



Earlier this year, OPG used its 3D printers to produce masks for frontline workers fighting the COVID-19 pandemic. The CANDU utility primarily uses the advanced manufacturing technology to create new as well as replacements for obsolete parts. Image courtesy of OPG.

The future is now in advanced manufacturing

OCNI Advanced Manufacturing Forum looks at how nuclear supplier innovation supports utilities in overcoming plant challenges, like part obsolescence, today and in the future

Innovation and collaboration are key to the sustainability of Canada’s nuclear fleet. Supply chain organizations and nuclear operators, many of them CANDU Owners Group (COG) members and supplier participants, were among those delivering that message at the Organization of Canadian Nuclear Industries (OCNI) Advanced Manufacturing Forum, Nov. 10-11.

Industry panels focused on the latest developments in 3D-printing, robotics and automation technologies, being used in and outside of the nuclear industry. Forum participants discussed the importance of ongoing communication and collaboration, today, to support industry innovation and sustainability, moving forward.

“We ask our suppliers to support our innovation. Sometimes, we can be very inward looking in nuclear. We might say if we haven’t done it in nuclear, then maybe nobody has done it,” says Bruce Power’s Steve Ostrowski, a panelist on obsolescence management. “Suppliers help us identify [innovation opportunities] not just on the manufacturing side but also on the services side, on management systems, on continuous online monitoring systems. We encourage that.”

COG President and CEO Stephanie Smith moderated the obsolescence management panel on Day 1 featuring Ostrowski and Ontario Power Generation’s (OPG) Mark Knutson.

The panelists highlighted the ways both organizations are currently applying advanced manufacturing technologies, like 3D-printing and digital warehousing tools, to address the management and replacement of obsolete parts, which cannot be easily manufactured or sourced.

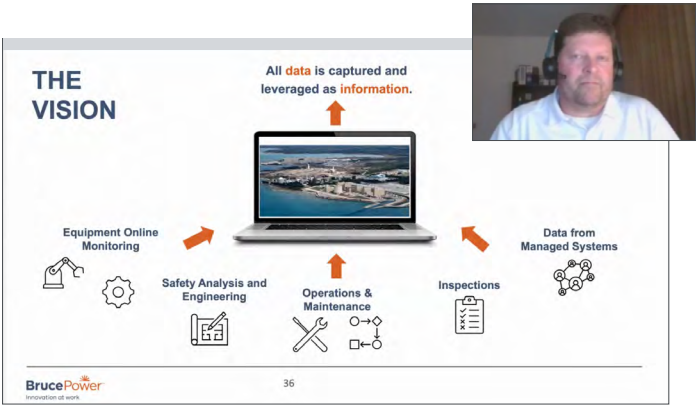
The panelists also touched on the importance of ongoing collaboration between CANDU utilities and supplier organizations to address present obsolescence issues and those that will emerge in the decades to come.

Other highlights from the obsolescence management panel included:

- OPG’s use of 3D-printing to quickly and cost-effectively reproduce 30-40-year-old parts that have been discontinued as well as innovative solutions such as stack alignment tools, motorized cooling fans and chemistry sample holders;
- Bruce Power’s digital transformation initiative, which is a key part of its obsolescence management program, includes the digitization of drawings, part specifications in the building of a digital plant catalogue and warehouse. Ostrowski says this technology will enable quicker sharing of information provided to suppliers in the disposition of obsolescent replacement parts;
- Bruce Power is investigating the use of machine learning and algorithms for predictive maintenance to predict part availabilities and determine which parts are at highest risk of replacement; and
- The importance proactive actions by nuclear suppliers to help utilities prevent obsolescence and apply innovative manufacturing solutions at their plants, now and in the years to come.

“We clearly have entered a new world where we are 3D-scanning things to get the real dimensions. We see the world, digitally, now, and we can adjust our designs,” says Knutson. “We’re looking toward things that don’t leak, things that are easy to fix and don’t need inspections. We are asking for the manufacturers out there to think of those things. The innovation to get us there is really going to be on our vendors and how they make that happen.”

Both OPG and Bruce Power recognize that developments in advanced manufacturing will require upfront investment to achieve long-term benefits. Future applications to reduce maintenance times, support just-in-time inventory and the development of customizable equipment, that improves upon existing designs, were noted as the next frontiers to be developed.



Bruce Power’s Steve Ostrowski outlines how the organization’s obsolescence management program will use digitization to capture and leverage plant data at the OCNI Advanced Manufacturing Forum, Nov. 10.