CASE STUDY

SNERDI integrates engineering disciplines with 3D design for nuclear power projects

Chinese nuclear research and design institute implements Octave solutions in a global workshare environment

Key facts:

Company: Shanghai Nuclear Engineering Research and Design Institute (SNERDI)

Website: www.snerdi.com.cn

Industry: Nuclear

Country: China

Octave products used: Facets Electrical *(Intergraph Smart Electrical),* Facets Instrumentation *(Intergraph Smart Instrumentation),* Facets P&ID *(Intergraph Smart P&ID)*

Established in 1970, SNERDI is a high-tech enterprise subsidiary of the State Nuclear Power Technology Corporation. It is a key research and design institute with expertise in nuclear electric power technology and leads the industry in China. The business scope of SNERDI is plant design, EPC contracting, project consulting, equipment research and design, project management, equipment procurement, technology development and engineering services.

Identifying goals

Shanghai Nuclear Engineering Research and Design Institute (SNERDI) is China's leading technology research and design institute for nuclear electric power. SNERDI is responsible for the engineering and design of several nuclear power plant projects in China and overseas. This includes Westinghouse AP1000® nuclear projects, such as the Sanmen and Haiyang nuclear power plants in China and Chasma Unit 2 in Pakistan.

SNERDI has a long association with Westinghouse, having produced 3D plant models to support Westinghouse's AP1000 plant design, which is recognized as among the safest and most advanced nuclear power plants on the market today. It is based on standard Westinghouse pressurized water reactor (PWR) technology, which has achieved over 2,500 reactor years of highly successful operation. Modular in design, the AP1000 promotes ready standardization and high construction quality. It is also designed to be economical to construct and maintain while promoting simplicity and ease of operation.

To continue driving its expertise in nuclear power plant design and support an increasing number of global projects, SNERDI decided that it needed to move away from traditional design methods and leverage intelligent, advanced technology to support an integrated design platform.

Key benefits:

- Global, concurrent engineering to support multiple nuclear power plant projects
- Integrated engineering environment across all disciplines for complete nuclear power design
- Improved quality and efficiency of engineering design and project management

Overcoming challenges

- Establish an integrated engineering design platform with 2D engineering and schematics and 3D design
- Support multiple nuclear power projects concurrently in a global workshare environment
- Improve the quality of engineering design and overall project productivity

Realizing results

SNERDI has leveraged Octave solutions to improve its design processes for its global nuclear power projects. This includes offering true engineering integration, enabling SNERDI to establish and develop an integrated design platform to enhance global collaboration and meet project requirements.

By offering a powerful portfolio of industry-leading, best-in-class design and data management solutions, Octave has enabled SNERDI to capture integrated engineering knowledge at the enterprise level for the competitive advantage needed today as well as in tomorrow's market. The company's integrated suite of solutions enables proven productivity gains, improving engineering efficiency by up to 30 percent. This is why the majority of plants built worldwide are designed using Octave solutions.

By integrating Octave Facets solutions (such as Facets Electrical, Facets Instrumentation and Facets P&ID) with 3D design, SNERDI is able to complete engineering design for its nuclear power plants across all disciplines. The integrated engineering environment enables SNERDI's engineers to perform global, concurrent engineering for multiple projects, improving the quality and efficiency of the design work involved.



For example, the integration of Facets P&ID with the 3D design platform enables SNERDI's engineers to quickly view the relevant P&ID data and generate the associated reports, without having to refer to a large number of documents separately. The integration also improves the consistency and accuracy of the data, which can be reused with other engineering applications to minimize errors.

Gu Guoxing, vice president at SNERDI, said, "The strong growth of our business requires reliable design and engineering solutions that improve our productivity significantly so that we can achieve a competitive advantage on the international market. Octave satisfies this demand because it provides leading technology coupled with strong local and international support to achieve optimized benefits from our investment."

Moving forward

SNERDI has been a long-time customer and will continue expanding its use of Octave solutions for further productivity and interoperability benefits. The Chinese research and design institute remains committed to using Octave technology and will leverage its full range of integrated design and engineering solutions to meet the needs of nuclear power plant projects in China and around the world.

About Octave

Octave is a leader in enterprise software, turning data into decisive action and intelligence into your edge. Our software solves for and simplifies complexity, from the design and build to operations and protection of people, property and assets – for any scope, at any scale. For decades, we've partnered with customers to sharpen performance, elevate efficiency and amplify results. From factory floors to entire cities, our solutions are tuned to scale up what's possible from day one onward.

©2026 Octave Intelligence plc and/or affiliates. All rights reserved.