

ITER : les engagements français

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1) Apports financiers :

Le projet de recherche ITER est mené dans le cadre de la coopération internationale la plus large jamais connue ; elle rassemble la Chine, la Corée du Sud, les Etats-Unis, la Fédération de Russie, l'Inde, le Japon et l'Union européenne, soit plus de la moitié de la population mondiale.

Après plusieurs années de négociations entre le Japon et l'Union européenne, la décision de construire la machine en Europe, à Cadarache (France), a été prise à l'unanimité lors du sommet de Moscou du 28 juin 2005. Le Japon bénéficiait, pour sa part de la responsabilité de proposer l'identité du premier directeur général de l'Organisation ITER, d'une participation privilégiée des équipes japonaises au projet, de contrats industriels préférentiels de fourniture de ses composants et l'Europe acceptait de participer à un programme de recherche complémentaire financé à parts égales par le Japon et l'Union européenne (« approche élargie »).

L'accord pour une durée de 35 ans et qui fixe les différentes contributions (45,5% de la construction et 34% du fonctionnement pour l'UE, 9,1% pour les 6 autres pour la construction, 13% pour Etats-Unis et le Japon, et 10% pour les 4 autres pour le fonctionnement) a été signé par l'ensemble des parties à Paris, le 21 novembre 2006. Il est en cours de ratification parlementaire par le Japon et la Corée. Une fois ratifié, en juin 2007 au plus tard, une organisation internationale, de même nature que les grandes organisations des Nations Unies et responsable de l'ensemble du programme, sera de facto créée. Elle aura pour siège Cadarache. Un accord de siège entre cette organisation et la France, après ratification par le Parlement national, sera alors passé pour définir les conditions de son fonctionnement dans notre pays (privilèges et immunités, responsabilité nucléaire, soutien français à son installation...). Il est en cours de négociation avec l'organisation de préfiguration mise en place à compter du 1^{er} janvier 2007.

La construction de la machine devrait durer 10 ans, son exploitation 20 ans et son démantèlement au moins 5 ans.

Le coût de la construction (évalué à 4,96 milliards d'euros, valeur 2005) sera réparti entre les partenaires internationaux, avec une part plus importante pour le « partenaire hôte ». Celle-ci est inscrite au volet Euratom du 7^{ème} PCRD dans la part dédiée à la fusion, soit 1947 Meuros répartis entre ITER et un programme d'accompagnement adapté à la bonne exploitation de l'installation.

Au sein de la contribution européenne, la participation financière française au projet ITER se ventile ainsi :

- 9,1% du coût de construction d'ITER estimée, sur 10 ans, à 455 millions d'euros, valeur 2005 ;

- 7% du coût de fonctionnement, de démantèlement et de mise à l'arrêt estimés, sur 25 ans, à 425 millions d'euros, valeur 2005, le premier plasma est attendu pour 2016 ;

- environ 190 millions d'euros pour les aménagements relevant du pays hôte (routes, terrain, école internationale...);
- 50% de la part européenne de l'Approche élargie, plafonnés à 170 millions d'euros, valeur 2005, sous forme d'apports en nature et dans l'industrie.

2 - Apport en nature : la part française (rédaction en anglais)

1. Site preparation

- France puts at ITER's disposal a 180 ha site free of charge
- On this site, two fences will be constructed:
 - an external one, surrounding all equipments and buildings;
 - an internal one, surrounding the nuclear part of the plant.

All expenses outside the internal ITER fence shall be charged to France, except ITER electrical switchyard and office building, which will be a European responsibility both in terms of financing and technical responsibility.

So France is supposed to deliver free of charge to ITER :

- Potable water supply: pipelines, basin
- Sanitary and industrial sewage: pipelines
- Rainwater discharge: pipelines
- Cooling water supply: pipelines (inlet + outlet)
- Electrical supply (400 kV + 15/63 kV): HV lines, RTE switchyard
- High speed Internet and telecommunications: wires, optic fibre
- External fence
- Annex buildings (except office building). These include:
 - Welcome centre and public relations building (1 600 m²)
 - Access control building site entrance (500 m²)
 - Restaurant (6 600 m²)
 - First aid building (260 m²)
 - Access control building nuclear installation entrance (250 m²)
- All necessary infrastructure and road modifications for the transport of ITER components (the transport by itself and its insurance being under EU's responsibility and financing)

- International school.

The main items of site preparation are:

1. the deforestation of the concerned areas (around 40 hectares);
2. the 2.7 million m³ excavations to level the 4 platforms which will host the ITER buildings, and the storage of the spoils in the allocated area;
3. the Enterprise Yard, to be set up, including the Electrical power Supply, potable water supply and sewage network of the area with the car parks;
4. the creation of all the necessary networks (see **Erreur ! Source du renvoi introuvable.** and **Erreur ! Source du renvoi introuvable.**) : potable water (from the existing pumping station to ITER: 2 km of pipes, and a storage basin of 1500 m³), sanitary and industrial sewages (from ITER to the discharge point in Durance River: 6 km), rainfall sewage;
5. the canalisation of cooling water from the Canal de Provence to ITER (10 km of pipes from the existing intake point to ITER), and the cooling outflow (5 km of pipes from ITER to the discharge point);
6. the creation of a double 400 kV line (length of 6 km); this line remains on CEA's and ITER's properties, releasing the administrative constraints;
7. the erection of some support buildings such as a welcome and public relations centre, a restaurant, a medical care building and access control buildings close to ITER facility. The Preliminary and architectural studies of these buildings have already been carried out.
8. the construction of an access road from the departmental road to the site, and local road network to connect the non-generic buildings. This local network will be independent from the road used for the ITER facility construction: it will remain a "clean" area during generic building construction;
9. the fencing of the site;
10. the 4 road modification points identified on the itinerary between the harbour and Cadarache.

2. Construction of ITER

All other expenses for ITER construction will be under European responsibility and financing, under the procurement package commitment, whatever the evolution of the project. This includes expenses for the regulatory process (and particularly licensing procedures). France will contribute financially through its contribution to the Euratom budget and through its specific contribution as the host country (governmental and local authorities commitments).

Privileges and immunities : they will be in accordance with the corresponding annex of the Joint Implementing Agreement.

3. Operation of ITER

France is committed to make available at the market price, in accordance with ITER requirements, all infrastructure and services for ITER operation. This includes in particular electricity supply, water supply, telecoms and Internet supply.

4. Decommissioning of ITER

France is committed to decommission ITER and take care of its waste. This decommissioning will be paid by the funds constituted all along the project operation by ITER's partners. The funds will be transferred to the competent French Authority before the decommissioning phase. France shall be strongly associated to the design, its evolution and all experimental phases of the installation.

a. Site Requirements

N°	Site Requirement	Host Party responsibility / Comments
SR.A1	<p>Land area</p> <p>Requirement: The ITER site shall be up to 40 hectares in area enclosed within a perimeter. All structures and improvements within the perimeter are the responsibility of the ITER project. Land within the perimeter must be committed to ITER use for a period of at least 30 years.</p> <p>JASS points</p> <p>1) Location, area 2) Present ownership and status, required work to fit the Site Requirements, if any 3) Duration of use, transfer of ownership or lease 4) Constraints on use, if any 5) Proposal on specific site layout</p>	<p>Land (180 ha in total) will be made available.</p> <p>France commits to make available for free the land to the ITER International Legal Entity use, as long as the ITER partners will judge it necessary, and for a minimum of 50 years, duration foreseen today for the construction, the operation and the dismantling of the installation.</p> <p>There will be no specific constraint on the use of the land.</p> <p>See also DA.A1.</p>
SR.A2	<p>Geotechnical characteristics</p> <p>Requirement: The ITER Site shall have foundation soil-bearing capacity adequate for building loads of at least 25 t/m² at locations where buildings are to be built. Nevertheless, it is expected that it will be possible to provide at the specific location of the Tokamak Building means to support the average load of 65 t/m² at a depth of 25 m. The soil (to a depth of 25 m) shall not have unstable surrounding ground features. The building sites shall not be susceptible to</p>	<p>No commitment, soil bearing capacity largely exceeds requirement.</p> <p><i>Excavation quantities have been estimated and a zone to dump the excavate material has been identified (saving might be possible by commercialising the rock).</i></p>

	<p>significant subsidence and differential settlement.</p> <p>JASS points</p> <p>1) Complete geotechnical profile of the site. Geotechnical studies of the site should be referenced and available for examination by the JASS assessment team. 2) Proximity of a stable bedrock layer should be quantified, as should the estimated bearing capacity of this layer. 3) Demonstrate the manner in which excavation will take place for the concrete buildings, and to outline conceptual options for foundation structures. Excavation quantities should be estimated for construction at the site</p>	
SR.A3	<p>Water supply</p> <p>Requirement: The ITER site host shall provide a continuous fresh water supply of 0.2 m³/minute average and 3 m³/minute peak consumption rates. The average daily consumption is estimated to be about 200 m³. This water supply shall require no treatment or processing for uses such as potable water and water makeup to the plant de-mineralised water system and other systems with low losses.</p> <p>JASS points</p> <p>1) Capacity of potable water and industrial water 2) Plan of the water supply and the system 3) Status of the water supply 4) Sources of water supply, and restrictions, if any</p>	<p>Potable water supply to be made available by France.</p> <p>Pipelines to be laid from existing basins to ITER site, supplementary basin to be constructed.</p> <p><i>Interface with Cadarache centre.</i></p>
SR.A4	<p>Sanitary and industrial sewage</p> <p>Requirement: The ITER site host shall provide sanitary waste capacity for a peak ITER site population of 1000. The host shall also provide industrial sewage capacity for an average of 200 m³/day.</p> <p>JASS points</p> <p>1) Industrial sewage capacity 2) Plan of the sewage system 3) Status 4) Regulations on industrial sewage</p>	<p>Industrial and sanitary pipelines to be installed from ITER site to connection points by France.</p> <p><i>Interface with Cadarache centre.</i></p>

SR.B	<p>Heat sink</p> <p>Requirement: The ITER Site shall have the capability to dissipate, on average, 450 MW (thermal) energy to the environment.</p> <p>JASS points</p> <p>1) <i>The maximum energy allowed to dissipate to the environment</i> 2) <i>Regulations and/or restrictions on energy dissipation to the environment</i></p>	<p>Cooling water to be supplied, pipeline(s) to be installed from connection point(s) to ITER site by France.</p> <p><i>Reduction of number cooling towers.</i></p> <p><i>Interface with Cadarache centre.</i></p>
SR.C	<p>Energy and electrical power</p> <p>Requirement: The ITER Site shall have the capability to draw from the grid 120 MW of continuous electrical power. Power should not be interrupted because of connection maintenance. At least two connections should be provided from the supply grid to the site.</p> <p>JASS points</p> <p>1) <i>Capacity of the steady state electrical power supply</i> 2) <i>Number of lines</i> 3) <i>High Voltage supply scheme</i> 4) <i>Status of the supply</i> 5) <i>Construction power requirements need to be defined and addressed for the site</i> 6) <i>High voltage network and its capacity</i></p>	<p>Power lines to be provided between connection point and ITER site (replacing Tore Supra lines, T-connection for Tore Supra), RTE switchyard to be constructed by France.</p> <p><i>Interface with Cadarache centre.</i></p>
N°	JASS Points	Host Party responsibility

