Annual Work Plan 2017

Enabling Research

Call for projects proposals

Enabling Research (ENR) is a key ingredient of the EUROfusion Consortium activities as it provides a special path to bring new ideas and techniques into the programme in ways not easily achieved within the strongly goal-oriented main Work packages. As for the previous calls, this Enabling Research call is open for any proposal relevant to the EUROfusion programme.

All projects should start early in 2017, and must end by 31 December 2018 at the latest. No funds have been set aside to allow for extension of projects running under ENR2015.

This time Inertial Fusion projects will not be eligible under the Enabling Research call – a separate process and call will be launched.

New eligibility criteria will be applied to help clarify the scope of the call and a new selection process is introduced.

Nature of projects and eligibility criteria

The following eligibility criteria and guidelines will be applied in addition to the general principles of excellence, relevance, state-of-the-art and innovation.

In order to be eligible

- Projects must be consistent with the Roadmap in general terms, i.e. focused towards the topics specified for development and improvement of tokamaks and stellarators for fusion power.
- Projects must be distinct from work in the main Work Packages (WP). This means that the proposals should clearly show novel elements compared to the WP, i.e., a new fusion-relevant scientific or technological idea to be tested within ENR, a new method to be developed or taken for the first time into use for fusion.
- The proponents should clearly indicate how their proposal could provide an important addition to the Work Programme. For example a new or improved theory-based modelling capability, a novel numerical or computational approach, demonstration of a prototype diagnostic or technology technique, innovative material studies, etc.

In addition to the above eligibility criteria, proponents should consider the following guidelines which will be used by STAC, particularly in Stage 1 of the selection process

- The work proposed should usually include a strong theory element. Collection of experimental or modelling data only will not qualify. Exceptions could include new numerical, diagnostic, technology techniques.
- Theoretical proposals aiming at a better understanding of “hot” issues in fusion are encouraged.
- Proposals of fundamental experiments on European non MST devices can be performed if the proponents show that they there is a clear benefit of using smaller, flexible devices equipped with dedicated tools not available in larger machines.
- Projects must be clearly focused and minimise “satellite” activities.

- Projects on topics similar to those involve in WPs, which appear primarily to supplement resources not provided by the main WPs will not be selected.
- Large or wide-ranging programme-like projects must have special justification
- The concept of curiosity-driven research should be retained as a driver but not as a justification for work unrelated to the roadmap.

Topic areas

Proposals should be identified by one topic (or two if needed). There are no quotas for proposals in any topic– the topics are a tool to help for the reviewing process. The same areas are used as in the 2015 call, with inertial fusion no longer included.

1. Exhaust and plasma-wall interaction
    a. Plasma-related aspects
    b. materials-related aspects
2. Turbulence, transport, confinement
3. MHD, disruptions and fast particle physics
4. Technology and systems (the science/engineering)
    a. Plasma-related aspects (e.g. diagnostics, aspects of H&CD)
    b. Technology-related aspects
5. Structural and high-heat flux materials
6. Functional materials

Selection process

A two-stage process is introduced, akin to that used by the European Research Council (ERC), with the whole process lasting approximately one year. A first screening and selection is done by STAC based on short proposals. Principal Investigators of selected proposals are then invited to submit more detailed proposals, all of which will be sent to referees.

Upon submission, the PMU will perform a formal check of the proposals using the following criteria: application form is complete, proposal complies formally with the call, cost information is complete and within the ceiling, length is appropriate.

Stage 1 - Preselection

Selection will be made by STAC on the basis of the short version of the proposal

Two kinds of assessment will be performed:

1. Proposal complies with eligibility criteria
2. Proposal satisfies the criteria below:
    a) Scientific excellence
    b) Scientific relevance and impact
    c) CV and track record of PI and main participants
    d) Quality of the draft work plan and adequateness of the resources

Each proposal will be ranked at Stage 1 as follows:

A. is of suitable scope and sufficient quality to pass to Stage 2 of the evaluation;
B. is of suitable scope but not sufficient quality to pass to Stage 2 of the evaluation – could be performed under Complementary Research;
C. is not of sufficient quality or of suitable scope to pass to Stage 2 of the evaluation and is not expected to be suitable for future calls.

The STAC output is a ranking of the proposals, with a short feedback to each PI.

The total cost of A ranked proposals should be about 2.5 times the available budget.

Stage 2 – Final selection

The selection will be made by STAC and external referees on the basis of the extended version of the proposal. Modifications in scope and implementation from Stage 1 to Stage 2 should be minimal and certainly not conflict or add substantial elements compared with the Stage 1 version.

Criteria at Stage 2 for referees (with relative weights to the total score in brackets)

a) Scientific excellence, innovation potential, going beyond the state of the art (40%)
b) Emphasis on addressing important challenges in fusion research, focus, clarity of impact (20%)
c) Curriculum vitae, relevant expertise and track record of the Principal Investigator and main participants in the project, and their commitment (mainly time) to the project (20%)
d) Quality and adequateness of the resources, planning and management to meet the proposed goal (20%)

There will be only one round with the referees and referee reports (without scores) will be sent to the PIs for comments. STAC will examine the referee reports and the response of the PIs, and in addition, assess *coherence with the Roadmap and complementarity to the main Work Packages.* A final score for each proposal will be decided upon in a plenary STAC meeting.

Proposals that do not meet the necessary quality requirements will be rejected. All proposals that meet the selection criteria will be ranked according to their total score. Proposals will then be selected until the budget is exhausted. The exact budget to be allocated for ENR will be decided by the GA. The list of funded, not funded, and rejected proposals will be published.

Short guidelines for the preparation of the proposals and submission instructions are given in Annex 1.

Referee selection

The referee selection will be done based on the Stage 1 proposal choosing from an international pool of experts. Each proposal should get at least three external referee reports. At least one of the referees should not belong to EUROfusion. In Stage 1, PIs will have the opportunity to indicate experts that could act as referees for the project, with a possibility to indicate also referees they do not wish to be involved in the process.

Budgets

The ceiling for the EUROfusion contribution to each project is limited to 300 kEuro/year. Mission costs are limited to 20 days/ppy/year. The minimum commitment for the PI and collaborators is 0.5 ppy/year and 0.2 ppy/year, respectively. The new average salary cost system shall be used to determine the personnel cost in the proposal. More details are given in Annex 1.

The total budget available is about 10.5 MEuro (Consortium contribution), which suggests that around 20 projects might be funded, depending on the actual average cost of each project. However the total budget shall be confirmed by the GA with the submission of the AWP2017 foreseen in September 2016.

In exceptional cases, projects up to 500 kEuro per year could be granted. The extra funding should be used to cover extra eligible costs because of the need for specific hardware or access to facilities outside EUROfusion and the Beneficiaries, and/or extra mission costs, but only with compelling arguments from the proponents. STAC and PMU are entitled to reject the arguments. The cost of the staff will always be limited to 300 kEuro/year.

Scientific Monitoring and Reporting

A final report on the outcome of the project, outlining the main results, should be submitted at the end of the project. There will be annual progress monitoring as well.

Key dates in the process

13 October 2015	Call for short proposals
2 November 2015	PMU to send notification on the IMS opening and instruction on the use of the system
5 November 2015	IMS submission opening
3 December 2015	Deadline for short proposals
11 February 2016	End of Stage 1 selection process, PIs informed.
7 April 2016	Deadline for submission of proposals in Stage 2
7 July 2016	Referee comments sent to PIs
26 August 2016	Deadline for reactions to referee comments
27 October 2016	STAC ranking complete
November 2016	GA decides how many proposals to fund
1 Jan 2017	Projects start

Annex 1

Guidance for the Stage 1 and Stage 2 proposals

Stage 1

In Stage 1 the proposal consists in a short description of the project in maximum **3** pages. It should provide clear arguments for eligibility and present in a brief way the scientific proposal, with particular attention to the ground-breaking nature of the research project and the feasibility of the outlined scientific approach. It should also describe the proposed work in the context of the state of the art of the field.

Team description, costs, CVs of the PI and main participants, and additional information are provided separately via IMS (Information Management System, replacing ECoM). Referee suggestions are optional.

The short description (synopsis) should include the following items (see also attached template):

- Aims of the project
- Motivation, related to the 2012 roadmap document (what gap or opportunity is addressed)
- Information on the eligibility criteria *(see section on Nature of projects)*
- Evidence of novelty and impact for fusion
- Possible use of the project output
- Description of the work to be carried out
- Draft work plan including main deliverables

For the Project Information entered online through IMS (which will calculate the staff and total EUROfusion costs):

- List of participants: name of participant, Beneficiary name, contribution in ppy. For the calculation of the salary cost the system will require the indication of the staff category of the participants (drop-down menu). The average salary cost for each category of staff, as provided by the Beneficiaries, will be entered on the system by the PMU and the corresponding costs will be automatically calculated. A short description of the role and expertise should be also added.
- Equipment and infrastructure requests, costs and justification. Use of facilities outside EUROfusion and the Beneficiaries. Computational time and resources needed from outside EUROfusion and the Beneficiaries.
- Use of EUROfusion facilities and computing facilities and resources (noting they are not reimbursed to the project)
- Total mission cost and purpose.
- CV of PI and, optionally, leading participants, major task leaders (see attached template).

Some further information is given below (Submission instructions).

Stage 2

For projects selected at Stage 1 an extended version of the project description shall be submitted, with a detailed explanation of the topics mentioned in Stage 1. This extended version has a similar structure but the total length is strictly limited to **10** pages (template to be provided at Stage 2). It is complemented by the Project information, entered online through IMS, as specified below.

A detailed work plan must be provided, including project organisation, critical milestones, management systems and an estimate of when the goals and deliverables are expected to be achieved (specifically, milestones and deliverables per year must be indicated). Goals should be clear and challenging and deliverables clearly outlined (note that it is expected that some goals may not be achieved, while completion of deliverables will be evaluated – deliverables are generally markers of technical progress rather than scientific outcomes). The work plan will be the guideline for monitoring the progress of the project.

For the Project Information, the following items should be entered online through IMS (most of these info are already provided in Stage 1 and will be available in Stage 2, minor modifications can be allowed):

- Project staffing.
- Detailed costing – significant increases with respect to Stage 1 will be considered only very exceptionally, and the overall ceiling will be strictly enforced.
  - Mission costs and purpose per Beneficiary
  - Equipment and Infrastructure costs should be justified; standard equipment of the type that is commonly available in research institutes will need strong justification.
  - Computational resource requests with a clear explanation for the use of facilities outside EUROfusion.
  - Use of facilities: for any facility use it will be assumed that agreement has been obtained from the relevant Head of Beneficiary or equivalent.
- CVs of participants, with indication of expertise relevant to the project

Financial support

Costs incurred for carrying out the ENR projects will be funded according to the funding rules of the EUROfusion Consortium (Attachment 8 to Consortium Agreement)

Mission costs will be funded up to 20 days per ppy per year of the project aside from very exceptional cases. The corresponding amount is about 2.7k€/ppy/year. In case significantly less or more funding is requested for missions, argumentation for this deviation should be included in the proposal. Individual missions will be approved by the Principal Investigator on a case-to-case basis up to the agreed budget per Beneficiary.

Eligible personnel costs are those directly related to the scientific and technical work carried out in the frame of the project. The name of each collaborator should be indicated in the appropriate field with the time dedicated to the project and the personnel level (according to the new system). If one of the collaborators is yet to be recruited, such as an open postdoc / PhD position to be filled for the execution of the project, the name of the collaborator should be replaced by “Open position”. The online system will compute automatically the manpower cost on the basis of the ppy fraction and of the personnel level per Beneficiary.

Other eligible costs are equipment and infrastructures costs directly related to the project. Note that for equipment, infrastructure or other assets only the depreciation cost can be charged for the duration of the project. Further information will be sent with the IMS instruction note.

The online system will calculate the total project costs (i.e. the consortium contribution) automatically in accordance with the Consortium rules. Upon submission, PMU will make a formal check of the costs.

Submission instructions

The submission process will be dealt with via the Information Management System (*IMS*), which will be available to EUROfusion members in November 2015, after the launch of the call. Detailed instructions on the submission procedure in IMS will be sent out at a later date (2nd November 2015), well in advance of the deadline for submission.

Use of web-based formats will be made when appropriate, but the Stage 1 and Stage 2 scientific proposals will be either Word or PDF. The overall proposal will consist in the following items.

Stage 1

1. **Project description** – Word or pdf using template provided, uploaded in IMS.
   - Synopsis (**3** pages - *strict limit*)
   - Referee suggestions
2. **Project information** – submitted online via IMS.

- Clear title
- Short Abstract (max 2000 characters - *strict limit*)
- Table of scientists involved, position, Beneficiary, and the foreseen PPYs for each of them, including vacancies
- Budget table for Equipment & infrastructure in EUR, description and justification
- Total mission budget and motivation
- CV of PI (and optionally, leading participants, major task leaders) (**2** pages each, template provided, *pdf file upload*)
- Topic area(s) (1-6)

Stage 2

1. **Project description** – Word or pdf using templates provided, uploaded in IMS.
   - Title and Project synopsis, same text as Stage 1 (**3** pages- *strict limit*)
   - The scientific proposal (**10** pages- *strict limit*) – Word or pdf.
2. **Project information,** submitted online via IMS.
   - Title and abstract, as in Stage 1
   - Table of scientists involved, position, Beneficiary, and the foreseen PPYs for each of them, including vacancies
   - Budget table for Equipment & infrastructure, description and justification
   - Mission budget and motivation
   - CVs and publication lists of all participants (2 pages each, template provided), post descriptions for vacancies
   - Topic areas(s) (1-6)

Templates

The templates for the synopsis in Stage 1 and CVs are provided with the call. It is **mandatory** to respect the following parameters for the layout of the synopsis and scientific proposal:

- Page Format: A4
- Font Size: Not below 11 points
- Line Spacing: Single
- Margins: Strictly 2.5 cm left and right, 2 cm top and bottom
- Sections: the section list in the Templates should be used

In particular, in fairness to all applicants, the page limits will be applied ***strictly***, only the material that is presented within these limits will be evaluated.