES). This reflects a shared dedication to tackling crucial global issues. It is encouraging to note that the EU's funding programme should persist in navigating the ever-changing terrain of environmental concerns and technological advancements. These recognized challenges serve as a guiding compass, steering the contributions of the R&I programme towards a future that is both sustainable and resilient in line with the Green Deal.

In particular, the survey findings show that the top **13 upcoming future topics** exhibit a horizontal orientation applicable across multiple areas not limited to a specific domain.

The survey also highlights the need for a strategic focus on the transition of innovative concepts into practical solutions. Innovation alliances play a pivotal role in facilitating this transition, acting as instrumental bridges between ground-breaking ideas and their real-world implementation. A design for FP10 should, therefore, incorporate mechanisms that actively support and streamline this process, ensuring that innovative solutions effectively address climate challenges.

Finally, the study concluded that FP10 should prioritize a granular approach to project direction, acknowledging the nuanced contributions of alliances in shaping strategic decisions. This emphasizes the importance of fostering an environment that encourages the active involvement of alliances in decision-making processes, allowing for a more comprehensive and well-informed project strategy.

5. Recommendations

After a thorough analysis of the FP10 questionnaire, engaging in internal deliberations and organizing a discussion that was held on the 14th of March 2024 in the frame of ESEIA General Assembly in Brussels, attended by a representative from the European Commission, DG RTD, the members of ESEIA identified and collectively proposed the following enhancements for the future framework program design:

5 Key Recommendations:

1. Enhance Role of European Alliances
2. Foster Global Eco-System Partnerships
3. Prioritize horizontal topics
4. Ensure Actionability of the Framework Program
5. Provide Room for Self-Organisation and entrepreneurship

1. Enhance Role of European Alliances

1.	EU policy level: Enhance the role of European Alliances, by involving them systematically in the design and implementation process as partners, sounding boards, Coordinators.
2.	Portfolio level: Ensure European ownership, by jointly creating exploitation pathways with European Alliances.
3.	Collaborative Exploitation Activities: EIT KICs and European Alliances, by promoting joint exploitation activities among EIT KICs and relevant European Alliances.
4.	Encouraging the active involvement of EU Institutions in EU alliances.

2. Foster Global Eco-System Partnerships

1.	EU policy level: Increase international Relevance, by creating World-Wide Partnerships of multiple actors in other world regions supporting FP10
2.	Enhance access to infrastructure and facilities across Europe and beyond through shared resources and collaborative efforts.
3.	Foster interdisciplinary collaboration to tackle complex challenges from different angels
4.	Implement strategies to effectively facilitate the knowledge transfer and capacity building

3. Prioritise Horizontal Topics in Research and Innovation

1.	Prioritizing the horizontal topics in the future include circular bioeconomy, LCA, business models, governance, education and training, AI, and smart cities.
2.	Providing support for research and deep tech projects demonstrating a high degree of scientific ambition and risk
3.	Boost Excellence and Innovation by providing support mechanisms tailored to widening countries.

4. Ensure Actionability of the Framework Program

1.	Simplification, both in terms of instructions and administrative burden, to make participation more accessible and efficient.
2.	Project level: Improve Action-ability of the programme, by including new types of action, mention VALUE_S and ALL_IN as examples
3.	Portfolio Coordination: Targeting different TRL levels, by ensuring handshake between sets of portfolios targeting different TRL levels 1-3, 4-6, 7-9

5. Provide Room for Self-Organisation and Entrepreneurship

1.	Innovation cycle: Support maturation and validation of novel ideas from lab to business, by acting as a bridge between research and application development
2.	Start-ups and SMEs: Development and scale-up, by supporting start-ups and small and medium-sized enterprises to develop and scale up to new markets or disrupt existing ones

Finally, as the **Incoming President of ESEIA, Brian Norton**, has aptly stated, 'The FP should not be a straitjacket; it should provide flexibility to adjust to new R&I needs and trends.'

Open Questions for Future Research and Innovation Strategy

Through various discussions with the ESEIA Working Groups, it became evident that addressing the multifaceted challenges of achieving the Green Deal targets by 2050 and anticipating intermediary steps of their successful realization by 2030 is crucial. The future programme design will have to address policy implications, funding mechanisms, the role of European Alliances, the establishment of self-organizing mechanisms to ensure adaptability, and strategies for ensuring tangible impact. Consequently, the following questions arise:

- **POLICY:** Assuming that the Green Deal targets for 2030 will have been achieved, how will the R&I landscape have changed? At this advanced transformation stage, what can R&I contribute in 2034 to net zero 2040 and 2050 emissions targets in Europe? In the World?
- **IMPACT:** How can real impact be created by ensuring that each funded project makes a contribution to the climate cause in real life? Can FP10 create Impact groups composed of venture capitalists, business experts, and start-up facilitators that would help exploit the potential of each project from the start rather than after the project has ended?
- **EUROPEAN ALLIANCES:** How can peer-to-peer be fostered by involving European Alliances in the entire project cycle from formulating calls to evaluating proposals to monitoring projects to exploiting results and reviewing impact. How can the EU share responsibility with European Alliances?
- **FUNDING MECHANISMS:** How can national, regional, and EU funding schemes be nurturing each other to reinforce net zero 2050?
- **SELF-ORGANISATION:** How can a self-organising mechanism be established to ensure that the FP10 design is adapted according to need on a continuous basis?

6. Annexes

Annex A. About ESEIA

ESEIA Aim and Strategy

The **vision** of ESEIA is to be the first European address for sustainable energy systems innovation. By 2023, our **mission** is to facilitate Europe in attaining its energy targets by contributing research, education and training on innovative sustainable energy systems. Our **approach** revolves around leveraging expertise and activities that focus on the creation of international full value chain partnerships, management of EC projects, organizations of interdisciplinary expert panels, entrepreneurial education and training, and awareness raising among European citizens.

Aims and Key Objectives

ESEIA is dedicated to advancing the forefront of renewable energy systems innovation through strategic initiatives. Our primary aims and objectives encompass;

1. **Agenda setting in renewable energy systems innovation**
   - Reveal gaps in research and innovation
   - Help European regions to optimize their resource planning
   - Support urban regions to become people and climate friendly

2. **Capacity-building for people and institutions**
   - Engage in institutional capacity-building
   - Train people in ESEIA member organizations
   - Offer training for people outside ESEIA

3. **Forging European and international partnerships (PPP model)**
   - Develop innovative partnership models for the cooperation among and between members
   - Develop novel business models for sharing infrastructures and resources
   - Engage in international PPP

Planning for future success in FP10, ESEIA has launched a new project named **New ESEIA34** designed to extend its impact and initiatives until 2034. This project aims to **strengthen the organization** through active member participation in ESEIA Working Groups, thereby fostering collaboration and innovation within the ESEIA community. It seeks to enhance member satisfaction, offering a valuable platform to collect feedback on the European Commission's policy framework, actively shaping how project calls are formulated and influencing the broader research landscape. Members value their involvement in the ESEIA innovation ecosystem, which enables them to play a more influential role in **European policy-making**, to network with EU partners from academia, industry, and society, to enrich educational and training offerings, and to stay informed about EU news.

The project will accomplish **seven specific aims** according to the following objectives:
1. **Enhance impact** by developing ESEIA 2034 Strategy, improving the ESEIA service portfolio, monitoring and evaluating impact, and exploiting results;
2. **Strengthen relevance in the world** by integrating and enlarging membership;
3. **Foster Research and Innovation** by focusing on R&I portfolio and enhancing R&I cooperation;

4. **Build Capacity** by developing an Education and Training programme dedicated to ESEIA Next Generation;
5. **Grow** by ensuring sustainable funding, and diversifying income sources;
6. **Build Team** by ensuring adequate skills level, effective management on all levels, and enhancing the retention time of qualified staff;
7. **Enhance Visibility** of ESEIA through communication and dissemination activities, position papers, and engaging in dialog with stakeholders, and influencing EU policy-making.

The New ESEIA34 project is set to kick off in January 2024 and will continue until December 2034, spanning a total of 132 months, which is equivalent to 11 years. During the preparation phase (June-December 2023), activities including planning, scoping, and resource allocation were undertaken. The main project phase (January 2024 to December 2034) is divided into four stages: 2024-2026 (M1-M36), 2027-2029 (M37-M72), 2030-2032 (M73-M108), and 2033-2034 (M109-M132). The project's execution and deliverables will be evaluated at the end of each stage. By 2034, ESEIA plans to achieve all the objectives set in the New ESEIA34. The main parties involved in the project are ESEIA staff, ESEIA GC and GA members, and ESEIA individual members. Each party will have a clearly defined role in the project.

Main Projects and Outputs

ESEIA has actively involved in 18 Horizon Europe proposals in the period 2009-2023. ESEIA is concurrently engaged in two ongoing projects and has successfully concluded six significant EU projects.

Ongoing Projects

INITIATE (2024-2027): Supporting European R&I Through stakeholder collaboration and institutional reform
INITIATE seeks to raise excellence in science and knowledge valorisation of Europe's universities through cooperation and knowledge circulation. The Project will enhance the cooperation between member states and widening countries to ensure knowledge transfer and the joint cooperation supporting the value creation and R&I development by new pathways to improve the cooperation among institutions and relevant stakeholders. ESEIA is responsible for identifying the use cases from other European universities, creating a Research & Innovation Laboratory, and networking and enlarging stakeholders.

EMERGE (2023-2026): Energy System Modelling for Green Development of Africa
The EMERGE project seeks to provide African policy makers, academics, investors, and citizens with the tools and knowledge required to increase the production of clean energy and the sustainable use of resources while bridging cultural and socioeconomic divides. To simulate scenarios that optimize the use of current resources while taking into account social, climatic, economic, and technical constraints, EMERGE will codesign and test a toolbox by integrating and building upon existing tools, methodologies, and approaches. Additionally, a Knowledge Base with a collection of initiatives, materials, and knowledge-exchange activities will be created. The North Western Africa (Morocco), Niger river region (Mali/Nigeria), and east Africa (Mozambique) are three African ecosystems where EMERGE will develop knowledge communities through a participatory approach. ESEIA is responsible for creating brand identity, organizing co-design workshops, and leading Dissemination and Communication activities.

Completed Projects

RE4Industry (2020-2023): 100% Renewable Energies for Energy Intensive Industries
The main objective of the project, coordinated by CIRCE, ES, is to facilitate for the EII sector in Europe a smooth and more secure transition to the adoption of renewable energies in their production processes and facilities. ESEIA is responsible for organising four RE4Industry Knowledge Transfer Seminars, providing a platform to debate how EIIs can succeed in the energy transition. Under the motto 100% Renewable Energies for EIIs, this series was designed to share best practices with local industry and forge a path toward decarbonisation for EIIs in Austria, Finland, Romania and Croatia.

PHOENIX (2015-2019): People for tHe eurOpean bio-ENergy mIX
PHOENIX was a Research and Innovation Staff Exchange project coordinated by ESEIA, aimed at promoting international and cross-sector collaboration through staff mobility and joint training events. During the lifetime of the project, the link between research and the market was strengthened by sharing knowledge and innovative ideas. 51 secondees participated in the staff exchanges, and more than 200 participants joined the 12 training events carried out in the framework of the project. The Consortium was formed by 15 organisations including academic, business, and public sector partners. Together they developed solutions for a European bio-economy based on non-conventional bio-resources and contributed to moving forward the energy transition.

BioEnergyTrain (2015-2019): European cooperation for higher education
Coordinated by ESEIA, the BioEnergyTrain project addressed the lack of qualified personnel as well as cohesion and integration among stakeholders and the poor linkage between vocational training and industry. To pursue an efficient low-carbon bioeconomy in Europe, the Consortium, composed of 15 partners, launched two new European Master's degree programmes: Biorefinery Engineering (BRE) at the TU Graz, AT, and Bioresources Value Chain Management at the University of Twente, NL. The lessons learnt from the project were compiled into a publication titled ‚Theory and Practice of European Education and Training for the Support of Energy Transition', published in the Springer open access Journal ‚Energy, Sustainability and Society'.

CESEPS (2016-2019): Co-Evolution of Smart Energy Products and Services
CESEPS was an ERA-Net Smart Grids Plus project coordinated by the University of Twente, NL, to support the development of smart energy products and services for local smart grids that better respond to the demands and concerns of all stakeholders in terms of performance, cost, reliability, safety and robustness, sustainability and energy-efficiency, and end-users' comfort. The project focused on interdisciplinary research on stakeholders 'practices, users 'energy behaviour, local trading of energy, customer-driven products, demand side management, local production of sustainable electricity, e-mobility and forecasting techniques in the Netherlands and Austria. The Consortium was formed by seven partners, who shared knowledge, comparative cases, technologies and analysis of smart energy products and services of smart grids pilot projects in both countries.

SuPREME (2015-2018): Twinning for a Sustainable, Proactive Research partnership in distributed Energy systems planning, Modelling and managEment

The project twinned Polish energy research center IMP-PAN with needed expertise from Aalborg University, DK, University of Twente, NL, and ESEIA to reach research and innovation excellence in modelling, planning, integrating and managing large-scale renewable energy systems. The aim was to develop the necessary resources to foster the advancement of the KEZO Research Centre in Jabłonna, PL. The project was presented at a total of 10 conferences and other events such as the SuPREME Summer Course at Alborg University and the Summer School 2017 on Micro-scale Energy Systems at the University of Twente.

Ener2i (2013-2016): ENERgy Research to Innovation

Coordinated by the Centre for Social Innovation, AT, the project focused on the need to find innovative and sustainable solutions to solve the urgent, interrelated societal challenges of insecurity over energy supplies, growing energy demand, and looming climate change, directly addressing the gap between new energy research and European industry. With eight workshops on innovative EE/RES technologies and innovation policies Ener2i enhanced the innovation capacity and improved the innovation performance of manufacturers, energy service companies and industry in the field of energy efficiency (EE) and renewable energy sources (RES). More than 300 colleagues participated in the workshops.

ESEIA Members

ESEIA has 23 member organisations in 12 European countries, representing 14 Higher Education Institutions, four research organisations, and five businesses. The five ESEIA Working Groups include approximately 400 experts across the ESEIA membership who bring their knowledge and experience to help deliver the Green Deal and its Fit for 55 targets.

Table 2.2.1 ESEIA Member Organizations

Type	Country	#	Organisation	Questionnaire participation
HEI	Austria	1	FH Burgenland	x
		2	TU Graz - Graz University of Technology	x
		3	TU Vienna - Vienna University of Technology	x
		4	Uni Graz - Karl-Franzens University Graz	x
	Croatia	5	Uni Zagreb - University of Zagreb PBF, FSB	x
	Denmark	6	DTU - Technical University of Denmark	
	Finland	7	Karelia UAS - Karelia University of Applied Sciences	x
		8	Savonia UAS - Savonia University of Applied Sciences	x
		9	XAMK - South-Eastern Finland UAS	
	Germany	10	TH Koln - University of Applied Sciences Koln	x
	Ireland	11	TU Dublin - Technological University of Dublin	x
	Lithuania	12	Vilnius Tech - Vilnius Gedminas Technical University	x
	Romania	13	UTBv - Transilvania University of Braşov	x
	The Netherlands	14	UTwente - University of Twente	x
RO	Cyprus	15	CYI - The Cyprus Institute	x
	Ireland	16	Tyndall National Institute -IERC	x

	Portugal	17	LNEG – National Laboratory of Energy and Geology	x
	Slovenia	18	JSI - Jožef Stefan Institute	x
Business	Austria	19	ESt - Energie Agentur Steiermark GmbH	x
		20	Energienetze Steiermark GmbH	x
		21	GEA - Grazer Energiegentur GmbH	x
	Germany	22	BAV - Bergischer Abfallwirtschaftsverband	x
	Portugal	23	ADENE – Agencia para a Energia	x

ESEIA FP10 Position Paper Questionnaire 2023/2024

General Information

Name

First	Last

E-Mail

Member Organisation

Role in the ESEIA

1. Your experience with HEU Proposals

1.1 HEU Projects in which you are currently participating or H2020 experience

HEU Project 1

Project Title

Type of Action

Web Page

Role in the Project

HEU Project 2

Project Title

Type of Action

Web Page

Role in the Project

HEU Project 3

Project Title

Type of Action

Web Page

Role in the Project

1.2 Your personal experience

How important is it on a scale from 1 (least important) to 5 (most important)

	1	2	3	4	5
1. How clearly is the programme structured?	○	○	○	○	○
2. To what extent can European Alliances like ESEIA provide call intelligence?	○	○	○	○	○
3. For a particular call, how important is it to coordinate contributions on an institutional level?	○	○	○	○	○
4. For the complex role of Coordinator, how important is knowledge from the field compared to managing and communicating with multi-disciplinary teams from different countries and sectors?	○	○	○	○	○
5. As project partner how important is it to be involved in the design of Work Packages?	○	○	○	○	○
6. In your experience should the Rules of Participation be adapted to allow partnerships to apply?	○	○	○	○	○
7. In terms of financial reporting, how important is the use of lump sum payments in your view?	○	○	○	○	○

2. Future Challenges, Topics and Actions 28_34

Please choose challenges, topics, and actions that are anticipated in upcoming frameworks, in your viewpoint and based on your experience.

2.1 What will be the challenges of the future?

☐ Mitigating climate migration   ☐ Restore ocean and waters   ☐ Soil deal for Europe

☐ Foster RES production in EU and abroad   ☐ 100 climate-neutral smart cities   ☐ Others

☐ Foster RES production in EU and abroad

2.2 Which topic will be upcoming?*

*Choose a total of 5 topics only.

WG1 Biorefineries, Biobased Economy and Bioresource Utilization

WG1-FG1 Biorefineries and Biobased Industrial Products

☐ Bio-based business models   ☐ Biorefinery operations and optimization   ☐ Water management and recycling

☐ Bio-based materials/products   ☐ Biotechnology and Bio-based innovation   ☐ Zero pollution, zero-waste Biorefineries

☐ Bio-based processes   ☐ Life cycle assessment of biorefineries and biobased industrial products   ☐ Other

☐ Bio-based feedstock (biomass)   ☐ Bio-based value chains

WG1-FG2 Bioeconomy and Circular Economy

☐ Agriculture, forestry, and rular areasdels   ☐ Biodiversity and natural resources   ☐ Food systems

☐ Bioeconomy models   ☐ Circular-biobased solutions   ☐ Life cycle assessment

☐ Business model on bioeconomy and circular economy   ☐ Circular Economy   ☐ Oceans, seas, coastal and inland waters

☐ Environmental monitoring   ☐ Other

WG1-FG3 Bioenergy use of biobased fuels and biowastes

- [ ] Advanced biofuels
- [ ] Life cycle assessment of Biobased fuels and biowastes
- [ ] Renewable synthetic fuels

- [ ] Bioenergy carbon capture and Storage (BECCS)
- [ ] Renewable fuel technologies
- [ ] Other

- [ ] Biowaste, residues, and biomass

WG2 Energy Transition in Urban Regions

WG2-FG1 Smart Mobility

- [ ] Advanced battery technologies
- [ ] Life cycle assessment of smart mobility
- [ ] Sustainable production, production 4.0, digital twins

- [ ] Advanced composite design
- [ ] Next generation vehicles of automated people- and goods transportation
- [ ] Sustainable waterborne and naval transportation

- [ ] Aviation
- [ ] Urban Mobility Transitions
- [ ] Traffic safety and management

- [ ] Business Models of future mobility and transportation concepts
- [ ] Smart Cities
- [ ] Zero-emission mobility

- [ ] Electric vehicle charging systems and grid integration
- [ ] Sustainable freight transport and logistics
- [ ] Hydrogen and fuel cell systems

- [ ] Other

WG2-FG2 Smart Grids

- [ ] AC, DC, HVAC, HVDC
- [ ] Grid for transport application (EV, waterborne, etc)
- [ ] Monitoring and fault location systems

- [ ] Business models of future smart grids
- [ ] Life cycle assessment of smart grid technologies
- [ ] Smart Grids logistics

- [ ] Electric powertrains ity and transportation concepts
- [ ] Micro-grids
- [ ] Other

WG2-FG3 Smart Energy Efficient Buildings

- [ ] Architecture Design
- [ ] Heat pumps
- [ ] Robotics and automated solutions for building

- [ ] Building-to-grid integration solutions
- [ ] Heating and cooling
- [ ] Smart building management system

- ☐ Digital technologies for building (BIM, Digital Twin)
- ☐ Life cycle assessment of smart energy efficient buildings
- ☐ Smart industrial sites

- ☐ Energy data, performance
- ☐ New European Bauhaus
- ☐ Sustainable building design

- ☐ Energy-efficient renovation
- ☐ Re-use and deconstruction of buildings
- ☐ Other

WG2-FG4 Advanced Computing for Energy Transition

- ☐ Artificial Intelligence (AI)
- ☐ Digital technologies for the auto-motive industry
- ☐ Machine Learning

- ☐ Cloud adaptable solutions
- ☐ Digital Twins
- ☐ Robotics

- ☐ Digital technologies for aviation
- ☐ IoT Sensors
- ☐ Virtual Reality

- ☐ Digital technologies for construc-tion and renovation
- ☐ Life cycle assessment of energy transitions
- ☐ Other

WG3 Smart Energy Materials

- ☐ Battery materials
- ☐ Life cycle assessment of smart Energy materials
- ☐ Next generation materials for advanced electronics

- ☐ Functional materials (ceramics, Metals, polymers and organic molecules
- ☐ Lightweight and multi-functional materials
- ☐ PV materials

- ☐ High performance composite Materials
- ☐ Lithium-ion batteries
- ☐ Sustainable advance materials for energy (alloys, polymers, porous materials)

- ☐ Innovative surfaces, coatings
- ☐ Materials for energy storage/ CCS
- ☐ Sustainable packaging materials

- ☐ Non-lithium battery solutions
- ☐ Other

WG4 Governance, Business Models and Legal Frameworks

- ☐ Agricultural and land use policy
- ☐ Energy market analysis
- ☐ Sustainable food trade policy

- ☐ Biodiversity and climate policy
- ☐ Public policy, Management, Governance
- ☐ Sustainable social, business and governance models

- ☐ Communication Science molecules
- ☐ Rural development policy
- ☐ Urban mobility policy (traffic)

- ☐ Cybersecurity
- ☐ Smart Industry
- ☐ Utilities Regulatory (Energy, Water)

- ☐ Emerging Technologies &
- ☐ Social Sciences and Humanities
- ☐ Socio Economy and Policy

- ☐ Other

WG5 Education and Training

- [ ] Advanced training
- [ ] Capacity building
- [ ] Citizen Participation
- [ ] Citizen Science
- [ ] Other

- [ ] Education and sustainable development
- [ ] Education model design
- [ ] Entrepreneurship education
- [ ] Life long learning

- [ ] Knowledge and innovation management
- [ ] Open innovation and open science
- [ ] Raising awareness
- [ ] Cross-sectoral education

2.3 Which actions should be prioritized?

- [ ] Fundamental research
- [ ] Applied research
- [ ] Citizen Participation

- [ ] Capacity-building of people
- [ ] Capacity-building of institutions
- [ ] Entrepreneurship education

- [ ] R&I infrastructure
- [ ] Innovation actions
- [ ] Raising awareness

3. Future design of FP10? How to avoid Mission Impossible?

How important is it on a scale from 1 (least important) to 5 (most important)

3.1 *TOP DOWN*
Enhance effectiveness of FP10 on EU Policy level by

	1	2	3	4	5
Enhancing significance of the programme for Climate Neutrality by Linking SDGs directly to the actions as overarching strategy (set SDG Target Indicators for FP10);	○	○	○	○	○
Contribute to the Green Deal by further specifying the role of Missions and the role of European Partnerships within the missions;	○	○	○	○	○
Increasing international Relevance by creating World-Wide Partnerships of multiple actors in other world regions supporting FP10;	○	○	○	○	○

on EU PORTFOLIO LEVEL by

	1	2	3	4	5
Initiating new portfolio creation;	○	○	○	○	○
Ensuring European ownership: Recognising the contribution of European organisations to FP10 avoiding confusing 'customers' about who owns which part of the programme;	○	○	○	○	○
Jointly managing portfolios, i.e. creating exploitation pathways for results from FP10 for enhanced impact (predefine KPIs for FP10);	○	○	○	○	○

Actively supporting European R&I infrastructures (ERA-NET Infrastructure; ◯ ◯ ◯ ◯ ◯

On PROJECT LEVEL by

                                                      1 **2** **3** **4** **5**

Enhancing action-ability of the programme by adding NEW types of action, for example VALUE_S involving all stakeholders of an ecosystem or ALL_IN which could be an enhanced CSA, for European Alliances or KICs; ◯ ◯ ◯ ◯ ◯

Strengthening the role of multiple actors, especially European Alliances,

by adapting rules of participation; ◯ ◯ ◯ ◯ ◯

3.2 *BOTTOM UP*
Enhance relevance of the programme on EU Policy level by

    1 **2** **3** **4** **5**

Involving European partnerships and partnerships from other world regions; ◯ ◯ ◯ ◯ ◯

On EU PORTFOLIO LEVEL by

    1 **2** **3** **4** **5**

Involving European alliances such as ESEIA in portfolio development, management, and exploitation; ◯ ◯ ◯ ◯ ◯

Involving European media in communicating results ◯ ◯ ◯ ◯ ◯

On POJECT LEVEL by

    1 **2** **3** **4** **5**

Involving Working Groups run by European Alliances in defining Work programmes for FP10; ◯ ◯ ◯ ◯ ◯

Issuing calls for new types of action connecting R&I and E&T to be

identified by European Alliances ◯ ◯ ◯ ◯ ◯

3.3 INNOVATION CYCLE
Enhance role of RP10 for innovation for climate neutrality by

    1 **2** **3** **4** **5**

Ensuring handshake between sets of portfolios targeting different TRL levels 1-3, 4-6, 7-9; ◯ ◯ ◯ ◯ ◯

Promoting joint exploitation activities among EIT KICs and relevant European Alliances

such as ESEIA; ◯ ◯ ◯ ◯ ◯

Supporting research and deep tech projects with a high degree of scientific ambition and risk; ◯ ◯ ◯ ◯ ◯

Supporting maturation and validation of novel ideas from lab to business, a bridge between research and application development;

○ ○ ○ ○ ○

Supporting start-ups and small and medium-sized enterprises to develop and scale up to new markets or disrupt existing ones

○ ○ ○ ○ ○

Other

Additional comments

[ ]

Annex C. Questionnaire Results: Tables and Charts

1. HEU Proposal Experience

1.1 HEU Projects in which you are currently participating or H2020 experience

Role in the project

- Partner, 76%
- Coordinator, 24%

■ Partner ■ Coordinator

Type of Action

- CSA 26%
- RIA 27%
- IA 29%
- MSCA 6%
- Others 12%

■ CSA ■ RIA ■ IA ■ MSCA ■ Others
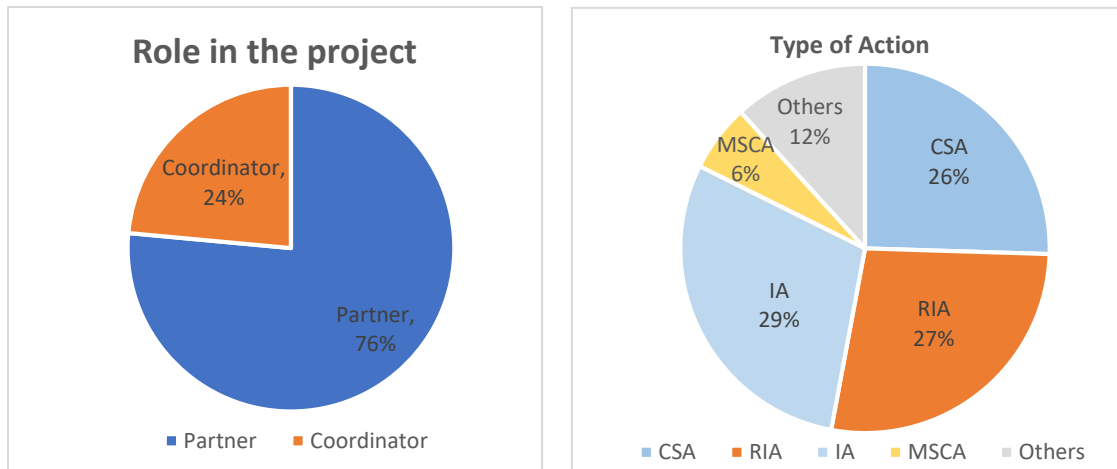
1.2 Your personal experience

Table 3.1.1 ESEIA Members Experience on HEU Programme

No	Questionnaire	1	2	3	4	5	Important to very important (number)	Important to very important (%)
1	As project partner how important is it to be involved in the design of Work Packages?	1	2	2	11	22	33	87
2	How clearly is the programme structured?	0	1	4	18	15	33	87
3	To what extent can European Alliances like ESEIA provide call intelligence?	1	2	4	18	13	31	82
4	For a particular call, how important is it to coordinate contributions on an institutional level?	1	2	6	11	18	29	76
5	For the complex role of Coordinator, how important is knowledge from the field compared to managing and communicating with multi-disciplinary teams from different countries and sectors?	1	1	12	14	10	24	63
6	In terms of financial reporting, how important is the use of lump sum payments in your view?	3	2	13	13	6	19	51
7	In your experience should the Rules of Participation be adapted to allow partnerships to apply?	1	3	17	9	7	16	43

(1: Not important, 2: Slightly important, 3: Moderately important, 4: Important, 5: Very important)

2. Future Challenges, Topics, and Actions 28_34

Table 3.2.1 Future Challenges

No	Future Challenges	Count (number)	Count (%)
1	Adapting to effects of climate change	29	24
2	Foster RES production in EU and abroad	27	23
3	100 climate-neutral smart cities	23	19
4	Mitigating climate migration	21	18
5	Restore ocean and waters	11	9
6	Soil deal for Europe	7	6
7	Artificial intelligence	1	1

Table 3.2.2 Top 13 topics

No	Upcoming Future Topics	Fields related to ESEIA WG	Rank
1	Smart Cities	WG2	1
2	Life cycle assessment of bioeconomy	WG1	2
3	Circular Economy	WG1	3
4	Waste management and recycling	WG1	4
5	Education and sustainable development	WG5	4
6	Artificial Intelligence (AI)	WG2	6
7	Materials for energy storage / CCS	WG3	6
8	Business models of future smart grids	WG2	8
9	Sustainable social, business and governance models	WG4	9
10	Zero pollution, zero-waste Biorefineries	WG1	9
11	Business model on bioeconomy and circular economy	WG1	9
12	Electric vehicle charging systems and grid integration	WG2	9
13	Lifelong learning	WG5	9

Table 3.2.3 Prioritised Actions

No	Prioritised Actions	Count (%)	Count (%)
1	Applied research	31	36
2	Innovation actions	19	22
3	Fundamental research	16	18
4	Capacity-building of people	11	13
5	R&I infrastructure	10	11
6	Capacity-building of institutions	0	0

3. Future design of FP10

3.1 Top down: Enhance effectiveness of FP10

EU Policy Level

Future design of FP10	Questionnaire	Important to Very Important Count (%)	Count (%)
on EU Policy Level by	Contribute to the Green Deal by further specifying the role of Missions and the role of European Partnerships within the missions	32	82 (refer to Chart 3.1.1)
on EU Policy Level by	Enhancing significance of the programme for Climate Neutrality by Linking SDGs directly to the actions as overarching strategy (set SDG Target Indicators for FP10)	27	69
on EU Policy Level by	Increasing international Relevance by creating World-Wide Partnerships of multiple actors in other world regions supporting FP10	27	71

EU Portfolio Level

Future design of FP10	Questionnaire	Important to Very Important Count (%)	Count (%)
on EU Portfolio Level by	Jointly managing portfolios, i.e. creating exploitation pathways for results from FP10 for enhanced impact (predefine KPIs for FP10)	24	62 (refer to Chart 3.1.2)
on EU Portfolio Level by	Actively supporting European R&I infrastructures (ERA-NET Infrastructure)	23	59
on EU Portfolio Level by	Ensuring European ownership: Recognising the contribution of European organisations to FP10 avoiding confusing 'customers' about who owns which part of the programme	23	59
on EU Portfolio Level by	Initiating new portfolio creation	16	41

Project Level

Future design of FP10	Questionnaire	Important to Very Important Count (%)	Count (%)
on Project Level by	Strengthening the role of multiple actors, especially European Alliances, by adapting rules of participation	29	74 (refer to Chart 3.1.2)
on Project Level by	Enhancing action-ability of the programme by adding NEW types of action, for example VALUE_S involving all stakeholders of an ecosystem or ALL_IN which could be an enhanced CSA, for European Alliances or KICs	27	69

Chart 3.1.1 Top down, enhance effectiveness of FP10 on EU policy level

3.1 Top down: Enhance effectiveness of FP10
On EU Policy Level by
Contribute to the Green Deal by further specifying the role of Missions and the role of European Partnerships within the missions

Not Important
5%

Slightly Important
5%

Moderately Important
8%

Very Important
31%

Important
51%

Legend:
- Not Important
- Slightly Important
- Moderately Important
- Important
- Very Important

Chart 3.1.2 Top down, enhance effectiveness of FP10 on EU policy level

3.1 Top down: Enhance effectiveness of FP10
On EU Portfolio Level by
Jointly managing portfolios, i.e. creating exploitation pathways for results from FP10 for enhanced impact (predefine KPIs for FP10)

Slightly Important,
13%

Very Important, 23%

Moderately Important, 26%

Important, 38%

Legend:
- Not Important
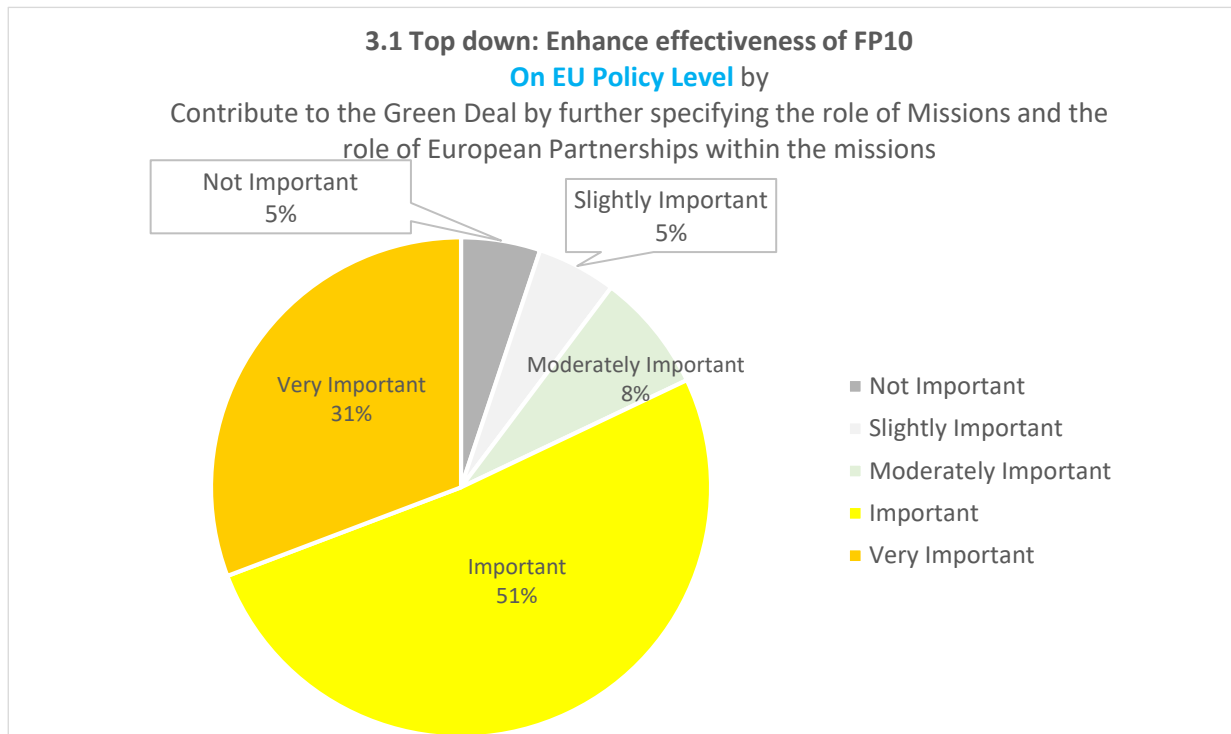- Slightly Important
- Moderately Important
- Important
- Very Important
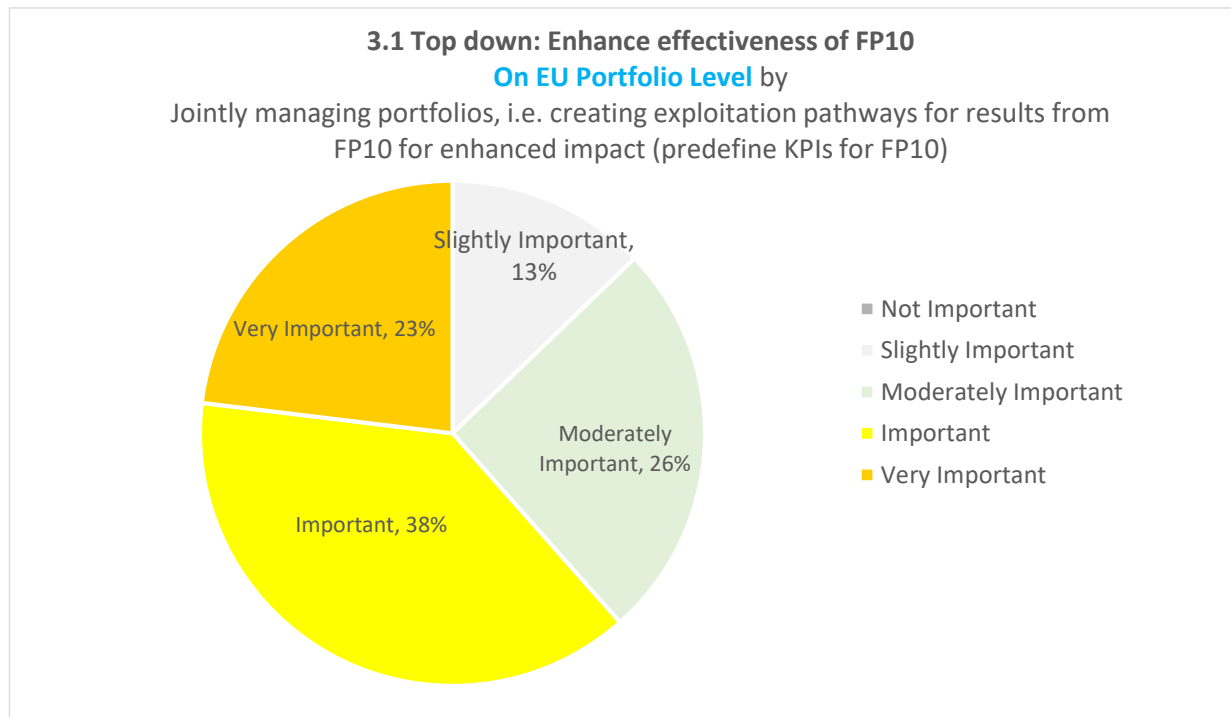
Chart 3.1.3 Top down, enhance effectiveness of FP10 on project level

3.1 Top down: Enhance effectiveness of FP10
On Project Level by
Strengthening the role of multiple actors, especially European Alliances, by
adapting rules of participation

Not Important, 3%

Slightly Important, 3%

Moderately Important, 20%

Very Important, 33%

Important, 41%

- Not Important
- Slightly Important
- Moderately Important
- Important
- Very Important
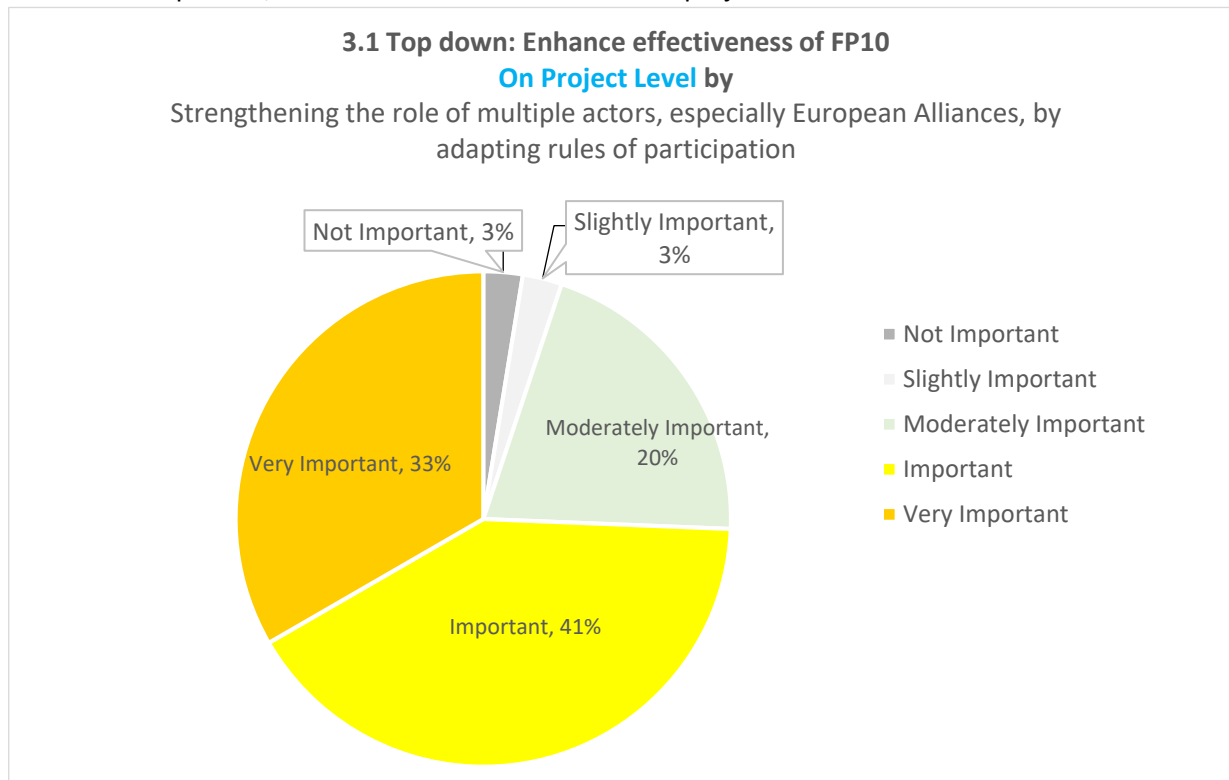
3.2 Bottom up: Enhance relevance of the programme

EU Portfolio, Project, and EU Policy Levels

Enhance relevance of the programme	Questionnaire	Important to Very Important Count (%)	Count (%)
on EU Portfolio Level by	Involving European alliances such as ESEIA in portfolio development, management, and exploitation	20	95 (refer to Chart 3.2.1)
on Project Level by	Involving Working Groups run by European Alliances in defining Work programmes for FP10	32	82 (refer to Chart 3.2.2)
on EU Policy Level	Involving European partnerships and partnerships from other world regions	17	81 (refer to Chart 3.2.3)
on EU Portfolio Level by	Involving European media in communicating results	26	67
on Project Level by	Issuing calls for new types of action connecting R&I and E&T to be identified by European Alliances	24	67

Chart 3.2.1 Bottom up, enhance relevance of the programme on EU policy level

3.2 Bottom up: Enhance relevance of the programme
On EU Policy Level by
Involving European partnerships and partnerships from other world regions

- Not Important
- Slightly Important
- Moderately Important
- Important
- Very Important

Slightly Important, 5%
Moderately Important, 14%
Very Important, 38%
Important, 43%

Chart 3.2.2. Bottom up, enhance relevance of the programme on project level

3.2 Bottom up: Enhance relevance of the programme
On Project Level by
Involving Working Groups run by European Alliances in defining Work programmes for FP10

- Not Important
- Slightly Important
- Moderately Important
- Important
- Very Important

Not Important, 2%
Slightly Important, 3%
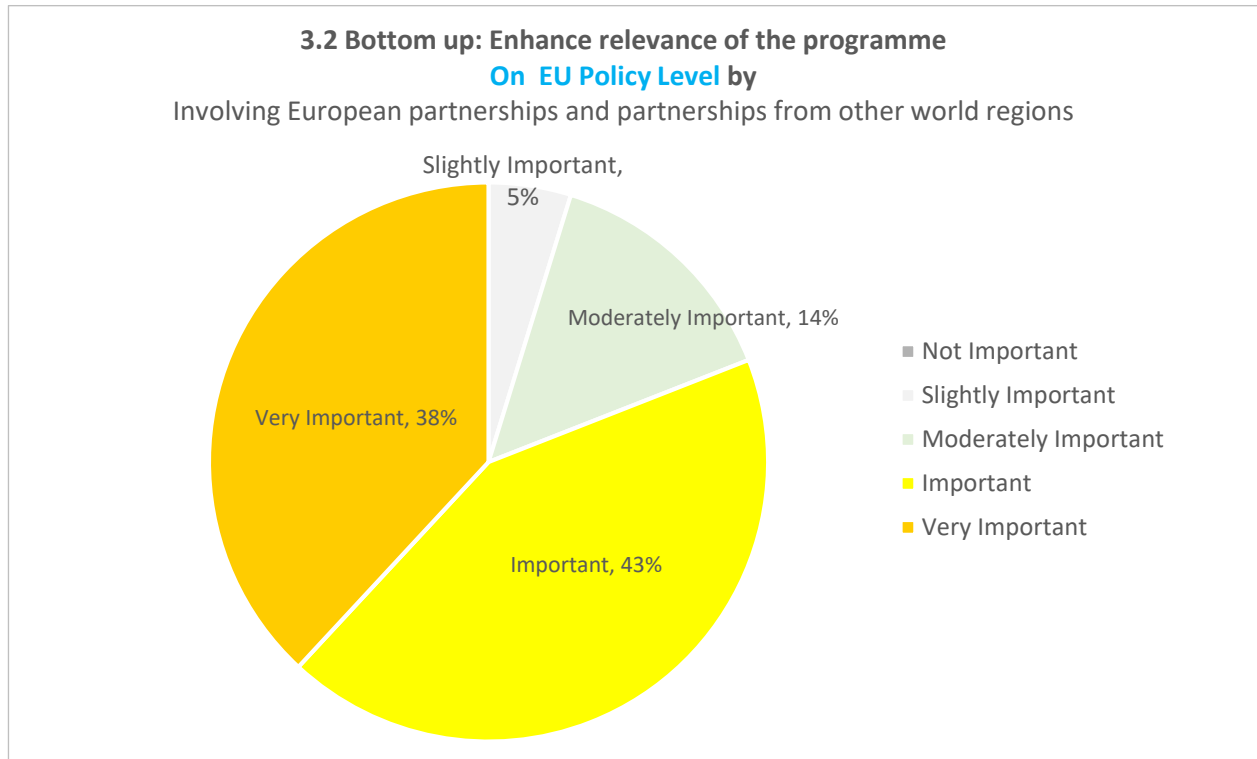Moderately Important, 13%
Very Important, 36%
Important, 46%

Chart 3.2.3. Bottom up, enhance relevance of the programme on EU Project level

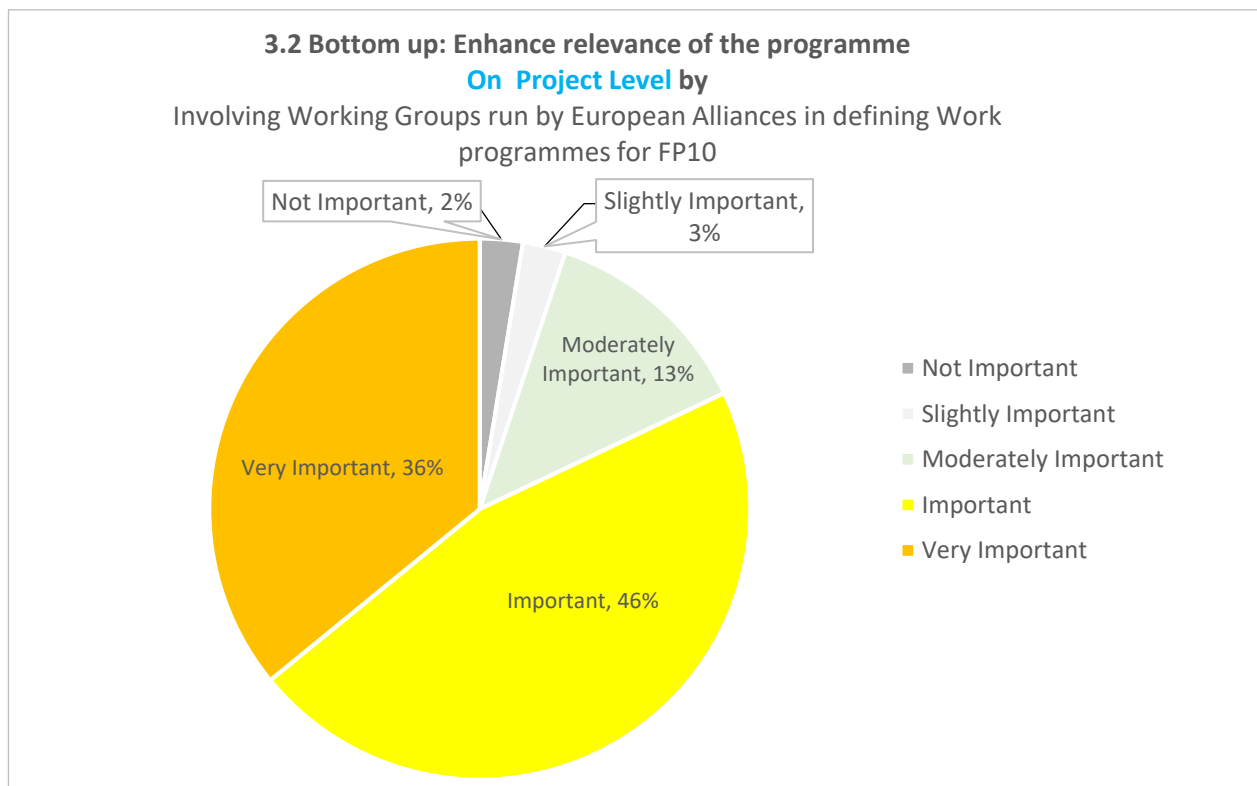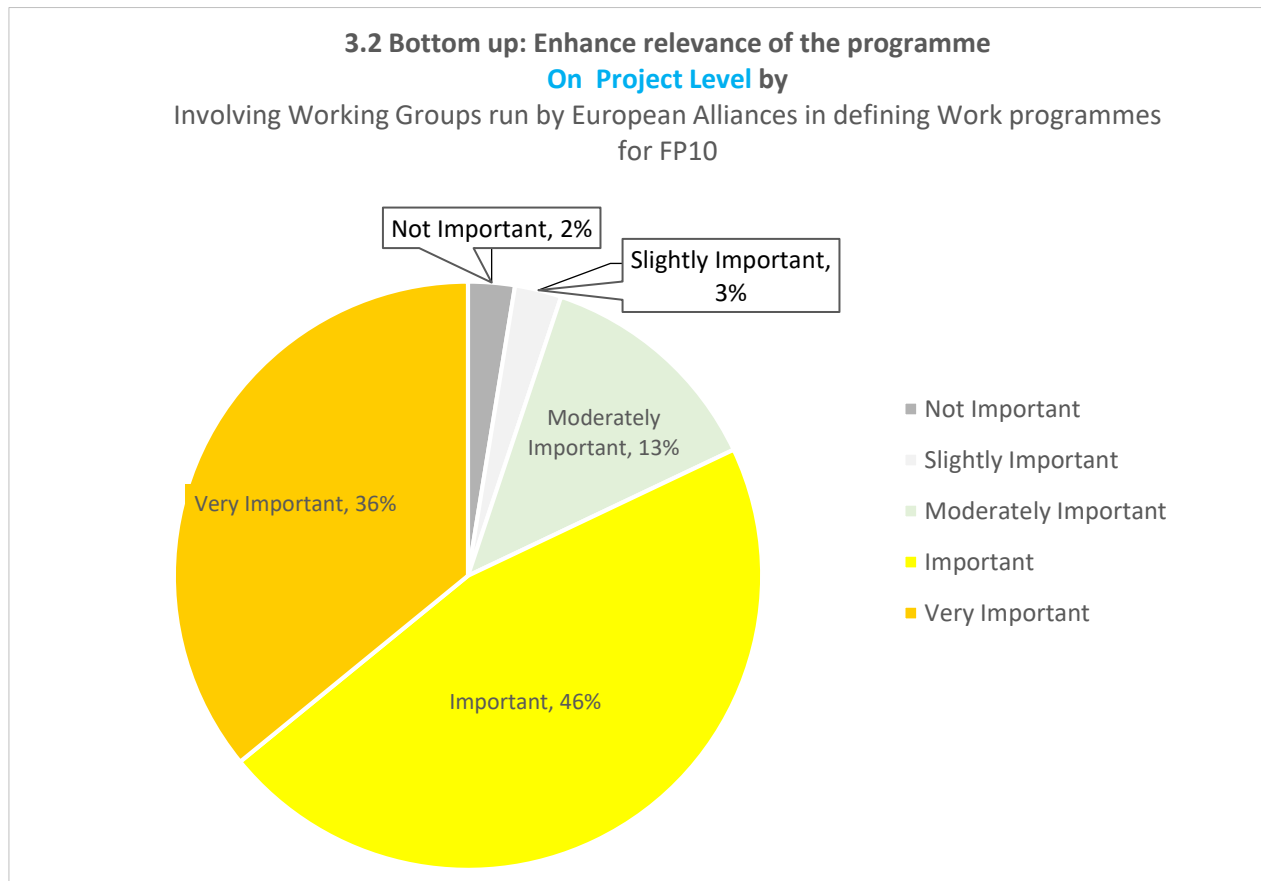**3.2 Bottom up: Enhance relevance of the programme**
On Project Level by
Involving Working Groups run by European Alliances in defining Work programmes
for FP10

Not Important, 2%

Slightly Important, 3%

Moderately Important, 13%

Very Important, 36%

Important, 46%

Legend:
- Not Important
- Slightly Important
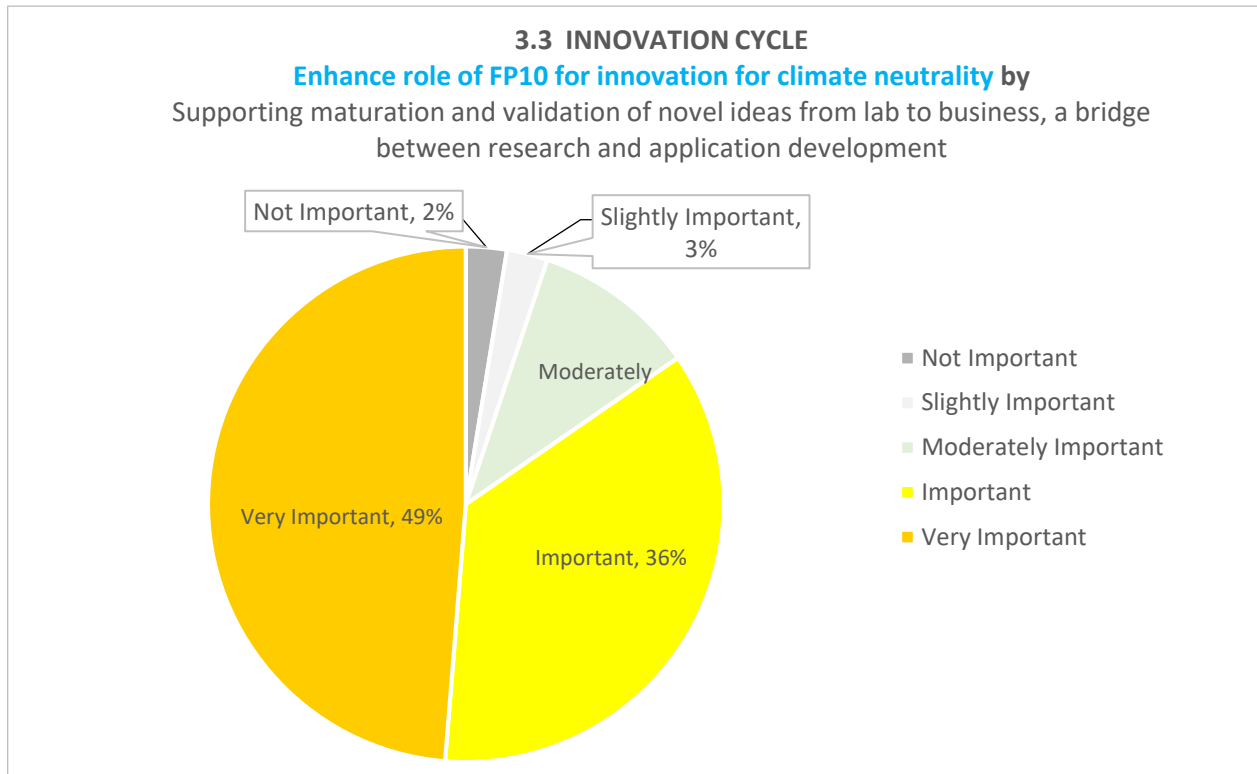- Moderately Important
- Important
- Very Important

3.3 INNOVATION CYCLE

Innovation cycle, enhance role of FP10 for innovation for climate neutrality

Enhance role of FP10 for innovation for climate neutrality by	Important to Very Important Count (%)	Count (%)
Supporting maturation and validation of novel ideas from lab to business, a bridge between research and application development	33	85 (refer to Chart 3.3.1)
Supporting research and deep tech projects with a high degree of scientific ambition and risk	30	77
Supporting start-ups and small and medium-sized enterprises to develop and scale up to new markets or disrupt existing ones	29	76
Ensuring handshake between sets of portfolios targeting different TRL levels 1-3, 4-6, 7-9	29	74
Promoting joint exploitation activities among EIT KICs and relevant European Alliances such as ESEIA	28	72

Chart 3.3.1 Innovation cycle, Enhance role of FP10 for innovation for climate neutrality

3.3 INNOVATION CYCLE
Enhance role of FP10 for innovation for climate neutrality by
Supporting maturation and validation of novel ideas from lab to business, a bridge
between research and application development

Not Important, 2%

Slightly Important, 3%

Moderately

Very Important, 49%

Important, 36%

- Not Important
- Slightly Important
- Moderately Important
- Important
- Very Important

Annex D. List of HEU Projects

ESEIA and ESEIA members contribution on the HEU Projects (ordered by period)

No.	Project Title	Project Period	Type of Action	Objectives	Contribution of ESEIA Members	Web Page	Logo
1	Ener2i	2013-2016	CSA	Find innovative and sustainable solutions to solve the urgent, interrelated societal challenges of insecurity over energy supplies	Partner (ESEIA)	https://eseia.eu/projects/ener2i/	
2	ATBEST	2013-2017	MSCA	Develop innovative research and training for the biogas industry in Europe	Partner (TH Koln)	https://cordis.europa.eu/project/id/316838/reporting/de	
3	ENERWATER	2015-2018	CSA	Develop an innovative standard methodology for continuously assessing, labelling and improving the overall energy performance of WWTPS	Partner (TH Koln)	https://cordis.europa.eu/project/id/649819	
4	SUPREME	2015-2018	CSA	Knowledge transfer in integrating energy technologies, extended staff exchanges, joint work, Summer Schools, to create impact on Poland´s energy system infrastructure	Partner (UTwente, ESEIA)	https://cordis.europa.eu/project/id/692197	
5	BioEnergyTrain	2015-2019	CSA	Providing training in the field of bioeconomy development integration of practical training modules	Coordinator (ESEIA) Partner (BAV, UTBv, TU Graz, LNEG, UTwente)	http://www.bioenergytrain.eu/	
6	PHOENIX	2015-2019	MSCA	Creating synergies between them through the targeted secondments of staff to advance research and innovation knowledge in bio-energy research	Coordinator (ESEIA), Partner (BAV, BRP, EASt, LNEG, UZagreb FSB, UZagreb FBT, UTwente, TU Graz)	https://cordis.europa.eu/project/id/690925	
7	IoSense	2016-2019	ECSEL	Providing three modular flexible pilot lines and manufacture sensor system prototypes	Partner (FH Burgenland)	https://cordis.europa.eu/project/id/692480/de	
8	NEWTON	2016-2019	RIA	Develop, integrate art technology-enhanced teaching methodologies	Coordinator (IERC)	https://cordis.europa.eu/project/id/688503	

No.	Project Title	Project Period	Type of Action	Objectives	Contribution of ESEIA Members	Web Page	Logo
9	CESEPS	2016-2019	ERA-Net Smart Grids Plus	Support the development of smart energy products and services for local smart grids	Coordinator (UTwente) Partner (ESEIA)	http://www.ceseps.eu/	
10	InnoForESt	2017-2020	IA	Steer policies and businesses through the establishment of new actor alliances and payment schemes in the forestry sector	Partner (UTwente)	https://innoforest.eu/	
11	RECO2ST	2018-2021	IA	Address the challenges of renovating buildings to achieve near-zero emissions standards with four apartment buildings	Partner (IERC)	https://reco2st.eu/	
12	S4D4C	2018-2021	RIA	Develop a governance framework, training modules, and recommendations to strengthen the EU's science diplomacy capacities.	Partner (UTwente)	https://www.s4d4c.eu/	
13	Pvadapt	2018-2022	IA	Transition to clean energy by combining innovative, smart, low-cost solutions into a proactive optimization service	Partner (FH Burgenland)	https://www.unismart.it/pvadapt/index.html	
14	HARP	2019-2022	CSA	Replace old and inefficient heating systems with a modern solution combining energy efficiency and renewable sources	WP leader (ADENE)	https://heating-retrofit.eu/resources/	
15	Label 2020	2019-2023	CSA	Create a smooth transition to the new energy efficiency classes.	Partner (ADENE)	Label2020.eu	
16	SFERA-III	2019-2023	CSA	Ensure the long-term sustainability of European advance solar laboratories, supporting Europe as a global leader in solar research infrastructures.	Partner (UTBv)	https://cordis.europa.eu/project/id/82380220	
17	SUSMAGPRO	2019-2023	RIA	Producing tailormade magnetic solutions with recycled powder	Partner (JSI)	www.susmagpro.eu	

No.	Project Title	Project Period	Type of Action	Objectives	Contribution of ESEIA Members	Web Page	Logo
18	MiniStor	2019-2024	IA	Developing an advanced compact integrated system that stores heat.	Coordinator (IERC)	www.ministor.eu	
19	ePANACEA	2020-2023	IA	Creating methodology for energy performance assessment and certification of buildings with smart technologies	Partner (EASt)	https://epanacea.eu/	
20	RE4Industry	2020-2023	CSA	Facilitate for the EII sector in Europe a smooth and more secure transition to the adoption of renewable energies in their production processes and facilities	Partner (ESEIA)	https://re4industry.eu/	
21	Prelude	2020-2024	IA	Proactive optimisation service based on smart technologies	Partner (FH Burgenland)	https://prelude-project.eu/	
22	TradeRES	2020-2024	RIA	Innovative electricity market designs that can meet society's needs of a (near) 100% renewable power system	Coordinator (LNEG)	https://traderes.eu/project/	
23	MULTI-STR3AM	2020-2025	IA	Valorisation of all biomass fractions Scale up microalgae production and integrate individual technologies to refine biomass	Partner (LNEG)	https://www.multi-str3am.com/en	
24	LEAP-RE	2020-2025	RIA	Develop renewable energy as a sustainable source of energy for all in Africa	Partner (LNEG)	https://www.leap-re.eu/	
25	R&Dialogue	2021-2025	CSA	Organise a dialogue between R&D organisations (RDOS) and civil society organisations (CSOS) that results in the development of renewable energies and a low carbon society	Partner (LNEG)	https://cordis.europa.eu/project/id/288980	
26	INSPIRES	2021-2023	EIT RawMaterials	Recovering and supplying Rare-Earths within the EU through radical innovations in the recycling of permanent magnets	Partner (JSI)	https://eitrawmaterials.eu/project/inspires/	INSPIRES

No.	Project Title	Project Period	Type of Action	Objectives	Contribution of ESEIA Members	Web Page	Logo
27	INVEST4 EXCELLENCE	2021-2024	CSA	Engage regional actors to the research and innovation into the regions and deliver key enabling technologies	Partner (Karelia UAS)	https://www.invest4excellence.eu/Home/Texts?link=4-objectives	
28	SUSTENANCE	2021-2024	IA	Integrating different energy vectors in regional communities by meeting their needs from local renewable energy sources	WP leader (UTwente)	https://h2020sustenance.eu/	
29	YUFERING	2021-2024	CSA	Promote joint educational programs and facilitate the mobility of students and staff to create an inclusive higher education in EU	Partner (Karelia UAS)	https://yufe.eu/yufering/	
30	DAIS	2021-2024	IA	Creating an intelligence centred heterogeneous distributed edge computing systems and solutions	Partner (JSI)	https://dais-project.eu/	
31	BreadCell	2021-2025	RIA	Produce porous lightweight low-density materials that are massively used in industries and mainly consist of non-degradable polymers	Partner (TU Graz)	www.breadcell.eu	
32	Building EU	2021-2025	CSA	EU-Africa partnership ensuring a responsible sourcing of mineral resources	Partner (LNEG)	https://africamaval.eu/	
33	Modenerlands	2021-2025	CSA	Promote Sustainable Energy islands, training of early career investigators (ECIS)	Partner (LNEG)	https://modenerlands.eu/	
34	SERENE	2021-2025	IA	Local renewable and balanced energy supply for buildings, neighbourhoods and entire villages using solar PV, storage, insulation, smart control, and bioenergy sources.	WP leader (UTwente)	https://h2020serene.eu/	
35	METABUILDING LABS	2021-2026	IA	Assisting SMEs in the construction sector, testing innovative technologies in living labs located in 13 country	Partner (Unizg-FSB)	https://metabuilding-labs.eu/	

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36	OLGA	2021-2026	IA	Clean energy/fuel production Energy-efficient and green airport operations and buildings	Partner (Unizg-FSB)	https://www.olga-project.eu/	
37	CONDUCTOR	2022-2025	IA	Design, integrate and demonstrate advanced, high-level traffic and fleet management	Partner (JSI)	https://conductor-project.eu/index.php	
38	ONEPLANET	2022-2025	RIA	Empowering African policy makers reducing inequalities increase clean energy generation	Partner (CYI)	https://oneplanetproject.eu/	
39	RAINFOREST	2022-2025	RIA	Reduce biodiversity impacts of major food and biomass value chains integrated assessment modelling, LCA	Partner (CYI)	https://rainforest-horizon.eu/	
40	Free4Lib	2022-2026	RIA	Li-Ion battery value-chain Re-manufacturing of new libs with a Design for Recycling	Partner (Uni Graz)	www.freeforlib.eu	
41	GSEU	2022-2027	CSA	Geothermal energy resources and subsurface storage capacities groundwater dynamics, geological and climate change information for coastal vulnerability assessment	Partner (LNEG)	https://www.geologicalservice.eu/	
42	Herit4ages	2023-2027	RIA	Develop validate a set of technical and socially innovative sustainable energy and resource-efficient solutions, for the cost effective improvement and preservation of the cultural heritage buildings.	Coordinator (IERC)	https://www.herit4ages.eu/	
43	aProMag	2023-2024	EIT Manufacturing	Prototype, validate fast prototyping of rotors for brushless DC motors and actuators using 3D printing in a magnetic field	Coordinator (JSI)	apromag.eu	
44	UP-SCALE	2023-2025	NetZeroCities	Implementation of three pilot projects in Kranj, Ljubljana, and Velenje with the testing of innovative Approaches for decarbonisation	Partner (JSI)	https://www.kranj.si/projekt-up-scale	

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45	TRANS-Lighthouses	2023-2026	RIA	Implement socioeconomic and political changes social and ecological implementations of NBS	Partner (CYI)	https://cordis.europa.eu/project/id/101084628	
46	COMMUNITAS	2023-2026	IA	Promote energy citizenship, empowering citizens to take control of the path towards sustainability	Partner (Unizg-FSB)	https://communitas-project.eu/	
47	EMERGE	2023-2026	RIA	Provide African policy makers, academics, investors, and citizens with the tools and knowledge required to increase the production of clean energy and the sustainable use of resources	Coordinator (Unizg-FSB)	https://emerge4green-africa.eu/	
48	INITIATE	2024-2027	CSA	Enhance the cooperation between member states and widening countries to ensure knowledge transfer and the joint cooperation supporting the value creation and R&I development	Coordinator (Unizg-FSB), Partner (CYI, UTBv, JSI)	not available yet	
49	AgriPV4 Africa	2024-tbc	IA	Improving climate adaptations, acceleration of achievement of the African countries target of the Paris agreement	Coordinator (IERC)	Starting in 2024. Webpage not yet available	-
50	reCharge	2024-tbc	LIFE-PJG LIFE Project Grants	Demonstrate and promote innovative techniques, methods and approaches for reaching the objectives of Union legislation and policy on the environment	Coordinator (IERC)	Starting in 2024. Webpage not yet available	-
51	DREAM	2024-tbc	RIA	Develop innovative processes for the transformation of complex biomass matrices into bioproducts for chemical industry of the future.	Partner (LNEG)	Starting in 2024. Webpage not yet available	-