



CANDU Owners Group
President Fred Dermarkar

Innovation is more than a word

Every day, in CANDU nuclear plants, safety and efficiency is improved through new approaches and advancements while new-build technologies consider nuclear uses previously unimagined.

If you have been watching the industry news over the past year or two, you will have noticed the word innovation creep further into the lexicon. It would be easy to dismiss this as a 'word de jour' if it were not for the rate of change surrounding us. We are in an unprecedented time of technology advancement as computer-assisted, artificial intelligence and virtual-reality tools provide new means to accomplish tasks with greater safety and precision than ever before.

But there is more than just advanced technology at work. We are now benefitting from decades of cumulative research and development (R&D), engineering and continuous learning in our nuclear plants, in research facilities and on big nuclear projects. Years of collaboration and a collective questioning attitude have created a virtuous ripple effect.

This investment has returned billions in dividends by, among other things, helping to confirm life expectancy of components including ever-critical fuel channels. It has also given us predictive models for the most efficient approaches to operations and maintenance for equipment reliability. It has also enlightened us on the value of leadership and human performance effectiveness in this people business.

Innovation was a buzzword back in the mid 20th-century, too, when the industry' pioneers developed nuclear technology for electricity generation and managed the very first new build projects. Today, innovation is focused on gaining years of additional life from existing plants and managing complex refurbishment projects to improve the return on investment for the people who count on the plants for low-carbon, low-cost, reliable electricity.

Innovation is expanding the use of nuclear plants for additional purposes such as harvesting of materials for life-saving medical applications. And, it is going once again into new frontiers with small modular reactors (SMRs) for untapped nuclear applications such as load following, adding incremental baseload or providing off-

grid solutions.

Some innovations, like AI and VR, are shiny objects. Others are less eye-catching, like the work of collaboratively creating new processes that improve human performance, plant longevity and safety, incrementally, year over year. They don't garner headlines but do lay a foundation we continue to build upon.

Demonstrated performance

Over the past year, I had the opportunity to provide testament to the work of the CANDU industry in Canada at the licence renewal hearings of the three operating utilities and for the Canadian Nuclear Laboratories' site. I was proud to share success stories by these COG members collaboratively and individually. In fact, last year, New Brunswick Power's 35-year old Point Lepreau station celebrated its best performance in more than 20 years. Pickering Nuclear has also recently achieved some of its all-time best performance after almost half a century of service. We now know that age, like many other things, can be managed if we understand plant condition and needs. That is innovation.

Equally, in the past several months, I have been encouraged to view firsthand, the efforts of COG international members as I travelled to sites worldwide, including in Romania, Korea and China. I also participated in the WANO Tokyo Centre-led event, hosted by the Nuclear Power Corporation of India Ltd. (NPCIL), assisted by COG.

Societatea Nationala Nuclearelectrica (SNN), Romania is in the preparatory stages for a mid-life refurbishment on its Unit 1 reactor at Cernavoda, scheduled to begin in 2026. No doubt, innovations developed in current and past CANDU refurbishments will provide an excellent starting point for yet further innovation in project management there.

Innovation, according to the Merriam-Webster dictionary, means a "new idea, method or device." In this issue of COGnizant, you will see many.