



**SNC • LAVALIN**

Building what matters

# Your SMR Experts

The world's demand for sustainable power is ever increasing and SNC-Lavalin's Nuclear team is up to the task. Our highly-respected subject matter experts have a long and successful track record of working with nuclear regulators in Canada and abroad. We help countries develop their nuclear programs and license a variety of commercial and research reactors.

## We provide solutions

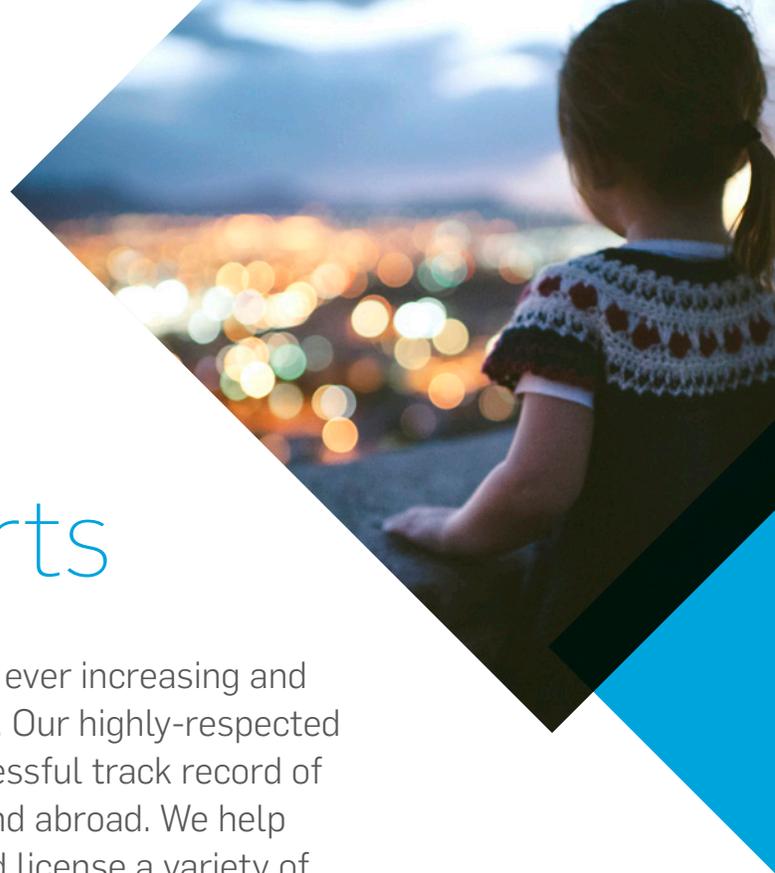
We assist vendors of small modular reactors (SMR) with completing their designs to a level where they can be licensed. This includes not only the reactor core, but also balance of plant, civil works, decommissioning plans and other key factors that go into completing a reactor design. We have extensive experience in licensing non-traditional designs in both Canada and the world abroad, including in the United States, the UK and countries with limited experience with nuclear. Our experts put their broad engineering and project expertise to use to find the best solutions for our clients.

With over 60 years of experience in the nuclear industry, our team has successfully delivered nuclear projects in Argentina, Canada, China, France, Japan, Korea, Romania, South Africa, Switzerland, United Kingdom and the United States.

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best solutions for our clients.

Our experts guide our clients through the licensing process and develop detailed engineering designs including:

- › Safety, licensing, and security
- › Reactor core physics
- › Radiation physics and radioactive waste characterization
- › Fuel engineering
- › Deterministic safety analysis
- › Probabilistic safety assessment
- › Civil engineering (seismic analysis, flood hazard re-evaluation support)
- › Reactor, mechanical, process and equipment engineering
- › Computer and display system engineering
- › Environmental qualification engineering
- › Instrumentation, control and electrical engineering
- › Process system engineering
- › Balance of plant design
- › Engineering, procurement and construction management
- › Environmental assessment (from Environment and Geoscience in the Infrastructure division)
- › Provision of ongoing Operation and Maintenance (O&M) services
- › Preparation of project business cases
- › Assembly of project financing packages
- › Provision of ongoing Engineering and Safety Case Support services
- › Outreach to potential equity investors
- › Outreach to global nuclear motivated lender community



## Working with regulators

As the steward of Canadian CANDU technology, which is licensed in Canada and around the world on four continents, SNC-Lavalin is uniquely positioned to guide SMR designers through the regulatory process for the best chance of success.

Because of our experience working with regulators, we know what they are looking for. We can help our clients understand the intricacies of nuclear licensing and provide guidance to address questions about novel technologies in SMR designs. Our team works with our clients to:

- › Understand how existing regulatory requirements apply to novel technologies and features in SMR designs
- › Develop acceptable approaches to facilitate the adoption of these new technologies as proven engineering practices
- › Develop a thorough understanding of the activities that challenge existing licensing and operational models
- › Address and deal with government policy issues that affect financing, design reviews and other components

## Why SNC-Lavalin?



**OVER 60 YEARS**  
IN THE NUCLEAR INDUSTRY



**OPERATIONAL REACTORS**  
ON 4 CONTINENTS



**EXTENSIVE EXPERIENCE**  
LICENCING RESEARCH AND COMMERCIAL REACTORS AROUND THE WORLD



A TRACK RECORD OF DELIVERING  
**ON SCHEDULE AND BUDGET**

## Full Licensing Services

We help vendors go through the full licensing process from environmental assessment, licence to prepare site, licence to construct, licence to operate and licence to decommission. In addition, our experts can guide clients through the Canadian regulator's pre-licensing process, which is divided into three stages, each requiring increasingly more detailed technical information than the last.

STAGE	DESCRIPTION
Stage 1 Review	<b>Compliance with regulatory requirements:</b> CNSC staff assess the information submitted in support of the vendor's design and determine if, at a general level, the design intent complies with CNSC design requirements (for new nuclear power plants as specified in REGDOC-2.5.2, and for small reactors facilities in RD-367), and related regulatory requirements.
Stage 2 Review	<b>Pre-licensing assessment:</b> This phase goes into further detail, with a focus on identifying potential fundamental barriers to the licensing of the vendor's design for a nuclear power plant or small reactor in Canada.
Stage 3 Review	<b>Pre-construction follow-up:</b> In this phase, the vendor can choose to follow up on one or more focus areas covered in Phase 1 and 2 against CNSC requirements pertaining to a licence to construct. For those areas, the vendor's anticipated goal is to avoid a detailed revisit by CNSC during the review of the construction licence application.

## Regulatory system general framework

