For Nuclear Power, 2025 needs to be the year of making projects happen

As we reported last month at COP 29 in Baku, Azerbaijan, the Government Pledge to triple global nuclear by 2050 added six new signatories bringing the total number of countries who have signed the pledge to 31. Support for nuclear power to both meet countries' clean energy and energy security goals has never been stronger. Now comes the hard part – doing – and that means building real projects to meet these ambitious targets.

Source: istockphoto.com

With about 440 GW of nuclear power in operation today, tripling would mean close to about 880 GW of new nuclear for a total of more than 1,300 GW of nuclear power in operation by 2050. Split evenly between conventional large GW reactors and

Small Modular Reactors (SMRs), this would translate into about 440 new large reactors and anywhere from about 1,300 to 4,000 new SMRs (depending upon their size). A pretty big mountain to climb.

All around the world, the hard work has begun. As an example, here in Canada, there is considerable progress being made. Based on the highly successful refurbishment (life extension) projects underway in Ontario, which continue to be on time and on budget, the next projects are getting ready for final approvals in 2025. These include the first BWRX-300 SMR project at the Darlington site and the decision to proceed with refurbishment for the Pickering B (4 units) plant. And as these projects move forward, work is already starting on what will come next. Bruce Power has initiated the process to secure an Impact Assessment (IA) and License to Prepare Site (LTPS) at the Bruce site for up to 4,800 MW of new nuclear. And more recently, OPG announced it will start to review some sites to determine if they can be candidates for future projects. In Canada, we are doing.

How about the rest of the world? 2025 is likely to be the year that Sizewell C secures final approval to proceed in the UK. It is also expected that Great British Nuclear will select its first SMR designs and proceed with project procurement. In France, the Flamanville 3 unit was successfully connected to the grid in 2024, and work is underway to proceed with the first six of a possible 14 new EPR2 projects. At COP 29, the Romanian utility SNN signed contracts to support the construction of its two new units at Cernavoda. The Czech Republic selected KEPCO to build its next units and projects in Poland are continuing towards financial close. We talked about the plans in the US in our last post. These are just a few examples of the progress being made.

The real driver to meet the tripling goal is to build successful projects, on time and on budget. This requires

more than eager technology vendors and supportive governments. It requires capable, engaged owner/operators, who are ready to develop nuclear projects and get things done. This means starting down the path to new construction and includes:

- Identifying and securing suitable sites
- Engaging with local populations to secure community support
- Selecting technologies for deployment
- Proceeding with regulatory approval processes needed to start construction
- Completing project engineering
- Readying the supply chain
- Developing and training the needed workforce; and then,
- starting to build.

Becoming a capable owner operator is a journey. Just as we talk about the benefits of standardization for nuclear designs, those looking to take on the task of building new nuclear plants would also benefit from standardized processes. The path to success can be accomplished through collaboration to share lessons learned and implement best practices for project deployment.

As we enter 2025, the time has come for more doing if we are to deliver on the global ambition of tripling nuclear power by 2050. This is only the beginning.

Thank you for reading our blog – wishing you all a very happy, healthy and prosperous 2025!!