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Huge impact. Small footprint.

The most advanced, readily deployable small modular reactor is here. **The AP300™ SMR from Westinghouse.**

Building on more than 70 years of nuclear energy experience, Westinghouse is again ready to be a proven partner to deliver a clean, cost-effective and secure energy future.



WESTINGHOUSE INTERVIEW

IOLO JAMES • HEAD OF COMMUNICATIONS • NIA



Rita Baranwal was named Senior Vice President for Energy Systems at Westinghouse in May 2023 to drive the development of the company's latest nuclear energy technology, the AP300™ small modular reactor.

Baranwal has more than 25 years of experience at Westinghouse and in the nuclear energy industry, notably having served as Assistant Secretary for the Office of Nuclear Energy in the US Department of Energy (DOE) in a US President-appointed and Senate-confirmed role. She has also served in leadership positions at the Electric Power Research Institute, Idaho National Laboratory, and previously at Westinghouse.

Iolo James: Rita, thank you for speaking with us. We are about two-thirds through the year and already it's been a significant one for Westinghouse. Recently, commercial operation entered at Plant Vogtle's Unit 3 for the AP1000® reactor, fuel load scheduled soon for Unit 4 there, and in May you launched a brand new reactor technology, the AP300™ small modular reactor.

Rita Baranwal: My pleasure. Thank you for the opportunity. Yes, we launched the AP300 SMR on May the fourth which, if you are a dedicated Star Wars fan, is a great day to launch an exciting new technology.

IJ: Tell us about it.

RB: The AP300 SMR is a single-loop, pressurised water reactor that features the advanced passive safety systems pioneered by Westinghouse. It has a compact footprint. In fact, we have a rendering that shows the safety related footprint sits on about a quarter of a soccer pitch. And like the AP1000 reactor, it can provide not just electricity, but steam for district heating and hydrogen production.

The success we are seeing with the AP1000 technology around the world, setting operational records in China and now beginning commercial operations in Georgia, it bodes well for the AP300 SMR which is truly based on the proven AP1000 technology.

IJ: How are the two reactors similar?

RB: The AP300 SMR is the only small modular reactor based on an Nth-of-a-kind licensed and operating reactor, the AP1000. The AP300 SMR uses identical technologies as the AP1000 reactor but is optimised for the size and power output of the AP300, which is 300 MWe versus the 1100+ MWe of the AP1000 reactor. So, that means identical passive safety systems, same fuel, and same I&C systems,

structural modules, major equipment and components. But in developing the AP300 SMR, we used innovation to increase value by reducing the overall number of components.

Westinghouse has a clear understanding of the cost drivers of an SMR, such as large plant footprints but small megawatt output, no established supply chain and a focus on unproven designs.

We know from the customers we talked with that this is a key differentiator for them from other technology offerings, which use novel concepts or first-of-a-kind designs. If we want to deliver the economic promises of SMRs, we need to standardise designs around the simplest ones, and standardise deliveries at a large number. That's what we did with the AP300.

IJ: What benefits can be gained from such an approach?

RB: They are myriad, really. The highest hurdles for entry into the nuclear reactor marketplace are licensing and constructability. The AP300 SMR is essentially a mini-AP1000 system, based on the only Gen III+ reactor technology to receive regulatory approval in the US, China and Britain. The licensing experience of the AP1000, for us and regulators, means this is not new. They have seen this technology before so it's familiar. That's a huge advantage.

We are targeting 2027 for design certification, with construction of the first AP300 SMR beginning in the 2030 timeframe

IJ: Are there other advantages to following this path?

RB: Yes, there are. I mentioned constructability. Twelve AP1000 reactors have completed construction or are currently under construction. In nuclear energy, we learn by doing. The lessons learned

from those projects directly benefit the first AP300 SMR that will be built. That reduces risk for customers.

The "M" in SMR stands for modular but creating a truly modular reactor takes experience. The AP1000 reactor is designed to have multiple parts fabricated off-site and shipped to the location for assembly and installation by the constructor. In fact, it features nearly 60 of these structural and mechanical modules.

Another key advantage is a mature supply chain that has been developed for the AP1000 reactor over more than a decade.

IJ: The UK recently announced the formation of Great British Nuclear to advance nuclear energy development in the UK. Can the reactors from Westinghouse play a role in that?

RB: Absolutely. Westinghouse has a long history of supporting the British nuclear industry through our Springfields fuel fabrication facility, which was recently awarded several grants to continue advancing its capability to develop fuels for new reactors, including the AP1000 reactor and the AP300 SMR. Westinghouse is developing these large and small reactors to complement each other, and adding in Springfields to fabricate their fuel provides a nice homegrown synergy.

When we launched the AP300 SMR it was with an understanding that every grid and every situation perhaps can't accommodate a large reactor. So, with the AP300 we've increased flexibility for customers while reducing FOAK risks and regulatory risks, which is beneficial for utility and industrial customers.

Since the launch we have signed MOUs in Finland and Slovakia to explore the potential deployment of AP300 SMRs, and we expect to sign more. It's an exciting time and I'm honored to be leading an amazing team in this effort.○



IF WE WANT TO DELIVER THE ECONOMIC PROMISES OF SMRS, WE NEED TO STANDARDISE DESIGNS AROUND THE SIMPLEST ONES, AND STANDARDISE DELIVERIES AT A LARGE NUMBER. THAT'S WHAT WE DID WITH THE AP300.

