



SMALL MODULAR REACTORS (SMR)

HukariAscendent is on the leading edge of the SMR technology industry, having provided client assessments of competing SMR designs in a broad range of technical and regulatory attributes critical in the planning and decision making process. Our senior Project Managers and Engineers bring decades of nuclear power experience to this new and exciting market, providing expertise, support and advice in key areas of concern, such as the following:

- **Technology maturity**
- **Design status**
- **Nuclear safety**
- **Construction/constructability**
- **Regulatory and Licensing considerations**
- **Cost considerations/comparisons**
- **Operations and maintenance considerations**
- **Supply chain implications**
- **Project risk and risk mitigation**

While the interest in Small Modular Reactors (SMR) is not new, electric power utilities and other producers in the U. S. and abroad are increasingly considering SMRs in the medium and long term planning for electricity demand increases. There is a revival of interest in these small and simpler units for generating electricity from nuclear power, and also for specialty uses such as process heat production, and for application in remote environments long distances from large, traditional grid systems. This interest in small nuclear power reactors is driven both by a desire to reduce capital costs and to more closely align the addition of generation capacity with customer power demands. Hukari Ascendent has conducted a Comparative Analysis of Small, Modular, Scalable Nuclear Power Reactors for purpose of client evaluation of selected features and characteristics to inform long-term strategic planning for generation growth.



The study compared two primary SMR designs. The study outlined pros and cons for each design, specific NRC licensing activities, issues relevant to existing nuclear power plants and additional issues that may be public acceptance or design related.

- Review criteria included 1) ability to obtain NRC design certification and combined operating license, 2) Capital costs, 3) Construction schedule, 4) Nuclear safety aspects, 5) operating and maintenance costs 6) ability to obtain a manufacturing workforce and 7) ability to deal with used fuel.
- Specific licensing activities included evaluating NRC efforts underway to address licensing of SMRs, applicability of existing NRC regulations to SMRs, SMR manufacturer experience with NRC licensing process, applicability of ITAAC process to SMRs.
- Identified additional generic issues that will need to be addressed such as airplane accidents, introduction of digital I&C designs, fire risk evaluations and recirculation sumps.
- Additional considerations include non-proliferation aspect of designs, waste management, the hearing process and cyber security.