Supply Chain and Localization in Argentina
The International Framework for Nuclear Energy Cooperation
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November 07, 2017
Long History of Collaboration

› Canada has a long-standing relationship in Argentina based on the peaceful uses of nuclear energy and CANDU technology development.

› Canada and Argentina have been working together for over 30 years to deliver economic, affordable and low carbon electricity.

› SNC-Lavalin is encouraged by the Argentinian Government’s commitment to the nuclear industry and believes there are significant opportunities for continuous collaboration.

› Canada and Argentina have a nuclear cooperation agreement that is currently in force and a number of other bilateral agreements that deal with nuclear non-proliferation and collaboration in third markets.
Canadian Developed CANDU Technology

› High Performance
› Mid-Size Reactor
› High localization Potential

› Fuel Flexibility:
› Natural Uranium
› Recycled Uranium, Thorium, Plutonium

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Argentina currently has three operating nuclear reactors:

- One CANDU PHWR unit at Embalse
- Two Siemens PHWR units at Atucha
- Developed nuclear program including heavy water and fuel production

On-going projects:

- Life extension of the Embalse CANDU station, expected to come back on-line in 2018
- Construction of locally-designed Small Modular Reactor: CAREM-25, expected to start operating in 2019

Future projects:

- 4th NPP: CANDU New Build at Atucha site
- 5th NPP: Hualong One New Build at site TBD
- Further CAREM units in Argentina and internationally

Source: World Nuclear Association
Embalse Nuclear Station

- In 1974, AECL began the construction of the Embalse CANDU plant, located on Rio Tercero about 100 km SW of Cordoba.
- The 648 MWe unit began commercial operation in 1984.
- High capacity factor: 81.4% since in-service, prior to refurbishment.
- As all CANDU reactors, Embalse is a Pressurized Heavy Water reactor:
  - Natural uranium fuel
  - Heavy water coolant
  - Heavy water moderator
Embalse Life Extension Project

› The Embalse Life Extension Project will extend the life of Argentina’s Embalse CANDU nuclear station for another 30 years. In order to do so, major components in the plant are being replaced.

› SNC-Lavalin’s scope is centered on the delivery of engineering, procurement and state-of-the-art tooling systems. Additional safety and component enhancements are also being implemented.

› The project is on-going: SNC-Lavalin experts supporting the NA-SA team executing the project.

› Significant amount of local supply scope, example: steam generators and fuel channels manufactured by local companies,

› The plant is expected to go back online in 2018.
4th NPP Project Overview

› Discussions continue to progress for the Enhanced CANDU 6 New Build Project at Atucha between SNC-Lavalin, CNNC and NA-SA

› The 4th NPP project is for a single unit CANDU station with SNC-Lavalin performing the Nuclear Plant Engineering and Procurement of key equipment

› The project is being mostly financed by China as a sovereign loan to Argentina

› The Pre-Project agreement was signed in November 2016

› A general contract for the project was signed in May 2017 between NA-SA, CNNC & CZEC. Project work is expected to begin in 2018.

› 5th NPP will commence 2 years following start of 4th NPP project.
New Build Projects

› Two new nuclear power stations in Argentina:

› 4th NPP – a CANDU reactor

› 5th NPP – a Hualong reactor
CANDU Localization Potential

CANDU Heat Transport System Equipment:

- Calandria / Feeders
- 2 loops, carbon steel
- 4 steam generators
- Pressurizer
- Degasser Condenser
- Major Heat Exchangers
- Nuclear Tanks And Vessels
- Feeders Assembly
Candu qualified Conuar to produce calandria tubes, pressure tubes, feeders, end fittings and channel closure plugs.

Candu qualified FAE to produce steam generator tubing (I-800).

Candu qualified IMPSA for replacement of steam generator cartridges. BWXT Canada provided the key elements of the manufacturing technology to IMPSA.
Bilateral Industry Relations

Trade Mission in Canada 2015:
› Organized by the Organization of Canadian nuclear Industries (OCNI) in Canada in November 2015
› Support by the Canadian Embassy in Argentina and coordinated by the Association of Metallurgical Industries of Argentina (ADIMRA) November 2015
› 8 Argentinian companies met with 17 Canadian nuclear suppliers

Trade Mission in Argentina 2017:
› Organized by OCNI in Argentina in March 2017 as a follow-up to the 2015 trade mission.
› Support by the Canadian Embassy in Argentina and coordinated by the Association of Metallurgical Industries of Argentina (ADIMRA) November 2015
› 10 Canadian companies visited 17 Argentinian companies
Thank you!