



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 RESOURCE ESTIMATES PLAN OF THE EUROPEAN JOINT UNDERTAKING FOR ITER AND THE DEVELOPMENT OF FUSION ENERGY

HAVING REGARD to the Statutes annexed to the Council Decision (Euratom) No 198/2007 of 27 March 2007 establishing the European Joint Undertaking for ITER and the Development of Fusion Energy (hereinafter "Fusion for Energy") and conferring advantages upon it¹ (hereinafter "the Statutes") and in particular Article 6(3)(d) and Article 11 thereof,

Having regard to the Financial Regulation of the Joint Undertaking² adopted by the Governing Board on 22 October 2007 (hereinafter "the Financial Regulation") and in particular Article 30 thereof;

Having regard to the comments and recommendations of the Executive Committee on the proposal for the resource estimates plan at its meeting of 12th May 2011,

Whereas:

- (1) The Director should, in accordance with Article 8(4)(e) of the Statutes, draw up the resource estimates plan for a period of five years;
- (2) The Executive Committee should, in accordance with Article 7(3)(b) of the Statutes, comment on and make recommendations to the Governing Board on the proposal for the resource estimates plan drawn up by the Director;
- (3) The Governing Board should adopt the resource estimates plan.

THE GOVERNING BOARD OF FUSION FOR ENERGY HAS ADOPTED THIS DECISION:

Article 1

The fifth edition of the Resource Estimates plan of Fusion for Energy annexed to this Decision is hereby adopted.

Article 2

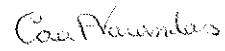
This Decision shall have immediate effect.

¹ O.J. L 90 , 30.03.2007, p. 58.

² F4E(07)-GB03-11 Adopted 22/10/2007

Done at Barcelona, 31st May 2011

For the Governing Board

A handwritten signature in cursive script, appearing to read 'Carlos Varandas'.

Carlos Varandas

Chair of the Governing Board

ANNEX

RESOURCE ESTIMATES PLAN (EDITION 2010) OF THE EUROPEAN JOINT UNDERTAKING FOR ITER AND THE DEVELOPMENT OF FUSION ENERGY

1. INTRODUCTION

The European Joint Undertaking for ITER and the Development of Fusion Energy or Fusion for Energy (F4E) is a Joint Undertaking 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 19 April 2007 and is situated in Barcelona, Spain. The objectives of Fusion for Energy are threefold:

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

In accordance with Article 30 of the F4E Financial Regulation, this Resource Estimates Plan sets out the indicative resources estimated to be needed for the implementation of the Project Plan for the period 2011-2013.

2. ASSUMPTIONS

The information presented in this 4th version of the F4E Resource Estimates Plan is based upon the following assumptions:

- The new ITER baseline approved by the ITER Council on the 28th July 2010 is used as the basis for planning for the provision of the European in kind contributions to ITER;
- F4E will receive on time from the ITER Organisation (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;
- The necessary inputs from the IO will be provided in time to allow the associated Procurement Arrangements (PAs) to be signed according to the foreseen schedule;
- The planning of the activities and the corresponding delivery of components, by the other ITER Domestic Agencies will be respected;

- F4E will implement its Cost Containment and Reduction Plan as presented to the 17th meeting of the Governing Board on the 5th October 2010.³

And regarding the BA activities:

- The project plans presented in this document are those approved by the BA Steering Committee;
- The Work Programmes for the projects IFMIF/EVEDA, IFERC and the Satellite Tokamak Programme will be approved by the BA Steering Committee.

The human resources planned for 2011 are fully in line with the Report on the Staffing Needs endorsed by the Governing Board in July 2008, and the underlying assumptions described in this Report.

3. BUDGET DEFINITION AND CONTENT

The budget is the sole instrument which forecasts and authorises the annual revenue and expenditure considered necessary for F4E, on the basis of the Financial Regulation and Implementing Rules adopted by the Governing Board on 22 October 2007⁴.

In summary, the budget shall comprise:

Revenues made up of a Euratom (hereinafter "the Community") contribution, the contribution of the ITER Host State, the annual membership contributions from members other than Euratom, and miscellaneous revenues.

Expenditure made up of Operational expenditure, necessary for the pursuit of its tasks and activities and Administrative expenditure, necessary for the functioning of F4E.

4. OVERALL ESTIMATES OF REVENUE AND EXPENDITURE (2007-2041)

The total resources (2007-2041) necessary for F4E to carry out its tasks are determined by:

- (a) Obligations from the Agreement on the Establishment of the ITER International Fusion Energy Organisation for the Joint Implementation of the ITER Project;
- (b) as regards the BA, obligations stemming from the bilateral Agreement for the Joint Implementation of the BA Activities;
- (c) as regards DEMO, in accordance with research and training programmes adopted pursuant to Article 7 of the Euratom Treaty.

The resources of F4E shall consist of a contribution from Euratom, contributions from the ITER Host State, the annual membership contributions and voluntary contributions from the Members of Fusion for Energy other than Euratom, and additional resources.

³ F4E(10)-GB17-08 'F4E Cost Containment and Reduction Plan' 20/09/2010

⁴ F4E(07)-GB03-11 of 22/09/2007

F4E's activities are grouped in two headings: the ITER Project and the Technology Project. The ITER Project represents the core activity of F4E. The Technology project groups the R&D activities necessary needed for ITER, BA and IFMIF.

Within these headings, the tasks entrusted to F4E are divided into two periods: (1) the ITER construction phase and implementation of the BA activities; and (2) the operation and decommissioning of ITER, the possible construction and operation of IFMIF and a programme of activities in preparation for DEMO.

The cost estimates quoted in the 2007 Council Decision establishing F4E were mostly based upon work conducted in 2001 and re-estimated by F4E as part of a comprehensive review which took place in late 2008. The total cost for the ITER construction phase (2007-2020) was presented to the F4E Governing Board in March 2010⁵ as EUR 7253 million (in 2008 values) of which EUR 6603 million was for ITER construction including contingencies.

In July 2010 the Council of the European Union adopted conclusions of ITER on which it reduced the total budget by further EUR 600 million as a result the new total cost for the ITER Project (including DEMO and BA) was EUR 6,653 million (in 2008 values)

As concerns ITER operation and decommissioning as well as the possible construction and operation of IFMIF and a programme of activities in preparation for DEMO, the costs were estimated in the 2007 Council Decision establishing F4E for 2017-2041 to be EUR 5526 million (current values). Note that this estimate needs to be revised since it was based on the ITER construction phase ending in 2017 instead of the current baseline target of 2019.

The EUR 6,653 million were rounded down by the Council of the European Union to EUR 6.600 million of which in Commitment Appropriations.

5. ESTIMATES OF REVENUE FOR THE PERIOD 2007-2020

Table 2 details the revenue of F4E for the ITER construction phase.

Euratom Contribution

The contribution from Euratom constitutes the main source of revenue for F4E.

The Euratom financial contribution is provided through the Euratom Framework research programmes. These programmes are adopted for a period of five years and annual contributions are confirmed with each budget as approved annually by the Council and the European Parliament.

The current Euratom research programme covers the period 2007-2011 and therefore figures beyond 2011 are uncertain subject to approval by the Council and European Parliament.

The annual budget related to the Euratom contribution will always be adopted by the Governing Board under reserve of the corresponding adoption of the European Union General Budget by the budgetary authority.

⁵ F4E(10)-GB15-08 Revised resource estimates for Fusion for Energy according to the ITER Improved Updated Schedule 18/03/2010

The Euratom contribution also makes a distinction between the operational and administrative budget which is related to the functioning and operating costs of F4E.

Contribution from the ITER Host State (France)

The ITER Host State shall respect its obligations in accordance with the International Agreements entered into for the execution (of its share) of the projects described above.

Revenue made up of financial contributions from the ITER Host State corresponds to a commitment to cover 9.09% of the total costs of the ITER construction phase. The breakdown of this contribution is proportional to the Euratom contribution.

Annual Membership contributions

Annual Membership Contributions (AMCs) paid by F4E Members except for Euratom are calculated based on 10% of the administrative expenditure calculated at the time of the preparation of the draft budget. The AMC of each Member shall be composed of (a) a minimum contribution of 0.1% of the total amount of annual membership contributions and (b) an additional contribution calculated in proportion to the Euratom financial participation (excluding JET) in the Member's expenditure in the framework of the Community Fusion research programme in the year before last.

**Table 1: F4E Revenue 2007-2020
 In Constant Values 2008**

Constant Value Meuros		< 2007 Outturn	2007 Outturn	2008 Outturn	2009 Outturn	2010 Budget	2011 Budget	TOTAL FP VII period	Indicative Forecast									TOTAL	
									2012	2013	2014	2015	2016	2017	2018	2019	2020		>2020
Commitment Appropriations	Euratom Contribution	41	74	143	276	360	374	1,267	1,023	842	835	588	282	226	205	178	17	-	5,462
	ITER Host State Contribution			48	60	64	85	257	223	186	165	107	50	42	37	27	2	-	1,095
	F4E members contribution			3	3	3	4	12	4	4	4	4	4	4	4	4	2	-	43
	F4E Total Budget	41	74	193	339	427	464	1,537	1,249	1,032	1,003	698	336	271	246	208	21	-	6,600
Payment Appropriations	Euratom Contribution	40	2	124	137	216	213	731	603	639	762	858	518	482	432	313	104	21	5,462
	ITER Host State Contribution	2	-	24	30	13	31	100	131	142	134	165	130	104	95	60	29	5	1,095
	F4E members contribution	-	-	3	3	3	4	12	4	4	4	4	4	4	4	4	2	-	43
	F4E Total Budget	42	2	150	170	232	248	844	738	784	900	1,026	652	590	531	376	135	26	6,600

Table 2: F4E Revenue 2007-2020 (In Current Values)

Current Value in M€	< 2007 Outturn *	2007 Outturn *	2008 Outturn *	2009 Outturn *	2010 Budget *	2011 Budget	TOTAL FP VII period	Indicative Forecast									TOTAL			
								2012 **	2013	2014	2015	2016	2017	2018	2019	2020		>2020		
Commitment Appropriations	Euratom Contribution	41	74	143	281	374	397	1,310	1,107	930.0	940	675	330	270	250	221	22		6,055	
	Additional EURATOM Contribution***													58	50	51	2		160	
	ITER Host State Contribution	2		48	61	67	91	268	241	205.0	186	123	59	50	45	33	2		1,212	
	Additional ITER Host State Contribution***														6	19	16		41	
	F4E members contribution			3	3	3	4	13	4	4.0	4	4	4	4	4	4	4	2		48
	F4E Total Budget	43	74	193	345	444	492	1,591	1,352	1,139	1,130	802	393	382	355	328	44	-		7,516
Payment Appropriations	Euratom Contribution	41	2	124	140	225	226	757	653	705	858	985	607	576	526	389	132	27	6,215	
	ITER Host State Contribution	2		24	30	14	33	103	142	157	151	189	153	125	116	75	37	6	1,253	
	F4E members contribution			3	3	3	4	13	4	4	4	4	4	4	4	4	2		48	
	F4E Total Budget	43	2	150	173	242	264	873	799	866	1,013	1,178	764	705	647	468	171	33		7,516

* The annual 2 % escalation of prices from 2008 until 2010 and descalation for 2007 and before will be updated with the real escalation rates for the next GB.

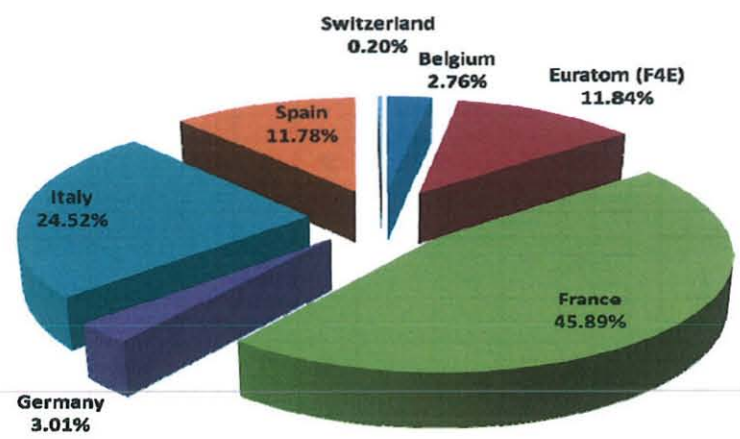
** The budget 2012 is given as an indicative budget and is under process for adoption by the Budgetary Authority of the European Union and France.

*** The additional commitments appear so as to be in line with forecast in payments and with the Revenue Table in constant EUR 2008.

NB : The 4 M€ difference between the total in Revenue and Expenditure is due to rounded figures (5/10000th incidence)

Broader approach

Under the BA Agreement Euratom contributes a total of 500kBAUA (BA Units of Account with 1 BAUA = 678 € 2005 values) of which 440kBAUA is provided in kind by Voluntary Contributors as shown in the following figure. The remainder is provided by Euratom through F4E as Implementing Agency in the BA Agreement.



6. FORECAST OF EXPENDITURE FOR THE PERIOD 2007-2020

The table 4 details the expenditure of F4E for the ITER construction phase. All figures are presented in current values and are consistent with the Cost Estimates Table presented previously⁶. All current values have been estimated using an inflation rate of 2% per year.

ITER construction phase

The estimated expenditure related to the ITER construction phase is based upon the revised cost estimates made in 2008 and validated by the Governing Board which have in some cases been further refined and adjusted to current prices.

With the establishment of the Project Teams in F4E as part of the new organisational structure approved by the Governing Board it is expected that new cost estimates will be made in Spring 2011 and that this document will be updated accordingly. The ITER site support activities will be covered under the ITER construction expenditure.

Technology for ITER and DEMO

The amount foreseen in the Constituent instrument and its financial statement will allow extra R&D activities in particular the completion of specification given by ITER and the preparation of DEMO.

⁶ F4E Cost Containment and Reduction Plan – F4E(10)-GB17-08. 20/09/2010



Table 3: F4E Total Expenditure 2007-2020 (In constant values 2008)

Constant Value Meuros	< 2007 Outturn	2007 Outturn	2008 Outturn	2009 Outturn	2010 Budget	2011 Budget	TOTAL FP VII period	Indicative Forecast										TOTAL	
								2012	2013	2014	2015	2016	2017	2018	2019	2020	>2020		
Commitment Appropriations	F4E ITER	44	77	163	291	387	403	1,365	1,203	985	948	647	283	196	175	143	6		5,950
	Technology	-	-	4	16	10	24	55	10	20	20	14	15	40	35	29	-	-	239
	Of which Tech. for ITER	-	-	4	7	4	21	36	8	17	13	7	8	32	30	24			175
	Of which Technology for BA and DEMO Of which IFMIF construction	-	-	0	10	6	3	19	2	3	7	7	7	7	5	4	-	-	64
	F4E Administration	-	2	14	26	30	36	108	36	36	36	36	36	36	36	36	15		411
	F4E Total Commitment	44	79	181	333	427	464	1,528	1,249	1,041	1,004	698	335	272	246	208	21	-	6,600
Payment Appropriations	F4E ITER	24	23	83	108	152	268	657	702	756	836	971	598	526	465	313	98	26	5,950
	Technology	-	-	0	1	4	18	24	28	18	27	17	18	28	30	27	22	-	239
	Of which Tech. for ITER				1	4	12	17	20	9	20	11	11	21	23	23	20		175
	Of which Technology for BA and DEMO Of which IFMIF construction			0.1	0.1	0.3	7	7	7	9	7	6	7	7	7	4	2		64
	F4E Administration	-	2	14	26	30	36	108	36	36	36	36	36	36	36	36	15	-	411
	F4E Total Payment	24	25	97	135	186	322	789	766	811	899	1,025	652	590	531	376	135	26	6,600

Table 4: F4E Total Expenditure 2007-2020 (In current values) – Part I

Commitment Appropriations

Current Value Meuros	< 2007 Outturn *	2007 Outturn *	2008 Outturn *	2009 Outturn *	2010 Budget *	2011 Budget	TOTAL FP VII period	Indicative Forecast										TOTAL
								2012 **	2013	2014	2015	2016	2017	2018	2019	2020	>2020	
F4E ITER	42	76	163	297	403	428	1,408	1,302	1,087	1,068	743	332	234	213	178	7		6,572
<i>Additional commitments for F4E ITER</i>													54	66	70	15		205
Technology	-	-	4	17	10	26	57	11	22	23	17	18	48	43	36	-	-	274
Of which Tech. for ITER	-	-	4	7	4	22	37	9	19	15	8	9	39	36	30			202
<i>Additional commitments for Tech. for ITER***</i>															3			3
Of which Technology for BA and DEMO Of which IFMIF construction	-	-	0	10	6	4	20	2	3	8	9	9	9	7	5			72
<i>Additional commitments for BA and DEMO Of which IFMIF construction***</i>														1				1
F4E Administration	-	2	14	26	31	38	112	39	40	41	41	42	43	44	45	19		466
F4E Total Commitment	42	78	181	340	444	492	1,577	1,352	1,149	1,131	801	392	379	367	331	41	-	7,520

* The annual 2 % escalation of prices from 2008 until 2010 and descalation for 2007 and before will be updated with the real escalation rates for the next GB.

** The budget 2012 is given as an indicative budget and is under process for adoption by the Budgetary Authority of the European Union and France.

*** The additional commitments appear so as to be in line with forecast in payments and with the Revenue Table in constant EUR 2008.

NB : The 4 M€ difference between the total in Revenue and Expenditure is due to rounded figures (5/10000th incidence)

**Table 4: F4E Total Expenditure 2007-2020 (In current values) –Part II
 Payment Appropriations**

Current Value Meuros		< 2007 Outturn	2007 Outturn	2008 Outturn	2009 Outturn	2010 Budget	2011 Forecast	TOTAL FP VII period	Indicative Forecast										TOTAL
									2012	2013	2014	2015	2016	2017	2018	2019	2020	>2020	
Payment Appropriations	F4E ITER	24	23	83	110	158	284	681	760	835	943	1,116	701	629	567	389	124	33	6,777
	Technology	-	-	0	1	4	19	25	30	20	30	20	21	33	37	34	28	-	278
	Of which Tech. for ITER				1	4	12	17	22	10	22	13	13	25	28	29	25	-	205
	Of which Technology for BA and DEMO Of which IFMIF construction			0	0	0	7	7	8	10	8	7	8	8	9	5	3	-	73
	F4E Administration	-	2	14	26	31	38	112	39	40	41	41	42	43	44	45	19	-	466
	F4E Total Payment	24	24	97	137	193	342	817	829	895	1,013	1,177	764	705	647	467	171	33	7,520

Technology for Broader Approach

As mentioned above this corresponds only to the Euratom contribution managed by F4E for IFMIF-EVEDA, the IFERC at Rokkasho and the JT60 tokamak.

Technology for IFMIF construction

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Administrative Expenditure

The Administrative expenditure relating to the functioning and operating costs of 'Fusion for Energy' is made up of the Euratom contribution. Part of the AMCs may be added to the Administrative expenditure. Administrative appropriations not used will be transferred to, or budgeted in addition of, the operational budgets.

7. ESTIMATES OF REVENUE AND STAFFING FOR 2011 AND 2012 BUDGETS

(a) Revenue

Taken into consideration the implementation detailed above the revenue for the 2011 and 2012 budget will be as follows:

Table 5: Revenue and Expenditure for the 2011 and 2012 Budgets

Current €		2011 Budget		2012 Budget	
		Commitment Appropriations	Payment Appropriations	Commitment Appropriations	Payment Appropriations
Revenue	Operational Revenue	456,054,760	227,670,799	1,313,000,000	759,710,000
	<i>of which Euratom contribution</i>	<i>361,519,760</i>	<i>190,435,799</i>	<i>1,067,900,000</i>	<i>614,160,000</i>
	<i>of which ITER Host State contribution</i>	<i>90,700,000</i>	<i>33,400,000</i>	<i>241,200,000</i>	<i>141,650,000</i>
	<i>of which Membership contribution</i>	<i>3,835,000</i>	<i>3,835,000</i>	<i>3,900,000</i>	<i>3,900,000</i>
	Administrative Revenue	35,900,000	35,900,000	39,000,000	39,000,000
	<i>of which Euratom contribution</i>	<i>35,900,000</i>	<i>35,900,000</i>	<i>39,000,000</i>	<i>39,000,000</i>
	Total	491,954,760	263,570,799	1,352,000,000	798,710,000
Expenditure	Administrative Expenditure Title 1, Staff	31,170,000	31,170,000	33,770,000	33,700,000
	Administrative Expenditure Title 2, Other	7,180,000	7,180,000	5,230,000	5,230,000
	ITER Construction	427,682,120	284,420,799	1,302,000,000	759,710,000
	Technology for ITER	22,402,640	12,000,000	8,650,000	22,000,000
	Technology for BA and DEMO	3,520,000	6,900,000	2,500,000	8,000,000
	Total	491,954,760	341,670,799	1,352,150,000	828,640,000

The estimate of payment appropriations needs is extrapolated from planning of activities and contracts. The detailed expenditure will be developed in the corresponding budgets.

(b) Establishment Plan (as presented to the GB in December 2010)

The 2010 Establishment Plan for 2012 makes provision for 23 additional Temporary Agent posts (3 AD12, 8 AD9, 5 AD6 and 2 AST3) in order to:

- Reinforce the F4E project teams with industrial knowledge and experience, in particular for site and buildings, magnets, plant systems and vacuum vessel; (15 posts).
- Reinforce project management processes including implementation of monitoring, controlling and reporting systems in accordance with industrial standards; (5 posts).
- To reinforce the financial service and the sound financial management environment (3 professional positions).

These additional posts have been requested in the 2012 F4E financial statement which was provided to the Commission and approved in the proposal for the 2012 draft budget which has been transmitted to the budgetary authority (Council and Parliament).

Table 6: Staff Establishment Plan for 2010, 2011 and 2012

Grade	Authorised posts 2010			Authorised posts 2011			Requested posts 2012		
	FO	TA	Total	FO	TA	Total	FO	TA	Total
AD16						0	0	0	0
AD15					1	1	0	1	1
AD14		1	1				0	0	0
AD13	2	1	3	4	1	5	6	2	8
AD12	15	8	23	17	8	25	17	10	27
AD11	7		7	5		5	6	7	13
AD10	4	20	24	5	27	32	6	26	32
AD9	10	28	38	7	21	28	5	26	31
AD8	4		4	4		4	3	15	18
AD7	0	20	20		43	43	1	45	46
AD6	2	67	69	2	50	52	0	40	40
AD5	0	4	4		3	3	0	2	2
Total AD	44	149	193	44	154	198	44	174	218
AST11	2		2	3		3	2		2
AST10	2		2	2		2	2		2
AST9	4		4	3		3	3		3
AST8	1		1	2		2	1		1
AST7	0						2		2
AST6	1		1				1		1
AST5	3		3	4		4	4	4	8
AST4	2	5	7	1	11	12	1	11	12
AST3	3	18	21	3	12	15	2	11	13
AST2	0								0
AST1	0								0
Total AST	18	23	41	18	23	41	18	26	44
Overall Total	62	172	234	62	177	239	62	200	262