

## EUROfusion Consortium

### WORK PLAN 2014-2018 – ANNUAL WORK PLAN 2015

#### Call for Participation in ITER Physics Work Packages

## Background

The ITER Physics (IPH) Work Programme is focused on achieving the deliverables defined in the EU roadmap for developing fusion energy. Out of the 8 Missions defined in the roadmap, IPH primarily deals with Mission 1 “Plasma Regimes of Operation”, Mission 2 “Heat Exhaust System” and Mission 8 “Stellarator” and the corresponding headlines defined in the Work Plan. The five year 2014-2018 strategy is outlined in the Grant Proposal. This includes the definition of the IPH Work Packages and their objectives. The Annual Work Plan 2015 gives a breakdown of the work, deliverables and resources for each Work Package in 2015. On the basis of this document, the Project Management Plans for each Work Package shall be updated and finalised, including the allocation of resources within the Research Units. Where this involves the continuation of work using competencies within the existing Work Package team, the allocation will be performed within the Project/Task Force without a call. Where this involves significant increases in the scope of the Project/Task Force and/or competencies that are not available within the existing Work Package team, calls for participation must be made for the additional tasks. This call includes all such calls for participation for Work Packages under the responsibility of the IPH Department, with the exception of:

- 1) WPJET1, WPMST1 and WPS1: participation in experimental campaigns, analysis and modelling
- 2) WPISA: continuation of the HLST

These will be covered in separate calls for participation. It is stressed that **this call and its response are only with respect to the additional tasks for 2015.**

## The call for participation

This call for participation is for the Work Packages and areas of:

|               |  |
|---------------|--|
| <b>WPJET2</b> | <p><b>JET Plasma-Facing Components</b></p> <p>The activities concentrate on the analyses of materials retrieved from JET-ILW during the 2014-2015 shut-down after the machine operation 2013-2014. Three areas will be in focus:</p> <ul style="list-style-type: none"> <li>– Analysis of tiles from the main chamber and the divertor</li> <li>– Analysis of wall probes including mirrors from the First Mirror Test</li> <li>– Analysis sampled from the limiter and divertor tiles.</li> </ul> |
| <b>WPMST2</b> | <p><b>Preparation of exploitation of Medium-Size Tokamaks</b></p> <p>Depending on the quality of proposals and available resources, one or more of the following new projects will be supported:</p> <ul style="list-style-type: none"> <li>– Improving spatial and spectral resolution of TCV TS system</li> <li>– Developing the adaptor to facilitate interchangeable probes between MST</li> </ul>   |

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|---------------|---|
|               | <p>devices</p> <ul style="list-style-type: none"> <li>- Imaging of runaway electron beam</li> <li>- Gold foil bolometers on MST for runaway and disruptions studies</li> <li>- New infrared periscope system on AUG</li> </ul>  |
| <b>WPPFC</b>  | <p><b>Preparation of efficient PFC operation for ITER and DEMO</b></p> <p>Three new projects in support of the WEST device</p> <ul style="list-style-type: none"> <li>- PFC-WEST-8: Development of high resolution IR system for monitoring PFC surface temperature</li> <li>- PFC-WEST-9: Development of visible spectroscopic diagnostics for monitoring PFC tungsten sources and D recycling</li> <li>- PFC-WEST-10: Development of actively cooled Langmuir probes embedded in divertor ITER-like targets to measure plasma parameters around the divertor strike points</li> </ul> |
| <b>WPDTT1</b> | <p><b>Assessment of alternative divertor geometries and liquid metals PFCs</b></p> <ul style="list-style-type: none"> <li>- Additional competencies in state-of-the-art transport modelling of the DEMO divertor</li> </ul>   |
| <b>WPDTT2</b> | <p><b>Definition and design of the Divertor Tokamak Test facility</b></p> <p>Activities are added for the following tasks:</p> <ul style="list-style-type: none"> <li>- Task 2: Assessment of advanced configurations</li> <li>- Task 3: Assessment of liquid metals</li> <li>- Task 4: Definition of DTT technical requirements</li> <li>- Task 5: DTT conceptual design</li> </ul>  |
| <b>WPSA</b>   | <p><b>Preparation of exploitation of JT-60SA:</b></p> <p>Two new activities are introduced in 2015 in the areas of:</p> <ul style="list-style-type: none"> <li>- Conceptual design of the JT-60SA pellet injection system (2015-2017)</li> <li>- Feasibility study of transition to a W divertor for JT-60SA (2015-2018)</li> </ul>   |
| <b>WPS1</b>   | <p><b>Preparation and exploitation of W-7X Campaigns</b></p> <ul style="list-style-type: none"> <li>- Density control and Fuelling Schemes</li> <li>- Fast ion confinement: diagnostics development</li> <li>- Laser blow-off</li> <li>- Divertor Spectroscopy</li> <li>- ECRH support of ITER</li> </ul>   |
| <b>WPCD</b>   | <p><b>Code development for integrated modeling</b></p> <p>ACT1- Equilibrium and stability chain development and exploitation: integration of confidence analysis in the equilibrium reconstruction chain.</p>   |

## Response to the call

The responses to the call shall be submitted through the ECoM system (<https://ecom.eurofusion.org/efda/cons>) no later than **midnight of 7<sup>th</sup> NOVEMBER 2014**. The responses shall consist of:

- **One Call response form for each Work Package per Research Unit, uploaded onto ECoM.** A template *call response form* for each ITER Physics Work Package involved is supplied. These forms describe the competencies and hardware that are required in order to execute the identified work under the respective Work Package. The Research Units should fill this form with their proposed participation. Note that these *Call response forms* include a guidance note (section 4) for the completion of this document.

- The contractual and technical **contact person information for this Work Package**
- **The proposed manpower for this Work Package:** this ppy value should be copied from the total value from the personnel table in the *Call response forms, section 5*).
- **The manpower costs:** the Research Units are asked to provide the average salary costs of their staff proposed for one Work Package. This average will have to include the eligible direct costs only (no indirect costs). The average salary costs may vary depending on the Work Packages and the categories of the staff involved. For each Work Package one single entry with the average salary costs is therefore required.
- **The proposed hardware cost** (including the cost for operation of facilities): The Research Units are asked to indicate the global costs for procurements (hard/software, external services), costs for the use of facilities and consumables directly linked to the implementation of the Work Package.

Note that for Annual Work Plan 2015 firm figures both for manpower and, where foreseen, hardware expenditure shall be provided. For the period 2016-18, the Research Units should express indicative figures based on the foreseen profile of manpower and hardware expenditure included in the attached *Call response forms*.

Please note that there is a consensus with the General Assembly on the importance of avoiding fragmentation. With this in mind, the proposed human resources must be focussed on a limited number of Work Packages, and where resources appear to be scattered, effort will be made in the evaluation process to consolidate them.

Evaluation process: Responses for all Work Packages will be evaluated by the Project/Task Force Leaders, with the support of the Programme Management Unit. Please be reminded that the budget has already been allocated globally to each Work Package with submission of the Annual Work Plan 2015 to the Commission, therefore, the flexibility for adjustments following the outcome of the Calls is limited.

The Project Leader shall prepare a proposal for the allocation of resources within its Work Package, which shall be discussed at the respective Project Boards. Following approval of the resource allocation by the relevant Project Board, the final proposal will be submitted by the Programme Manager to the General Assembly meeting on the 18<sup>th</sup> of December 2014.

### **Applicable selection and evaluation criteria:**

The following selection criteria will be applied:

- Completeness of requested information
- Matching of responses to the competencies defined
- Sufficient level of commitment to avoid sub critical contribution

The evaluation criteria will be as follows:

- Quality and appropriateness of the offered resources
- Proposed contributions to the implementation of the Work Package
- Best allocation of available resources
- Use of subcontractors

## References

[1] GRANT AGREEMENT, ANNEX 1: WORK PLAN FOR THE IMPLEMENTATION OF THE FUSION ROADMAP IN 2014-2018. See IDM

(<https://idm.euro-fusion.org/?uid=2MKKGB>)

[2] ANNUAL WORK PLAN 2015 – Issue 3. See IDM

(<https://idm.euro-fusion.org/?uid=2JNWWU>)

[3] PROJECT MANAGEMENT PLANS FOR IPH WORK PACKAGES. See IDM

(<https://idm.euro-fusion.org/?uid=2M7PAT>)

## Contacts

|               | Project Leader       |  | Responsible Officer  |  |
|---------------|----------------------|--|----------------------|--|
|               | Name                 | Email  | Name                 | Email  |
| <b>WPJET2</b> | Marek Rubel          | <a href="mailto:Marek.Rubel@ee.kth.se">Marek.Rubel@ee.kth.se</a>           | Nicolas Bekris       | <a href="mailto:Nicolas.Bekris@EURO-fusion.org">Nicolas.Bekris@EURO-fusion.org</a>             |
| <b>WPMST2</b> | Not Applicable       |  | Mikhail Turnyanskiy  | <a href="mailto:Mikhail.Turnyanskiy@EURO-fusion.org">Mikhail.Turnyanskiy@EURO-fusion.org</a>   |
| <b>WPPFC</b>  | Sebastjian Brezinsek | <a href="mailto:S.Brezinsek@fz-juelich.de">S.Brezinsek@fz-juelich.de</a>   | Marie-Line Mayoral   | <a href="mailto:Marie-Line.Mayoral@EURO-fusion.org">Marie-Line.Mayoral@EURO-fusion.org</a>     |
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| <b>WPDTT2</b> | Raffaele Albanese    | <a href="mailto:Raffaele.Albanese@unina.it">Raffaele.Albanese@unina.it</a> | Mikhail Turnyanskiy  | <a href="mailto:Mikhail.Turnyanskiy@EURO-fusion.org">Mikhail.Turnyanskiy@EURO-fusion.org</a>   |
| <b>WPSA</b>   | Gerardo Giruzzi      | <a href="mailto:Gerardo.Giruzzi@CEA.fr">Gerardo.Giruzzi@CEA.fr</a>         | Darren McDonald      | <a href="mailto:Darren.McDonald@EURO-fusion.org">Darren.McDonald@EURO-fusion.org</a>           |
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