2008 discharge: European Joint Undertaking for ITER and the Development of Fusion Energy

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PURPOSE: to present the final accounts of the European Joint Undertaking for ITER for the year 2008.

CONTENT: this document sets out a detailed account of the implementation of the Joint Undertaking for ITER for 2008. It notes that the final budget of the joint undertaking was EUR 149.8 millions, of which 81.5% was due to a Community contribution.

To recall, the The ITER International Fusion Energy Organisation was set up in October 2007 for an initial period of 35 years to implement the ITER project, which aims to demonstrate the scientific and technological feasibility of fusion energy. The members are Euratom, China, India, Japan, Korea, Russia and the USA. The European Joint Undertaking for ITER and the Development of Fusion Energy was established in March 2007 for a period of 35 years. The members of the Joint Undertaking are the European Atomic Energy Community (Euratom) represented by the European Commission, the Member States of Euratom and other countries which have concluded cooperation agreements with Euratom in the field of controlled nuclear fusion and have expressed their wish to become members (at 31 December 2008: Switzerland).

The tasks of the Joint Undertaking are):

- to provide the contribution of Euratom to the ITER International Fusion Energy Organisation;
- to provide the contribution of Euratom to the 'broader approach activities' (complementary joint fusion research activities) with Japan for the rapid realisation of fusion energy;
- to prepare and coordinate a programme of activities in preparation for the construction of a demonstration fusion reactor and related facilities including the International Fusion Materials Irradiation Facility.

With regard to staff, the joint undertaking (whose seat is in Barcelona) has 145 posts in the establishment plan of which 101 were occupied and 56 other posts (contractual, seconded national experts, employment agency staff) being a total of 157 staff doing operational, administrative and support tasks, or mixed tasks.

In 2008, ITER concentrated on the following activities :

ITER International Agreement: in the framework of this Agreement, the following activities took place:

- 11 procurements and 16 grants were launched and 3 procurement arrangements were concluded with the ITER Organisation;
- a prototype superconductor for the ITER poloidal field coils made of niobium-titanium was successfully tested;
- sub-scale pre-compression rings tested beyond the values required by ITER;
- a poloidal sector model of the vacuum vessel was completed;
- the manufacture of a full-scale shield prototype representative of the blanket module;
- the mock-ups of the wall facing directly the plasma were successfully tested under a high heat flux;
- the qualification of the divertor vertical target was achieved;
- a test facility for the demonstration of the remote handling operations on the divertor was completed;
- high power tests on the first industrial prototype of the 2 MW coaxial cavity gyrotron;

- Cadarache site: the area was levelled and the main platform was prepared for excavations and construction.

Broader Approach Agreement: the following activities took place:

- JT-60SA tokamak: a re baselining exercise was completed whereby cost savings were obtained while maintaining the device performance;
- IFMIF/EVED (International Fusion Materials Irradiation Facility) programme: several design activities were advanced and all major aspects of the accelerator system are now fixed;
- FERC programme: the interfaces between the building and the supercomputer have been defined and benchmark codes established.