



From "Paper-centric"
to "Paperless"

Transforming Nuclear
Project Execution



Digital Delivery:

Bechtel's Innovative Approach to Optimize Project Delivery Via All-Digital Execution

Bechtel Digital Delivery Benefits:

- Offers integrated suite of standardized, NQA-1 certified digital tools for the full project lifecycle, from design through commissioning
- Creates single source of truth – fully integrated with project's 3D Building Information Model (BIM)
- Enables real time installation updates from the field to the 3D BIM, plus 4D/5D (schedule/cost) integration
- Improves certainty of schedule and cost performance
- Eliminates delays caused by inefficient pre-planning / hard copy work packages
- Eliminates need for paper in execution
- Maximizes professional staff and craft professional efficiency (more "time on tools")
- Minimizes material and information delays that create down time for craft professionals

Bechtel—a trusted partner who helps industry and government solve their most complex challenges—brings our 70+ years of integrated engineering, procurement, and construction (EPC) leadership in nuclear project execution to implementing all-digital solutions to improve nuclear power project delivery.

While our proven integrated EPC processes and procedures enabled Bechtel to deliver 150 nuclear power projects globally (>76,000 MW), we recognize new solutions are needed to execute the next generation of nuclear plants with enhanced efficiency and certainty. Our innovative **Digital Delivery** approach does just that, and we are **implementing it now** on our latest projects, such as the Natrium™ Advanced Reactor Demonstration Project in Kemmerer, Wyoming and the Lubiatoowo-Kopalino AP1000® Project on Poland's Baltic Coast.

Natrium™ – The Lead Nuclear EPC Project with All-Digital Execution

TerraPower's Generation IV advanced reactor Natrium technology is a 345 MW sodium fast reactor coupled with a molten salt-based integrated energy storage system that can boost output to 500 MW. Selected by the U.S. Department of Energy for its Advanced Reactor Demonstration Program (ARDP), the initial Natrium reactor will be deployed at a greenfield site adjacent to a former coal plant in Kemmerer, Wyoming, with site work beginning in 2024.

As the project's integrated EPC partner, Bechtel has developed a complete Digital Delivery approach to enable cost effective, efficient, quality-focused site execution that will become the standard model to deliver the benefits of nuclear energy to customers around the world:

- Leverages the 3D BIM in a Central Data Environment with Bechtel's customized EPC tools to allow for seamless digital work flow from design to supply chain procurements to building/commissioning to handover/closeout
- Allows all construction work package creation/completion electronically (Advanced Work Packages), including digital signatures and electronic check-out/check-in with digital packages in the field, eliminating lost or damaged paper copies
- Gives project leaders real-time information to allow for data-driven decisions in the field, enabling efficient redirection of resources as situations evolve – no "down time"
- Enables efficient schedule management and milestone alignment – daily goals and performance to those goals readily accessible to entire project team

Proven Approach / The Future of Nuclear EPC Delivery - Poland and Beyond

- 100% digital delivery has been proven on non-nuclear Bechtel projects, such as the 218MW Cutlass Solar II Project in Texas completed in April 2024, with demonstrated benefits to unit rate and schedule performance
- As Bechtel executes the engineering for the Lubiatoowo-Kopalino Project in Poland – a three-unit Westinghouse AP1000 plant and Poland's first nuclear power plant – Digital Delivery is being incorporated and will be integral to the project's execution – **We are committed to Digital Delivery as the future of project delivery**

Digital Delivery: Integrating the 3D Model with Execution in the Field

- Bechtel Production System (BPS) tailored tools for site construction execution (e.g., PipeFighter, SteelSlayer, etc.) work seamlessly with Common Data Environment (CDE) tools to deliver Advanced Work Packaging (AWP)
- Enables the digital delivery process from engineering through the supply chain to the construction and startup/commissioning teams
- AWP attributes assigned in the 3D model and flowed through the CDE into construction planning tools
- Installation Work Package (IWP) assigned in the construction tools and integrated with the CDE and 3D model
- BookBuilder automated assembly of work packages
- Fully consolidated model for project that integrates
 - Project Design
 - Subcontract/Supplier Design
 - Construction Packaging
- Synchro and Universal Plant Viewer (UPV) used to visualize construction sequence and display material delivery status
- Integrated model used for AWP planning and project execution and includes detailing material delivery status
- Model integrated with Construction Execution Tools for real time status and to maximize craft professional efficiency

Bechtel's EPC Tools Work Seamlessly in Digital Environment

