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Interim report and recommendations on the optimisation of SET-Plan related EERA resources

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DISCLAIMER

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TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report D1.4. – “Interim report and recommendations on the optimisation of SET-Plan related EERA resources” – relates to task 1.2 – “Identification and mapping of EERA resources” – of the SUPEERA project. This first interim report will be updated twice, in year 2 and 3.

D1.4 represents a first attempt of an analysis of EERA resources supporting the implementation of the SET-Plan Implementation Plans in terms of 1) the public institutional and competitive funding and 2) the appropriate EERA human resources and infrastructures.

The sources of information used for the analysis are: 1) SUPEERA deliverable D1.1 – “Interim report on the state of play of the SET-Plan IPs and mapping of R&I activities”- built on the SET-Plan annual progress report of 2019, which provides information of the state of play of the Implementation Plans and their activities; 2) a comprehensive survey addressed to EERA members within the Joint Programs, containing information available to cover prioritised activities of IPs.

The report then further analyses the data collected for prioritised actions of four Implementation Plans: “Initiative for Global Leadership in Deep Geothermal”; “Become competitive in the global battery sector to drive e-mobility and stationary storage forward”, “Bioenergy and Renewable Fuels for Sustainable Transport” and “Initiative for Global Leadership in Offshore Wind”. These four Implementation Plans were chosen based on the amount and quality of gathered information.

The report eventually concludes with the first preliminary findings on the performed analysis.

LIST OF ACRONYMS

EERA	European Energy Research Alliance
HR	Human Resources
IP(s)	Implementation Plan(s)
IWG(s)	Implementation Working Group(s)
JP(s)	Joint Program(s)
JP Bio	Joint Programme on Bioenergy
JP CCS	Joint Programme on Carbon Capture and Storage
JP CSP	Joint Programme on Concentrated Solar Power
JP E3S	Joint Programme on Economic, Environmental and Social Impacts of the Energy Transition
JP EEIP	Joint Programme on Energy Efficiency in Industrial Processes
JP ESI	Joint Programme on Energy Systems Integration
JP FCH	Joint Programme on Fuel Cells and Hydrogen
JP GEO	Joint Programme on Geothermal
JP PV	Joint Programme on Photovoltaic Solar Energy
JP SC	Joint Programme on Smart Cities
JP SG	Joint Programme on Smart Grids
NS	Not Specified
SETIS	Strategy Energy Technology Plan Information System
R&I	Research and Innovation
SET-Plan	Strategy Energy Technology Plan
SUPEERA	Support to the coordination of national research and innovation programmes in areas of activities of the European Energy Research Alliance
FTE	Full Time Equivalent
WP	Work Package

LIST OF TABLES AND CHARTS

NOTE TO THE EUROPEAN COMMISSION

This “Interim Report and recommendations on the optimisation of SET-Plan related EERA resources” (D1.4) is the main result of the activities of the Task 1.2 – “Identification and mapping of EERA resources”. While EERA aisbl, as a sole grant beneficiary and leader of the WP1, has coordinated and led the activity, CEA as a task leader has prepared all necessary inputs for its implementation and has consolidated the contributions from EERA members by integrating them into the final version of this document.

Built on the D1.1 “Interim report on the state of play of the SET Plan IPs and mapping of R&I activities”, this document represents a very first attempt in optimising EERA members’ existing resources available to cover these R&I activities.

The main objective of the deliverable therefore is to identify and map EERA resources dedicated to the SET-Plan execution and consequently to present, in a sufficiently analytical and yet concise manner, how to possibly optimise those resources and match with the identified needs of the open activities of the SET-Plan Implementation Plans.

The production of this deliverable was originally based on three subsequent steps: identification and mapping of resources; gathering suggestions from EERA Joint Programme Coordinators on their coupling with the needs of the identified open activities and, finally, publication of preliminary recommendation in a form of a report.

The outbreak of COVID-19, however, has impacted the activities of this task and so the final outcome of this deliverable. Specifically, the pandemic has called for an important reshuffling of EERA members’ priorities which eventually have resulted in their limited involvement in the mapping process. Despite putting in place a through and well-defined mapping process, the feedback received from the membership, structured per Joint Programmes, was rather partial. As a consequence, the partners working on this document have decided to analyse feedbacks only from those Joint Programmes members who have reported both quantitative and qualitative data sufficiently adequate for the elaboration of the Report.

In the same way, several important EERA’s main stakeholder meetings, which originally are meant to be used as a generator of preliminary suggestions on how to optimize and use gathered data, where postponed and/or organised in radically different modalities. This was the case of the Joint Programme Coordinator meeting in M10 that was supposed to release first suggestions which would serve to define preliminary recommendations as a part of this Report. Instead, the meeting has been prearranged to address pressuring topics arising from the pandemic, as for example how to synchronise EERA community to respond to ad hoc policies and strategies from both internal and external stakeholders, rather than as a brainstorming workshop dedicated to the Task 1.2.

Given thus the two above-mentioned restraints in executing the initially planned activities, the present deliverable is limited in scope, i.e. it brings forward the analysis related only to several SET-Plan Implementation Plans priorities and potentially corresponding EERA resources for their execution.

As an Interim report, it will be the partners’ highest ambition to update it in Y2 and Y3 in the way that matches completely the originally conceived scope, applying contingency measures already under examination by the SUPEERA partners. To enhance their effects, these measures need to be adherent to:

- Defined project's high-level objective;
- The EC expectations, which also might vary due to new and unpredictable circumstances;
- Already approved strategies and policies such as European Green Deal, Next Generation EU recovery package, or to ad hoc ones in response to new and rather fluid context.

I INTRODUCTION

The achievement of climate neutral society by 2050 requires strong commitment of all actors involved in the process, especially of the research community called to accelerate the delivery of innovative energy technologies. This ambitious goal will depend on the continuous synchronisation of the mechanism erected on shared understanding of objectives, priorities, tools and importance to coordinate and progress on the transition pathway.

In this context EERA members, since the very inception of the SET-Plan, have been at the forefront of this mission and have progressively streamlined respective researches programme and resources with aim to match European and national energy research priorities.

Acting as a research pillar of the SET-Plan in effect, EERA has contributed in strengthening and in giving coherence to R&I policies, making possible the achievement of many important targets of the Implementation Plans targets and milestones.

On this basis, EERA through SUPEERA project continues to play a crucial role summarised in the first projects' high-level objective: Facilitate the coordination of the research community in support to the execution of the SET-Plan towards the Clean Energy Transition.

To this end, two main project activities are foreseen. First, bringing up a consolidated overview of the SET-Plan Implementation Plans by mapping so called "open" and "covered" activities, and, in the second place, inventorying EERA resources and funding contributing to the execution of those activities.

While the former is largely based on the SETIS 2019 report[1], the latter entailed a comprehensive mapping process meant to lay the ground for optimising EERA resources pertaining specific SET-Plan R&I activities.

The final aim of both activities is to have a better overview of IP's most lagging activities and from there facilitate the execution of SET-Plan itself.

According to the above-stated objective and respective actions, SUPEERA partners are issuing this first Interim Report that provides a mapping on EERA resources (human resources and infrastructure) and funding (competitive and institutional) which can support the execution of the SET-Plan IPs activities. On one side, the Report provides a very first snapshot of the European, trans-national, national and regional funding made available to EERA members, and, on the other side, human resources in terms of FTE (full-time equivalent) and infrastructures which, for the purpose of this report, encompasses laboratories, instruments, test sites, virtual facilities, etc.

It is intended to assist EERA Joint Programmes Coordinators in optimising the reported respective members' resources to match them eventually with the needs of identified Implementation Plans activities. Alongside the Joint Programme Coordinators, the report will be transmitted to the EERA Executive Committee as input for the elaboration of mid-term strategy and to EERA members sitting in the Implementation Working Groups as initial suggestions for their further actions.

[1] *Strategic Energy Technologies Information System (SETIS), Implementing the SET-Plan: Progress from the Implementation Working Groups, Nov. 2019.* https://setis.ec.europa.eu/sites/default/files/setis%20reports/set_plan_report_2019_online.pdf

The Report's functional role will be fully accomplished in Y3 when the Report will be issued in its final version and which will integrate the update foreseen in month 23 as D1.9. It will produce a set of recommendations aimed at optimising energy research resources dedicated to the execution of the SET-Plan and will eventually maximise the synergies.

II METHODOLOGY

To achieve the objectives of T1.2, a two-fold methodology was followed. First, SUPEERA partners have designed a set of surveys aimed at gathering homogenous information from EERA members (see Annex 7).

The activity consisted in preparing separate surveys focusing on each of SET-Plan Implementation Plans (therefore 16 tailored surveys were prepared), and more specifically on the activities labelled as *prioritized activities* in the SETIS 2019 report (and SUPEERA D1.1). The choice to focus only on prioritized activities, rather than on all those reported, was dictated by the aim to achieve a well-balanced overview on the concrete IPs needs and matching EERA resources for their execution. In other words, addressing all reported IPs activities regardless their classification as red, orange or green would have requested vast efforts in terms of time and resources which final result, in return, would not have been sufficiently uniformized to carry out an accurate analysis.

In synthesis, the survey has been conceived in the way to gather two main types of information:

1) Organisations' human resources and infrastructures in the areas of activity of the SET-Plan Implementation Plans;
2) Organisations' public institutional and competitive funding in the areas of activity of the SET-Plan Implementation Plans.

In order to rationalize partners' efforts, the template has been designed so to include also information related to task 1.3. Cross-cutting and interdisciplinary activities. A comprehensive description of the key concept used can be find in the table below.

Once defined all its parts, the survey has been sent to EERA members to be completed with aforementioned information. Since EERA has more than 250 organizations, with a number of them active in several Joint Programmes, SUPEERA partners have decided to contact only Full EERA members which by norm are the more active ones. The exception has been made for several key Associate members who are particularly effective in respective research spheres.

Every contacted member received a tailored survey based on its participation in actions pertaining specific Implementation Plans.

It is important to underline that there is not a complete correspondence between EERA Joint Programmes and SET-Plan Implementation Plans. Therefore, the surveys addressed to two Joint Programmes (JP Fuel Cells and Hydrogen and JP Smart Grids, that do not have a "natural" correspondence in the SET-Plan IPs) were tailored gathering the prioritised activities from the different Implementation Plans in which their members are active in. This resulted in a survey comprising activities from IPs "Become competitive in the global battery sector to drive e-mobility and stationary storage forward" and "Bioenergy and Renewable Fuels for Sustainable Transport" addressed to JP Fuel Cells and Hydrogen and a survey comprising activities from IP "Increase the resilience and security of the energy system".

Key Concept	Definition
Alignment of a project with an Implementation Plan activity	An estimation of how much the tasks of a project are dedicated to the Implementation Plan activity taken into consideration.
Budget received by EERA Member	The portion of the total project budged received by the EERA Member as part of the project consortium.
Competitive funding	Public funding allocated through competitive programmes and calls from funding bodies (for example EU or national calls).
EERA Associate Member	Associate Member participates in the General Assembly and other activities of the Association with right to speak but without voting rights
EERA Full Member	Full Member is entitled to participate in all decision processes of the Association with voting rights. It is eligible to apply for a seat in the Executive Committee
EERA Joint Programme	Technology-based programmes created to organise work within EERA and realise its strategy. The topics of the EERA Joint Programmes are aligned with the EU SET-Plan.
European funding	Public competitive funding coming from programmes established by the European Union such as the Horizon 2020 framework programme that are allocated and managed directly by the European Institutions
Full Time Equivalent	Unit of measure that indicates the equivalent of one person working full time on a project on a yearly basis.
Implementation Working Groups	Working groups formed by interested SET-Plan countries representatives and industrial and research stakeholders in order to execute the Research and Innovation activities presented in the Implementation Plans.

Institutional funding	Resources at the disposal of an organisation or resources directly granted by/received from a governmental body/ies (Ministries, funding agencies etc), without any competition.
National/Regional funding	Public Competitive Funding coming from national or regional programmes, allocated and managed from national or regional bodies. E.g. ERDF & Cohesion Funds.
Prioritised Implementation Plan Activities	Activities that were indicated as priority by the Implementation Working Groups of the SET-Plan during the information gathering process for the 2019 SETIS Report.
Research Infrastructures	Relevant infrastructures that can be mobilized for the execution of one or more activities. EERA Members were asked to mention only the infrastructures that are essential for the realisation of the activities.
SET-Plan Implementation Plans	Implementation plans developed to facilitate the achievement of the technology-base targets envisioned by the SET-Plan.
Total project budget	The total budget allocated to a project within the funding programme in consideration.
Transnational Funding	Public Competitive Funding coming from programmes developed through the collaboration of two or more European countries. (e.g. Interreg)

Table 2 - Key concepts used in the survey (in alphabetical order)

This first part of the activity was followed by the analysis of the gathered results. Due to the adverse effects of COVID-19, the response received by EERA members was relatively limited. In particular, out of 304 sent surveys the authors have collected 46 answers suitable for the analysis. Since this number proved to be inadequate for the in-depth analysis, SUPEERA partners decided to highlight the input of five Joint Programme Members. JP Bioenergy, JP Energy Storage, JP Fuel Cells and Hydrogen[2], JP Geothermal, JP Wind Energy have indeed offered reasonably sufficient number of responses allowing a more structured exploration on their contribution in the execution of the respective SET-Plan Implementational Plans.

[2] EERA JP Fuel Cells and Hidrogen contributes to the activities of both IP "Bioenergy and Renewable Fuels for Sustainable Transport and IP Become competitive in the global battery sector to drive e-mobility and stationary storage forward".

This report, therefore, after introducing general data on undertaken activities, examines in which way EERA members with their respective human resources and infrastructures on one side, and public institutional and competitive funding, on the other side, can contribute and facilitate the execution of the SET-Plan IPs.

III GENERAL DATA

To achieve the objective of the task 1.2, a survey was developed with the purpose of mapping the available resources of EERA members to align with the needs of the identified prioritised activities of the SET-Plan IPs.

As explained in section II Methodology, the identification and the mapping of EERA resources covered two directions:

1. The appropriate EERA human resources in terms of FTE and infrastructures for the execution of the SET-Plan Implementation Plans (IPs). The categories of infrastructure considered for the analysis include laboratories, test sites and virtual facilities;
2. The public institutional and competitive funding for the execution of the SET-Plan Implementation Plans. For competitive funding, the survey takes into consideration funding from European, national, regional and transnational sources.

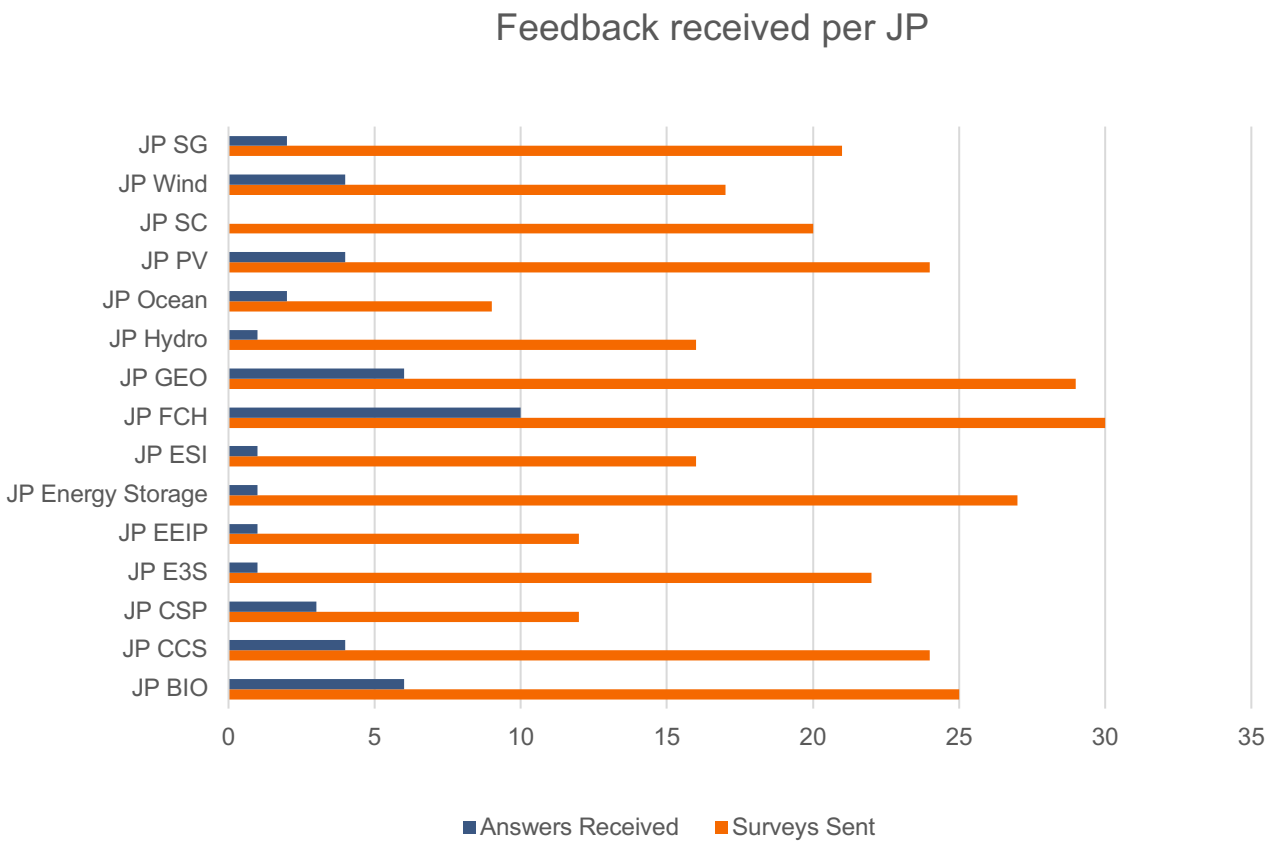
The survey was sent to the 304 EERA predominately Full Members, receiving 46 answers. According to Figure 1, the highest number of replies was received from the EERA JP Fuel Cells and Hydrogen, with 10 replies, followed by JP Bioenergy, which provided 6 answers, JP Wind, with 4 answers and JP Geothermal, with 6 answers.

With a scope to increase the response rate, several targeted actions were carried out. Firstly, an explanatory video on how to fill out the survey in all its parts was provided indicating the contact email if additional information were necessary. Further then, EERA Members were directly contacted to solicitate their feedback and/or to answer to possible doubts and questions.

The rather low response should be ascribed to the numerous difficulties research centres, and all activities, have been facing during the second and third trimester of this year, due to the measures to be taken in response to the COVID-19 pandemic. Moreover, another factor is to be identified in the difficulty of gathering all the data for resources coming from different funding sources, in particular from those national and regional ones.

The analysis resulted in a limited, yet concise preliminary overview of the status of EERA member's efforts and resources dedicated to the execution of the prioritised activities of the SET-Plan IPs.

This section contains a general overview of the data regarding 12 Implementation Plans. Amongst them, four Implementation Plans were further selected for a more detailed analysis considering the high rate of response received from the EERA JP members. The Implementation Plan "Maintaining a high level of safety of nuclear reactors and associated fuel cycles during operation and decommissioning, while improving their efficiency" was excluded for lack of data within the 2019 SETIS report, whereas the IP "Energy Efficiency solutions for Buildings" was not tackled for a lack of a corresponding EERA Joint Programme.



JP	Number of surveys sent	Number of replies
JP BIO	25	6
JP CCS	24	4
JP CSP	12	3
JP E3S	22	1
JP EEIP	12	1
JP Energy Storage	27	1
JP ESI	16	1
JP FCH	30	10
JP GEO	29	6
JP Hydro	16	1
JP Ocean	9	2
JP PV	24	4
JP SC	20	0
JP Wind	17	4
JP SG	21	2
Total	304	46

Figure 1/ Table 2- Feedback received per JP

3.1 Competitive funding

Competitive funding, i.e., public funding allocated through competitive programmes and calls by public funding bodies, forms the most part of the contribution of EERA members (and other relevant participants) to the activities of the Implementation Plans. With 262 reported projects in fact, a total of €822.6 million is dedicated to prioritised IP activities, considering the contributions by all the stakeholders involved in the project consortia, including also non-EERA Members. These funds are distributed between European funds (the vast majority being Horizon 2020 projects), national/regional funds, transnational funds (e.g. Interreg projects) and other types of funding.

Figure 2 displays the total amount of competitive funding received by all the projects listed by EERA Members. The highest contribution coming from the projects declared by EERA members targets the IP "Bioenergy and Renewable Fuels for Sustainable Transport" with €193.6 million, followed by IPs "Initiative for global Leadership in Deep Geothermal and IP Become competitive in the global battery sector to drive e-mobility and stationary storage forward", contributing respectively with €119 and €110.9 million.

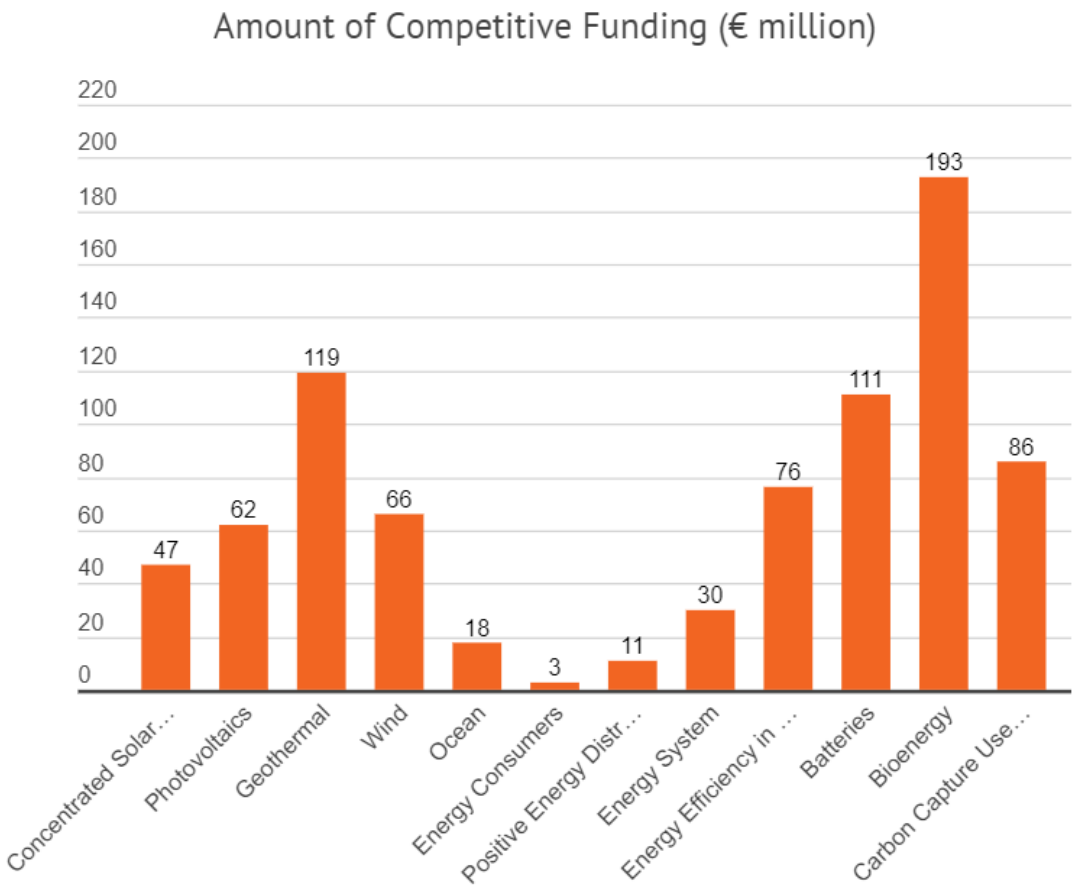


Figure 2 - Volume of competitive funding reported by EERA members. Source: EERA survey.

As illustrated in Figure 3, European funding is by far the main source for the projects listed by EERA members, amounting to an overall 75% of the total Competitive funding, i.e. €615.9

million. As mentioned above, the great majority of European projects included in the analysis were funded under the Horizon 2020 framework programme for research, development and innovation. However, a few projects also mentioned other types of EU funding programmes, even though unspecified. Even more, European funding was the exclusive source mentioned by EERA members active in IPs Energy Efficiency in Industry, Positive Energy Districts, Energy Consumers and Ocean. Similarly, for the activities of the IPs on Carbon Capture Storage and Use, and Concentrated Solar Power, the European contribution covers more than 97% of the total budget listed for competitive funding.

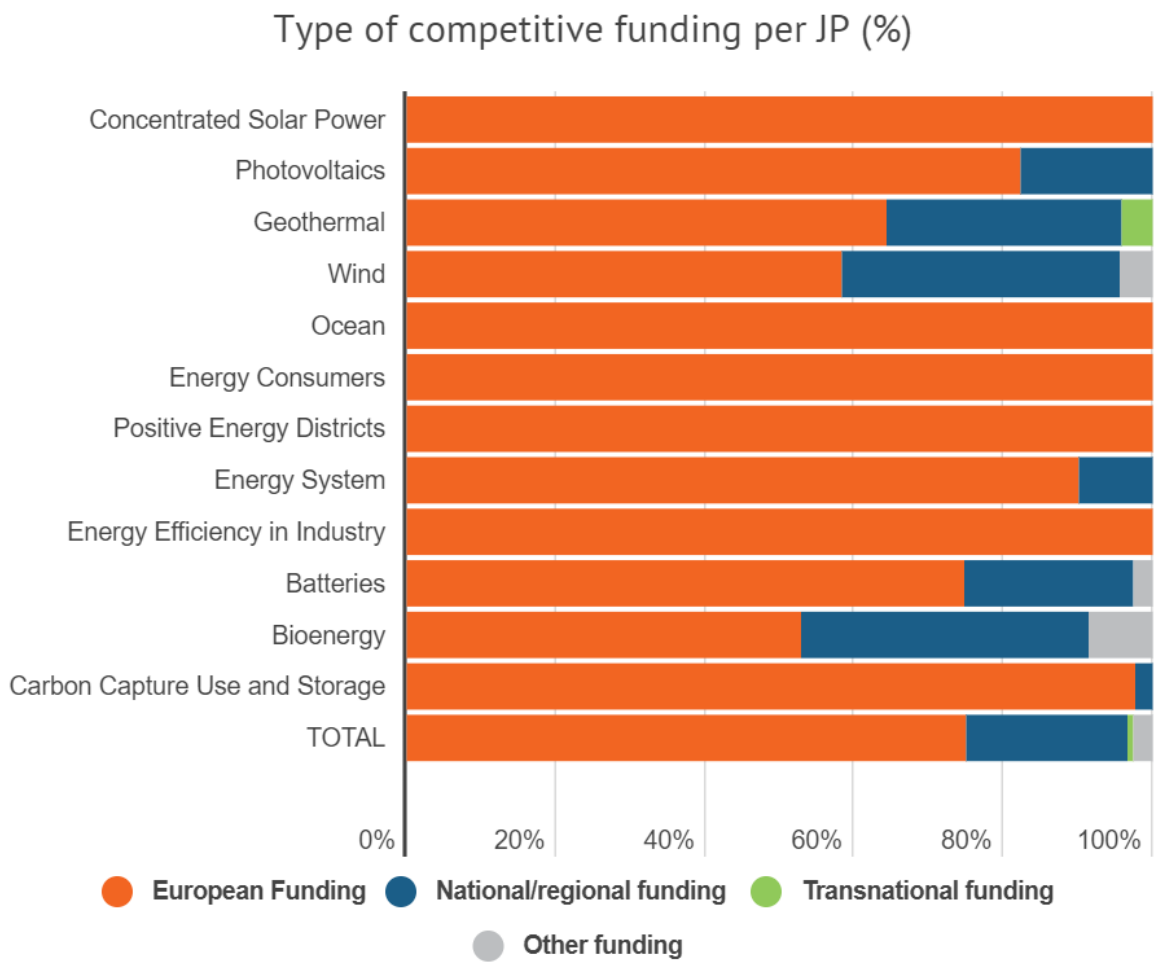


Figure 3 - Type of competitive funding per IP. Source: EERA survey.

Although the preponderance of the European funding is evident, national and regional funding, nonetheless, still contribute significantly to the total volume of projects reported targeting the prioritised IP activities. In particular, 21% of the amount of competitive funding derives from national or regional programmes, adding up to a total of €177.5 million. It is worth mentioning that projects contributing to IPs "Bioenergy and Renewable Fuels for Sustainable Transport" and "Initiative for Global Leadership in Offshore Wind" listed quite a large amount of funding allocated from national and/or regional sources, both amounting to around 40% of the total reported budgets.

More specifically, transnational funding represents a small percentage of the overall competitive funding. EERA JP Geothermal is the only JP listing projects that received a contribution from transnational programmes, amounting to 4% of the combined competitive budget declared by the IP members, €5.2 million. EERA members contributing to three different Implementation Plans, i.e. those relative to Bioenergy, Energy Storage and Offshore Wind, have listed projects funded through other types of competitive funding, however unspecified, for a total of €21.8 million.

According to Figure 4, the funding received by EERA members contributing to the prioritised activities of the Implementation Plans amounts to approx. €142 million, 17% of the total contribution received by all the stakeholders involved.

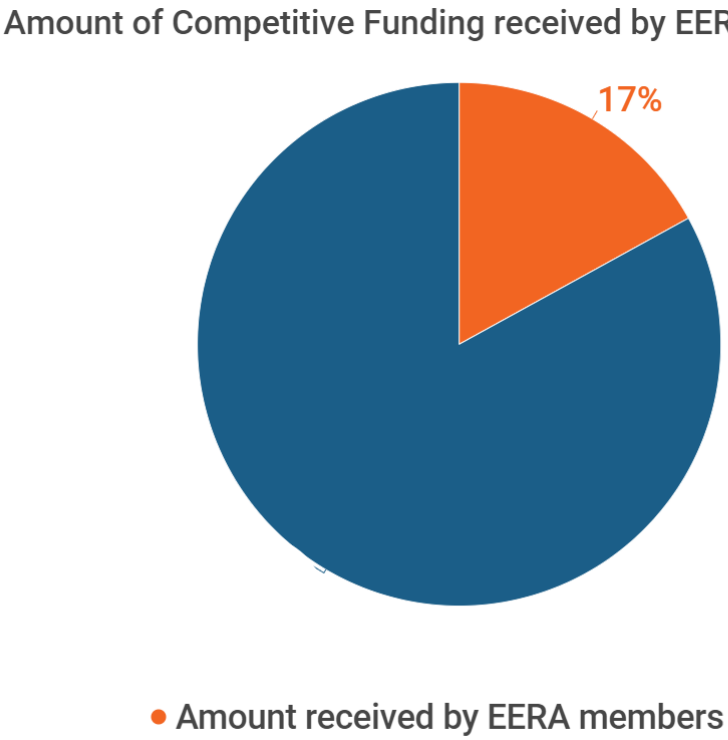


Figure 4 - Competitive Funding received by EERA Members. Source: EERA survey.

3.2 Institutional funding

The second type of funding analysed was institutional funding, i.e. own resources at the disposal of the organisations or directly received from a governmental bodies (e.g. ministries, funding agencies etc.) potentially deployable to cover prioritised actions, allocated without any competition process. As per Figure 5, around 14% of the budget indicated by EERA members is institutional funding, amounting to €23.6 million. The projects addressing the prioritised activities of IP "Bioenergy and renewable fuels for sustainable transport" are receiving the highest amount of institutional funding reported, with €9.7 million (41% of the total amount), followed by IP "Global Initiative in Deep Geothermal" with €6.4 million (27% of the total amount).

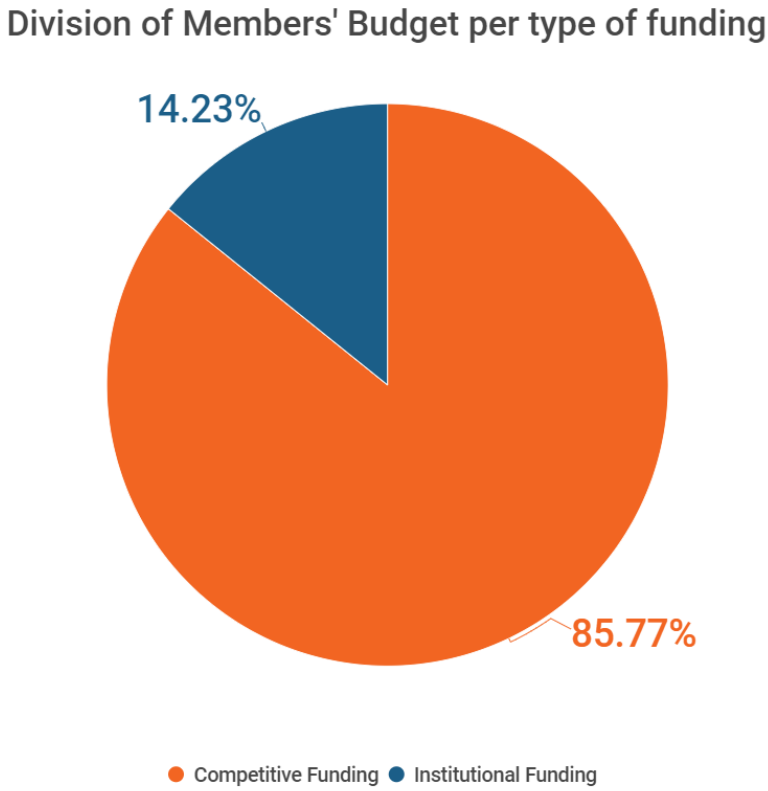


*Figure **5** - Budget division per type of funding. Source: EERA survey.*

3.3 Total funding

In conclusion, the total reported budget received by EERA members through both competitive funding and institutional one targeting the prioritised activities of the IPs (Figure 6) amounts to €165.5 million. In particular, EERA members are receiving the highest amount of funds for projects targeting the prioritised activities of the IP "Bioenergy and renewable fuels for sustainable transport" with a total amount of €58.9 million, followed by IP "Initiative for Global Leadership in Deep Geothermal" with €39 million and IP "Become competitive in the global battery sector to drive e-mobility and stationary storage forward" with €18.4 million.

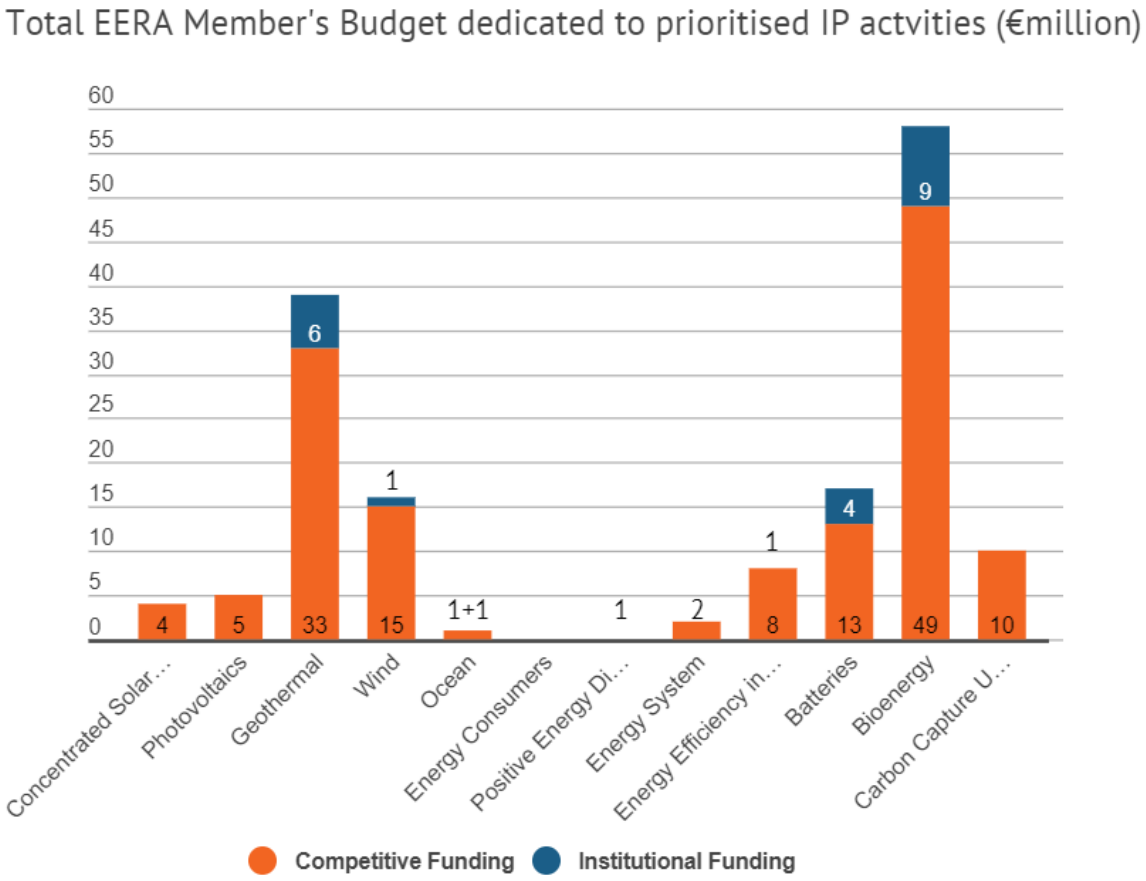


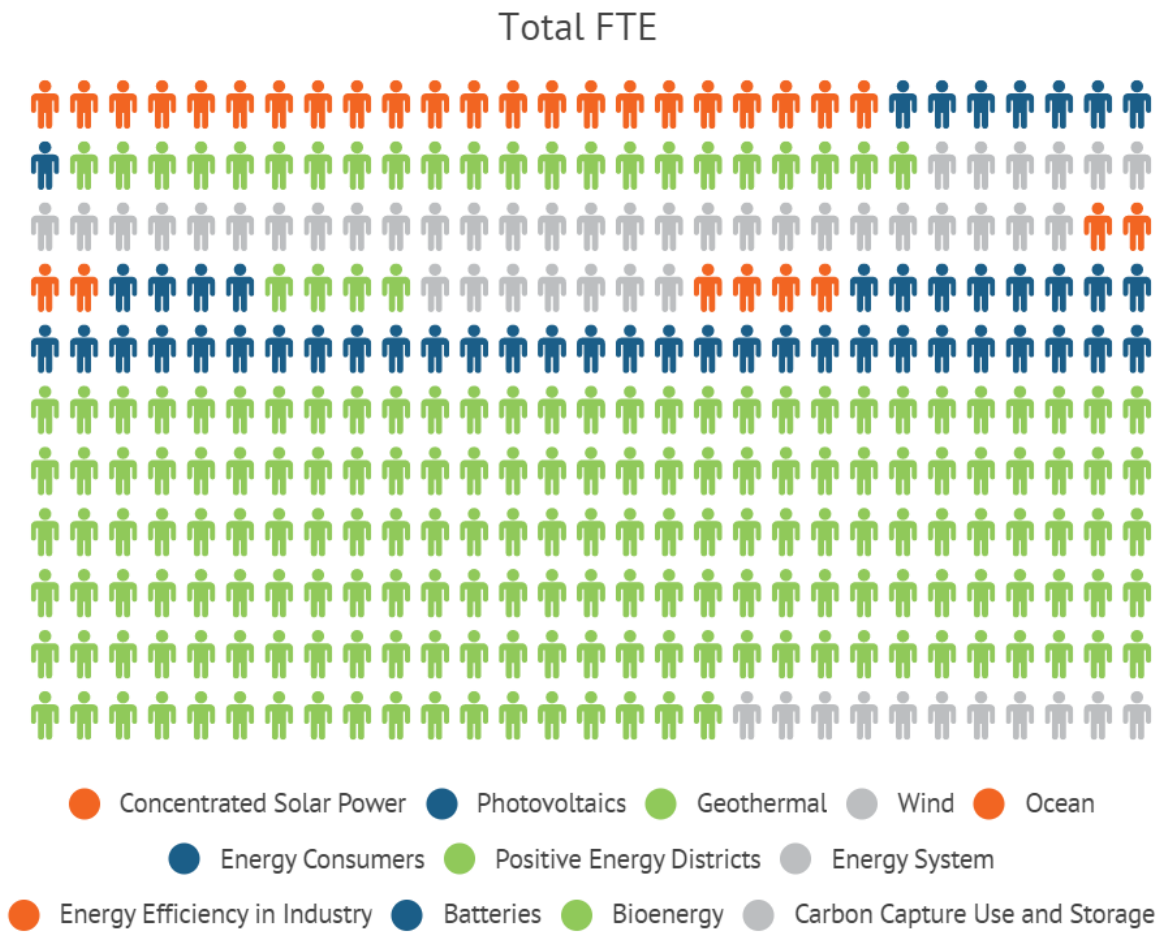
Figure 6 - Total budget available to EERA members for IP related activities. Source: EERA survey.

3.4 Human resources

Another important element contributing to the execution of the activities of the SET-Plan Implementation Plan are the Human Resources (HR). The survey takes into consideration HR financed by both competitive and institutional funding and for the purpose of this report, the unit used is the Full Time Equivalent (FTE), i.e. the equivalent of one person working full time on the project on a yearly basis.

In this respect, and according to data gathered, EERA members are declaring availability of 718 FTE for the prioritised activities of the Implementation Plans, out of which 63.6% (456.7 FTE) financed through competitive funding (European, national, regional, transnational or other types of EU programmes).

As displayed in Table 3, the Implementation Plans actions covered by largest HR efforts are "Bioenergy and renewable fuels for sustainable transport" with 330 FTE (189 financed by competitive funding and 141 by Institutional funding) and "Global Initiative in Deep Geothermal" with 189 FTE (97 financed by competitive funding and 72 by institutional funding).



IP	FTE from Competitive funding	FTE from Institutional
CONCENTRATED SOLAR POWER	11,0	0,0
PHOTOVOLTAICS	44,2	0,6
DEEP GEOTHERMAL	97,0	72,0
WIND	25,0	8,0
OCEAN	5,7	3,4
ENERGY CONSUMERS	2,0	0,0
POSITIVE ENERGY DISTRICTS	0,4	0,0
ENERGY SYSTEM	7,5	0,0
ENERGY EFFICIENCY IN INDUSTRY	41,9	12,5
BATTERIES	16,0	19,0
BIOENERGY	189,0	141,0
CARBON CAPTURE USE AND STORAGE	17,0	5,0
TOTAL	**456,756**	**261,5**

Figure 7/Table3 - Human Resources dedicated to the IPs by EERA Members. Source: EERA Survey

3.5 Infrastructures

The last part of the SUPEERA survey aimed at mapping infrastructures possessed by EERA members that could be dedicated for the execution of the prioritised activities of the SET-Plan Implementation Plans, including laboratories, test sites and virtual facilities.

As shown by Table 4 below, 139 laboratories are reported by EERA members, together with 168 test sites and 74 virtual facilities. The Members contributing to the IP "Bioenergy and renewable fuels for sustainable transport" possess the highest number of infrastructures, counting on 51 laboratories, 71 test sites and 60 virtual facilities, followed by the members contributing to the IP "Initiative for global Leadership in Deep Geothermal" that are provided with 20 laboratories, 9 test sites and 6 virtual facilities. The EERA members of contributing to the IP "Initiative for Global Leadership in Photovoltaics", can count on 15 laboratories and 20 test sites, while no virtual facilities were reported.

IP	Laboratories	Test sites	Virtual facilities
BIOENERGY	51	71	60
DEEP GEOTHERMAL	20	9	6
PHOTOVOLTAICS	15	20	0
BATTERIES	11	22	2
ENERGY EFFICIENCY IN INDUSTRY	3	17	0
CARBON CAPTURE USE AND STORAGE	14	0	2
WIND	9	5	0
CONCENTRATED SOLAR POWER	4	16	0
ENERGY SYSTEMS	4	6	0
OCEAN	7	1	2
POSITIVE ENERGY DISTRICTS	1	1	2
ENERGY CONSUMERS	0	0	0
TOTAL	**139**	**168**	**74**

Table 4 - Type of Infrastructure per Implementation Plan. Source: EERA Survey

IV ANALYSIS: EERA CONTRIBUTION TO FOUR IMPLEMENTATION PLANS

Based on the general analysis detailed in the previous section, and in particular considering number and quality of data generated from the surveys received, SUPEERA partners decided to perform a more detailed analysis related to four Implementations Plans. Therefore, for this first preliminary report, the IPs on Deep Geothermal, Bioenergy and Renewable Fuels, Batteries and Offshore Wind and respective EERA members' feedback were selected for a more detailed analysis.

This analysis refers to the observations included in the SUPEERA deliverable 1.1 "Interim report on the state of play of the SET-Plan IPs and mapping of R&I activities", which is built on SETIS report "Implementing the SET-Plan: Progress from the Implementation Working Groups.

In this report, activities are divided along three categories: green, orange and red. Activities are labelled "green" when there are ongoing projects addressing them. They are labelled "orange" when there are projects that are expected to take-off in the near future. Finally, they are labelled "red" if they do not show any sign of progress yet. Additionally, some activities were prioritised by the Implementation Plans and for the purposes of this report only the latter have been taken into analysis. As Deep Geothermal did not provide any prioritisation, all activities were included in the analysis. Likewise, all of Offshore Wind activities were included, as the IP prioritised all of them.

Analogous to the previous section, this part analyses the data collected through the surveys along four categories: competitive funding, institutional funding, human resources and infrastructures.

4.1 Contribution of EERA Members to the IP "Initiative for Global Leadership in Deep Geothermal"

The Implementation Working Group on "Global Leadership in Deep Geothermal" endorsed the Implementation Plan in January 2018. In the 2019 SETIS report, the IP lists ten activities that have all reached certain level of development, i.e. no activity was labelled "red" for no progress.

In the same report, seven activities were labelled "green", i.e. there are ongoing projects addressing those activities, while three were labelled "orange", i.e. there are projects expected to take off in the near future. No prioritisation was given in the report and therefore all ten activities listed in table 2 were included in the survey to EERA members contributing to this specific IP.

Number	Activities	Priority	Progress
1	Geothermal heat in urban areas	NS	●
2	Materials, methods and equipment to improve operational availability (high temperatures, corrosion, scaling)	NS	●
3	Enhancement of conventional reservoirs and deployment of unconventional reservoirs	NS	●
4	Improvement of performance (conversion to electricity and direct use of heat)	NS	●
5	Exploration techniques (including resource prediction and exploratory drilling)	NS	●
6	Advanced drilling/well completion techniques	NS	●
7	Integration of geothermal heat and power in the energy system and grid flexibility	NS	●
8	Zero emissions power plants	NS	●
9	NTBE A. Increasing awareness of local communities and involvement of stakeholders in sustainable geothermal solutions	NS	●
10	NTBE B. Risk mitigation (financial/project)	NS	●

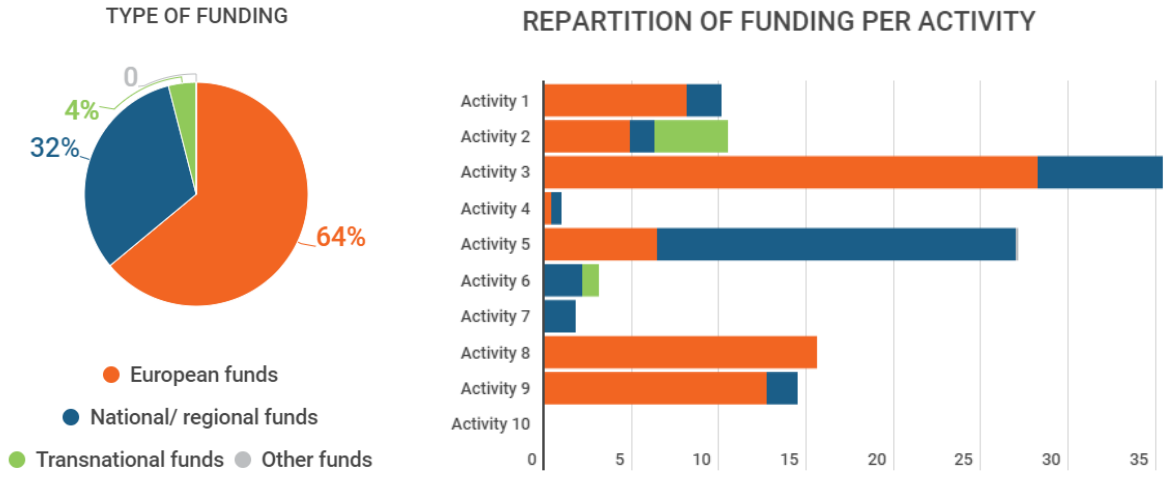
Table 5 – List of activities for Deep Geothermal IP

4.1.1 Competitive funding

EERA members declared 33 projects addressing activities of the Implementation Plan Deep Geothermal. Those projects are either ongoing or taking off within six months. The total amount levied by these projects is €119 million, of which EERA members receive €33 million.

	Number of Projects	Competitive funding (in million €)	European funds	National/ regional funds	Transnational funds	Other funds
Activity 1	3	10,1	81%	19%	0%	0%
Activity 2	4	10,5	47%	13%	40%	0%
Activity 3	8	35,4	80%	20%	0%	0%
Activity 4	2	1	40%	60%	0%	0%
Activity 5	15	27,1	24%	76%	0%	1%
Activity 6	4	3,1	0%	68%	32%	0%
Activity 7	1	1,8	0%	100%	0%	0%
Activity 8	1	15,6	100%	0%	0%	0%
Activity 9	7	14,4	88%	12%	0%	0%
Activity 10	0	0	0%	0%	0%	0%
TOTAL	33*	119	64%	31,5%	4,5%	0%

Table 6 – Competitive funding in Deep Geothermal IP. Source: EERA Survey. (a same project may be repeated for different activities)*



Figures 8 & 9 – Origin and repartition of funding per activity within Deep Geothermal IP. Source: EERA Survey.

At the **national and regional levels**, 22 projects support the activities of the IP Deep Geothermal. Those projects amount to €37,4 million, of which EERA members receive €19,4 million. National and regional programmes fund projects addressing all but two activities: activity 8, which is one of the three activities labelled "orange" and activity 10. Additionally, only one single project supports activity 7 with a budget of €1,8 million. As for a source of funding, activity 5 is the one most supported by regional and national funding. Interestingly, while in the 2019 SETIS report activity 5 is labelled "orange", i.e. there were projects to take-off in the near future but the execution of the activity didn't kick-off, now 11 ongoing projects are already entirely or partly addressing this activity. Some of reported projects dedicated to activity 5 were not yet running in 2019, but others had already started. These projects amount to €20,5 million, of which €6,9 million are granted to EERA members. Having a clear picture of national and regional funding is thus important as they illustrate the potential in changing the state of implementation of an activity.

At **European level**, EERA members declared eight projects addressing all IPs activities, excluding activities 6, 7 and 10. The projects amount to €76,3 million, of which EERA members receive €12 million. Horizon 2020 funds seven of the projects and an unspecified EU programme funds one of them. Activities 5 and 8, both labelled "orange", are addressed by three and one European projects respectively.

In addition, two activities are supported by projects receiving funding from **transnational funds** (activities 2 and 6) with a total of 3 projects declared amounting to €5,2 million (EERA members receive €1,1 million).

Finally, Activity 5 is also supported by one project funded by **an unspecified type of funding,** i.e. neither European, national/regional, or transnational.

4.1.2 Institutional funding

EERA members declared €6,4 million deriving from institutional funding to address activities related to the IP Deep Geothermal. Institutional funding corresponds to resources already at the disposal of the organisations or directly granted by governmental bodies (Ministries, funding agencies, etc.) without any competition.

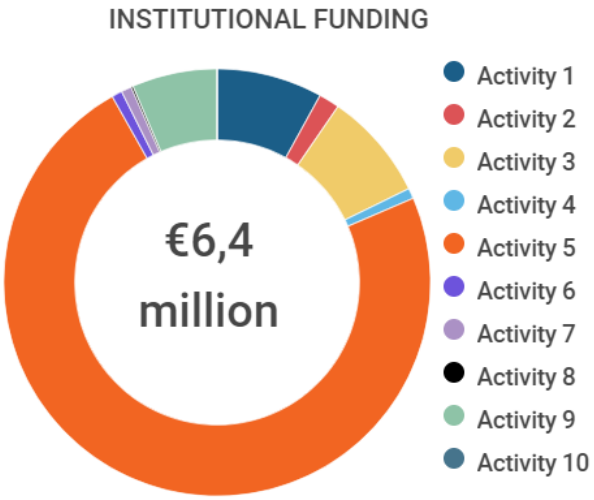


Figure 10 – Repartition of non-competitive funding within Deep Geothermal IP. Source: EERA Survey.

Based on the declared institutional funding, only five activities benefit from more than €100 000 (activities 5, 3, 1, 9, 2 in decreasing order). The activity supported by the largest amount of this type of funding is activity 5 with a total amount of €4,7 million, being inter alia the only one exceeding €1 million. No funding was reported for activity 10.

Activity 5 is the one supported by the largest amount of institutional funding, while the 2019 SETIS report classified it as “orange”, followed by activity 3.

4.1.3 Human resources

EERA members reported 169 FTE contributing to the activities related to the IP Deep Geothermal, of which 97 FTE are supported by projects and 72 FTE by institutional funding.

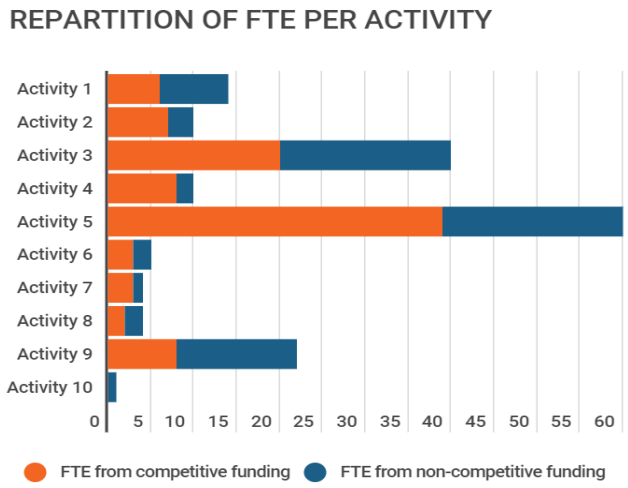


Figure 11 – Repartition of FTE within Deep Geothermal IP. Source: EERA Survey

The three activities with the highest FTE contribution are activity 3 (40 FTE), activity 5 (60 FTE) and activity 9 (22 FTE). Activities 3 and 9 are labelled “green”, while activity 5 is labelled “orange”. Activities 2 (9 FTE), 6 (5 FTE), 7 (4 FTE), 8 (4 FTE) and 10 (1 FTE) are the ones with less FTE contribution.

FTE is thus additional tool that can be used to assess the state of implementation of an IP, as it gives complementary information to the reported funding. In this case, the amount of FTE dedicated to these three activities is proportional to the declared projects and funding supporting them.

4.1.4 Infrastructures

EERA members listed 38 infrastructures that can support the implementation of the IP Deep Geothermal. Activities 3 and 5 are the ones with the highest number of infrastructures identified. On the other side, no infrastructure was listed for the execution of activities 4, 7 and 10.

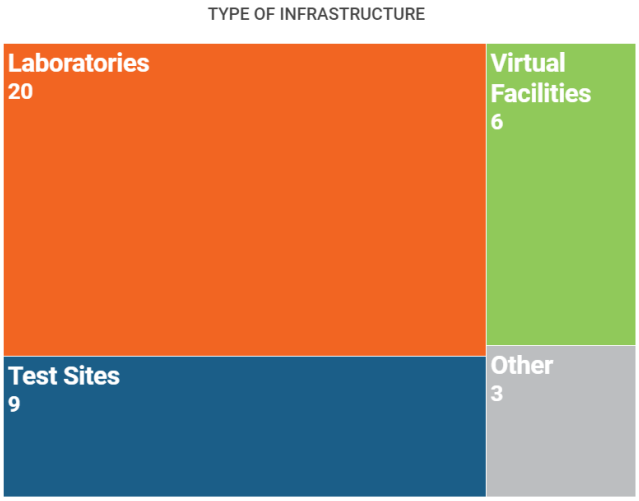


Figure 12 – Repartition of listed infrastructures within Deep Geothermal IP. Source: EERA Survey

4.2 Contribution of EERA Members to the IP "Become competitive in the global battery sector to drive e-mobility and stationary storage forward"

The Implementation Plan "Become competitive in the global battery sector to drive e-mobility and stationary storage forward" was endorsed in November 2018. The IP lists 10 activities. Three of them reached a satisfactory level of progress, i.e. activities 1.1, 1.2, and 1.5. The other activities were described as "slowly" progressing. The color-coding was not used by the IWG in its 2019 report, therefore the IP only differentiates between progressing and slowly progressing activities.

Five of the ten activities were prioritised by the IWG. All of the five non-prioritised activities are slowly progressing, and two of the five prioritised activities are slowly progressing.

The survey focused on the prioritised activities, i.e. 1.1, 1.2, 1.5, 2.1 and 2.2. The list of activities of the Implementation on Batteries are listed in table 4 below.

Number	Activities	Priority	Progress
1	Material-Chemistry-Design-Recycling		
1.1	**Advanced Li-ion batteries for e-mobility**	**X**	●
1.2	**Influence of Fast/Hyper charging Li-ion batteries on materials and battery degradation**	**X**	●
1.3	Advancement of batteries for stationary energy storage		●
1.4	Post-Li ion for e-mobility		●

1.5	**Recycling of Batteries (Li-ion and post Li-ion)**	**X**	●
1.6	Lithium recovery from European geothermal brines and sustainable beneficiation processes for indigenous hard rock occurrence of Li		●
2	Manufacturing		●
2.1	**Foster development of materials processing techniques and components for fast industrialization compatible with present mass production lines**	**X**	●
2.2	**Foster development of cell and battery manufacturing equipment**	**X**	●
3	Application & Integration		●
3.1	Hybridisation of battery systems for stationary energy storage (ESS)		●
3.2	Second-use and smart integration into the grid		●

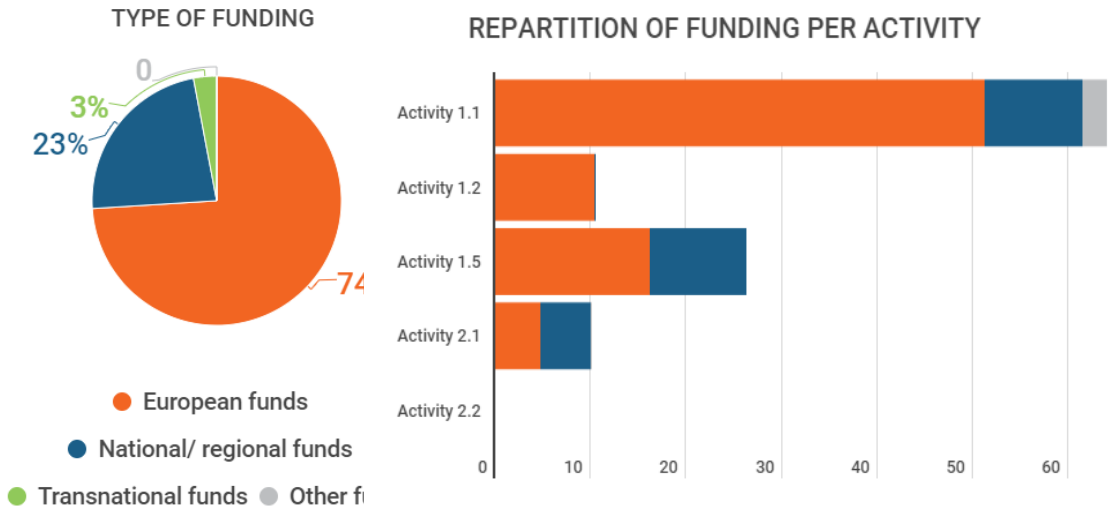
Table 7 – List of activities for Batteries IP

4.2.1 Competitive funding

Concerning the five prioritised activities, EERA members declared 36 ongoing projects that address activities of the Implementation Plan. These projects amount to €111 million, of which EERA members receive €13,7 million.

	Number of Projects	Competitive funding (in million €)	European funds	National/ regional funds	Transnational funds	Other funds
Activity 1.1	**23**	**64,0**	**80%**	**16%**	**0%**	**4%**
Activity 1.2	**2**	**10,5**	**98%**	**2%**	**0%**	**0%**
Activity 1.5	**7**	**26,3**	**61%**	**38%**	**0%**	**0%**
Activity 2.1	**4**	**10,1**	**46%**	**53%**	**0%**	**0%**
Activity 2.2	**0**	**0,0**	**0%**	**0%**	**0%**	**0%**
TOTAL	**36***	**110,9**	**74%**	**23%**	**0%**	**2%**

Table 8 – Competitive funding in Batteries IP. Source: EERA Survey. (a same project may be repeated for different activities)*



Figures 13 & 14– Origin and repartition of funding per activity within Batteries IP. Source. EERA Survey.

At the **national and regional levels**, 13 projects support the prioritised activities of the IP Batteries, with the exception of activity 2.2. This activity is one of the two that show slow progress. The other slow-progressing activity (2.1) is supported by two projects amounting to €5,4 million. The most supported activities are Activity 1.1 and Activity 1.5. For the former, seven projects were listed with a total budget of €10,2 million, of which €2,1 million are granted to EERA members. For the latter, three projects were listed for a budget of €10 million, of which EERA members receive €0,2 million.

EERA members reported 13 projects that receive **EU funding**, for a total amount of €82,5 million. Activity 1.1 is the most supported with eight projects listed with a total amount of €51 million, of which EERA members receive €4 million. Activity 1.2, 1.5 and 2.1 are supported by projects that receive €10 million, €16 million and €5 million respectively.

In addition, several projects receive funding from **another type of funding that is not European, national/regional or transnational**. Activity 1.1 is supported by eight projects, while activity 1.5 and activity 2.1 are supported by one additional project each. The total amount is €2,7 million.

4.2.2 Institutional funding

EERA members dedicate €4,7 million from institutional funding addressing activities related to the IP on Batteries.

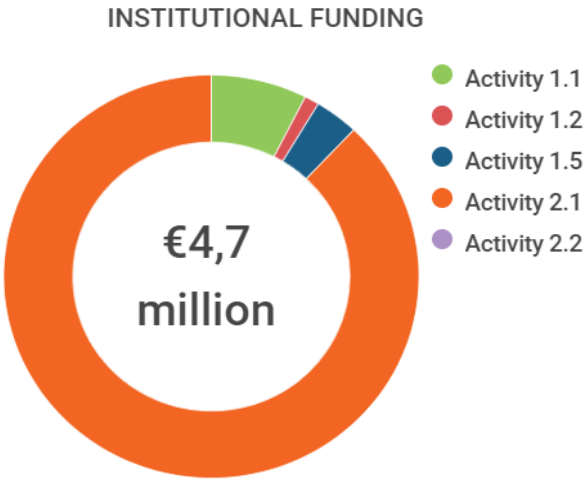


Figure 15 – Repartition of non-competitive funding within Batteries IP. Source: EERA Survey.

Institutional funding supports all activities, with the exception of activity 2.2. Despite activity 2.1 being considered as slowly progressing in the 2019 SETIS report, this activity is supported by the largest amount of funding, with €4,7 million.

This shows the relevance to include institutional funding to this type of analysis. Non-competitive funding may further support an "orange" activity - concerned by a few projects - i.e. this is the case for activity 2.1.

4.2.3 Human resources

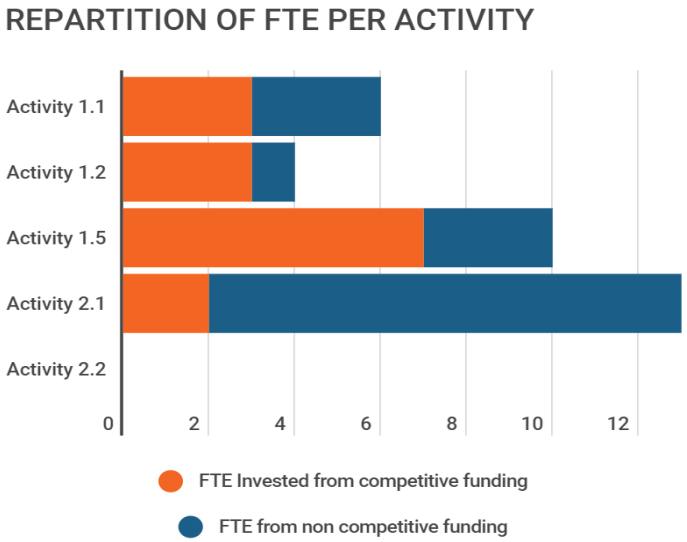


Figure 16 – Repartition of FTE within Batteries IP. Source: EERA Survey.

EERA members reported 35 FTE contributing to the activities related to the IP on Batteries, of which 16 FTE are supported by projects and 19 FTE by institutional funding. As an additional clarification, EERA members did not report the corresponding FTE for many projects.

Activities 1.5 (labelled "green") and 2.1 (labelled "orange") are benefitting from the higher number of reported FTE, respectively 10 and 14 FTE. On the other hand, no FTE was reported for activity 2.2 (labelled "orange").

Activity 2.1 benefits from higher number of FTE, proportionally to the institutional funding it receives, showing the interest of EERA organisation to this activity beyond the projects supporting it.

4.2.4 Infrastructures

EERA members listed 36 infrastructures that can support implementation of the activities of the IP on Batteries. Activity 1.1 lists 14 infrastructures and activity 2.1 lists 16 of them. No infrastructure was listed for activity 2.2.

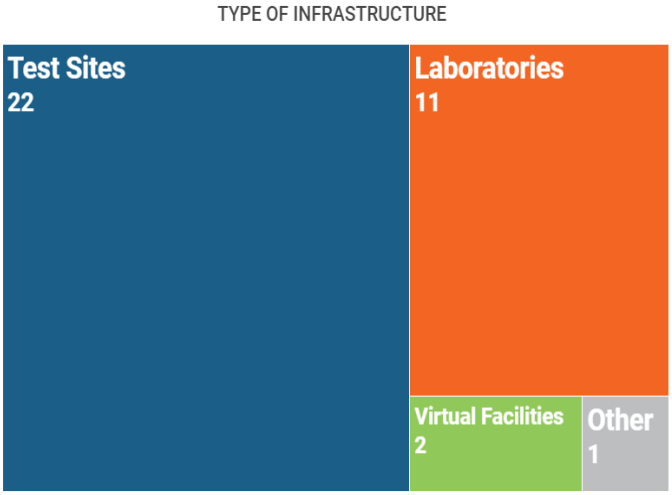


Figure 17 – Repartition of listed infrastructures within Batteries IP. Source: EERA Survey

4.3 Contribution of EERA Members to the IP "Bioenergy and Renewable Fuels for Sustainable Transport"

The Implementation Plan on "Bioenergy and Renewable Fuels for Sustainable Transport" was endorsed in June 2018. The IP lists 13 activities, which have all reached certain level of progress. The 2019 SETIS report labelled five activities "green" and eight activities "orange". All 13 activities are listed in table 6.

Of the 13 activities, the IP prioritised three of them, of which activity 1 is labelled "green" and activities 2 and 3 are labelled "orange".

The survey focused on the prioritised activity, i.e. activities 1, 2 and 3. The survey also included activity 7 as it focused specifically on hydrogen, which is aligned with one EERA JP, i.e. JP Fuel Cell and Hydrogen. Activity 7 is labelled "orange".

Number	Activities	Priority	Progress
1	**Develop advanced liquid and gaseous biofuels through biochemical / thermochemical/ chemical conversion from sustainable biomass and/or from autotrophic microorganisms and primary renewable energy**	X	●
2	**Demonstrate advanced liquid and gaseous biofuels through biochemical / thermochemical/ chemical conversion from sustainable biomass and/or from autotrophic microorganisms and primary renewable energy**	X	●
3	**Scale-up advanced liquid and gaseous biofuels through biochemical / thermochemical/ chemical conversion from sustainable biomass and/or from autotrophic microorganisms and primary renewable energy**	X	●
4	Develop other renewable liquid and gaseous fuels (excluding hydrogen) through thermochemical/ chemical/ biochemical /electrochemical transformation of energy neutral carriers with renewable energy		●
5	Demonstrate other renewable liquid and gaseous fuels (excluding hydrogen) through thermochemical/ chemical/ biochemical/electrochemical transformation of energy neutral carriers with renewable energy		●
6	Scale-up other renewable liquid and gaseous fuels (excluding hydrogen) through thermochemical/ chemical/ biochemical/electrochemical transformation of energy neutral carriers with renewable energy		●
7	**Production of renewable hydrogen from water electrolysis and renewable electricity**		●
8	Develop high efficiency large scale biomass cogeneration of heat and power		●
9	Demonstrate high efficiency large scale biomass cogeneration of heat and power		●
10	Scale-up high efficiency large scale biomass cogeneration of heat and power		●
11	Develop solid, liquid and gaseous intermediate bioenergy carriers through biochemical / thermochemical/ chemical conversion from sustainable biomass		●
12	Demonstrate solid, liquid and gaseous intermediate bioenergy carriers through biochemical / thermochemical/ chemical conversion from sustainable biomass		●
13	Scale-up solid, liquid and gaseous intermediate bioenergy carriers through biochemical / thermochemical/ chemical conversion from sustainable biomass		●

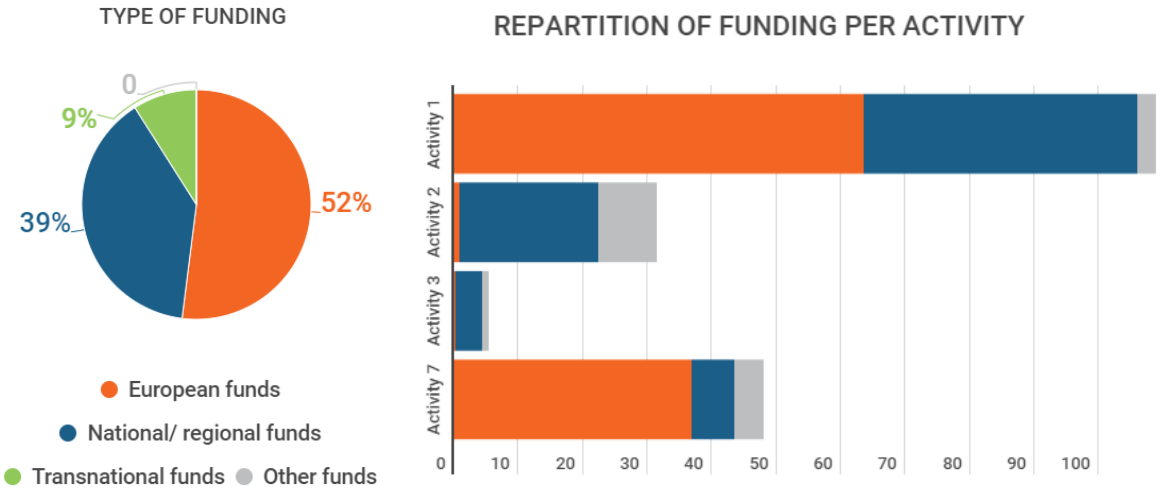
Table 9 – List of activities for Bioenergy and Renewable Fuels IP, as included in the IP.

4.3.1 Competitive funding

EERA members declared 85 projects that address activities of the Implementation Plan Bioenergy and Renewable fuels. The projects are ongoing or about to start within six months. They amount to €194 million, of which EERA members receive €49 million.

	Number of Projects	Competitive funding (in million €)	European funds	National/ regional funds	Transnational funds	Other funds
Activity 1	51	108,8	58%	39%	0%	3%
Activity 2	13	31,4	3%	68%	0%	29%
Activity 3	4	5,3	3%	79%	0%	19%
Activity 7	21	48,0	77%	14%	0%	10%
TOTAL	85*	193,6	52%	39%	0%	9%

Table 10 – Competitive funding in Bioenergy and Renewable Fuels IP. Source: EERA Survey. (a same project may be repeated for different activities)*



Figures 18 & 19 – Origin and repartition of funding per activity within Bioenergy and Renewable Fuels IP. Source: EERA Survey.

At **national and regional level**, 47 projects support the activities of the IP on Bioenergy and Renewable fuels. The total amount reaches €74,7 million, of which EERA members receive €37 million. National and regional programmes fund projects supporting all four activities. As for a source of funding, activity 1 is the most supported activity with 24 projects, which amount to €42,5 million. It is indeed labelled "green" in the 2019 SETIS report. The second most supported activity is the second one, which is labelled "orange". Activity 2 is supported by 10 projects for a total amount of €21,5 million, of which EERA members receive €17,6 million. As for activity 5 of IP on Deep Geothermal, this shows the importance of relying on extensive information for national and regional funding. EERA members declared four projects for activity 3 and ten projects for activity 7 (€6,6 million).

At the **European level**, EERA members declared 25 projects for an overall budget of €101 million. Activity 1 is again the most supported activity with 15 projects, i.e. €63,5 million. EERA members also reported nine projects for activity 7, for a total of €37 million. In a smaller extent,

two projects are declared for activity 2 and three projects for activity 3. Horizon 2020 funds 23 projects and another EU programme funds two projects.

In addition, the four activities are supported by **an unspecified type of funding**, i.e. neither European, national/regional or transnational. A total of 21 projects are listed amounting to €18 million, addressing activity 1, i.e.12 projects; activity 2, i.e. one project; activity 3, i.e. six projects and activity 7, i.e. two projects.

4.3.2 Institutional funding

EERA members declared €9,7 million deriving from institutional funding addressing activities related to the IP on Bioenergy and Renewable.

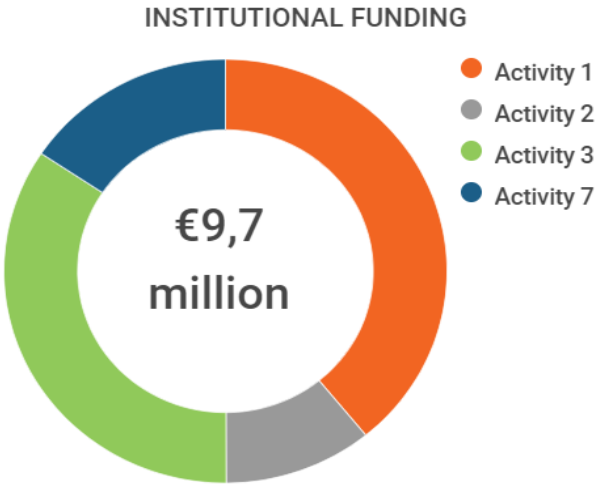


Figure 20 – Repartition of non-competitive funding within Bioenergy and Renewable Fuels IP. Source: EERA Survey.

Activity 1 and activity 3 are the most supported activities with respectively €3,8 million and €3,3 million. Activity 2 and activity 7 receive less funding with respectively €1,1 million and €1,6 million.

As said previously, including institutional funding may provide valuable additional information to this type of analysis, as “orange” activities may be well supported by a type of funding that is not visible though projects.

4.3.3 Human resources

EERA members reported 330 FTE contributing to the activities related to the IP on Bioenergy and Renewable fuels, of which 189 FTE are financed from projects and 141 FTE from institutional funding.

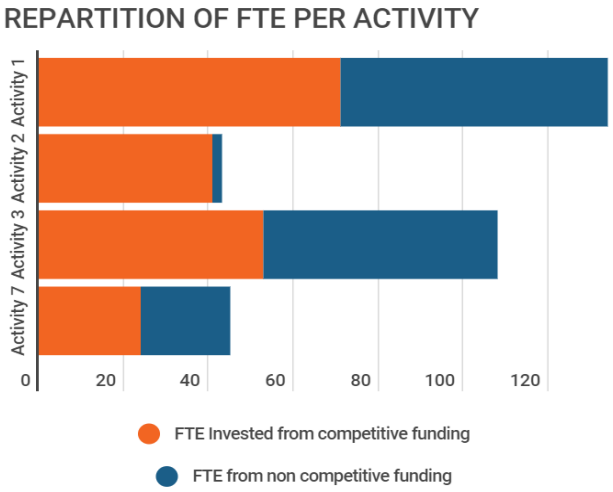


Figure 21 – Repartition of FTE within Bioenergy and Renewable Fuels IP. Source: EERA Survey.

Activity 1 is supported by the higher number of FTE, i.e.134 FTE, followed by activity 3, i.e.108 FTE. Activity 1 is labelled "green" and activity 3 is labelled "orange", being the activity supported by the smallest number of reported projects. However, it is supported by an equivalent amount of non-competitive funding, as activity 1. Activities 2 and 7 are supported by 42 and 45 FTE respectively.

The amount of FTE is proportional to the institutional funding related to the activities; therefore, it highlights the importance of taking into account this kind of data.

4.3.4 Infrastructures

EERA members listed 186 infrastructures that can support the implementation of the activities of the IP on Bioenergy and Renewable fuels. Activity 1 includes 112 infrastructures, being by far the activity with the highest number of infrastructures available. Activity 7 includes 70 infrastructures and Activity 2 includes five. Activity 3 only includes three infrastructures.

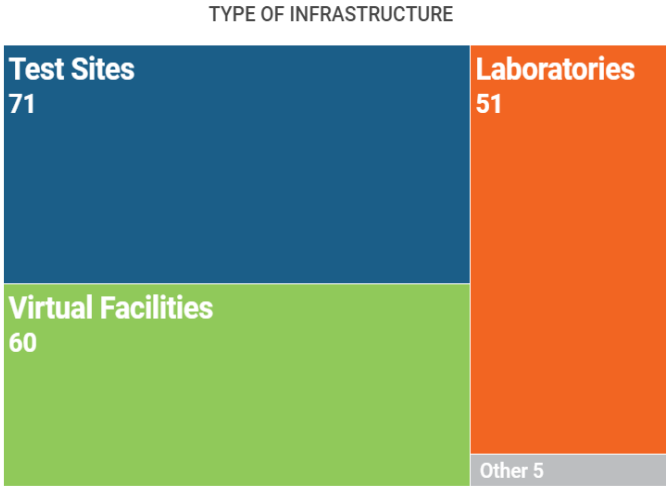


Figure 22 – Repartition of listed infrastructures within Bioenergy and Renewable Fuels IP. Source: EERA Survey.

4.4 Contribution of EERA Members to the IP "Initiative for Global Leadership in Offshore Wind"

The Implementation Plan on "Global Leadership in Offshore Wind" was endorsed in June 2018. The IP lists nine activities, of which three were labelled "green", four were labelled "orange", and two were labelled "red".

All activities, listed in table 8, were prioritised by the IWG. Therefore, all nine listed activities were included in the survey to EERA members contributing to this specific IP.

Number	Activities	Priority	Progress
1	System Integration	X	●
2	Wind Energy Offshore Balance of Plant	X	●
3	Floating Offshore Wind	X	●
4	Wind Energy Operations and Maintenance	X	●
5	Wind Energy Industrialisation	X	●
6	Wind Turbine Technology	X	●
7	Basic Wind Energy Sciences	X	●
8	Ecosystem and social impact	X	●
9	Human Capital Agenda	X	●

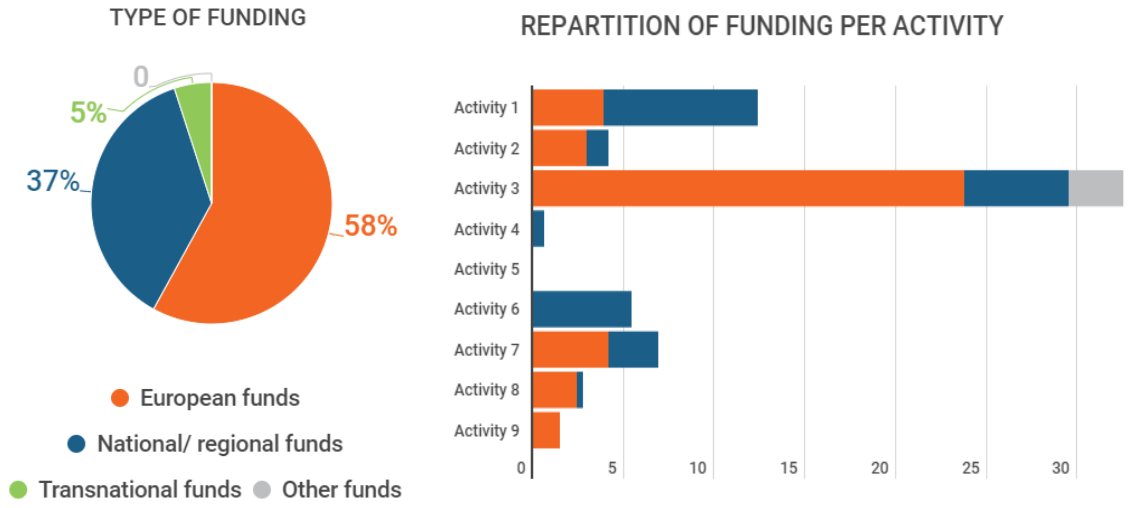
Table 11 – List of activities for Offshore Wind IP, as included in the IP.

4.4.1 Competitive funding

EERA members declared 39 projects that address activities of the Implementation Plan Offshore wind amounting to €66 million, of which EERA members receive €15 million.

	Number of Projects	Competitive funding (in million €)	European funds	National/ regional funds	Transnational funds	Other funds
Activity 1	2	12,4	31%	69%	0%	0%
Activity 2	2	4,2	70%	30%	0%	0%
Activity 3	25	32,5	73%	18%	0%	9%
Activity 4	3	0,6	0%	100%	0%	0%
Activity 5	0	0,0	0%	0%	0%	0%
Activity 6	6	5,4	0%	100%	0%	0%
Activity 7	7	6,9	60%	40%	0%	0%
Activity 8	3	2,8	86%	14%	0%	0%
Activity 9	1	1,5	100%	0%	0%	0%
Total	39*	66,2	58%	37%	0%	5%

Table 12 – Competitive funding in Offshore Wind IP. Source: EERA Survey (a same project may be repeated for different activities)*



Figures 23 & 24 – Origin and repartition of funding per activity within Offshore Wind IP. Source: EERA Survey

At **national and regional level**, 31 projects support the activities of the IP on Offshore wind. The total amount reaches €24,6 million, of which EERA members receive €7,6 million. Projects receiving funding from the national and regional programmes support all the activities, with the exception of activities 4 and 5. As for a source of funding, activity 1 is the most supported activity with €8,5 million. The 2019 SETIS report however labelled it "orange". Out of the three other "orange" activities, only activity 5 is not supported by any of the projects declared by EERA members. The two "red" activities are also supported by less projects. No project is mention for activity 9 while one project of €0,3 million is mentioned for activity 8.

At **European level**, EERA members declared 12 projects for an overall budget of €38,6 million. No project supports activities 4, 5, and 6. Activity 3 is the most supported activity with six projects, amounting to €24 million. It is indeed an activity labelled "green". The two "red" activities, i.e. activities 8 and 9 are respectively supported by two projects, amounting to €2,4 million and one project of €1,5 million.

In addition, one activity is supported by projects receiving funding from **an unspecified type of funding**, i.e. neither European, national/regional or transnational. The five listed projects amount to €3 million and address activity 3.

4.4.2 Institutional funding

EERA members reported €1 million from institutional funding addressing activities related to the IP on Offshore Wind.

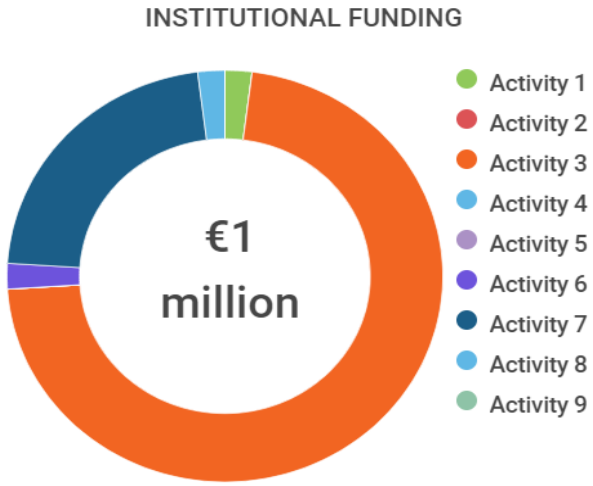


Figure 25 – Repartition of non-competitive funding within Offshore Wind IP. Source: EERA Survey.

Activity 3, labelled “green”, is the most supported activity, followed by activity 7, labelled “orange”. Activities 2, 4, 5, and 9 are not mentioned.

4.4.3 Human resources

EERA members reported 33 FTE contributing to the activities related to the IP on Offshore Wind, of which 25 FTE are supported by projects and 8 FTE by institutional funding.

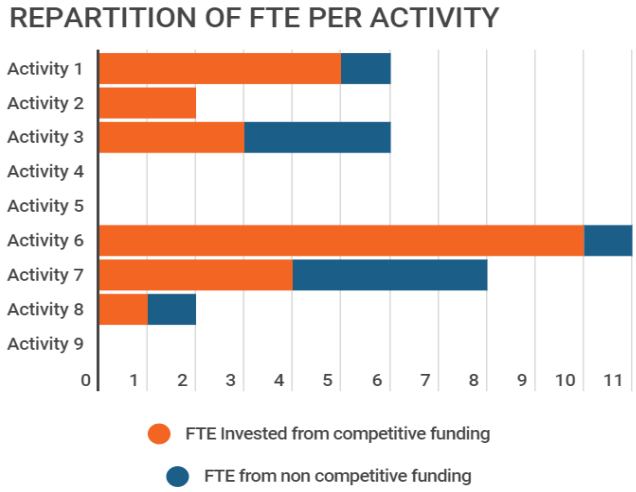


Figure 26 – Repartition of FTE within Offshore Wind IP. Source: EERA Survey.

Activity 6, with 11 FTE, is the activity supported by the highest number of reported FTE, followed by activity 7 with 7 FTE. The former is labelled “green” and the latter is labelled “orange”. On the other hand, no reported FTE supports activities 4, 5 and 9. Activities 4 and 5 were labelled “orange” and activity 9 is labelled “red”. The other activity labelled “red” is activity 8, which is supported by 2 FTE.

4.4.4 Infrastructures

EERA members listed 14 infrastructures that can support the implementation of the activities of the IP on Bioenergy and Renewable fuels. Activity 3 includes seven infrastructures, being the activity with the highest number of infrastructures available. Only activity 5 and activity 9 do not include any infrastructure.

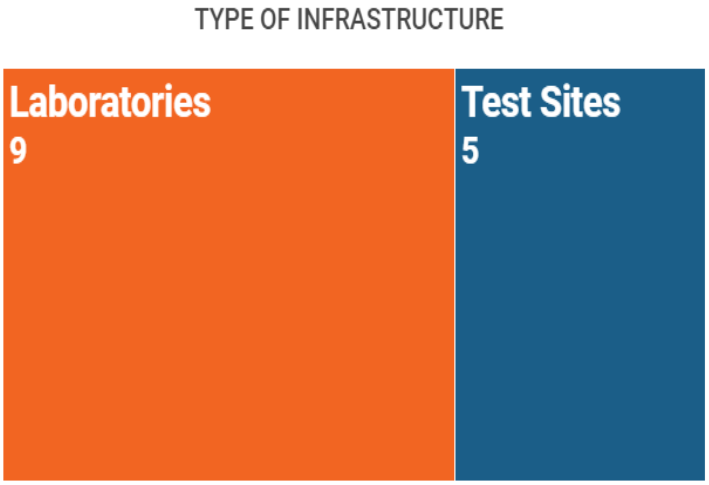


Figure 27 – Repartition of listed infrastructures within Offshore Wind IP. Source: EERA Survey

V Preliminary Findings and way forward

The report gives a preliminary analysis of EERA resources supporting the implementation of the SET-Plan Implementation Plans. The analysis builds on the mapping of the competitive funding on the one hand and of the human resources, infrastructures and public institutional funding on the other hand. The competitive funding, which can be either national, transnational or European, refers to public funding received through dedicated competitive programmes and calls from the respective funding agencies. Only projects in which EERA members were participating were included in the analysis. Public institutional funding is considered as public funding that organisations receive directly from public sources such as governmental bodies, without competition.

The information provided in the report is partly based on the deliverable 1.1 “Interim report on the state of play of the SET Plan IPs and mapping of R&I activities”, which is built on SETIS report “Implementing the SET-Plan: Progress from the Implementation Working Groups”. The deliverable provides information of the state of play of the Implementation Plans and their activities. The main data contained in this report, regarding the mapping of EERA resources, was retrieved from an extensive survey sent to the representatives of EERA members within the Joint Programs.

5.1 General analysis

According to information submitted by EERA members, the efforts towards the execution of the Implementation Plans prioritised activities are funded mostly through competitive sources - European, national/regional, transnational, or other programmes. Of the total funding reported in the answers to the SUPEERA survey, 90% is indicated as competitive sources, and 10% as institutional sources.

The total volume of projects in which EERA members participate, financed through competitive funding, amounts to €822.6 million. Of the total funding declared, the amount received by EERA members to contribute to the prioritised activities of the Implementation Plans adds up to €165.8 million, of which €142.2 million are received from competitive sources and €23.6 million from institutional sources.

The most reported source of competitive funding is the European one (principally Horizon 2020 projects), representing 75% of the indicated contributions, against 22% from national and regional funding and 3% from other types of funding. Nonetheless, for the activities related to some IPs, EERA Members reported higher percentage of funding coming from national and regional programmes, if compared to the rest of the IPs. This is the case for the members contributing to the activities of the IP Bioenergy and Renewable Fuels and Offshore Wind, for which the contributions from national or regional funds amount to respectively 39% and 37% of their total declared competitive funding. Transnational funding and other types of competitive funding, which is not European, national/regional, or transnational, play little role as they only amount to €5.21 million and €21.8 million respectively.

The human resources efforts dedicated by EERA members to the Implementation Plans have resulted in a total of 718 FTE, of which 457 FTE are financed through competitive funding and 261 FTE through institutional funding. Finally, in terms of infrastructures, EERA members

declared a total of 139 laboratories, 168 test sites and 74 virtual facilities contributing to the achievement of the targets of the related Implementation Plans.

5.2 Detailed analysis

Following the general analysis, the report focused on the contribution of EERA members to four Implementation Plans, i.e. Deep Geothermal, Batteries, Bioenergy and Renewable Fuels, and Offshore wind. IPs were selected considering the number and the quality of the data generated from the surveys.

5.2.1 Competitive funding

While, on average, EERA members reported more projects funded by European Funds for the four IPs, national and regional funding are also significant. For the four IPs, €162,6 million were reported from national and regional funding.

The figures are even more meaningful when looking at each activity separately. Indeed, for some activities EERA members mainly reported projects funded at regional or national levels. For instance, this applies to activity 5 of IP Geothermal (76% of the reported €27,1 million), for activity 2.1 of IP Batteries (53% of the reported €10,1 million), and activity 2 of IP Bioenergy and Renewable Fuels (68% of the reported €31,4 million). Interestingly, these three activities are all labelled “orange” in the 2019 SETIS report. The “orange” label means that some projects were identified but they had not yet taken off. If some of the reported projects included in the survey had indeed not started in 2019, other were already running. This therefore shows the relevance of having a picture as precise as possible on both European funding and national/regional funding. Nevertheless, this preliminary conclusion needs to be confirmed by an in-depth analysis of a more extensive available data from EERA members.

Based on this preliminary observation, a useful way to follow-up with this exercise could be the development of database of projects reported by EERA members. It could be accessible to all on EERA website or on a demand basis, depending on the nature of the information, and fed by the partners of the project in the context of this task. Such a database could be of interest for any relevant party willing to have access to information regarding the type of data partners were able to collect from EERA member organisations. This task will be carried out and updated for Y2 and Y3, therefore these two additional years will be necessary to gather data that are more extensive.

Another interesting fact concerning the data from competitive funding relates to the comparison between the reported funding and the needs identified by the Implementation Working Groups in their IPs. Indeed, the IPs provides a target funding for each activity which figures can be found directly in the IPs. For this first preliminary version of the report, the reported competitive funding represents 13% of the identified needs by the Geothermal IP (16% if activity 10 is excluded) and 35% of the needs identified by the IP on Batteries. Concerning Bioenergy and Renewable Fuels, and despite the higher reported figure in competitive funding, they only represent 1% of the identified needs (the figure mentioned in this IP for the relevant activities reaches €19 billion and is much higher than for the three other IPs). For Offshore Wind, the reported competitive funding represents 6% of the identified needs. In this context, partners could develop an IT tool that will be fed with relevant and coherent information during the whole

duration of the task. To this end, surveys will be updated and sent again on Y2 and Y3 to collect new data, so the database is as extended as possible by the end of the final report.

5.2.2 Institutional funding

This report was also useful in showing the importance to monitor not only competitive funding, i.e. projects supported an activity, but also to have a broader approach that includes public institutional funding (both in terms of funds and human resources) and infrastructures.

While the reported institutional funding is of a smaller extent than the reported competitive funding, it sometimes has a noteworthy impact on some activities. For instance, this applies to activity 5 of the IP on Geothermal, which is labelled “orange”. EERA members reported investing almost €5 million from public institutional funding (10% of the needs identified by the IP for this activity). The same observation applies to activity 2.1 of the IP on batteries. EERA members reported investing €4,2 million from institutional funding, i.e. 8% of the needs identified by this IP for this activity.

5.2.3 Human resources

EERA organisations have in general reported more FTE financed through competitive funding than institutional funding, but the figures are relatively close.

The number of FTEs are mostly proportional to the corresponding funding. However, it can provide additional information. For instance, institutional funding may be perceived as a sensitive information to disclose by EERA members. Therefore, when a clear picture of funding is not available, the amount of FTE related to each IP activities can be an additional indication on the overall investment that organisations are making in one or another activity.

For instance, EERA members did not report many projects supporting Activity 3 (labelled “orange”) of the IP on Bioenergy and Renewable Fuels. However, they reported 55 FTE working on topics related to this activity showing that this activity is not completely being disregarded by the organisations. This also applies to activity 2.1 of the IP on batteries (also labelled “orange”), where reported FTE financed through institutional funding are higher than the ones funded through competitive funding. Adding up this different information can thus provide a more precise picture of the state of play concerning each activity.

5.2.4 Infrastructures

The mapping of infrastructures can prove to be useful to understand where is located the relevant infrastructure for the success of each activity. This information might prove of interest and could also be added in the database that was previously mentioned.

5.3 Conclusion

This report, on the mapping and optimisation of the SET-Plan related EERA resources, is preliminary and will be updated in Y2 and Y3. It intends to set the basis of this task by providing a methodology to gather information upon the contribution of EERA members to some activities of the IPs, taking the form of a survey sent to EERA members. This report was able to provide

a first set of findings, especially thanks to the analysis of four specific IPs, on which more consistent data were retrieved.

At the level of competitive funding, the analysis shows that European funding and national/regional funding are the most important categories. The other categories of funding (transnational/ other funding) only provide negligible information. Additionally, including national and regional funding proved to be coherent as it provided valuable information for some activities (notably activity 5 of IP Geothermal, activity 2.1 of IP Batteries, and activity 2 of IP Bioenergy and Renewable Fuels) . A discussion on the creation of a database and on the focus on a selected number of IPs will be held before updating this task in Y2.

Including institutional funding and FTE also proved to provide complementary and relevant information concerning the state of implementation of IP activities. Some activities, which on the basis of the number of projects can be seen as lacking (labelled “orange”), may in fact be supported by a non-negligible amount of institutional funding and/or FTE. Having an analysis including all information is therefore valuable.

Data related to infrastructure seemed to provide less additional information for the contribution of EERA members to activities of the IPs. However, this can be of interest for members and other external actors to map where are the infrastructures located across EERA members.

Since the SUPEERA partners haven’t be able to gather complete data for an in-depth analysis of all IPs, mainly due to the adverse circumstances generated by the pandemic crisis, the actions in Y2 and Y3 will be rearranged and calibrated with the objective to deliver a comprehensive overview on EERA contribution in covering the execution of the SET-Plan in its entirety.

ANNEX 1 – List of reported projects for IP Deep Geothermal

NAME OF THE SET-PLAN IMPLEMENTATION PLAN'S ACTIVITY	COMPETITIVE FUNDING				
	Project Title	**Acronym**	**Funding scheme**	**Period of execution**	**Project Budget** *(in million €)*
Activity 1: Geothermal heat in urban areas	Most easy, efficient and low cost geothermal systems for retrofitting civic and historical buildings	GEO4CIVHIC	Horizon 2020	04.18-03.22	8,1
	RockStore - Development, demonstration and monitoring of the next generation BTES systems	RockStore	National/Regional Funds	04.18-04.22	1,2
	Geothermische Nutzung der Karbonatgesteine im norddeutschen Becken	ATES-IQ	National/Regional Funds	03.20-12.22	0,7
Activity 2: Materials, methods and equipment to improve operational availability (high temperatures, corrosion, scaling)	DeepScale - Deep geothermal flow assurance; cost-efficient scale handling and heat fluid robustness.	DEEPSCALE	National/Regional Funds	02.19-12.22	1,4
	Tight Geothermal Casing Connections for Axial Stress Mitigation	GeConnect	Transnational Funds	05.18-04.21	1,2
	Improving Geothermal System Performance through Collective Knowledge Building and Technology Development	PERFORM	Transnational Funds	05.19-06.21	3
	Redefining Fluid Properties at Extreme Conditions	REFLECT	Horizon 2020	01.20-12.23	4,9
Activity 3: Enhancement of conventional reservoirs and deployment of unconventional reservoirs	Cooperation in Geothermal energy research Europe-Mexico for development of Enhanced Geothermal Systems and Superhot Geothermal Systems	GEMex	Horizon 2020	10.16-05.20	10
	Demonstration of soft stimulation treatments of geothermal reservoirs	DESTRESS	Horizon 2020	02.16-11.20	25
	Natural hazard monitoring using Distributed Acoustic Sensing	MONIDAS	National/Regional Funds	10.19-09.23	0,4
	Geosciences for the energy systems transtion: Exploiting deep groundwater	G-eau-TE	National/Regional Funds	01.21-12.28	4,3
	Laboratory of excellence for deep geothermal energy	LabEx G-eau-thermie Profonde	National/Regional Funds	03.12-31.20	3
	Cooperation in Geothermal energy research Europe-Mexico for development of Enhanced Geothermal Systems and Superhot Geothermal Systems	GEMex	Horizon 2020	10.16-05.20	10
	Demonstration of soft stimulation treatments of geothermal reservoirs	DESTRESS	Horizon 2020	02.17-11.20	25
	Multi-sites EGS Demonstration	MEET	Horizon 2020	05.18-10.21	11,7
	STIMulationstests mit charakterisierenden periodischen Pumpversuchen	STIMTEC	National/Regional Funds	xx.17-xx.22	2
	Advanced reservoir engineering concepts for a controlled utilization of geothermal energy in urban areas	ARES	National/Regional Funds	07.20-08.26	1,8
Activity 4: Improvement of performance (conversion to electricity and direct use of heat)	Systemintegration geothermischer Niedertemperatur-Kraftwerke	SiGN	National/Regional Funds	12.19-11.22	0,6
	Geothermal village	Geothermal village	Other EU Funds	01.21-12.23	2
Activity 5: Exploration techniques (including resource prediction and exploratory drilling)	Cooperation in Geothermal energy research Europe-Mexico for development of Enhanced Geothermal Systems and Superhot Geothermal Systems	GEMex	Horizon 2020	10.16-05.20	10
	Characterisation of the transition zone in the deep basin context for the exploitation of geothermal reservoirs in Alsace	CANTARE	National/Regional Funds	07.15-03.21	0,8

	Geosciences for the energy systems transtion: Exploiting deep groundwater	G-eau-TE	National/Regional Funds	01.21-12.28	4,3
	Laboratory of excellence for deep geothermal energy	LabEx G-eau-thermie Profonde	National/Regional Funds	03.12-31.20	3
	Geothermal resources of crustal fault zones: explorng new systems for competitive geothermal power production	GERESFAULT	National/Regional Funds	10.19-09.23	0,8
	Wärme unter unserer Stadt - Effiziente Erkundung des geothermischen Potentials in urbanen Räumen	geoPuR	National/Regional Funds	04.20-03.22	0,6
	Effiziente seismische Exploration und Überwachung geothermischer Reservoire unter Nutzung ortsverteilter faseroptischer Dehnungssensorik entlang existierender Telekommunikationsinfrastruktur	SENSE	National/Regional Funds	03.20-02.23	1
	Cooperation in Geothermal energy research Europe-Mexico for development of Enhanced Geothermal Systems and Superhot Geothermal Systems	GEMex	Horizon 2020	10.16-05.20	10
	Hessen 3D 2.0: Teilprojekt III: Untergrundtemperaturmodell von Hessen und Neubewertung der tiefen und mitteltiefen geothermischen Potenziale Hessens	Hessen 3D 2.0	National/Regional Funds	01.16-06.20	1
	Methodology for the construction of a conceptual model of a Fault type geothermal reservoir in a graben context (France)	reflet	National/Regional Funds	01.15-12.20	8,3
	Multidisciplinary innovation and demonstration platform for the exploration and development of high energy geothermal resources in volcanic context	geotref	National/Regional Funds	04.15-12.23	4,9
	Geothermal prospection in St Kitts island Caraibes	GPStKitts	Other	02.20-03.22	0,2
	Geothermal Cadastres for the Pays Terres de Lorraine Territory	CAGELO	National/Regional Funds	09.20-02.22	0,2
	Geothermal village	Geothermal village	Other EU Funds	01.21-12.23	2
	Development of Digital Interpretation and Processing Tools for Geophysical Signals for unconventional reservoirs.	Donuts	National/Regional Funds	04.19-04.21	1,4
Activity 6: Advanced drilling/well completion techniques	Sustainable Geothermal Well Cement for Challenging Thermo-Mechanical Conditions	TEST-CEM	Transnational Funds	09.20-8-22	1
	Simplified version of the PT logging tool developed by SINTEF in DESCRAMBLE	miniDESCRAMBLE	National/Regional Funds	08.19-0.12.20	0,1
	Cryogenic cooling canister / CryoFlask	CryoCan	National/Regional Funds	09.18-06.21	1,1
	Multidisciplinary innovation and demonstration platform for the exploration and development of high energy geothermal resources in volcanic context https://geotref.com/fr/page-daccueil/	geotref	National/Regional Funds	04.15-12.23	4,9
Activity 7: Integration of geothermal heat and power in the energy system and grid flexibility	Geothermische Fernwärmeversorgung in Berlin	GeoFern	National/Regional Funds	07.19-06.22	1,8
Activity 8: Zero emissions power plants	Geothermal Emission Gas Control	GECO	Horizon 2020	10.18-09-22	15,6
Activity 9: NTBE A. Increasing awareness of local communities and involvement of stakeholders in sustainable geothermal solutions	Tackling the environmental concerns for deploying geothermal energy in Europe	GEOENVI	Horizon 2020	11.18-04.21	2,5
	Geosciences for the energy systems transtion: Exploiting deep groundwater	G-eau-TE	National/Regional Funds	01.21-12.28	4,3
	Demonstration of soft stimulation treatments of geothermal reservoirs	DESTRESS	Horizon 2020	02.16-11.20	25
	Laboratory of excellence for deep geothermal energy	LabEx G-eau-thermie Profonde	National/Regional Funds	03.12-31.20	3
	Multidisciplinary innovation and demonstration platform for the exploration and development of high energy geothermal resources in volcanic context	geotref	National/Regional Funds	04.15-12.23	4,9
	Geothermal village	Geothermal village	Other EU Funds	01.21-12.23	2

	Geothermal Cadastres for the Pays Terres de Lorraine Territory	CAGELO	National/Regional Funds	09.20-02.22	0,2
Activity 10: NTBE B. Risk mitigation (financial/project)	NS	NS	NS	NS	NS

ANNEX 2 – List of reported projects for IP Batteries

NAME OF THE SET-PLAN IMPLEMENTATION PLAN'S ACTIVITY	COMPETITIVE FUNDING				
	Project Title	**Acronym**	**Funding scheme**	**Period of execution**	**Project Budget** *(in million €)*
Activity 1.1: Advanced Li-ion batteries for e-mobility	3beLiEVe: Delivering the 3b generation of LNMO cells for the xEV market of 2025 and beyond	3beLiEVe	Horizon 2020	01.20-06.23	10,8
	Silicon Alloying Anodes for High Energy Density Batteries comprising Lithium Rich Cathodes and Safe Ionic Liquid based Electrolytes for Enhanced High VoltagE Performance	Si-DRIVE	Horizon 2020	01.19-01-23	8
	Smart E-Mobility	NS	Other	06.17-06.20	0,3
	Hybrid power-energy electrodes for next generation lithium-ion batteries	Hydra	Horizon 2020	05.20-08.24	9,4
	Battery interface genome; Materials acceleration platform	BIG-MAP	Horizon 2020	09.20-08.23	20
	European Technology Innovation Platform - Batteries Europe	ETIP	Horizon 2020	01.19-12-21	0,2
	Battery2030+	Battery2030+	Horizon 2020	09.20-08.23	2,1
	VIRTUAL & physical platform for Fuel Cell System development	VIRTUAL-FCS	Horizon 2020	01.20-12.22	1,9
	High energy-cathodes Li-ion batteries	HiCath	National/Regional Funds	06.18-10.22	0,9
	Norwegian Research Center on Zero Emission Energy Systems for Transport	Mozees	National/Regional Funds	01.17-12.24	0,3
	Novel separators for sel-healing Li batteries	Novelsep	Other	03.19-08.20	0,2
	Next generation Li-ion electrolytes	ENERLYTE	Other	06.19-05.22	1,2
	BATtery MOdelling framework for intercompatiBIlity and flexibLE theory	BATMOBILE	Other	04.20-03.21	0,2
	Battery Modelling And Numerics	BATMAN	Other	02.20-01.21	0,2
	Problem specific machine learning force fields for molecular mechanics modelling of batteries	PROMO	Other	04.20-04.21	0,2
	Zero-Emission Solutions for MW-scale Energy Systems	ZESES	Other	05.19-05.22	0,9
	Fleksible energiløsninger	FLEX	Other	01.19-12.20	0,3
	Next generation oxide electrolytes for solid-state batteries	OXIBAT	National/Regional Funds	01.19-03.22	1
	High Energy Lithium Sulfur Battery	HeLiS	National/Regional Funds	04.19-03.22	1,5
	Surface treatment of artificial graphite for anodes in Li-ion batteries	SAGA	National/Regional Funds	01.20-12.22	2,0
	Silicon based anodes towards market penetration	SIBanode	National/Regional Funds	02.19-01.22	1,8
	New Energy Storage Systems	NEES	National/Regional Funds	01.17-08.20	2,8
	Monolithic Batteries For Space Applications	MONBASA	Horizon 2020	02.16-07.18	1,2
Activity 1.2: Influence of Fast/Hyper charging Li-ion batteries on materials and battery degradation	Tecnologie per la penetrazione efficiente del vettore elettrico negli usi finali - Piano triennale 2019-2021 di Ricerca di Sistema Elettrico	RSE19-21	National/Regional Funds	01.19-12.21	0,2
	Open Innovation Test Bed For Electrochemical Energy Storage Materials	TEESMAT	Horizon 2020	01.19-08.22	10,3
Activity 1.5; Recycling of Batteries (Li-ion and post Li-ion)	Italian Electric System Research FundinG	NS	National/Regional Funds	01.20-12.21	10
	Metal recovery from spent cathodes of lithium-ion batteries by millifluidic devices	MiRELIB	National/Regional Funds	xx.20-xx.23	0,3
	New materials for solid-liquid and liquid-liquid extraction processes for the recovery of metals from spent lithium-ion batteries	LiBRecycle	Other	xx.18-xx.21	0,5
	European Institute of Lithium	Eli	Other EU Funds	xx.19-xx.21	0,1

	Electromembrane processes for the recovery of metals from spent lithium-ion batteries	ElectroRecycling	National/Regional Funds	xx.20-xx.22	0,2
	First of a kind commercial Compact system for the efficient Recovery Of CObalt Designed with novel Integrated LEading technologies	CROCODILE	Horizon 2020	06.18-05.22	14,9
	New Recovery Processes to produce Rare Earth -Magnesium Alloys of High Performance and Low Cost	REMAGHIC	Horizon 2020	09.15-09.18	3,7
Activity 2.1; Foster development of materials processing techniques and components for fast industrialization compatible with present mass production lines	Storage systems, including electrochemical and power to gas, and related interfaces with networks	PTR19-21	National/Regional Funds	01.19-12.21	4
	High-capacity 2D layered materials for Mg-ion batteries	2D-Mg	Other	08.18-12.21	0,03
	High-performance seawater magnesium batteries for marine application	SeaMag	National/Regional Funds	09.18-08.21	1,4
	Innovation Eco-system to Accelerate the Industrial Uptake of Advanced Surface Nano-Technologies.	NEWSKIN	Horizon 2020	04.20-03.24	15,5
Activity 2.2: Foster development of cell and battery manufacturing equipment	NS	NS	NS	NS	NS

ANNEX 3 – List of reported projects for IP Bioenergy and Renewable Fuels

NAME OF THE SET-PLAN IMPLEMENTATION PLAN'S ACTIVITY	COMPETITIVE FUNDING				
	Project Title	**Acronym**	**Funding scheme**	**Period of execution**	**Project Budget** *(in million €)*
Activity 1: Develop advanced liquid and gaseous biofuels through biochemical / thermochemical/ chemical conversion from sustainable biomass and/or from autotrophic microorganisms and primary renewable energy	Preparation of value added chemicals and biochar production from hazelnut shells	NS	Other	01.21-12.22	0,2
	Conversion of whole lignocellulosic biomass into aromatic enriched jet fuel	BIOJETFULL	Horizon 2020	03.21-03.25	5
	Brazil-EU Cooperation for Development of Advanced Lignocellulosic Biofuels	BECOOL	Horizon 2020	06.17-05.22	5
	Combining carboxylic acid production and fibre recovery as an innovative, cost-effective and sustainable pre-treatment process for heterogeneous bio-waste	CAFIPLA	Horizon 2020	06.20-05.23	4,5
	Hydrothermal liquefaction: Enhanced performance and feedstock flexibility for efficient biofuel production	HyFlexFuel	Horizon 2020	10.17-09.21	5
	Öl-Ersatz Biomasse Heizung	OBEN	National/Regional Funds	09.19-03.22	NS
	Konzepte für eine bedarfsorientierte, kosteneffiziente und klimaschonende Stromerzeugung aus Bioenergieanlagen	FLEXSIGNAL	National/Regional Funds	01.19-12.20	NS
	Mittel- und langfristige Sicherung des Holzvergaseranlagenbestandes und Beitrag zu dessen weiterem Ausbau durch Erschließung preiswerter Brennstoffsortimente	VergaOpt	National/Regional Funds	09.17-06.20	NS
	ERA-Net-Verbundvorhaben: Wertoptimierte Nutzung von Biomasse in einer flexiblen Energieinfrastruktur; Teilvorhaben 1: Theoretische und experimentelle Untersuchungen	VABIFLEX	Other EU Funds	09.18-08.20	2,7
	Ganzheitliche Regelung von Biogasanlagen zur Flexibilisierung und energetischen Optimierung	GAZELLE	National/Regional Funds	02.17-11-20	1,1
	Aufschlusserweiterungen von Schlämmen zur signifikanten Steigerung des Faulgasertrages, zur Verringerung der Klärschlammmenge sowie Belastung durch endokrine Substanzen und zur Verbesserung der Verfahrensstabilität (PlasmaCrack) - Nachweis der Faulgassteigerung und Reduktion endokriner Substanzen	LASCRA	Other	01.19-12.21	NS
	Entwicklung eines integrierten Verfahrens zur Carbonisierung von Klärschlamm, Erzeugung von Biogas und Rückgewinnung von Phosphor	CarBiPho	Other	07.18-06.20	0,6
	MiniGas - Dezentrale Strom- und Wärmeversorgung mittels Nutzung von teilaufbereitetem Biogas durch Mini-KWK-Anlagen	MINIGAS	National/Regional Funds	09.17-08.20	NS
	Biomethan & Torfersatzstoff aus Pappelholz	PaplGas	Other	04.19-03.21	0,3
	Entwicklung und Erprobung sensorbasierter Rührsysteme in Biogasanlagen zur Steigerung der Effizienz und Prozessstabilität bei einer lastflexiblen und bedarfsgerechten Biogasproduktion	Sensomix	National/Regional Funds	NS	NS
	Biogaslabor Togo	LabTogo	Other	11.19-11.23	2,8
	Eignung landwirtschaftlicher Reststoffe zur Flexibilisierung des Biogasprozesses - RestFlex	RestFlex	National/Regional Funds	07.19-06.22	0,3
	Umwandlung von wasser- und kohlenhydratreichen Reststoffen der Biomasseverarbeitung in Chemikalien und Kraftstoffkomponenten durch Hydrothermale Prozesse	HTKkChem	National/Regional Funds	11.18-04.21	0,9
	Norwegian Centre for Sustainable Bio-based Fuels and Energy	Bio4Fuels	National/Regional Funds	01.17-12.24	23,8

Sustainable Drop-In Transport fuels from Hydrothermal Liquefaction of Low Value Urban Feedstocks	NextGenRoadFuels	Horizon 2020	11.18-10.22	5,1
Renewable Fuels And Bioenergy For A Low-Carbon Europe – Accelerating The Implementation Of The Set-Plan Action 8	Set4Bio	Horizon 2020	03.20-02.23	1
Black Liquor to Fuel by Efficient HydroThermal Application integrated to Pulp Mill	BL2F	Horizon 2020	04.20-03.023	5
Enabling optimum Grate fired woody biomass and waste to energy plant operation through Computational Fluid Dynamics	GrateCFD	National/Regional Funds	01.17-12.20	2,2
Waste-to-Energy 2030	WtE 2030	National/Regional Funds	01.18-12.20	1,7
Cost-effective transformation of a Highly-Efficient Advanced Thermal Ultra-SuperCritical coal-fired power plant into a CHP by retrofitting and integrating an ARBAFLAME biomass updraging process	ARBAHEAT	Horizon 2020	10.18-09.22	26
Negative Emissions in the Waste-to-Energy Sector: Technologies for Carbon Capture, Utilisation & Storage	NEWEST-CCUS	Other EU Funds	xx.19-xx.22	2,2
Power to gas. Methane production from renewable H2 and CO2. Improving the use of renewables through the storage of excess production	TECNORENO	National/Regional Funds	01.18-12.20	0,3
Methanol production from renewable H2 and CO2 from refinery. Improving the use of renewables through the storage of excess production as methanol for its use or transportation.	LOWCO2	National/Regional Funds	06.19-12.21	0,5
Gasification for biofuel production	GASPRO	National/Regional Funds	07.17-07.22	1,6
Chemical Looping Desulfurization of Producer Gas from Biomass Gasification by Mn-based Solid Sorbent	CLD	National/Regional Funds	07.17-07.22	1,6
Bio Fischer-Tropsch - Staging and Multiple Hydrogen Feed of Biomass to Fischer-Tropsch Fuel Synthesis	Bio-FT	National/Regional Funds	07.18-10.22	1,2
Biomass to aviation fuel	B2A	National/Regional Funds	05.20-05.24	1,8
Future Plastic Packaging in the Circular Economy	Futurepack	National/Regional Funds	10.17-12.20	3,2
CONVERSION OF LIGNOCELLULOSIC WASTES INTO BIOFUELS AND BIOPLASTICS	Plastic &fuel	National/Regional Funds	10.17-12.20	0,3
Chemical transformation of enzymatic hydrolysis lignin (EHL) with catalytic solvolysis to fuel commodities under mild conditions	EHLCATHOL	Horizon 2020	10.20-10.23	4
NS	ULHyS	National/Regional Funds	09.16-06.21	2,5
NS	Hy-C-Green	National/Regional Funds	xx.18-xx.21	2
Flexibel biogas based Power-to-Gas	BIOSWEET & ESI	National/Regional Funds	01.17-03.21	0,3
Biomass and pre-treatment	NS	Other	01.20-12.20	0,2
Fast pyrolysis and pyrolysis oils	NS	Other	01.20-12.20	0,04
Syngas fermentation	NS	Other	01.20-12.20	0,1
Conversion: Platform chemicals	NS	Other	01.20-12.20	0,1
Fuel Characterisation	NS	Other	01.20-12.20	0,1
bioliq: Gasification	NS	Other	01.20-12.20	0,1
B4B Biorefinery for a bioeconomy in Baden-Württemberg	NS	Other	10.18-12.20	0,1
BL2F	NS	Horizon 2020	01.20-12.22	0,2
FLEXI-Green Fuels	NS	Horizon 2020	01.20-12.22	0,2
NextGenRoadFuels	NS	Horizon 2020	11.18-10.22	0,1
ValProWa	NS	National/Regional Funds	10.18-09.21	0,2
P2X-Phase 2	NS	National/Regional Funds	09.19-09.22	0,3
BRISK	NS	Horizon 2020	05.17-04.22	0,7
Production of Bio-Oil and Energy from Wastes	NS	National/Regional Funds	02.21-12.24	7
Hydrogen Production from Biomass Through Gasification	NS	National/Regional Funds	02.16-10.20	0,4

Activity 2: Demonstrate advanced liquid and gaseous biofuels through biochemical / thermochemical/ chemical conversion from sustainable biomass and/or from autotrophic microorganisms and primary renewable energy	Liquid Fuel Production from Biomass and Coal Blends	TRIJEN	National/Regional Funds	06.09-12.20	10,5
	Market Uptake Support for Intermediate Bioenergy Carriers	MUSIC	Horizon 2020	09.19-08.22	3
	Optimierungs-Toolbox mit Kinetischer Numerischer Simulation	OpToKNuS	National/Regional Funds	01.20-12.22	NS
	Flexibilisierung der Biomassevergasung durch Nutzung des Vergaserkokses als Biomaterial für die stoffliche Verwertung und als Brennstoff für Kleinstvergaser	VergaFlex	National/Regional Funds	10.19-03.22	NS
	Thermo-chemische Konversion von Reststoffen in einem Vergaser-BHKW mit gekoppelter Aschegewinnung	GASASH	National/Regional Funds	09.18-08-20	NS
	Neuartiges Verfahren zur Mono-Vergärung von Hühnertrockenkot	NovoHTK	National/Regional Funds	09.18-08.21	NS
	Forschungs- und Demonstrationsvorhaben | Bioressourcen und Wasserstoff zu Methan als Kraftstoff - Konzeptionierung und Realisierung einer Anlage im Pilotmaßstab	PILOTSBG	Other	11.18-12.21	9,1
	INNOVARE	NS	National/Regional Funds	04.17-04-20	2,5
	NS	Hy-C-Green	National/Regional Funds	xx.18-xx.21	2
	Refuels	Verkehrsministerium	National/Regional Funds	01.19-06.21	0,4
	NextGenRoadFuels	Horizon2020	Horizon 2020	11.18-10.22	0,7
Activity 3: New multi-junction PV technologies for highest efficiencies at Activity 3: Scale-up advanced liquid and gaseous biofuels through biochemical / thermochemical/ chemical conversion from sustainable biomass and/or from autotrophic microorganisms and primary renewable energy	Behandlung und kombinierter Einsatz von Stroh- und Getreideausputzmischungen für eine Biogas-Technologiekette mit Zukunft	KoSaTZ	National/Regional Funds	01.20-12.21	NS
	Optimierung des Betriebs und Design von Biogasanlagen für eine bedarfsgerechte, flexibilisierte und effiziente Biogasproduktion unter Berücksichtigung der Prozessstabilität als Post-EEG Strategie	OptiFlex	National/Regional Funds	10.17-09.20	1,7
	Pilot plant for the catalytic methanation	GanyMeth	National/Regional Funds	01.17-06.21	1,9
	Fast pyrolysis and pyrolysis oils	NS	Other	01.20-12.20	0,2
	bioliq: Synthesis	NS	Other	01.20-12.20	0,3
	bioliq: Gasification	NS	Other	01.20-12.20	0,6
	bioliq: Pyrolysis	NS	Other	01.20-12.20	0,1
	BL2F	NS	Horizon 2020	01.20-12.22	0,2
	B4B Biorefinery for a bioeconomy in Baden-Württemberg	NS	Other	10.18-12.20	0,1
	FLEXI-Green Fuels	NS	Horizon 2020	01.20-12.22	0,1
	Refuels	NS	National/Regional Funds	01.19-06.21	0,9
	NextGenRoadFuels	NS	Horizon 2020	11.18-10.22	0,1
	Conversion: SCW	NS	Other	01.20-12.20	0,02
Activity 7: Production of renewable hydrogen from water electrolysis and renewable electricity	Next Generation Alkaline Membrane Water Electrolysers with Improved Components and Materials	NewEly	Horizon 2020	01.20-12.22	2,6
	Design and investigation of a hybrid SOE/MCFC reactor for synthesis of light hydrocarbons based on high-temperature electrochemical processes	OPUS 1	National/Regional Funds	02.18-02.21	0,3
	Investigation of satbility of oxygen electrodes materials in SOE cells in conditions of high water steam concentrations in wide range of current densities	PRELUDIUM 16	National/Regional Funds	07.19-07.21	0,03
	A novel approach to production of synthetic fuels: complex investigation of anodic processes in solid fuel assisted solid oxide electrolyser (DC-SOFEC)	HARMONIA 10	National/Regional Funds	03.19-02.22	0,2
	Experimental and numerical investigation of influence of microstructure of ceramic ionic conductors on the process of hydrogen generation in solid oxide electrochemical cells	SONATA 14	National/Regional Funds	07.19-07.22	0,2
	Modular system based on reversible solid oxide cells (rSOC) designed for integration with an industrial power plant in order to improve its flexibility, and increase utilization of renewable energy sources in power sector	HYDROGIN	National/Regional Funds	04.20-07.23	1,7
	NewSOC. Next generation solid oxide fuel cell and electrolysis technology	NEWSOC	Horizon 2020	01.20-12.22	5

	DESIGN AND TEST OF MULTI ENERGY SYSTEMS		Other	01.16-06.20	0,1
	HArnessing Degradation mechanisms to prescribe Accelerated Stress Tests for the Realization of SOC lifetime prediction Algorithms	AD ASTRA	Horizon 2020	01.19-12.21	3
	IEA Annex 30 Participation	ANNEX30	National/Regional Funds	07.19-06.24	0,1
	Development of reliable and efficient alkaline membrane electrolyzers	DREAM	National/Regional Funds	01.20-12.24	1,5
	Boosting economic electricity storage in the energy system	BEEST	National/Regional Funds	05.17-11.20	1,3
	Efficient and Economic Electrolytic Hydrogen Production	EEEHy	Other	11.17-10.21	4,5
	Robust and Durable Electrolyzers for Hydrogen Based Energy Storage of Wind Power	Wind2H	National/Regional Funds	12.16-11.20	0,9
	Building Innovative Green Hydrogen systems in an Isolated Territory: a pilot for Europe	BIG HIT	Horizon 2020	08.15-02.22	7,3
	Reversible solid oxide Electrolyzer and Fuel cell for optimized Local Energy miX	REFLEX	Horizon 2020	04.17-02.22	3
	Materials For Next Generation Alkaline Electrolyzer	NEXTAEC	Horizon 2020	04.20-03.24	4,4
	NS	ULHyS	National/Regional Funds	09.16-06.21	2,5
	Hydrogen-Aeolic Energy with Optimised eLectrolysers Upstream of Substation	HAEOLUS	Horizon 2020	01.18-12.21	6,5
	NS	NEXTAEC	Horizon 2020	04.20-03.24	4,4
	NS	NEWELY	Horizon 2020	02.20-01.23	2,2

ANNEX 4 – List of reported projects for IP Offshore Wind

NAME OF THE SET-PLAN IMPLEMENTATION PLAN'S ACTIVITY	COMPETITIVE FUNDING				
	Project Title	**Acronym**	**Funding scheme**	**Period of execution**	**Project Budget** *(in million €)*
Activity 1: System Integration	Innovative tools for offshore wind and DC grids	InnoDC	Horizon 2020	09.17-08.21	3,9
	GREEN ISLAND - Support of policies and provision for future needs	GREEN ISLAND-AiSratis	National/Regional Funds	03.17-06.22	8,5
Activity 2: Wind Energy Offshore Balance of Plant	'Offshore Wind Energy Cost Reduction by an Innovative Floating Met Mast Platform — FloatMastBlue'	FloatMastBlue	Horizon 2020	12.17-11.20	2,9
	Ricerca di sistema elettrico - Tema 1.8 Energia Elettrica dal Mare	RdS	National/Regional Funds	01.19-12.21	5,0
Activity 3: Floating Offshore Wind	Développement et validation d'algorithmes et de systèmes de contrôle pour la navigation autonome de flottes de navires éoliens	AUTOFLEET	National/Regional Funds	09.19-12.21	0,1
	Algorithmes et systèmes de contrôle pour la récupération de l'énergie du vent en mer par des voiliers-hydroliennes	AUTOFLEET+	National/Regional Funds	09.20-TBD	0,1
	Blue Growth and Innovation Fast Tracked	Bluegift	Other EU Funds	03.19-08.22	2,5
	Développement d'un outil haute performance pour la modélisation de turbines en environnement marin	DOMTEM	National/Regional Funds	09.19-04.21	0,1
	Optimization of floating wind turbines using innovative control techniques and fully coupled open source engineering tool	FLOATECH	Horizon 2020	01.21-12.23	4,3
	Caractérisation expérimentale de l'impact de la houle sur le comportement aérodynamique des éoliennes flottantes	FLOATEOLE	National/Regional Funds	10.17-10.21	0,2
	FLOAting Wind Energy netwoRk	FLOAWER ITN	Other EU Funds	11.19-10.23	3,5
	Modélisation hydro-élastique d'éoliennes flottantes	HELOFOW	Other	01.19-12.21	0,2
	Modélisation hydrodynamique des plaques anti-pilonnement pour l'éolien flottant.	HP_FLOW	Other	01.19-09.22	0,2
	Load Effect of Heterogeneous Roughness of Marine Growth	LEHERO MG	Other	01.19-03.21	0,1
	Marine Renewable Infrastructure Network for Enhancing Technologies 2	MARINET2	Horizon 2020	01.17-06.21	10,6
	Measurement of Turbulence Intensity by floating LIDAr	MATILDA	National/Regional Funds	09.19-12.21	0,1
	Marine Energy Alliance	MEA	Other EU Funds	05.18-05.22	6,0
	Suivi en service des systèmes d'ancrage pour les énergies marines renouvelables	MHM EMR	National/Regional Funds	01.16-10.20	0,6
	Demonstration Programme for Ocean Energy Pilot Farms and Supporting Technologies	OceanDemo	Other EU Funds	01.19-07.22	12,9
	Ombilicaux DYNamaiques pour les EMR flottants - Phase 2	OMDYN2	Other	11.17-08.21	2,1
	Offshore Renewables Into Grid: Acquisition Modelling and Integration	ORIGAMI	National/Regional Funds	01.17-03.22	0,1
	Quick Release Connector and Hang off System	QRCONNECT	National/Regional Funds	09.19-03-21	0,1
	Resource Characterization to Reduce the Cost of Energy through Coordinated Data Enterprise - Pays de la Loire	RC+	Other	04.19-06.22	0,4
	Submarine inspection system for MRE	SEAROV	National/Regional Funds	06.20-03.22	0,1
	Modélisation expérimentale du comportement des éoliennes flottantes : Stratégie de contrôle et méthodologie de représentation une éolienne en bassin.	SOFTWIND	National/Regional Funds	10.17-10.21	0,2

	Interactions des câbles sous-marins avec l'environnement et suivis associés	SPECIES	National/Regional Funds	11.16-10.20	1,0
	Wake unsteadiness measurements and analysis of FOWT using LiDARs	WAKEFUL	National/Regional Funds	09.19-03.23	0,2
	Teorema Project - CTN BIG	TEOREMA	National/Regional Funds	xx.18-xx.20	0,7
	Ricerca di sistema elettrico - Tema 1.8 Energia Elettrica dal Mare	RdS	National/Regional Funds	01.19-12.21	5,0
Activity 4: Wind Energy Operations and Maintenance	Development, Validation and Optimization of Structural Health Monitoring strategies for onshore and offshore Wind Farms	WindFarmSHM	National/Regional Funds	09.18-09.21	0,2
	Add-on Système pour l'Amélioration des Performances des éoliennes	ASAPe	National/Regional Funds	09.18-06.22	0,2
	Evaluation des Perturbations AéRodynamiques sur les pales pour l'Amélioration de la Durabilité et de l'Impact Sonore des Eoliennes	E-PARADISE	National/Regional Funds	11.19-01.23	0,5
Activity 5: Manufacturing technologies for silicon and thin-film PV	NS	NS	NS	NS	NS
Activity 6: Wind Turbine Technology	Add-on Système pour l'Amélioration des Performances des éoliennes	ASAPe	National/Regional Funds	09.18-06.22	0,2
	Evaluation des Perturbations AéRodynamiques sur les pales pour l'Amélioration de la Durabilité et de l'Impact Sonore des Eoliennes	E-PARADISE	National/Regional Funds	11.19-01.23	0,5
	Modèle de ferme/rotor prenant en compte la turbulence d'un sillage atmosphérique	MOMENTA	National/Regional Funds	10.19-01.25	0,8
	"PARALOS^2 - Near coast wind turbine with software for holistic system management"	PARALOS^2	National/Regional Funds	10.20-04.23	1,0
	Demonstration actions and technological support for small and medium wind turbines and hybrid desalination systems	NS	National/Regional Funds	10.20-12.23	2,1
	Ricerca di sistema elettrico - Tema 1.8 Energia Elettrica dal Mare	RdS	National/Regional Funds	01.19-12.21	5,0
Activity 7: Basic Wind Energy Sciences	LIdar Knowledge Europe	LIKE	Horizon 2020	10.19-09.23	4,1
	Windscanner.pt	windscanner.pt	National/Regional Funds	10.17-10.20	0,9
	Wake unsteadiness measurements and analysis of FOWT using LiDARs	WAKEFUL	National/Regional Funds	09.19-03.23	0,2
	Caractérisation expérimentale de l'impact de la houle sur le comportement aérodynamique des éoliennes flottantes	FLOATEOLE	National/Regional Funds	10.17-10.21	0,2
	Bridging wind tunnel to numerical simulation for unsteady floating wind turbine wake studies	WIND2SIM	National/Regional Funds	03.20-06.22	0,1
	"AEOLIKOS-Development of an innovative Lidar system for the evaluation of wins potential for the installation and performance monitoring of near shore wind farms	AEOLIKOS	National/Regional Funds	06.18-05.21	0,8
	"sWT4U - Methodology and software for the evaluation of wind potential for implementation of small wind turbines on built-up areas"	sWT4U	National/Regional Funds	10.20-04.23	0,8
Activity 8: Ecosystem and social impact	Surveillance acoustique intégrée des impacts des énergies marines renouvelables sur l'écosystème pélagique	ECHOSONDE	National/Regional Funds	05.16-01.22	0,4
	"LIFE12 BIO/GR/000554- Demonstration of good practices to minimize impacts of wind farms on biodiversity in Greece".	WindFarms-Wildlife	Other EU Funds	10.13-12.21	0,9
	The Bluemed Coordination And Support Action	BLUEMED	Horizon 2020	10.16-03.21	3,0
Activity 9: Human Capital Agenda	The Bluemed Coordination And Support Action	BLUEMED	Horizon 2020	10.16-03.21	3,0

ANNEX 5 – Consolidated data for all the IPs

Joint Programme	Number of Projects*	Competitive funding (in million €)	Amount going to EERA members (in million €)	Non-competitive funding (in million €)	FTE from competitive funding	FTE from non-competitive funding	Number infrastructures**
Concentrated Solar Power	9	46,6	4,0	0,0	11,0	0,0	20
Photovoltaics	10	62,3	5,5	0,0	44,2	0,6	35
Geothermal	33	119,1	32,7	6,4	97,0	72,0	38
Wind	39	66,2	14,9	1,0	25,0	8,0	14
Ocean	5	17,8	1,1	0,8	5,7	3,4	10
Energy Consumers	1	2,8	0,3	0,0	2,0	0,0	0
Positive Energy Districts	2	10,9	0,5	0,0	0,4	0,0	4
Energy System	10	30,0	2,2	0,0	7,5	0,0	10
Energy Efficiency in Industry	13	75,8	7,9	0,6	41,9	12,5	20
Batteries	36	110,9	13,7	4,7	16,0	19,0	36
Bioenergy	85	193,6	49,2	9,7	189,0	141,0	186
Carbon Capture Use and Storage	19	86,4	10,3	0,4	17,0	5,0	16
Total	**262**	**822,56**	**142,21**	**23,5983**	**456,756**	**261,5**	**389**

* a same project may be repeated for different activities
** a same infrastructure can be used in different activities

ANNEX 6 – Consolidated data for the four analysed IPs

Activities	Number of Projects	Competitive funding *(in million €)*	Amount going to EERA members *(in million €)*	Non-competitive funding *(in million €)*	Total funding in % of the needs identified by the IPs	FTE from competitive funding	FTE from non-competitive funding	Number of infrastructures
Deep Geothermal								
Activity 1	3	10,1	1,5	0,5	14%	6	8	5
Activity 2	4	10,5	2,6	0,1	41%	7	3	2
Activity 3	8	35,4	12,7	0,5	9%	20	20	22
Activity 4	2	1	1	0,1	5%	8	2	0
Activity 5	15	27,1	9,5	4,7	65%	39	21	25
Activity 6	4	3,1	0,6	0,1	6%	3	2	2
Activity 7	1	1,8	1,8	0,1	16%	3	1	0
Activity 8	1	15,6	0,8	0	13%	2	2	8
Activity 9	7	14,4	2,2	0,4	71%	8	14	7
Activity 10	0	0	0	0	0%	0	1	0
TOTAL	**33***	**119**	**32,7**	**6,4**	**13%** *(16% excluding act. 10)*	**97**	**72**	**38****
Batteries								
Activity 1.1	23	64	8,7	0,4	54%	3	3	14
Activity 1.2	2	10,5	0,5	0,1	21%	3	1	6
Activity 1.5	7	26,3	1,4	0,2	27%	7	3	6
Activity 2.1	4	10,1	3,1	4,2	28%	2	11	16
Activity 2.2	0	0	0	0	0%	0	0	0
TOTAL	**36***	**110,9**	**13,7**	**4,7**	**36%**	**16**	**19**	**36****
Bioenergy and Renewable Fuels								
Activity 1	51	108,8	20,1	3,8	15%	71	63	112
Activity 2	13	31,4	17,6	1,1	3%	41	2	5
Activity 3	4	5,3	3	3,3	0%	53	55	3
Activity 7	21	48	8,5	1,5	29%	24	21	70
TOTAL	**85***	**193,6**	**49,2**	**9,7**	**1%**	**189**	**141**	**186****
Offshore Wind								
Activity 1	2	12,4	1,2	0	11%	5	1	4

Activity 2	2	4,2	0,8	0	14%	2	0	1
Activity 3	25	32,5	7,5	0,7	11%	3	3	7
Activity 4	3	0,6	0,3	0	1%	0	0	4
Activity 5	0	0	0	0	0%	0	0	0
Activity 6	6	5,4	2,1	0	1%	10	1	6
Activity 7	7	6,9	1,2	0,2	8%	4	4	9
Activity 8	3	2,8	1,4	0	8%	1	1	4
Activity 9	1	1,5	0,5	0	6%	0	0	0
Total	**39***	**66,2**	**14,9**	**1**	**6%**	**25**	**8**	**14****

* a same project may be repeated for different activities

** a same infrastructure can be used in different activities

ANNEX 7 – Example of EERA Survey (IP "Bioenergy and Renewable Fuels for Sustainable Transport")

Name of the SET-Plan Implementation Plan's Activity	Select the activity in which your organisation is active (*insert x if active*)	**Competitive funding** *(Public funding allocated through competitive programmes and calls from funding bodies)*										**Cooperation with industry**	**Cross-cutting Topics**
		Project Title (*List all the projects in which your organisation is involved and that cover the different activities*)	**Acronym**	**Funding scheme** *(Select between EU, transnational, national or regional funding)*	**Type of project** *(Select between Coordination/Support, Innovation, Research, Market uptake, Other)*	**Period of execution** (*from MM.YY-MM.YY*)	**State of execution** (*Ongoing or planned to start in the near future - within 6 months maximum)*	**Project Budget** *(in million €, if the national currency is not euro, please apply the exchange rate of the day of reporting)*	**Alignment of Project with activity** (*indicate in % the part of the project covering the corresponding activity*)	**Information related to your organisation**		***Does the project include cooperation with industry? Y/N– if Y, on what*** *(open field)*	***Does the project over cross-cutting topics*** *(both technological – e.g. AI, materials, Big Data… - and non-technological, e.g. re to socio-economical, policy aspects)? Y/N – if yes, on what (open field for comments)*
										For the all project (In million €)	**Full Time Equivalent** *(FTE dedicated to the project)*		
Activity 1: Develop advanced liquid and gaseous biofuels through biochemical / thermochemical/ chemical conversion from sustainable biomass and/or from autotrophic microorganisms and primary renewable energy	x												

Activity 2: Demonstrate advanced liquid and gaseous biofuels through biochemical / thermochemical/ chemical conversion from sustainable biomass and/or from autotrophic microorganisms and primary renewable energy													
Activity 3: Scale-up advanced liquid and gaseous biofuels through biochemical / thermochemical/ chemical conversion from sustainable biomass and/or from autotrophic microorganisms and primary renewable energy													

Name of the SET-Plan Implementation Plan's Activity *(Leave empty if your organisation is not active in one or several activities)*	**Non-competitive/institutional funding** *(Resources at the disposal of your organisation or directly granted/received by a governmental body/ies (Ministries, funding agencies etc), without any competition)*	**Research Infrastructures** *(Infrastructures your organisation possesses and can mobilized for the execution of the selected activities)*											
	Funding *(In million €, if the national currency is not euro, please apply the exchange rate of the day of reporting)*	**Full Time Equivalent** *(FTE dedicated to the project)*	**Number of laboratories**	***Specify types***	**Number of Instruments**	***Specify types***	**Number of test sites**	***Specify types***	**Number of virtual facilities**	***Specify types***	**Other** (Number)	***Specify types***
Activity 1: Develop advanced liquid and gaseous biofuels through biochemical / thermochemical/ chemical conversion from sustainable biomass and/or from autotrophic microorganisms and primary renewable energy												
Activity 2: Demonstrate advanced liquid and gaseous biofuels through biochemical / thermochemical/ chemical conversion from sustainable biomass and/or from autotrophic microorganisms and primary renewable energy												
Activity 3: Scale-up advanced liquid and gaseous biofuels through biochemical / thermochemical/ chemical conversion from sustainable biomass and/or from autotrophic microorganisms and primary renewable energy												