

ITER Industry Day - 4 December 2017

Speech by Mrs Frédérique VIDAL, Minister of Higher Education, Research and Innovation

Honourable Commissioner Arias-Cañete,

Ladies and gentlemen, members of the European Parliament,

Your excellencies,

Ladies and gentlemen, representatives of industry

Ladies and gentlemen,

I would first like to thank the European Commission and yourself, Commissioner Cañete, for your support of the ITER project and the organisation of this event focusing on the industrial impact of ITER.

The ITER project is unique in many ways.

It is unique from the perspective that it has the potential to provide us with an abundant source of energy that is clean and free of greenhouse gases by mid-century. Everything points to the fact that we need to fight climate change now and even more so in the future. The COP 23 conference on climate change chaired by Fiji and held in Bonn once again highlighted the hard, already tangible reality of climate change. The One Planet Summit, to be held according to the French President's wishes on 12 December 2017 in Paris to mark the historic Paris Agreement concluded two years ago, will show - and this point must be stressed - that our commitment is not waning and that innovation is part of the solution. The development of technological innovations as ambitious as fusion requires sustained effort over the long term.

In this age of immediacy, major scientific projects of international scope - with ITER being the flagship - have a two-fold advantage. On the one hand, they remind us that we must invest with a long-term perspective in order to surpass the frontiers of knowledge and technology. On the other, they instil a degree of stability, and thus act to promote peace, through the international cooperation they create.

- France is host to several large scientific instruments, such as the Laue Langevin Institute (ILL), the ESRF synchrotron, the National Large Heavy Ion Accelerator (GANIL), the Megajoule Laser, the CERN, and major calculation tools, just to name a few. These collaborative projects are shared with the European Commission and partner countries under the Euro-HPC program (for High-Performance Computing) targeting exascale supercomputers. And now there is ITER. In light of the experience gained from these major tools, it is undeniable that **we need to go beyond the limits of technology to push the boundaries of science further**. These ambitious scientific adventures drive innovation and allow European industry to move forward and become even more competitive in the international arena. They also allow us to apply

the resulting technologies in other scientific fields. For example, medical imaging techniques using nuclear magnetic resonance (NMR) benefit from progress made by the CERN's Large Hadron Collider (LHC), whereas the quest for the Higgs boson benefitted from CERN's advances in superconducting magnets and cryogenics. The ITER project is already producing nascent technological breakthroughs in robotics, materials, non-destructive testing, etc. There is no doubt these breakthroughs will have multiple uses not only in science but in society in general, far beyond the scope of fusion energy.

- The CERN's role to serve peace is well known beyond these walls. Our leaders' firm intention to bring the cold war to an end helped reach the decision to go forward with the ITER project. Major international collaborations - ITER being the largest, involving 35 countries, representing 85% of the world's GDP and more than 50% of the world's population - allow the scientists and engineers taking part to live a unique human experience and to better understand the diverse cultures of countries that are participating.

Last of all, ITER is an industrial project of unprecedented proportions in terms of "industrial firsts." Expected to operate for 35 years with a possible 10-year extension, the broad range of highly innovative technologies implemented in ITER, not to mention the size and the number of components to manufacture and assemble, all represent a unique opportunity for businesses on two levels: the opportunity to build strategic alliances within the framework of lasting partnerships, and to develop standards shared by all—making it possible to then confront the global market from a reinforced position.

ITER is therefore a scientific undertaking, a societal endeavour, and an industrial project.

France provides strong backing for the ITER project.

The new management led by Bernard BIGOT has deftly managed to put the project back on track.

The schedule for the new 'Reference Baseline' identifies the fastest possible solution to completion, with the first hydrogen plasma programmed for 2025 and the first deuterium-tritium plasma for 2035. Gradually ramping up the operational phase of this extraordinarily complex machine resembles the approach used by CERN when it commissioned and ramped up the operation of its LHC accelerator, for which we were able to appreciate the benefits.

Ten years after the creation of the ITER Organization and the European domestic agency, Fusion for Energy (F4E), the 21st ITER Council which recently convened confirmed the fact that the ITER project is now durably on track. Since 2016, the 26 project milestones defined by the ITER Council have been met in compliance with the project's overall schedule. In the few cases where some delay was anticipated in meeting a milestone, compensatory measures were taken to comply with the schedule leading to the first plasma in 2025.

The 10-year anniversary of Fusion of Energy gives me the opportunity to highlight this great joint European adventure centred on ITER and F4E. This project mobilises all the member countries of Euratom - whose efforts I would like to commend, through Dominique Ristori and Gerassimos Thomas - as well as Switzerland which has been involved from the very start. The twenty member states of Euratom and Switzerland are providing the ITER project with extremely cutting-edge components.

France would like to thank the European Commission for its steadfast support of the ITER project. It also that hopes the Council of the European Union will approve the Commission notice under the next Bulgarian Presidency, and that the European Parliament will clearly voice its political support for the project. France also hopes that the ratification processes will continue to move forward with each of the ITER Members and that all the stakeholders will continue to fully invest in the project to avoid any issues with the new reference baseline. France will continue to be proactive alongside the European Commission to maintain the unwavering political support of all the ITER partners.

France, which accounts both directly and indirectly for one third of the European contribution, is monitoring the project very closely and the French authorities will be extremely attentive to warn of any changes to the project's schedule and/or budget.

The European Fusion for Energy agency, F4E, has significantly improved operations under the leadership of its Director, Mr Schwemmer, whose actions I commend. Given the key role played by F4E, it is imperative that it meets its scheduling and financial commitments, particularly in relation to buildings construction and vacuum vessel manufacturing. It has to lead by example in running the projects it has been tasked with, and France is offering a significant amount of support in this respect.

I want to conclude by highlighting the intense amount of industrial activity associated with ITER. You've already mentioned some very impressive figures, Commissioner. There is one more I'd like to add: there are currently 500 companies involved with the construction of ITER, which represent either directly or indirectly every country involved in the project: 10% of these are F4E's direct contractors, 70% are level 1 sub-contractors and the remaining 20% are level 2 sub-contractors.

ITER is clearly forging industrial partnerships on a European and worldwide scale, helping the European Union to firmly establish the fusion industry. France is delighted to be playing a major role in the construction of ITER through the numerous contracts secured by French companies, the majority of which are as part of European and international consortiums. Here are just 4 examples:

- The Momentum consortium set up between Assystem, Amec Foster Wheeler (UK) and KEPCO (Korea), which was awarded the construction management-as-agent contract for ITER by ITER Organization
- The CNIM-SIMIC (Italy) consortium, which was selected to produce the radial plates for the toroidal field coils
- The VFR consortium comprising Vinci, Ferrovial (Spain) and Razel Bec, which won the civil engineering contract to build the Tokamak Complex

- The OMEGA consortium between Engie and the MW Group (Germany and the UK) which has secured the contract to supply the HVAC, mechanical and electrical equipment for these buildings

ITER is now entering a critical phase, in which all the various systems and components will be assembled and integrated into the machine.

It is vital to the success of the project that ITER can draw on Europe's industrial excellence and nuclear expertise in this decisive phase. I strongly urge all companies involved, particularly French companies, to take this opportunity to develop new Europe-wide partnerships.

This integration phase will also provide companies with the chance to consolidate their know-how in other markets with the same levels of requirement, on a national, European or international scale, whether in major industry markets such as nuclear energy, which offer multiple opportunities, or in markets supporting major research infrastructure.

I'd like to conclude by highlighting just how much I believe ITER to be a unique human, scientific, technical and industrial adventure, where supreme cooperation is required on every level. You can count on the support of France.

Thank you and I hope you have a very rewarding and successful day ahead.