Canadian NATO
Parliamentary Association

Association parlementaire
canadienne de l'OTAN

Report of the Canadian Parliamentary Delegation respecting its participation at the Visit of the Science and Technology Committee

Canadian NATO Parliamentary Association (NATO PA)

Paris, Aix-en-Provence and Toulon, France
27 to 30 September 2010

Report

The delegation of the Assembly's Sub-Committee on Energy and Environmental Security, led by Sub-Committee Chairman Mario Tagarinski (Bulgaria), visited Paris, Aix-en-Provence and Toulon from 27 to 30 September 2010. Canada was represented by Senator Michel Rivard.

The delegation consisting of 13 legislators from 11 NATO countries had briefings on issues relating to energy security at the French National Assembly and visited a number of France's leading defence and civilian technology companies, including EADS Cassidian, EADS Astrium, Eurocopter, CNIM, Toulon Var Technologies and IFREMER. The delegation also visited the construction site of ITER project in Cadarache and was briefed on the promise of nuclear fusion technology. In Paris, Mr. Pierre Lellouche, Secretary of State for European Affairs and former President of the NATO Parliamentary Assembly, hosted a reception for the Sub-Committee delegation.

The delegation was impressed by the achievements and ambitions of the French defence industry. However, the NATO legislators also repeatedly heard the message that the Alliance needs to streamline its defence technology procurement architecture and to provide more coordinated long-term guidance for the defence industry in terms of defining capabilities that will be needed in the future and thus avoiding unnecessary duplication of efforts among the Allies. There is also a wide consensus in France that nuclear energy, including nuclear fusion, represents a viable and effective way of addressing growing energy needs, ensuring national energy security while meeting climate change mitigation targets.

EADS

The visit began with a visit to the European Aeronautic Defence and Space Company (EADS) facilities in Elancourt, near Paris. EADS is a leading European aerospace company, with France, Germany, Spain and the United Kingdom as the principal shareholders. The company focuses equally on both military and civilian technologies. EADS has four major divisions:

- Airbus (the flagship programme is a civilian Airbus A380 aircraft, but it also produces a military A400M tactical transport aircraft)
- Eurocopter (civilian and military helicopter manufacturing)
- Astrium (satellites, ballistic missiles, space launch vehicles)
- Cassidian (sensors, avionics, unmanned aerial vehicles, radars

During the visit, the NATO PA delegation visited three of these divisions: Cassidian and Astrium in Elancourt, near Paris, and Eurocopter in Marignane, Southern France.

EADS finds itself in a very competitive business environment, particularly vis-à-vis the American aerospace companies, but also because China, India and Brazil are developing significant defence technology competencies. Nevertheless, EADS was able to establish itself as a global leader in a number of areas, including commercial aircraft

(with its Airbus A380), helicopters, commercial space launch vehicles and maritime security systems.

The company is trying to adapt to the peculiarities of contemporary aerospace market which is marked by increased financial pressures due to shrinking defence budgets, the fusion of communication technologies with command and control systems, and an overlap between defence and civilian security domains. EADS is seeking to coordinate more with other companies to avoid duplication, to become a more global company (it already sells more than 50% of its products outside Europe) while also maintaining strong technological base in Europe in order to retain support of their respective national governments. This support is critical for the success of the business.

EADS leadership urged NATO representatives to consider restructuring its procurement agencies in order to have a clearer and more coherent procurement strategy. NATO should also present a clearer vision of military capabilities needed in the longer run to enable various defence technology companies to better coordinate their work. EADS representatives also urged NATO to pay more attention not only to manufacturing and procurement as such but also to post-production services.

At Elancourt, the Assembly delegation had specific briefings on activities by representatives of the Cassidian and Astrium branches. Cassidian is particularly renowned for its achievements in the field of unmanned aerial vehicles (UAVs). The company's products are probably the only nonUS UAVs operating in Afghanistan. Cassidian designs and manufactures the whole spectrum of UAVs, from small tactical drones such as the DRAC that can be quickly deployed and launched by hand to advanced large vehicles such as Talarion for a wide range of reconnaissance and surveillance missions.

Cassidian's C4I systems (Command, Control, Communications, Computers, and Intelligence) are also an area where the company believes it has a comparative advantage. These systems enable military commanders to make informed and timely decisions. The EADS C4I capabilities are employed by the German forces in Afghanistan as well as French forces in Côte d'Ivoire.

EADS Astrium branch focuses on designing and manufacturing satellites and space launch vehicles, including ballistic missiles for the French nuclear forces. It also offers telecom imagery solutions for nations that do not have capabilities in space. The flagship products of Astrium include Helios and Skynet military and Envisat civilian satellites, Galileo navigation system, Ariane 5 space launchers and M51 long-range ballistic missiles. The company is also working on missile defence capabilities, including an antimissile kill vehicle and a space-based early warning radar.

The Astrium representatives noted that the multinational nature of the company's projects and capabilities is a real challenge as it entails "shared sovereignty" and complete mutual trust among the participating nations. They also pointed out that the problem of space debris is growing and posing serious threat to further utilisation of space. The aerospace sector is looking into possibilities to reduce the volume of space debris, including the use of laser technology against smaller objects and even a specially tailored spacecraft to collect heavy debris such as retired satellites.

The Eurocopter company produces helicopters of all categories, and tries to balance civilian and military facets. In terms of military capabilities, the company's flagship products are the tactical transport NH90 (NATO Helicopter for the 1990s) and the multi-mission Tiger helicopters (three of them deployed in Afghanistan and are highly appreciated by the troops). In terms of future plans, the Europcopter plans to focus more on heavy lift capabilities.

Cooperation and joint projects with American, Chinese, Brazilian, Australian and other outside helicopter companies has become a daily activity for Eurocopter. However, the company still strongly emphasises its roots in the Euro-Atlantic area and counts on continued support of NATO governments. The Eurocopter representatives expressed their disappointment over some procurement decisions that favoured Russian rather that Eurocopter products. They believed NATO should be more proactive in determining common standards for military helicopters used by the Allied nations.

BRIEFINGS AT THE NATIONAL ASSEMBLY

While in Paris, the delegation visited the National Assembly and had briefings by French experts on energy issues.

In her presentation, Isabelle Facon, Research Fellow at the Foundation for Strategic Research, focused on nuclear power and its role in Russia's strategic calculations. She pointed out that the Russian leadership increasingly realizes the country's disproportionate dependence on fossil fuel exports. Further development of nuclear power is seen as a critical element of Russia's strategy to reduce this dependence. International co-operation in nuclear energy is of key importance to Russia, which partly explains its reluctance to introduce tougher sanctions against Iran, where Russia helped build the Bushehr nuclear plant. On the other hand, Russia has no interest in rapprochement between Europe and Iran, because that could enhance the prospects of the Nabucco project and undermine the Russian-led South Stream gas pipeline.

In terms of nuclear disarmament, the New START Treaty is an important achievement for Russia as it was forced to reduce its nuclear arsenals anyway. However, nuclear weapons remain at the heart of Russia's national security strategy, not least because of the reduction of the country's conventional armed forces. Nuclear weapons remain the symbol of prestige for Russia, and the only substantial guarantee against the overwhelming American superiority in conventional forces. Therefore further nuclear disarmament beyond the New START targets seems unlikely to be accepted by Moscow. Tactical nuclear weapons may also be considered as a weapon of choice for Russia in the context of Russia's increased sense of vulnerability against emerging new threats and powers.

Jean-Noel Poirier, Head of External Relations, Areva, discussed the current state of the global nuclear energy market. There is a notable increase of interest in nuclear energy across the globe over the past few years. Nuclear energy is promising in terms of economic cost and environmental benefits, but also because it is associated with national prestige. The nuclear revival is mostly taking place in Asia. In recent years, one could witness a notable increase in international co-operation among reactor manufacturers. The nuclear industry is becoming increasingly trans-national.

The remaining challenges include funding issues as the upfront investments are very high. Substantial government support in some countries is also distorting the global market and creating considerable obstacles for companies such as Areva to win contracts. The speaker also acknowledged that some developing countries that expressed interest in nuclear power lack the competence to ensure nuclear safety. He stressed that it is of critical importance for national nuclear safety authorities to be independent from political pressures. However, he noted that the new generation of reactors is inherently safer and the risk of a new Chernobyl is low.

Hubert Loiseleur des Longchamps, representing Total, discussed the prospects of the oil and gas sector. He noted that the oil and gas industry has to manage risks stemming from increased volatility of oil prices: after the period of unprecedented growth in demand and skyrocketing prices since 2004, the oil prices suddenly collapsed from US$140 a barrel to US$40 in 2008, and, as of 2009, are slowly growing again. The speaker maintained that the level of US$70-80 would be an optimal one to maintain adequate investment in oil and gas production.

It is predicted that the demand for fossil fuels will increase in the future, owing to the global population increase and particularly due to the rapid economic growth of the developing world. To satisfy the demand for energy, it is necessary to look for new sources of energy, including nuclear and renewable energy. Ideally, oil should only be used in the transportation sector and not in electricity generation or heating. The use of fossil fuels will have to become more efficient and less polluting, but they will remain a critical element of the world's energy mix in the foreseeable future. Oil and gas resources are still abundant, and the potential of unconventional fossil fuels – such as tar sands or shale gas – is huge and should be sufficient to satisfy the demand for many decades or even centuries. It has to be noted, however, that as the easily available oil and gas resources are being depleted, the price will go up: for instance, production of the Arctic resources is only economically viable when the oil price is around US100$ a barrel. Like the previous speaker, Mr Loiseleur des Longchamps also noted a shift in the market towards Asia and away from Europe in terms of demand and refining capacities.

ITER

The NATO legislators had a unique opportunity to visit the International Thermonuclear Experimental Reactor (ITER) project in Cadarache, Southern France and to discuss the prospects of nuclear fusion. The goal of this ambitious multinational scientific project is to demonstrate the technological feasibility of fusion energy for peaceful purposes. The construction of the reactor has started and it should be up and running by 2027. The project is costly (up to 1 billion US$ a year) but if successful, it could offer mankind a new energy source that is clean (producing no greenhouse emissions), powerful (the principle is that of replicating reactions taking place in the centre of the sun), abundant (fuel is easily available for all nations) and safe (the design of a reactor prevents Chernobyl-type accidents).

Scientific challenges, however, remain formidable. In order to fuse hydrogen atoms, hydrogen must be heated and maintained at a temperature of about 150 million degrees, while keeping it at distance from its surrounding walls. Gas at this temperature

is ionised (plasma) and powerful magnets act as invisible rails thereby ensuring the containment: this is known as “tokamak” configuration. Fusion research at Cadarache is currently being carried out in the Tore Supra facility, the largest tokamak superconductor magnet in the world.

As of 2019, further research will also be carried out in the international ITER reactor. The objective of the ITER project is to produce, through the fusion of deuterium and tritium – two hydrogen isotopes – ten times more energy (500 MW) than it receives. However, the economic viability of this energy source depends on further progress in science and technology.

MARITIME TECHNOLOGIES IN TOULON

On the last day of the visit, the delegation was briefed by representatives of technology companies based in Toulon, a major Mediterranean port of France. The city of Toulon is an increasingly competitive marine technology, trade, energy, tourism and scientific hub, also hosting France’s major naval assets, including the Charles De Gaulle aircraft carrier and several nuclear attack submarines.

Pôle Mer PACA is an innovation cluster serving as an incubator for new enterprises and laboratories working in the maritime security and environmental sectors. It is helping over 200 companies in the Toulon area as well as around 80 research centres. Apart from direct financial assistance (more than 1/3 of project cost) Pôle Mer PACA also provides counsel, facilities and networking opportunities to its protégées. Pôle Mer PACA as a unique tool of public-private partnership is contributing greatly to the growing competitiveness of the Toulon region and serves as an example to other ports.

Another Toulon-based company, DCNS, is one of the global leaders in naval technologies. The company has over 350 years of experience in naval defence. Its core business is to design and construct integrated warship, specifically surface combatants and submarines with all integrated major naval systems.

Recent and ongoing major programmes include construction of Horizon frigates, nuclear-powered ballistic missile submarine Le Terrible, heavyweight torpedoes for France and frigates as well as Scorpene submarines for several non-European countries. DCNS has established partnerships with leading European research labs, design centres, engineering teams and industrial contractors.

Apart from defence technologies, DCNS also uses its expertise and over 40 years’ experience in naval nuclear propulsion to help build commercial nuclear power plants. The company is also increasingly involved in the marine renewable energy sector, an emerging market segment with real potential for strong growth over the coming decade.

Another important defence technology company based in Toulon is privately-owned CNIM, which designs and manufactures a wide-range of high-tech solutions for the military and civilian sectors. With annual turnover of almost €1 billion and over three thousand employees (mostly scientists and engineers), CNIM is engaged in an impressive number of projects, ranging from environmental (e.g. waste-to-energy technologies) to military (e.g. bridging capabilities) to nuclear (e.g. laser-based simulator to test nuclear weapons and civilian fuel cycle technologies) to solar energy. NATO legislators had an opportunity to see CNIM’s modular assault bridge technology and a

solar power installation as well as to travel on board of an L-CAT, a unique highly versatile transport ship that combines two operating modes (cruise and catamaran) depending on the position of its central platform.

The delegation also visited IFREMER, the French Research Institute for Exploitation of the Sea. The state-run IFREMER conducts a wide range of marine research as well as advising the state authorities on public policy relating to the management of maritime resources and economy, including on fisheries resources for a sustainable fishing. The centre has an impressive technological base including its own fleet of research ships.

Members of the NATO PA delegations were particularly interested in IFREMER's submarine and unmanned technologies. There are significant technological challenges in operating surface or underwater remotely controlled or autonomous systems such as gliders, but these systems will be increasingly used in the maritime sector for scientific (e.g. exploring seafloor or monitoring seismic activity), economic (e.g. in offshore oil production) and security (e.g. patrolling) purposes. Powering unmanned systems is a particularly important issue, and the centre now operates platforms with autonomous capacities of 70 km. Data collected and analysed by IFREMER is used in forecasting ocean circulation as well as marine ecosystems evolution.

Respectfully submitted,

The Honourable Senator Michel Rivard

Canadian NATO Parliamentary Association (NATO PA)

Travel Costs

ASSOCIATION	Canadian NATO Parliamentary Association (NATO PA)
ACTIVITY	Visit of the Science and Technology Committee
DESTINATION	Paris, Aix-en-Provence and Toulon, France
DATES	27 to 30 September 2010
DELEGATION	
SENATE	Senator Michel Rivard
HOUSE OF COMMONS	
STAFF	
TRANSPORTATION	$5,446.54
ACCOMMODATION	$1,121.32
HOSPITALITY	$0.00
PER DIEMS	$606.73
OFFICIAL GIFTS	$0.00
MISCELLANEOUS / REGISTRATION FEES	$0.00
TOTAL	**$7,174.59**