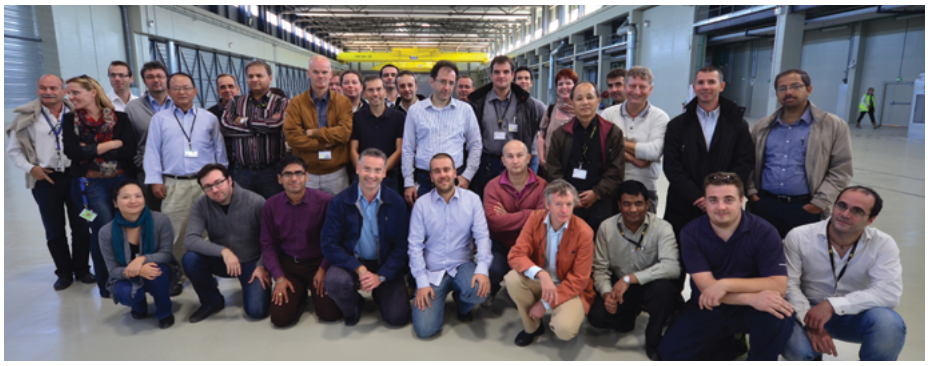
F4E NEWS

FUSION FOR ENERGY QUARTERLY NEWSLETTER

No. 10 - October 2012



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HIGHLIGHTS FROM SOFT 2012

If there is one event that manages to bring together scientists and engineers, laboratories, industry and SMEs, policymakers and the future generation of Europe's fusion community, it has to be the Symposium of Fusion Technology (SOFT).

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It's the place to be if you want to find out more about the state of play of current fusion experiments, technology breakthroughs and the progress of big projects like ITER. Do not be misled by its 'soft' acronym, it's the venue where big news is released and big deals are sealed.

The 27th edition of SOFT took place in Liège, Belgium, and was organised by the Triltaral Euregio Cluster (TEC), comprising the Dutch DIFFER, the German FZJ and the Belgian ERM/KMS and SCK-CEN under the leadership of the SCK-CEN (the Belgian Nuclear Research Centre). The symposium managed to bring together more than 750 contributions overall and 180 presentations during the four poster sessions.

One of the key players taking part at this event was F4E. Jean-Marc Filhol, Head of the ITER Department, opened one of the plenary sessions presenting the progress of Europe's contribution to ITER and led the F4E Taskforce to the symposium. A group of engineers was there to provide information presenting 74 posters directly authored or co-financed by F4E. Business Intelligence specialists were at the service of industry and SMEs ready to answer questions and they organised a meeting together with the Industry Liaison Officers (ILOs) in order to communicate the future roadmap of procurement packages. The institutional representation of F4E was ensured through its corporate stand where a special publication with all SOFT posters was handed out, clips on the progress of the works were projected and new information stands on some key technologies linked to Remote Handling (RH), vacuum vessel and in-vessel components were on display.

SOFT 2012 offered the possibility for senior fusion figures to communicate some important news and reflect on the contribution of fusion in the energy mix. Hervé Pero, the Acting Director of the European Commission's Directorate for Energy in DG Research and Innovation, highlighted the importance of the ITER project and its consequences for the future of fusion research. Professor Osamu Motojima, ITER IO Director General, emphasised the corrective measures taken by ITER IO and the Domestic Agencies in order to achieve a "unique ITER team" and ensure better integration of actors, interfaces and work packages. Jean-Marc Filhol covered a broad list of topics ranging from the latest in the areas of Toroidal Field and Poloidal Field coils, vacuum vessel, in-vessel components, Neutral Beam (NB), Test Blanket Modules (TBM) to buildings construction and site adaptation works. He concluded his presentation by focusing on the key milestones between 2012 and 2014. A roundtable discussion moderated by David Shukman, the BBC's Science Editor, brought together scientists and industry representatives on how to bridge the gap between research in fusion and commercial fusion.

To read more about SOFT 2012, visit: http://www.soft2012.eu/

01 The F4E Taskforce at SOFT 2012
02 Jean-Marc Filhol, Head of the ITER Department, presenting the progress of Europe's contribution to ITER

2011 F4E ANNUAL REPORT PUBLISHED

F4E releases its fifth Annual Report reporting on the progress of Europe's contribution to ITER. The report is published earlier than ever before and boasts a new compact layout offering a rich synthesis of the main achievements.

Stuart Ward, Chair of the F4E Governing Board, states that "an important activity of F4E in 2011, in collaboration with the ITER International Organization and other Domestic Agencies, has been to advance the ITER design and construction, whilst containing costs and minimising delays, especially taking into account the impact of the Great East Japan earthquake". The agreement on the EU budget for the ITER construction, reached in December 2011, was another important milestone for the execution of the project.

In his foreword, Frank Briscoe, F4E Director, offers a comprehensive account of the main milestones. By all accounts, 2011 is considered a turning point for the ITER construction site. A joint team of F4E staff and around 200 contractors have been busy constructing the building for the Poloidal Field (PF) coils winding facility as well as the excavation and foundation works for the Tokamak complex seismic isolation pit. For the pit, over 200,000 m^3 of rock was excavated to a depth of 17 metres, the first lower basemat was laid and the retaining walls put in place. On top of the basemat, 300 out of the 393 concrete plinths were laid and 150 seismic bearings installed. The PF coils building, which is approximately 250 metres long, 45 metres wide and 17 metres high, was almost fully completed on budget and schedule.

In 2011, several Agreements were signed between F4E and ITER IO as well as between F4E and Consorzio-RFX for the design and construction of the Neutral Beam Test Facility (NBTF) in Padova, Italy, which is essential for the development of ITER's plasma heating systems. F4E also continued to support work for the development of prototypes for the ITER gyrotrons which provide another way to heat the plasma.Two Procurement Arrangements (PAs) were signed with ITER IO in relation to the cryoplant and diagnostics meaning that around 80% (in value) of the PAs for all the components under Europe's responsibility have now been concluded. The amount of credit awarded to F4E by the ITER IO in recognition of its contributions increased to approximately 35 kIUA (about 56 million EUR) which is threefold to what was achieved the previous year; this was mainly due to the achievement of milestones related to the ITER magnets.

To implement the commitments in the ITER PAs, F4E awarded over 38 operational contracts and 22 grants to industries, laboratories and other organisations for a total value of almost 180 million EUR, bringing the value of running contracts that were under F4E's responsibility by the end of the year to just under 1 billion EUR. At the same time nearly 70 new procurement or grant procedures were launched of which 70% were launched by the planned yearly quarter or the following one. Furthermore, 17 administrative contracts with a value of just over 5 million EUR were placed.

Moving to the Broader Approach, 2011 marked the transition from design to construction for the European participation in the Satellite Tokamak project under construction in Japan. Technical specifications and administrative provisions have been successfully completed with the signature of the majority of the PAs (75% in value). With respect to the IFMIF/EVEDA programme, progress was made in a number of areas although the Tohoku earthquake has impacted upon the schedule.

During 2011, F4E managed its largest budget to date of just under 500 million EUR in commitments and almost 300 million EUR in payments. The level of implementation of the payments budget increased to 85%, which represents an improvement on the previous three years. Finally, a new organisation structure was introduced in F4E from the beginning of 2011 that reinforced a culture of project management and consolidated the financial service. The new senior management team has been in place since August 2011 welcoming Jean-Marc Filhol and Hans Jahreiss as the new Heads of the ITER and Administration Departments respectively.

You can receive a copy of the 2011 F4E Annual Report by either sending an email to: info@f4e.europa.eu or by downloading it from the Publications section on our website.

GOOD PROGRESS MADE ON THE ITER CONSTRUCTION SITE

With the objective of avoiding delays on the ITER construction site, F4E has, for the first time, undertaken an accelerated restricted procurement procedure. Its successful completion – within the shortest time frame possible – is a significant achievement for F4E as it allows the on-site work to continue without interruption and proves that the organisation is able to adapt and deliver even under unforeseen circumstances.

The accelerated restricted procedure has been the basis of the launching of the competitive Call for Tender which was open to all companies from EU Member States and Switzerland and has now resulted in the awarding of a contract worth 3.7 million EUR. The contract, signed in July and awarded to Spanish company COMSA EMTE, concerns the galleries and precipitation drainage around the Tokamak complex and Assembly building for which the works are currently being carried out by a workforce of 50.

The accelerated restricted procurement procedure, which involves speeding up all steps of the Call for Tender in order to achieve a 40% quicker result, can only be used in exceptional cases. In this case, a redesign linked to enhanced safety measures risked causing a delay in construction and it was especially important that the galleries and precipitation drainage around the Tokamak complex and Assembly building be completed before the rainy Autumn season starts. F4E decided therefore to use the accelerated restricted procurement procedure and design the Call for Tender using the lowest compliant bid method, i.e. the winning tender must include the lowest price offer while complying with the very detailed technical criteria set out in the call.

The awarded contract involves the construction of 12 reinforced concrete galleries which host Safety Important Component (SIC) related systems such as cooling water pipes and power supply cables of the networks that need to be visited and maintained during the lifecycle of the ITER machine. The total length of galleries will measure 650 metres, with particular sections measuring an impressive 12 metres in width and 6 metres in height. In total, 10,000m^3 of earth is being moved in excavation (earthworks) and 5,000 m^3 of concrete is being used. The awarded contract also comprises the precipitation drainage, i.e. the water collected from on and around the Tokamak and Assembly buildings, where in total the length for rain water drainage involves 800 metres of gravity pipework with diameters ranging from 400 millimetres to 1,400 millimetres.

The precipitation drainage system, located underneath the galleries, is implemented prior to galleries works

PUTTING ADMINISTRATION AND FINANCE INTO CONTEXT

The F4E Administration and Finance Committee (AFC) has an instrumental role to play in the areas of financial planning and budget, the financial aspects of the F4E work programme and the allocation of resources to lift Europe's contribution to ITER off the ground. Already in its third meeting, it has positioned itself as one of the most proactive institutional actors in the F4E setting, basing its opinion upon facts. And what better way than visiting the ITER construction site?

The members of the Administration and Finance Committee standing near the Tokamak pit

The AFC met during one and a half day at the F4E offices in Cadarache in order to discuss a series of financial and project-related matters. They combined the meeting with a visit on the site to see where all the action takes place and where ultimately all financial decisions have consequences. It was considered essential to collectively develop a broad understanding about the scale and complexity of the ITER project.

When it was time to hit the construction site, the laptops, documents and shoes of the members of the committee, transformed into boots, hard hats and jackets in order to pay their first visit to the Tokamak pit and the Poloidal Field (PF) coils building. A guided tour visit was planned by F4E and plenty of details about the current state of play and forthcoming activities were discussed. The size of the field, the scale of the Tokamak pit and the site adaptation works made a lasting impression on all members. This successful initiative has paved the way for other committees to meet in Cadarache in order to connect better with the project.

ITER SUCCESSFULLY PASSES ITS FIRST SITE ACCEPTANCE TEST

On 2 October, F4E and ITER IO successfully concluded the first site acceptance test of the Control, Data, Access and Communication (CODAC) integration of the Poloidal Field (PF) coils building controller.

Due to the impressive size and weight of the PF coils, ranging from 10 to 24 metres and weighing up to 400 tonnes, a specific building was constructed to assemble them on the ITER site. The F4E CODAC Team and the Site, Buildings and Power Supplies Project Team worked together to achieve this result in collaboration with OMEGA and INEO. The main objective of the activity was to integrate the local PF coils building alarm monitoring system into the overall site alarm system which will be in place for the building construction activities over the next 8 years.

The system handles more than 2,000 signals generated by the PF coils building subsystems responsible for heating, ventilation, air-conditioning, cooling water, heating water, electrical distribution, cranes and fire detection. Any alarm generated by these systems will be visible on any location through the CODAC network. The excellent collaboration between the F4E and the ITER IO CODAC teams, along with the technical support received from ITER IO towards the development of the PF coils building interface, made this joint initiative a success.

The F4E, ITER IO, OMEGA and INEO teams have worked together towards the first site acceptance test of the Control, Data, Access and Communication (CODAC) integration of the Poloidal Field (PF) coils building controller

FUSION IS NOT FICTION SAYS F4E AT THE "CAMPUS PARTY" FESTIVAL

With over 10,000 attendees, the annual weeklong, 24-hours-a-day technology festival, Campus Party, unites the brightest young minds in technology and science.

The festival features over 600 hours of talks, debate, workshops, competitions and hackathons related to science, innovation, digital entertainment and creativity. This year's event, which took place in Berlin during August, featured F4E's technical expert, Jesus Izquierdo, who took to the stage with the catchily entitled presentation "Fusion is not fiction". To an international audience of around 150 attendees, the presentation kicked-off with references to blockbusters such as "Spiderman 2" "The Saint", "Iron Man" and the Batman film "The Dark Knight Rises" – all films where fusion is an essential part of the storyline. The audience also learnt about the merits of fusion energy and how it can contribute in tomorrow's energy mix, as well as the progress being made on the ITER project.

That interest is high for fusion and the ITER project is clear – at the end of the presentation came a flurry of questions. In fact, the question time exceeded the presentation time by double! Jesus Izquierdo took the opportunity to further explain, for example, how the heat produced from the fusion process will be transferred to the electrical network by steam, the cost and timeline of the project as well as the safety aspects which are put in place on the ITER site. Interest was also high for Fusion for Energy as an organisation with many of the younger members of the audience eager to learn about F4E studentships and possibilities for recruitment. All in all, a successful event!

The 150-strong audience was very interested to learn more about fusion and the ITER project.

F4E INFORMS INDUSTRY ABOUT TOROIDAL FIELD COILS INSERTION PROCUREMENT

F4E's Information Day about the Toroidal Field (TF) coils insertion procurement brought together representatives from 20 different European companies. The meeting, which took place in Barcelona on 26 July, included presentations on the procurement scope (TF coil cold test, winding pack insertion and coil case welding), procurement procedure and insurance/liability specificities in preparation for the upcoming Call for Tender. As the scope of services required is very broad, the event was also an opportunity for interested companies to present their capabilities and network for possible future collaborations.

The Call for Tender is scheduled to be launched by the end of September 2012.

The presentations from the Information Day are available on F4E's Industry and Associations Portal.

The Information Day was attended by representatives from 20 different European companies

F4E ORGANISES INFORMATION DAY ON F4E PROJECT MANAGEMENT FRAMEWORK CONTRACT

A total of 53 different European companies attended F4E's information meeting to present the Project Management framework contract. The idea behind this initiative was to provide interested companies with basic administrative and technical information related to the forthcoming Call for Tender which will cover support to the F4E Project Office and ITER Project Teams in terms of configuration control and system engineering, risk and cost management, project management tools, export control and CE directives.

The Information Day, held on 12 July in Barcelona, featured presentations from F4E's Business Intelligence, Project Office and Procurement Teams. In addition, interested companies were able to arrange private meeting sessions with F4E representatives in order to get answers to their specific questions.

The Call for Tender for the Project Management framework contract is scheduled to be launched by October this year.

Presentations from the Information day are available on F4E's Industry and Associations Portal.

The Information Day on the Project Management framework contract brought together 53 European companies eager to learn more about the upcoming Call for Tender

F4E SHOWCASES ITER AT EUROSCIENCE OPEN FORUM 2012

A global gathering of Nobel prize laureates and other distinguished names in the field of science policy, dialogue on science's role in society, and dynamic F4E videos showing the action on the ITER site – this is how the Euroscience Open Forum (ESOF) which took place in July best can be summarised.

As Europe's largest, general science meeting, this bi-annual event celebrated its fifth edition and brought together more than 2,000 scientists, research institutes, business leaders, science communicators and media. The event, also open to the public, gave over 20,000 visitors the opportunity to learn more about scientific breakthroughs, debate communication trends and celebrate the added value of science in our daily life. The docks of Dublin, where the event took place, was a hive of activity with participants excitedly gathered together in order to discuss, network and learn.

F4E participated by means of an exhibition stand where apart from the video clips from the ITER site, visitors could get the low-down on F4E's mission and objectives and position fusion in the current debate of energy mix. The newly produced F4E fact sheets proved to be a hit and many visitors were eager to start subscribing to F4E News. F4E's technical expert Mario Cavinato captivated the crowd with a presentation about ITER and Europe's contribution to the project and enthusiastically answered questions about the technical aspects of ITER. With the complexity of the project made clear, the general public's understanding of the schedule and challenges was heightened and the potential contribution fusion can make to the global energy situation was fully appreciated. Indeed, as one member of the public remarked: "If you guys manage to get fusion working, then all the world's energy problems could be solved".

The next ESOF will take place in Copenhagen in 2014.

ESOF 2012 in Dublin hosted a number of different talks and activites for over 20,000 international participants.

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For free subscriptions, please specify your requirements via e-mail: press@f4e.europa.eu

Printed in Belgium on chlorine-free paper
ISSN 1831-5887

FU-AB-12-002-EN-C