



## **WP5.D5.1 Summary report on selected projects and their public outcomes V1**

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## Document information

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## Summary

The present document is the “summary report on selected projects and their public outcomes V1”. It is the first of a series of 6 deliverables for different periods, and this first one covers the situation up to December 1<sup>st</sup> 2023.

The European OFFERR project is ongoing since September 2022 and its duration is four years from 2022 to 2026. So far, only two batches of proposals had been evaluated with cut-off dates of May 16<sup>th</sup> 2023 and September 30<sup>th</sup> 2023.

Due to the recent finalization of the evaluation of the first 2 cut-off dates and the allowed delay between the approval of the proposal and the start of activities, only one proposal has started his activities before December 1<sup>st</sup> 2023. So, the applications had no time to produce outcomes and this first deliverable of the series is different from the future ones. The deliverable shows a brief analysis of the list of selected projects, their potential to generate outcomes according to the proposal and peer evaluations, and some indications for the documentation of the future proposals that could help to prepare future versions of the report.

At the cut date of December 1<sup>st</sup> 2023 only “fast-track” proposals had been fully selected, although several “complex” proposals had been evaluated positively. For these reasons, the analysis will be based only on the selected “fast-track” proposals.



## OFFERR Project summary

The overarching objective of the EU-OFFERR project is to support the SNETP association to establish an operational scheme facilitating access for R&D experts to key nuclear science infrastructure – hereinafter referred to as “User Facilities” – through the channeling of financial grants provided by the Euratom Program. The beneficiaries of the scheme will be, first, the User Facilities to be funded directly from the OFFERR project for their services provided to projects selected through OFFERR calls, and second, the research teams that have successfully applied through the calls and were allowed to use the User Facilities for their project purposes – hereinafter referred to as “Visiting Teams”.

## References

Ref.	Description
[R1]	EU OFFERR Grant Agreement n°101060008
[R2]	EU OFFERR Website <a href="https://snetp.eu/offerr-european-user-facility-network/">https://snetp.eu/offerr-european-user-facility-network/</a>
[R3]	THE OFFERR PROJECT: a User Facility Network to support nuclear infrastructure and education and in Europe. Abstract ANIMMA
[R4]	EU OFFER WP1 D1.1 Deliverable. EU submission 2022, dec.05 <sup>th</sup>
[R5]	EU OFFER WP2 D2.1 Deliverable. EU submission 2023, march 7th

## Abbreviations and acronyms

ACRONYM	DESCRIPTION
EUFN	European User Facility Network
IP	Intellectual Property
OFFERR	euRopean platForm For accEssing nucleaR R&d facilities
WP	Work Package
R&D	Research & Development
SNETP	Sustainable Nuclear Energy Technology Platform



## 1. OFFERR Project Overview

### 1.1. Introduction

OFFERR is a new European project [R1, R2]. The OFFERR acronym stands for eurOpean platForm For accEssing nucleaR R&D facilities. The main objective of the project is to set up a European User Facility Network (EUFN) and to establish an operational scheme facilitating access to key nuclear science infrastructure for R&D experts, and for students, through the channelling of financial grants provided by the Euratom programme.

OFFERR is a four-year long project that was submitted to the NRT-12 Euratom call in 2021; it was accepted in June 2022 and launched in September 2022. OFFERR will be very helpful for the scientific community by providing funding for sustaining critical infrastructure and by giving young researchers access to these facilities [R3].

The OFFERR project will launch a call for application to use the facilities of the network. These applications with a high scientific value are the best way to use these facilities. Facilities and applications will be structured into clusters and evaluated by a panel of independent experts in the nuclear field. Only the best applications will be selected on the base of a transparent evaluation process. They will be funded, mainly through the Financial Support to Third Party process defined by the European Commission.

In the framework of the OFFERR project, financial support from EC (EURATOM) will be made available to User Facilities and Visiting Teams for transnational access. The financial support will be granted to proposals jointly prepared and agreed by the visiting team and the user facility after an independent validation and evaluation of proposals.

### 1.2. Project processing

The OFFERR consortium is made up of seventeen members including industrial companies, universities, and research centres like the Joint Research Centres (JRC).

OFFERR is coordinated by a utilities company, EDF.

The main aim of OFFERR is to fund applications that use the European User Facility Network (EUFN), with a dedicated budget of 7.2 million euros to finance these applications.

The OFFERR project is structured into seven work packages: set up of the User Facility Network, definition of the call for access to facilities, evaluation of the application proposals, interactions with other international initiatives, dissemination and exploitation of the results, management and communication, and management of the access to infrastructures.



It should be noted that, within OFFERR project, there are two types of proposals: fast-track and complex proposals.

Fast-track proposals are limited to a total OFFERR EC funding (User Facility + Visiting Team) of less than 50 k€ and a duration of the experimental activity (once started) of less than six months.

Fast-track proposals are subject to less conditions and their selection and evaluation should be simpler and faster. Several tens of FastTrack proposals are expected along the four years of the OFFERR project.

The complex proposals might have more conditions and require more time but can request up to 1 M€ OFFERR support. Less than twenty complex proposals are expected along the OFFERR duration and very few of them above 300 k€.

### 1.3. Applicant selection process

The text of the call and the eligibility and evaluation criteria were published in March 2023, and the call was open on April 3<sup>rd</sup> 2023.

Six cut-off dates have been defined every six months by deliverable D2.1 of the WP2:

	Fast-track projects		Complex projects	
	Cut-off dates	Selection completed	Cut-off dates	Selection completed
1	16/05/2023	1.5 month later		2.5 month later
2	30/09/2023		30/09/2023	
3	31/03/2024		31/03/2024	
4	30/09/2024		30/09/2024	
5	31/03/2025		31/03/2025	
6	30/09/2025			

Table 1: list of cut-off dates

Then, the applications are evaluated and selected in WP3. The 2 first cut-off batches have been evaluated and selected for Fast-track proposals. For complex proposals the evaluation is also done and the selection is ongoing.

After the proposal is selected, the project must start not later than 12 months after the date of the proposal approval, be completed before the end of the OFFERR project 08/2026 (unless extended), and be completed in less than six months (fast-track projects) or 18 months (complex projects) of the access to the infrastructure.

Once the proposal is started, WP5 takes care of the Scientific monitoring, Dissemination & exploitation of the outcomes of the proposals.





## 2. Scientific monitoring of proposals

The Scientific monitoring, Dissemination & exploitation of the outcomes of the proposals are managed by the WP5. The general objectives of this WP are:

- Raise awareness on the User Facilities Network ambition,
- Support SNETP and User facility owners to build long-term partnerships,
- Widely promote the public outcomes of projects that were granted access through OFFERR,
- Demonstrate the operational feasibility to run efficiently calls through the SNETP Association and its engaged partners,
- Structure the call for infrastructure access as a potential joint service of the SNETP Association and the European Commission.

This deliverable D5.1 is included in bullet 3 that is developed in Task 5.1. Indeed, the WP5 is subdivided in two tasks:

- Task 5.1 Monitoring of scientific outcomes of selected projects: This task will monitor and collect scientific outcomes from the selected applications and plan for the re-use of data and knowledge generated by selected projects. As such, the following activities are foreseen:
  - UJV, with the support of all partners involved in the task, will be in charge of the operational interactions with the representatives of projects selected by WP3 and report to the SNETP Scientific and Innovation Infrastructure Committee (SIIC).
  - CIEMAT will coordinate, together with the other partners, the work of prioritization of the most interesting public outcomes and ask the research team members to provide public summaries or data through the SNETP open data repositories.
  - Where appropriate, joint publications, articles or intervention at selected events will be proposed.
  - This task should produce deliverables D5.1, D5.3, D5.4, D5.5, D5.6, D5.7.
- Task 5.2 Integration of OFFERR schemes within SNETP: This strategic task is related to exploitation of the OFFERR results beyond the project duration. The objective is to prepare scenarios that will allow the SNETP association to run similar calls for infrastructure access in the future with the support of the European Commission.

## 3. Result of the selection proposal for the first two cut-off dates

So far, only two batches of proposals had been evaluated corresponding to the cut-off dates of May 16th 2023 and September 30th 2023.



The first cut-off (May 16th 2023) was dedicated exclusively to fast-track proposals. For this cut-off, 6 proposals were prepared, 4 were selected, 1 was considered as draft and 1 was not eligible.

The second cut-off (September 30th 2023) was open both to fast-track proposals and to “complex” proposals, however only the fast-track had been selected at the time of this report. The selection process is longer for complex proposals and it was not completed by December 1<sup>st</sup> 2023. For this cut-off, 32 proposals were prepared, 11 were selected, 9 remained as draft, 1 has the status of eligible, 6 have the status of evaluated, 2 were not eligible, 1 was not accepted and 2 were repeated proposals.

In total, of the 38 proposals prepared in the OFFERR platform, 15 fast-track had been selected. In addition, several “complex” proposals had been evaluated and it is expected that about 6 could be finally selected.

The list of selected proposals at December 1st 2023 is shown in the table below.

Short name	Full Name	Topic area	Cluster	Cut-off	Type	Facilities	Users	Start
EPSILON	Efficiency of Pool Scrubbing for the trapping of mixed-aerosols fission products in a gasflow: decoupling factor assumption	Nuclear science applications	NPP Safety	1	FT	CHROMIA Platform (IRSN-FR)	VTT (FI)	01/01/2024
CERAD	Towards utilization of CERAD facility	Radioprotection and nuclear medicine	Radiochemistry	1	FT	CERAD (NCBJ-PO)	ICNAS (PT)	01/01/2024
CoRREx	Complement to the Reaction Rate Experiments at VENUS-F	Advanced fission reactor concepts	Neutronic	1	FT	VENUS-F (SCK-BE)	CEA (FR)	02/10/2023
TIFANY	Tellurium for epithermal Neutron dosimetry	Innovation in nuclear instrumentation	Neutronic	1	FT	MADERE (CEA-FR)	IRSN (FR), JSI (SL)	01/12/2023
HyAMsteel	Hydrogen-interplayed safety and integrity of additively manufactured steels for nuclear power plant applications	Light Water Reactor sustainability	Material	2	FT	Advanced Microscopy (NTNU-NW)	VTT (FI)	01/05/2024
FUND	Finite rate chemistry using Underventilated Nyx Device	Light Water Reactor sustainability	NPP Safety	2	FT	Galaxie (IRSN-FR)	UGHENT (BE)	01/01/2024
CDIHOSMEA	Characterization of defects induced by high-temperature irradiation in oxide-dispersion-strengthened medium-entropy alloys	Advanced fission reactor concepts	Material	2	FT	Advanced Microscopy (VTT-BE)	NOMATEN-NCBJ-PO	01/01/2024



NIPES	Nuclear Irradiation effect on Polymers for Electrical Systems	Light Water Reactor sustainability	Radiochemistry	2	FT	Accredited Laboratory for Equipment Qualification (UJV Rez-CZ)	U.Bologna	01/04/2024
DDAFC	Detail dislocation analyses of ZrNb fuel cladding after creep test	Advanced nuclear fuels	Material	2	FT	PAS Lab (UJV Rez_CZ)	STUBA (SK)	01/12/2023
IRRADCOEFH	Gamma Tolerance Tests on Innovative sensor (Coef H)	Innovation in nuclear instrumentation	Material	2	FT	GoMK CVRez-CZ)	CEA (FR)	05/02/2024
DIAMRI	3D MRI measurement of diabatic turbulent flow in a 5x5 fuel assembly (DIAMRI)	Nuclear science applications	Thermohydraulic	2	FT	MRI (U. Tostok - GE)	Framatome-SAS (FR) & GmbH (GE)	01/03/2024
CSPEL	Optimization of Cold Spray Process Parameters for Extending Lifetime of LWR components	Light Water Reactor sustainability	Material	2	FT	Surface treatment facility (VZU-CZ)	EDF (FR)	01/01/2024
FLOWBRAGG	Development of an in-line flow velocity sensor based on Fiber Bragg Grating	Innovation in nuclear instrumentation	Material	2	FT	Fiber Bragg Grating Inscription Setups (U. Mons-BE)	CEA (FR)	01/04/2024
HEW	Investigation of surface temperature effects on helium ion implantation induced damage layer in tungsten	Advanced fission reactor concepts	Material	2	FT	Advanced Microscopy (VTT-FI)	PSI (CH)	08/01/2024
COATED	Critical heat flux On Accident Tolerant fuels under reactor typical conDitions	Advanced nuclear fuels	Thermohydraulic	2	FT	COSMOS-H (KIT-GE)	CTU_Prague (CZ)	01/08/2024

Table 2: List of selected proposals (by December 1<sup>st</sup> 2023).

The table shows that there is only one proposal starting its activities in the facility before December 1st 2023, proposal CoRREx that started on 02/10/2023. This situation prevents the possibility to evaluate the outcomes and the scientific monitoring is limited to identify the distribution of proposals per topic area and per cluster and to identify the potential outcomes of the different proposals.

### 3.1. Classification of selected proposals

The following figures show the distribution of proposals per topic area and per cluster. Despite the reduced number of proposals, the distribution is relatively even for the different topic areas, with the maximum corresponding to topic of Light Water Reactor sustainability as expected and the minimum to Waste and decommissioning, that can be explained by the existence of a program to access EU facilities devoted to the research on nuclear wastes in the JEP-EURAD.

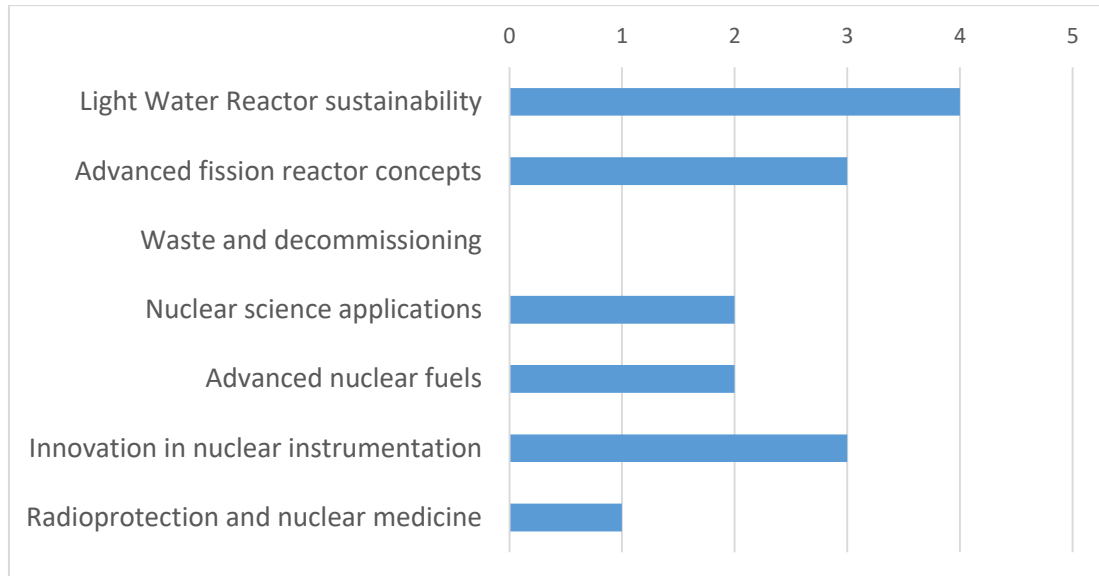


Fig.1 Number of selected proposals per topic area (by December 1st 2023).

On the other hand, the distribution of selected proposals per cluster shows a clear preference for the cluster on “materials” (47%) and more or less even distribution between the other clusters. The preference might be partially correlated to the fact that only fast-track proposals had been selected by December 1<sup>st</sup> 2023, and that limits the budget to 50 k€ and the duration to 6 months.

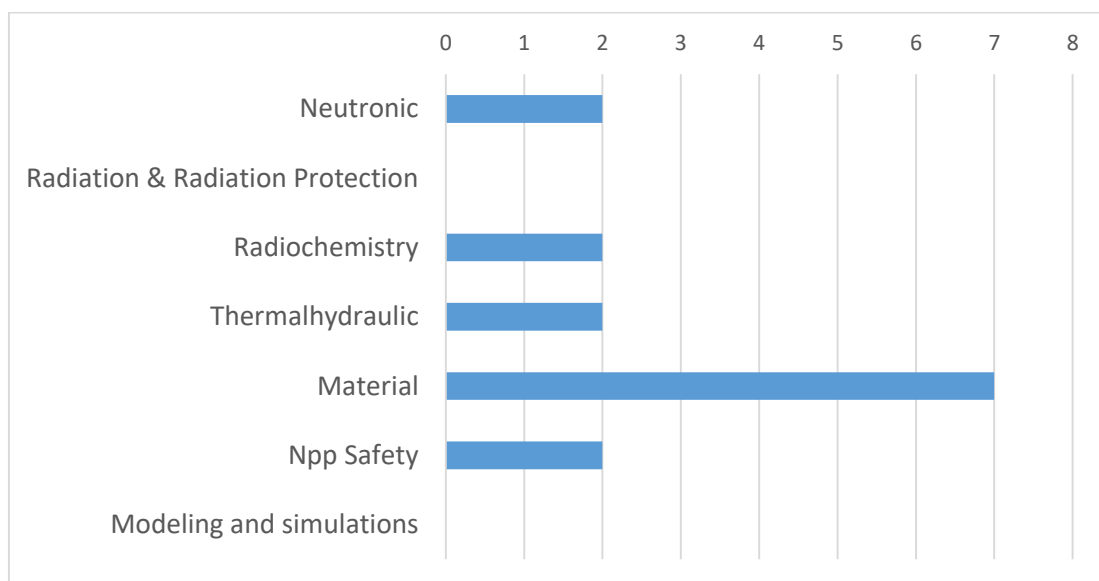


Fig.2 Number of selected proposals per cluster (by December 1st 2023).

### 3.2. Potential outcome of selected proposals

To identify potential scientific outcomes, a detailed review of the information provided in the proposal and in the evaluator reports have been performed. However, in many cases, the identification of the actual expected results is not clear from the proposal. Not being obvious if the outcome will be a database with experimental results, a journal paper, a new code or a revision of existing codes. The following table summarizes the most probable results and methods of dissemination of the selected proposals.



Short name	Results	Methods of dissemination
EPSILON	Experimental data	Experimental database, journal article or report
CERAD	The results of this irradiation will be reported and analyzed from the perspective of potential target design harmonization	Design of a target for irradiation, results of the irradiation, report
CoRREx	Experimental data, journal article	Experimental database, peer reviewed and published
TIFANY	Design and manufacturing of <sup>125</sup> Te dosimeter, analysis of irradiation, report, validation of nuclear data.	Measurements database, report
HyAMsteel	Deliverable 1 (D1): Report on microstructure of the selected heat-treated LPBF materials, Deliverable 2 (D2): Hydrogen effect on the mechanical properties of materials at multiscale level, Deliverable 3 (D3): Understanding hydrogen embrittlement mechanisms of LPBF 316L stainless steel	Images, behaviour law, Technical reports
FUND	Experimental data, validation of numerical CFD models, phases test and analysis reports. At the end of the project, a final report will be written on the validation of combustion models, an international publication is expected at the end of this project	Experimental database, technical reports, The HAL IRSN institutional portal will be used to deposit online and disseminate in open access the institutional reports concerning the experimental data. An international publication is expected at the end of this project
CDIHOSMEA	Proposal: The findings of this project will be published in internationally recognized scientific journals. Evaluators confirm that the results will deserve publication in prestigious scientific journals	Published in internationally recognized scientific journals
NIPES	Experimental results, Phenomenological aging models	Publication of the results in at least one scientific article and participation ad one international conference
DDAFC	Experimental data, Final report, Publication of results obtained within the project in scientific journal with impact factor	Publication of results obtained within the project in scientific journal with impact factor
IRRADCOEFH	Experimental data, Final report	Irradiation report
DIAMRI	Experimental data	Experimental database, final report or journal article
CSPEL	Development of a procedure, analysis and final report	The results obtained in the task 1 and 2 would be presented in the conference ITSC 2024. Potentially, the results of the project would be considered to publication in the appropriate journal after the project finish.
FLOWBRAGG	Feasibility study writing and checking of reports	Technical reports
HEW	Characterization using SEM FIB/TEM of tungsten	Report or journal article
COATED	Broaden CHF database and journal article, PhD Dissertation, data will be published, so the considered end user group is the whole fuel scientific community	Journal article, PhD Dissertation, data will be published for the whole fuel scientific community.

Table 3: Types of results and dissemination of selected proposals (by December 1st 2023)



From the tables, it is clear that most of the fast-track selected proposals will produce interesting scientific results suitable for journal publications. In addition, many of the proposals will produce experimental data, for which the existence of international standard format or data bases will be checked with the proposers, and it will be explored that possibility for dissemination and storage. If not feasible, possible solutions will be searched on the SNETP or the OFFERR repositories and web pages. Finally, some proposals indicate as result advanced models or codes to describe the phenomenology associated to the experiment, and again the proposers will be contacted before the end of their proposal activities to identify convenient storage and dissemination options either at international databases or in the SNETP or the OFFERR knowledge database.

### **3.3. Recommendations to proposers and evaluators**

The lack of details for the final results in some applications makes more difficult the scientific monitoring and the validation of the degree of results achieved by each proposal. In future proposals, it would be interesting to make sure that the proposal includes a more precise definition of the deliverables expected from the proposal. Another difficulty is that very few of the applications indicates explicitly what part of the proposal results will be public and what will be the limited distribution intended for the non-public results. This also influences on the possibilities of results dissemination and impact, and should be clearly described in the proposals.

Another issue to be taking into account by the reviewers is up to what point the action proposed is specific with clear independent results or it is a small and incomplete part of a much larger project. In the second case, it is not obvious the potential value or impact for the research community.

As a final comment, following the reviewer's reports we should expect high quality proposals with interesting results and in most cases significant impact on the topic areas of the SNETP priorities.

