A world designed to last

PODS Plant Operator Digital Simulator

Leading-edge immersive and interactive training solution



TECHNIP ENERGIES

A unique offering

Technip Energies is a leading engineering and technology company serving the energy industry and its transition. Through our extensive portfolio of technologies, products and services, we break boundaries to bring our clients' innovative projects to life while accelerating the energy transition for a better tomorrow.

A presence across the entire value chain

Project Delivery

- Project management
- Engineering, Procurement and Construction
- Technology integration on complex projects
- Digital applications for project execution and safe and cost-effective operations and maintenance
- Project financing

Technology, Products and Services

- Process technologies and licensing
- Proprietary products: Loading Systems and Cybernetix
- Concept, feasibility, FEED studies
- Advisory (Genesis) and Project management consultancy

Full coverage of diverse markets

- LNG & gas monetization
- Sustainable chemistry
- Hydrogen
- CO_2 management
- Offshore
- Refining
- Ethylene
- Petrochemicals
- Fertilizers
- Mining & metals
- Nuclear
- Life sciences
- AgritechProject



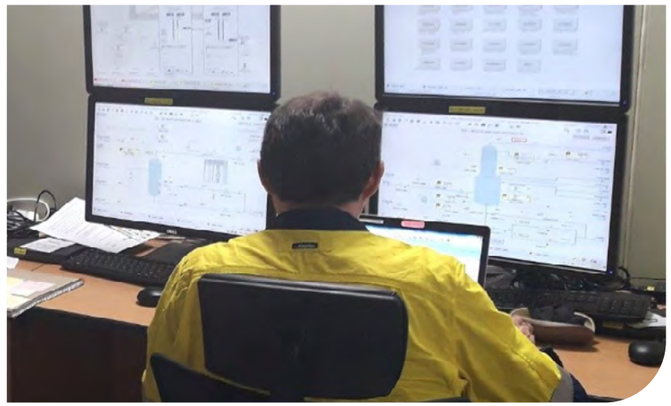


PODS
(Plant Operator Digital Simulator)

Using virtual reality and reactive digital twin

Plant safety and productivity is a priority for our clients responsible of conducting operations efficiently and managing day-to-day production. Technip Energies has developed an immersive and interactive training solution bridging a VR environment and a traditional OTS, for field and control room operators to ensure safe and profitable production management.

With PODS, actions performed both in the field and in the central control room and their interactions are reflected accurately over time.

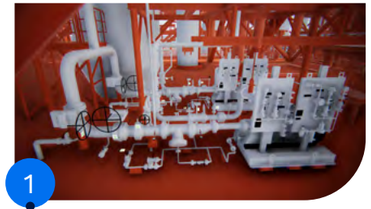


- **Review and optimization of startup procedures**
  PODS offers a unique environment to play and replay startup procedures. Procedures are not only created but can also be reviewed, commented and amended prior to startup.
- **Collaborative work for operators**
  Thanks to PODS, both field and central control room operators share the same immersive training experience.
- **Analysis of safety measures and response plans**
  Our solution provides an effective interface for executive managers to meet plant reality. They can assess safety measures and response plans by providing realistic plant response to safety events.

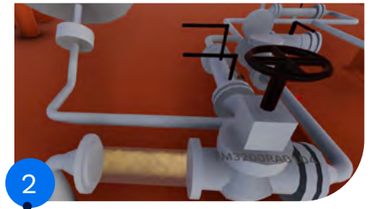
From 3D engineering models and engineering dynamic simulation models to PODS

PODS is an interactive simulator that couples a traditional OTS with a VR environment. It enables simultaneous and collaborative training for both field and central control room operators. PODS is designed to provide the most realistic interactive training in an inherently safe environment.

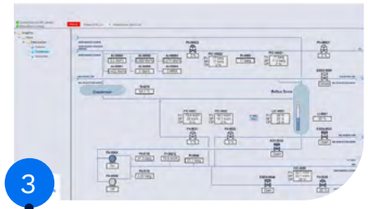
Process simulation is based on models built during the dynamic simulation and OTS study cycle. The simulation of the physical world is generated semi-automatically from the 3D model of the engineering phase.



1: Field equipment such as manual valves actuated in the physical world simulation by the operator in VR are transferred and taken into account in the dynamic process model.



2: The fluid nature and velocity in the transparent pipeline is computed in real time by the dynamic process model and animated in the physical simulation.



3: Through a replica of the control room, the console operator can monitor and operate the process

Extensive experience and expertise in digital solutions development

Expertise and Modeling

Our Expertise and Modeling department, integrated within our Process and Technologies division, oversees process, risk and safety expertise along with consultancy services. It delivers process and safety studies to ensure plant performs at the highest safety standards.

Advanced System Engineering

Our Advanced System Engineering department creates and develops the support system for client operation, including the operator training simulator.

Leveraging our EPC skills and capabilities

Highly-skilled Technip Energies specialists in process, HSE, digital, human factors engineering, maintenance and automation are involved in PODS development.

CETO® FOR PODS

An interactive simulation framework for the industry

Initially developed by Technip Energies for modeling offshore construction sequences, CETO® is a powerful framework designed for real time simulation of Oil and Gas operations.

Based on video game industry standards, CETO® implements a world class physics engine bringing realism and immersion to the next level through bidirectional interaction between the trainee and the environment.

CETO® empower PODS with an immersive and interactive replica of the plant developed from the engineering phase 3D models and high-fidelity dynamic simulation models.

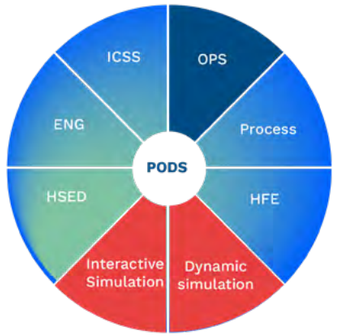




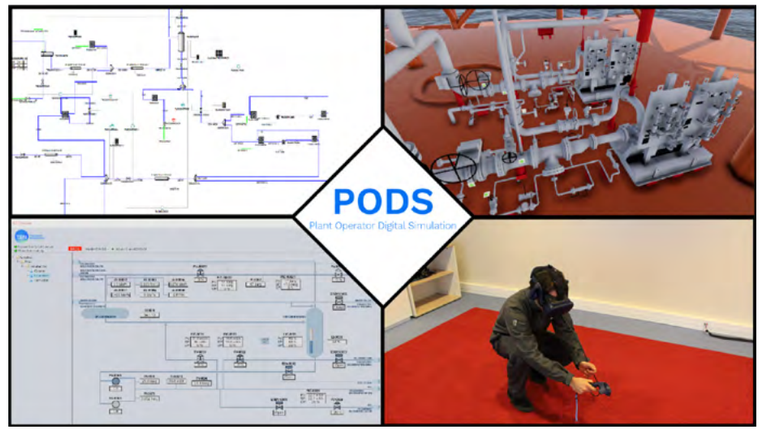


Reliable solution and optimized services

We offer our clients a cost-effective and reliable in-house training solution based on a high-performance platform, including optimized services such as 3D model reconstruction and interface with process dynamic simulation platforms and ICSS.



HFE : Human Factor Engineering
OPS : Operations
ICSS : Integrated Control and Safety System
ENG : Engineering
HSED : Health, Safety and Environment Design



CUSTOMER ASSURANCE

Statement: Your product looks interesting but virtual reality may be expensive. I can't afford it.
PODS: Our virtual reality model has been built from engineering 3D models with minimal rework. Our solution is cost-effective and one of the most competitive on the market.

Statement: Our facility is old and we don't have any engineering 3D model.

PODS: As part of our digital services portfolio, we can leverage resources from other digital initiatives such as laser scanning that allows us to easily rebuild a 3D model.

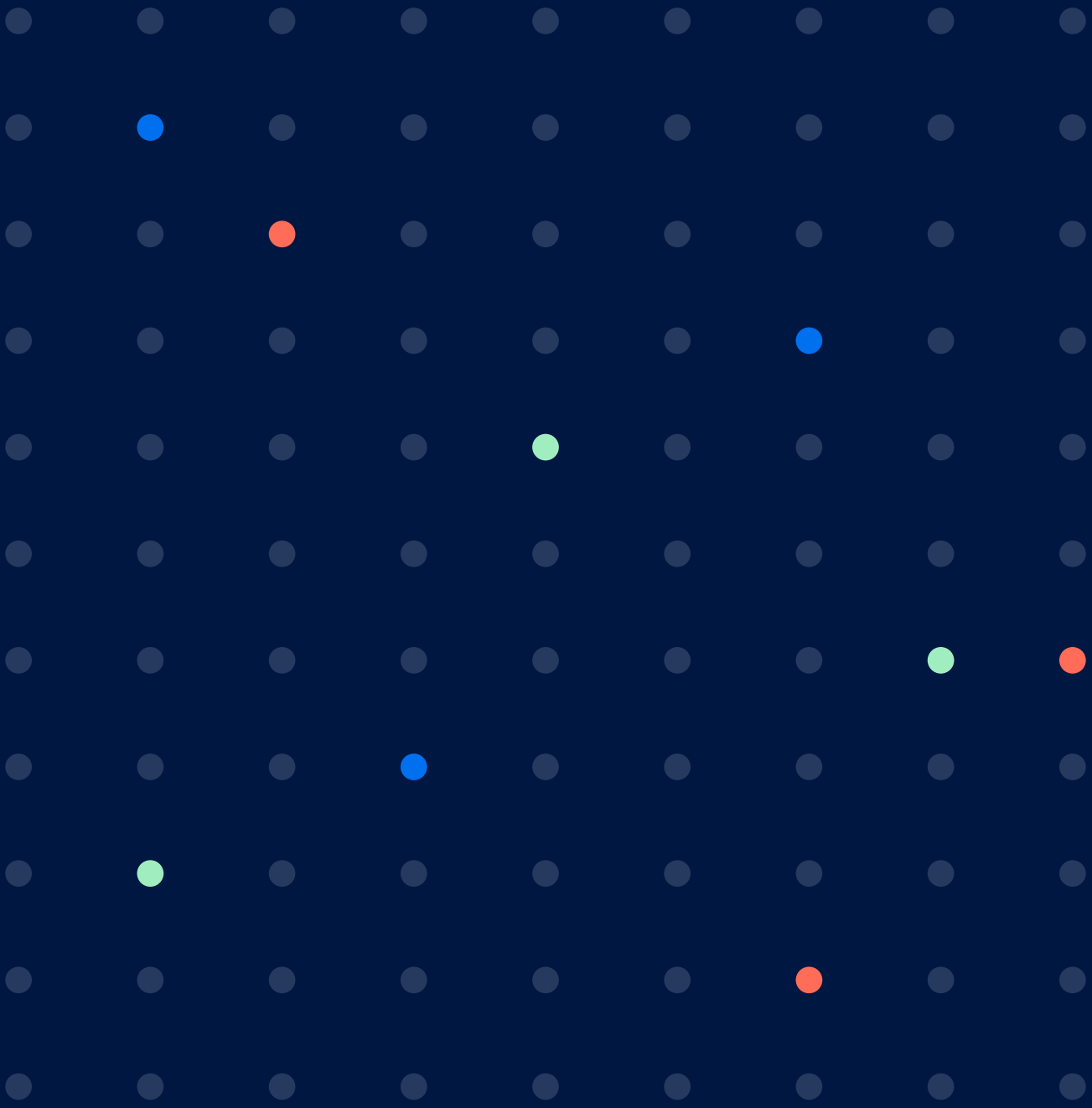
Statement: I already have an OTS for my plant that is fit for purpose. I don't want to buy an additional one.

PODS: Through OPC connectivity, our training simulation solution can be interfaced with existing OTS.

Statement: Many vendors offer similar solutions on the market. Why should I choose PODS?

PODS: PODS has been developed by Technip Energies and not by software providers. You will benefit from our solid expertise in addition to a highly-skilled team from HSE, process to automation and site operations.

Statement: I'm interested in your product, but I would like to test your solution.
PODS: You can contact our commercial team to get further details and test our PODS solution.



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