EUROFUSION ITER Physics Work Packages

ANNUAL WORK PLAN 2015 & WORK PLAN 2016-2018

CALL RESPONSE FORM for the Work Package

WPS1: Preparation of Exploitation of W7-X Campaigns (Enhancement Projects)

RELATED ACTIVITIES

# IDENTIFICATION

|  |  |
| --- | --- |
| **Work Package ID** | WP15-IPH-WPS1 |
| **BENEFICIARY** | *Beneficiary name* |
| **CONTRACTUAL CONTACT PERSON** | *Please enter Name / Email / Phone* |
| **TECHNICAL CONTACT PERSON** | *Please enter Name / Email / Phone* |

# REFERENCED DOCUMENTS

The following documents provide descriptions for the technical content, key deliverables, milestones, foreseen facilities, opportunities for industrial innovation and training/development opportunities for the Work Package S1. It is essential that the relevant sections are considered before completing this Call for Participation:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **Document Title** | **Version** | **Section(s)** | **Page(s)** |
|  | GRANT AGREEMENT, ANNEX 1: WORK PLAN FOR THE IMPLEMENTATION OF THE FUSION ROADMAP IN 2014-2018 |  |  |  |
|  | [ANNUAL WORK PLAN 2015 – Issue 3](https://idm.euro-fusion.org/?uid=2MB6DP&action=get_document) | 25 Sep 2014 | 2.2.11 | 73-75 |
|  | [WPS1 PROJECT MANAGEMENT PLAN](https://idm.euro-fusion.org/?uid=2MKCF6&action=get_document) |  |  |  |

# INTRODUCTION

This document is to be used in conjunction with the EUROfusion ECoM System in order for a Research Unit to respond to the EUROfusion Call for Participation in Work Plan 2014 – 2018 [1], particularly for the Annual Work Plan 2015 [2]. This call is a partial call for work additional to that which was covered in the call for the Annual Work Plan 2015 and the call for the Annual Work Plan 2014 which included an expression of interest for activities in 2015-2018. **In filling out the sections below, the Research Units shall restrict themselves to the additional activities indicated.**

The purpose of this document is:

* To set out the required roles and associated competencies that are foreseen in order to execute the Project and to help the Task Force Leader with planning.
* To allow Research Units to indicate where they have appropriate resources and competences.
* To allow Research Units to indicate a proposed resource level in professional-person-years per year (ppy/y) in 2015 and their interest and potential contributions to the Work Plan 2016-2018.
* To provide the required input for ECoM.

Finally, please note that no provision for allocation of mission resources is made in the present Call. These will be allocated as detailed in the Project Management Plan (PMP). The mission budget is to be determined. However, each Research Unit may fill the box at the end of this document to include its comments on the envisaged needs concerning missions for participation in this Work Package.

# GUIDANCE NOTES FOR SUBMISSION OF THE RESPONSE TO THE CALL

The following notes describe the procedure for completing this document and the related ECoM submission:

1. Fill in the appropriate information in the Identification table in section 1 above.
2. Read the relevant sections (see section 2) of the Work Plan 2014-2018 and Annual Work Plan 2015.
3. In section 5:
   1. indicate the appropriate human resources and competences available within your Research Unit or Third Party to participate in the Work Plan 2015 (section 5.1)
   2. if foreseen give a list of activities to subcontract (section 5.2)
   3. supply names and contact details of potential contributors from your Research Unit and Third Parties (section 5.3)
   4. indicate proposed support for hardware but also procurements or use of facilities
4. The total proposed human resources (terracotta box from section 5.1) and hardware (blue box from section 5.4) for the 2015 work plan should also be entered into ECoM in the relevant boxes.
5. In section 6, indicate your interest and potential contributions to the Work Plan deliverables for 2016-2018, including the estimates for ppy.
6. In section 7, quote up to 5 publications in the field relevant for the Work Package published by your Research Unit or Third Parties.
7. In section 8, give any additional comments or describe requirements your Research Unit would like to express and that are necessary to contribute to this Work Package.
8. In section 9, describe your proposed project(s) following the format indicated.

# DESCRIPTION OF INSTITUTION’S PARTICIPATION IN 2015 WORK PROGRAMME

### 5.1 Personnel

Briefly describe the relevant competences of the proposed staff and their experience relevant for the **project deliverables in 2015 Work Programme.** The particular staff members expected to participate in the work package may be indicated. Briefly describe any additional support the institution or the candidate's research group can provide or other related activities that may strengthen the proposal. Refer, when appropriate, to multi Research Unit activities but fill the data only for your Research Unit.

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| **Projects required for this Work Package** | | **Brief description of relevant competences and experience to contribute to this project (max. 200 words)** | **ppy 2015[[1]](#footnote-1)**  (total available 9 ppy­[[2]](#footnote-2)) |
| **Project Name** | **Description** |
| WP15-S1.EP.A:  ICRH | Provide an ICRH system for W7-X (Operation Phase 1.2(b) by 2017) capable to conduct qualification actions for the assessment of fast ion confinement and ion heating schemes. This project is to provide the ICRH control system in 2015 (3 ppy total). |  |  |
| WP15-S1.EP.B:  Alkaline Metal Beam | Design, manufacture, install, operate and analyze data from a Lithium/Sodium Beam diagnostics on W7-X (2015-18). The main target is to measure upstream densities at high spatial and temporal resolutions, parameters from CX measurements are to be provided as well. In 2015, the design (main design decisions, completed design reviews) and first manufacturing steps should be taken. An explicit goal of the first year is developing plans for an implementation of the diagnostics on W7-X by 2017 (basic functionalities) (2 ppy total). |  |  |
| WP15-S1.EP.C  Visible Spectroscopy | Design, manufacture, install, operate and analyze data from visible spectroscopy diagnostics on W7-X (2015-18). The diagnostics needs to be capable to provide local emissivities relevant to the development of highly radiating divertor scenarios on W7-X. In order to ensure integrity with the W7-X device, relevant endoscope developments need to be conducted in 2015.  This enhancement project includes the call for visible spectroscopy in the WPS1 Call for Participation 2014. (2.5 ppy total) |  |  |
| WP15-S1.EP.D:  ECH Protection for ITER Support | This project is to conduct support actions relevant to safe ECRH operation of ITER taking benefit from the ECRH equipment on W7-X. Specific support actions to be conducted in 2015 are to set up a material database and small scale test facilities, studies of stray-radiation, studies of the ECRH plasma start-up, qualification of protection measures (e.g. camera surveillance). Studies for the modeling of ECRH plasma start-up are to be prepared in 2015.  This enhancement project includes the call for the ECH ITER support in the WPS1 Call for Participation 2014. (1.5 ppy total) |  |  |
|  |  | **TOTAL**  *(to be entered also in ECOM –row A)* |  |

### 5.2 List of proposed activities to subcontract

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### 5.3 Indicative list of potential contributors

List potential contributors (members of your Research Unit or Third Party) to be involved in this Work Package. Give details of at least one person who can act as a contact person for the Project Leader.

| **Project** | **Name** | **Email** | **Phone Number** |
| --- | --- | --- | --- |
| WP15-WPS1.EP.A:  *(ID and name of first project)* | Contact Person: |  |  |
|  |  |  |
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| WP15-WPS1.EP.B:  *(ID and name of second project)* | Contact Person: |  |  |
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| WP15- WPS1.EP.C:  *(ID and name of second project)* | Contact Person: |  |  |
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| WP15- WPS1.EP.D:  (ID and name of second project) | Contact Person: |  |  |
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### 5.4 Hardware description

If support for hardware but also procurements or use of facilities is requested, please give a brief description and the associated costs.

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| --- | --- | --- | --- |
| **Indicative list of hardware, procurements and use of facilities** | | **Brief description of the relevant expertise, facilities & approximate breakdown of costs** | **Costs 2015 (k€)**  (total available 510 k€ [[3]](#footnote-3)) |
| **Project** | **Description** |
| WP15-S1.EP.A:  *ICRH* | Hardware for ICRH Control (250 k€ total) |  |  |
| WP15-S1.EP.B:  *Alkaline Metal Beam* | Hardware for diagnostics (125 k€ total) |  |  |
| WP15-S1.EP.C:  *Divertor Spectroscopy* | Hardware for endoscope manufacturing (125 k€ total) |  |  |
| WP15-S1.EP.D  *ECRH for ITER Support* | Test facilities (10 k€ total) |  |  |
|  |  | **TOTAL**  (to be entered in ECOM) |  |

# EXPRESSION OF INTEREST IN FUTURE WORK PLAN 2016-2018

### 6.1 Personnel

In the areas of the new activities indicated above, please indicate your interest and potential contributions to the future Work Plan 2016-2018 deliverables, including the indicative ppy envisaged. Describe the additional support the institution or the candidate's research group can provide or other related activities that may strengthen the activity in the future.

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| --- | --- | --- | --- | --- |
| **Project** | 2016 | 2017 | 2018 | **2015-2018 TOTAL[[4]](#footnote-4)** |
| WP15-S1.EP.A:  ICRH |  |  |  |  |
| WP15-S1.EP.B  Alkaline Metal Beam |  |  |  |  |
| WP15-S1.EP.C  Divertor Spectroscopy |  |  |  |  |
| WP15-S1.EP.D  ECRH for ITER Support |  |  |  |  |
| **Total** |  |  |  |  |

### 6.2 Hardware description

Please indicate the expected hardware support requests and associated costs to achieve Work Package deliverables in the Work Plan 2014-2018.

|  |  |
| --- | --- |
| **Project** | **Indicative list of hardware, procurements and use of facilities** |
| **2016** | **2017** | **2018** | **2015-2018 TOTAL[[5]](#footnote-5)** |
|  |  |  |  |  |  |
|  |  |  |  |  |  |

**Brief outline of available facilities and justification of spending profile (max. 200 words):**

# Summary of relevant publications

Please indicate the publications most relevant for the WP15 projects in this Work Package, up to a maximum of 5, published by your Research Unit in the last 5 years.

|  |  |  |  |
| --- | --- | --- | --- |
| **Project** | **Title** | **Author(s)** | **Year of Publication** |
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# ADDITIONAL COMMENTS AND REQUIREMENTS

Please add, if necessary, additional comments or describe requirements your Research Unit would like to express and that are necessary to contribute to this Work-Package.

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# DESCRIPTION OF THE PROPOSED PROJECTS.

Please find below a template structure in order to describe further you project proposal(s). Each project proposal shall be a maximum of two pages in length. For proposals for projects involving two or more Research Units, each Research Unit should answer to this call using the same name and description clearly stating the responsibility of each Research Unit.

### 9.1 Description of the proposal for project WP-S1-X

#### a. Title

Give a one line title

#### b. Research Units involved

List all of the Research Units participating

#### c. Work description and deliverables (per year if multiyear project is foreseen)

For each year if multiyear projects are foreseen give:

- A work description (give details of activities involved, hardware, breakdown of work between Research Units. Note two page limit)

- Deliverables (in line with the Annual Work Plan 2015)

#### d. Foreseen Travel involved

1. To also include resources made available by Linked Third Parties or Third Parties providing in-kind contribution [↑](#footnote-ref-1)
2. Total available ppy is the foreseen total ppy for all Research Units participating in this Work Package [↑](#footnote-ref-2)
3. Total available resources are the foreseen total costs for all Research Units participating in this Work Package, including ongoing projects [↑](#footnote-ref-3)
4. Total proposed resources comprising the years 2015 to 2017 [↑](#footnote-ref-4)
5. Total proposed resources comprising the years 2015 to 2018 [↑](#footnote-ref-5)