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 FIRST AMENDED 2013 WORK PROGRAMME OF FUSION FOR ENERGY

THE GOVERNING BOARD

HAVING REGARD to the Statutes annexed to the Council Decision (Euratom) No 198/2007 of 27th March 2007 establishing the European Joint Undertaking for ITER and the Development of Fusion Energy (hereinafter "Fusion for Energy") and conferring advantages upon it[1] and in particular Articles 6(3)(d) and 11 thereof;

HAVING REGARD to the Financial Regulation of Fusion for Energy[2] adopted by the Governing Board on 22nd October 2007, last amended on 18th December 2007[3] (hereinafter "the Financial Regulation"), and in particular Article 64 thereof;

HAVING REGARD to the Implementing Rules of the Financial Regulation[4] adopted by the Governing Board on 22nd October 2007 last amended on 29 June 2012[5] and in particular Article 53 thereof;

HAVING REGARD to the 2012 Work Programme as adopted by the Governing Board on 11 December 2012[6];

HAVING REGARD to the comments and recommendations of the Administration and Finance Committee, Executive Committee, Technical Advisory Panel and the Bureau;

WHEREAS:

(1) The Director should, in accordance with Article 8(4)(c), draw up an annual work programme;

(2) The Governing Board should adopt the work programme.

HAS ADOPTED THIS DECISION:

Article 1

The first amendment 2013 Work Programme of Fusion for Energy annexed to this Decision is hereby adopted.

Article 2

This Decision shall have immediate effect.

[1] O.J. L 90, 30.03.2007, p. 58.
[2] F4E(07)-GB03-11 Adopted 22/10/2007
[3] F4E(07)-GB04-06 Adopted 18/12/2007
[4] F4E(07)-GB03-12 Adopted 22/10/2007
[5] F4E(12)-GB24-13b Adopted 29/06/2012
[6] F4E(12)-GB26-09.5 Adopted 11/12/2012

Done at Barcelona, 27 June 2013

For the Governing Board

Stuart Ward
Chair of the Governing Board

For the Secretariat

Digitally signed by (SIGN) RAYMOND MONK
DN: c=ES, o=FUSION FOR ENERGY. EUROPEAN AGENCY FOR ITER PROJECT, cn=(SIGN) RAYMOND MONK
Date: 2013.07.03 11:03:04 +02'00'

Raymond Monk
Secretary of the Governing Board

ANNEX I

FUSION FOR ENERGY 2013 WORK PROGRAMME

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1. INTRODUCTION, ASSUMPTIONS AND OVERALL OBJECTIVES

1.1. INTRODUCTION

The European Joint Undertaking for ITER and the Development of Fusion Energy or 'Fusion for Energy' (F4E) was created under the Euratom Treaty by a decision of the Council of the European Union.

F4E was established for a period of 35 years from 19th April 2007 and its main offices are located in Barcelona, Spain. The objectives of F4E are three fold:

- Providing Europe's contribution to the ITER International Fusion Energy Organisation (IO) as the designated EU Domestic Agency (DA) for Euratom;
- Implementing the Broader Approach Agreement between Euratom and Japan as the designated Implementing Agency for Euratom;
- Preparing in the longer term for the construction of demonstration fusion reactors (DEMO).

In accordance with the Financial Regulation of F4E and its Implementing Rules, this Work Programme lays down a detailed programme of activities that are foreseen to be implemented and financed under the budgetary appropriation for 2013. This information is complemented by the Budget 2013.

1.2. ASSUMPTIONS

- At the 9th ITER Council (IC-9) in November 2011 the latest developments of the ITER schedule were presented and it was noted that the estimated first plasma (FP) date of November 2020 is within the baseline approved in July 2010.
- The F4E Detailed Work Schedules (DWS), on which this WP2013 is based, provide the schedule for the ITER components with special emphasis on those on the critical path for the machine construction.
- The F4E DWS taken into account for this document include the modifications agreed with the ITER International Organization (IO) at special review meetings held in the period June-September 2012 In addition, a special MAC meeting at the end of August 2012 addressed specific issues in the areas of the components on the critical path, which, for the EU, are the magnets, vacuum vessel and buildings. On that occasion F4E presented an update of the F4E schedules taking into account the latest developments such as the availability of frozen design data from ITER IO, procurement strategies and contracts implementation.
- The F4E schedule used for the preparation of this document is as of end of April 2013. As for the budget, this document is in agreement with the latest budget allocation agreed at EU level.
- The Procurement Arrangements (PAs) between F4E and IO will be concluded on time and according to the agreed level of design. The necessary inputs from IO will be provided in time to allow the associated PAs to be signed according to the foreseen schedule.
- F4E will receive on time from IO the necessary inputs foreseen in the ITER Quality Management process deposited with the Nuclear Safety Authorities and in accordance with Build-to-Print, Detailed Design and Functional Specification status agreed in 2001.
- F4E will receive on time, from on-going contracts and grants, the technical input needed for the preparation of the tenders.
- WP2013 is in line with the new set of guidelines for the evaluation of the ADI credit endorsed at the 8th meeting of the ITER Council (June 2011)
- The planning of the activities and the corresponding delivery of components by the other ITER Domestic Agencies will be respected.
- The input data required to either launch procurement calls or to run an existing contract are frozen and no further modification is issued by ITER IO;
- 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 Implementing Rules.
- 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 the Framework Partnership Agreement (FPA) procedure, in order to streamline and channel R&D funding, improve its effectiveness and reduce administrative burden to beneficiaries and F4E alike.

- Procurements which encompass scope within the domain of both F4E and contracting authorities, or for which a very close coordination between F4E and other entities is needed, will be implemented whenever appropriate through the Joint Procurement procedure.
- 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.
- Common manufacture of Port Plug structures activities will included in the MoU for the common manufacture of port plugs structures to be signed in 2013.

Regarding the WP2013 for Broader Approach, the main assumptions are that this is to be coherent with the individual BA Projects' Work Programmes and Project Plans as approved by the Broader Approach Steering Committee.

1.3. ITER CREDITS FOR PREPARATORY ACTIVITIES

This WP2013 includes a programme of R&D and preparatory activities that have to be carried out prior to signing the Procurement Arrangement for the Procurement Packages agreed to be at Build-to-Print level. Recognising that F4E is carrying out work that should have been completed by IO, additional credit from IO is being requested by F4E through ITER Task Agreements (ITAs). The activities indicated in this WP2013 as receiving additional (ITA) credits may be cancelled in the event that IO would not make the requested credits available.

Similarly, F4E participates to the call for proposals launched by ITER IO on a competitive basis for activities such as plasma engineering and safety. Activities to answer to forecasted calls in 2013 are also included in this document.

1.4. MAIN OBJECTIVES

With respect to activities related to ITER, the main objectives are:

- The negotiation and signature of the ITER Procurement Arrangements, proposed by the ITER Organisation (IO), according to the present F4E schedule.
- The signature of procurement contracts for those components on the critical path and for those foreseen in the current F4E schedule.
- The continuation of design and R&D activities in areas including Remote Handling, Heating and Current Drive, Vacuum System, Tritium System, Diagnostics and Test Blanket Modules.
- The continuation of the preparation of safety and licensing documentation for ITER in Cadarache and related safety studies.
- The investigation of manufacturing methods and non-destructive tests of critical components from the technical point of view with the objective of minimising the cost and risk of not meeting the technical requirements (divertor, blanket and first wall).
- The preparation of new facilities to test prototypes and components during the qualification process and construction respectively.
- The continuation of the activities for the preparation of the ITER site.

The most significant procurements[7] to be either initiated or signed within 2013 are related to:

- Magnets with: additional stages of the TF Winding Pack contract to be released according to the progress of the existing contract, *the contract on Assembly of the TF Winding Packs into the coil cases* to be signed and PF coils for which contracts will be launched and signed according to the newly approved procurement strategy
- Vacuum Vessel, for which additional stages and options will be released according to the progress in manufacturing.
- Tritium system, for which a *procurement contract for the Water Detritiation Tanks* will be signed.
- Cryoplant, for which the procurement of LN2 Plant and Auxiliary Systems is planned to be signed;
- Power Supplies, for which procurements will be signed for SSEPN and SSEN systems;

[7] In *italic* in this section contracts under WP2012 to be signed in 2013 as Global Commitments 2012.

- Neutral Beam system, for which procurement contracts will be launched in support of the Neutral Beam Test Facility (NBTF), including the contribution to the NBTF WP2014, according to the Back-to-back Agreement with Consorzio RFX.
- Buildings for which procurement contracts will be signed for *cask lifts and assembly hall cranes (TB02), for HVAC, Electrical and Fluid Network (TB04), for design and build of buildings 32,33,38 (TB05)* and buildings 67,68,69 (TB07). Divertor, for which a procurement contract for the Cassette bodies will be signed as well as the one for a test facility for heat flux testing of In-Vessel components

With respect to the Broader Approach (BA), the general scope of the activities is detailed in the Annexes to the BA Agreement signed between EURATOM and the Government of Japan in 2007. For the three BA Projects (STP IFMIF/EVEDA and IFERC Projects), F4E is acting as EU Implementing Agency in close collaboration with JAEA (the JA Implementing Agency).

The scope of activities for BA is subdivided in a number of Procurement Arrangements (PA), signed by F4E and JAEA, covering part of the activities/deliverables. The procurement sharing, within EU commitment, is approved by the EU BA Contact Persons representing EURATOM and all EU VCs. In general, to each PA corresponds an Agreement of Collaboration (AoC) in which the PA commitments are transferred to one or more of the VC Designated Institutions, in line with the agree sharing.

The vast majority of the EU procurements and contributions are provided by Belgium, France, Germany, Italy, Spain and Switzerland, the EU Voluntary Contributors (EU VCs), which have designated major national research institutions for the practical implementation (VC Designated Institutions).

In the sharing F4E retains some of the hardware procurements (in particular in JT-60SA) and all the transports from the fabrication places in Europe to the designated Ports of Entry in Japan.

The F4E Broader Approach activities for 2013 are expected to proceed according to the BA 2013 Work Programmes which have been endorsed by the 11th BA Steering Committee Meeting of the 6th November 2012.

1.5. IMPLEMENTATION OF F4E'S OBJECTIVES

In order to move toward a more realistic Work Programme, according to the F4E Corporate Objectives for 2013, the amendment divides the actions in two categories:

- Category A: it identifies those activities that are expected to be accomplished in 2013 (i.e. individual commitment signed in 2013). It includes also milestones to be achieved in 2013 for activities which will have the individual commitment in 2014. For Category A items F4E has defined detailed procurement milestones in the planning for the year 2013 and the commitment of F4E is linked to the implementation of this set of milestones.

- Category B: it identifies those activities related to commitments which will not be signed in 2013 but in 2014, still as part of the 2013 budget. If resources are available, some of them may still be achieved in 2013.

Measurement of the work programme implementation will be performed for Category A items only, with the Primavera schedule used to build-up the original Work Programme of the year 2013 as the reference:

1. Progress of the procurement activities:

   The progress of the procurement activities will be measured by monitoring the number of procurement milestones achieved during each reporting period in 2013.

   KPI= (procurement milestones achieved in the reporting period)/(procurement milestones planned to be achieved in the reporting period based on the reference schedule)

2. Contract/Grants signature[8] :

   The progress of the procurement activities will be measured by monitoring the number of contract/grants signed during each reporting period.

   KPI= (number of the contract/grants signed in the reporting period)/(number of the contract/grants planned to be signed in the reporting period based on the reference schedule)

3. Implementation of the financing decisions:

[8] Includes also framework contracts and partnership agreements and specific contracts/ specific grants

The implementation of the financing decisions in the Work Programme will be measured by monitoring the value of commitments placed compared to the planned value of commitment each month.

KPI = (value of commitment achieved in the reporting period /(value of commitment planned in the reporting period based on the reference schedule).

2. INTRODUCTION, ASSUMPTIONS AND OVERALL OBJECTIVES

In the following, the activities of Fusion for Energy related to ITER are described according to the proposed F4E Work Breakdown Structure. The tables provided in the text use the following abbreviations:

Abbreviation	Meaning
WP ref	Work programme reference, univocally identifying WP items. WPxx/yy/zz, where xx are the last two digits of the WP/budget year in which the activity was first financed, yy is a code identifying the ITER PBS element (if available) or the F4E service in charge, zz is a sequential number for the year
G	Grant
SG	Specific Grant based on a Framework Partnership Agreement
SC	Specific Contracts based on a Framework Contracts
FPA	Framework Partnership Agreement
FWC	Framework Procurement Contract
P	Procurement (“PServ” for service, “PSupply” supply or “Pwork” works)
Y	Credited by ITER IO through PA
Y(ITA)	Credited by ITER IO through ITA
N	Non credited

All activities indicated within WP2013 are planned to be committed under the 2013 budget. Certain activities have been moved from previous years into WP2013 due to changes in the overall planning and priorities: these items are identified by a WP ref field showing a WPxx tag different from WP13 (e.g. WP11/..). It is understood that the inclusion of these items in WP2013 is cancelling and superseding any corresponding item in a previous year’s WP, unless otherwise specified in this document for specific and motivated reasons.

Work programme activities have been classified in categories (see under Assumptions). Category A activities include the activities F4E commit to implement within 2013. When a work programme activity has been split into 2 new lines, one for category A and the second for the category B, the original line has been cancelled.

WP items indicated as Framework Partnership Agreements (FPA) or Framework Procurement Contracts (FWC) are included in the year of signature for clarification purposes only and do not constitute a financing decision: the implementing financing decisions within such frameworks is indicated as appropriate by separate WP items (as either SG or SC).

During the implementation of the work programme activities, F4E may 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 WP2013.

The foreseen time of publication of calls and invitations is indicative only and based on the present understanding of the project development. For expenditure performed through framework contracts and framework partnership agreements, release of the contractual options or use of Joint Procurements the foreseen time of publication of calls is not included (N/A in the Work Programme) as no formal publication will take place.

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 milestones refers to the date of the call for tender/dialogue (second phase of the procedure).

The foreseen duration of activities is indicative only. Modifications of durations may reflect a different phasing of the activity with respect to the initial planning, in line with the financing decision nature of the WP2013 and the change in the procurement strategy, including the adoption of instruments such as stages, options, lots.

The use of the Grant Unique Beneficiary instrument will be fully justified and summary of justifications are available in Annex VI

2.1. Magnets

2.1.1. List of Activities

WP Cat	WP Ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP13/11/01	EU.01.11.01	PSupply	TF Coils winding pack manufacturing	TF Winding Pack Manufacture, release of the Stages 2 and 3 for the manufacturing of the winding pack 1 to 9	41	Y	N/A
A	WP13/11/02	EU.01.11.01	PServ	Testing of TF structural materials	Independent mechanical tests on the base materials and welds used by the suppliers for the qualification and series production of the TF coil radial plates and cases	12	Y	N/A
A	WP13/11/17	EU.01.11.04	PServ	Jacket material qualification & Testing for TF and PF Coils	Independent mechanical tests on the base materials and welds used by the suppliers for the qualification and series production of the conductor jacket materials Mainly specific contracts to be implemented under framework contracts ongoing: F4E-OPE-084, F4E-OPE-149 (ES-MF)	12	Y	N/A
B	WP13/11/18	EU.01.11.04	PServ	Jacket material qualification & Testing for TF and PF Coils	Independent mechanical tests on the base materials and welds used by the suppliers for the qualification and series production of the conductor jacket materials Mainly specific contracts to be implemented under framework contracts ongoing: F4E-OPE-084, F4E-OPE-149 (ES-MF)	12	Y	N/A
A	WP13/11/04	EU.01.11.04	FWC	Testing and characterization of PF strands	Service contract to carry out independent verification tests of the PF strand manufactured by RFDA, as required by the PA	36	N/A	12Q4
A	WP13/11/19	EU.01.11.05	PServ	Inspectors for PF , TF and Conductors contracts	Provision for mechanical, UT, welds, geometrical inspection, mainly via framework contract WP11/PO/12	60	Y	N/A
B	WP13/11/20	EU.01.11.05	PServ	Inspectors for PF , TF and Conductors contracts	Provision for mechanical, UT, welds, geometrical inspection, mainly via framework contract WP11/PO/12	60	Y	N/A
B	WP13/11/07	EU.01.11.03	PSupply	Winding Tooling Provision PF	Winding tooling equipment for the poloidal field coils	29	Y	12Q4
A	WP13/11/08	EU.01.11.03	PServ	PF Coil Engineering & Integration (EI)	Service contract for the Project Management of the PF2-PF6 coils	40	Y	12Q4
B	WP13/11/09	EU.01.11.01	PSupply	Transportation of magnets coil components	Transportation of large and heavy TF coil components during different manufacturing phases	N/A	Y	N/A
A	WP13/11/10	EU.01.11.04	PServ	Testing of TF Nb_3Sn Strands	Provision for control on production and quality performances of strands, mainly via framework contract WP10/11/12	12	Y	N/A
A	WP13/11/11	EU.01.11	PServ	Extra-storage time	Contracts for storage, insurance and security of materials (mainly conductors and dummy pancake)	24	Y	13Q1

WP Cat	WP Ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP13/11/12	EU.01.11.01	PServ	Radial Plate option	Provisions for reimbursement – late delivery of free-issued items to Radial Plate supplier	48	Y	N/A
B	WP13/11/13	EU.01.11.03	PSupply	Impregnation Tooling Provision	Impregnation tooling for PF2-PF6 coils	25	Y	14Q1
B	WP13/11/14	EU.01.11.03	PSupply	Additional Tooling for manufacturing, testing and transportation	Tooling needed for manufacturing operation (i.e. joggle preparation, He inlet/exit preparation, etc). Not includes tooling for winding and impregnation	12	Y	14Q1
B	WP13/11/15	EU.01.11.03	PServ	PF Coils Manufacturing and Cold Test (MFR)	PF Coils Manufacturing and Cold Test (MFR)	71	Y	14Q1
B	WP13/11/16	EU.01.11.03	PServ	Site & Infrastructure (S&I)	Site & infrastructure support contract for on-site managements of the PF facility	72	Y	14Q1

2.2. Vacuum Vessel

2.2.1. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP13/15/01	EU.01.15.01	PSupply	Procurement of Main Vessel (phase 4)	Implementation of materials stages for sectors 2,7,8 and 9 and options (including *inter alia* materials ELM-VS coil, extra materials for IWS blocks, engineering and installation of instrumentation) of the VV contract according to the developing of the manufacturing	51	Y	2010
A	WP13/15/02	EU.01.15.01	PSupply	Procurement of Main Vessel (phase 4) - additional activities	Additional activities to be performed by the supplier for the management of the change orders to the VV contract; complementary expenditure for supplier's claims.	N/A	Y	N/A
A	WP13/15/06	EU.01.15.01	PServ	Engineering support for VV construction	Material characterization, irradiation tests, engineering and finite-element analysis to support the VV sectors contract activities These analyses include thermal, structural, electromagnetic and seismic. Also CAD tasks to support, validate and/or integrate IO input data and activities to quickly answer to ANB requests to speed design approval. Mainly to be performed through specific contracts under ongoing frameworks under Technical Support Services area.	7	Y	N/A
B	WP13/15/07	EU.01.15.01	PServ	Engineering support for VV construction	Material characterization, irradiation tests, engineering and finite-element analysis to support the VV sectors contract activities These analyses include thermal, structural, electromagnetic and seismic. Also CAD tasks to support, validate and/or integrate IO input data and activities to quickly answer to ANB requests to speed design approval. Mainly to be performed through specific contracts under ongoing frameworks under Technical Support Services area.	28	Y	N/A

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP13/15/04	EU.01.15.01	PServ	Finalization of the design of the VV instrumentation	2013 activities will address interface definition, list of sensors and measuring ranges, assembly drawings, routing plans, etc. Mainly to be performed through specific contracts under ongoing frameworks	12	Y, Y(ITA)	N/A
A	WP13/15/08	EU.01.15.01	PServ	Procurement of Inspections	QA inspection activities for the follow-up of the Vacuum vessel contract, including site inspections activities related to NDT, welding, quality assurance, etc in several supplier manufacturing sites. Mainly to be performed through specific contracts under framework WP11/PO/12	9	Y	N/A
B	WP13/15/09	EU.01.15.01	PServ	Procurement of Inspections	QA inspection activities for the follow-up of the Vacuum vessel contract, including site inspections activities related to NDT, welding, quality assurance, etc in several supplier manufacturing sites. Mainly to be performed through specific contracts under framework WP11/PO/12	18	Y	N/A

2.3. Blanket manifolds

2.3.1. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP12/16/06	EU.01.15.02	PServ	Final design of the Blanket Manifold	Analysis of the final model to be delivered by IO including all improvements made in previous analysis iterations. Mainly implemented through the framework contracts under Technical Support Services area	12	Y,Y(ITA)	N/A

2.4. Blanket First Wall

2.4.1. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP11/16/03	EU.01.16.01	PSupply	Procurement of Test facility	Design, fabrication and commissioning of a new test facility required to perform High Heat Flux testing of FW Be-coated full-scale prototypes and all subsequent FW panels of the ITER supply	23	Y	12Q2
B	WP13/16/01	EU.01.16.01	PServ	Quality control external support	Support of external inspectors to fulfill quality control activities on contracts together with or on behalf of F4E personnel. Mainly to be implemented through the framework contract for support	12	Y	N/A

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
					inspectors WP11/PO/12			
A	WP13/16/02	EU.01.16.01	PServ	High Heat Flux Testing	High Heat Flux Testing of the mock-ups and semi-prototypes manufactured under contract WP12/16/02	25	Y	12Q4
B	WP13/16/03	EU.01.16.01	PServ	First wall panel manufacturing development	First wall panel manufacturing development: support in the specification and fabrication of the FSP, focused on material and HIP technologies	9	Y	12Q4
B	WP13/16/07	EU.01.16.01	PSupply	Manufacture of FW full scale prototypes	Manufacture of First Wall full scale prototypes and related manufacturing studies	22	Y	13Q2
B	WP13/16/06	EU.01.16.01	G	Analysis of CuCrZr material for HIP manufacturing route	CuCrZr specification for Elaboration of a complete technical specification suited for the purchase of CuCrZr fit for the FW panel manufacturing through HIP route, involving EU CuCrZr suppliers (continuation of GRT-038)	14	Y	12Q4
B	WP13/16/08		P Serv	Technical support for fabrication and commissioning of a High Heat Flux test facility	Supply of expertise in various fields covering the fabrication and commissioning of an EB facility for the High Heat Flux test of In-vessel components	18	Y	13Q3
A	WP13/16/09	EU.01.16.01	PServ	Fabrication of CuCrZr plates for ITER First Wall panels HIP manufacturing route	Procurement of CuCrZr plates to complete material development and pre-qualify additional suppliers	9	Y	13Q2
A	WP13/16/10	EU.01.16.01	P supply	Additional activities to OPE-284 for the HIPping of Beryllium tiles onto the demonstration mock-up	Completion of the DDMU with bonding of be tiles in order to test a batch of US beryllium	12	Y	N/A
B	WP/13/16/11	Eu.01.06.01	P Supply	Development and qualification of laser/EB sintering for the fabrication of the FW panel supporting beam	Development and qualification of laser/EB sintering for the fabrication of the FW panel supporting beam	12	Y	13Q3

2.5. Divertor

2.5.1. List of Activities

WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
WP12/17/01	EU.01.17.01	PSupply	Procurement of the Divertor Cassette Body	This activity refers to the manufacture of the Divertor CB full scale prototypes and the subsequent series production	103	Y	12Q4

WP13/17/01	EU.01.17.01	PServ	Engineering study in support of Cassette Body and Cassette Assembly	This activity concerns the preliminary design of the support frame used for the transportation of CB/CA. To be performed mainly through the FW F4E-2008-OPE-017	11	Y	N/A
WP13/17/02	EU.01.17.02	PServ	Monitoring of Inner Vertical Target prototype	Follow- up and inspection of Inner Vertical Target prototype manufacturing. Mainly to be performed through the FW WP11/PO/12	30	Y	N/A

2.6. Remote Handling

2.6.1. Procurement Arrangements to be signed in 2013

Title	ITER Credit (kIUA)	Signature due
Neutral Beam Remote Handling System	6 kIUA	May 2013

2.6.2. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP11/23/02	EU.01.23.02	FwC	DIV RH framework contract	Procurement activities related to DIV RH (design, manufacturing and installation)	84	Y	12Q4
A	WP11/23/05	EU.01.23.03	PServ	Transfer Cask RH tendering studies	Provisions for cask RH framework contract (WP11/23/04) tendering	9	Y	N/A
A	WP11/23/07	EU.01.23.05	PServ	NB RH tendering studies	Provisions for NB RH framework contract (WP11/23/06) tendering	9	Y	N/A
A	WP11/23/09	EU.01.23.04	PServ	IVVS tendering studies	Provisions for In-Vessel Viewing System framework contract (WP11/23/08) tendering	9	Y	N/A
A	WP12/23/02	EU.01.23.05	G	Neutral Beam Remote Handling (NB-RH) Design Follow-up Phase I	Support activities specific to NB RH	43	Y, Y(ITA)	13Q1
A	WP13/23/02	EU.01.23.01	P Serv	Engineering Support for Remote Handling	Support activities (control system, rad-hard technologies, follow up of the DIV RH tender, preparation of the other PA for TCS, IVVS, NB RH, etc) Mainly performed through specific contracts within framework WP11/ES/06	12	Y,Y(ITA)	N/A

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP13/23/03	EU.01.23.01	P Serv	Engineering Support for Remote Handling	Support activities (control system, rad-hard technologies, follow up of the DIV RH tender, preparation of the other PA for TCS, IVVS, NB RH, etc) Mainly performed through specific contracts within framework WP11/ES/06	12	Y,Y(ITA)	N/A

2.7. Vacuum Pumping and Fuelling

2.7.1. Procurement Arrangements to be signed in 2013

Title	ITER Credit (kIUA)	Signature Due
PA 3.1.P1.EU.01 Warm Regeneration Lines	0.200	June 2013
PA 3.1.P1.EU.02 Front End Cryopump Distribution	1.000	December 2013

2.7.2. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP12/31/01	EU.01.31.01	PSupply	Procurement of the MITICA Cryopump	Procurement of the MITICA Cryopump, including instrumentation and follow-up	47	Y	13Q3
B	WP12/31/03	EU.01.31.01	PServ	Procurement of Warm Regeneration Lines	Procurement of Warm Regeneration Lines: final design and manufacturing	17	Y	13Q1

2.8. Tritium Plant

2.8.1. List of Activities

WP category	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP10/32/04	EU.01.32.02	PServ	Preliminary design of WDS Main	Preliminary design of the WDS (excluding tanks)	21	Y,Y(ITA)	12Q4
B	WP10/32/06	EU.01.32.01	PServ	Conceptual design of ISS	Conceptual design of ISS	19	Y(ITA)	12Q4

B	WP11/32/04	EU.01.32.02	PServ	Procurement for R&D for WDS in support of Preliminary Design	R&D for WDS in support of Preliminary Design (e.g. electrolyser, catalyst/packing)	19	Y(ITA)	12Q4
B	WP11/32/05	EU.01.32.01	G	R&D in support of conceptual design of ISS	R&D activities in support of conceptual design of ISS	15	Y(ITA)	12Q3

2.9. Cryoplant

2.9.1. List of Activities

WP category	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP12/34/01	EU.01.34.01	PSupply	Procurement of LN2 Plant and Auxiliary Systems	Design, manufacturing, on-site delivery and supervision of installation and test of Liquid Nitrogen Plant and Auxiliary Systems	63	Y	12Q4

2.10. Power Supplies

2.10.1. Procurement Arrangements to be signed in 2013

Title	ITER Credit (kIUA)	Signature due
PA 4.1.P8C.EU.01 Material procurement for SSEN	13.3	June 2013
PA 4.1.P8A.EU.01 Material procurement for SSEN Emergency Power Supply	5.7	June 2013
PA 4.1.P1A-P8B.EU.02 Installation & Commissioning of the SSEN & PPEN and SSEN cables	5	June 2013

2.10.2. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP13/41/01	EU.01.41.01	PSupply	Procurement of SSEPN Emergency System and Equipments SSEN Cables and Installation	Electrical Power Distribution TB06 Contract covers: procurement of PBS 43 equipment including cables and non Safety Relevant , and installation of PBS 41-PP and PBS 43 equipment	75	Y	13Q1

2.11. CODAC

2.11.1. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP13/45/01	EU.01.ES.03	PServ	Support on I&C design and implementation in the frame of EU PA's	Technical support to ICC (Instrumentation, Control & CODAC). Provision of professional services in the field of instrumentation and Control System Engineering and aiming to support F4E with the preparation of technical specifications and the follow-up of in kind contributions to ITER. Mainly performed through specific contracts within framework WP11/45/02.	12	Y	N/A
A	WP13/45/02	EU.01.ES.03	PServ	Procurement for I&C Integrator for all EU supplies	Preparation activities to start production of plant system interface to CODAC: training to IO standards and quality, efficiency improvements. Development of centralised control and monitoring for building construction. Integrate any available building to central monitoring. Mainly performed through specific contracts within framework WP12/45/02	12	Y	N/A

2.12. Ion Cyclotron Heating (ICH) and Current Drive Antenna

2.12.1. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP11/51/02	EU.01.51.01	FWC	Detailed design of the ITER ICH antenna - Built to print	Production of the built to print drawings for the ITER ICH antenna activities required for the ITER Final Design Review and for PA preparation	48	N/A	12Q4
A	WP12/51/04	EU.01.51.01	PServ	Design and analyses and technical coordination	Specific Contracts of WP11/51/02 for the design, analyses and technical coordination activities	24	Y(ITA)	NA
A	WP13/51/01	EU.01.51.01	PServ	RF Vacuum Windows design qualification	2013 contracts for the RF window design qualification including: material characteristics, irradiation and property measurements before and after irradiation at high temperature and engineering support to F4E. Irradiation performed with specific contract of Diagnostic general framework	8	Y(ITA)	12Q4
A	WP13/51/02	EU.01.51.01	PServ	Faraday Screen design qualification	2013 contracts for FS design qualification including manufacturing of prototypes, high heat flux testing of prototypes and mock-ups and engineering support to F4E	14	Y(ITA)	N/A
A	WP13/51/04	EU.01.51.01	PServ	Engineering support (Antenna design and analysis)	Mechanical analyses, disruption analysis and seismic/vibration analysis of the IC antenna and general engineering support. Mainly performed through specific contracts within ongoing frameworks under Technical Support Services areas	12	Y(ITA)	N/A

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP13/51/05	EU.01.51.01	PServ	Engineering support (Antenna design and analysis)	Mechanical analyses, disruption analysis and seismic/vibration analysis of the IC antenna and general engineering support. Mainly performed through specific contracts within ongoing frameworks under Technical Support Services areas	12	Y(ITA)	N/A

2.13. Electron Cyclotron (EC) Heating and Current Drive Systems

2.13.1. EC Upper Launcher - List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP12/52/08	EU.01.52.01	PSupply	EC UL prototypes Phase I	Prototype manufacturing and testing required for the BtP EC launcher - part I. Includes SiC1 prototypes for the Primary Confinement System	15	Y(ITA)	13Q1
A	WP12/52/09	EU.01.52.01	PServ	Support to Built-To-Print Primary Confinement System	Preparation of BtP drawings and supporting documentation for FDR & PA of PCS	18	Y(ITA)	13Q1
A	WP13/52/01	EU.01.52.01	PSupply	mm- wave components prototype procurement (in and ex-vessel)	Procurement of standard and non-standard mm-wave components and diagnostics/ancillaries required for testing	18	Y(ITA)	13Q2
A	WP13/52/02	EU.01.52.01	Psupply	Prototype of EC UL mechanical components	Prototypes for tolerance, welding and joining studies, etc	23	Y(ITA)	13Q2
B	WP13/52/04	EU.01.52.01	PServ	Support to Low and High Power mm-wave Testing	Provide tech support to the definition, procurement, testing & documentation of mm-wave components	34	Y(ITA)	13Q1
B	WP13/52/07	EU.01.52.01	PServ	Engineering Support for Launcher Analysis part 1	Support to engineering of the EC launcher (analysis, risk and failure analysis, etc) Mainly to be implemented through ongoing technical support services frameworks	18	Y(ITA)	13Q1

2.13.2. EC Power Sources and Supplies - List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call

B	WP11/52/04	EU.01.52.02	FPA[9]	Design & Development of EU Gyrotron	Integrated design and development activities for the European Gyrotron	48	Y	13Q3
A	WP12/52/02	EU.01.52.03	Psupply	Main Contract for the procurement of Main and Body HV power supplies for the EC ITER system	Main contract for the EU contribution to the ITER Electron Cyclotron power supply system (Main and Body power supplies)	74	Y	13Q1
B	WP13/52/08	EU.01.52.02	PServ	Engineering Support and quality assurance activities for the EC Power Sources and Power Supplies	Industrial support to F4E in preparation and follow-up of the contracts for EU contribution to the EC power supplies and RF sources of ITER. Mainly performed through specific contracts within ongoing frameworks in the technical support service area and WP11/PO/12	N/A	Y	N/A

2.14. Neutral Beam Heating Systems

2.14.1. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP09/53/06	EU.01.53.07	PSupply	Neutral Beam Test Facility -Ion source test facility (power supplies - HVD and TX Line)	Procurement of the HV Deck and Transmission Line for SPIDER	26	Y	12Q3
B	WP10/53/13	EU.01.53.06	PSupply	Infrastructures of the Neutral Beam Test Facility - Accelerator and Ground Related Power Supplies	Procurement of the NB Acceleration and Ground Related Power Supplies (Conversion System European scope of supply)	32	Y	13Q3
A	WP11/53/01	EU.01.53.06	PSupply	Infrastructures of the Neutral Beam Test Facility - High Voltage Deck and Bushing	Procurement of the HVD and Bushing for the MITICA experiment at the NB Test Facility	49	Y	12Q4
A	WP11/53/08	EU.01.53.07	FWC	Infrastructures of the Neutral Beam Test Facility - Instrumentation & Control System	Framework contract for the procurement of instrumentation and control systems related to SPIDER and PRIMA experiments. Will be implemented by means of specific financing decisions.	48	N/A	11Q1
B	WP12/53/04	EU.01.53.07	PSupply	Neutral Beam Test Facility - Procurement for MITICA Beam Line Components (phase 1)	Payments for Competitive dialogue for the finalisation of the procurement specification	8	Y	13Q3
B	WP12/53/06	EU.01.53.07	FWC	Neutral Beam Test Facility - NBTF Assembly and Testing Equipment	Framework contract for the procurement of the Assembly, Assembly Toolings and testing equipment for the NBTF.	48	N/A	13Q1

[9] Unique beneficiary EGYC Consortium (KIT, CRPP, HELLAS, CNR): technical competencies.

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP11/53/09	EU.01.53.07	FWC	Neutral Beam Test Facility - NBTF Diagnostics	Framework contract for the procurement of the diagnostics for the NB Test Facility. It will be implemented by means of specific financing decisions	48	N/A	13Q2
A	WP13/53/01	EU.01.53.07	PSupply	Infrastructures of the Neutral Beam Test Facility - Instrumentation & Control System	Procurement of Instrumentation & Control systems related to SPIDER and PRIMA experiments at the NB Test Facility. Mainly performed through specific contracts within framework contract WP11/53/08.	12	Y	N/A
B	WP13/53/04	EU.01.53.07	P supply	Neutral Beam Test Facility - Procurement for MITICA Vessel	Supply contract for the procurement of the vacuum vessel of the MITICA experiment	30	Y	13Q2
B	WP13/53/05	EU.01.53.08	G[10]	Neutral Beam Injector HNB1 & HNB2 Development Support for Components Outside the Scope of the Neutral Beam Injector Test Facility	Finalization of the design of the Components Outside the Scope of the Neutral Beam Additional activities in the frame of the Grant F4E-GRT-022	12	Y(ITA)	13Q3
B	WP13/53/06	EU.01.53.08	PServ	Engineering and quality assurance support in the NB area	Activities in support of F4E design and follow-up of procurement contracts. Mainly performed through specific contracts within the Engineering Framework Supporting Contracts in the technical support services area and WP11/PO/12	12	Y	N/A
A	WP13/53/08	EU.01.53	Pserv	Services for NBTF site	Services for insurance, on-site work coordination and health & safety	4	Y	13Q2

2.15. Diagnostics

2.15.1. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP11/55/10	EU.01.55.15	FWC	Irradiation and post-irradiation testing of diagnostic components and assemblies	Framework contract covering irradiation and post-irradiation testing services for prototype components and assemblies	74	NA	12Q3

[10] Unique Beneficiary CCFE: Technical Competence

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP12/55/01	EU.01.55	PServ	Irradiation and post-irradiation testing of diagnostic components and assemblies	2013 activities will mainly focus on testing of in-vessel components including cables, prototype cable loom assemblies and prototype assemblies for bolometers, pressure gauges and magnetic sensors. Mainly performed through specific contracts within framework contract WP11/55/10.	12	Y	N/A
A	WP12/55/03	EU.01.55	SG	Diagnostic Development and Design	Multiple Specific Grants to be implemented under the FPAs (WP11/55/01 and WP13/55/01). 2013 activities for each of the above FPAs will mainly focus on developing the project plan, establish and conduct a project co-ordination office (where not established under SGs launched in WP2012), conduct of the system-level design, design of R&D prototypes, follow-up of prototype manufacturing, conventional testing of prototypes and design of early delivery components	12	Y	N/A
A	WP13/55/08	EU.01.55	PSupply	Prototypes & Test Equipment	2013 activities will include the manufacturing of prototypes for irradiation and conventional tests for magnetic sensors bolometers, plasma position reflectometry, pressure gauges, radial neutron camera, Tokamak services, low field side collective Thomson scattering, equatorial visible/IR wide-angle viewing system and CXRS	12	Y, Y(ITA)	13Q1/13Q3
B	WP13/55/012	EU.01.55	PSupply	Prototypes & Test Equipment	2013 activities will include the manufacturing of prototypes for irradiation and conventional tests for magnetic sensors bolometers, plasma position reflectometry, pressure gauges, radial neutron camera, Tokamak services, low field side collective Thomson scattering, equatorial visible/IR wide-angle viewing system and CXRS	12	Y, YITA)	13Q3/13Q4
B	WP12/55/10	EU.01.55.01	G[11]	Design of Magnetics Diagnostic to Detail Design Review Level	Amendment of F4E-GRT-155 (launched under WP2010, ref. WP10/55/15 to a unique beneficiary) to include design of divertor equilibrium pick-up coils. The main activity will be design of the platform for the sensor head.	12	Y/Y(ITA)	N/A
A	WP12/55/11	EU.01.55.14	FWC	Integration design of diagnostics into ITER ports- Framework Contract	Framework contract covering provision of design and engineering analysis services for coordination of diagnostic integration into upper, equatorial and lower ports; design and planning of associated radiation shielding modules and adaptation of port plug structures; definition and management of design interfaces; integration of baseline diagnostic designs and engineering analysis of integrated structures.	48	Y	12Q4
A	WP13/55/01	EU.01.11.15	FPA	Diagnostic Development and Design- Partnership Agreement	Multiple Framework Partnership Agreements covering integrated development and design activities of the following diagnostic systems: - LIDAR Thomson Scattering - CXRS - Equatorial Vis/IR TV sys - LFS Collective Thomson Scattering Bolometers	48	Y	12Q4

[11] Unique Beneficiary ENEA-Consorzio RFX: technical competencies

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP13/55/02	EU.01.55.01	G	Magnetics diagnostic analysis software	Grant covering the Design of Analysis software Algorithms. Includes definition of detailed requirements, software development, prototype testing and coding support.	33	Y	13Q2
B	WP13/55/04	EU.01.55.01	PSupply	Magnetics diagnostic: Procurement of the continuous external Rogowski coil	Contract for the procurement and delivery of the continuous external Rogowski coil	9	Y	13Q2
B	WP13/55/14	EU.01.55.15	G	Mirror lifetime optimization	Grant covering research and development for mirror lifetime optimization	24	Y	13Q3
A	WP13/55/15	EU.01.55.15	SC	Development of CODAC and Software Support	Specific Contracts under FWC F4E- OFC-361: Provision of Instrumentation and Control integration services	12	Y	N/A
A	WP13/55/16	EU.01.55.14	PSupply	Neutronic analysis for Diagnostic components	Neutronic analysis in support of the Port Plug integration design	12	Y	13Q2

2.16. Buildings

2.16.1. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP11/62/08	EU.01.62.02	PServ	Preparatory activities for Tokamak Complex and Cranes tenders	Design and definition activities from competitive dialogue candidates to tender batch TB02, intended to provide cost effective tenders in compliance with the technical specifications and the budget constraints.	N/A	Y	N/A
B	WP13/62/01	EU.01.62.02	PServ	Engineering counter-expertise for structural and geotechnical design and works execution	Engineering counter-expertise for structural and geotechnical design and works execution. Mainly performed under the framework contract WP12/ES/01	48	Y,	N/A
A	WP13/62/03	EU.01.62.02	Psupply	Design and Build for Buildings 67,68,69	Contract (TB07) for Design & Built Buildings 67, 68, 69	28	Y	12Q4
A	WP13/62/04	EU.01.62.02	Psupply	Tokamak SIP - Additional activities 2013	New Activities linked to implementation of Design changes / PCRs from IO	12	Y	N/A
A	WP13/62/05	EU.01.62.02	PServ	Additional activities – HSPC&LI contract	Additional work for maintenance & installation of PF Coil Building	9	Y	N/A

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP13/62/07	EU.01.62.02	PServ	Contract for Site Security and Reception Services for the ITER Site	Provision of worksite access control and security -2014 activities – Jointly with IO	12	Y	N/A
B	WP13/62/08	EU.01.62.02	PServ	Contract for Facility Management (work site common services)	Provision of worksite facility management -2014 activities – Jointly with IO	12	Y	N/A
B	WP13/62/09	EU.01.62.02	PServ	Architect Engineer: additional activities (Amendment)	Additional activities to be performed by the AE supplier. Set-up of an engineering task force to support IO in determining the critical input data for buildings. Additional effort in design activities due to PCRs. Additional duration of Design activities due to revised schedule of IO input data delivery	2	Y	N/A
A	WP13/62/11		P supply	TB04 - Contract for HVAC, Elec&Flu Net & Hand'g 11,13-17, 51-53,61,71-75 (additional activities)	Complementary commitment to the 2012 provision including additional scope due to IO PCRs and increase of complexity	60	Y	N/A
A	WP13/62/12	EU.01.62.02	Psupply	TB01 - Contract for Site Adaptation Works – 2013 Amendments	Additional Activities linked to re-measurement, transfer of scope, design modification, construction methodology update and unforeseeable physical conditions	6	Y	N/A
A	WP13/62/13	EU.01.62.02	Psupply	TB Alpha - Contract for Galleries and Drainage Works – 2013 Amendment	Additional Activities linked to re-measurement, design modification, interface issues and earthing grid	3	Y	N/A

2.17. Radiological Protection

2.17.1. Procurement Arrangements to be signed in 2013

Title	ITER Credit (kIUA)	Signature due
PA 6.4.P1.EU.01 Radiological and Environmental Monitoring System	TBD	June 2013

2.17.2. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP13/64/01	EU.01.64.01	PServ	REMS: preliminary design	Development of Preliminary Design of the REMS. Mainly specific contracts to be implemented through the F4E-OMF-298	12	Y	N/A

2.18. Waste Treatment

2.18.1. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP13/66/01	EU.01.66.01	PServ	Support to IO for Conceptual Design	Radwaste Conceptual design support. Mainly to be performed through the Framework contract F4E-OMF-298	12	Y(ITA)	N/A

2.19. Test Blanket Modules and Materials Development

2.19.1. List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP11/56/04	EU.01.56.02	PSupply	Procurement of EUROFER for TBM mock-ups	Procurement of EUROFER semi-finished products for TBM mock-ups	18	N	13Q2
B	WP12/56/07	EU.01.56.02	FPA	Framework Partnership Agreement for the development, benchmarking, validation of predictive tools in view of TBS final design and future ITER application	Framework Partnership Agreement for the development, benchmarking, validation of predictive tools	48	N	13Q1
A	WP13/56/01	EU.01.56.02	SG	Specific Grants for R&D in support to the TBS design	R&D activities for TBM and material development. Mainly specific grants to be implemented through the FPAs WP11/56/03 ,WP11/56/07, , WP12/56/07,	12	N	N/A
A	WP12/56/01	EU.01.56	P Serv	Specific contracts in support to the TBSs Conceptual Design Review (CDR) preparation and outcomes implementation; related techno demonstration.	TBS conceptual design finalization for the CDR, preparation of CDR documentation, support to the CDR, resolution of CDR outcomes by design update and complementary analyses, complementary technological demonstration (e.g. TBM box fabrication) (Implemented under FwC WP11/56/11 and	13	N	N/A
B	WP12/MD/06	EU.01.56.02	SC	Materials characterization, irradiation and post irradiation	Mainly service contract to be implemented under FWC WP12/MF/12, OFC -167 and OPE-149	30	N	N/A

B	WP13/56/02	EU.01.56.01	FWC	ANB consulting activities	Framework contract for support to the definition on ESPN categorization, o/and related design implementation	84	N	13Q1
A	WP13/56/03	EU.01.56.01	G[12]	Complementary analysis on Tritium migration modelling in TBM Systems	Further test/validation cases of ECOSIMPRO for simulation of Tritium migration in TBM Systems	6	N	13Q3

2.20. Plasma Engineering

2.20.1. List of Activities[13]

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP11/PE/07	EU.01.PE	G	Physics and engineering modelling for plasma control and scenarios	Development of physics plasma models and engineering models in support to the study of the plasma control system and scenario optimisation (i.e. plasma breakdown, transient events)	24	Y(ITA)	N/A
A	WP12/PE/01	EU.01.PE	G	Disruption Modelling and simulation	Modelling and simulation of plasma disruptions. Computation of the forces on the machine structures	12	Y(ITA)	N/A
A	WP13/PE/07	EU.01.PE	P Serv	Engineering Support and analysis for plasma control disruptions and scenarios	Activities and analyses in support of the study of the plasma control system or the optimisation of the ITER scenarios	12	Y,Y (ITA)	N/A
B	WP13/PE/08	EU.01.PE	P Serv	Engineering Support and analysis for plasma control disruptions and scenarios	Activities and analyses in support of the study of the plasma control system or the optimisation of the ITER scenarios	12	Y,Y (ITA)	N/A
A	WP13/PE/05	EU.01.PE	G	ITER scenario and plasma performance analysis	Analysis and optimisation of the nominal ITER scenarios, including abnormal scenarios such as fast pulse termination	12	Y(ITA)	N/A
B	WP12/PE/06	EU.01.PE	G	Plasma Wall interaction and First Wall and divertor engineering studies	Analyses of the plasma wall interaction, computation of heat loads and engineering studies of the First Wall and divertor	12	Y(ITA)	N/A
B	WP12/PE/07	EU.01.PE	G	Study of magnetic, kinetic and advanced control including protection systems	Study of the magnetic, kinetic and advanced plasma control systems for ITER including protection systems: definition of requirements and interfaces and algorithm development	12	Y(ITA)	N/A
B	WP12/PE/09	EU.01.PE	PServ	Analysis of the W divertor option	Engineering support activities for the full W divertor option.	24	Y(ITA)	N/A

[12] Unique Beneficiary CIEMAT, art 158 F4E Implementing Rules, Unique technical competence and high degree of specialization

13 Most of the activities in the area of Plasma Engineering are going to be implemented on the basis of competitive ITAs for which no planning is available from ITER IO; therefore no time of call is given for these activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP12/PE/08	EU.01.PE	G	Additional heating systems analysis	Analysis of the additional plasma heating: definition of requirements, performance analysis and definition of interfaces (in particular with plasma control)	24	Y(ITA)	N/A
B	WP13/PE/02	EU.01.PE	G	Plasma Engineering analysis	Analysis of plasma operations, plasma-machine interfaces and actuators	18	N	13Q3
B	WP13/PE/03	EU.01.PE	PServ	Plasma Engineering studies	Engineering studies of plasma systems, controls and design verification	18	N	13Q3
B	WP13/PE/04	EU.01.PE	PServ	Engineering Support and analysis for antennas	Activities and analyses in support of the design and optimisation of the ECH and ICH antennas (in support of the PA preparation)	12	Y,Y(ITA)	N/A
B	WP13/PE/06	EU.01.PE	G	3D Effects for plasma operation and control	Inclusion of 3D effects (modes asymmetries, etc) in the plasma control models	18	Y (ITA)	N/A
B	WP13/PE/09	EU.PE.01	PServ	FWC for system and control engineering	Activities and analyses related to the ITER control system	48	N/A	13Q2

2.21. Engineering Support

2.21.1. Nuclear Safety - List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP13/SF/01	EU.01.NS.01	G	Supporting safety analysis to follow up ITER design evaluation and licensing process	Grant for Supporting Safety Analysis to Follow-up ITER Design Evolution and Licensing Process (2013)	12	Y(ITA)	13Q2
A	WP13/SF/03	EU.01.NS.01	PServ	Supporting safety analysis to follow up ITER design evaluation and licensing process	Supporting safety analysis to follow up ITER design evaluation and licensing process .Mainly to be implemented through the ongoing framework F4E – OMF- 298	12	Y,Y ITA	N/A
B	WP13/SF/04	EU.01.NS.01	PServ	Supporting safety analysis to follow up ITER design evaluation and licensing process	Supporting safety analysis to follow up ITER design evaluation and licensing process .Mainly to be implemented through the ongoing framework F4E – OMF- 298	12	Y,Y ITA	N/A

2.21.2.Materials - List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP12/MF/12	EU.01.MF.01	FWC	Materials irradiation and post irradiation characterization	Provision of Irradiation and post – irradiation testing of materials for the ITER components	72	N/A	13Q1
A	WP12/MF/13	EU.01.MF.01	PServ	Materials irradiation and post irradiation characterization	Characterization of non-irradiated and irradiated XM19, SS660, NiAl Bronze, Inconel 718, XM19/316L(N)-IG welded joint and CuCrZr/316L(N)-IG explosion bonded joints. Mainly performed through specific contracts within framework WP12/MF/12	24	Y, Y(ITA)	N/A
A	WP12/MF/14	EU.01.MF.01	FWC	ITER specific raw material	Provision of small quantities of ITER specific raw material	84	N/A	13Q1
A	WP13/MF/07	EU.01.MF.01	PServ	Material characterization at cryogenic temperatures	On demand material characterisation at cryogenic temperatures in the frame of construction and R&D of ITER components. Mainly performed through specific contracts within framework F4E OPE 084	12	Y, Y(ITA)	N/A
B	WP13/MF/08	EU.01.MF.01	PServ	Material characterization at cryogenic temperatures	On demand material characterisation at cryogenic temperatures in the frame of construction and R&D of ITER components. Mainly performed through specific contracts within framework F4E OPE 084	12	Y, Y(ITA)	N/A
A	WP13/MF/03	EU.01.MF.01	PServ	Material characterization at room/elevated temperatures	On demand material characterisation in the frame of construction and R&D of components for ITER. Mainly performed through specific contracts within framework F4E OFC 167	12	Y, Y(ITA)	N/A
B	WP13/MF/04	EU.01.MF.01	G[14]	Characterization of materials and joinings	Assessment of erosion corrosion parameters at nominal of plasma operational conditions	12	Y, Y(ITA)	13Q2
B	WP13/MF/05	EU.01.MF.01	G[15]	Characterization of materials and joinings	Feasibility study of electron beam and laser sintering for the manufacturing of the first wall beam structure	12	Y, Y(ITA)	13Q2

[14] Single beneficiary Studsvik Nuclear, Unique Facility

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP13/MF/06	EU.01.MF.01	PServ	Joining technologies and non destructive testing	On demand material and joining characterisation in the frame of construction and R&D of ITER components. Mainly performed through specific contracts within framework F4E OPE 149	12	Y, Y(ITA)	N/A

2.21.3. Engineering Analysis - List of Activities

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP12/ES/01	EU.01.ES.02	FWC	Dynamic Analysis	Seismic and Dynamic Analysis of ITER buildings and components	48	Y, Y(ITA)	12Q4
B	WP12/ES/07	EU.01.ES.02	PServ	Codes and Standards	Codes assessment in support of the design of the ITER components	12	Y,Y(ITA)	13Q1
A	WP12/ES/08	EU.01.ES.02	FWC	Nuclear Analyses	Nuclear analyses in support of PAs and ITAs.	48	NA	12Q4
A	WP13/ES/01	EU.01.ES.02	FWC	Electromagnetic analyses	Electromagnetic analyses – error fields and superconducting magnets	48	N/A	13Q2
A	WP13/ES/02	EU.01.ES.02	FWC	Mechanical analyses	Mechanical analyses in support of PAs and ITAs	48	NA	12Q4
A	WP13/ES/03	EU.01.ES.01	FWC	Metrological activities	Metrological activities in support of PAs and ITAs	48	NA	13Q2
A	WP13/ES/20	EU.01.ES.01	PServ	Engineering Support- CAD support	Support in CAD design CAD checking and CAD exchange. Mainly performed through specific contracts within framework WP11/ES/07	12	Y,Y(ITA)	NA
B	WP13/ES/21	EU.01.ES.01	PServ	Engineering Support- CAD support	Support in CAD design CAD checking and CAD exchange. Mainly performed through specific contracts within framework WP11/ES/07	12	Y,Y(ITA)	NA
A	WP13/ES/22	EU.01.ES.01	PServ	Engineering support - general mechanics plant system and integration	Engineering support in the area of general mechanics plant system and integration. Mainly performed through specific contracts within framework WP12/ES/12	12	Y,Y(ITA)	WP13/ES/22

[15] Single beneficiary Stockholm University, Unique Facility

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
B	WP13/ES/23	EU.01.ES.01	PServ	Engineering support - general mechanics plant system and integration	Engineering support in the area of general mechanics plant system and integration. Mainly performed through specific contracts within framework WP12/ES/12	12	Y,Y(ITA)	WP13/ES/23
A	WP13/ES/11	EU.01.ES.02	PServ	Mechanical analyses	Mechanical analyses in support of PAs and ITAs. Mainly performed through specific contracts within framework F4E-2008-OPE-07, WP13/ES/02 and WP12/ES/05	12	Y,Y(ITA)	N/A
B	WP13/ES/12	EU.01.ES.02	PServ	Mechanical analyses	Mechanical analyses in support of PAs and ITAs. Mainly performed through specific contracts within framework F4E-2008-OPE-07, WP13/ES/02 and WP12/ES/05	12	Y,Y(ITA)	N/A
B	WP13/ES/07	EU.01.ES.02	PServ	Dynamic Analysis	Seismic and Dynamic Analysis of ITER buildings and components. Mainly performed through specific contracts within framework contract WP12/ES/01.	12	Y, Y(ITA)	NA
A	WP13/ES/13	EU.01.ES.02	PServ	Electromagnetic analyses	Electromagnetic analyses in support of PAs and ITAs. Mainly performed through specific contracts within framework (F4E-2008-OPE-06, WP12/ES/03, and WP13/ES/01	12	Y,Y(ITA)	N/A
B	WP13/ES/14	EU.01.ES.02	PServ	Electromagnetic analyses	Electromagnetic analyses in support of PAs and ITAs. Mainly performed through specific contracts within framework (F4E-2008-OPE-06, WP12/ES/03, and WP13/ES/01	12	Y,Y(ITA)	N/A
A	WP13/ES/15	EU.01.ES.02	PServ	Nuclear analyses	Nuclear analyses in support of PAs. Mainly performed through specific contracts within framework F4E-2008-OPE-02 and WP12/ES/08	12	Y,Y(ITA)	N/A
B	WP13/ES/16	EU.01.ES.02	PServ	Nuclear analyses	Nuclear analyses in support of PAs. Mainly performed through specific contracts within framework F4E-2008-OPE-02 and WP12/ES/08	12	Y,Y(ITA)	N/A
A	WP13/ES/19	EU.01.ES.02	PServ	Nuclear Analysis Validation, quality assurance and standards for ITER nuclear analyses	Definition of ITER nuclear analysis validation and quality assurance criteria; standardization of ITER nuclear analysis methods and tools	12	Y,Y(ITA)	N/A
A	WP13/ES/17	EU.01.ES.02	PServ	Thermo-hydraulic Fluid Dynamic analyses	Fluid Dynamic analyses, including thermo hydraulics, in support of PAs and ITAs. Mainly performed through specific contracts within framework F4E-OPE-031	12	Y,Y(ITA)	N/A
B	WP13/ES/18	EU.01.ES.02	PServ	Thermo-hydraulic Fluid Dynamic analyses	Fluid Dynamic analyses, including thermo hydraulics, in support of PAs and ITAs. Mainly performed through specific contracts within framework F4E-OPE-031	12	Y,Y(ITA)	N/A

2.21.4. Nuclear Data - List of Activities

WP category	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP13/ND/03	EU.01.ES.02	SG	Nuclear Data, and experimental activities	Definition of irradiation campaigns for fusion relevant materials and layouts. Improvement of nuclear instrumentation for the nuclear test programme in ITER. Mainly performed through specific grants under WP12/ND/01	12	N	N/A
B	WP13/ND/04	EU.01.ES.02	SG	Nuclear Data, and experimental activities	Definition of irradiation campaigns for fusion relevant materials and layouts. Improvement of nuclear instrumentation for the nuclear test programme in ITER. Mainly performed through specific grants under WP12/ND/01	12	N	N/A
B	WP13/ND/02	EU.01.ES.02	SG	Nuclear Data improvements and development of tools - Nuclear Data evaluation	Integrated R&D for the improvement of Nuclear Data libraries and related computational processing. Mainly performed through specific grants under WP11/ND/01	24	N	N/A

2.22. Quality Assurance and Project Management

2.22.1. List of Activities

WP category	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP13/PO/15	EU.01.PM.00	FWC	Supply of Project Management Services	Framework Contract for project management services to support F4E activities. It will be implemented by means of specific contracts. Includes lots for Configuration Management and System Engineering Support and Project Management System Support	48	N/A	12Q4
B	WP13/PO/16	EU.01.PM.00	FWC	Supply of Project Management Services	Framework Contract for project management services to support F4E activities. It will be implemented by means of specific contracts. Includes lots for Risk management support, cost management support and CE marking support	48	N/A	12Q4
A	WP13/PO/17	EU.01.PM.00	PServ	Support of Project Management	Outsourcing of planning activities on specific tasks and other project management activities. Mainly performed through specific contracts within frameworks WP13/PO/15 and WP11/PO/13	12	Y,Y(ITA)	N/A
B	WP13/PO/18	EU.01.PM.00	PServ	Support of Project Management	Outsourcing of project management activities. Mainly performed through specific contracts within frameworks WP11/PO/16	12	Y,Y(ITA)	N/A
B	WP13/PO/02	EU.01.PM.00	PServ	Service of inspectors and auditors for ITER project contracts follow-up	Support to F4E for surveillance and auditing work at the manufacturers' premises for running contracts. Mainly performed through specific contracts within framework WP11/PO/12	12	Y, Y(ITA)	N/A

WP category	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
A	WP13/PO/19	EU.01.PM.08	PServ	Global transportation of ITER components (test convoy)	Global transportation of ITER components (test convoy and exceptional, conventional and heavy loads) and related studies incl. management of transport-related topics (i.e. customs, handling, etc.). Includes the execution and additional services for Test Convoy (TC-1 + TC-2) execution and logistics for test convoy 3	6	Y	N/A
B	WP13/PO/20	EU.01.PM.08	PServ	Global transportation of ITER components (test convoy)	Global transportation of ITER components (test convoy and exceptional, conventional and heavy loads) and related studies incl. management of transport-related topics (i.e. customs, handling, etc.).	6	Y	N/A
A	WP13/PO/05	EU.01.PM.00	PServ	Ad-hoc Support on Project Management	Temporary Support in the maintenance of the PM integrated system	4	Y	12Q4

2.23. Urgent Activities in support of cost and risk assessment

Some activities (corresponding to a total of about 5 man-years) may be necessary to be carried out in the estimation of costs and in the assessment of risk during the course of the year. Such activities could be either grants or procurements under the 3.1 and 3.2 budget lines.

WP ref	Activity Type	Activity Title	Activity Description	Duration of (months)	Credit Status	Time of Call
WP13/PO/11	G	Analysis for cost containment	On-demand, urgent analysis and engineering activities	N/A	Y,Y(ITA)	N/A
WP13/PO/12	G	Analysis for cost containment	On-demand, urgent R&D activities	N/A	N	N/A
WP13/PO/13	P	Analysis for cost containment	On-demand, urgent analysis and engineering activities	N/A	Y,Y(ITA)	N/A
WP13/PO/14	P	Analysis for cost containment	On-demand, urgent R&D activities	N/A	N	N/A

2.24. Budget Allocation for amendments and Price Indexation for Ongoing Contracts and Grants

F4E may exercise contractual options and amend grants and contracts covered by (a) financing decision(s) and without substantial change in such decision(s) under the following criteria:

- Total amendments to a contract or grant will not exceed 20% of the price of the initial contract or grant; and
- Aggregated value of the amendments will not exceed in 2013 3% of the 2013 ITER procurement/grant (Title III) budget.

Exercise of contractual options and amendments exceeding the thresholds under the above underlying criteria shall require a new prior financing decision. F4E may implement price indexation referred to in the signed contracts covered by (a) financing decision(s) and without substantial change in such decision(s) under the criteria that aggregated value of the indexation cost in 2013 will not exceed to 3% of the 2013 ITER procurement/grant (Title III) budget.

Implementation of indexation exceeding the threshold under the above underlying criteria shall require a new prior financing decision. Implementation of contract amendments or indexation that leads to a change in the contract value of EUR 10 million, independently of the above-mentioned percentages, shall require a new prior financing decision.

WP ref	Activity Type	Activity Title	Activity Description	Duration (months)	Credit Status	Time of Call
WP13/PO/07	G	Amendments of ongoing Grants	Budget allocation for amendments of ongoing Grants	N/A	Y,Y(ITA)	N/A
WP13/PO/08	G	Amendments to ongoing Grants	Budget allocation for amendments on ongoing Grants	N/A	N	N/A
WP13/PO/09	P	Amendments and price indexation ongoing Procurements	Budget allocation for amendments and price indexation of ongoing procurement Contracts	N/A	Y,Y(ITA)	N/A
WP13/PO/10	P	Amendments to ongoing Procurements	Budget allocation for amendments on ongoing procurement Contracts	N/A	N	N/A

2.25. Contributions in Cash

2.25.1. Contribution to the ITER Organisation

This corresponds to the annual EU share of the contributions in cash to the ITER Organisation for its management, to be adopted at the ITER Council meetings in 2013. This contribution is for 2014. It will be committed in the last quarter of 2013 and will be paid to ITER IO in two payments in 2014.

2.25.2. Contribution to Japan

This cash contribution to Japan corresponds to the transfer of procurement responsibility from EURATOM to Japan under the supervision of the ITER Organisation. According to the request of the Court of Auditors, this line includes the total value of the cash contributions for all the signed JA procurements for which the procurement agreements to be signed in 2013. The conversion rate used for the calculation takes into account the forecasted rates for the years when the contribution will have to be paid. Adjustments may be required before the last payment to take into account any change in the conversion rate happened until that time. The 2013 Cash Contribution corresponds to the following Procurement Arrangements:

PA number	Procurement Arrangement Title	Amount (kIUA) to be committed with budget 2013
1.1.P2A-B.JA.01	Toroidal Field Magnet Structures 2A	46.260

2.25.3. NBTF Agreement with Consorzio RFX

This cash contribution to the Consorzio RFX corresponds to the 2014 NBTF Work Programmes and amendment of the 2013 NBTF WP implementing the agreement on the Neutral Beam Test Facility on credited and not-credited budget lines. The commitment for 2014 activities will be implemented after the F4E approval of the NBTF 2014 Work Programme and after the F4E approval of the 1st amendment of the 2013 NBTF WP. The following activities will be performed in 2014:

- SPIDER integration and commissioning;
- Design of MITICA components and systems and, as applicable, support in the preparation of technical specifications;
- R&D activities and procurements for demonstration activities finalised to the completion of build-to-print technical specifications;
- Modeling and physics studies directly related to the development of the components for the NB system;
- Support to F4E in the follow-up of procurements contract;
- Participation to technical meetings including interface meeting with IO and other Domestic Agencies;
- Provision of NBTF Host services like: technical support during installation, construction supervision, licensing and safety, provision of site specific information to IO, F4E, other DAs and contractors, insurance and balance of plants;
- Provision of site facilities to Third Parties, as applicable.

2.25.4. Site cooperation agreement and host agreement of F4E at Cadarache

These Agreements on ITER Site collaboration between the ITER Organization (IO) and Fusion for Energy (F4E) set out the terms and conditions under which F4E and IO may share certain goods and services available at the ITER Site (including electrical power and water) and provide support to each other in certain tasks related to construction of the ITER Buildings and Site Infrastructure and/or installation of any ITER equipment.

In 2013, the cash contribution to be made by F4E to IO under the Site Cooperation Agreement will also cover the cost of electrical power and water incurred by IO with regard to the PF Coils building in 2012.

2.25.5. Agreement with China or Japan Domestic Agency for Poloidal Field Coil PF06 production

This corresponds to the collaboration agreement with Japan Domestic Agency or Chinese Domestic Agency for PF06 Coil production

2.26. Other Operational Expenditure

F4E has issued calls for expressions of interest for individual experts to provide technical assistance in a number of specific areas related to ITER and the Broader Approach. Provision is included in the budget (under title 3.4) for a total of approximately 3100 expert man-days in 2013.

Additionally, F4E will need specialist support from economic operators (by means of service contracts) for operational needs linked to the preparatory phase of specific in-kind contributions to IO: this will include (where appropriate) legal and commercial services, including adjudicators of on-going contracts and provision to cover the Chairman and advisors fees in case of lost disputes in front of the adjudication Panel. Provision in this sense is included in the budget for 2013 (under title 3.4).

3. BROADER APPROACH

3.1. Introduction

The European contributions to the Broader Approach Activities are financed to a large extent by contributions in kind from the following Members of F4E: France, Germany, Italy, Spain, Switzerland (discontinued from 2013) and Belgium. Only in a limited number of cases, where no contribution by these Members is foreseen, the contribution will have to be financed by the F4E budget. The PAs planned to be signed in 2013 are indicated in the sections dedicated to each BA project. In the following, the activities of F4E related to the BA are described. The tables use the following abbreviations:

Abbreviation	Meaning
WP ref	Work programme reference, univocally identifying WP items. WPxx/yy/zz, where xx are the last two digits of the WP/budget year in which the activity was first financed, yy is a code identifying the ITER WBS element (if available) or the F4E service in charge, zz is a sequential number for the year
G	Grant
P	Procurement (service, supply or works)

All activities indicated within WP2013 are planned to be committed under the 2013 budget. During the implementation of the work programme activities, F4E may 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 WP2013. The foreseen time of publication of calls and invitations is indicative only and based on the present understanding of the project development.

3.2. JT60SA

3.2.1. F4E Funded Activities

The activities for JT-60SA follow the Satellite Tokamak Programme (STP) Work Programme approved by the 11th BA Steering Committee on 6th November 2012. The activities foreseen are reported in the following table. It is noted that one activity can convert into one or more contracts as appropriate.

WP Cat	WP ref	F4E WBS	Activity Type	Activity Title	Activity Description	Duration (months)	Time of Call
A	WP12/BA/12	EU.BA.02.01.03.	PServ	Measurement of Materials Properties	Samples fabrication and measurement of the mechanical properties of various materials in support of Quality Control	12	13Q1
A	WP12/BA/14	EU.BA.02.01.03	PServ	Hydraulic Measurements	Measurement of pressure drop for the characterization of TF conductor	6	13 Q1
A	WP13/BA/01	EU.BA.02.01.03	PServ	Prototype samples	Fabrication and test of prototypical elements of JT-60SA components	12	13 Q3
A	WP13/BA/02	EU.BA.02.01.03	PServ	TF conductor storage	Additional Storage Space for TF conductor, insurance and minor transports	12	13Q1
A	WP13/BA/03	EU.BA.02.02.01	PServ	Transports on BA Framework Transport Contract	Transports for IFMIF/EVEDA, IFERC and STP contracted in the form of work order in the	12	13Q2

					Framework contracts		
A	WP13/BA/04	EU.BA.02.05.01	Psupply	Cryoplant Storage Tanks	Design, fabrication, transport to site and installation of the tanks for JT-60SA cryoplant installation	18	13Q3
A	WP13/BA/05	EU.BA.02.01.03	Pserv	Engineering Support Studies	Engineering Support Studies, Validation Tests and Measurements for JT-60SA	18	13Q4

3.2.2. Procurement Arrangements

One PA foreseen to be signed in 2013 to cover the fabrication of the JT-60SA TF Spare Coil in which F4E has a direct contribution corresponding to the procurement of the TF conductor strand. This is implemented by an F4E contract amendment.

Title/Description	To be signed by	AoC with EU VC (DI)
Supply of the JT-60SA spare TF Coil	13Q2	Italy (ENEA)

3.3. IFMIF

3.3.1. F4E Funded Activities

For IFMIF/EVEDA, no direct procurement activities are foreseen in 2013. In terms of direct contributions from F4E, as part of F4E contributions to the IFMIF/EVEDA BA Project, “cash contributions to the common expenses of the Project Team” were approved by the BA Steering Committee for an amount of 142 kEuro. This budget will cover the missions outside of Japan of the EU members of the Project Team as well as for regular maintenance needs for the Protoype Accelerator.

3.3.2. Procurement arrangements

In accordance with the Work Programme 2013 for the IFMIF/EVEDA project, approved by the 11th BA Steering Committee on 6th November 2012, eight procurement arrangements are expected to be signed between F4E and JAEA in 2013. It is noted that the obligations associated to each of the Procurement Arrangements is discharged by a corresponding Agreement of Collaboration formalising the commitment of one of the EU Voluntary Contributors, through their Designated Institutions. These PAs do not imply at this time financial commitments of F4E, with the exception of payment or reimbursement of transport costs of the components from Europe (ex works) to the Port of Entry in Japan. (see JT-60SA table).

Title/Description	To be signed by	AoC with EU VC (DI)
Accelerator Facility – Transverse Activities	13Q2	France (CEA) / Italy (INFN) / Spain (CIEMAT)
Accelerator Facility – Cryoplant	13Q2	France (CEA)
Accelerator Facility – Installation, Check-Out and Commissioning	13Q2	France (CEA) / Italy (INFN) / Spain (CIEMAT)
Test Facilities – Irradiation Test In BR2 Reactor	13Q2	Belgium (SCK-CEN) / Germany (KIT)
Engineering Design – IFMIF plant	13Q1 (already signed)	Belgium (SCK-CEN) / Spain (CIEMAT)
Engineering Design – Lithium Target Facility	13Q1 (already signed)	Italy (ENEA) / Belgium (SCK-CEN)
Engineering Design – Test Facility	13Q1 (already signed)	Germany (KIT) / Spain (CIEMAT)
Engineering Design – Accelerator Facility	13Q2	France (CEA) / Italy (INFN) / Spain (CIEMAT)

3.4. IFERC

3.4.1. F4E Funded Activities

Direct expenditure by F4E in support of the IFERC BA project will be limited to the contribution to DEMO design activities by means of the home team and site insurance, plus the transport of some DEMO materials from Europe to Japan for further analysis. These transports will be covered under the Framework Contract for BA transports (see JT-60SA table).

3.4.2. Procurement Arrangements

In accordance with the Work Programme 2013 for the IFERC project, two procurement arrangements are expected to be signed between F4E and JAEA by the end of 2013. One PA will cover enhancements to the CSC equipment, and another PA will define the requirements for the REC (Remote Experimentation Centre), according to the IFERC Work Programme 2013 approved by the 11th BA Steering Committee on 6th November 2012. The information is provided for completeness. The obligations associated with the CSC Enhancements Procurement Arrangement listed below are discharged by a corresponding Agreement of Collaboration formalising the commitment of one of the EU Voluntary Contributors, through the Designated Institution, in this case the CEA. Therefore this PA does not imply a financial commitment for F4E. The PA for REC definition will be covered by work in house as REC activities are not covered by voluntary contributions. The credit associated with this PA will be 0.1KBAUA.

Title/Description	To be signed by	AoC with EU VC (DI)
CSC Enhancements	13Q4	France (CEA)
REC requirements definition	13Q1-2	N/A

3.5. Budget Allocation for Amendments to Ongoing BA Contracts

During the follow-up of the ongoing procurement contracts, F4E may be required to implement amendments in order to increase contractual effectiveness in view of overall project developments, or as risk mitigation/impact reduction measures required by the occurrence of unforeseen events. To this extent a budget allocation is corresponding to about 1.5% of the sum of running contracts at the date of WP2013 first issue. This percentage, which covers amendments and additional budget for indexation, taking into account the available forecasted values, has been assigned to the following generic WP 2013 item.

WP ref	Activity Type	Activity Title	Activity Description	Duration (months)	Time of Call
WP13/BA/04	P	Amendments and price indexation to ongoing contracts	Budget allocation for amendments and price indexation on ongoing procurement contracts	N/A	N/A

4. APPENDIX I: TABLE OF ACRONYMS AND ABBREVIATIONS

A/E	Architect Engineer
AGPS	Accelerator Ground Power Supplies
ALARA	As Low As Reasonably Achievable
ANB	Authorized Notification Body
ANS	Analytical System
ASN	Autorité de Sûreté Nucléaire
AVDEs	Asymmetric Vertical Displacement Event
ATS	Air Transfer System
BA	Broader Approach
BSM	Blanket Shield Module
BtP	Build-to-Print
CD	Current Drive
CFC	Carbon Fibre Composites
CMM	Cassette Multifunctional Mover
CVB	Cold Valve Boxes
CVD	Chemical Vapour Deposition
CXRS	Core plasma charge-eXchange Recombination Spectroscopy
DA	Domestic Agency
DACS	Data Acquisition and Control System
DCLL	Dual Coolant Lithium Lead
DCR	Design Change Request
DEMO	Demonstration fusion reactor
DIV	Divertor
DNB	Diagnostic Neutral Beam
DTP	Divertor Test Platform
EAF	European Activation File
EB	Electron Beam
EBBTF	European Breeding Blanket Test Facilities
EC	Electron Cyclotron
EC UL	Electron Cyclotron Upper Launchers
ECH	Electron Cyclotron Heating
EFDA	European Fusion Development Agreement
EFF	European Fusion File
ELM	Edge Localized Mode
EPC	Engineering Procurement Contract
EUDA	European Domestic Agency
EURATOM	The European Atomic Energy Community
F4E	Fusion for Energy
FS	Functional Specification
FW	First Wall
FWP	First Wall Panel
HAZOP	HAZard Operability
HCLL	Helium Cooled Lithium-Lead
HCPB	Helium Cooled Pebble Bed
H&CD	Heating & Current Drive
HHF	High Heat Flux
HIP	Hot Iso-static Pressing
HNB	Heating Neutral Beam
HV	High Voltage
HVAC	Heating Ventilation &Air Conditioning
HVD	High Voltage Deck
HW	Hardware
HXR	Hard X-Ray
IC	Ion Cyclotron
I&C	Instrumentation and Control
ICH	Ion Cyclotron Heating
IFERC	International Fusion Energy Research Center
IFMIF	International Fusion Materials Irradiation Facility
INB	Installation Nucleaire de Base
IO	ITER Organization
IR	Infra Red
ISEPS	Ion Source and Extraction Power Supplies
ISS	Isotope Separation System
ITA	ITER Task Agreement
ITER	International Thermonuclear Experimental Reactor
IVT	Inner Vertical Target
IVVS	In-Vessel Viewing System
JAEA	Japan Atomic Energy Agency
LD&L	Leak Detection and Localization
LFS-CTS	Low Field Side – Collective Thomson Scattering
MAR	Materials Assessment Report
MDR	Modified Design Reference
MHB	Material HandBook
MHD	Magneto-Hydro-Dynamic
MIG	Metal Inert Gas
MV	Medium Voltage
NB	Neutral Beam
NBI	Neutral Beam Injector
NBPS	Neutral Beam Power System
NBTF	Neutral Beam Test Facility
NHF	Nominal Heat Flux
ODS	Oxide Dispersion Strengthened
ORE	Occupational Radiation Exposure
P&ID	Process and Instrumentation Diagram
PA	Procurement Arrangement
PBS	Product Breakdown Structure
PBS 41	High Voltage and Medium Voltage distribution
PBS 43	High Voltage, Medium Voltage and Low Voltage distribution. Emergency Power Supply
PE	Plasma Engineering
PF	Poloidal Field
PFC	Plasma Facing Components
PFD	Process Flow Diagram
PIE	Post Irradiation Examination
PMU	Prototypical Mock-Up
PP	Procurement Package
PPC	Pre-Production Cryopump

PrSR	Preliminary Safety Report
PTC	Prototype Torus Cryopump
QA	Quality Assurance
R&D	Research & Development
RAFM	Reduced Activation Ferritic Martensitic
REM	Radilogical Environmental Monitoring
RF	Radio Frequency
RFCU	Radio Frequency Control Unit
RH	Remote Handling
RMP	Resonant Magnetic Perturbation
RNC	Radial Neutron Camera
RWF	RadWaste Facility
RWM	Resistive Wall Mode
SC	Super Conductor
SDC	Structural Design Criteria/Code
SHPC	Safety and Health Protection Coordination
SiC-Dual	SiC/SiC composite material for electrical and thermal Insulation
SIP	Seismic Isolation Pit
S-NHF	Standard Normal Heat Flux
SOLPS	Scrape Off Layer Plasma Simulation
SS	Steady State
STP	Satellite Tokamak Programme
SW	Software
TBM	Test Blanket Module
TCS	Transfer cask System
TES	Test Extraction System
TF	Toroidal Field
TFC	Toroidal Field Coils
TFWP	Toroidal Field Winding Pack
TH	Thermal Hydraulical
TO	Technical Officer
UT	Ultrasonic
Vis	Visible
VS	Vertical Stability
VV	Vacuum Vessel
WAVS	Wide Angle Viewing System
WBS	Work Breakdown Structure
WDS	Water Detritiation System

5. APPENDIX II: SUMMARY OF THE 2013 WORK PROGRAMME OPERATIONAL BUDGET

		Work Programme 2013 (as adopted in December 2012)			1st Amendment of Work Programme 2013		
Budget line	**Title**	**Commitment appropriation (EUR)**			**Commitment appropriation (EUR)**		
3.1	ITER construction including site preparation	846 084 030.72			846 277 447,24		
3.2	Technology for ITER and DEMO	16 580 000.00			14 727 280.00		
3.3	Technology for Broader Approach	2 190 000.00			4 122 180.00		
3.4	Other expenditure	3 800 000.00			3 989700,00		
3.5	Appropriation from the ITER Host State contribution	105 000 000.00			105 000 000.00		
Total Title III of the Budget 2013		**973 654 030.72**			**974 116 607.24**		
3.4	Additional Internal Assigned Revenue	-			10 300.00		
3.5	Host State contribution carried over from previous year	-			25 017 549.29		
Total amount available for the operational expenditure		**973 654 030.72**			**999 144 456.53**		
Budget line	**Title**	**Grants**	**Procurement**	**Cash**	**Grants**	**Procurement**	**Cash**
3.1+3.5	Expenditure in support of ITER, credited by ITER IO through PA	15,180,000.00	697,664,030.72		9,940,260.00	706,461,996.53	
3.1+3.5	Contribution in cash in support of ITER (paragraph 2.25.1)			88,300,000.00			88,300,000.00
3.1+3.5	Contribution in cash for transfer of procurement to Japan (paragraph 2.25.2)			78,340,000.00			79,920.000.00
3.1+3.5	Contribution in cash on NBTF Agreement (paragraph 2.25.3)			3,000,000.00			3,350,000.00
3.1+3.5	Contribution in cash to the Agreement on ITER Site Collaboration (paragraph 2.25.4)			1,000,000.00			1,450,000.00
3.1+3.5	Contribution in cash to the Agreement with China or Japan Domestic Agency for Poloidal Field Coil PF06 production						25,000,000.00
3.1+3.5	Design and R&D in support of ITER, credited by ITER IO through ITA	5,590,000.00	27,470,000.00		6,430,550.00	20,902,190.00	
3.6	Expenditure budgeted against other revenue						
3.1+3.5	Budget allocation (paragraph 2.24)	620,000.00	33,920,000.00		620,000.00	33,920,000.00	
	Subtotals	***21,390,000.00***	***759,054,030.72***	***170,640,000.00***	***16,990,810.00***	***761,284,186.53***	***198,020,000.00***
3.1+3.5+3.6	**Total ITER Construction**	**951,084,030.72**			**976,294,996.53**		
3.2	Design and R&D in support of ITER, not credited IO	6,450,000.00	8,680,000.00		4,543,050.00	8,734,230.00	

3.2	Contribution in cash on NBTF Agreement			1,000,000.00			1,000,000.00
3.2	Budget allocation (paragraph 2.24)	190,000.00	260,000.00		190,000.00	260,000.00	
	Subtotals	***6,640,000.00***	***8,940,000.00***	***1,000,000.00***	***4,733,050.00***	***8,994,230.00***	***1,000,000.00***
3.2	**Total Technology for ITER**	**16,580,000.00**			**14,727,280.00**		
3.3	Expenditure in support of Broader Approach		1,550,000.00	260,000.00		2,940,000.00	260,000.00
3.3	Contribution in cash in support of IFMIF-EVEDA Project			130,000.00			142,180.00
3.3	Budget allocation (paragraph 3.5)		250,000.00			780,000.00	
	Subtotals		***1,800,000.00***	***390,000.00***		***3,720,000.00***	***402,180.00***
3.3	**Total Technology for Broader Approach and DEMO**	**2,190,000.00**			**4,122,180.00**		
3.4	Appointment of experts for technical assistance to F4E			2,600,000.00			2,300,000.00
3.4	Legal and commercial services for assistance to F4E		1,200,000.00			1,700,000.00	
	Subtotals		***1,200,000.00***	***2,600,000.00***		1,700,000.00	2,300,000.00
3.4	**Total Other Expenditure**	**3,800,000.00**			**4,000,000.00**		
	Total expenditure by type (incl. budget reserve paragraph 2.24 and 3.5)	***28,030,000.00***	***770,994,030.72***	***174,630,000.00***	***21,723,860.00***	***846,354,630.00***	***201,722,180.00***
3	**Total Operational Expenditure**	**973,654,030.72**			**999,144,456.53**		

Notes

A table showing the indicative budget for grants to be awarded in this Work Programme, both credited and non-credited by ITER, is provided in Appendix III.

- Figures corresponding to items to be credited by IO through ITA are provisional, and are based on the present understanding of the share of work to be assigned to F4E by IO with yearly planned ITAs (not competed) or through competitive procedures (competed ITAs).
- Following the evaluation of the proposals and updates on the cash to be paid to IO Japan and China the final budget repartition may vary by up to 10% of the specified budget figures in the table above, with the exception of the budget allocation.

6. APPENDIX III: SUMMARY OF THE BUDGETS FOR GRANTS

(EUR million)	Work Programme 2013 (Dec. 2012)		1st Amendment of WP2013	
Work Breakdown Structure	**Credited**	**Not Credited**	**Credited**	**Not Credited**
Magnets				
Vacuum Vessel				
Blanket	0.28		0.28	
Divertor				
Remote Handling	0.40		0.40	
Vacuum Pumping & Fuelling				
Tritium Plant	0.31		0.31	
Cryoplant				
Power Supplies				
I&C and CODAC				
Heating & Current Drive	1.50		1.65	
Diagnostics	15.11		11.02	
Buildings				
TBMs and Material Development		5.30		3.02
Plasma Engineering	2.00	0.34	1.66	0.22
Engineering Support	0.67	0.56	0.55	1.05
Analysis for cost containment	0.50	0.25	0.50	0.25
Budget Allocation (paragraph 2.23)	0.62	0.19	0.62	0.19
Broader Approach				
Sub-Totals	**21.39**	**6.64**	**16.99**	**4.73**
Total	**28.03**		**21.72**	

NB: Figures shown in this table are the currently estimated values. Modifications may occur within the budgetary constraints.

7. APPENDIX IV : ESSENTIAL SELECTION AND AWARD CRITERIA FOR GRANTS

With regard to grant actions referred to in this work programme, the essential selection and award criteria, in accordance with Articles 165 and 166 of the Implementing Rules of the Financial Regulation, 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 given in the call for proposals.

A proposal which does not fulfil 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.

7.1Appendix V: Maximum Reimbursement Rates for Grants

The upper limits for the reimbursement of eligible costs for grants are laid down in Article 153 of the Implementing Rules of the Financial Regulation of the Joint Undertaking and are summarised in the following table.

Research, technological development and demonstration activities	**40%**
Coordination and support actions	100%
Management, audit certificates and other specific activities	100%