will "support and accelerate the adoption of RIPB design" in order to establish "clear, industry-wide methodology and detailed implementation guidance," which would foster "consistency across AR licensing applications," according to the report abstract. It goes on to say that consistency in the AR industry "would benefit both applicants and regulatory staff in the licensing process."

In addition to engaging with stakeholders and conducting a literature review, the research team constructed a demonstration example implementing RIPB design into the development of probabilistic risk assessment (PRA) for external hazards in a nuclear facility. Broken into nine steps, the PRA demonstration was designed to give practical, concrete experience in this process with a specific example while also finding key takeaways (the aforementioned complications, gaps in guidance, and best practices) that remain broadly applicable to the diversity of technology within the advanced reactor design space.

From these three areas of research, Grant shared some conclusions broken down into three categories: challenges, benefits, and follow-up research.

The first highlighted challenge was the lack of site- and plant-specific data and design information for new ARs, which makes the initial PRA needed for an RIPB design more vulnerable to uncertainty and inaccuracy. The second challenge was the interdisciplinarity of RIPB implementation, requiring teams that don't normally work together to become familiar with each other's department-specific terminology, concepts, and workflow.

Continued