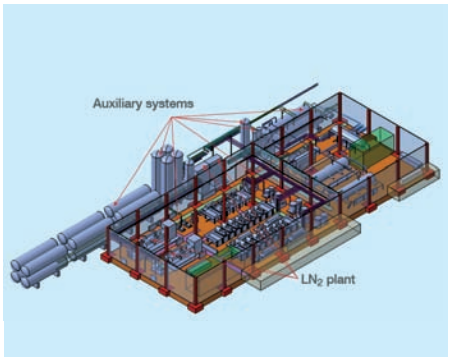
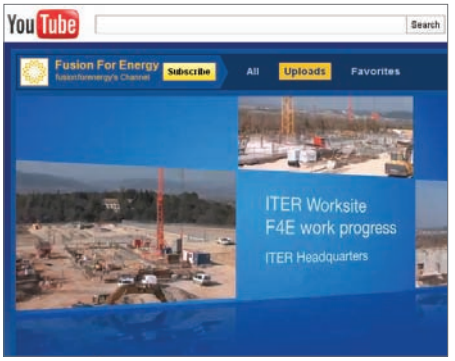
F4E NEWS

Fusion for Energy Quarterly Newsletter No. 6 - June 2011





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F4E ADOPTS NEW MEASURES TO IMPROVE ITS GOVERNANCE

The F4E Governing Board adopted a package of measures to improve the organisation's corporate governance and accountability.

These measures respond to the conclusions of the Council of the European Union about ITER in July 2010. The Governing Board also decided to revise the financial rules of F4E and involve the European Commission's Internal Audit Service. A new team of chairs and vice-chairs for F4E's Governing Board and its subsidiary committees was also appointed.

Strategy, corporate accountability and better co-ordination amongst the different stakeholders, are some of the main characteristics of the new modus operandi of the organisation responsible for Europe's contribution to ITER.

One of the main aims of the new measures is to allow the F4E Governing Board to focus more on supervising the organisation's overall strategy and reinforcing corporate accountability. In parallel, the role of the F4E Executive Committee (ExCo) is strengthened so as to offer early advice on procurement strategies. The creation of the Administration and Finance Committee, as well as the involvement of the European Commission's Internal Audit Service, are measures intended to guarantee a better execution of tasks. A new committee, known as the "Bureau", will be set up to enhance coordination between the Governing Board and its subsidiary committees. Finally, following the request of the Council of the European Union, the publication of a call for an annual independent assessment of F4E has already been launched.

The meeting also marked the departure of three chairs who reached the end of their four year mandates and whose contribution has been instrumental in setting up F4E: Carlos Varandas, Chair of the Governing Board; Quang Tran, Chair of the Technical Advisory Panel and Karl Tichmann, Chair of the Executive Committee.

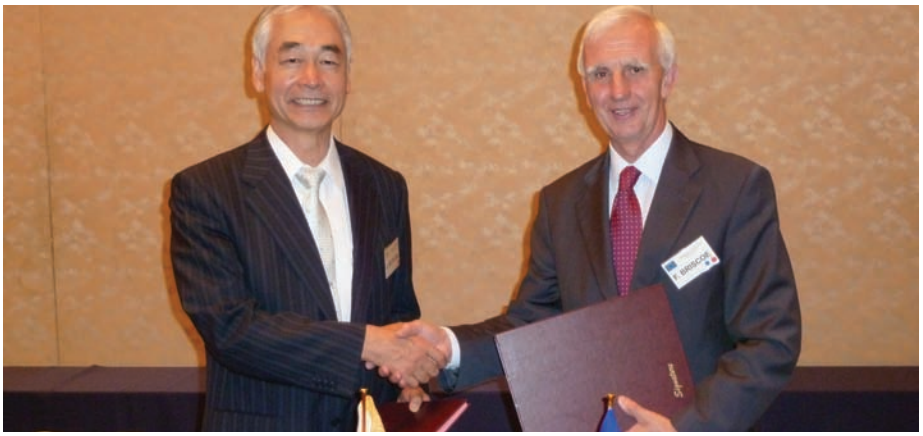
The newly appointed chairs are: Stuart Ward, Chair of the Governing Board; Cor Katerberg, Chair of the Administration and Finance Committee and Vice-Chair of the Governing Board; Joaquin Sanchez, Chair of the TAP and Vice-Chair of the Governing Board; Beatrix Vierkorn-Rudolph, Chair of the Audit Committee; Lisbeth Grønberg, Chair of the ExCo.

The next meeting of the Governing Board will take place on 24-25 November.

J. Sanchez, S. Ward, R. Liberali, F. Briscoe, B. Vierkorn-Rudolph, C. Katerberg

F4E AND ITER IO SIGN PROCUREMENT ARRANGEMENT FOR THE ITER CRYOPLANT

The Procurement Arrangement (PA) for the Liquid Nitrogen Plant and Auxiliary Systems of the ITER cryoplant was signed during the ITER Council meeting in Japan between the F4E Director, Frank Briscoe and Osamu Motojima, Director of ITER International Organization.



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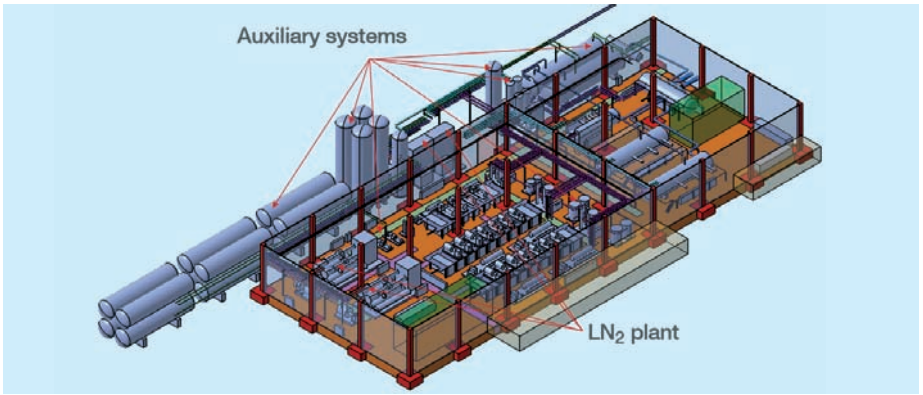

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01 ITER IO Director-General, Osamu Motojima and F4E Director, Frank Briscoe during the eighth ITER Council in Aomori, Japan.
02 The F4E contribution to the ITER cryoplant.
03 F4E colleagues contributing to the successful signature of the PA for the ITER cryoplant.

F4E is in charge of supplying about half of the cryoplant equipment while the other half will be procured by ITER IO. India is responsible for providing the cryodistribution components. F4E is expected to launch the call for tender for its share during the third quarter of this year.

What is the role of the cryoplant system? Hot plasmas with temperatures above 100 million ºC are needed for the production of fusion energy. The plasmas have to be kept away from the surrounding walls by means of powerful superconducting magnets requiring cryogenic temperatures of a few Kelvin for their operation. These very low temperatures are produced in the ITER cryoplant which will be one of the largest plants of this type in the world. The low temperatures are achieved by means of liquid nitrogen (LN_2) and cold helium (He) via processes nowadays well known by industry. The magnets are cooled by circulation of this helium through them. The cryoplant is a non-nuclear facility and will serve magnets, cryopumps, diagnostics, etc.

Usually in cryogenic systems the equipment that needs to be kept cold is protected from the heat of the surroundings by thermal shields cooled to 80 K (approximately -200ºC) with LN_2. In ITER, He at 80 K will be used instead. F4E is responsible for the supply of two 80 K He loops with flow rates up to 4 kg per second and two plants for producing the LN_2 needed for cooling the helium.

F4E will also supply various auxiliary systems needed for the efficient operation of the cryoplant. For example, facilities to store nitrogen and up to 25 tonnes of helium. In addition, systems to remove impurities from helium are also envisaged.

Further information on the call for tender will be published on the F4E website.

THE EDIPO FACILITY IS GETTING READY TO TEST THE ITER SUPERCONDUCTORS

It all started back in 2006 when the European DIPOle (EDIPO) project was launched in order to manufacture a high field magnet that would ultimately be used to test ITER cable-in-conduit conductors and superconductors with a current of up to 100 kA.

The contract was awarded to BNG (Babcock-Noell) for a total cost of approximately 2 million EUR and once the magnet was successfully manufactured and tested, it would be transferred to a Swiss facility named after the project. On the morning of 13 May, a lorry transporting the EDIPO coil all the way from Germany arrived in Switzerland and with the help of a 60 tonne crane unloaded it at the laboratory of the Centre of Research in Physics and Plasma (CRPP) hosted by the Paul Scherrer Institute in Villigen.

The EDIPO facility is planned to operate in parallel with the SULTAN facility and will produce a magnetic field of 12.5 Tesla in order to meet the 13 Tesla required for ITER. The major components of the facility (vacuum vessel, power supplies, HTS leads) have all been delivered and assembled. The outer cylinder contains the 2 saddle-shaped superconducting magnets and is made of a 35 mm thick, 1200 mm inner diameter stainless steel tube.

The bore that within which the cable-in-conduit conductors will be inserted in order to be tested is 3 metres long and the total assembly weighs 20 tonnes. It is expected that by early next year the facility will operate with a current of 17 kA at temperatures of 4.5 Kelvin.

For Alfredo Portone, designated project officer on behalf of F4E for the EDIPO project, this is an important milestone for two main reasons: “Firstly, a new European fusion test facility has been unveiled to cope with the R&D advances we have made and secondly, it will become the test environment of the ITER conductors before they are assembled on the machine”.

The EDIPO high field magnet on its way to CRPP for installation

WHAT'S THE PROGRESS ON THE ITER SITE?

In order to keep our readers up-to-date with the construction progress of ITER, we have decided to report periodically on key developments from the site and highlight the most important milestones. So what is the state of play since our last report?

The Poloidal Field (PF) coils building is taking shape and is being constructed according to schedule.

The technical buildings have been elevated, the steel structure has been assembled and the roofing works have advanced. Progress has also been made in the cladding installation and mainly the concreting of the first part of a corridor floor that measures more than 9,500 m^2. In parallel, the construction of the inner layers of the antirust cladding is on track together with metal sheeting and Rockwool insulation. The assembly of peripheral slabs and the realisation of the underground networks are also moving ahead.

The excavation of the Tokamak is completed, with the removal of around 200,000 m^3 of rock. The construction of the lower basement is expected to kick off later this month. The entire pit has been covered by a steel safety mesh, which has been installed on the rock slopes to create a safe working environment. Three tower cranes have been erected to support the assembly work of the reinforcement by delivering the steel bars.

Meanwhile, the testing of the two batching plants that will produce concrete for the lower basemat and the retaining wall of the Tokamak, has been successfully conducted. As far as the geological analysis of the Tokamak pit is concerned, the cleaning process of the pit and treatment of joints have been completed.

01

01 The Tokamak excavation.
02 South-east angle of the Poloidal Field Coils building. Construction of the inner layers of the antirust cladding is progressing together with metal sheeting and Rockwool insulation.

02

SUPERCOMPUTER TO PERFORM ONE QUADRILLION MATHEMATICAL OPERATIONS PER SECOND IN ORDER TO CRACK PLASMA PHYSICS

The contract for the supply of a high performance supercomputer centre that will perform complex plasma physics calculations has been signed between the Commissariat à l'Energie Atomique et aux Energies Alternatives (CEA) and Bull. The supercomputer is an important milestone of Europe's contribution to the Broader Approach (BA) agreement signed between Europe and Japan to complement the ITER project through various R&D activities which are developed in the field of nuclear fusion.

The European participation to the BA is coordinated by F4E. This specific activity is provided by France as a part of its voluntary contribution to the BA.

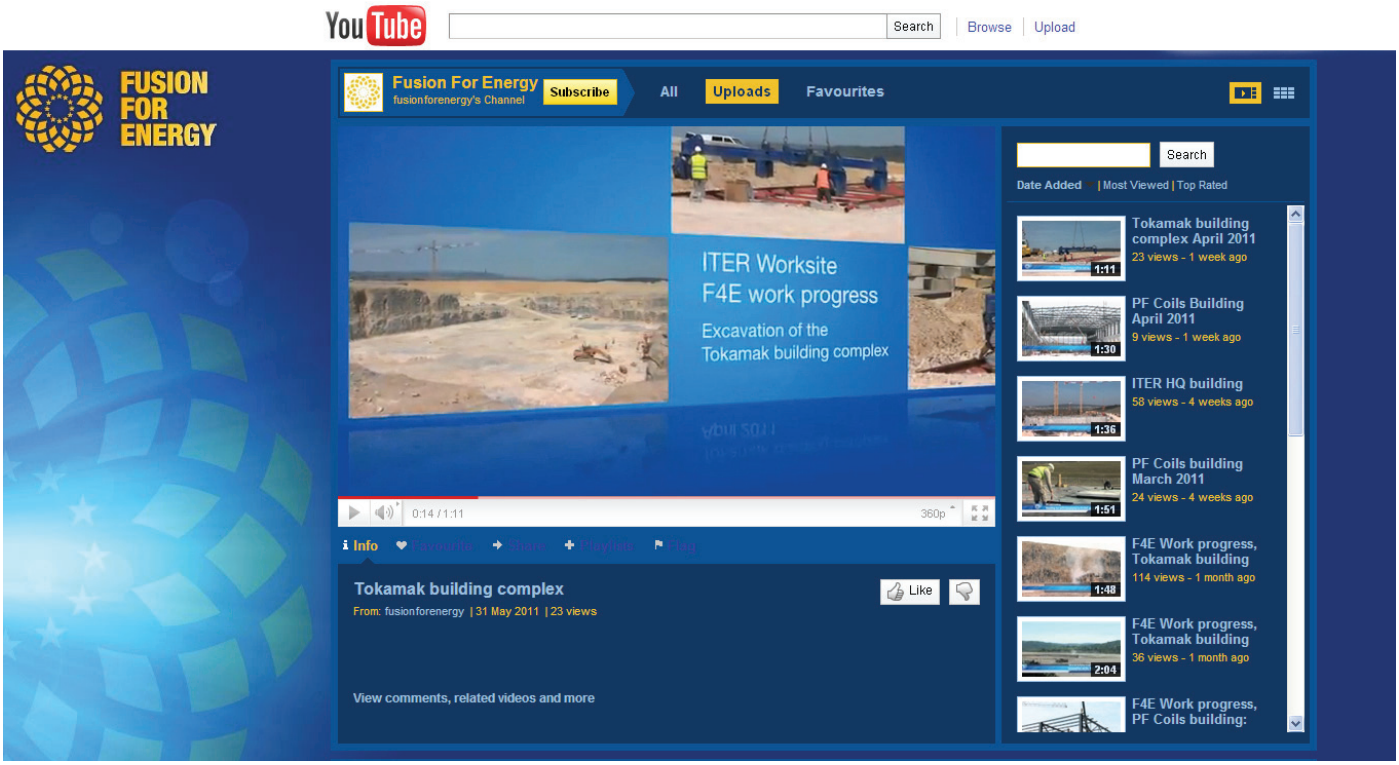
The supercomputer will be located in Rokkasho, Japan, and will be available to a scientific community of more than 1,000 European and Japanese fusion researchers for the next five years starting from January 2012. With a computational power above 1 Petaflop, a measure of a computer's processing speed which can be expressed as a quadrillion floating point operations per second, the supercomputer will be ranked among the most powerful systems in the world and at least 10 times more powerful than any existing system dedicated to simulations in the field of fusion in Europe and Japan. The supercomputer, with a memory exceeding 280 Terabytes and high speed storage system exceeding 5 Petabytes, will be complemented by a medium-term storage system and a pre/post-processing and visualisation system.

The operation of the supercomputer will begin with a few high-visibility code runs, otherwise known as "light-house projects" because of the light they are expected to shed with their findings, to test-drive the capacities of the supercomputer and achieve maximum performance. During the rest of its exploitation period, European and Japanese researchers will be invited to submit proposals which will be selected according to their importance for the development of ITER and fusion research. The volume of findings stemming from this activity will feed into the plasma codes in preparation for ITER and into the design of the future DEMO reactor.

Supercomputer bullx series © Bull

CHECK OUT THE NEW F4E IMAGES AND FILM CLIPS FROM THE ITER SITE!

One of the communication priorities that we have set for this year is the regular production of audiovisual material reporting on the progress of the ITER project.



The growing demand for footage from the site in Cadarache has led F4E to the decision to commission a series of film clips that will report on the works and offer facts and figures to communicate the magnitude of this international project. For those who have missed the start of the works back in August, we have released two clips offering a recap and we have added two more reporting on the latest developments. Future clips will feature interviews of F4E staff explaining the scientific and technical challenges of the ITER project along with contractors reporting on their direct involvement.

So far, nine brand new clips unveiling a fresh F4E style have been added to our multimedia section offering a monthly snapshot of the construction of the Poloidal Field coils building, the Tokamak complex and the ITER Headquarters. In parallel, our image gallery has also been rapidly growing offering users a visual narrative from 2010 and 2011 on how the site is being constructed.

Our commitment to make our clips readily available to users beyond our website has driven our decision to launch the F4E YouTube channel which hosts all the clips that we produce and allows users to make comments and share the material. To watch the clips on the F4E YouTube channel, and to receive updates, please subscribe at:
www.youtube.com/user/fusionforenergy

EUROPEAN PARLIAMENT DELEGATION VISITS ITER

Between 16-18 May, a joint delegation of the Budget and Budget Control Committee of the European Parliament travelled to Cadarache to visit the ITER site and learn more about the progress of the project. The delegation brought together 15 Members of the European Parliament (MEPs) from five different party families combining different expertise and perspectives.

The visit kicked off with a welcome address by the co-chairs of the EP delegation, Anne Jensen and Bart Staes, who took the opportunity to state the importance that they attached to this trip in order to raise a number of important questions and reach an informed decision about the additional funds required for the ITER project. Osamu Motojima, ITER IO Director General, welcomed the delegation to Cadarache and started by explaining the ITER governance and the role of each party. The F4E Director, Frank Briscoe, offered an account of the execution of tasks performed by F4E and illustrated the measures taken in the field of budget containment. Carlos Varandas, F4E Governing Board Chairman, explained the role of the Governing Board and elaborated on the significance of the contracts awarded so far. Rudolf Strohmeier, concluded with a presentation on the contribution of ITER in Europe's long term energy strategy, the financial control standards taken up until now and offered an update on improvements which are in the pipeline.

During the second day of the fact finding mission to Cadarache, the European Parliament delegation was offered a guided tour on the ITER site and was able to witness the construction progress of the ITER Headquarters, the Poloidal Field Coils Building and the excavation of the Tokamak complex. During the tour, members of the delegation had the opportunity to raise questions about the construction roadmap, the anti-seismic pads and the issues relating to safety. The second part of the day started with a visit to Tore Supra, where MEPs familiarised themselves with one of Europe's finest fusion laboratories and concluded with a session with local actors and industry in order to discuss the tangible benefits of the ITER project and any concerns raised by the local population and authorities.

The trip paved the way for an informed dialogue between the delegation of the European Parliament and different ITER parties. The position of the European Parliament with regards to the additional funds required for the biggest research experiment in the field of energy will be communicated later this year.

01 The European Parliament delegation with Osamu Motojima, ITER IO Director General

02 Representatives from F4E, the European Parliament, ITER IO and the European Commission at the opening session

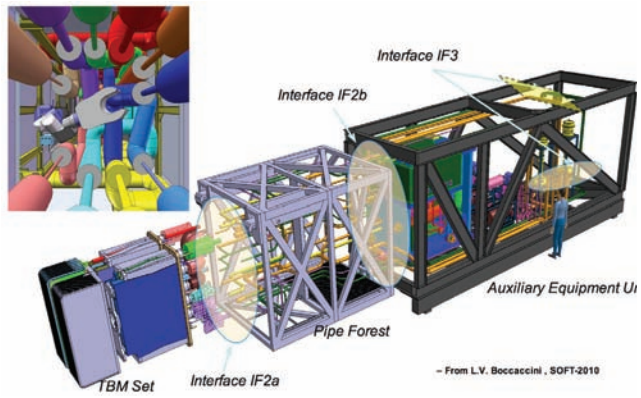
TEST BLANKET MODULE INFORMATION DAY MEETING HELD AT F4E

An Information Day on the opportunities in fabrication development activities for the European Test Blanket Modules (TBM) for ITER was held at the F4E offices on 9 March.

The objective was to provide interested companies with basic administrative and technical information related to the coming call for tenders for the "Supply of preliminary fabrication and welding procedure specifications and feasibility mock-ups (FMU) for TBMs EUROFER subcomponents" which are expected to be published later this month.

Representatives from approximately 45 companies attended the event which included presentations on the technical details of the European TBMs to be tested in ITER, the EU TBM project organisation, the TBM's fabrication studies performed in the past and background information about the upcoming calls.

The presentations held during the Information Day can be accessed on the F4E Industry and Associations portal: https://industryportal.f4e.europa.eu



Design of TBM system

F4E INFORMS SWISS INDUSTRY ABOUT FUTURE CALLS

Representatives from F4E's Business Intelligence Group and ITER Department were on hand to answer questions from Swiss companies regarding procurement procedures, upcoming calls for tender as well as technical details on remote handling and instrumentations and control within the scope of CODAC (control, data access and communication) and port plugs.

Swiss industry is fully entitled to participate in ITER through its cooperation with the fusion energy programme of Euratom and the Swiss companies.

The event, organised by the Swiss Industrial Liaison Association on 30 March in Bern, Switzerland, included a presentation on the Swiss interests in ITER by Dr Andreas Werthmueller, from the Swiss State Secretariat for Education and Research and also member of the F4E Governing Board. Representatives from approximately 50 companies attended and as well as listening to the general presentations they were given the opportunity for one-on-one meetings with F4E staff where they were briefed on how they could be involved and given advice on key players and how to approach them.

F4E PARTICPATES AT THE DANISH BIG SCIENCE INDUSTRY DAY

F4E participated at the Danish Big Science Industry Day, which took place on 3 May at Risø DTU in Roskilde, Denmark. The event was organised by the Big Science Secretariat – Denmark, headed by the F4E's Danish Industrial Liaison Officer.

The objective of the event was to inform Danish industry of commercial possibilities within the big European science facilities and therefore also organisations such as European Organisation for Astronomical Research in the Southern Hemisphere (ESO), European Spallation Source (ESS), and the European Organization for Nuclear Research (CERN) were involved.

Philippe Corréa, who represented F4E at the event, informed of upcoming F4E call for tenders and was on hand with colleagues from the Business Intelligence Team to deal with individual meetings with Danish companies. The event also encompassed short presentations about other Big Science projects and the participating Danish companies put on exhibitions showing the work they do.

For more information about the Danish Big Science Day, check www.bigscience.dk

F4E INFORMS ABOUT ENGINEERING ACTIVITIES FOR THE TEST BLANKET MODULES (TBM)

On 17 May, F4E hosted an Information Day to present opportunities in engineering activities for the Test Blanket Modules (TBM) Systems for ITER.

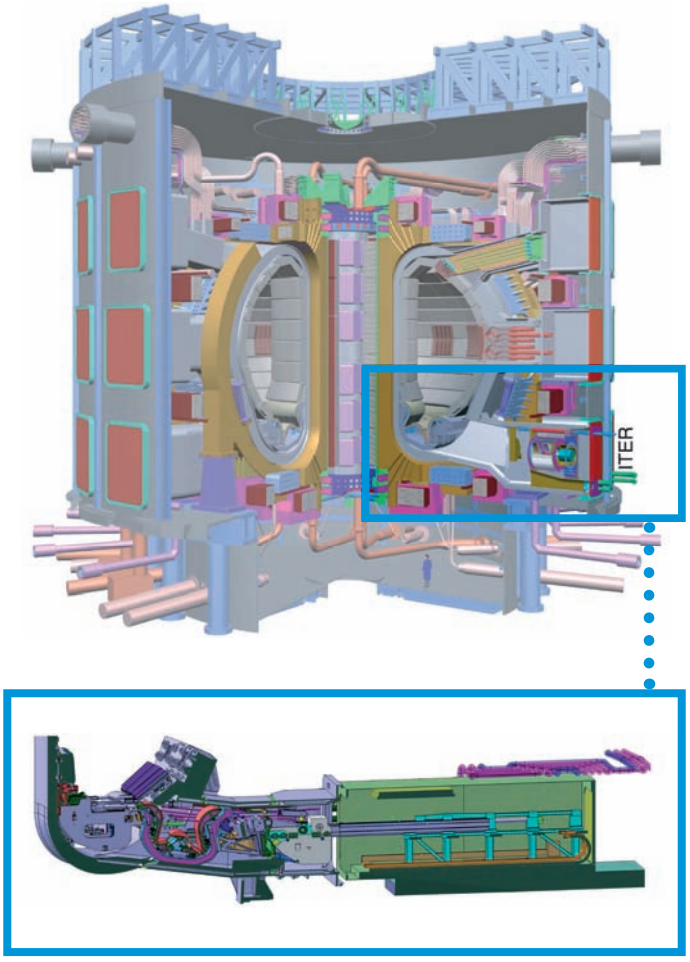
The aim of this one-day event was to provide interested companies with basic administrative and technical information related to the forthcoming call for tender F4E-OMF-331 "Framework contract(s) for the supply of engineering support in the area of TBM systems design and technological demonstration", in particular in areas such as TBM and ancillary systems design, nuclear maintenance, safety analyses and so on. Approximately 45 companies with relevant TBM expertise attended and benefitted from the event as they were able to clarify questions and gain further understanding.

To access the presentations from the event, consult the F4E website.

F4E HOSTS REMOTE HANDLING INFORMATION DAY

With the objective of presenting the European Remote Handling Procurement Packages for ITER and providing a general overview of the relevant technical requirements, the procurement strategy, the applicable F4E financial rules and scheduling, the Remote Handling Information Day took place on 14 April.

Around 150 companies (about 230 participants) from all over Europe attended the event which consisted of presentations from F4E and ITER staff. Question and Answer sessions on technical and procurement issues also took place. The Information Day gave the opportunity for the companies to network and possibly collaborate in the future.



Example of Divertor remote maintenance operation presented at the Information Day

F4E INFORMS ITALIAN INDUSTRY OF BUSINESS OPPORTUNITIES

Italian industry specialised in the engineering and nuclear area, mainly from the regions of Piedmont, Lombardy and Luguria, received information on the business opportunities that exist in collaboration with F4E.

The event, held in Turin on 17 May, brought together 70 companies, representatives from business associations from the region, a representative from ITER and F4E staff from the ITER, Financial and Business Intelligence teams. F4E presentations focused on technical requirements for the ITER machine, in particular remote handling, projects related to buildings and infrastructure on the ITER site, as well as procurement rules and business opportunities with F4E.

Dr Ing. Aldo Pizzuto, F4E Governing Board Member and Head of Research Unit of Euratom-ENEA Association, presented the work of ENEA and presentations about Italian industry and the ITER project were held by the F4E Industrial Liaison Officer (ILO) Paola Batistoni and representatives from Italian industry associations.

In order to establish a more personal, interactive contact, four smaller groups were organised during the afternoon session of the event. Two of these groups were chaired by F4E staff and dealt in further details with remote handling and the rules of procedure concerning procurement for diagnostics. A third group, chaired by ENEA (the Italian National Agency for New Technologies, Energy and Sustainable Economic Development), focused on facilitating partnerships for future tendering procedures.

Ansaldo Nucleare S. p. A. , an Italian company which forms part of the European consortium AMW which is responsible for the supply of seven sectors of the ITER vacuum vessel, chaired the fourth group where they shared their experiences of working with F4E. Feedback from event participants and co-hosts was positive and the event was deemed successful.

F4E informed Italian companies of the business opportunities that exist in collaboration with F4E

F4E HOSTS THE BLANKET INTEGRATED PROJECT TEAM MEETING

The Blanket Integrated Project Team (IPT) quarterly meeting was hosted by F4E on 9-10 February. This meeting gathered the Integrated Project Team for the ITER blanket which consists of ITER IO representatives and the other relevant Domestic Agencies from China, Japan, Korea, Russia, United States as well as F4E in order to work together and share information on the design and activities of the Blanket project.

The Blanket is the part of the ITER machine that acts as a first barrier and protects the vacuum vessel, the heart of the ITER machine, from the neutrons and other energetic particles that are produced by the hot plasma.

F4E is responsible for the supply of 50% of the ITER first wall panels of the Blanket (Russia contributes 40% and China the remaining 10%), which encompasses 218 panels. Each panel consists of a stainless steel support structure bonded to a heat sink material and beryllium tiles. The heat sink material is made up of a copper alloy which transfers the heat generated from the plasma to the water coolant, while the beryllium tiles act as an interface for the plasma. The use of metallic beryllium is especially suitable because, thanks to its low atomic number, even though the temperature will be high, it will not contaminate the pure plasma.

F4E also contributes with the manifolds, the stainless steel piping system used to bring cooling water to the inner in–vessel components. The series fabrication for the first wall panel will start in 2015, and the procurement for the manifolds in 2014. Aproximately 25 participants attended the meeting which was deemed a success as it enabled work to advance and enhanced communication. Side meetings were also organised in order to further progress on the specific areas of the design.

F4E APPOINTS HANS JAHREISS AS NEW HEAD OF ADMINISTRATION

Hans Jahreiss, a German national, took up his duties on 1 July as Head of Administration bringing onboard a wealth of experience in management obtained in European and international agencies. As Head of Administration he will be responsible for driving forward F4E's procurement policy and managing the organisation's administrative workload ranging from human resources, budget and finance, IT, logistics, legal matters and business intelligence.

"I am really looking forward to returning to work in a technical environment and to support this organisation in its important mission. Having previously worked at the Max Planck Institute for Plasma physics coming to F4E feels like coming full circle" said Jahreiss. "I am very pleased to be part of the F4E team and be entrusted with such responsibility. ITER is a major international scientific project, where Europe has an important role to play" he added.

Prior to joining F4E, Hans Jahreiss was most recently the Administrative Director of Eurojust, the European Union's judicial cooperation body. Before that, he was the Head of Administration at the European Organisation for Astronomical Research in the Southern Hemisphere (ESO) in Garching and Santiago de Chile, CEO and Managing Director at GSF – Forschungszentrum für Umwelt und Gesundheit (the National Research Centre for Environment and Health), and Head of Administration, Finance & Accounting, Contracts and Procurement at the Max Planck Institute for Plasmaphysics in Garching, Berlin, and Greifswald. From 1993 to 1995, he worked as a Legal Advisor to the Head of Personnel at the European Organization for Nuclear Research - CERN - in Geneva, Switzerland; prior to that, he was Head of Facility Management and Internal Auditor at the Max Planck Institute.

Hans Jahreiss holds a Doctorate in Law and Assessor Juris and has started an MBA. He also obtained a Certificate in Philosophy, a Certificat en Droit Comparé, a Pupillage with Barrister-at-Law, a Baccalaureate in Accounting and Economy, and qualified in the Special Programme in English Law.

In addition to his mother tongue, Hans Jahreiss speaks English, French and some Spanish.

Hans Jahreiss

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