



## FUSION FOR ENERGY

The European Joint Undertaking for ITER and the Development of Fusion Energy  
The Governing Board

### **DECISION OF THE GOVERNING BOARD ADOPTING THE SECOND AMENDED 2024 ANNUAL WORK PROGRAMME OF THE EUROPEAN JOINT UNDERTAKING FOR ITER AND THE DEVELOPMENT OF FUSION ENERGY**

THE GOVERNING BOARD OF FUSION FOR ENERGY,

HAVING REGARD to the Statutes annexed to Council Decision (Euratom) No 198/2007 of 27 March 2007 establishing the European Joint Undertaking for ITER and the Development of Fusion Energy (hereinafter "Fusion for Energy") and conferring advantages upon it<sup>1</sup> (hereinafter "the Statutes") and in particular Article 6(3)(e) thereof, last amended on 10 February 2015 by Council Decision Euratom 2015/224<sup>2</sup>;

HAVING REGARD to Council Decision (Euratom) No 198/2007 establishing the European Joint Undertaking for ITER and the Development of Fusion Energy and conferring advantages upon it, last amended on 22 February 2021 by Council Decision (Euratom) No 2021/281<sup>3</sup>;

HAVING REGARD to the Financial Regulation of Fusion for Energy<sup>4</sup> adopted by the Governing Board on 10 December 2019 (hereinafter "the Financial Regulation"), and in particular Title III thereof;

HAVING REGARD to Commission Delegated Regulation (EU) 2019/715 of 18 December 2018 on the framework financial regulation for the bodies set up under the TFEU and Euratom Treaty and referred to in Article 70 of Regulation (EU, Euratom) 2018/1046 of the European Parliament and of the Council,<sup>5</sup> and in particular Title III thereof;

HAVING REGARD to the comments and recommendations of the Joint Undertaking's Administration and Management Committee and of the Technical Advisory Panel on the second amended 2024 Annual Work Programme;

WHEREAS:

- (1) The Director shall, in accordance with Article 11 of the Statutes, prepare each year the submission of the project plan to the Governing Board, the resource estimates plan and the detailed annual work programme, now merged in the Single Programming Document.
- (2) The Administration and Management Committee shall, in accordance with Article 8a (2) of the Statutes, comment on and make recommendations to the Governing Board on the proposal for the project plan, the work programme, the resource estimates plan, the staff establishment plan, the staff policy plan and other related matters, now part of the Single Programming Document drawn up by the Director;
- (3) The Technical Advisory Panel, in accordance with Article 6 (1) of the Statutes, shall advise the Governing Board on the adoption and implementation of the project plan and work programme, now part of the Single Programming Document;

<sup>1</sup> O.J. L 90, 30.03.2007, p. 58.

<sup>2</sup> O.J. L 37, 13.02.2015, p.8.

<sup>3</sup> OJ L 62, 23.2.2021, p. 41

<sup>4</sup> F4E (19) GB45 21.1 adopted on 10.12.2019

<sup>5</sup> OJ L 122, 10.5.2019, p. 1–38.

- (4) The Governing Board, in accordance with Article 6 (3) (d) of the Statutes, shall adopt the project plan, work programme, resource estimates plan, the staff establishment plan and the staff policy plan, now part of the Single Programming Document;

HAS ADOPTED THIS DECISION:

*Article 1*

The 2<sup>nd</sup> amended 2024 Annual Work Programme of Fusion for Energy annexed to this Decision is hereby adopted.

*Article 2*

The Governing Board hereby delegates to the Director of Fusion for Energy the power to make non-substantial amendments to the 2024 annual Work Programme approved by the Governing Board.

Amendments to the 2024 annual Work Programme are considered to be non-substantial if they do not cause the financial resources allocated to the Action concerned in Table 2 of the annual Work Programme to increase by more than EUR 1 million or 10%, whichever is higher.

In any event, the increase of the financial resource of an action shall not exceed 3% of the total budget of the annual Work Programme for the given year.

In addition, any related changes to the scope of the annual 2024 Work Programme shall not have significant impact on the nature of the Actions or on the achievement of objectives of the multiannual Project Plan.

Non-substantial amendments shall not lead to any increase in the total operational expenditure for Title 3 and Title 4 of the annual Budget approved by the Governing Board.

*Article 3*

This Decision shall have immediate effect. Done in Barcelona, 10<sup>th</sup> December 2024.

For the Governing Board

**Dr. Carlos Alejaldre**

Chair of the Governing Board

[Signed electronically in IDM]

For the Secretariat

**Romina Bemelmans**

Secretary of the Governing Board

[Signed electronically in IDM]

Annex: Second Amended 2024 Annual Work Programme

SPD2024_ANNEXES WORK PROGRAMME 2024 – Amendment 2
---

## INTRODUCTORY MEMORANDUM

---

### **Changes to the Work Programme 2024**

The Work Programme 2024 reference, as adopted at GB60, was based on the F4E set of schedules at the end of March 2023 and Amendment 1 was based on the schedule of end of April 2024.

Since that time, the F4E schedule baseline has been regularly modified following the outcome of the Baseline Change Control Board at F4E. The annual objectives and call for tenders/proposals have been amended consequently.

With the continuous evolution of the project, F4E activities are also subject to modifications. Such changes are captured in the monthly update of the schedule.

Because of this continuous evolution, the work programme, that provides a snapshot of the schedule of the activities at a given time of the year, is prone to significant modifications between submissions to the F4E Governance.

While the work breakdown per year is a meaningful time interval from the budgetary point of view and for the Work Programme that represents its financial decision, it is not for the long-term project that F4E has to implement. Therefore, it is normal that activities spanning over many years, the majority in the case of the F4E projects, may require adjustments in the specific year. Such modifications may be due to many reasons, as delays in the provision of input data for launching the contract, negative results from previous activities, need of modification of procurement strategy following a market analysis, delays in the delivery of hardware from other Domestic Agencies, addition of activities as a consequence of approved PCRs and risk mitigation actions, etc. In such a large high-technology project requiring in most of the cases the use of new technologies and manufacturing paths, it is therefore highly possible that the forecast of activities will vary during the year.

The main responsibility for the project managers at F4E is to avoid that these modifications affect the schedule of the delivery of the components to be assembled into the tokamak and, consequently, the creation of the first plasma.

The available budget was allocated to the various Actions identified in this document. The budget breakdown between Actions is shown in table 2 to this 2<sup>nd</sup> Amendment to WP2024.

The Actions in the Work Programme represent the tasks planned in 2024 to contribute to the overall EU obligations to ITER.

The summary of the most substantial changes is provided in the table below and doesn't include minor modifications. It is noted that the original Work Programme as amended by 2<sup>nd</sup> Amendment reflect the full planned scope of activities for the year.

The F4E schedule used for the preparation of WP2024 Amendment 2 is the version from end September 2024.

The below table recaps the main changes per action brought by WP2024 Amendment 2. The budgetary changes are listed when the variation in value is more than 2M€ or more than 10% of the original budgetary allocation.

Action	Changes
<b>Action 1 - Magnets</b>	<p><u>Budgetary changes:</u> -229,501€</p> <p>(-) sum of minor changes</p> <p><u>Annual objective changes:</u> No change</p>
<b>Main Vessel<sup>2</sup> (Vacuum Vessel, Blanket, Divertor and TBM)</b>	<p><b>Main Vessel:</b> +16,885,357€</p> <p><b>Action 2_Vacuum Vessel</b></p> <p><u>Budgetary changes:</u> + 1,401,160€</p> <p>(+) Sum of minor changes</p> <p><u>Annual objective changes:</u></p> <p>Annual objective “S9 - Start of Outer Shell fit-up” [EU15.1A.3119198] moved from Q3 to Q4 2024. → Start of Outer Shell postponed due to a change in manufacturing sequence, without affecting the delivery date of the sector.</p> <p><b>Action 3_In-Vessel (Blanket)</b></p> <p><u>Budgetary changes:</u> - 550,410€</p> <p>(-) Sum of minor changes</p> <p><u>Annual objective changes:</u> No change</p> <p><b>Action 4_In-Vessel (Divertor)</b></p> <p><u>Budgetary changes:</u> + 19,911,478€</p> <p>(+) The signature of the Cassette Body acceleration plan is advanced to 2024 to benefit from a discount offered by the supplier and to allow earlier implementation of this acceleration plan.</p>

<sup>2</sup> The budgetary changes of Vacuum Vessel, In-Vessel Blanket, In-Vessel Divertor and Test Blanket Module actions are presented merged in one single line due to commercial sensitive information.

	<p><u>Annual objective changes:</u></p> <p>Annual Objective “Manufacturing approved for the IVT Series by MRR panel (OMF-1139-01-01)” [EU17.2B.140230] removed. → Manufacturing Readiness Review (MRR) has been split for the Plasma Facing Unit (PFUs) and structure. The MRR for the PFUs that is in the critical path of the project is being completed while the MRR for the Steel Support Structure (SSS) is in delay due late availability of the stress analysis results from IO.</p> <p>Annual Objective “M_CAD-8_ Approval of the SSS manufacturing drawings-OMF-1139-01-01” [EU17.2B.982280] added → Relevant milestone in the near critical path of OMF-1139 Lot-1</p> <p><b>Action 10_Test Blanket Module</b></p> <p><u>Budgetary changes:</u> - 3,876,871€</p> <p>(-) The signature of the Eurofer Procurement (TBM Box Qualification) has been postponed because the negotiation with the potential supplier is still ongoing. The negotiation has to address technical and commercial complex aspects.</p> <p><u>Annual objective changes:</u></p> <p>Annual objective “TO 05 Signed for Preliminary Design HCPB TBS Ancillary Systems” [EU56.01.1326800] deleted → Due to review of the status of design, and additional integration related requests from IO, milestone postponed to 2025 to reach a higher level of maturity in view of PDRW.</p> <p>Annual objective “F4E-OFC-0950-01 Task Order 05 Signed for HCCP TBM set for PDR” [EU56.01.1327040] deleted → Due to review of the status of design and related fabrication, milestone postponed to 2025 to reach a higher level of maturity in view of PDRW.</p> <p>Annual objective “Task Order Signed for TO 04 for WCLL Ancillary Systems PD” [EU56.03.1262300] deleted → Due to review of the status of design, and additional integration related requests from IO, milestone postponed to 2025 to reach a higher level of maturity in view of PDRW.</p> <p>Annual objective “Technical Specification Approved for TO-01 OFC-1497 for EUROFER design limits codification in RCC-MRx” [EU56.06.1242780] added → Milestone added to comply with minimum number of 4 annual objectives in Work Programme.</p>
<p><b>Action 5 - Remote Handling</b></p>	<p><u>Budgetary changes:</u> +2,969,836€</p> <p>(+) The scope of the Grant for the Integration of Control System Technologies at DTP2 has been extended. This extension now includes the urgent need for water hydraulic prototyping, which is a critical input for the pre-SRO CMM development.</p> <p>(+) Sum of minor changes</p> <p><u>Annual objective changes:</u></p> <p>Annual objective “M6 - CDH Concept Design Review (OPE-1252)” [EU23.05.14054460] moved from Q3 to Q4 2024 → Deliverables related to the design review have been delayed, due to some technical difficulties.</p>

<b>Action 6 - Cryoplant &amp; Fuel Cycle</b>	<p><u>Budgetary changes:</u> -335,799€</p> <p>(-) The preparation of the Task Order for the procurement of turbo molecular pumps may take longer than initially expected, the signature is postponed to 2025.</p> <p><u>Annual objective changes:</u></p> <p>Annual objective "M.19 - FDR Meeting and categorize issues for Primary &amp; Cryostat Leak Detection System" [EU31.03.26160] deleted → WP objective wrongly carried over during consolidation of Work Programme amendment 1</p>
<b>Action 7 - Plasma Engineering &amp; Operations</b>	<p><u>Budgetary changes:</u> NA</p> <p><u>Annual objective changes:</u> NA</p>
<b>Action 8 – Heating &amp; Current Drive</b>	<p><u>Budgetary changes:</u> +3,308,572€</p> <p>(+) The final offer of the task order for Technical Follow-up of Gyrotron Tubes &amp; Super Conducting Magnets is higher than the initial estimate made by the team.</p> <p>(+) The final offer of the contract for NB Tooling HNB 1&amp;2 Pre and Post SRO is higher than the initial estimate made by the team.</p> <p><u>Annual objective changes:</u> No change</p>
<b>Action 9 - Diagnostics</b>	<p><u>Budgetary changes:</u> +1,143,493€</p> <p>(+) Release of an option to start the final design activities of Core Plasma Thomson Scattering system in Building 74 area.</p> <p><u>Annual objective changes:</u></p> <p>Annual objective "FDR Meeting and categorize issues for Port-plug-mounted Bolometer Cameras" [EU55.02.109200] → Milestone delayed to 2025 due to difficulties in converging on final design bolting solutions for handling stresses, within the applicable codes, at the joint between the cooled port structures and uncooled cameras. Significantly more time was needed than that allocated, including the risk buffer. This delay was compounded by the unexpected loss of a key resource (Eng. Analyst) and by the time taken to secure replacement effort via an existing framework contract.</p>
<b>Action 11 - Buildings and Civil Infrastructures</b>	<p><u>Budgetary changes:</u> -18,663,386€</p> <p>(-) TB22: Postponement of the signature of Lot A Primary structural completion works in the Tokamak Complex is due to technical optimizations, which have resulted in the removal of some scope.</p> <p>(-) TB22: Postponement of the signature of Lot B task orders #02 and #03 to 2025 due to the extension of Task Order #01.</p> <p>(-) TB21: Task order #101 has been postponed due to delays in receiving IO input data and clarifications on technical requirements (e.g., Static Magnetic Field and Fire Rating) prior to the launch of the request for quotation.</p>

	<p>(-) TB21: Task order #206 has been postponed due to ongoing optimizations (such as component quantity reductions) proposed by the joint IO-F4E team</p> <p>(+) Architect Engineer II: The agreed contract conditions stipulate that provisions for future design activities must be committed from the start of the contract.</p> <p>(-) TB20: The commitment for Doors for the aedicules has been postponed to 2025 as the strategy focuses on launching baseline activities and adjusting the timing of instructions to project needs.</p> <p>(-) Support to the Owner II: The design of orphan topics has been postponed to 2025 due to delays in receiving requirements from IO, which has also caused delays in the VISA.</p> <p>(+) TB12: Additional work and associated time extension are required due to an expanded scope and delays in F4E's provision of electrical supply for Testing and Commissioning.</p> <p><u>Annual objective changes:</u></p> <p>Annual objective "Construction of Cryoplant Coldbox Building (52) Completed" [EU62.05.460] changed from Q3 to Q4 2024 → The observation visit prior Taking Over took place on 25.07.2024. It was agreed to complete several additional works (additional fire smoke detection line in B52 required by the updated fire risk analysis, Building Monitoring System updates) before proceeding with the Taking Over which is postponed to Q4 24.</p>
<p><b>Action 12 - Cash Contributions</b></p>	<p><u>Budgetary Changes:</u> +60,489,951€</p> <p>(+) The forecast of the Cash Contribution to IO has increased based on indicative estimates for the IO Draft Income Budget 2025 proposed by IO to the 38<sup>th</sup> MAC meeting on 20 - 21 November 2024</p> <p><u>Annual objective changes:</u></p>
<p><b>Action 13 - Technical Supporting Activities</b></p>	<p><u>Budgetary Changes:</u> - 4,600,547€</p> <p>(-) Decrease due to the optimizations of transportation loads and due to postponement of transports to 2025.</p> <p>(-) The probability of implementing additional commitments for Legal Services has been reduced.</p> <p><u>Annual objective changes:</u></p> <p>Annual objective "Publish Call for tender for I&amp;C Services" [EU.ES.03.63480] moved to 2025. → Following the 2<sup>nd</sup> amendment to the ceiling of this FWC it was decided to postpone the new call for to 2025 to better utilize internal resources.</p> <p>Annual objective "Contract Signed for Plasma Engineering Studies part 2" [EU.PE.6103530] has been removed. → Following the rebaseline this contract has been cancelled, a new contract taking into account the new requirement will be launched in the future.</p>
<p><b>Action 14 - Broader Approach</b></p>	<p><u>Budgetary changes:</u> - 7,596,001€</p>

	<p>(-) Postponement of the supply of JT-60SA Actively Cooled Divertor HHF elements (Stage 2) to 2025: It was not possible to complete Stage 1 of the High Heat Flux (HHF) elements for the JT-60SA Actively Cooled Divertor due to a change in project priorities, first requested by BA Steering Committee at the end of 2023. This change required several additional preparation activities to be carried out in parallel to explore the technical feasibility of switching from a carbon ACD to a tungsten ACD. As a result, it became impossible to meet the deadline, and proceeding with Stage 2 was not feasible.</p> <p><u>Annual objective changes:</u></p> <p>Annual objective “Placement of the contract F4E-OFC-1650 for Maintenance and Optimization of the High Voltage Power System” [EU.BA.01.10510] moved from Q3 to Q4 2024 → Delay on supplier side in providing the exclusion criteria document - signature is expected in October. In addition, there is a slight change of scope as both JT-60SA and IFMIF projects are included.</p> <p>Annual objective “Completion of the SRF Linac assembly in the Joint Research Building” [EU.BA.01.27600] removed from 2024 → Due to repair of beam vacuum components and unavailability of supplier operators during summer there is a delay in achieving this objective. (Expected achievement – early 2025)</p> <p>Annual objective “Delivery of vacuum components of the transmission lines” [EU.BA.01.38860] moved from Q3 to Q4 2024 → Slight delay from the side of the manufacturer (sub-contractor - delivery of some components), expected to be achieved by end of 2024.</p> <p>Annual objective “Completion of the 1st stage of High-Heat-Flux elements for the JT-60SA Actively Cooled Divertor” [EU.BA.01.39680] removed from 2024 → It was not possible to complete the stage I of the High Heat Flux elements for the JT-60SA Actively Cooled Divertor due to a change in the project priorities which was first requested by the BASC at the end of 2023. The change implied that a number of additional preparation activities had to be run in parallel to investigate the technical possibilities of switching from a carbon ACD to a tungsten ACD, and it became impossible to meet this deadline.</p> <p>Annual objective “Assembly of the complete cold mass completed” [EU.BA.01.14150] added → New objective added</p>
<p><b>Action 15-DONES</b></p>	<p><u>Budgetary changes:</u> -1,912,888€</p> <p>(-) Supply of EUROFER raw material is postponed to 2025: the tendering process for procuring Eurofer on the F4E TBM side is still ongoing. The process has taken longer than expected, resulting in delays to the contract.</p> <p>(-) Stage 2 of the RFQ Coupler contract postponed to 2025: the administrative process from the supplier's side to finalize the contract signature took longer than anticipated. This delay impacted the start of activities, causing a delay in the completion of Stage 1 and the release of Stage 2.</p> <p><u>Annual objective changes:</u></p> <p>EU.DO.01410 (Completion of Stage 1 of Supply of the RF Couplers for the Radiofrequency Quadrupole for LIPAc) objective moved to 2025 → The</p>



	<p>administrative process from the supplier side to complete the contract signature took longer than expected resulting in a delay in the start of activities hence the completion of stage 1. On the other hand some actions have already been taken by the supplier to reduce the overall schedule of the contract.</p> <p>EU.DO.00690 (Publish Invitation to Tender for Design and Procurement of the cavity) objective moved from Q3 to Q4 → Necessary technical feedback for proceeding with the technical specification was available later than expected causing a slight delay in the process.</p> <p>EU.DO.00180 (Placement of the contract for the procurement of EUROFER raw material for Lithium and Target system) objective moved to 2025 → The tendering process is still on going on F4E TBM side for the procurement of Eurofer. It takes more time than expected, resulting in the delay of the contract.</p> <p>EU.DO.01310 (Cash Contribution for DONES Project 2024) objective added → Added as new objective</p>
<p><b>ACTION 16- Fusion Technology Programme</b></p>	<p><u>Budgetary changes:</u> No budget allocation for 2024</p> <p><u>Annual objective changes:</u> NA since action newly created</p>

SPD2024\_ANNEXES WORK PROGRAMME 2024

**1. DEFINITIONS, ASSUMPTIONS AND SUPPORTING INFORMATION TO WP2024**

The 2024 Work Programme takes into account to the extent possible the European Commission’s guidelines for the Programming document as requested by the Financial Regulation. It comprises a general overview of the progress of work and the procurement activities that will be committed during 2024, detailed objectives, expected results, and targets for each WP Action.

**Main assumptions**

The following assumptions are considered as the basis of the Work Programme 2024 as amended by amendment 2:

- The F4E schedule used for the preparation of this document is the one submitted to IO at the end of September 2024.
- The F4E schedule takes into account:
  - ✓ The latest input and developments of the schedules from the F4E suppliers, taking into account the agreed fabrication routes and showing the real development of the work.
  - ✓ The most realistic assumption of Procurement Arrangement (PA) signature dates based on the current status of the design of components and on the forecasted dates of the required design reviews prior to the PA signature.
  - ✓ The available manpower in F4E, taking into account bottlenecks in specific areas where staffing is not sufficient to grant a prompt process of the work. In specific cases, F4E foresees to satisfy its manpower needs by using external contractors.

- ✓ The most realistic assumptions on the input data availability from IO to take into account the existing delays and the agreed dates of data delivery.
- ✓ The information provided by the other DAs through their monthly Detailed Work Schedule to take into account any possible delay in the delivery of items to F4E that can cause delays to the EU in-kind procurements.
- The budget figures are based on the MFF 2021-2027 approved by the Council on 22/02/2021 plus ITER Host State and Membership contributions. The budget summary table of Work Programme 2024 (WP\_table 1) reflects the current status of the draft budget for the 2024 financing decision.
- In order to achieve an improvement of the quality of the PAs that need still to be signed, a common F4E/IO effort is still in progress to better identify the requirements that are linked to the specific procurement.
- Technically and commercially complex procurements will be implemented whenever appropriate through the competitive dialogue procedure or through the negotiated procedure, in order to improve the alignment of supply chain response to F4E needs and to proactively adopt cost containment measures. This will be done in compliance with F4E's Financial Regulation.
- Grants related to recurring and sequential R&D activities, with a well-defined development path eventually leading to an EU procurement package, will be implemented whenever appropriate, through Framework Partnership Agreements (FPA), in order to streamline and channel R&D funding, improve its effectiveness, and decrease the administrative burden to beneficiaries and F4E alike.
- Procurements which require a very close coordination between F4E and other entities will be implemented, whenever appropriate, through the Joint Procurement procedure.
- All the activities described in the overview of each Action and the list of contracts in WP\_Table 3 are intended as credited by PA or ITA. If an Action is not credited, then it is explicitly mentioned in the overview. This is not applicable for the Action "Broader Approach" (i.e. not credited).
- F4E endorsement of the Japanese Procurement Arrangement that foresees an EU financial contribution will be preceded by a budgetary commitment for the entire amount of the F4E contribution.
- Changes originated by IO, or other DA's, will be fully compensated by the IO Reserve Fund.
- The Art. 5 of the F4E Statutes states that the Joint Undertaking may award grants and prizes in accordance with the rules of its financial regulation. In this regard, Essential selection, award criteria and Upper funding limits are defined in these annexes.
- Article 74 (2) of F4E's financial regulation in conjunction with Article 1(5) of Annex III to the F4E Statutes provides for the possibility to make use of annual instalments for actions extending over more than one financial year. An annual instalment consists in breaking down a budgetary commitment into annual instalments. Annual instalments can be implemented according to the forecast of annual payment due, the forecast of progress in the implementation of the contract, or annual budget availability.

## Definitions and supporting information

1. "Action" for the purposes of Work Programme means "a coherent area of action with objectives and resources". The list of the Actions and their definition is defined in the main text of the SPD.
2. Each Action of WP2024 as amended by amendment 2 comprises:
  - (a) **General overview** that is split into two parts. The "Progress of Work" part aims at providing the information concerning the activities foreseen during 2024 in that area. The "Procurement Activities" part instead focuses on the legal commitments foreseen during the year and to be covered by the financial decision and to be financed under the budget 2024. Furthermore, it includes (even if not explicitly mentioned):

i. Provisions for urgent general support tasks as cost/risk analysis, engineering support/analysis, I&C develop and support, experts, quality assurance and quality control, nuclear safety, CE marking analysis, transportation, storage, material characterization and qualification activities, resolution of non-conformities (in line with the mechanism agreed at ITER level), metrology, low value purchase orders and external legal support, cost of legal proceedings and alternative dispute settlement, including arbitration, as needed<sup>3</sup>. These tasks will be mainly implemented through specific contracts under existing framework contracts.

ii. Provisions for payment of liquidated damages, late payment interests, cost escalation, claims, release of options, indexation and other financial compensations that F4E may be obliged to pay under its contracts.

iii. Provisions for amendments to ongoing contracts covered by a previous financing decision(s) in accordance with the Implementing Rules.

iv. Provisions for BREXIT-related contractual modifications.

v. Provisions for Covid 19 related contract modifications and Covid 19 related new contracts for ITER and Broader Approach

vi. Provisions for new contracts and contractual modifications related to expiry of Switzerland co-operation agreement

vii. Provisions for specific cash compensations to IO required in case of transfer of activities from F4E to IO approved by the ITER Management Advisory Committee.

viii. Provisions for contract modifications and new contracts linked to the new ITER baseline.

(b) **Annual objectives** defined as the achievement on time of the following milestones:

i. ITER Council/Governing Board (IC/GB) milestones in 2024;

ii. Milestones that will lead to the achievement of the future IC/GB milestones from the following years (defined as predecessor of future IC/GB milestones (if applicable)).

iii. Key milestones marking significant schedule progress (only in the event that none of the above are applicable).

iv. Link with the ITER Project multi-annual objectives (defined as the whole set of IC/GB milestones): when a WP annual objective is a predecessor of a multi-annual objective (IC/GB milestones), it is clearly identified to which milestone is linked in the column "type of milestone".

(c) The **expected results** define the main outcomes of the Actions.

(d) The **target** is defined as the annual M-SPI reaching a minimum value.<sup>4</sup>

(e) **Human resources** (see HR\_Table 1 of annexes to HR REP annexes). The table shows an indicative estimate of the Full Time Equivalent (FTE) staff assigned to the specific Action to cover all the activities carried out in 2024. Per each Action it is identified the "core" team and the additional staff (i.e. legal, financial, contractual, project management) assigned to the action according to the F4E matrix structure. Remaining staff from the Commercial Dept., Admin. Dept. and Office of the Director is instead allocated per action on a pro-rata basis.

(f) **Procurement plan:**

i. Main Procurement Initiatives (see WP\_Table 3 of these annexes): these are, per Action, the list of the foreseen main contracts with value higher than 139,000 Euros<sup>5</sup>. Amendments, claims, reimbursement, indexation, late interest and budget reserve are grouped together due to the sensitivity of this information. The list is based on the current information at the time of writing the Work Programme. During the implementation of the Work Programme activities, F4E may identify the need for new calls, group more activities in a single call or split one activity in more calls. This will in any case

<sup>3</sup> In accordance to F4E WBS implementation rules, whenever a procurement activity is in support of a specific WBS L3, the related procurement should be implemented under the mentioned WBS L3. This is not the case for general technical support activities to multiple WBSs (e.g. external resource to support overall risk management, etc.). In this case, they are included under Action 13

<sup>4</sup> For Action 12 Cash Contributions and Action 13 Technical Support Activities Annual M-SPI is not applicable.

<sup>5</sup> The threshold has been selected so to be in line with the FR.

be performed preserving the scope and objective presented in WP2024. Contracts that do not fulfill the Work Programme scope identified for each Action are not covered by this financial decision and therefore will not be authorized. A change to this list shall be considered as a non-substantial for the purposes of the Article 32 point 4 of the F4E Financial Regulations if not affecting the available budget for 2024 within the limit of the flexibility rule and if any related changes to the scope of the annual Work Programme do not have significant impact on the nature of the Actions or on the achievement of objectives of the multiannual Project Plan.

ii. Value per Action: WP\_Table 2 presents an indicative value of financial resources corresponding to each Action. F4E has evaluated the level of commitments planned for the Actions in 2024 by taking into account the progress of the project and the available manpower. A good implementation of the annual commitment is one of the objectives for F4E (see PP\_Table 7 in Annexes to Project Plan). Any additional budget required and exceeding the currently available one will consist of unused appropriations adjusted to match the final needs.

iii. Indicative timeframe for launching the procurement and type of procedure/contract: the foreseen time of publication of calls and type of contracts is shown in WP\_Table 5 of these annexes. The dates are indicative only and based on the present understanding of the project development. For specific contracts and specific grants or use of Joint Procurements the foreseen time of publication of calls is not included as no formal publication will take place (the signature date is used to give anyway an indication of time). Publication of the call for tender is intended as the date of publication on the Industry Portal (for open procedures/call for proposals) and the date of the Invitation letter to be sent out to the Suppliers (for negotiated procedures). For restricted procedures and competitive dialogues this milestone refers to the date of the call for expression of interest (first phase of the procedure).

iv. The plan may cover some activities moved from previous years into WP2024 due to changes in the overall planning and priorities.

v. The plan does not (and cannot) include the consequences for the Action of PCRs and deviations approved by the IO Director General or his delegates in the frame of Reserve Fund Management Plan. As a result, these will be implemented under the budget line 3.6. For information, F4E will present to the final meeting of the GB each year, in an amendment to the Work Programme, a summary of the PCRs agreed within the year and the activities that the PCRs (including those agreed in previous years) have funded.

vi. Grants and specific Grants are clearly identified and information is provided to fulfill art.58 of the Financial Regulation (see WP\_Table 4 of these annexes).

vii. Framework Partnership Agreements (FPA) or Framework Contracts (FWC) are included in the year of signature for clarification purposes only and do not constitute part of the financing decision.

3. Some of the Work Programme activities refer to provision for recurrent activities with the same ultimate objective of supporting the final achievement either of the design (e.g. CAD support, engineering analyses, etc.), the manufacturing process (e.g. QA/QC Inspectors, engineering support for deviations analyses, CE marking, etc.) as requested in ITAs/PAs, or the site support services (access control and security, Facility Management Services, etc.). Therefore the description in terms of the financing decision does not change significantly from one year to the next.

## 2. OBJECTIVES AND KEY PERFORMANCE INDICATORS

### Work Programme objectives

The Work Programme objectives are the achievement on time of a selected number of milestones. A minimum of 4 objectives is provided per Action as described in below section 3.

There is a close link between the long-term planning (i.e. Project Plan) and the short-term activities (i.e. work programme). In the Work programme, F4E is tracking as Work Programme objectives some selected existing milestones leading to the IC/GB ones (i.e. the predecessors) and in the chain of all critical and near-critical paths. Therefore such milestones in the short-term will act as an alert against the increasing risk of missing any critical and near-critical path milestones in the longer term.

### Annual objectives

From the full list of Annual objectives described in the Project Plan, the following ones apply directly to the Work Programme:

AREA	Objective
Annual M-SPI	SPI above defined value
Annual commitment budget	Implement a defined percentage of commitment appropriations by end of the year
Budgeted forecast of the Work Programme	Implement a defined percentage of allocated commitment appropriations the Work Programme Actions without reserves, by the end of the year

### Key Performance Indicators

From the full list of Key Performance Indicators described in the Project Plan, the following ones apply directly to the Work Programme:

#### Annual M-SPI

$$\frac{\text{Number of milestones with Status = Completed}}{\text{Number of milestones with reference date} \leq \text{Current month}}$$

#### Annual commitment budget

$$\frac{\text{Actual commitment executed to date} + \text{remaining commitment planned to be executed between date and year's end}}{\text{Latest approved annual commitment budget}}$$

#### Annual budgeted forecast of Work Programme

$$\frac{\text{Actual commitment executed to date} + \text{remaining commitment planned to be executed between date and year's end}}{\text{Latest approved budgeted forecast of the Work Programme Actions}^6}$$

<sup>6</sup> Excluding Reserves

### 3. LIST OF WP2024 ACTIONS

#### Action 1. Magnets

Action 1	Magnets			
<p><b>Poloidal Field Coils</b></p> <p><u>Progress of Work</u></p> <p>The final manufacturing and testing activities of the last PF Coil #3 will be completed (some final assembly activities and cold test). The Coil will be delivered to IO.</p> <p>The last TF Coil will be delivered to IO.</p> <p><u>Procurement Activities</u></p> <p>Amendments and/or options for existing contracts may be signed (i.e., contract extensions, claims, deviation notices, etc.).</p> <p>Task orders related to quality inspection services or production support might be signed to reinforce the PF Coil manufacturing activities.</p> <p>Some task orders might be signed to cover for Engineering, Qualification and Testing activities related to the manufacturing of the coils.</p> <p>Some minor complementary Contracts and/or task orders might be signed, if needed, to support the production in the PF Building (i.e., Framework Contracts for materials, services, etc.)</p>				
<b>WORK PROGRAMME OBJECTIVES</b>				
Milestone ID	Scope description	Forecast Achievement Date	Type of Milestone	PA/ITA
EU11.3B.01160	IPL > Delivery of PF3 Coil by EU-DA to IO	Q2 2024	WP24 objective	PA 1.1.P3A-B.EU.01 Poloidal Field Magnets 2,3,4,5,6
EU11.1A.11820	IPL > Delivery of TF18 (EU 10) by EU-DA to ITER Site	Q2 2024	WP24 objective	PA 1.1.P1A.EU.01 Procurement of Toroidal Field Magnets
EU11.1A.28115	HPC- Approval by IO for Document CFAD (HP 9.1.6) / TF-EU10 (IC64 /GB54)	Q2 2024	GB54	PA 1.1.P1A.EU.01 Procurement of Toroidal Field Magnets
<b>EXPECTED RESULTS</b>				
<p>The main expected results for this action are:</p> <p>Deliver the last PF Coil to IO and close Magnets Program.</p>				
<b>TARGET</b>				
<p>The target for 2024 is "Annual M-SPI <math>\geq</math> 0.8"</p>				

## Action 2. Vacuum Vessel

Action 2	Vacuum Vessel			
<p><b>Main Vessel</b>  <u>Progress of Work</u></p> <p>The manufacturing of the Vacuum Vessel will continue during 2024. Sector 5 will be delivered to Cadarache. The welding of Sector 4 will be fully completed by Q3 and for the final machining of the Field Joints will be completed in Q4. Hydraulic Factory Acceptance Tests will be performed after machining in Q1 2025 to mitigate the risk of delays. Only one side of the Field Joint of Sector 4 will be machined due to unavailability of a turning frame in Walter Tosto. Sectors 9, 3 and 2 will have entered in the final assembly phase.</p> <p><u>Procurement Activities</u></p> <p>Provisions will be made for the transportation of the sectors to the ITER site, resolution of non-conformities if required (including, but not limited to possible out of tolerances), possible continuation of incentive schemes and/or other actions for schedule stabilization, inspectors, additional ANB support and the possibility to add specialized resources to the project. Contractual options for the Main VV contract may be released, as needed.</p> <p>Specific Contracts for support activities, like on-site Inspectors, Documentation Support, Engineering and Analysis, Project Management support, Experts etc... will continue to be issued depending on the project needs.</p>				
<b>WORK PROGRAMME OBJECTIVES</b>				
Milestone ID	Scope Description	Forecast achieve ment date	Type of milestone	PA
EU15.1A.08500	IPL > Delivery of Sector 5 by EU-DA to ITER Site	Q4 2024	GB16	PA 1.5.P1A.EU.01 Vacuum Vessel - Main Vessel
EU15.1A.3081300	S5 START OF FAT	Q1 2024	Predecessor of GB16	PA 1.5.P1A.EU.01 Vacuum Vessel - Main Vessel
EU15.1A.3119198	S9 - Start of Outer Shell fit-up	Q4 2024	Predecessor of GB25	PA 1.5.P1A.EU.01 Vacuum Vessel - Main Vessel
EU15.1A.80540	S9 Inner Shell welding completed	Q2 2024	Predecessor of GB25	PA 1.5.P1A.EU.01 Vacuum Vessel - Main Vessel
<b>EXPECTED RESULTS</b>				
<p>The main expected results for this action are:</p> <ol style="list-style-type: none"> <li>1. Completion of the welding of Sector 4 and machining of Field Joints.</li> <li>2. Final machining of all segments of Sector 2 and 3 completed</li> <li>3. All segments of Sector 3 on the assembly frame</li> <li>4. All segments of Sector 2 on assembly frame</li> </ol>				
<b>TARGET</b>				
The target for 2024 is "Annual M-SPI $\geq$ 0.8"				

## Action 3. In Vessel – Blanket

Action 3	In Vessel - Blanket
<p><b>Blanket First Wall project</b></p> <p><u>Progress of Work</u></p> <p>The decision to discontinue the Be activities was taken by ITER Organisation in October 2023 (i.e. with the approval of the corresponding PA Change Notice). Therefore, only the non-Be activities are continuing during 2024 under the current contractual configuration, including the start of the process to re-open the competition of the series manufacturing contract (limited to the First Wall panels structures), which is planned to be signed in 2025. Additional commitments related to the development/qualification of the new armour design (i.e. based on tungsten) maybe executed in 2024 and will be subject to decisions expected during the year 2024 from ITER Organisation.</p> <p>In 2024, both contractors of the Blanket First Wall Series (F4E-OMF-900) will continue the manufacturing activities of the first wall panel structures (i.e. excluding the armour). Task 1, namely Engineering &amp; Production Line Setup, was expected to be completed by both contractors during 2024 but it has been impacted by the change of the First Wall armour material and the planned date is now 2025 for both suppliers. The procurement of main raw materials (only for CuCrZr) will continue to be implemented through task orders. These materials are being provided as free issued items to the Suppliers in charge of FW Panels manufacturing. In support of the main procedure OMF-900, material characterisation activities will be carried out through task orders of the OMF-1082. Since the F4E-OMF-900 is a cost-plus-fee type of contract, financial audits will be performed under the F4E-OFC-1094.</p> <p>The planned progress of work is subject to the availability of internal resources.</p> <p><u>Procurement Activities</u></p> <p>A new task order for material characterization and related options in support to the F4E-OMF-900 will be signed. Specific task orders for thermo-mechanical analysis of first wall panels are planned. In addition, specific task orders for audit services of the cost-plus fee type of contract F4E-OMF-900 are planned. External support needed for the follow-up of the FW panels production will be sourced through specific contracts under existing framework contracts.</p> <p>Any further decision on the potential change of the First Wall armour material (e.g. on the final design of the armour) may impact the scope of activities under WP2024. Additional commitments related to the development/qualification of the new armour design maybe executed in 2024. Commitments related to residual obligations on beryllium management may be executed as well.</p> <p>The planned procurement activities are subject to the requested allocation of internal resources.</p> <p><b>Blanket Cooling Manifolds project</b></p> <p><u>Progress of Work</u></p> <p>In 2024, the main activity will be the continuation of the qualification phase and of the manufacturing of the first inboard and outboard pipe bundles (Task 1 of OMF-1080, two suppliers). Moreover, activities under Task Order 8 will continue aimed at the procurement of</p>	



316L ITER grade raw material for the manufacturing of the blanket cooling manifolds. Additional activities for design and testing of alternative support will continue.

Technical specification for Task 3 will be finalized and the contract, following the re-opening of competition procedure, will be signed.

Acceleration actions, aimed to increase the confidence in the schedule for Tasks 2, 4 and 5, will have relevant impact on the commitment plan from 2025 on. However, during 2024, technical analysis will be performed together with IO to optimise the manifolds customization activities.

The planned progress of work is subject to the availability of internal resources.

#### Procurement Activities

The main procurement activity planned in 2024 is the signature of Task 3 Chimney Pipes. Additional activities for design and testing of alternative support are planned to be signed.

External support needed for the follow-up of OMF-1080 tasks will be sourced through specific contracts under existing framework contracts.

### WORK PROGRAMME OBJECTIVES

Milestone ID	Scope description	Forecast Achievement Date	Type of Milestone	PA/ITA
EU15.2A.10200	Task Order Signed for Task 3 - Chimney Pipes	Q4 2024	WP24 objective	PA 1.6.P6.EU.01 Blanket Manifolds
EU15.2A.12115	Manufacturing Inspection Plan approved for Task 1.A (#01)	Q3 2024	WP24 objective	PA 1.6.P6.EU.01 Blanket Manifolds
EU.16.01.101790	Request for Final Tenders for Release of TASK 3 - Reopening of competition #1 OMF-900	Q4 2024	WP24 objective	PA 1.6.P1A.EU.01 Blanket First Wall
EU.16.01.12406760	MS#03 Manufacturing Readiness Review approved for Task 1 and Task 2 of Standard parts	Q4 2024	WP24 objective	PA 1.6.P1A.EU.01 Blanket First Wall

### EXPECTED RESULTS

The main expected results for this action are:

- Blanket First Wall, F4E-OMF-900: Request for Final Tenders for Release of Task 3 – Reopening of Competition #1 OMF-900.
- Blanket First Wall, F4E-OPE-1138: Manufacturing Readiness Review approved for Task 1 and 2 of Standard Parts.
- Blanket Cooling Manifolds, F4E-OMF-1080 Task 1: Approval of the manufacturing inspection plan for Task 1A (first supplier) of the Blanket Cooling Manifold -part of the qualification phase of the first inboard and outboard pipe bundles.
- Blanket Cooling Manifolds, F4E-OMF-1080 Task 3: Signature of Task 3 for the procurement of Chimney Pipes for Blanket Cooling Manifolds.

### TARGET

The target for 2024 is "Annual M-SPI  $\geq$  0.8"

## Action 4. In Vessel – Divertor

Action 4	In Vessel – Divertor
<p>The Divertor (including the Cassette Bodies and Inner Vertical Targets (IVT)) will be requested for the first assembly phase. Schedule risk mitigation actions, requiring additional resources and budget, needed to increase the confidence in the delivery dates as requested by ITER Organisation, have been endorsed by F4E management.</p>	
<p><b>Cassette Body project</b></p>	
<p><u>Progress of Work</u></p>	
<p>In 2024, both contractors of the Divertor Cassette Body (CB) Series will continue the manufacturing activities. The focus will also be given to the continuation of the manufacturing activities of the contract OPE-1036 related to the fabrication of the transition pieces and Remote Handling flanges. Concerning the contract OPE-1112 of Ancillary Items of Pins, Sleeves and Links of the CB Series, the engineering phase and procurement of materials will progress as well.</p>	
<p>The planned progress of work is subject to the requested allocation of internal resources.</p>	
<p><u>Procurement Activities</u></p>	
<p>In 2024, the main commercial activities foreseen will be the indexation related to the CB series fabrication, TCWS &amp; RH Flanges, and Ancillary Items of Pins, Sleeves and Links. Additional external support (engineering, resident inspectors, metrology support, welding, training etc.) will be provided through task orders under existing framework contracts. Commitments for specific purchase orders related to maintenance and calibration and training sessions of tools are planned.</p>	
<p>Additional commitment for acceleration of Cassette Body series could be implemented by the end of 2024.</p>	
<p><b>Inner Vertical Target project</b></p>	
<p><u>Progress of Work</u></p>	
<p>In 2024, the prototype (under F4E-OMF-567) is completed, lessons learnt exercise under completion.</p>	
<p>The IVT Series production activities will continue, after the signature of the first specific contract in December 2022. The second specific contract was signed in August 2024. Focus will be on engineering, construction of the production lines, and procurement of materials. External support on ultrasonic testing will be provided during the qualification and production phases of the IVT Series.</p>	
<p>Additional commitments for schedule risk mitigation actions are not yet included in this WP2024 amendment.</p>	
<p>The planned progress of work is subject to the requested allocation of internal resources.</p>	
<p><u>Procurement Activities</u></p>	

In 2024, the main commitment foreseen is linked to the signature of the second specific contract for the IVT series. Release of options and commitments for indexations related to the IVT Series are planned.

Commitments for transportation of prototypes. PFUs and test assembly are also planned (either through cash contribution to IO or under the manufacturing contracts).

Given the current geopolitical situation, alternative solutions may have to be initiated by F4E, should HHF testing in Russia be not possible in the timeframe compatible with the IVT Series procurement schedule leading to additional commitments for the High Heat Flux testing in 2024.

External support will be needed to closely follow-up the fabrication of the IVT series contracts. These needs are planned to be provided through task orders under existing framework contracts.

**Divertor Rails project**

Progress of Work

The PA is planned for signature in early 2026.

It shall be noted that the 2025 progress will depend on the timely availability of the Procurement Arrangement documentation.

The planned progress of work is subject to the requested allocation of internal resources.

Procurement Activities: N/A

**WORK PROGRAMME OBJECTIVES**

Milestone ID	Scope description	Forecast Achievement Date	Type of Milestone	PA/ITA
EU17.01.1175580	HP - Reception of the Load Test Report the SF1 (CB#16)	Q4 2024	WP24 objective	PA 1.7.P1.EU.01 Cassette Body
EU17.01.1367140	Manufacturing approved for PFC Links Series by MRR Panel (M_PISLLI_04)	Q4 2024	WP24 objective	PA 1.7.P1.EU.01 Cassette Body
EU17.2B.982280	M_CAD-8_ Approval of the SSS manufacturing drawings- OMF-1139-01-01	Q4 2024	WP24 objective	PA 1.7.P2B.EU.01 Inner Vertical Target
EU17.2B.140310	OMF-1139-02-01 Signed for IVT Pre-Series and Series Stage I - OMF-1139-02-01	Q4 2024	WP24 objective	PA 1.7.P2B.EU.01 Inner Vertical Target

**EXPECTED RESULTS**

The main expected results for this action are:

1. Cassette Bodies, F4E-OMF-444: Hold Point – Reception of the Load Test Report the Support Frame #1 (Cassette Body#16)
2. Cassette Bodies, F4E-OMF-1112: Manufacturing approved for Plasma Facing Components Links Series by MRR Panel
3. Inner Vertical Targets, F4E-OMF-1139: Approval of SSS manufacturing drawings
4. Inner Vertical Targets, F4E-OMF-1139: Signature of the Specific Contract #2 for the IVT series production

**TARGET**

The target for 2024 is “Annual M-SPI ≥ 0.8”

## Action 5. Remote Handling

Action 5	Remote Handling
<p><b>Divertor Remote Handling System (DRHS)</b></p> <p><u>Progress of Work</u></p> <p>The focus will be given to the Final Design activities via two main development lines that will run in parallel: one for the Cassette Multifunctional Mover (CMM) and the other one for the Cassette Toroidal Mover (CTM). Final design activities will be accompanied with prototyping and laboratory test in some areas.</p> <p><u>Procurement Activities</u></p> <p>For both of the main development areas and the complementary activities, specific contracts will be launched through Remote Handling (RH) and Engineering Unit framework contracts. Contracts are also planned to be signed for final design and manufacturing.</p> <p><b>Cask and Plug Remote Handling System (CPRHS)</b></p> <p><u>Progress of Work</u></p> <p>Activities are organized in two parallel development lines. One focuses on the assembly casks that are first plasma components, the other one focuses on the nuclearized cask variants. Focus will be given to the manufacturing of the full scope of the first plasma systems. Final design activities will be accompanied with prototyping in some areas. Non-first plasma nuclearized casks will be continuing on the preliminary and final design development.</p> <p><u>Procurement Activities</u></p> <p>For both of the main development areas and the complementary activities, specific contracts will be launched through Remote Handling (RH) and Engineering Unit framework contracts.</p> <p><b>Neutral Beam Remote Handling System (NBRHS)</b></p> <p><u>Progress of Work</u></p> <p>Activities are organized by subsystems and prioritized by their delivery needs for the different assembly stages. Main focus is given to the Monorail crane system that is first plasma item. Final design development and preparation for manufacturing of the Monorail crane system will continue, other non-first plasma systems will continue preliminary design developments towards design review. Final design activities will be accompanied with prototyping and laboratory test in some areas.</p> <p><u>Procurement Activities</u></p> <p>For the different development areas and the complementary activities, specific contracts will be launched through Remote Handling (RH) and Engineering Unit framework contracts. Contracts are also planned to be signed for final design and manufacturing.</p> <p><b>In-vessel viewing system (IVVS)</b></p> <p><u>Progress of Work</u></p>	

Main focus will be given to the final design development to move towards the design review and preparation for the manufacturing. Final design activities will be prepared/accompanied by manufacturing and testing in some areas.

#### Procurement Activities

For the different development areas and the complementary activities, specific contracts will be launched through Remote Handling (RH) and Engineering Unit framework contracts.

#### **Common activities (transversal)**

#### Progress of Work

Engineering support and expert activities will be performed for the four main operational activities, where needed. Complementary RH technology related design activities, qualification and prototyping will be carried out with a great focus on the field of control system, radiation hard technologies like electronics and cameras. Activities will be implemented (design and tests) aiming at manufacturing of first components (e.g. rad hard cameras and electronics) to be integrated in the RH systems.

#### Procurement Activities

Specific contracts will be launched through Remote Handling (RH) and Engineering Unit framework contracts in order to carry out supporting activities for the four main operational procurement and for complementary RH technology related design activities, qualification and prototyping. Contracts are also planned to be signed in some areas.

### WORK PROGRAMME OBJECTIVES

Milestone ID	Scope Description	Forecast achievement date	Type of milestone	PA
EU23.03.14069040	CPRHS TO-577-02-02 Subtask 9 CDS Lift completed	Q3 2024	Predecessor of GB41	PA 2.3.P3.EU.01 Cask and Plug Remote Handling System
EU23.03.14074440	CPRHS OMF-1034-01-06 DDL-047 D2.5.02 Assembly Drawing CTS	Q4 2024	Predecessor of GB40	PA 2.3.P3.EU.01 Cask and Plug Remote Handling System
EU23.05.14054460	M6 - CDH Concept Design Review [OPE-1252]	Q4 2024	Predecessor of GB42	PA 2.3.P5.EU.01 Neutral Beam Remote Handling System
EU57.01.14062860	[M12] CMS Prototype tested successfully	Q4 2024	Predecessor of GB47	PA 5.7.P1.EU.01 In-Vessel Viewing System

### EXPECTED RESULTS

The main expected results for this action are:

1. Tendering the DRHS FwC for Design, Manufacturing of CTM, CMM and Tooling
2. Preparation for the final design review meeting of CPRHS MA CES/CHS system
3. Final design development of NBRHS first plasma system
4. Final design development of IVVS Measurement and deployment system

### TARGET

The target for 2024 is "Annual M-SPI  $\geq$  0.8"

## Action 6. Cryoplant and Fuel Cycle

Action 6	Cryoplant and Fuel Cycle
<p><b>Fuel cycle</b></p> <p><b><u>Progress of Work</u></b></p> <p>The type A radwaste treatment and storage system is expected to be transferred to IO.</p> <p>In the frame of the PA for REMS (Radiological and Environmental Monitoring Systems), the contract for design and manufacturing of individual monitoring system and environmental monitoring system that was initially needed for 1st plasma will focus on design activities and formalization of contract changes (de-scoping/contract termination) to adapt to the new ITER baseline. Task Orders related to Design and risk mitigation activities of REMs for Tokamak complex will continue and additional Preparation activities for specific Framework contract for REMS Tokamak are planned.</p> <p><u>Tritium plant:</u></p> <p>For Isotope separation system work of the integrated team will focus on definition of technical requirement, de-risking activities and preparation of procurement arrangement.</p> <p>For water detritiation system work of the integrated team will focus on definition of technical requirement, de-risking activities and preparation of procurement arrangement.</p> <p>For <u>vacuum pumping:</u></p> <p>Torus and Cryostat Cryopump system (TCCS) will focus on manufacturing and testing activities.</p> <p>The manufacturing of Neutral Beam scope for the Front-end Cryopump Distribution system (FECDS) will continue.</p> <p>The instrumentation and control (I&amp;C) cubicles needed for 1<sup>st</sup> plasma scope for the TCCS and FECDS will be manufactured. The design activities for the I&amp;C scope related to neutral beam FECDS will continue and contract to cover manufacturing phase will be signed (via new contract or amendment to an existing one).</p> <p>For Neutral beam cryopumps system, activities will focus on definition of technical requirements and preparation of procurement arrangement signature.</p> <p>Design and qualification of leak Detection systems will continue.</p> <p>Leak Localization systems manufacturing will be completed.</p> <p><b><u>Procurement Activities</u></b></p>	

- Contract signature for manufacturing of Neutral Beam Cold Valve Boxes instrumentation and control (via amendment to an existing contract or a new specific contract) <sup>7</sup>
- Amendment to an existing contract may be signed.
- Specific Contracts for support activities like Inspectors, Documentation Support, Engineering and Analysis, Project Management support etc, will continue to be issued depending on the project needs.

**Cryoplant**

Progress of Work

The commissioning of the LN2 Plant and Auxiliary Systems located in the Cryoplant building at Cadarache will continue.

Procurement Activities cryoplant

- Amendments to existing contracts may be signed.
- Specific Contracts for support activities like Inspectors, Documentation Support, Engineering and Analysis, Project Management support etc. will continue to be issued depending on the project needs.

**WORK PROGRAMME OBJECTIVES**

Milestone ID	Scope Description	Forecast achievement date	Type of milestone	PA
EU31.01.10261	IPL > Delivery of First Torus & Cryostat Cryopumps by EU-DA to ITER Site	Q2 2024	GB33	PA 3.1.P1.EU.03 Torus and Cryostat Cryopumps
EU31.01.12290	Strategy proposal of PA Amendment 3.1.P1.EU.04 for NB Cryopumps	Q3 2024	Predecessor of GB50	PA 3.1.P1.EU.04 Neutral Beam Cryopumps
EU31.03.25790	Pre-FDR completed for CDLDS and NBDLDS	Q4 2024	Predecessor of GB35	PA 3.1.P3.EU.01 Primary and Cryostat Leak Detection System
EU31.03.40260	Cryostat Direct Leak Detection System qualification completed	Q4 2024	Predecessor of GB18	PA 3.1.P3.EU.01 Primary and Cryostat Leak Detection System

**EXPECTED RESULTS**

The main expected results for this action are:

<sup>7</sup> At the time of writing the Work Programme, there is a possibility that this commitment is signed in 2024 if it is done via amendment to an existing contract and in 2025 if it is signed as a new contract. The budget is nevertheless allocated to 2024

<ol style="list-style-type: none"> <li>1. Leak localization system Factory Acceptance Tests will be completed.</li> <li>2. Commissioning LN2 compressors completed.</li> <li>3. First Torus and Cryostat cryopumps delivered.</li> <li>4. Manufacturing readiness review for Neutral Beam Cold valve boxes completed.</li> <li>5. Radiological and environmental monitoring system: Static magnetic field pre-testing for main Tritium monitors in Europe completed</li> <li>6. Neutral Beam cryopumping system: agreement on main technical requirements needed as input for the final design review</li> <li>7. Water detritiation system: agreement in the integrated team on the procurement arrangement approach</li> <li>8. Isotope separation system: agreement in the integrated team on the procurement arrangement approach</li> </ol>
<b>TARGET</b>
The target for 2024 is "Annual M-SPI $\geq$ 0.8"

Action 7. Plasma Engineering & Operations

<b>Action 7</b>	<b>Plasma Engineering &amp; Operations</b>			
<b>ITER Operations</b>				
<p>The activities preparation of ITER operation will focus on preparation for longer term actions (for ITER integrated commissioning and operation) as well as some short-term actions (for system commissioning and assembly phases)</p> <p>The preparation of the F4E contribution to the organization of ITER Operation (collaboration framework with IO and the ITER parties, EU representation) includes contributing to the definition of the EU position in the definition of the ITER Operation organisation as well as setting up in F4E of framework for personnel assignment and of F4E coordinating mechanisms</p>				
<b>Procurement Activities</b>				
Not applicable				
<b>Plasma Engineering</b>				
<p>A relevant part of the PE activity responds to (often urgent) requests and hence it is difficult to plan in advance.</p> <p>This will include support on scenario preparation for first plasma and specific simulations and code development as needed, support to the development of the ITER Tokamak Monitoring System. Transversal support to F4E procurement remains in the Plasma Engineering scope.</p>				
<b>Procurement Activities</b>				
Not applicable				
<b>WORK PROGRAMME OBJECTIVES</b>				
<b>Milestone ID</b>	<b>Scope Description</b>	<b>Forecast achievement date</b>	<b>Type of milestone</b>	<b>ITA/PA</b>



Not applicable
<b>EXPECTED RESULTS</b>
The main expected results for this action are: 1. Provide support to ITER preparation for First Plasma.
<b>TARGET</b>
Not applicable

Action 8. Heating & Current Drive

Action 8	Heating & Current Drive
<p><b>Electron Cyclotron (EC) System Gyrotrons, Power Sources and Power Supplies (PS), EC Launchers and EC Control System</b></p> <p><u><b>Progress of Work</b></u></p> <p><u>EU EC Power Supplies</u></p> <ul style="list-style-type: none"> <li>• Installation of the four remaining units of the EU EC Power Supply will be completed</li> <li>• Commissioning will continue subject to building and site interfaces availability</li> <li>• Technical support of the EU EC Power Supplies will continue</li> </ul> <p><u>EU EC Gyrotrons</u></p> <ul style="list-style-type: none"> <li>• Design activities for the EU gyrotrons will progress towards preparation of the Final Design Review Work Plan and associated documentation Preparation activities for the Framework contract for the engineering support to the EU Gyrotrons and other EC systems will be completed</li> <li>• Preparation activities for the specific contract for the control system for the European Gyrotrons (FDR documentation) will be completed</li> <li>• Procurement of Long Lead components will start</li> </ul> <p><u>Electron Cyclotron (EC) Upper Launcher and ex-vessel waveguides</u></p> <ul style="list-style-type: none"> <li>• The Contractor will proceed with the design of Ex-Vessel Waveguides and Upper Launcher (UL) Systems towards the finalization of the design</li> <li>• Preparation activities for the subsequent specific contracts signature under the relevant framework contract covering the manufacturing and assembly of the Ex-Vessel Systems and the manufacturing of the remaining UL Sub-systems will progress</li> <li>• The contractor will proceed with the procurement of long lead materials for series production</li> <li>• Optical testing of diamond disks will continue</li> <li>• The design, validation and manufacturing of the isolation valve prototypes and valve qualification will start</li> </ul> <p><u>Electron Cyclotron Control System</u></p>	

- In recent negotiations with ITER IO it was decided to join the FDR of the Electron Cyclotron Plant Controller (ECPC) and of the Upper Launcher Subsystem Control Unit (EC-UL-SCU). The FDR, considering the ITER re-baseline, is presently planned in 2028. Therefore, in 2024 the activity will focus on the commissioning of the delivered systems and will include preparation for future FDR of the ECPC Stage 3 system and of EC-UL-SCU Stage 2.

### **Procurement Activities**

#### Common activities:

- The framework (OFC-1581) for engineering support services for EC projects will be signed
- Some Engineering Studies and Engineering Support activities will be performed, implemented via ITAs
- Other contracts are foreseen to support these main activities (e.g., engineering, design, analyses, resources, inspectors, prototyping), most of them specific contracts under existing frameworks and expert contracts

#### Electron Cyclotron (EC) Power Supplies:

- Supporting activities for site support are foreseen

#### Electron Cyclotron (EC) Gyrotrons:

- The Task Order for Technical Follow-up of Gyrotron Tubes & Super Conducting Magnets for the EU Gyrotrons will be signed
- The Task Order for the FDR documentation of the EU Gyrotrons Control System will be signed

#### Electron Cyclotron (EC) Upper Launcher and ex-vessel waveguides

- The task order for the design finalization of the isolation valves including manufacturing of two prototypes will be signed
- Task Orders for the testing of the diamond window unit prototype will be signed
- Task Orders for additional RF testing will be signed
- Additional options and Task Orders under the relevant Framework Contract for the Design Finalization and Supply of the Electron Cyclotron Upper Launchers and Ex-Vessel Waveguides for ITER will be signed, covering part of the remaining scope (e.g., material procurement for series production)

#### Electron Cyclotron Control System:

- Task Orders for the preparation of the FDR under existing Frameworks will be signed
- Task Orders for HW prototypes under existing Frameworks will be signed

### **Neutral Beam Test Facility, Padua:**

#### **Progress of Work**

- MITICA Beam Source – Repairing and Assembly continuation foreseen during 2024
- MITICA Diagnostics – Fabrication will be completed and assembly will progress

- MITICA Beam Line Components – Delivery of Neutralizer (NED) and Electrostatic Residual Ion Dump (ERID) to the NBTF will be completed, assembly and testing activities of Calorimeter (CAL) will progress towards Factory Acceptance Test
- NBTF Assembly - MITICA cryopump assembly tool will be delivered
- NBTF Assembly - MITICA cryopump installation preparation will start
- NBTF Control System (CODAS) - MITICA instrumentation (Interlock System) manufacturing will start

#### **Procurement Activities**

- Some Engineering Studies and Engineering Support activities will be performed, implemented via ITAs
- Other contracts are foreseen to support the main activities (e.g., engineering, resources, inspectors), most of them specific contracts under existing frameworks and expert contracts
- MITICA Beam Line Component and Beam Source: supporting tasks for the final acceptance tests and delivery to RFX PRIMA site will be implemented.
- Specific contracts may be signed for the NB Test Facility within PRIMA Assembly Framework.

#### **Heating Neutral Beam (HNB) for ITER - Cadarache:**

##### **Progress of Work**

- HNB Vessels: Manufacturing design activities will proceed up to MRR
- HNB Beam Sources and Beam Line Components – Pre-procurement activities and PA preparation will progress subject to priorities and resource availability (Update of the technical specifications for the HNB units based on MITICA lessons learned)
- HNB Drift-Ducts: Preparation of technical documentation will proceed and the procedure will be launched
- HNB Absolute Valves: Technical specifications for the feasibility study will be finished and feasibility studies by tenderers will start under the lead of IO
- Passive Magnetic Shielding (PMS) and Active Correction Compensation (ACC) Coils: PA preparation activities for 53.05 Neutral Beam Magnetic Shielding will progress and tendering preparatory activities for contract signature will start.
- NB Power Supplies: First deliveries of AGPS-CS and GRPS will take place. High voltage deck and bushing assembly manufacturing activities will be completed. Engineering activities for ITER Heating Neutral Beam (IHNB) control system will start.
- Assembly Tooling: The procurement procedure for the supply of the assembly tools for ITER will proceed up to the contract signature.

##### **Procurement Activities**

- Some Engineering Studies and Engineering Support activities will be performed, implemented via ITAs
- Other contracts are foreseen to support the main activities (e.g., engineering, design, analysis, resources, inspectors), most of them specific contracts under existing frameworks and expert contracts
- HNB Absolute valves: A cash contribution will be made to IO in order to fund a feasibility study (to be led by IO) to widen the market on the NB absolute valves

- NB Power Supplies: Specific tasks and options will be released, in accordance with the contract implementation status
- Assembly Tooling: The contract for the assembly tooling for ITER will be signed

**Ion Cyclotron Antenna**

No activities are foreseen in 2024.

Following agreement between F4E and IO, the IC antenna procurement scope was transferred through a Level-0 PCR (#1271) from the original share of F4E, without contractual impact, since the PA had not yet been signed.

**WORK PROGRAMME OBJECTIVES**

Milestone ID	Scope Description	Forecast achievement date	Type of milestone	PA
EU52.01.3000010	Option 1 Signed for TO1 for Design Finalization, Manufacturing & Assembly of the EC UL Port Plug	Q2 2024	Predecessor of GB46	PA 5.2.P1B.EU.02 Electron Cyclotron Upper Launcher
EU52.01.4001240	EC Upper Launcher - Design Description Document for UL system - Completed	Q3 2024	Predecessor of GB46	PA 5.2.P1B.EU.02 Electron Cyclotron Upper Launcher
EU52.03.17200	Task Order Signed for Technical Follow-up of Gyrotron Tubes & Super Conducting Magnets	Q4 2024	WP24 objective	PA 5.2.P3.EU.01 Electron Cyclotron Gyrotrons
EU53.TF.4446460	Delivery On-Site Completed (M89) - MITICA Neutralizer	Q3 2024	WP24 objective	PA 5.3.P9.EU.01 Neutral Beam Test Facility Components

**EXPECTED RESULTS**

The main expected results for this action are:

1. Finalization of the design for the UL System
2. Optical testing to be completed for 38 diamond disks
3. Ground Related Power Supply (GRPS) first delivery to ITER site
4. Acceleration Grid Power Supply – Conversion System (AGPS-CS) first delivery to ITER site
5. HV bushing assembly manufacturing completed
6. Delivery of MITICA Electrostatic Residual Ion Dump

**TARGET**

The target for 2024 is “Annual M-SPI ≥ 0.8”

Action 9. Diagnostics

Action 9	Diagnostics			
<p><u>Progress of Work</u></p>				
<p>The Diagnostics Programme will continue during 2024 with the manufacture of several components or systems for delivery to ITER, mostly for the Start of Research Operations (SRO). These include mainly in-vessel supports, in-vessel cables and vacuum vessel feedthroughs, some of which will be delivered within the year. Manufacturing of fission chambers for the radial neutron camera will also begin.</p>				
<p>Preliminary and final design review meetings will be held for several of the Diagnostics systems and subsystems. For the equatorial visible/IR wide-angle viewing system of equatorial port 12, final design will be completed for both ex-vessel components and for electronics and software with approval to close the corresponding final design reviews.</p>				
<p>Design of the radial neutron camera, the diagnostic pressure gauges and the port-mounted bolometer cameras will progress within existing framework partnership agreements. Design of the equatorial visible/IR wide-angle viewing system for equatorial ports 3, 9 and 17 will progress under an existing design grant. Design of the remaining systems and sub-systems will progress under task orders within existing design framework contracts or, for the in-divertor electrical services, within an existing contract.</p>				
<p>For port structures and the integration of Diagnostics into the ports, works will continue to address change requests to the approved FDR design, associated with changes to the design of tenant systems in the ports as well as to integrate glow discharge electrodes newly required for boronisation of the tungsten first wall in ITER.</p>				
<p><u>Procurement Activities</u></p>				
<p>Procurement activities will focus mainly on the preparation for, and tendering process of framework contracts with scope that includes manufacture of several systems or sub-systems needed for SRO, as well as on placement of task orders for manufacture of SRO components within existing framework contracts. Task orders will also be placed within existing framework contracts to support updates to the design integration for the ports, prior to preparation of specifications for tender of manufacture of the first port systems.</p>				
<p>These will be complemented with contracts and task orders for the production and testing of prototypes and task orders for the provision of industrial expertise and for engineering analysis, as well as amendments of on-going grants and contracts (including specific contracts) as necessary. In-sourcing of personnel is foreseen to support the Programme during 2024, as is the use of Inspectors for manufacturing contracts and Experts in specialist areas, including in support of design reviews.</p>				
<p>It has been foreseen a possible cash transfer to IO related to the AG magnetic sensors brazing activities prior added to F4E scope via PCR-1411 and currently foreseen to be performed by IO.</p>				
<p><b>WORK PROGRAMME OBJECTIVES</b></p>				
<p><b>Milestone ID</b></p>	<p><b>Scope Description</b></p>	<p><b>Forecast achievement date</b></p>	<p><b>Type of milestone</b></p>	<p><b>PA</b></p>

EU55.02.226450	PDR Panel Approval of Chit Resolution Plan for VV & DIV Cameras	Q4 2024	WP24 objective	PA 5.5.P1.EU.03 Diagnostics - Bolometers
EU55.06.697220	IPL > Delivery of in-vessel cables for VV Sector 3 (Batch 7) by EU-DA to IO ITER site	Q4 2024	WP24 objective	PA 5.5.P1.EU.18 Diagnostics - Tokamak Services
EU55.06.707200	PQMP Vactron Approved	Q4 2024	Predecessor of GB36	PA 5.5.P1.EU.18 Diagnostics - Tokamak Services
EU55.11.205760	Approval of chit close-out action plan for resolution of CAT-1 chits raised at PDR for ExV Components	Q3 2024	WP24 objective	PA 5.5.P1.EU.04 Diagnostics - Core-Plasma Charge Exchange Recombination Spectrometer
<b>EXPECTED RESULTS</b>				
<p>The main expected results for this action are:</p> <ol style="list-style-type: none"> <li>1. Completion of final design for equatorial visible/IR wide-angle viewing system for equatorial port 12 ex-vessel components.</li> <li>2. Completion of final design for equatorial visible/IR wide-angle viewing system for equatorial port 12 electronics and software.</li> <li>3. Deliveries of tokamak services in-vessel supports.</li> <li>4. Deliveries of tokamak services in-vessel cables</li> </ol>				
<b>TARGET</b>				
The target for 2024 is "Annual M-SPI ≥ 0.8"				

Action 10. Test Blanket Module

Action 10	Test Blanket Module
<p><u>Progress of Work</u></p> <p>The Design and Safety Analysis activities for TBM Sets and Ancillary Systems will continue for the completion of the preliminary design and the first step of the final design.</p> <p>The consultancy of an Agreed Notified Body will continue as well as the handling and storage of EUROFER and other steel products.</p> <p>The activities for the development of the TBM sets Industrial Feasibility and Fabrication Technologies will continue, as well as for the EUROFER semi-finished product.</p> <p>The collaboration with EUROfusion and EFLs will continue for the R&amp;D in support to TBM, and the technical activities of the TBM/BB joint team will start.</p> <p>The definition and codification of EUROFER design limits in RCC-MRx design and construction code will continue.</p> <p><u>Procurement Activities</u></p> <p>It is planned to launch/conclude procurement procedures for the start or the continuation of the following activities among others:</p>	

- Completion of the preliminary design of the TBM sets, of Ancillary Systems and of the related Safety Analyses and studies;
- Preparation of the final design of the TBM sets and of the related safety analyses and studies;
- Preparation of the final design and manufacturing of the Ancillary systems;
- Continuation of the Consultancy support by an Agreed Notified Body;
- Proof of the TBM-sets fabrication and assembly processes feasibility;
- EUROFER semi-finished products;
- Handling and Storage of EUROFER and steel materials;
- Definition and codification of EUROFER design limits in RCC-MRx;
- The transport of EUROFER and other materials/products to and from the storage facility.

In addition, specific contracts for support activities like engineering and analysis, experts, project management support, system engineering management and in-sourced staff may be issued depending on the project needs.

Moreover, if requested and approved by the TBM-Project Team Steering Committee, a cash contribution has to be transferred to IO in order to execute TBM-PT activities common to several ITER Members.

The Test Blanket Module Systems procurement plan is not in response to PA or ITA but to the TBM Arrangements (TBMs).

No activities are credited.

#### WORK PROGRAMME OBJECTIVES

Milestone ID	Scope Description	Forecast achievement date	Type of milestone	PA
EU56.01.1242855	Task Order Signed for TO1 for FwC for EUROFER design limits codification in RCC-MRx	Q4 2024	WP24 objective	NA
EU56.01.1259955	Task Order Signed for TO2 for Safety Studies in support of TBSs PD & FD	Q4 2024	WP24 objective	NA
EU56.02.1240200	TO4 Signed for Handling, Cutting Storage Serv for Steel Products related to the EU TBMs	Q1 2024	WP24 objective	NA
EU56.06.1242780	Technical Specification Approved for TO-01 OFC-1497 for EUROFER design limits codification in RCC-MRx	Q4 2024	WP24 objective	NA

#### EXPECTED RESULTS

The main expected results for this action are:

1. Continuation of the Preliminary design activities for WCLL TBS.
2. Continuation of the Preliminary design activities for HCCP TBS in collaboration with KO-DA.
3. Transmission to IO of the updated set of data in view of the new version of the ITER Preliminary safety Report.

<b>TARGET</b>
The target for 2024 is "Annual M-SPI $\geq$ 0.8"

## Action 11. Site and Buildings and Power Supplies

<b>Action 11</b>	<b>Site and Buildings and Power Supplies</b>
<u>Progress of Work</u>	
<p>The focus of the Buildings works will be to complete the civil works of the Tritium building (B14); to deliver the Tritium building (B14) available for IO equipment installation up to R1 level including the painting works; to progress on the procurement and installation of the cargo lift in the Tokamak building (B11); to progress on design, qualification, delivery and installation of the doors in the Tritium building (B14); to complete the Fast Discharge &amp; Switching Network Resistor building (B75), the Hot Water Boilers Building (B62) the Busbar Bridges (M1 and M2) and the Cryoline Bridge.</p> <p>The Emergency Power Supply Buildings (B44, B46), Medium Voltage Distribution Buildings (B45, B47) Civil Works and the Load Centers LC01, LC02, LC04, LC08, LC09, LC15 &amp; LC16 and the Medium Voltage MV04, MV05 &amp; MV06, construction will continue progressing.</p>	
<u>Procurement Activities</u>	
<p>New contracts to be signed by 2024 include:</p> <ul style="list-style-type: none"> <li>• AE II - Contract Architect Engineer Services II Q4 2024</li> </ul>	
<p>Amendments to running contracts:</p> <ul style="list-style-type: none"> <li>• Amendment with IO: Amendment 2 on Special Contribution Agreement to Partial Novation agreement to be signed Q3 2024.</li> <li>• Amendment 9 to the OPE-025 Contract to be signed in Q2 2024</li> </ul>	
<p>Specific contracts will be signed under ongoing framework support services and works contracts. This includes, for example, Task Orders i.e. Health and Safety Services Structural analysis, Electrical and Mechanical Works and Instrumentation and Control works, Building HMI Development, Engineering and Contract Management Consultancy Services (with special respect to cost and schedule assessment) and consultancy for advice on interpretation of French Regulatory Law 2012.</p>	
<p>Changes and exercise of options to the ongoing services and construction contracts in relation with PCRs, ITAs (ITER Task Agreement), MOU (Memorandum of Understanding) and input data delays, and re-allocation of scope between contracts, will be implemented through amendments to the ongoing contracts in line with the provisions of the Financial Regulation.</p>	
<p>Cash contribution will cover the ITER site host agreement and the ITER Site Services Agreement and MOU (Memorandum of Understanding) transaction.</p>	
<p>Specific cash compensation to IO as required in case of transfer of some activities from F4E to IO</p>	



<b>WORK PROGRAMME OBJECTIVES</b>				
<b>Milestone ID</b>	<b>Scope Description</b>	<b>Forecast achievement date</b>	<b>Type of milestone</b>	<b>PA</b>
EU62.05.460	IPL > Construction of Cryoplant Coldbox Building (52) Completed	Q4 2024	GB21	MAIN MILESTONES
EU62.604260	Construction of 2 Bus-Bar Bridges (between B32 &74 and B33 &74) Completed	Q3 2024	GB58	AUX BUILDINGS D&B TB12
EU62.886781	Civil works completed for MV Distribution Bldg LC/2B (47) - Level 4	Q3 2024	WP24 objective	AUX BUILDINGS D&B TB13
EU62.05.620	IPL > Construction of Fast Discharge & Switching Network Resistor Building (75) Completed	Q4 2024	WP24 objective	MAIN MILESTONES
<b>EXPECTED RESULTS</b>				
<p>The main expected results for this action are:</p> <ol style="list-style-type: none"> <li>1. To deliver the Cryoplant Coldbox Building (52) to IO</li> <li>2. To deliver the Busbar bridges 32-74, 33-74 to the IO for its suppliers works (ready for equipment - RFE)</li> <li>3. To complete Civil works for MV Distribution Bldg LC/2B (47) - Level 4 (after main civil works achieved in December 2023: steel works, parapets, support external panel, plasterboard panels).</li> <li>4. Construction completed on the Fast Discharge &amp; Switching Network Resistor Building (75)</li> </ol>				
<b>TARGET</b>				
The target for 2024 is "Annual M-SPI $\geq$ 0.8"				

## Action 12. Cash Contributions

Action 12	Cash Contributions			
<p><b>Cash contribution to IO</b></p> <p>This action covers the EURATOM in-cash contribution that F4E<sup>8</sup> shall deliver to ITER International Organisation (IO) in cash together with its contribution in-kind for the ITER project in accordance with ITER Agreement<sup>9</sup>.</p> <p>The present Work Programme includes the cash contributions to IO due by F4E for the following year N+1. The whole amount is committed in advance based on estimates of the IO draft budget N+1 and under the terms approved by ITER Council<sup>10</sup>.</p> <p><b>Cash Contribution to Japan</b></p> <p>The action also covers the transfer of procurement responsibility from EURATOM to Japan under the supervision of the ITER Organization in accordance with ITER Agreement. This is financed through a cash contribution from EU to Japan paid by F4E. An update of the schedule of payments is provided by the Japanese Domestic Agency (JA DA) twice a year.</p>				
<b>WORK PROGRAMME OBJECTIVES</b>				
<b>Milestone</b>	<b>Scope Description</b>	<b>Forecast achievement date</b>	<b>Type of milestone</b>	<b>PA</b>
EUC.01.280	Cash Contributions to ITER Organization 2025	Q4 2024	WP24 objective	NA
<b>EXPECTED RESULTS</b>				
<p>The expected result for this Action is to pay to IO the cash contribution as agreed by the ITER Council and to Japan as defined in the schedule for the relevant credits assigned to JA DA for those components transferred by the EU to them. The target for 2024 is to commit the cash contribution to IO for 2025 according to the decisions due to be taken by the ITER Council in November 2024.</p> <p>There are no commitments planned in 2024 for Cash contribution to Japan.</p> <p>Annual M-SPI NA.</p>				

<sup>8</sup> F4E is the European Domestic Agency that manages the EURATOM contribution to the ITER project.

<sup>9</sup> Article 8 "Resources of ITER Organization" (ITER Agreement 2006)

<sup>10</sup> According to Article 9 of ITER Agreement, the ITER Project Resource Management Regulations (PRMR Regulations) shall govern the administration of the resources of the ITER Organization. It provides a detailed description of the applicable rules for contributions in kind, cash income, commitments and payments for the ITER Organization. The final figures are approved or modified by the ITER Council.

## Action 13. Technical Support Activities

Action 13	Technical Support Activities
<p>The procurement of the supporting activities is mainly performed through Framework contracts and specific contracts.</p> <p><b>Technical Support to In-Kind Procurement</b></p> <p><b>Engineering Support activities</b></p> <p><u>Progress of Work:</u></p> <p>The Engineering Unit during 2024 will continue supporting the ITER Departments Programmes including BA department by providing them technical expertise in the key domains of engineering and fusion technologies.</p> <p>The unit will provide technical expertise in the following areas:            Design office activities, Technical Data Management, System Design, Mechanical Engineering, Analysis: Mechanical, Structural Dynamics, Civil engineering, Fluid Dynamics, Electro Magnetism, Nuclear Analyses; Plasma Engineering, Design Codes and Standards; Electrical Engineering; Instrumentation and Control; CODAC; Metrology, Material and Fabrication and Assembly Integration and Validation (AIV) and testing facility (FALCON).</p> <p><u>Procurement Activities:</u></p> <p>Beyond the preparation of task orders, the procurement activities in the Engineering Unit will be mainly focused on renewing Framework Contracts, for adapting the level of support to the needs of the Programmes. Grants may also be signed for various actions.</p> <p><b>Safety &amp; Quality</b></p> <p><u>Progress of Work</u></p> <p>The scope of Nuclear Safety includes the oversight of the implementation of all nuclear safety requirements by F4E and its contractors. The Nuclear Safety activities also provide support to the project teams involved in PIC/PIA (Protection Important Components/Activities) to ensure compliance with the necessary regulation. This includes support to nuclear safety management, identification of optimum positions for key nuclear safety issues, review of relevant documentation and nuclear safety inspections in F4E suppliers' premises. Nuclear Safety also includes CE marking support to F4E Project Teams in assessments and reviews, for each PBS, of the compliance with CE marking directives and regulations (mainly Pressure Equipment Directive, Machinery Directive, Low Voltage Directive, Electromagnetic Compatibility Directive, Explosion Protection and Construction Product Regulation). The Nuclear Safety group also organizes workshops, seminars and other activities to raise and re-enforce the nuclear safety awareness within F4E.</p> <p>The scope of Quality Assurance includes the support to project teams to ensure that the F4E quality requirements are correctly implemented and managed for the F4E contribution to ITER. In particular, support is provided in both domains of Quality Assurance (QA) and Quality Control (QC). As for QA, support aims at ensuring that F4E's QA processes are properly followed in the development of the different ITER projects and in line with the F4E Quality Management</p>	

Policy. As for QC, the support to the projects will be provided in the follow-up and control of the activities performed by F4E's contractors.

The scope of Quality Management & Documentation Management includes the support the operational departments and the project teams to ensure that the Quality Management System (including its processes) and the Documentation Management System are maintained and improved, with focus on reporting, digitalisation and simplification.

Safety & Quality also includes support activities for Occupational Health & Safety.

Another stream of support that might be needed is the activity of alignment of the Quality Management System with the ISO19443.

#### Procurement Activities

Task Orders and contractual Options of Task Orders already in force, Purchase Orders and Procurement Procedures for Direct Service Contracts will be issued to continue to support the Project Teams at F4E's or at suppliers' premises. F4E will be also supported by experts on Nuclear Safety expertise, funded by F4E through expert contracts.

### **Systems Integration and Performance**

#### Progress of Work

System Integration and performance supports the Head of Projects Department with respect to the scope of the EU in-kind components for ITER, in representing F4E towards the ITER Organisation and to the scope of Broader Approach and Roadmap projects. Among the main tasks are: the interaction with IO on the project technical baseline, including change control, and participation to the Configuration Control Boards, the management of transversal technical issues impacting several PTs, the coordination of F4E participation to ITER Independent Reviews and working groups focused on technical matters and the assurance of consistency, adequacy and maturity in relevant Design Reviews. The scope includes also the development and implementation of Systems Engineering practices, processes and tools and to support their correct deployment by the Project Teams. To cover this scope, external manpower is contracted across several areas, including Requirements Management and Verification (RMV) with emphasis on Verification, Design and Manufacturing Readiness Reviews, Interface Management, and other Systems Engineering topics.

#### Procurement Activities

Task Orders will be issued and contractual Options will be released as well in Task Orders already in force to continue to support the F4E Project Teams and to complement the in-house Configuration Management, Technical Integration and Issues Management capabilities with expert support from specialized companies.

### **Project Performance Management**

#### Progress of Work

The Project Performance Management (PPM) Unit contributes to the delivery of project results by providing project management expertise and qualified project management professionals in the key areas of project management, namely schedule, cost, and risk management. PPM unit is responsible for developing project baselines, identifying risks, issues, and deviations from project baseline, and proposing preventive/corrective actions. It performs the activities of schedule management, risk plan, EAC (maintaining EAC data in the systems) with an independent role for schedule forecast, cost estimation and risk assessment in the

programmes/projects, following the Head of Projects' delegation. The unit also coordinates and prepares the performance monitoring and reporting during project execution and drive project decisions ensuring proper consideration of schedule, cost and risk aspects. The preparation and update of the project teams actions as part of the annual and multi-annual programme planning documents is also included.

#### Procurement Activities

Task Orders and contractual Options of Task Orders already in force will be issued to continue to ensure the maintenance and update of the cost, schedule, risk information in the specific tools.

### WORK PROGRAMME OBJECTIVES

Milestone ID	Scope Description	Forecast achievement date	Type of milestone	PA
EU.ES.01.99200	Published Call for Tender for Provision of CAD Design Support Services	Q2 2024	WP24 objective	All
EU.ES.02.95640	FWC OMF-1674 for Provision of Support in the Area of Nuclear Analysis signed	Q4 2024	WP24 objective	All
EU.NS.01.35080	Framework Contract F4E-OMF-1532 signed for Nuclear Safety Inspections Support	Q2 2024	WP24 objective	All
EU.PE.6103150	Amendment Signed for Plasma Engineering Studies Part I – Modelling for load specifications	Q3 2024	WP24 objective	All
EU.PM.3142420	Framework Contract F4E-OMF-1544 signed for Quality Control Inspectors for Protection Important Components (PIC) of ITER Project	Q2 2024	WP24 objective	All

### EXPECTED RESULTS

The main expected results for this action are:

1. Continuation of Implementation of the framework contracts which will allow Fusion for Energy to get external support in the field of Area of Nuclear Analysis and Neutronics, CAD Design.
2. Signature of a new Framework contract to provide support services in the area of Nuclear Safety inspections.
3. Signature of a new Framework contract to continue to provide support services in the area of Quality Control Inspectors for Protection Important Components (PIC) of ITER Project.
4. On time signature of the required Task Orders in order to support the F4E Project Teams.

5. Provide high quality Project Performance Management services to F4E and all Project Teams.
6. Provide the requested support to F4E and all Project Teams on the matters described in the Scope of Work. In general, the target for 2024 is to keep safeguarding the EURATOM's investment in ITER while achieving the cumulative credit forecasted for each action in this WP2024 thanks to the support granted to the work under each specific action.

**Transportation**

**Transportation**

Progress of work:

During 2024, Engineering Unit/Transportation will be in charge of the management, on the F4E side, of technical aspects of the joint procurement with IO for the transportation of ITER components to the site in Cadarache. The scope includes the transportation of all ITER Components from the port/airport of entry (Fos or Marignane) to ITER site. During 2024, this activity will mainly cover transportation of NON EU loads between Fos and Cadarache (EU-leg). The main cost driver is for Highly Exceptional Loads (HEL) that follow the dedicated ITER itinerary.

Procurement activities:

Task Orders for Transportation of Highly Exceptional Loads between Maritime Port of Marseille and ITER site. Gendarmerie Task Orders to escort the HEL convoys and Task Orders for Management fees and for component transportation with contractor Daher will be signed.

**WORK PROGRAMME OBJECTIVES**

Milestone ID	Scope Description	Forecast achievement date	Type of milestone	PA
EU.TR.406040	Task Order Signed for TO 20 for Convention 4 for Real Convoys for Gendarmerie Services	Q2 2024	WP24 objective	All
EU.TR.406280	Task Order Signed for TO 21 for Convention 4 for Real Convoys for Gendarmerie Services	Q4 2024	WP24 objective	All

**EXPECTED RESULTS**

1. Transportation of Highly Exceptional Loads amongst others and EU and KO-DA VV-sectors between Maritime Port of Marseille and ITER site.
2. Gendarmerie Task Orders to escort the HEL convoys and Task Orders for Management fees and for component transportation with contractor Daher will be signed.

**Other Technical Support Activities**

**Project Management Office**

Progress of Work

The main focus of Project Management Office is on performance oversight and reporting, preparation of the annual and multi-annual programme planning documents, scheduling support, change control, the maintenance and update of the cost situation, the continuous integration of risk management into every aspect of the organisation, ensuring that all decisions and processes are aligned with F4E's objectives and risk tolerance, increased standardization of reporting within the organization, the implementation of the Internal Compliance Programme for export control. Overall project management support and support to the use and maintenance of specific tools to support project and program management are also included.

Procurement Activities

Task Orders and contractual Options of Task Orders already in force, Purchased Orders and Procurement Procedure for Direct Service Contracts will be issued to continue to support the F4E Project Management Office and F4E Project Teams. The Project Management Office will be also supported by an expert on planning and scheduling expertise, funded by F4E through an expert contract.

**Technical Support Activities of administrative nature provided by DTU, LSU, CSU and Finance Unit**

Progress of Work

A general provision is foreseen for technical support activities, including operational consultancy, legal, logistics and assurance services. The action also includes operational meetings, missions as well as hardware and software tools used for the direct benefit of the operational projects.

Procurement Activities

The above scope will be implemented mainly by issuing Task Orders under existing/new framework contracts.

**Contracts and Procurements (including insurance)**

Progress of Work

A general provision is foreseen for operational support to F4E Project Teams in Pre-procurement (this covers Business Intelligence & Market Analysis), Commercial Reporting, Procurement areas and Commercial contract management.

This part also includes insurances related to risk occurring during construction activities on the ITER Site such as All Risk Insurance, Third Party liability, Faulty Design insurance. It does not include Decennial insurance, Third Party liability related to the escort of convoys of component transport to ITER Site.

Procurement Activities

The above scope will be implemented mainly by issuing Task Orders under existing/new framework contracts.

Insurances will be mainly implemented via reimbursement of IO according to the Agreement on provision of insurance services signed 20/07/2020 and its renewal/extension. For insurances not falling in the scope of this scheme, such as decennial insurance for buildings, complement to F4E Third Party Liability, they are procured or renewed by F4E directly.

EXPECTED RESULTS
<p>1. On time signature of the required Task Orders in order to support the F4E Project Teams and Project Management areas.</p> <p>2. Provide high quality Project Management Support Services to F4E and all Project Teams.</p> <p>3. Provide the requested support to F4E and all Project Teams on the matters described in the Scope of Work. In general, the target for 2024 is to keep safeguarding the EURATOM's investment in ITER while achieving the cumulative credit forecasted for each action in this WP2024 thanks to the support granted to the work under each specific action.</p> <p>Annual M-SPI NA</p>

Action 14. Broader Approach

Action 14	Broader Approach
<p><b>JT-60SA</b></p> <p><u>Progress of Work</u></p> <p>The implementation of activities for the Operation/Enhancement phase of the project will continue. These activities include the procurement of critical spare parts and engineering services for EU already supplied systems and components, and selected machine enhancements and diagnostics in collaboration with EUROfusion (including maintenance and assistance to on-site assembly and commissioning). F4E is expected to take a larger role for machine on-condition maintenance and repair.</p> <p><u>Procurement Activities</u></p> <p>In year 2024 several contracts for the maintenance and spare parts are planned to be launched. These contracts cover all components supplied by the EU i.e., cryoplant, electron cyclotron resonance heating and magnet power supplies.</p> <p>In the frame of capital protection activities and safety, contracts will be placed for the enhancement of the magnets active protection system in 2024.</p> <p>As implementation of existing procurement arrangements, the contracts for the integration of cassette bodies, the high heat flux and normal heat flux elements of the JT-60SA actively cooled divertor, several studies and procurements for the enhancements of the power supply systems and the cryoplant will also be launched in 2024. Many of the activities under the responsibility of F4E are carried out through task orders of existing/new framework contracts or existing/new supply and service contracts. F4E will be continuously supported by experts, and on-site health and safety services to ensure safe operations, funded respectively by F4E through expert contracts and specific contracts. Specific contracts for support activities like engineering, inspections and analysis will be issued depending on the project needs.</p> <p>Beyond the cash contributions yearly transferred on the basis of the STP Work Programme on specific QST call for funds (covering EU Contribution to operation, maintenance and assembly) additional cash transfers for partial funding of machine insulation repair activities (i.e. central solenoid extraction and repair) and the radio frequency transmission lines are also expected to be made.</p>	



**IFMIF/EVEDA**Progress of Work

In 2024 the LIPAc (Linear IFMIF Prototype Accelerator) activities at Rokkasho will focus on finalizing the assembly of the superconducting part (cryomodule) of the LIPAc accelerator and integrating it into the beam line. The assembly will be continued on Rokkasho site by a European company under responsibility of F4E. After the assembly in the clean room has been completed, the cryomodule will be moved to the accelerator vault, in the LIPAc building, for the final steps of the assembly, the integration into the beam line and then the checkout tests. The LIPAc accelerator will be then in its final configuration for the last stages of the beam operation campaigns aiming at demonstrating the nominal performance of the LIPAc accelerator. In parallel, the enhancement activities for the LIPAc injector, Control System and RF Power system of the RFQ will be carried out to improve their maintainability, reliability, and availability. In particular the prototype of the new solid state RF power amplifier will be tested. The enhanced subsystems are planned to be deployed after the completion of the LIPAc primary goal, namely, full demonstration of the IFMIF accelerator concept for a fusion neutron source (acceleration and transport of a 9-MeV, 125-mA deuteron beam meeting the beam characteristics requirements in continuous waves) and will aim to demonstrate both the reliability and availability required for the future Fusion Neutron Source.

Procurement Activities

Contracts will have to be placed for the enhancement of key LIPAc subsystems and components such as the injector, the RF power system, and the control systems, as well as for demonstrating the operation and for optimizing the maintainability of the accelerator and subsequently the beam availability. Further contracts cover procurement of spare parts and services necessary for maintenance. Activities for the preparation of the LIPAc accelerator in its final configuration for the forthcoming operation phases will continue in 2024. F4E will be continuously supported by experts, and on-site health and safety services to ensure safe operations, funded respectively by F4E through expert contracts, specific contracts, Agreements of Collaboration with European Institutes, and a multi annual programme plan signed with EUROfusion. Cash contributions as contribution to Common Fund and Common Expenses will also be made.

**IFERC**Progress of Work

The IFERC project comprises three activities, CSC (Computer Simulation Centre), REC (Remote experimentation Centre) and DEMO design and R&D:

The CSC objective is to provide high power computer (HPC) resources for JA and EU scientists in order to advance simulation studies for ITER, JT-60SA and fusion reactors in general (e.g. DEMO). CSC fosters collaboration research projects between JA and EU by sharing computer resources and by further jointly developing state-of-the art models. A collaboration with ITER for high priority simulation projects will continue.

REC activities focus on the implementation of the remote collaboration tools agreed with JT-60SA, ITER, and the IFMIF-EVEDA LIPAc accelerator. The collaboration under the ITER BA agreement continues to advance test technologies for remote experiments and data transfer, including remote CODAC application testing, remote data access, live data viewing for ITER, fast data transfer, and secure remote connection.

In the DEMO design activities, priority is given to activities relevant for ITER and JT-60SA exploitation, such as plasma scenario development, divertor and power exhaust, breeding blanket

and tritium extraction and removal. The objective of activities in fusion materials R&D is to continue to support ITER in issues related to Tritium retention in first wall materials, and to contribute to the materials database for future reactors such as DEMO, which will be in part validated in a future IFMIF type installation. All activities are performed in collaboration with EUROfusion.

### Procurement Activities

There are contracts to be placed for preparation of remote participation rooms for tests with BA Projects and ITER, and testing activities. F4E will be supported by experts, funded by F4E through expert contracts and specific contracts. Cash contribution will also be made as EU contribution to the Project Team.

## WORK PROGRAMME OBJECTIVES

Milestone ID	Scope Description	Forecast achievement date	Type of milestone	PA
EU.BA.01.10510	Placement of the contract F4E-OFC-1650 for Maintenance and Optimization of the HVPS and SMPS	Q4 2024	WP24 objective	Maintenance and Support Services for BA projects
EU.BA.01.14150	Assembly of the complete cold mass completed	Q4 2024	WP24 objective	LIPAc Activities
EU.BA.01.21310	End of installation of Power Supply system for feeding the Error Field Correction Coils on Site	Q4 2024	WP24 objective	Error Field Correction Coils
EU.BA.01.38800	Supply of equipment or services for tests with BA Projects and ITER	Q4 2024	WP24 objective	Collaborative activities with JT-60SA, ITER, and the IFMIF/EVEDA LIPAc accelerator
EU.BA.01.38860	Delivery of vacuum components of the transmission lines	Q4 2024	WP24 objective	ECRH Transmission

## EXPECTED RESULTS

The main expected results for this action are:

### JT-60SA:

1. Factory acceptance test of the Thomson Scattering system
2. Factory test report for transmission line components
3. Installation of the error field correction coils completed and acceptance on site
4. Factory acceptance test of the VUV

### IFMIF/EVEDA

1. Delivery of the report for the 5 MeV pulsed and CW beam commissioning phase
2. Technical Report on Modeling of erosion/corrosion process and the distribution of the Activated Corrosion Products and Be in ELTL (IFMIF-EVEDA Li Loop)
3. Technical report on defining the experimental programme to be executed in the 1:1 pilot plant

### IFERC

1. Testing functions of various ITER/CODAC applications (API) and examination of accessibility and operability to these APIs from Rokkasho and from Barcelona under the collaboration REC-IO (CODAC application testing)

<ol style="list-style-type: none"> <li>2. Start of the neutron irradiation for in-situ tritium release experiments on the Neutron Irradiation experiments of Breeding Functional Materials for the DEMO R&amp;D</li> <li>3. Complete development of detailed physics models in selected functional blocks of the DEMO fuel cycle on the development of Tritium inventory evaluation tool for DEMO fuel cycle design.</li> <li>4. Complete update design of Breeding Blanket (BB) segment for DEMO Design activities (Breeding Blanket design and tritium extraction and removal)</li> <li>5. Supply of high-performance computer resources and analysis and support of simulation projects</li> </ol>
<b>TARGET</b>
The target for 2024 is "Annual M-SPI $\geq$ 0.8".

Action 15. DONES

Action 15	DONES			
<u>Progress of Work</u>				
<p>The plan for 2024 is to validate the finale design of key components, integrating the design improvement as feedback of the ongoing LIPAc engineering validation phases, but also to increase the availability of LIPAc during the commissioning phases with the availability of spare parts. Additionally to consolidate the F4E contribution to the DONES Programme external support will be contracted to consolidate the current baseline and to provide support for the integrated activities during the ramp-up.</p> <p>It is worth to underline that those commissioning phases are identified in the DONES Programme milestones as interface points with the construction phase of the IFMIF-DONES facility (i.e. validation of the RFQ in high duty cycle and SRF Linac at low duty cycle).</p>				
<u>Procurement Activities</u>				
<p>Taking into account the possible F4E contribution to the DONES Programme, it is important to consider the continuation of early procurements of essential equipment for DONES for risk mitigation using LIPAc as support facility.</p> <p>The activities are carried out through task orders of existing/new framework contracts or existing/new supply and service contracts. F4E will be continuously supported by experts funded respectively by F4E through expert contracts and specific contracts.</p> <p>Cash contributions will also be provided to the DONES Consortium for the early deployment and training of human resources for the DONES construction phase.</p> <p>It is also considered to launch the procurement by the end of this year of the EUROFER raw material, which will be used on the Target and Test system.</p>				
<b>WORK PROGRAMME OBJECTIVES</b>				
Milestone ID	Scope Description	Forecast achievement date	Type of milestone	PA

EU.DO.00270	Placement of the option for engineering support contract F4E-OMF-1159-01-01-100 for the BA/DONES Projects (2023-2025)	Q4 2024	WP24 objective	Programme Team and System Integrated Management
EU.DO.00690	Publish Invitation to Tender for Design and Procurement of the cavity	Q3 2024	WP24 objective	SRF Linac
EU.DO.01310	Cash Contribution for DONES Project 2024	Q3 2024	WP24 objective	Cash Contribution
<b>EXPECTED RESULTS</b>				
<p>The main expected results for this action are:</p> <ol style="list-style-type: none"> <li>1. System Engineering and Project Integrated Management set up</li> <li>2. Components tested on LIPAc</li> <li>3. In Kind Contribution to the DONES Programme</li> </ol>				
<b>TARGET</b>				
The target for 2024 is "Annual M-SPI ≥ 0.8".				

Action 16. Technology Development Programme

<b>Action 16</b>	<b>Technology Development Programme</b>
<u>Progress of Work</u>	
<p>In 2024, preparatory works for the two TDP Pilots have been done:</p> <ul style="list-style-type: none"> <li>- Definition of TDP Model Contract, IP Provisions and Tender Conditions</li> <li>- Realization of the two TDP Pilots Market Surveys</li> <li>- Information Day (17<sup>th</sup> September) with Industry for the two TDP Pilots</li> </ul>	
<u>Procurement Activities</u>	
<p>Pilot actions to launch TDP activities during 2024 are in preparation, with a call for proposals by the last quarter of the year and awarding milestone by early 2025. The scope of the pilot actions will be limited to two different technology development actions:</p> <ol style="list-style-type: none"> <li>1. Characterization of Gradient joints on Tungsten/CuCrZr materials</li> <li>2. Real-time personal monitor for Tritiated water vapor in air</li> </ol> <p>In order to implement TDP R&amp;D activities in an agile manner, the TDP will be based on a dedicated innovation procurement vehicle, the pre-commercial procurement (PCP) tool. This tool has been deemed the most appropriate for buying the process of innovation of those technologies in low to medium Technology Readiness Levels (TRL). This tool challenges innovative players on the market, via an open, transparent and competitive process to develop new solutions for a technologically demanding mid- to long-term challenge requiring new R&amp;D services. It consists in competitive development in stages to identify the technological solutions offering the best value for money.</p>	
<b>EXPECTED RESULTS</b>	
The main expected results for this action are:	

1. Launching of the Call for Tender for the 2 TDP pilots.

**TARGET**

No M-SPI applicable for 2024.

## WP\_TABLE 1 WORK PROGRAMME 2024 BUDGET SUMMARY

## Budget Summary of the 2024 Work Programme

Budget article		Work Programme Commitment appropriations (EUR)
3 1	ITER construction including site preparation	451,893,107.75
3 2	Technology for ITER	7,500,000.00
3 3	Technology for Broader Approach & DEMO	23,400,000.00
3 4	Technology for DONES	2,000,000.00
3 5	External Support Activities	29,000,000.00
3 6	Other Operational expenditure	6,000,000.00
<b>Total Title III of the Budget</b>		<b>519,793,107.75</b>
4 1	ITER construction from ITER host state contribution	143,472,117.88
4 2	Activities linked to ITER Organization	56,865,096.37
4 3	Other earmarked expenditure	
<b>Total Title IV of the Budget</b>		<b>200,337,214.25</b>
<b>Total amount available for the operational expenditure</b>		<b>720,130,322.00</b>

Work Programme		Work Programme Commitment appropriations (EUR)		
		Grants	Procurement	Cash
3 1 + 4 1 + 4 2 + 4 3	Expenditure in support of ITER Construction	2,356,979.00	370,963,228.00	278,910,115.00
	<b>Sub total ITER construction + RF</b>		<b>652,230,322.00</b>	
3 2	Design and R&D in support of ITER, not credited		7,500,000.00	
	<b>Sub total technology for ITER</b>		<b>7,500,000.00</b>	
3 3	Expenditure in support of Broader Approach		9,435,896.00	13,964,104.00
	<b>Sub total Technology for Broader Approach and DEMO</b>		<b>23,400,000.00</b>	
3 4	Technology for DONES		400,000.00	1,600,000.00
	<b>Sub total Technology for DONES</b>		<b>2,000,000.00</b>	
3 5	External Support Activities		29,000,000.00	
	<b>Sub total External Support Activities</b>		<b>29,000,000.00</b>	
3 6	Other Expenditure		6,000,000.00	
	<b>Sub total Other Expenditure</b>		<b>6,000,000.00</b>	
<b>Totals Operational Expenditure</b>		<b>2,356,979.00</b>	<b>423,299,124.00</b>	<b>294,474,219.00</b>
			<b>720,130,322.00</b>	

## WP\_Table 1 . Work Programme Budget Summary

**WP\_TABLE 2 - INDICATIVE VALUE OF FINANCIAL RESOURCES FOR THE ACTIONS IN WP2024**

Action #	Action	WP2024			WP2024AM1				WP2024AM2						
		Budgeted forecast WP2024	Budgetary Provision	Financial Resources allocated	Budgeted forecast WP2024 AM1 (2)	Budgetary Provision	Financial Resources allocated	Δ WP (Am.1 - Original) (3)=(2)-(1)	Budgeted forecast WP2024 AM2 (4)	Budgetary Provision	Financial Resources allocated	Δ WP (Am.2 - Am.1) (5)=(4)-(2)			
1	Magnets	1,608,267	Appropriations that have been cancelled in accordance with Art.12.1. of the F4E Financial Regulation may be entered in the Budget 2024 Amendment 1, provided that the late commitment forecasts are verified and confirmed by the end of April 2024	1,608,267	479,529	24,454	503,983	-1,128,738	250,028	Appropriations corresponding to external assigned revenue from ITER IO in accordance with Art.12.2.2.4.b of the F4E Financial Regulation will be carry over to 2025.	250,028	-229,501			
2,3,4,10*	Main Vessel*	110,183,418		110,183,418	121,629,228	26,915,223	148,544,451	11,445,810	138,514,585		138,514,585	16,885,357			
5	Remote Handling	8,145,139		8,145,139	6,731,106	352,260	7,083,367	-1,414,033	9,700,942		9,700,942	2,969,836			
6	Cryoplatant & Fuel Cycle	3,818,495		3,818,495	5,004,945	854,800	5,859,744	1,186,450	4,669,146		4,669,146	-335,799			
7	Plasma Engineering & Operations														
8	Heating & current drive	25,452,484		25,452,484	26,227,805	9,872,600	36,100,405	775,321	29,536,377		29,536,377	3,308,572			
9	Diagnostics	6,487,229		6,487,229	5,797,421	1,539,871	7,337,292	-689,808	6,940,914		6,940,914	1,143,493			
11	Site and Buildings and Power Supplies	137,594,954		137,594,954	165,437,599	43,001,302	208,438,901	27,842,645	146,774,213		146,774,213	-18,663,386			
12	Cash Contributions	211,979,980		211,979,980	215,162,180	5,000,000	220,162,180	3,182,200	275,652,131		275,652,131	60,489,951			
13	Technical Support Activities	30,391,391		30,391,391	37,236,697	1,898,928	39,135,626	6,845,307	32,636,150		32,636,150	-4,600,547			
14	Broader Approach	50,651,225		50,651,225	31,686,705	1,840,400	33,527,105	-18,964,520	24,090,704		24,090,704	-7,596,001			
15	Dones	2,020,000		2,020,000	4,255,800	1,117,029	5,372,829	2,235,800	2,342,912		2,342,912	-1,912,888			
16	Technology Development Programme														
<b>Sub-Totals</b>		<b>588,332,581</b>		<b>0</b>	<b>588,332,581</b>	<b>619,649,015</b>	<b>92,416,868</b>	<b>712,065,883</b>	<b>31,316,434</b>		<b>671,108,103</b>	<b>49,022,219</b>	<b>720,130,322</b>	<b>51,459,088</b>	
		Of which budgetary provision stemming from cancelled appropriations to be entered in the estimate of revenue and expenditure of the following financial years as per Art.12.1 FR				25,782,018									
		Of which budgetary provision stemming from appropriations corresponding to external assigned revenue from ITER Host State as per Art.12.2.4.b FR						13,583,000							
		Of which budgetary provision stemming from appropriations corresponding to external assigned revenue from ITER IO as per Art.12.2.4.b FR						53,051,850		49,022,219					

\*The Sub-actions Actions of Vacuum Vessel, In-Vessel Blanket, In-Vessel Divertor and Test Blanket Module are presented merged in one single line due to commercial sensitive information.

**WP\_Table 2 . Financial Resources per action**

WP\_TABLE 3 - 2024 MAIN PROCUREMENT ACTIVITIES (PER ACTION)

Action		Type of contract	Signature
<b>Magnets</b>			
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>Vacuum Vessel</b>			
CA14550	Commitment and TO Signed Firm Part - F4E-OMF-1082-01-12 PAUT files (6 months)	SC-PServ	Q1
CA14131	Commitment and Task Order Signed - F4E-OMF-1544-01-01 (MGR-A24) for 1 VV Resident Inspector & CP support	SC-PServ	Q2
CA14136	Commitment and Task Order Signed - F4E-OMF-1544-01-02 (MGR-B24) for 1 VV Resident Inspector & CP support	SC-PServ	Q2
CA14128	Commitment and Task Order Signed - F4E-OMF-1544-01-05 (WTO-B24) for 1 VV Resident Inspectors	SC-PServ	Q2
CA13117	Commitment & TO signed for F4E-OMF-1153-01-01-07 for Mechanical Analysis Support for VV part 1 (cont TO04, SRS)	SC-PServ	Q4
CA14550	Commitment and TO Signed Firm Part - F4E-OMF-1082-01-12 PAUT files (6 months)	SC-PServ	Q1
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>In Vessel- Blanket</b>			
CA06534	TO 3 for FwC BCM (OMF-1080) - Chimney Pipes	SC-PSupply	Q4
CA15986	F4E-OMF-1159-01-01-138 Task Order Engineering Support to the In-Vessel Program (2024-2026)	SC-PServ	Q4
CA14067	Option 2 - Additional coating of barrels (PCR-1604)	PSupply	Q3
CA13007	Task Order for Testing of Task 1 supports	SC-PSupply	Q4
CA14803	Residual obligations on Be Management	SC-PServ	Q4
CA13073	Task Order Resources - Docs Management #1 25/26	SC-PServ	Q4
CA02651	F4E-OMF-1321-02-02 Task Order for Inspector of Manufacturing for BCM	SC-PServ	Q4
CA11618	Task Order for Auditors TO#05 - LOT 1	SC-PServ	Q4
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>In Vessel- Divertor</b>			



CA08583	OMF-1139-02-01 Signed for IVT Pre-Series Production	SC-PSupply	Q3
CA08583-1	OMF-1139-02-01 Signed for IVT Pre-Series Production	SC-PSupply	Q3
CA13289	TO-03 OMF-319-01 signed for HHF Testing of IVT components	SC-PServ	Q4
CA12494	Task Order WRT.01 OMF-1321-01 signed for Inspector for WTO - RT (30 months)	SC-PServ	Q4
CA13024	Task Order ALT.01 OMF-1321-01 Signed for Resident Inspector at ALX (Tarbes) for LOT-2 for IVT Series (NRS)	SC-PServ	Q4
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>Remote Handling</b>			
CA11814	TO 02 OMF-1115-01 for FP Diagn., BIPS(TB04), LD, I&C, Add. Heating and Real Time Software Support Activities	SC-PServ	Q3
CA15928	Task order signed F4E-OMF-1159-01-01-133 for Engineering Support for Remote Handling	SC-PServ	Q4
CA14953	Task order (OMF-989-01-0X) for Genrobot, C&C, OMS development	SC-PSupply	Q4
CA11731	Task Order for Engineering Insourcing Contract (MS-1) CPRHS 2023	SC-PServ	Q4
CA15240	Task Order (OMF-1023-01-12 Esteyco) BLT captive comp + TLOM design	SC-PServ	Q1
CA15211	TO signed for OMF-1127-01-15 for RMV support for RH Team - Gabriel Pelaez 2024	SC-PServ	Q1
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>Cryoplant and Fuel Cycle</b>			
CA16052	External Support - OMF-1159-01-01-136 Engineering support CP&FC (2024-2026)	SC-PServ	Q4
CA11814	TO 02 OMF-1115-01 for FP Diagn., BIPS(TB04), LD, I&C, Add. Heating and Real Time Software Support Activities	SC-PServ	Q3
CA16033	Task Order signed for OMF-989-01 CRYO commissioning of LN2 and CODAC Integration activities in the cryoplant.	SC-PServ	Q4
CA15250	Task order signed for Execution of firm part for OMF-1159-01-01-116 Engineering Support - firm part 2024-2025	SC-PServ	Q2
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>Plasma Engineering &amp; Operations</b>			
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>Heating and Current Drive</b>			
CA11035	OPE-1203: Contract Signed for NB Tooling HNB 1&2 Pre and Post SRO	PSupply	Q4

CA01020	OFC-1581 - Task Order Signed for Technical Follow-up of Gyrotron Tubes & Super Conducting Magnets	SC-PServ	Q4
CA15241	OMF-1120 Task Order 02 Signed for Additional RF testing campaign associated to the Upper Launcher	SC-PServ	Q2
CA12859	OFC 582: Task Order 4 Signed for PRIMA#04 Assembly	SC-PSupply	Q4
CA13240	OMF-1159 Task Order Signed for Engineering Support for EC UL Project (2024-2025) - Part I	SC-PServ	Q4
CA11814	TO 02 OMF-1115-01 for FP Diagn., BIPS(TB04), LD, I&C, Add. Heating and Real Time Software Support Activities	SC-PServ	Q3
CA01421	OMF-1120 Task Order 3 Signed for Manufacturing of Isolation Valve Prototypes and Design Finalization	SC-PSupply	Q4
CA15361	OFC-842 Task Order 05 Signed for Engineering support for Diamond Window Unit Design	SC-PServ	Q4
CA13229	OMF-0989: Task Order 13 Signed for FDR preparation for ECPC & EC-UL-SCU	SC-PServ	Q2
CA15365	OMF-1142-01-06 Task Order signed for Engineering Support for the Gyrotron's Control System	SC-PServ	Q3
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>Diagnostics</b>			
CA11216	TO for CTS MRR and supply of non-critical components	SC-PSupply	Q4
CA15369	Support to the Diagnostics Programme (2024-2026) Firm Part Signed - Action XVII	SC-PServ	Q4
CA11814	TO 02 OMF-1115-01 for FP Diagn., BIPS(TB04), LD, I&C, Add. Heating and Real Time Software Support Activities	SC-PServ	Q3
CA14706	External Support for CXRS I&C and Software Design	SC-PServ	Q4
CA13658	Contract Signed for CON new AG brazing related activities PCR001411 to be transferred to IO	SC-PServ	Q2
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>Test Blanket Module</b>			
CA09804	TO 03 for Proof of the TBM-sets fabrication and assembly processes feasibility	SC-PServ	Q4
CA10944	OFC-1350-01 TO-02 Development and execution of a set of additional accident analyses for the WCLL TBS	SC-PServ	Q4
CA10946	TO#01 for EUROFER Codification Database	SC-PServ	Q4
CA12838	ESP - TO 16 for Senior System Engineering Management support (Tools development - WCLL) - MDY	SC-PServ	Q1
CA12887	ESP - OMF-1159-01-01-123 - Engineering Support for the TBM Programme (2024-2026) - Action X	SC-PServ	Q3
CA15931	ESP - F4E-OMF-1159-01-01-141 Signed for Eng. Support for the TBM, IFERC and DEMO Group (2024-2026) - Action XI (JDN+TBO)	SC-PServ	Q4

CA15331	ESP - F4E-OMF-1159-01-01-117 Engineering support for TBM programme (2024-2026) - Action IX - HYE	SC-PServ	Q2
CA14599	ESP - Option for TO# 99 - Technical support for the PbLi loop support for WCLL - AAO	SC-PServ	Q3
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>Site and Buildings and Power Supplies</b>			
CA14270	AE II - Commitment for Contract Architect Engineer Services II - Core activities 2025-2030	SC-PServ	Q4
CA12014	TB21 - Lot#2 TO 206a B11/B14 - PIC/SIC components (TB04)	SC-PSupply	Q4
CA14924	TB21 - Lot 1 TO 110 - Cable & Cable trays in galleries (TB04)	SC-PSupply	Q1
CA14348	AE II - Commitment for AE Servs. II - Core activities 2025-2030 – (TB04) TB04 VCC related topics	SC-PServ	Q4
CA14018	TB21 - Lot 2 TO 201 Mechanical and HVAC components for B11/B74 (TB04)	SC-PSupply	Q2
CA14018-1	TB21 - Lot 2 TO 201 Mechanical and HVAC components for B11/B74 (TB04)	SC-PSupply	Q2
CA15049	TO 03 OMF-1116-01 for Nuclear safety I&C Execution design of the tokamak Complex first phase TSS Jacobs (TB04)	PServ	Q4
CA05006-1	TB13 - Commitment for Contract for Design & Construction of Bldgs 44, 45, 46 & 47	PSupply	Q1
CA13290	TB21 - Lot#2 TO 206a B11/B14 - PIC/SIC components (TB04) (Increase of Raw Material)	SC-PSupply	Q4
CA14914	TB21 - Lot 1 TO 110 - Cables & Cable trays in galleries (TB04) (Increase of Raw material)	SC-PSupply	Q1
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>Supporting Activities</b>			
CA07547	Commitment for 1753 for Gendarmerie Services Real Convoys	SC-PServ	Q3
CA09710	Commitment 2024 for Operational Missions	PServ	Q1
CA10910	TO 134 OMF-1159-LOT1-01 Support in QA & NCR Mgmt. FC/RH(1)/BFW(1)/CB(1)/IVT/BCM/NB/AN(1)/DG/BSM PTs [1 year]	SC-PServ	Q4
CA11814	TO 02 OMF-1115-01 for FP Diagn., BIPS(TB04), LD, I&C, Add. Heating and Real Time Software Support Activities	SC-PServ	Q3
CA11299	Correction of premium on the basis of building values declared	PServ	Q4
CA13538	TO 103 for KO DA 1 HEL VV sector #07	SC-PServ	Q3
CA13096	Commitments 2024 for Software Maintenance	SC-PServ	Q1
CA06505	Commitment 2024 - Global transportation of HEL NON-EU ITER components	SC-PServ	Q4

CA08979	2024 Commitments and Budget Reserves for Legal Services charged against Operational Budget	SC-PServ	Q1
CA14324	TO 21 for Convention 4 for Real Convoys for Gendarmerie Services	SC-PServ	Q4
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>Broader Approach</b>			
CA14454	Options 4, 5 and 7 for OPE-1118	PServ	Q4
CA15830	Collaboration with CERN for the procurement of a set of 10 RFQ Couplers for Phase C and D	PSupply	Q4
CA15340	TO01 F4E-OFC-1650 for the Maintenance and Optimization of RFPS of LIPAc	SC-PSupply	Q4
CA16016	TO01 OFC-1650 for maintenance of Superconducting Magnet Power Supplies	SC-PSupply	Q4
CA13172	TO06 for the rectification and improvement of the SCMPS	SC-PServ	Q4
CA11912	TO02 OFC-1433 for Support services for Broader Approach - Part 2	SC-PServ	Q2
CA15720	Contract for the commissioning of the RWM PS for JT-60SA	PServ	Q4
CA15822	TO08 for Support Activities for Central Solenoid Partial Extraction and Repair for Broader Approach	SC-PSupply	Q3
CA13666	TO07 for Procurement and delivery to Naka of Hardware for the Power Supply Systems of JT-60SA – Year 2024	SC-PSupply	Q2
CA15047	TO 06 for Procurement and delivery to Rokkasho of spare driver tetrodes	SC-PSupply	Q2
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>DONES</b>			
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A
<b>Technology Development Programme</b>			
Provision for amendments, claims, reimbursement, indexation and late interest		N/A	N/A

**Table 3 . Main procurement activities per action**

## WP\_TABLE 4 – PLAN FOR GRANTS

## 2024 GRANTS

Grant Agreements Reference	Expected date of Signature	Forecasted value to be committed	Duration (in months)	Counterpart (Leader Company)	Short Description
GRT-2024	Q4 2024	€2,000,000.00	48	TEKNOLOGIAN TUTKIMUSKESKUS VTT OY*T	Action 5 Remote Handling: Grant for Integration of Control System technologies at DTP2
F4E-FPA-327SG07	Q2 2024	€140,030.00	50	AGENZIA NAZIONALE PER LE NUOVE TECN	Action 9: Diagnostics: Amendment to Grant for change of deliverables end date due to late start of FDR activities
F4E-FPA-364SG06	Q2 2024	€28,739.24	62	MAX-PLANCK-GESELLSCHAFT ZUR FORDERU	Action 9 Diagnostics: Amendment for extension of F4E-FPA-364-06 for chits resolution
F4E-GRT-1446	Q4 2024	€46,027.00	8	COMMISSARIAT A L ENERGIE ATOMIQUE E	Action 9 Diagnostics: Prototype of alternative FMU cover pipe design (transversal)
F4E-FPA-384SG05	Q4 2024	€141,466.00	8	MAX-PLANCK-GESELLSCHAFT ZUR FORDERU	Action 9 Diagnostics: Amendment of SG05 to extend to complete FDR
		€717			Provision for amendments, claims, reimbursement, indexation and late interest
<b>Total</b>		<b>€2,356,979</b>			

ON-GOING GRANTS<sup>11</sup>

Grant Agreements Reference	Date of Signature	Committed Value	Duration (in months)	Counterpart (Leader Company)	Short Description
F4E-FPA-327 (PMS-DG)-07	20/02/2020	€2,081,637.00	50	AGENZIA NAZIONALE PER LE NUOVE TECN	FPA-327-07_Development of the Final Design and Prototyping
F4E-FPA-364-06	22/10/2018	€1,485,307.76	62	MAX-PLANCK-GESELLSCHAFT ZUR FORDERU	Development of the Design and Critical Prototyping
F4E-FPA-384 (DG)-05	30/07/2018	€2,602,067.56	65	MAX-PLANCK-GESELLSCHAFT ZUR FORDERU	F4E-FPA-384-SG05 Development of the Design and Prototyping
F4E-GRT-0901-01	09/03/2018	€1,731,559.13	64	TEKNOLOGIAN TUTKIMUSKESKUS VTT OY*T	Development and integration of 3D Machine Vision, HLCS modules and GENROBOT at DTP2
F4E-GRT-0974-01	20/12/2018	€368,536.00	54	TUOTEKEHITYS OY TAMLINK*	PROTOTYPING AND TESTING OF HYDRAULIC DIGITAL VALVES FOR THE DIVERTOR REMOTE HANDLING SYSTEM
F4E-GRT-1146-01	25/07/2021	€2,260,574.00	48	COMMISSARIAT A L ENERGIE ATOMIQUE E	Completion of the design of Equatorial Wide Angle Viewing System (EP-WAVS) in EP12 and post-design technical support
F4E-GRT-553	09/07/2014	€2,562,993.00	88	ECOLE POLYTECHNIQUE FEDERALE DE LAU	DESIGN, DEVELOPMENT AND VALIDATION OF THE EUROPEAN GYROTRON
<b>Total</b>		<b>€13,092,674.45</b>			

WP\_Table 4. Plan for grants<sup>12</sup>

<sup>11</sup> Any 2023 Grant that was included in the original WP2023 but was not signed by the cut-off date of 31<sup>st</sup> March 2023 is not reflected in this table. Grants that were not known when the original WP2023 was drafted and that would be signed following a related WP2023 amendment are not listed neither.

<sup>12</sup> The Commission guidelines require to produce two additional tables covering Service Level agreement and Contribution Agreements. These are not displayed since F4E has no Service Level agreement nor Contribution Agreements under operational expenditure.

**WP\_TABLE 5 TIME OF CALL FOR THE PROCUREMENT PLAN**

Indicative number, type of contract and timeframe for launching the procurement procedures.

Procurement Procedures	Q3 2023	Q4 2023	Q1 2024	Q2 2024	Q3 2024	Q4 2024
P Serv - Contract	5	5	3	6	7	4
P Supply - Contract	6	8	1	10	8	2
Pserv - Specific Contracts	23	30	12	14	23	39
PSupply - Specific Contracts	8	6	3	10	7	5

***WP\_Table 5 . Indicative number and type of contracts per quarter***

NB:

- During the implementation of the Work Programme activities, F4E may identify the need for new calls, group more activities in a single call or split one activity in more calls. This will in any case be performed preserving the scope and objective presented in WP2024.
- When a call for tender is not defined yet, the call is indicatively assigned to 6 months before the signature of the contract.
- For the specific contract, as they do not have call for tender, the table refers to its signature date.

## ESSENTIAL SELECTION, AWARD CRITERIA AND UPPER FUNDING LIMITS FOR GRANTS

With regard to grant actions referred to in this Work Programme, the essential selection and award criteria are:

### Essential Selection Criteria

- The applicants' technical and operational capacity: professional, scientific and/or technological competencies, qualifications and relevant experience required to complete the action.
- The applicants' financial capacity: stable and sufficient sources of funding in order to maintain the activity throughout the action.

### Essential Award Criteria

- Relevance and quality of the proposal with regard to the objectives and priorities set out in this Work Programme and in the relevant call for proposals.
- Effectiveness of the implementation as well as of the management structure and procedures in relation to the proposed action.
- Cost-effectiveness and sound financial management, specifically with regard to F4E's needs and objectives and the expected results.

With regard to the specific action, more details will be provided in the call for proposals. Thresholds and weighting for the essential and additional award criteria will also be indicated in the call for proposals.

A proposal which does not fulfill the conditions set out in the Work Programme or in the call for proposals shall not be selected. Such a proposal may be excluded from the evaluation procedure at any time.

The timetable and indicative aggregated amounts for the actions are defined in this Work Programme.

### Upper funding Criteria

With the entry into force of the recast F4E Financial Regulation and Implementing Rules on 1<sup>st</sup> January 2016, the following upper funding limits apply for grants:

1. Research, technological development and demonstration activities	40%
2. Purchase/manufacturing of durable equipment or assets and of ancillary services approved by the Joint Undertaking as necessary to carry out such activities	100%
3. Coordination and support actions, including studies	100%
4. Management activities, including certificates on the financial statements, and other activities not covered by paragraphs 1 and 2	100%

## List of Tables

WP_table 1. Work Programme Budget Summary.....	page 46/56
WP_table 2. Financial Resources per action.....	page 47/56
WP_table 3. Main procurement activities per action.....	page 48/56
WP_table 4. Grants per action.....	page 53/56
WP_table 5. Indicative number and type of contracts per quarter.....	page 54/56