



Report on Budgetary and Financial Management

2019 Budget

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Introduction

Fusion for Energy (F4E) is the European Union's Joint Undertaking for ITER and the Development of Fusion Energy. The organisation was created under the Euratom Treaty by a decision¹ of the Council of the European Union in order to meet three objectives:

- F4E is responsible for providing Europe's contribution to ITER, the world's largest scientific partnership that aims to demonstrate fusion as a viable and sustainable source of energy. ITER brings together seven parties that represent half of the world's population – the European Union, Russia, Japan, China, India, South Korea and the United States;
- F4E also supports fusion research and development initiatives through the Broader Approach Agreement, a fusion energy partnership signed with Japan;
- Ultimately, F4E will contribute towards the construction of demonstration fusion reactors.

F4E is established for a period of 35 years from 19 April 2007 and is located in Barcelona, Spain.

The Members of F4E are:

- Euratom, represented by the European Commission;
- The member states of Euratom;
- Third countries which have concluded cooperation agreements with Euratom in fusion that associate their respective research programmes with the Euratom programmes and which have expressed their wish to become members.

The current members are therefore the current 27 Member States of the European Union, Euratom, Switzerland as a third country and United Kingdom for the period of reference .

The presented financial information covers the period 1st January to 31st December 2019, according to Article 93 of F4E Financial regulation² (FR).

1. Overview of the 2019 Budget – Statement of Expenditure

The F4E 2019 initial budget³ was adopted by F4E's Governing Board (GB) on 12/12/2018 for the amount of EUR 674.71 million in commitment appropriations and EUR 781.35 million in payment appropriations.

It was successively amended in the June GB meeting⁴, and in the December GB meeting⁵.

The final available appropriations, including the carryover from the previous year were EUR 729.71 million in commitment appropriations and EUR 761.19 million in payment appropriations.

¹ Council decision 2013/791/Euratom of 13 December 2013 Amending Decision 2007/198/Euratom establishing F4E and conferring advantages upon it.

² Financial Regulation adopted by the GB on 22 October 2007, last amended on 02 December 2015 (F4E(15)-GB34-12.9)

³ Decision of the F4E GB F4E_D_2BEFRX adopted on 12/12/2018

⁴ Decision of the F4E GB F4E_D_2ELKL3 adopted on 10/07/2019

⁵ Decision of the F4E GB F4E_D_2HU9XW adopted on 10/12/2019

1.1. Main achievement during 2019

1.1.1. The ITER Project

- **Site Buildings and Power Supplies (Partially First Plasma)**

F4E reached a major milestone in November 2019 with the completion of the civil engineering works of the Tokamak building. F4E also installed all the steel structure columns and beams that will support the roof and cladding started. Progress with also made with painting and other finishing works. Overall, works are on track to meet the key critical Milestone to be achieved in March 2020, granting crane access between the Assembly Hall and Tokamak Building, to enable IO to start bringing large components into the Tokamak pit. The ITER Organization (IO) commenced installation of the first components in the Diagnostic Building (B74) and Tokamak Building (B11). 28 Port Cell Doors (weighing more than 50 tonnes each) that will allow access through the bioshield into the laboratories and ITER device have been installed at Level B2 and Level L2, with a further 18 remaining to be installed through the first semester of 2020 at Level L1 and L2.

Inside the Assembly Hall, work on the technical infrastructure and services continued apace with cables installed, air handling units put into operation and pressure tests completed. In October the Power Supplies Distribution building was handed over to the IO. The dismantling of the temporary barrier separating the Assembly Hall from the Tokamak Building has commenced alongside installation and settings of the crane rails in the Tokamak Crane hall.

Electrical works continued with the progressive energization of the ITER buildings and areas. F4E reached a major milestone in November 2019 with the successful energization of the first bay of the Pulsed Power Electrical Network. In March 2019, F4E handed over the Magnet Power Conversion buildings (B32-33-38) to the IO signalling another major delivery from Europe to the ITER project.

F4E made progress with the Cleaning Facility building adjoined to the Assembly Hall with the waterproof liner fitted and remaining services installation works nearing completion. F4E signed a contract for the construction of the Neutral Beam Power Supply Building, the Neutral Beam High Voltage Power Supply Building, the Control Building and Fast Discharge Unit Building. The site infrastructure Phase A works on deep buried networks and galleries connecting the ITER buildings also came to completion.

- **Magnets (First Plasma)**

F4E achieved a major milestone in 2019 with the successful insertion and welding of the first of the ten European Toroidal Field (TF) Coils putting it on the path to completion in March 2020. The other nine coils are in different stages of production: of the ten Winding Packs, eight have been successfully manufactured and tested, five delivered to the insertion facility. Three successfully inserted into the Coil Cases. In general, the TF coil delivery dates have been driven by the late arrival dates and quality issues with the TF Coil Cases delivered by the Japanese Domestic Agency.

For the Poloidal Field (PF) Coils, 2019 was a year of important re-organization in the supplier's scheme in order to stabilize the production. For the four coils F4E is manufacturing on the ITER site, the winding pack assembly was completed for one Coil (PF5) leading it on its final stage of manufacturing, the production of the Double Pancakes for another Coil (PF2) also progressed through its winding and impregnation stages. F4E is re-configuration activities in order to adapt the tooling to produce the larger Coils (PF3 & 4). The final assembly of the Coil (PF6) manufactured in China under contract by F4E was also completed. However,

some issues have been found during the final electrical tests and repairs are on-going. F4E is working very actively to finalize the repairs in order to ship the Coil in early 2020

For the Pre-Compression Rings, F4E ran the series production using a pultrusion-based technology. Six of the nine Rings have been manufactured and five have been successfully proof tested.

- **Vacuum Vessel (First Plasma)**

In 2019, the European industrial consortium continued to work on the manufacturing of all 20 segments of the five European sectors of the Vacuum Vessel in parallel. The segments of Sector 5, the first sector F4E should deliver to the IO, have entered the outer-shell welding stage, the last operation before final segment machining and assembly of the four segments into sectors.

During the first half of 2019, the rate of progress of manufacturing was significantly reduced by several technically complex non-conformities mainly coming from the electron beam welding technique. To accelerate production during the second half of 2019, F4E negotiated an amendment to the contract with the European industrial consortium in which F4E financially supported the addition of resources under the condition that certain schedule performance indicators are met. F4E witnessed the first positive indications of the implementation of this amendment at the end of the year.

- **In Vessel**

Blanket First Wall (Non-First Plasma):

F4E's main achievements in 2019 for the Blanket First Wall was the successful completion of the three first wall panel full-scale prototypes by three European companies. At the end of 2019, each company confirmed their willingness to participate to the competitive procedure with negotiation for the First Wall panels' series production.

For the Blanket Cooling Manifold project, the development of an alternative support design has continued. The outcome of this development work has been used to update the configuration arrangement with the IO, a pre-requisite for the preparation of the documentation for F4E to sign the corresponding Procurement Arrangement with the IO in 2020.

Divertor (Non-First Plasma):

F4E awarded contracts to two companies for the series production of the Divertor Cassettes. One of the full-scale prototypes was delivered to the IO for assembly trials of the plasma facing components. Both companies have completed the preliminary engineering phase of the project including the welding and non-destructive examination qualification.

For the Inner Vertical Target project, the plasma facing units were successfully assembled onto the first full-scale prototype. The prototypes of three companies have entered the fabrication phase after having successfully passed their respective Manufacturing Readiness Review.

- **Remote Handling (partly First Plasma)**

In 2019, work on the Remote Handling Systems has mainly focussed on the continuation of preliminary design activities and starting, in some areas, the final design activities. Tasks have been mainly performed through specific contracts under on-going framework contracts. Complementary design, control system, prototyping and qualification in various Remote Handling technologies have been performed in support of the main operational activities.

- **Cryoplant and Fuel Cycle (partly First Plasma)**

The installation of the LN2 Plant and Auxiliary Systems in the cryoplant building continued. All the remaining equipment including gas bags, recovery compressors and heaters were installed. The design phase of the cold valve boxes and warm regeneration box made good progress. The Johnston couplings passed the final design review while the cryojumpers were sized and integrated. The double-walled warm regeneration lines were manufactured, the factory acceptance tests performed successfully and delivered to the IO.

After signature of the Procurement Arrangement of the Torus and Cryostat Cryopumping System, the contract for the procurement of eight cryopumps was signed in October 2019.

In mid-2019, a call for tender was launched for the leak detection systems required to detect potential leaks from the vacuum vessel, cryostat and neutral beam equipment. The various components for ITER's Radiological and Environmental Monitoring Systems will be delivered in stages. F4E and the IO signed the Procurement Arrangement for the First Plasma items in November 2019.

For the MITICA cryopump of the Neutral Beam Test Facility (see also below), all the special technologies, notably charcoal coating, pipe expansion, polishing and blackening were qualified. After completion of the manufacturing engineering phase, the first manufacturing readiness reviews of the pumping sections were held.

- **Test Blanket Modules (TBM) (non-First Plasma and not an in-kind procurement)**

F4E and EUROfusion formalized the joint organisation of their resources in research programmes for tritium breeding technology. In September, they signed a Memorandum of Understanding as well as a Multi-Annual Programme Plan specifying the modalities for the joint execution of the TBM Systems programme. To cement this relationship, four seconded engineers took up their duties within the joint TBM Project Team at F4E Cadarache. Following the success of all F4E grant activities with European Fusion Laboratories for the development of code simulation, test facilities and technologies validation, F4E has opened new collaboration with EUROfusion on the behaviour of tritium.

In 2019, EUROfusion laboratories brought the conceptual design of the Water-Cooled TBM System close to its final stage and its review by IO is planned by mid-2020. For the Helium-Cooled TBM, F4E has prepared the next phase of engineering design and signed five contracts with industrial partners to bring system up to the preliminary or final design reviews.

Joint effort by F4E and EUROfusion were also made on EUROFER97 – the steel chosen for the TBM – to demonstrate its weldability as well as its resistance to neutron irradiation. The objective is to make of EUROFER97 the standard for longer-term programmes such as DEMO.

- **Neutral Beam (not First Plasma)**

Significant progress was made in 2019 with the two projects at the Neutral Beam Test Facility (NBTF) hosted by Consorzio-RFX in Italy: the SPIDER Beam Source and the Megavolt ITER Injector and Concept Advancement (MITICA). In particular, the first beam was extracted from the SPIDER Beam Source, the MITICA Beam Source Vessel was installed and successfully tested.

High voltage insulating tests on the MITICA Power Supplies were successfully completed and most of the power supplies components were accepted and handed over to IO. Design activities for the injector power supply units continued and focused on interface aspects. The SF6 Handling System was also accepted and handed over to IO.

Activities for the MITICA Beam Source progressed as foreseen during the year and, in particular, the demanding prototype of the grid supporting structure of the accelerator was satisfactorily completed. The design and prototyping stage for the MITICA Beam Line components was completed and the last contract for the manufacturing stage was awarded.

- **Diagnostics (partly First Plasma)**

In 2019 F4E progressed with the manufacturing and delivery of several First Plasma components. The IO installed F4E's first Diagnostic – the Continuous External Rogowski (CER) coils. F4E delivered a second set of magnetic coils to ITER comprising 270 units of the Outer Vessel Coils system. F4E signed contracts for manufacturing the magnetics Inner Vessel Coils (IVC). F4E signed contracts during 2019 for three distinct types of IVC sensors, and manufacturing activities started. F4E signed a contract for manufacturing over a thousand mineral insulated cables for delivery to the IO starting in 2020.

F4E has progressed significantly during 2019 with other Diagnostic systems in the design phase, and held several Preliminary Design Reviews with successful outcomes. Close collaboration with the IO culminated with the signature of Procurement Arrangements for eight Diagnostic systems, bringing the total to 18 so far (leaving 4 for 2020). This allows F4E to complete the design of these systems and launch the relevant manufacturing contracts.

- **Radio Frequency (RF) Heating & Current Drive**

2019 has been a very successful year for the Electron Cyclotron (EC) launcher and waveguide system projects. The year has seen the signature of the Procurement Arrangement and intense design integration and design finalization activities that has strongly contributed to the successful Final Design Review of the Upper Launcher port plug.

Series production of 60 diamond disks started at the end of 2019. The fabrication of short and medium length corrugated waveguide mock-ups up was completed in 2019, as well as the successful fabrication of a 1.7m length CuCrZr corrugated waveguide. The testing at FALCON of CuCrZr miter-bend prototypes were successful confirming the validity of the design concepts and of the corrugation process.

The “Stage 2” of the EC Plant Control System is the first deliverable to be installed at ITER premises. F4E has prepared the technical specifications on the basis of the approved design and has signed the manufacturing contract.

F4E has launched a contract for the procurement of the set of waveguides needed to test the gyrotrons and has procured some instrumentation to be used in the testing of the high voltage power supplies.

The first EC power supply set and part of the High Voltage power supply dummy loads were delivered to the IO. Factory testing of critical parts such as the power supplies modules for the subsequent first plasma units have been successfully completed.

Extended tests have been completed on the 1MW European gyrotron prototype for ITER at the Swiss Plasma Center. After inspection of the prototype by the industrial partner, some improvements have been identified to improve the gyrotron performance.

1.1.2. The Broader Approach Project (BA)

The three Broader Approach (BA) projects are nearing the full completion, planned by March 2020, what is known as “BA-Phase I”. During 2019 the Parties (Euratom and Japan) and the two Implementing Agencies

(F4E and its Japanese counterpart QST) have concluded preparations for the following years where it is expected that research and enhancements will be conducted building on what has been proven to be a very successful collaboration.

- **Satellite Tokamak (JT-60SA)**

In 2019, F4E delivered all of the components under its responsibility with the exception of some small power supplies (not time critical) where some damage occurred during transportation and repairs are underway. By the year-end, the assembly of the torus is now almost complete. Actions focussed on the installation of the upper Equilibrium Field coils, the Central Solenoid, Cryostat Thermal Shield, internal cryolines and magnet feeders. F4E achieved 97 % of the whole project Earned Value.

- **International Fusion Materials Irradiation Facility (IFMIF/EVEDA)**

In 2019, the LIPAc (Linear IFMIF Prototype Accelerator) completed beam commissioning in pulsed mode of the Radio Frequency Quadrupole and in June, the team accelerated a deuteron beam of 125 mA at 5 MeV. LIPAc is the first accelerator in the world delivering a deuteron beam at such an intensity and energy.

After the attainment of this important target, activities continued with the preparation of the assembly of the cryomodule and the installation of the beam transport line with its high power beam dump for the continuous operation. In parallel, work was carried out on improving the reliability of the injector, control system, and RF power system.

- **International Fusion Energy Research Centre (IFERC)**

The IFERC Project comprises three sub-projects: the Computational Simulation Centre, DEMO Activities and the Remote Experimentation Centre (REC). In 2019, the DEMO Activity Integrated Project Team continued to investigate key issues impacting pre-conceptual DEMO designs. The REC deployed its resources in the preparations for the remote access to JT-60SA as well as the access from Europe of the LIPAc accelerator.

1.2.Initial Budget, Amending Budgets and Final Budget

In line with the F4E budgetary procedure, the statement of revenue and expenditure adopted with the initial 2019 budget was pre-defined in the 2017 edition of the Resource Estimates Plan, and adjusted to the final contributions from Euratom and France.

1.2.1. Evolution of the Statement of Expenditure in Commitment

The evolution of the commitment appropriations in the course of the 2019 budget implementation was as follows (EUR):

Evolution of the Statement of Expenditure in Commitment (EUR)

Heading of the 2019 Budget	Original budget 12 Dec. 2018 (1)	Amending budget 1 10 July 2019 (2)	Amending budget 2 10 Dec. 2019 (3)	Transfers adopted by F4E Director (4)	Final budget (5)= Σ(1 to 4)	Additional revenue (6)	Carried over from 2018 (incl. transfer) (7)	Final appropriations (8)= Σ(5 to 7)
CH 11 STAFF EXPENDITURE IN THE ESTABLISHMENT PLAN	32 952 832.40			1 352 206.14	34 305 038.54			34 305 038.54
CH 12 EXTERNAL STAFF EXPENDITURE (CA, IS AND SNE)	11 022 500.00			-217 094.65	10 805 405.35			10 805 405.35
CH 13 MISSIONS AND DUTY TRAVEL	450 000.00			440 000.00	890 000.00			890 000.00
CH 14 MISCELLANEOUS EXPENDITURE ON STAFF RECRUITMENT AND TRANSFER	853 000.00			-364 975.78	488 024.22			488 024.22
CH 15 REPRESENTATION	10 000.00			-4 000.00	6 000.00			6 000.00
CH 16 TRAINING	663 000.00			-67 633.24	595 366.76	2 031.26		597 398.02
CH 17 OTHER STAFF MANAGEMENT EXPENDITURE	2 422 000.00			376 508.53	2 798 508.53	3 356.25		2 801 864.78
CH 18 TRAINEESHIPS	151 000.00			25 186.84	176 186.84			176 186.84
TITLE 1 - Commitment	48 524 332.40	0.00	0.00	1 540 197.84	50 064 530.24	5 387.51	0.00	50 069 917.75
CH 21 BUILDINGS AND ASSOCIATED COSTS	1 428 000.00			-520 839.68	907 160.32		489 339.68	1 396 500.00
CH 22 INFORMATION AND COMMUNICATION TECHNOLOGIES	3 570 400.00			-4 971.23	3 565 428.77			3 565 428.77
CH 23 MOVABLE PROPERTY AND ASSOCIATED COSTS	261 000.00			-103 000.00	158 000.00			158 000.00
CH 24 EVENTS AND COMMUNICATION	306 000.00			-6 291.83	299 708.17			299 708.17
CH 25 OUTSOURCING AND OTHER CURRENT EXPENDITURE	1 244 000.00			5 488.02	1 249 488.02	567.46		1 250 055.48
CH 26 POSTAGE AND TELECOMMUNICATIONS	391 000.00			-20 400.00	370 600.00			370 600.00
CH 27 EXPENDITURE ON FORMAL AND OTHER MEETINGS	355 400.00			98 798.06	454 198.06			454 198.06
CH 28 APPROPRIATION ACCRUING FROM THIRD PARTIES TO THE BUILDING REFURBISHMENT EXPENDITURE	p.m.			0.00	0.00			0.00
TITLE 2 - Commitment	7 555 800.00	0.00	0.00	-551 216.66	7 004 583.34	567.46	489 339.68	7 494 490.48
Total TITLE 1 & 2 - Commitment	56 080 132.40	0.00	0.00	988 981.18	57 069 113.58	5 954.97	489 339.68	57 564 408.23
CH 31 ITER CONSTRUCTION - INCLUDING SITE PREPARATION	468 541 368.00	-2 364 000.00	17 084 140.23	-890 076.68	482 371 431.55	337 824.27	152 676.55	482 861 932.37
CH 32 TECHNOLOGY FOR ITER	3 304 000.00	-804 000.00	-500 000.00	-528 563.45	1 471 436.55			1 471 436.55
CH 33 TECHNOLOGY FOR BROADER APPROACH AND DEMO	11 800 000.00	-1 300 000.00	-5 500 000.00	-731 189.51	4 268 810.49			4 268 810.49
CH 34 OTHER EXPENDITURE	4 982 000.00	7 018 000.00	1 197 794.00	1 160 848.46	14 358 642.46	28 932.00		14 387 574.46
CH 35 ITER CONSTRUCTION - APPROPRIATIONS ACCRUING FROM THE HOST STATE CONTRIBUTION	130 000 000.00				130 000 000.00		14 944 913.65	144 944 913.65
CH 36 APPROPRIATION ACCRUING FROM THIRD PARTIES TO SPECIFIC ITEM OF EXPENDITURE	p.m.				0.00	12 894 715.56	11 314 653.69	24 209 369.25
TITLE 3 - Commitment	618 627 368.00	2 550 000.00	12 281 934.23	-988 981.18	632 470 321.05	13 261 471.83	26 412 243.89	672 144 036.77
Total BUDGET in Commitment Appropriations	674 707 500.40	2 550 000.00	12 281 934.23	0.00	689 539 434.63	13 267 426.80	26 901 583.57	729 708 445.00

Note: Presentation of the carry over in Commitment for B035 and B036 in appropriation for the year only.

1.2.1.1. Evolution of the administrative expenditure

The administrative expenditure comprises non-differentiated appropriations (commitment and payment appropriations are in unison), therefore any transfers or budget amendments are adopted in both commitment and payment appropriations.

The transfers approved by the Director increased the administrative budget from the operational budget by EUR 1 478 320.86 and modified the detailed allocation of the administrative expenditure according to the final needs.

Due to the non-differentiated nature of the administrative expenditure, the main changes compared to the original budget are identical in commitment and payment.

The major changes (> +/-10%) in the administrative expenditure (variation of the final implementation in % of the initial budget) are:

Title 1 – Staff expenditure (+ 3%)

Chapter 13 Missions and duty travel: (+ 98%)

The development of a specific tool for the management of mission expenditure has allowed a precise allocation of missions between operational and administrative expenditure. The total expenditure for mission was decreased compared to the original budget.

Chapter 14 Miscellaneous expenditure on staff recruitment and transfer: (- 43%)

The recruitment rate was lower than the original forecast due to the need to reduce the establishment plan by 11 positions at the beginning of 2020, therefore a reduction in the expenditure linked to recruitment: removals, travel for taking up duties, daily and installation allowances, travel expenses for medical visits.

Chapter 15 Representation: (- 40%)

Minor change in value (from EUR 10 000 to EUR 6 000) resulting from a lower implementation.

Chapter 16 Training: (- 10%)

Expenditures for Training lower than forecasted, in particular regarding the technical trainings and language courses.

Chapter 17 Other Staff management expenditure: (+ 16%)

Increase in the expenditure for the International schooling and medical services due to a change in the procurement structure and increase of needs for the International school.

Chapter 18 Traineeships: (+ 17%)

This increase is due to the decision to recruit more traineeship, from 16 to 27 trainees, as result of the success of this activity.

Title 2 – Building and associated cost (- 1%)

Chapter 23 Movable property and associated costs: (- 39%)

The reduction is due to the decision to postpone the purchase of new furniture and some telecommunication/audio-visual equipment for 2019 to 2020.

Chapter 27 Expenditure on formal and other meetings: (+ 28%)

The increase is mainly due to the cost of the different expert meetings and the catering for the PM department that have been added to the yearly catering forecasts.

1.2.1.2. Evolution of the operational expenditure

The statement of operational expenditure was modified with the two amending budgets to reflect the changes in the statement of revenue and to align the operational budget in commitment appropriations with the successive amendments to the 2019 WP in July and December 2019.

The major changes (> +/-10%) in the Operational expenditure (variation of the final implementation in % of the original budget) are:

Chapter 32 Technology for ITER: (- 55%)

The variation is mainly due to an allocation reserved in the original budget for an additional commitment on the non-credited part of the NBTF Agreement finally not implemented in 2019.

Chapter 33 Technology for Broader Approach (BA) and DEMO: (- 64%)

For JT-60SA all activities in BA Phase 1 have been implemented according to the forecast. For the remaining activities related to BA Phase 2 early implementation (lacking a timely signature between the parties for a new Joint Declaration), administrative and legal basis had to be, and to some extent still have to be established, thus inducing delays beyond direct control. Moreover on technical side the design and interface agreement on diagnostics and enhancements took more time than expected, pushing the tendering of most contracts to the last quarter of 2019, and so the commitment and contract signature to beginning of 2020. For IFMIF-EVEDA the team, in charge of the definition of technical specifications of some structuring contracts for the maintenance and refurbishment of the system of the LIPAc, spent more time on the accelerator operation than expected. It was also more time consuming to work out the detailed requirements of these contracts, which are mostly based on the operational feedback in order to optimise their efficiency. This resulted in delay of launching the related call for tenders.

Chapter 34 Other Expenditure: (+ 189%)

New guidelines for the allocation of expenditures to different budget chapters have been approved in 2018 and the teams have started to implement those guidelines in the following months, after the preparation of the original Budget. In addition, the planning of the activities for engineering, the design support has improved during the months. This appropriation is intended to cover all actions usually defined as “of administrative nature” meaning implemented through other means than the classical works, supply and services contracts defined in title 5 of the FR of F4E and defined by its scope, directly related to the ITER and BA projects. The following actions are funded against this item:

- Experts/contractors performing the work not directly linked to specific contract or delivery, including the cost to host external experts from services contracts working on F4E site;
- High-level scientific and technological analyses and evaluations carried out on behalf of F4E;
- Miscellaneous expenditure (legal, ICT, logistics, missions, building...), in particular of administrative nature but directly linked to projects of ITER or Broader Approach.

Chapter 35 ITER construction appropriations accruing from the Host State contribution: (+ 11%)

The appropriations increase for this chapter is due to the carry over, allowing the financing of additional actions foreseen in the Work Programme with a balancing on the execution on Chapter 31.

1.2.2. Evolution of the Statement of Expenditure in Payment

The evolution of the commitment appropriations in the course of the 2019 budget implementation was as follows (EUR):

Evolution of the Statement of Expenditure in Payment Appropriations (EUR)

Heading of the 2019 Budget	Original budget 12 Dec. 2018 (1)	Amending budget 1 10 July 2019 (2)	Amending budget 2 10 Dec. 2019 (3)	Transfers adopted by F4E Director (4)	Final budget (5)= Σ(1 to 4)	Additional revenue (6)	Carried over from 2018 (incl. transfer) (7)	Final appropriations (8)= Σ(5 to 7)
CH 11 STAFF EXPENDITURE IN THE ESTABLISHMENT PLAN	32 952 832.40			1 352 206.14	34 305 038.54			34 305 038.54
CH 12 EXTERNAL STAFF EXPENDITURE (CA, IS AND SNE)	11 022 500.00			-217 094.65	10 805 405.35		210 271.74	11 015 677.09
CH 13 MISSIONS AND DUTY TRAVEL	450 000.00			440 000.00	890 000.00		1 290 241.59	2 180 241.59
CH 14 MISCELLANEOUS EXPENDITURE ON STAFF RECRUITMENT AND TRANSFER	853 000.00			-364 975.78	488 024.22		48 078.70	536 102.92
CH 15 REPRESENTATION	10 000.00			-4 000.00	6 000.00		6 364.77	12 364.77
CH 16 TRAINING	663 000.00			-67 633.24	595 366.76	2 031.26	217 675.48	815 073.50
CH 17 OTHER STAFF MANAGEMENT EXPENDITURE	2 422 000.00			376 508.53	2 798 508.53	3 356.25	355 386.87	3 157 251.65
CH 18 TRAINEESHIPS	151 000.00			25 186.84	176 186.84			176 186.84
TITLE 1 - Payment appropriations	48 524 332.40	0.00	0.00	1 540 197.84	50 064 530.24	5 387.51	2 128 019.15	52 197 936.90
CH 21 BUILDINGS AND ASSOCIATED COSTS	1 428 000.00			-520 839.68	907 160.32		1 069 085.43	1 976 245.75
CH 22 INFORMATION AND COMMUNICATION TECHNOLOGIES	3 570 400.00			-4 971.23	3 565 428.77		1 843 564.89	5 408 993.66
CH 23 MOVABLE PROPERTY AND ASSOCIATED COSTS	261 000.00			-103 000.00	158 000.00		104 680.22	262 680.22
CH 24 EVENTS AND COMMUNICATION	306 000.00			-6 291.83	299 708.17		81 915.85	381 624.02
CH 25 OUTSOURCING AND OTHER CURRENT EXPENDITURE	1 244 000.00			5 488.02	1 249 488.02	567.46	379 435.75	1 629 491.23
CH 26 POSTAGE AND TELECOMMUNICATIONS	391 000.00			-20 400.00	370 600.00		196 285.16	566 885.16
CH 27 EXPENDITURE ON FORMAL AND OTHER MEETINGS	355 400.00			98 798.06	454 198.06		148 151.57	602 349.63
CH 28 APPROPRIATION ACCRUING FROM THIRD PARTIES TO THE BUILDING REFURBISHMENT EXPENDITURE	p.m.			0.00	0.00			0.00
TITLE 2 - Payment appropriations	7 555 800.00	0.00	0.00	-551 216.66	7 004 583.34	567.46	3 823 118.87	10 828 269.67
Total TITLE 1 & 2 - Payment	56 080 132.40	0.00	0.00	988 981.18	57 069 113.58	5 954.97	5 951 138.02	63 026 206.57
CH 31 ITER CONSTRUCTION - INCLUDING SITE PREPARATION	563 673 628.23	-3 500 000.00	-56 768 480.10	-6 911 637.93	496 493 510.20	337 824.27	9 854 054.62	506 685 389.09
CH 32 TECHNOLOGY FOR ITER	4 200 000.00			2 642 102.19	6 842 102.19			6 842 102.19
CH 33 TECHNOLOGY FOR BROADER APPROACH AND DEMO	7 400 000.00			937 082.18	8 337 082.18			8 337 082.18
CH 34 OTHER EXPENDITURE	5 000 000.00			2 343 472.38	7 343 472.38	28 932.00		7 372 404.38
CH 35 ITER CONSTRUCTION - APPROPRIATIONS ACCRUING FROM THE HOST STATE CONTRIBUTION	145 000 000.00				145 000 000.00		2 198 145.43	147 198 145.43
CH 36 APPROPRIATION ACCRUING FROM THIRD PARTIES TO SPECIFIC ITEM OF EXPENDITURE	p.m.				0.00	7 414 844.60	14 311 525.34	21 726 369.94
TITLE 3 - Payment appropriations	725 273 628.23	-3 500 000.00	-56 768 480.10	-988 981.18	664 016 166.95	7 781 600.87	26 363 725.39	698 161 493.21
Total BUDGET in Payment Appropriations	781 353 760.63	-3 500 000.00	-56 768 480.10	0.00	721 085 280.53	7 787 555.84	32 314 863.41	761 187 699.78

1.2.2.1. Evolution of the administrative expenditure

Due to the non-differentiated nature of the administrative expenditure, the main changes compared to the original budget are identical in commitment and in payment. They are described at section 1.2.1.1.

Nevertheless, the statement of expenditure in payment appropriations includes carried over appropriations from 2018, corresponding to administrative contract committed but not yet paid at the end of 2018.

1.2.2.2. Evolution of the operational expenditure

The statement of expenditure was modified in the course of its implementation in accordance with the successive changes in the statement of revenue. Additional adjustments between budgetary chapters were implemented through transfers authorised by the Director, to honour all contractual obligations toward suppliers and to reach the highest possible rate of budget implementation at the year end.

1.2.3. Amending Budgets Adopted by the Governing Board

List of amending budgets adopted by the F4E GB (EUR):

Date of adoption		Description	Chapter	Commitment appropriations (EUR)	Payment appropriations (EUR)
1	10/07/2019	The purpose of the amendment was: (a) The alignment of the F4E Statement of Revenue and Expenditure with the EU contribution to F4E as included in the final adopted 2019 EU budget (b) The alignment of the statement of expenditure with the amended 2019 Work Programme	B031	-2 364 000.00	-3 500 000.00
			B032	-804 000.00	
			B033	-1 300 000.00	
			B034	7 018 000.00	
			Total	2 550 000.00	-3 500 000.00
2	12/12/2019	The purpose of the amendment was: (a) The alignment of the statement of expenditure with the amended 2019 Work Programme, including an additional amount of EUR 9.15 million called from the unused commitment appropriations (b) The introduce of an additional contribution from Euratom of EUR 1.90 million for commitment appropriations, partially compensating the initial budget cut for the EU Defence Initiative (c) The introduce miscellaneous revenue of EUR 1.23 million linked to a claimed performance guarantee for non-conformities and received bank interests, both in commitments and payments appropriations (d) The alignment of the decrease of EUR 58.00 million of operational expenditure for payments due to lower 2019 forecast of implementation	B031	17 084 140.23	-56 768 480.10
			B032	-500 000.00	
			B033	-5 500 000.00	
			B034	1 197 794.00	
			Total	12 281 934.23	-56 768 480.10

1.2.4. Transfers Adopted by the Director

List of transfers adopted by the Director according to Article 27 of F4E Financial Regulation. The GB was duly informed about the transfers (EUR):

Date of adoption		Main subject - Description	Chapter	Commitment appropriations (EUR)	Payment appropriations (EUR)
1	15/03/2019	T 2019/01 Administrative expenditure. Credits received from a recovery order of ITER IO have been wrongly assigned on administrative budget instead of operational budget. This transfer is to rectify this error.	B031	489 339.68	489 339.68
			A021	-489 339.68	-489 339.68
			Total	0.00	0.00
2	04/04/2019	T 2019/02 Operational expenditure in commitment. Reinforcement of B034 Other expenditure.	B031	-2 000 000.00	0.00
			B034	2 000 000.00	0.00
			Total	0.00	0.00

Date of adoption		Main subject - Description	Chapter	Commitment appropriations (EUR)	Payment appropriations (EUR)
3	08/08/2019	T 2019/03 Administrative expenditure. Cover a contract for the expert, who will avail the HR unit with specific expertise in the ambit of Staff regulations, compliance, HR processes review, and HR strategy.	A014	-72 720.00	-72 720.00
			A025	72 720.00	72 720.00
			Total	0.00	0.00
4	27/09/2019	T 2019/04 Operational expenditure in payment Reinforcement of B034 Other expenditure in order to proceed with the payments during last quarter of 2019.	B031	0.00	-2 000 000.00
			B034	0.00	2 000 000.00
			Total	0.00	0.00
5	28/10/2019	T 2019/05 Operational expenditure in payment Reinforcement of B034 Other expenditure in order to proceed with the payments during last quarter of 2019.	B031	0.00	-4 000 000.00
			B032	0.00	4 000 000.00
			Total	0.00	0.00
6	24/10/2019	T 2019/06 Operational expenditure in payment Reinforcement of B03200 Technology for ITER in order to proceed with the payments during the last quarter of 2019.	B031	0.00	-5 000 000.00
			B032	0.00	5 000 000.00
			Total	0.00	0.00
7	27/11/2019	T 2019/07 Operational expenditure in payment Reinforcement of B033 Technology for Broader approach and DEMO in order to proceed with the payments during the last quarter of 2019.	B031	0.00	-2 500 000.00
			B033	0.00	2 500 000.00
			Total	0.00	0.00
8	04/12/2019	T 2019/08 Administrative expenditure To cover the salary cost of December 2019 and final adjustment for full implementation of the budget	A011	1 352 206.14	1 352 206.14
			A012	-217 094.65	-217 094.65
			A013	440 000.00	440 000.00
			A014	-290 015.78	-290 015.78
			A015	-4 000.00	-4 000.00
			A016	-194 941.24	-194 941.24
			A017	376 508.53	376 508.53
			A018	25 186.84	25 186.84
			A021	-31 500.00	-31 500.00
			A023	-103 000.00	-103 000.00
			A024	-6 291.83	-6 291.83
			A025	-67 231.98	-67 231.98
			A026	-20 400.00	-20 400.00
			A027	98 798.06	98 798.06
			B031	-1 358 224.09	-1 358 224.09
			Total	0.00	0.00

Date of adoption		Main subject - Description	Chapter	Commitment appropriations (EUR)	Payment appropriations (EUR)
9	19/12/2019	T 2019/09 Operational and Administrative expenditure Final adjustment for full implementation of the budget	B032	-528 563.45	-2 613 893.51
			B033	-731 189.51	-1 562 917.82
			B034	-839 151.54	-3 724 840.06
			A014	-2 240.00	-2 240.00
			A022	-4 971.23	-4 971.23
			B031	1 978 115.73	7 780 862.62
			A016	128 000.00	128 000.00
			Total	0.00	0.00
10	20/12/2019	T 2019/10: Operational and administrative expenditure. The transfer is needed because the final offer of the coaching activity is less than forecasted on the training budget. It also allows to process a very last payment on B032-TBM	B031	692.00	-323 616.14
			A016	-692.00	-692.00
			B032		255 995.70
			B034		68 312.44
			Total	0.00	0.00

1.3.Implementation of the Budget

Commitments	99.8%	of implementation of the final available budget	Final Budget: 729.71	Execution: 728.10	EUR million
	107.9%	compared to the original budget	Original Budget: 674.71	Execution: 728.10	EUR million
	100.0%	in individual commitments	Execution: 728.10	Ind Commit.: 728.10	EUR million
Payments	97.1%	of implementation of the final available budget	Final Budget: 761.19	Execution: 738.90	EUR million
	94.6%	compared to the original budget	Original Budget: 781.35	Execution: 738.90	EUR million

Implementation of the administrative budget:

The administrative budget was fully implemented in commitment appropriations.

In payment appropriations, the amounts from the 2019 budget, committed but not paid at the year-end were carried over to the 2020 budget.

EUR 0.91 million of unused payment appropriations carried over from 2018 were cancelled.

Implementation of the operational budget:

In commitment appropriations, 99.8% of the operational budget was implemented, and EUR 1.54 million were carried over to the 2020 budget according to the financial rules for assigned revenue.

In payment appropriations, 97.1% of the operational budget was implemented, and EUR 16.83 million were carried over to the 2020 budget, again according to the rules for assigned revenue. The execution of the 2019 budget could have been complete, but was limited due to the contribution of ITER Organization for the Reserve Fund received at the end of the year.

1.3.1. Implementation of the Budget in commitment appropriations

1.3.1.1. Tables of Implementation, Including the Assigned Revenue

The Implementation of the Statement of Expenditure in Commitment Appropriations is as follows (EUR):

Heading of the 2019 Budget	Commitment Appropriation		
	Final appropriations (1)	Final implementation (2)	% implementation (3)= (2)/(1)
CH 11 STAFF EXPENDITURE IN THE ESTABLISHMENT PLAN	34 305 038.54	34 305 038.54	100.0%
CH 12 EXTERNAL STAFF EXPENDITURE (CA, IS AND SNE)	10 805 405.35	10 805 405.35	100.0%
CH 13 MISSIONS AND DUTY TRAVEL	890 000.00	890 000.00	100.0%
CH 14 MISCELLANEOUS EXPENDITURE ON STAFF RECRUITMENT AND TRANSFER	488 024.22	488 024.22	100.0%
CH 15 REPRESENTATION	6 000.00	6 000.00	100.0%
CH 16 TRAINING	597 398.02	597 398.02	100.0%
CH 17 OTHER STAFF MANAGEMENT EXPENDITURE	2 801 864.78	2 801 864.78	100.0%
CH 18 TRAINEESHIPS	176 186.84	176 186.84	100.0%
TITLE 1 - Commitment	50 069 917.75	50 069 917.75	100.0%
CH 21 BUILDINGS AND ASSOCIATED COSTS	1 396 500.00	1 396 500.00	100.0%
CH 22 INFORMATION AND COMMUNICATION TECHNOLOGIES	3 565 428.77	3 565 428.77	100.0%
CH 23 MOVABLE PROPERTY AND ASSOCIATED COSTS	158 000.00	158 000.00	100.0%
CH 24 EVENTS AND COMMUNICATION	299 708.17	299 708.17	100.0%
CH 25 OUTSOURCING AND OTHER CURRENT EXPENDITURE	1 250 055.48	1 249 488.02	100.0%
CH 26 POSTAGE AND TELECOMMUNICATIONS	370 600.00	370 600.00	100.0%
CH 27 EXPENDITURE ON FORMAL AND OTHER MEETINGS	454 198.06	454 198.06	100.0%
CH 28 APPROPRIATION ACCRUING FROM THIRD PARTIES TO THE BUILDING REFURBISHMENT EXPENDITURE	0.00	0.00	-
TITLE 2 - Commitment	7 494 490.48	7 493 923.02	100.0%
Total TITLE 1 & 2 - Commitment	57 564 408.23	57 563 840.77	100.0%
CH 31 ITER CONSTRUCTION - INCLUDING SITE PREPARATION	482 861 932.37	482 595 361.97	99.9%
CH 32 TECHNOLOGY FOR ITER	1 471 436.55	1 471 436.55	100.0%
CH 33 TECHNOLOGY FOR BROADER APPROACH AND DEMO	4 268 810.49	4 268 810.49	100.0%
CH 34 OTHER EXPENDITURE	14 387 574.46	14 387 574.46	100.0%
CH 35 ITER CONSTRUCTION - APPROPRIATIONS ACCRUING FROM THE HOST STATE CONTRIBUTION	144 944 913.65	144 944 913.17	100.0%
CH 36 APPROPRIATION ACCRUING FROM THIRD PARTIES TO SPECIFIC ITEM OF EXPENDITURE	24 209 369.25	22 872 935.91	94.5%
TITLE 3 - Commitment	672 144 036.77	670 541 032.55	99.8%
Total BUDGET in Commitment Appropriations	729 708 445.00	728 104 873.32	99.8%

1.3.1.2. Flexibility Clause of the Work Programme

A **'flexibility' clause** has been introduced in the Work Programme since 2017 in order to limit the changes in the implementation of the budget compared to the substance of the Work Programme adopted by the Governing Board, and last defined in the Article 2 of the Governing Board decision approving the third amendment to the Work Programme 2019⁶:

The Governing Board hereby delegates to the Director of Fusion for Energy the power to make non substantial amendments to the annual Work Programme approved by the Governing Board. Amendments are considered to be "non-substantial" if

(a) they do not lead to an increase of:

i. more than 10% of the Financial Resources allocated to the corresponding Action in the Annex V of the annual Work Programme for the year, or more than EUR 0.2 million for Actions with allocation of below EUR 2 million for the year; and

ii. more than 3% of the total operational expenditure in Title 3 of the annual Budget for the given year and if:

(b) any related changes to the scope of the annual Work Programme do not have significant impact on the nature of the Actions or on the achievement of objectives of the multiannual Project Plan.

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

The Budget 2019 has been implemented in full respect of this flexibility clause:

Implementation of the Work Programme (EUR)

Action #	Action	Budget WP2019	Budget WP2019 Amendment 1	Budget WP2019 Amendment 2	Budget WP2019 Amendment 3	Final Implementation	
						Amount	%
1	Magnets	16 536 831	58 536 831	72 200 000	70 956 750	70 171 464	-1%
2,3,4,10[1]	Main Vessel	33 040 942	33 040 942	15 100 000	15 756 737	12 019 837	-31%
5	Remote Handling	17 781 559	17 781 559	13 000 000	13 043 414	14 211 232	8%
6	Cryoplant & Fuel Cycle	8 403 856	8 403 856	28 000 000	20 948 633	20 769 248	-1%
7	Antennas and Plasma Engineering	5 329 337	5 329 337	5 125 000	5 313 343	4 656 342	-14%
8	Neutral Beam and EC Power Supplies and Sources	26 773 199	26 773 199	21 900 000	18 560 211	20 241 395	8%
9	Diagnostics	16 170 926	16 170 926	12 800 000	8 255 171	7 507 779	-10%
11	Site and Buildings and Power Supplies	169 969 643	169 969 643	199 500 000	257 569 507	272 752 051	6%
12	Cash Contributions	293 099 374	251 099 374	226 374 688	230 216 338	224 199 425	-3%
13	Technical Support Activities	29 963 533	29 963 533	28 200 000	20 323 252	19 691 224	-3%
14	Broader Approach	11 930 000	11 930 000	11 000 000	5 193 500	4 318 810	-20%
	Total	628 999 200	628 999 200	633 199 688	666 136 855	670 538 807	

[1] The Actions of Vacuum Vessel, In-Vessel Blanket, In-Vessel Divertor and Test Blanket Module are presented merged in one single line due to commercial sensitive information.

The main operational commitments for the 2019 budget are:

- Action 1: EUR 38.62 million for the Magnet Supply Contract;
- Action 6: EUR 18.99 million for the Manufacture of the Torus and Cryostat Cryo pumping System;

⁶ Decision of the F4E GB F4E_D_2HRKEN 3rd Amendment of the 2019 Work Programme adopted on 10/12/2019

- Action 8: EUR 13.31 million for the Supply of the Beam Line Components;
- Action 11:
 - EUR 95.70 million for the execution of TB12 – contract for the construction of the Neutral Beam Power Supply Building, the Neutral Beam High Voltage Power Supply Building, the Control Building and Fast Discharge Unit Building;
 - EUR 36.63 million to fund additional scope, quantities and complexity increase for the TB03 contract (Building);
 - EUR 32.83 million to fund additional scope of the Architect Engineering contract (Building);
 - EUR 30.58 million to fund additional scope, quantities and complexity increase for the TB16 contract (Building);
- Action 12: EUR 224.20 million for the in-cash contribution to the ITER Organization;
- EUR 179.68 million in about 550 commitments for smaller contracts.

1.3.2. Implementation of the Budget in payment appropriations

1.3.2.1. Tables of Implementation, Including the Assigned Revenue

The Implementation of the Statement of Expenditure in payment Appropriations is as follows (EUR):

Heading of the 2019 Budget	Final appropriations (1)	Payment Appropriation Implementation			
		On B2019 commitments (2)	On B 2018 commitments (3)	Final implementation (4)=(2)+(3)	% implementation (5)= (4)/(1)
CH 11 STAFF EXPENDITURE IN THE ESTABLISHMENT PLAN	34 305 038.54	34 305 038.54		34 305 038.54	100.0%
CH 12 EXTERNAL STAFF EXPENDITURE (CA, IS AND SNE)	11 015 677.09	10 647 569.40	183 042.86	10 830 612.26	98.3%
CH 13 MISSIONS AND DUTY TRAVEL	2 180 241.59	376 957.92	1 058 136.72	1 435 094.64	65.8%
CH 14 MISCELLANEOUS EXPENDITURE ON STAFF RECRUITMENT AND TRANSFER	536 102.92	417 850.34	6 497.06	424 347.40	79.2%
CH 15 REPRESENTATION	12 364.77	3 972.18	1 138.60	5 110.78	41.3%
CH 16 TRAINING	815 073.50	307 606.02	162 027.67	469 633.69	57.6%
CH 17 OTHER STAFF MANAGEMENT EXPENDITURE	3 157 251.65	2 478 648.88	255 050.45	2 733 699.33	86.6%
CH 18 TRAINEESHIPS	176 186.84	176 186.84		176 186.84	100.0%
TITLE 1 - Payment appropriations	52 197 936.90	48 713 830.12	1 665 893.36	50 379 723.48	96.5%
CH 21 BUILDINGS AND ASSOCIATED COSTS	1 976 245.75	884 510.32	501 800.16	1 386 310.48	70.1%
CH 22 INFORMATION AND COMMUNICATION TECHNOLOGIES	5 408 993.66	1 855 574.45	1 708 494.22	3 564 068.67	65.9%
CH 23 MOVABLE PROPERTY AND ASSOCIATED COSTS	262 680.22	84 254.49	62 639.11	146 893.60	55.9%
CH 24 EVENTS AND COMMUNICATION	381 624.02	181 553.00	54 467.09	236 020.09	61.8%
CH 25 OUTSOURCING AND OTHER CURRENT EXPENDITURE	1 629 491.23	885 116.75	274 808.78	1 159 925.53	71.2%
CH 26 POSTAGE AND TELECOMMUNICATIONS	566 885.16	225 092.19	144 986.25	370 078.44	65.3%
CH 27 EXPENDITURE ON FORMAL AND OTHER MEETINGS	602 349.63	192 524.50	138 592.64	331 117.14	55.0%
CH 28 APPROPRIATION ACCRUING FROM THIRD PARTIES TO THE BUILDING REFURBISHMENT EXPENDITURE	0.00	0.00	0.00	0.00	-
TITLE 2 - Payment appropriations	10 828 269.67	4 308 625.70	2 885 788.25	7 194 413.95	66.4%
Total TITLE 1 & 2 - Payment	63 026 206.57	53 022 455.82	4 551 681.61	57 574 137.43	91.3%
CH 31 ITER CONSTRUCTION - INCLUDING SITE PREPARATION	506 685 389.09	-	-	506 485 472.61	100.0%
CH 32 TECHNOLOGY FOR ITER	6 842 102.19	-	-	6 842 102.19	100.0%
CH 33 TECHNOLOGY FOR BROADER APPROACH AND DEMO	8 337 082.18	-	-	8 337 082.18	100.0%
CH 34 OTHER EXPENDITURE	7 372 404.38	-	-	7 372 404.38	100.0%
CH 35 ITER CONSTRUCTION - APPROPRIATIONS ACCRUING FROM THE HOST STATE CONTRIBUTION	147 198 145.43	-	-	147 198 145.43	100.0%
CH 36 APPROPRIATION ACCRUING FROM THIRD PARTIES TO SPECIFIC ITEM OF EXPENDITURE	21 726 369.94	-	-	5 094 087.85	23.4%
TITLE 3 - Payment appropriations	698 161 493.21	0.00	0.00	681 329 294.64	97.6%
Total BUDGET in Payment Appropriations	761 187 699.78	53 022 455.82	4 551 681.61	738 903 432.07	97.1%

1.3.3. Implementation of the Assigned Revenue

External assigned revenue:

F4E makes use of external assigned revenue for:

- The ITER Host State (French) Contribution, assigned to ITER construction only – Chapter 35 of the budget;
- The ITER Reserve Fund assigned to the requests for change in the construction phase decided and financed by IO – Chapter 36 of the budget.

Implementation with the 2019 budget:

- **Chapter 35:**

The French contribution was fully implemented in commitment appropriations, including the carry-over from the 2018 budget.

The French contribution was fully implemented in payment appropriations.

- **Chapter 36:**

The implementation of the Reserve Fund was 94.5% in commitment appropriation. EUR 1.34 million are carried over to the 2020 budget.

In payment appropriations 23.4% of the budget was implemented. It shall be noted that the procedures for the Reserve Fund are not linked to a specific annual budget. EUR 16.63 million are carried over to the 2020 budget.

Internal assigned revenue

The internal assigned revenue is automatically assigned to the corresponding heading of expenditure according to Article 23.3 FR. The internal assigned revenue received during 2019 amounts to EUR 0.37 million. It corresponds to recoveries of payments made in excess.

46.2% of those assigned revenue were executed in commitment and in payment appropriations, and the balances were carried over to the 2020 budget according to the specific rules for assigned revenue of the year.

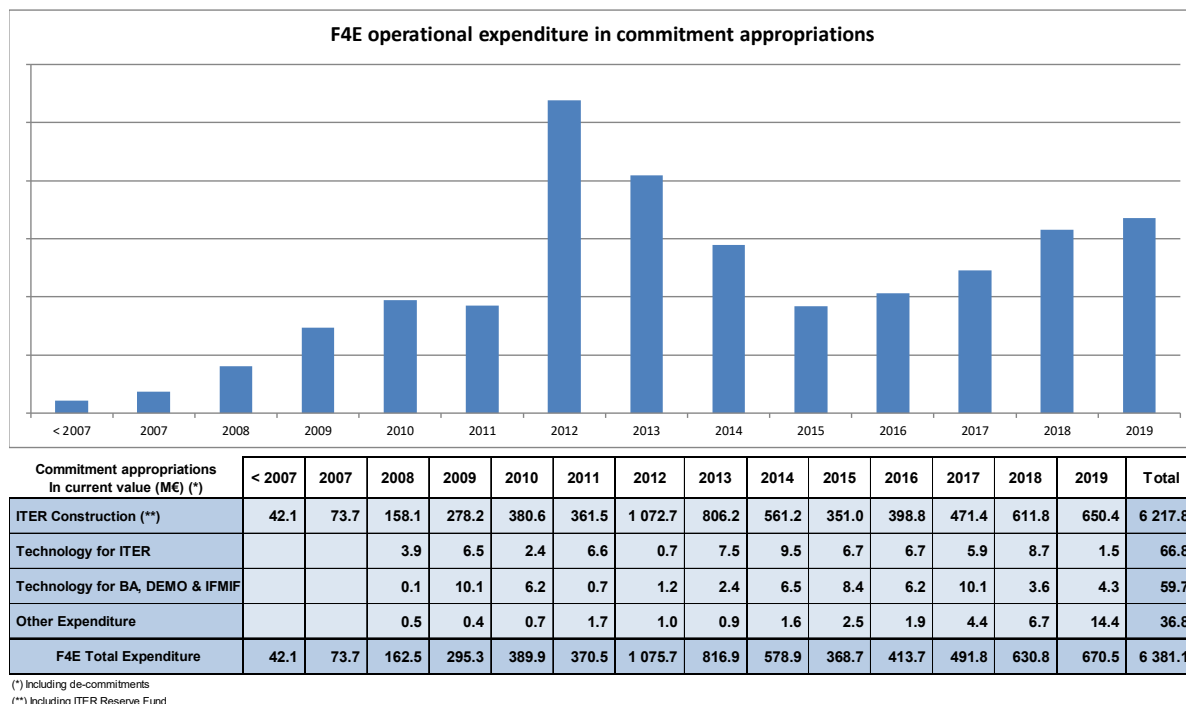
The internal assigned revenue carried over from the previous year, amounting to EUR 0.64 million in commitment and EUR 10.34 million in payment appropriations were fully executed during 2019.

2. Multi-Annual Overview of the F4E Operational Budgets

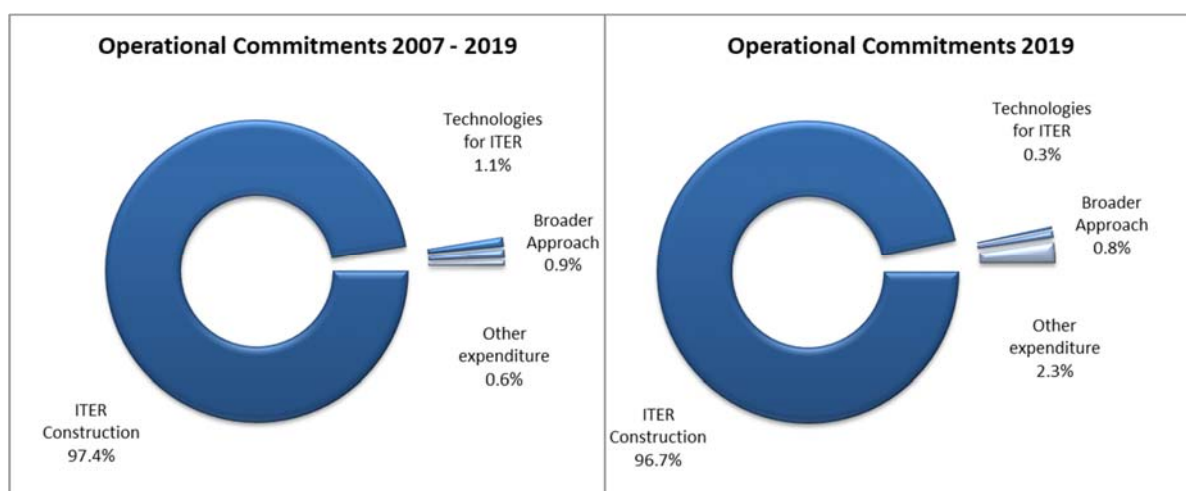
The implementation of F4E budget mainly corresponds to procurement procedures and contribution in-cash to IO.

The graphs below show the evolution of the budget since 2008 by projects, according to the breakdown by chapters of the operational budget (Title III):

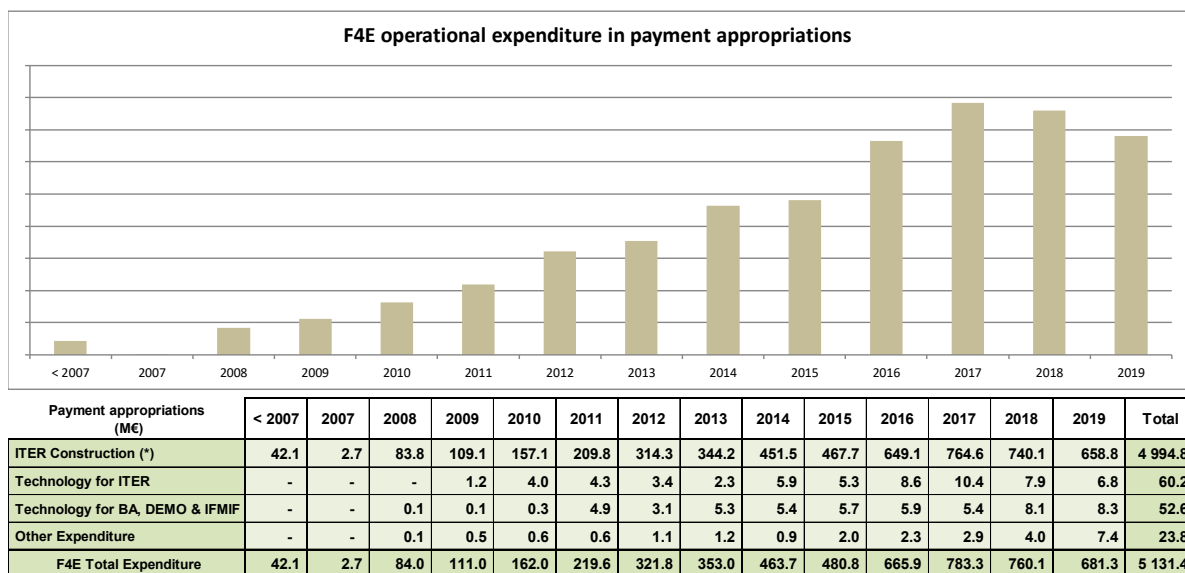
2.1. In Commitment Appropriations



The implementation of the 2019 budget is in line with the previous budgets, ITER construction remaining the main F4E project:



2.2. In Payment Appropriations



(*) Including ITER Reserve Fund

The F4E operational outstanding obligations amount to EUR 1 263.09 million at the closure of the 2019 budget, corresponding to a decrease of EUR 51.81 million compared to the leftovers on open commitments at the end of 2018.

3. Overview of the 2019 Budget – Statement of Revenue

3.1. Nature of Revenue

Participation from the European Atomic Energy Community (EURATOM):

The contribution from EURATOM constitutes the main source of revenue for F4E. This revenue is divided in earmarked revenue for operational and administrative expenditure. The latter covers the main part of the F4E administrative costs. The breakdown of the annual EURATOM contribution until 2020 was included in the Legislative Financial Statement⁷ accompanying the Council Decision (2013) 791, which has been further adjusted during the annual budgetary procedures.

Contribution from ITER Host State:

Until 2020, the contribution from the ITER Host State constitutes the second source of revenue for F4E. France as the ITER Host State covers 9.09% of the total costs of the ITER construction phase. This is equivalent to 20% of F4E budget (excluding the expenditure related to Administration, Broader Approach, Test Blanket Modules and Transportation).⁸

The same assumptions have been taken for the Next MMF subject to final agreement.

Annual membership contributions:

The Annual Membership Contributions are composed of:

- A minimum contribution of 0.1% of the total amount of annual membership contributions and;
- 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 year N-2.

The contributions are established and adopted annually within the F4E budget. The calculations correspond to 10% of the F4E draft administrative budget prepared in year N-2.

The revenue from the Membership contributions is not assigned. As from 2016 onwards, the breakdown by Member is established by EURATOM on the basis of the figures provided by EUROfusion, in compliance with the frame defined in F4E statutes.

Miscellaneous revenue:

Revenue made up of financial fees and charges which F4E is authorised to collect by virtue of the tasks entrusted to it; additional revenues received under terms approved by the GB in accordance with Article 12 of the Statutes and any other revenue.

This revenue is not earmarked by default, but many items are internal assigned revenues.

⁷ Legislative financial statement to Commission proposal COM (2013) 607 for a Council Decision amending Decision 2007/198/Euratom establishing the European Joint Undertaking for ITER and the Development of Fusion Energy and conferring advantages upon it

⁸ Contribution financière française à la construction d'ITER : Lettre du Haut Représentant Français pour ITER (formal exchange of letters on 8 September and 17 November 2011 between France and the European Commission).

Other assigned revenue to specific item of expenditure: Revenue from third parties, in particular IO.

The revenue from the ITER Organization (IO)⁹ is covering the tasks implemented by F4E at IO request.

- The revenue from IO Reserve Fund is assigned to the implementation of the Project Change Requests originating from IO that have been introduced after 05 March 2015.
- The revenue from the IO Undistributed Budget is assigned to the implementation of actions outside the scope of the IO Reserve Fund.

The Recoveries include revenues from undue payments which are returned to the budget assigned to specific items of expenditure to cover tasks implemented by F4E at the request of the third party, including assigned revenue from the ITER Reserve Fund.

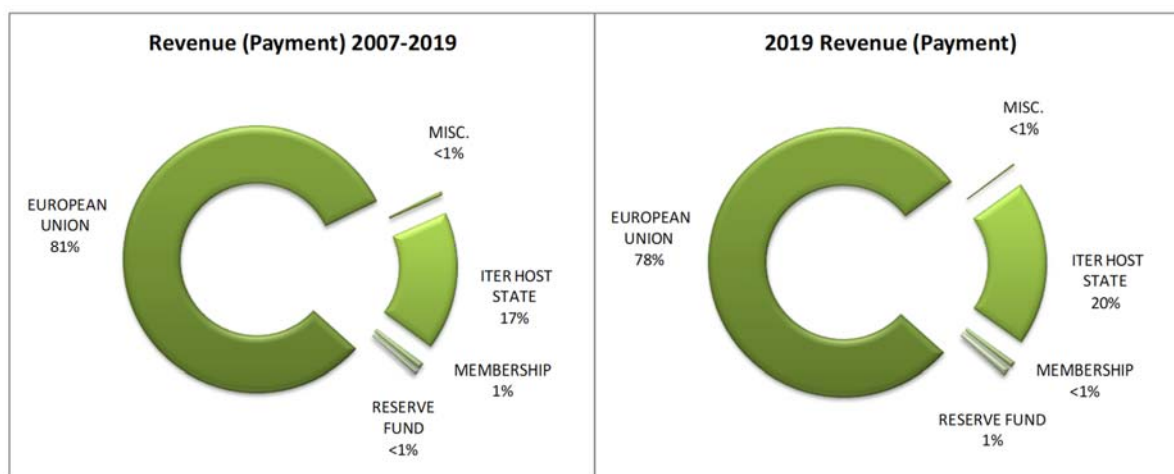
Those contributions are earmarked.

3.2. Overview per Contributors

In commitment appropriations, the revenue corresponds to the authorisation of expenditure, automatically available with the adoption of the Budget by the GB.

In payment appropriations, the 2019 revenue was almost totally collected including the outstanding revenue from the previous year. Only a small amount was still due at the year-end, corresponding to a part of the membership contribution of Spain, amounting to EUR 0.21million.

The graphs below show continuity in the collection of revenue in accordance with the respective share for each contributor:



⁹ Art. 6e of F4E Financial Regulation in accordance with art. 4(2) and art. 12 (1e) of the F4E Council Decision and Statutes

The implementation of the 2019 statement of revenue in payment appropriations is as follows (EUR):

Heading of the 2019 Budget	Original budget 12 Dec. 2018 (1)	Amending budget 1 10 July 2019 (2)	Amending budget 2 10 Dec. 2019 (3)	Final Budget (4)=(1)+(2)+(3)	Outstanding revenue from 2018 (5)	Additional requested revenue(*) (6)	Additional cashed revenue(*) (7)	Cancelled revenue (outturn) (8)	Outstanding Revenue at year end (9)	Carry over from Budget 2018 (10)	Final cash Available (11)=(4)+(5)+(6)+(9)+(10)	Final Available Budget(**) (12)=(11)+(8)
I - 1 10 PARTICIPATION FROM THE EUROPEAN UNION TO OPERATIONAL EXPENDITURE	564 000 568.00	-3 500 000.00	-58 000 000.00	502 500 568.00							502 500 568.00	502 500 568.00
I - 1 11 RECOVERY FROM PREVIOUS YEARS OPERATIONAL EXPENDITURE	16 273 060.23			16 273 060.23							16 273 060.23	16 273 060.23
I - 1 20 PARTICIPATION FROM THE EUROPEAN UNION TO ADMINISTRATIVE EXPENDITURE	49 517 000.00			49 517 000.00						5 461 798.34	54 978 798.34	54 978 798.34
I - 1 21 RECOVERY FROM PREVIOUS YEARS ADMINISTRATIVE EXPENDITURE	963 132.40			963 132.40							963 132.40	963 132.40
I - 2 10 ANNUAL MEMBERSHIP CONTRIBUTIONS	5 600 000.00			5 600 000.00	124 000.00		124 000.00		-211 400.00		5 512 600.00	5 600 000.00
I - 3 10 ASSIGNED REVENUE ACCRUING FROM THE CONTRIBUTION OF ITER HOST STATE	145 000 000.00			145 000 000.00						2 198 145.43	147 198 145.43	147 198 145.43
I - 4 10 MISCELLANEOUS REVENUE	p.m.		1 231 519.90	1 231 519.90	567.46	704 701.33	383 961.24	-11 250.00	-321 307.55	10 343 394.30	11 958 875.44	11 947 625.44
I - 5 10 OTHER ASSIGNED REVENUE TO SPECIFIC ITEM OF EXPENDITURE	p.m.			p.m.							0.00	0.00
I - 5 20 OTHER ASSIGNED REVENUE FROM THE IO RESERVE FUND	p.m.			p.m.		11 976 593.85	7 414 844.60		-4 561 749.25	14 311 525.34	21 726 369.94	21 726 369.94
Total Revenue	781 353 760.63	-3 500 000.00	-56 768 480.10	721 085 280.53	124 567.46	12 681 295.18	7 922 805.84	-11 250.00	-5 094 456.80	32 314 863.41	761 111 549.78	761 187 699.78

(*) I410: Additional revenue requested (6) and cashed (7) on top of the budgeted amount.

(**) I210: The budget available is the amount adopted by the Governing Board.

4. Glossary

Term	Definition
Administrative appropriations	Administrative appropriations cover the running costs of the Institutions and entities (staff, buildings, office equipment).
Adopted budget	Draft budget becomes the adopted budget as soon as it is approved by the Budgetary Authority. Cf. Budget.
Amending budget	Decision adopted by F4E Governing Board during the budget year to amend (increase, decrease, transfer) certain aspects of the adopted budget of that year.
Appropriations	It is a general term used to describe the budget allocation in Revenue and Expenditure for both, commitments (legal pledges to provide finance, when certain conditions are fulfilled) and payments (cash or bank transfers to the beneficiaries).
Assigned revenue External/Internal	Dedicated revenue received to finance specific items of expenditure. Main sources of external assigned revenue for F4E are ITER Host State contribution and ITER Reserve Fund. Main source of internal assigned revenue is revenue arising from the repayment of amounts wrongly paid. The complete list of items constituting assigned revenue is given in the Financial Regulation.
Broader Approach (BA)	The Broader Approach Agreement is a fusion energy partnership signed between Euratom and Japan.
Budget	In general, the Annual budget provides the annual financial plan of the financial and human resources for each financial year estimated both for Revenue and Expenditure (in Commitments and Payments). The budget is drawn up according to the budgetary principles and adopted by the Budgetary Authority. The F4E Budget is adopted by the GB and it is based on the Revenue made available by the contributors (EURATOM, ITER Host State and other) and Expenditure as foreseen in the Annual Work Programme.
Budget implementation	Budget implementation refers to the consumption of the budget through expenditure and revenue operations in compliance with the final adopted budget.
Budgetary commitment	A budgetary commitment is a reservation of appropriations to cover for subsequent expenses (payments). It is the total amount of legal obligations (contracts, grant agreements/decisions) that could be signed in a financial year. It is recorded in the accounting system in ABAC. The types of Budgetary Commitment are: Individual, Global and Provisional.
Cancellation of appropriations	Unused appropriations that may no longer be used.
Carryover of appropriations	Carryover of appropriations is an exception to the principle of annuality. Is so far as appropriations that could not be used in a given budget year may - under strict conditions- be exceptionally carried over for use during the following year.
Commitment appropriations	Commitment appropriations cover the total expenses of legal obligations (contracts, grant agreements/decisions) in the current financial year.
Differentiated appropriations	Differentiated appropriations for commitments and payments often differ because multiannual programmes and projects are usually committed in the year, but they are decided and are paid over the years as the implementation of the programme and project progresses.
Earmarked revenue	Revenue earmarked for a specific purpose, such as income from foundations, revenue subsidies, gifts and bequests, including the earmarked revenue specific to each institution. (Cf. Assigned revenue)
Entitlements established	Entitlements are Recovery orders established for collecting income.
Expenditure	Term used to describe spending the budget from all types of funds sources.
F4E	Fusion for Energy is the European Union's Joint Undertaking for ITER and the Development of Fusion Energy.
Financial Regulation (FR)	Adopted by the F4E Governing Board and approved by the European Commission, this regulation lays down the rules for the establishment and implementation of the F4E budget.
Income	Cf. Revenue

ITER	ITER is the world's largest scientific partnership that aims to demonstrate fusion as a viable and sustainable source of energy. ITER brings together seven parties that represent half of the world's population – the European Union, Russia, Japan, China, India, South Korea and the United States.
Joint Undertaking	A legal EU-body established under the TFEU or the Euratom Treaty (F4E).
Non-differentiated appropriations	Non-differentiated appropriations apply for administrative expenditure. In this case appropriations for commitments and payments are equal. The commitments made in one year (n) can only be followed by payments in the same year (n) or following one (n+1).
Operational appropriations	Operational appropriations finance the different F4E projects, mainly in the form of procurement.
Outstanding commitment	Outstanding Commitments (or RAL, from the French 'reste à liquider') are defined as the amount of appropriations already committed but that have not yet been paid. They stem directly from the existence of multiannual programmes and the dissociation between commitment and payment appropriations.
Payment	A payment is a cash disbursement to honour legal obligations.
Payment appropriations	Payment appropriations cover expenditure due in the current year, arising from legal commitments entered in the current year and/or earlier years.
RAL	Outstanding Commitments (or RAL, from the French 'reste à liquider') are defined as the amount of appropriations already committed but that have not yet been paid. They stem directly from the existence of multiannual programmes and the dissociation between commitment and payment appropriations.
Recovery	Is the internal procedure by which the Authorising officer (AO) registers in ABAC an entitlement by F4E in order to retrieve an amount due. The entitlement is the right that F4E has to claim an amount due by a debtor. The actual recovery of amounts due may take different forms: voluntary payment by the debtor, offsetting of mutual debts, a financial guarantee or enforcement action.
Revenue	Term used to describe income from all sources financing the budget.
Transfer	Transfers imply the relocation of appropriations from one budget line to another, in the course of the financial year. Thereby they constitute an exception to the budgetary principle of specification. They are, however, expressly authorised by the Treaty on the Functioning of the European Union under the conditions laid down in the Financial Regulation. The FR identifies different types of transfers depending on whether they are between or within budget titles, chapters, articles or headings and require different levels of authorisation.

5. Annexes

Annex I: Multi-Annual Payment Schedule for the Operational Budget

Year	Commitments	Paid until end of 2013	MFF 2014-2020						Outstanding amount
			Paid 2014	Paid 2015	Paid 2016	Paid 2017	Paid 2018	Paid 2019	
<= 2007	115 445 438.21	113 121 009.41	2 062 547.93	261 880.87	-	-	-	-	-
2008	162 505 480.00	154 330 986.04	8 026 734.12	-	-	-	-	-	147 759.84
2009	295 658 870.68	234 711 366.38	26 549 875.43	13 259 338.45	8 008 925.36	9 541 166.89	1 995 858.00	595 166.88	997 173.29
2010	389 925 510.27	274 537 523.43	34 717 587.59	39 227 964.72	9 607 653.62	15 107 792.58	7 052 706.24	7 271 509.84	2 402 772.25
2011	370 662 303.45	224 611 776.68	29 962 742.34	26 739 952.54	35 305 192.97	42 950 825.08	1 186 051.53	1 003 257.15	8 902 505.16
2012	1 097 796 786.74	227 971 230.12	128 364 796.05	164 239 683.64	189 718 067.75	152 829 836.45	59 686 026.83	30 102 558.63	144 884 587.27
2013	814 550 062.74	67 053 699.98	181 415 330.39	96 759 662.07	124 738 904.24	85 677 718.98	80 349 613.29	14 030 308.08	164 524 825.71
2014	579 016 536.21	-	52 626 681.58	93 676 757.92	116 670 110.66	78 631 340.28	68 952 541.72	42 675 882.86	125 783 221.19
2015	368 778 530.04	-	-	46 616 552.99	123 149 761.09	50 541 171.89	57 643 284.14	39 324 580.84	51 503 179.09
2016	412 989 551.21	-	-	-	58 687 305.83	229 014 259.88	59 591 457.06	55 272 443.55	10 424 084.89
2017	487 297 013.99	-	-	-	-	119 010 491.88	168 993 842.63	65 041 867.40	134 250 812.08
2018	629 409 562.00	-	-	-	-	-	254 664 005.74	158 238 420.21	216 507 136.05
2019	670 541 032.55	-	-	-	-	-	-	267 773 299.20	402 767 733.35
Total	6 394 576 678.09	1 296 337 592.04	463 726 295.43	480 781 793.20	665 885 921.52	783 304 603.91	760 115 387.18	681 329 294.64	1 263 095 790.17

Note: The actions accounted to F4E projects and implemented by the Commission and the CEA before F4E financial autonomy in 2008 are included.

Annex II: F4E Entitlements

Year of Origin	Outstanding recovery orders at the beginning of the year		Recovery Orders from the 2019 Budget		Outstanding recovery orders at the year end	
	Number	Amount (EUR)	Number	Amount (EUR)	Number	Amount (EUR)
2019	-	-	65	733 766 575.71	6	5 094 456.80
2018	2	124 567.46	-	-	0	0.00
< 2018	0	0.00	-	-	0	0.00

Annex III: Collection of Fees and Charges

F4E did not collect fees and charges during 2019 according to the procedure described in the Article 67 FR.