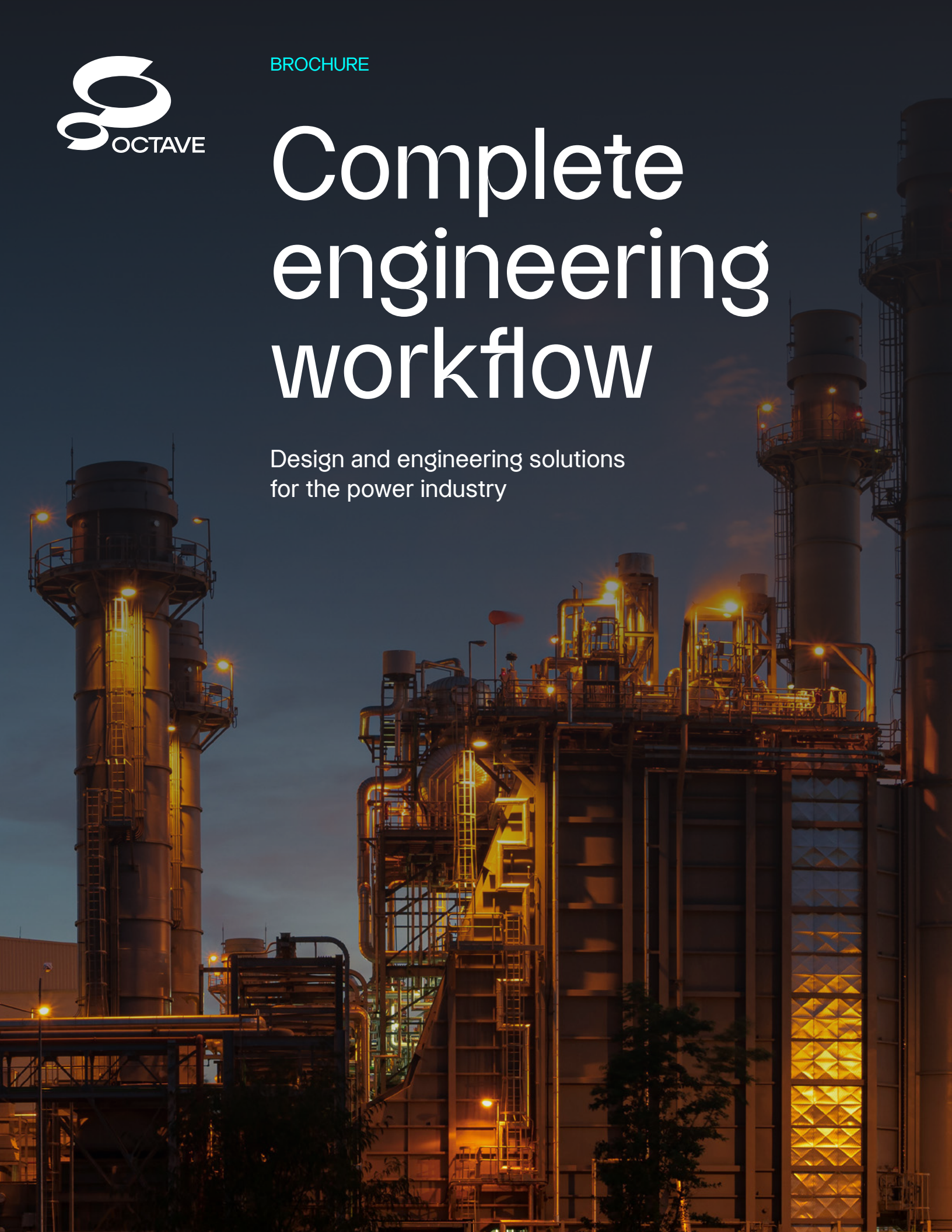




BROCHURE

# Complete engineering workflow

Design and engineering solutions  
for the power industry





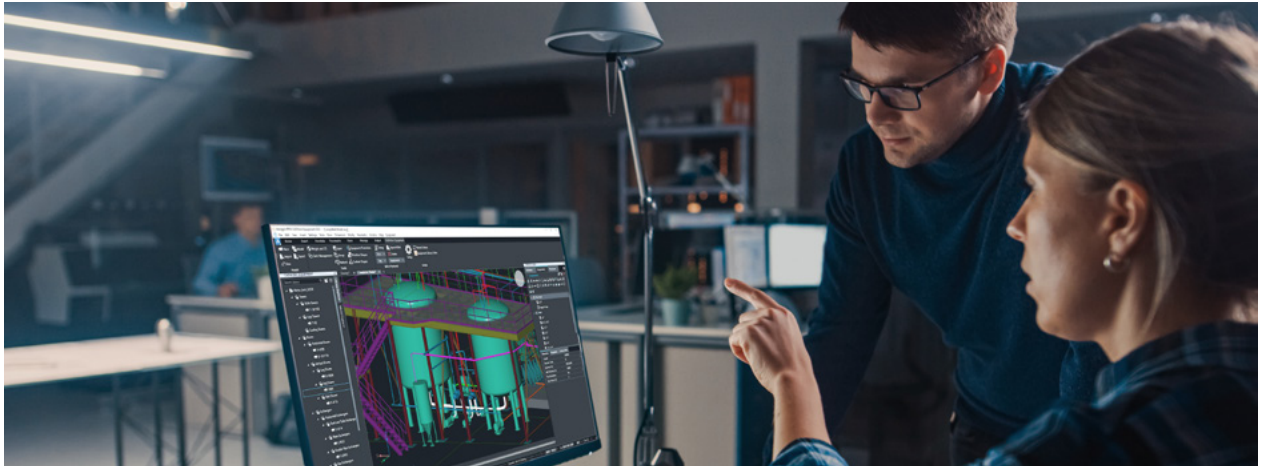
# Proven success

Many companies from around the world have chosen Octave (formerly Hexagon's Asset Lifecycle Intelligence division) for their power and utilities projects, including EPC and OO companies such as:

- **Fichtner Consulting**
- **Gelsia Italy**
- **Richard Design Services**

Now more than ever, companies are under pressure to drive efficiency by utilizing tools that help increase profit margins. Proven solutions to generate nuclear, fossil, gas and hydroelectric energy are needed to power the world. Maximize your return on investment to bring a facility online, improve plant efficiency, lower operating costs and improve safety margins.

Developing a power plant takes many years and hundreds of millions of dollars. This is a huge investment that requires rigorous solutions to meet many challenges. Choose a solution provider who understands your needs with the solutions designed to address your design and engineering challenges, while complying with government regulations on health, safety and environment.



## 3D design & visualization

Octave is focused on helping the world's power generation companies fulfill their design needs by providing the most complete, flexible and intuitive CAD-based solutions on the market. The successful design of a plant depends on thorough planning, careful analysis and a commitment to safety and efficiency. By delivering the most up-to-date tools for today's engineering demands, Octave solutions enable users to quickly and easily create fully intelligent 3D plant models.

No matter the project size, Octave has solutions to fit the needs of various project scopes, from long-term mega projects to more agile smaller projects and everything in between. The wide breadth of design solution offerings, including Forte 3D (formerly Intergraph Smart 3D) and Forte 3DWorx (formerly CADWorx Plant Professional), allow unparalleled collaboration, efficiency and flexibility to help address the challenges faced in industrial plant design. The solutions help streamline accuracy and consistency in project deliverables, ensuring that the design phase meets all requirements and objectives.

When your project scope is extensive and granular with the need for comprehensive back-end data integration for supply chains along with project execution, Forte 3D is the solution of choice for handling these requirements and more. Forte 3D allows for a

rich data model beneficial for owner handoff, enhanced project collaboration and permissioning for proper access across complex workflows. With most mega projects, changes are unavoidable and frequent. With Forte 3D, these processes are automatically tracked with detailed context linked to the model and throughout the project.

For smaller and more agile projects that require faster execution, the Forte 3DWorx family of products is an ideal fit, particularly in food & beverage, pharmaceutical and water industries. With Forte 3DWorx, users are able to quickly and easily set up the software and start designing right away. The integrated complete software provides intelligent drawing and database connectivity, advanced levels of automation and easy-to-use drafting tools. The comprehensive set of plant design tools includes piping, structural, equipment, process and instrument diagrams, design review, plus automatic isometrics and bills of material.

The bi-directional links between Forte 3D and Forte 3DWorx with Aspect Pipe Stress (formerly CAESAR II) for pipe stress analysis, and Aspect Pressure Vessel (formerly PV Elite) for pressure vessel analysis, enable designers and engineers to easily share information while keeping the drawings, models and related information synchronized as changes are made.

# Engineering analysis

High-value power facilities require very stringent standards, often needing the facilitation of solutions that provide complete integration of design and analysis so that the power facilities operate safer and more reliably. One major differentiator of Octave design tools compared to its competitors is the interface between CAD and CAE. Design solutions, Forte 3D and Forte 3DWorx, provide interoperability with analysis solutions including Aspect Pipe Stress for pipe stress analysis, Aspect Pressure Vessel for analysis and design of pressure vessels and heat exchangers and Aspect Structure (formerly GT STRUDL) for structural analysis.

After the 3D pipe routing has been completed in Forte 3D or Forte 3DWorx, it can be exported to Aspect Pipe Stress for pipe stress analysis with the pipe class information, such as material and pressure, retained. Aspect Pipe Stress determines whether the piping design is safe and compliant with the relevant piping codes. This increases productivity through the

reduction of errors that are introduced by manually duplicating the model and saves time from release to approval. The solution also has the capability to analyze piping systems in accordance with more than 30 international piping codes including B31.1 power piping code and ASME Section III; it also meets stringent NQA-1 standards.

The same type of interface applies to the design of pressure vessels and heat exchangers. The modeling of the equipment starts in design solutions and can then be exported to Aspect Pressure Vessel for analysis. Any design changes required after the analysis of the equipment can be directly incorporated into the 3D model. Aspect Pressure Vessel is a leading vessel analysis product within the power industry, being used by operators, leading EPCs, contractors, notified bodies and many others. Aspect Pressure Vessel analyzes pressure vessels in accordance with four international design codes.

# Engineering & schematics

With plant owners looking at budgets, schedules and operation times, implementation of the latest strategies and solutions that compete in today's environment can provide consistency and synchronization across engineering projects ensuring data accuracy. Learn how you can design and maintain a safe, reliable power distribution system from load identification to plant startup.

Octave offers multiple solutions allowing for productivity enhancements, the elimination of rework and dynamic capabilities for intelligent process diagram generation to accurately reflect the as-built conditions. With either solution, 3D plant models can be linked for

change management control resulting in faster design iterations and less rework.

In addition, Octave offers intelligent electrical and instrumentation design suites for the production of intelligent circuit diagrams including electrical schematic diagrams, wiring diagrams, one line diagrams, cable block diagrams and loop diagrams. This allows engineers to think and work in terms of "breakers, circuits and terminal strips," rather than "circles, lines and arcs."



# Asset lifecycle information management

A new power plant must be brought to the market rapidly. Defining, recording and auditing the plant's ever-changing operating characteristics can be a challenge. Plus, analyzing and managing the impact of the change must be performed in accordance with regulatory and process quality practices. All of this must be achieved in a global market where capital project delivery must not only be fast and efficient, but accurate.

Plant designers and engineers need software with enhanced decision support capabilities to

facilitate global design, production and lifecycle optimization of the plant. The information management software from Octave maximizes efficiency for industrial and manufacturing plant maintenance and provides plant operation solutions. From concept and design through plant maintenance, operations and decommissioning, Octave enables data governance of all the plant's engineering information, integrating information on the physical asset, processes and regulatory and safety imperatives.

## 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.

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