AVEVA Process Simulation

Built from the ground up, delivering the process digital twin to the next generation of engineers.

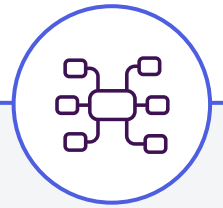
Next-Generation Simulation Drivers

Integrated Simulation and Engineering Hub

Simulation and Engineering data in sync

Process Digital Twin integrated with Asset Digital Twin

Accelerate time-to-market and reduce project overrun risk



Process Insights and Guidance

Combine sensor and simulation data for high-definition modeling

Leverage AI and Machine Learning to provide process guidance

Enable earlier intervention and greater risk management

Streamline collaboration

Interdisciplinary Collaboration

Single platform for all engineering and simulation data

30-40% reduction in detail design hours

Design Processes for Sustainability

Design processes to meet sustainability targets

Evaluate impact of plant disturbances on GHG emissions

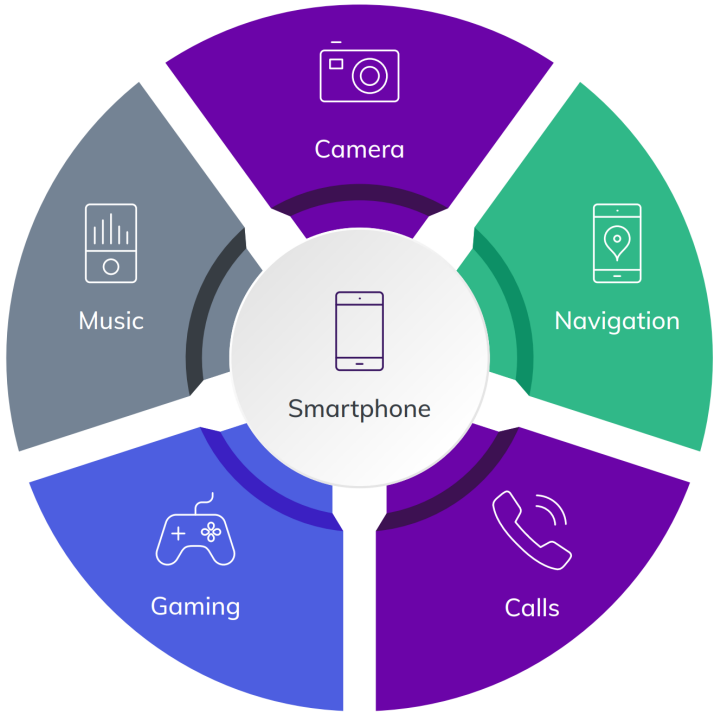
Ensure sustainability targets are met and maintained throughout project lifecycle

AVEVA

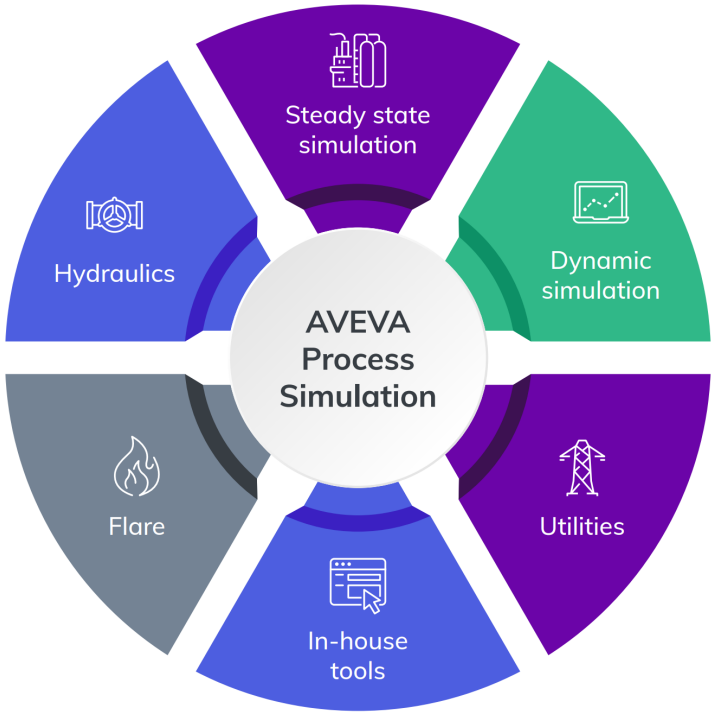
Reduce simulation effort by 50%

AVEVA Process Simulation brings a transformational approach to process simulation

As the value of a smartphone is greater than the sum of the separate devices...



...so too is a platform approach that can replace up to 50 applications used by different process departments



Address challenges that you could not solve before

AVEVA Process Simulation is revolutionizing the way to solve engineering problems

Steady state & dynamics

Seamless switching between steady state, rating, and dynamic modes drives collaboration. Efficiently evaluate a problem from different perspectives.

Open modeling

Access to the mathematical equations enables engineers to customize. Add new equipment models with no programming required.

Enhanced equation-oriented

An enhanced equation-oriented solver using state-of-the-art numerics allows for efficient calculation, especially when there are lots of recycles.

New applications

The open platform extendable architecture allows expansion into new areas of simulation and integration with new technologies like AI.

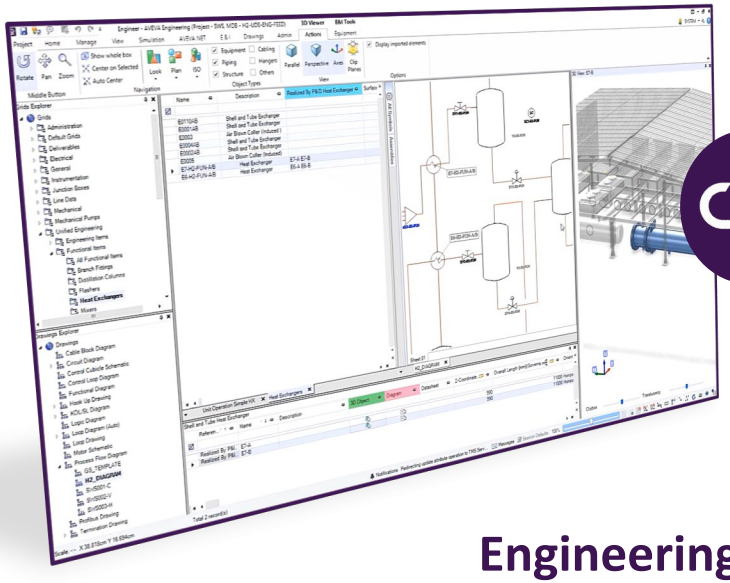
Real time data

Automatically input real time data from operations to the process simulation through the native connection with OSI PI System.

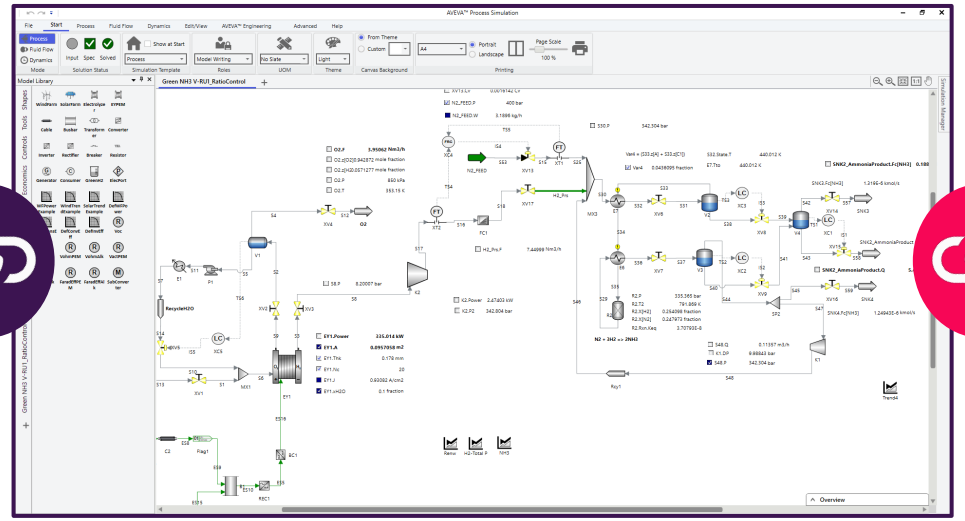
What is the Digital Twin?

Use the same process model for engineering and operations

2D / 3D Engineering Data



Process Simulation



Live / Archived Process Data

Engineering Digital Twin

- Design verification and validation
- Apply changes across all designs
- Global cloud collaboration
- Automated case execution

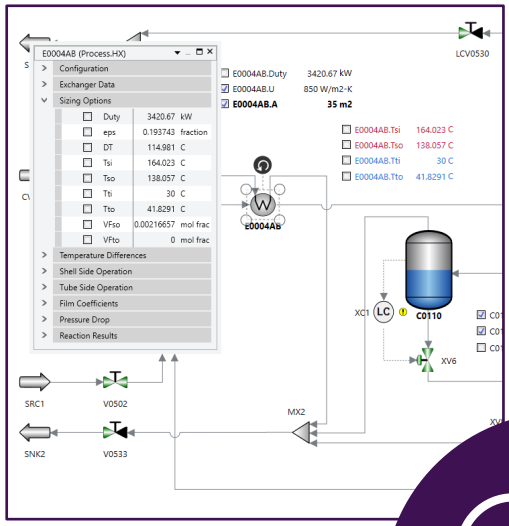
Operating Digital Twin

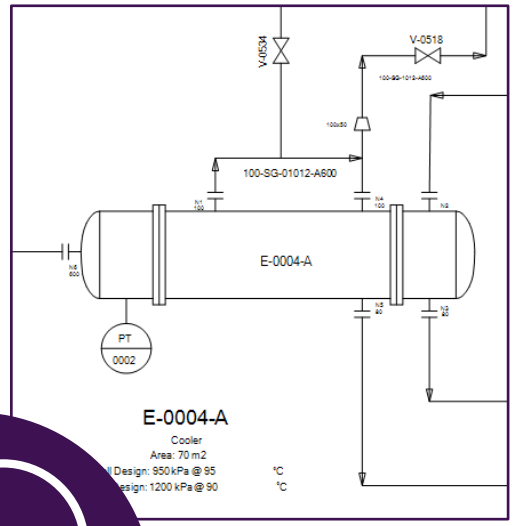
- Troubleshoot past operations
- Provide soft sensors
- Improve future operation and efficiency
- Predict equipment degradation and failure

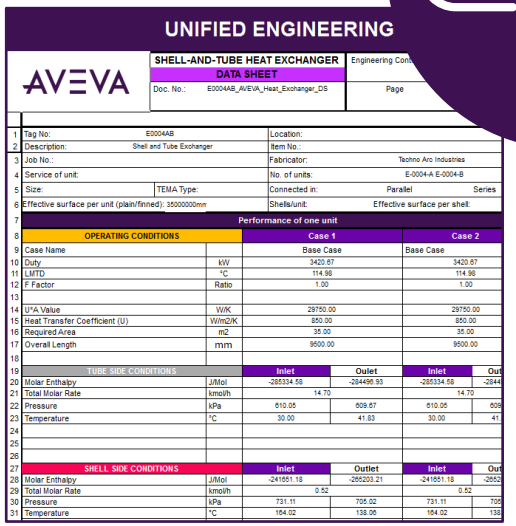
AVEVA Unified Engineering

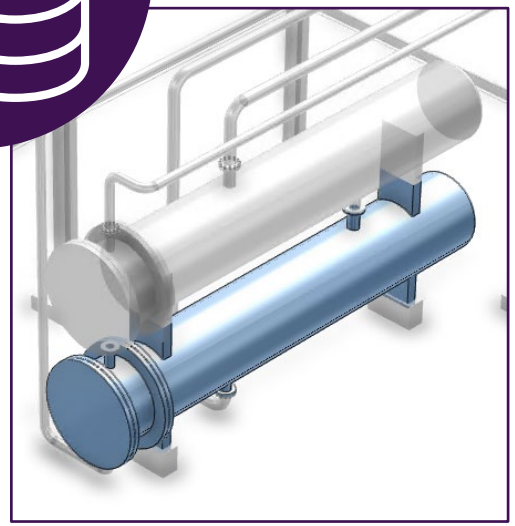
Multi-disciplinary teams sharing a data-centric cloud environment

- Accelerate time to project start-up
- Communicate and collaborate effectively
- Share information seamlessly
- Quickly and easily find the right data
- View and validate changes in real-time









Operating Digital Twin – AVEVA PI System + APS

Unlocking new value

- **What?**
  - An **Operating Digital Twin** for your processes
- **Why?**
  - Empower remote and central engineering teams to engage in troubleshooting and provide operations feedback
  - Increase transparency of process information to drive business value
  - Gain insights into areas of the process where physical transmitters are not available

Monitor KPIs alongside real-time process measurements

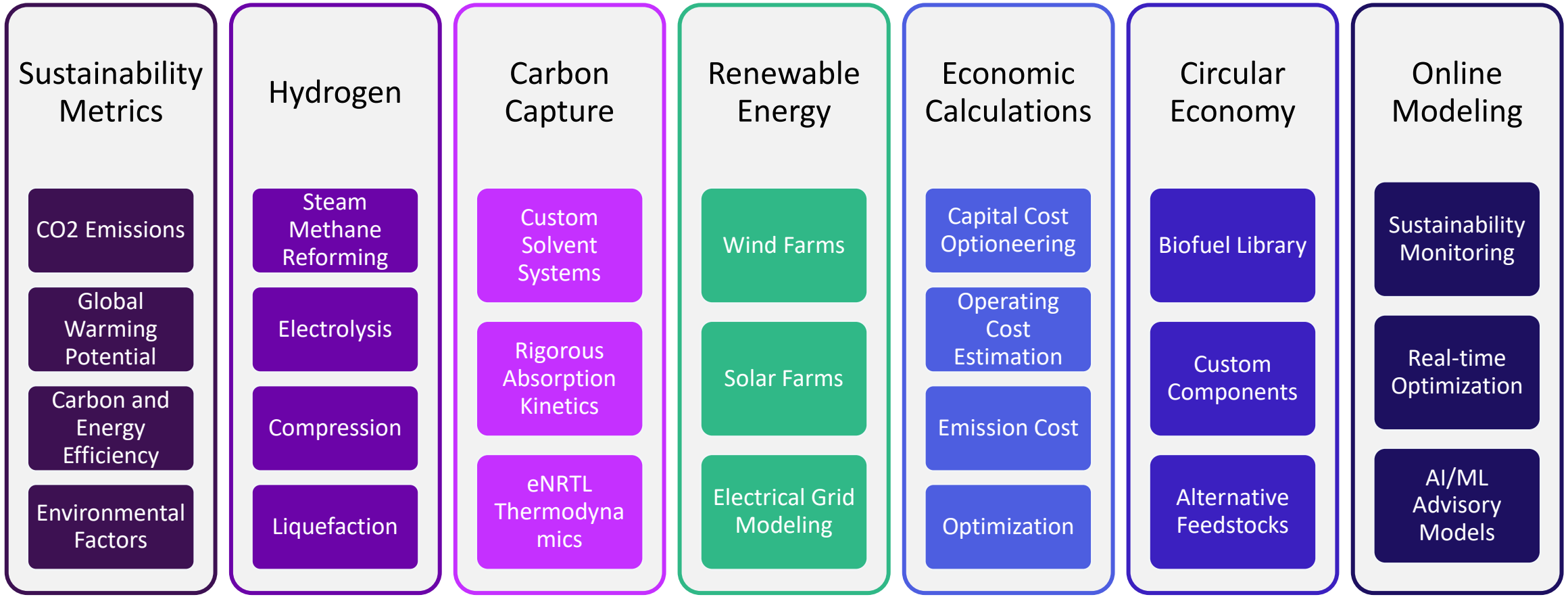
Real-time monitoring

- **How?**
  - Combine real time process measurements from PI and first-principles simulation
  - Leverage PI Asset Framework to quickly scale-out the digital twin
  - Incorporate soft sensors into your monitoring program to track KPIs that can’t be measured in the plant (e.g tray efficiencies, heat exchanger fouling, Column flooding, reactor temperature profiles)
  - Create alerts for when abnormal process conditions are detected, or sustainability goals are at risk

Sustainable Process Design

A Roadmap to Support Today's Energy Transition

A complete set of features supporting sustainability goals



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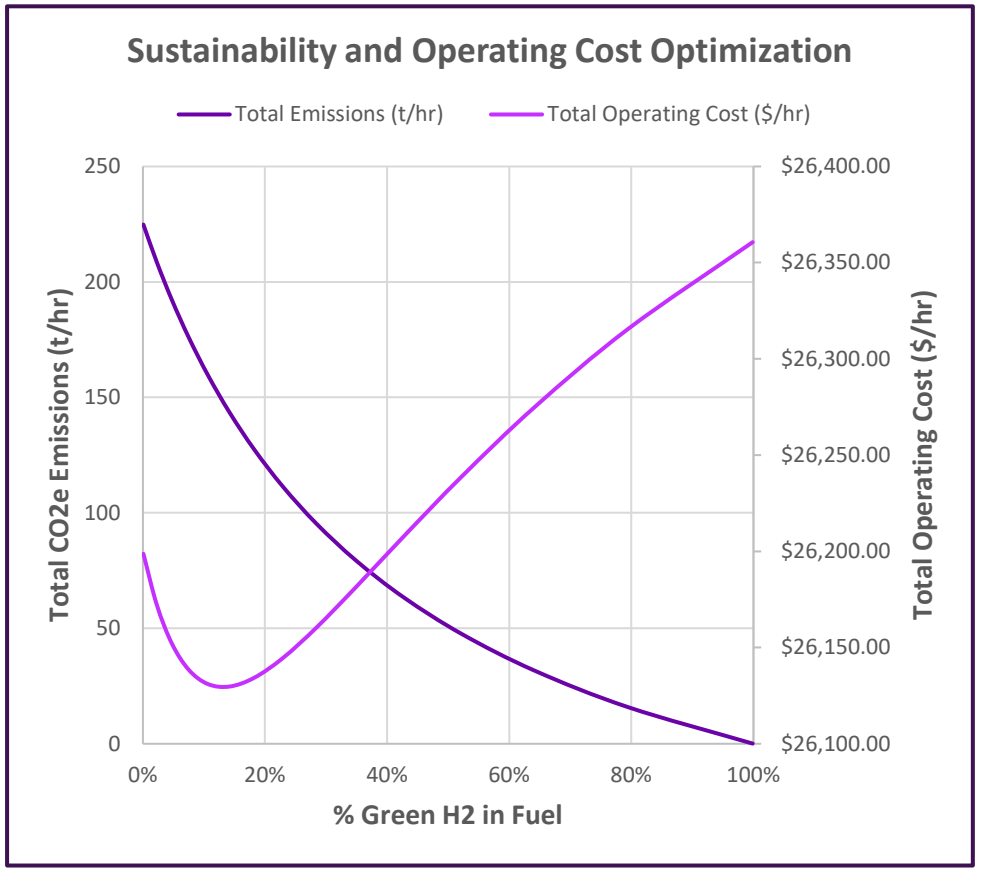
Greenhouse Gas (GHG) Emissions

Traditional Process Simulation	Next-Generation Process Simulation
Export data to complex spreadsheets to calculate sustainability metrics	Integrated greenhouse gas emission and sustainability metric calculations
No access to sustainability metrics for process optimization	Use built-in optimization tools to minimize emissions of the process
Sustainability metrics are calculated as a final step in the design process	Sustainability metrics are available throughout the entire design process

Sustainable Process Design

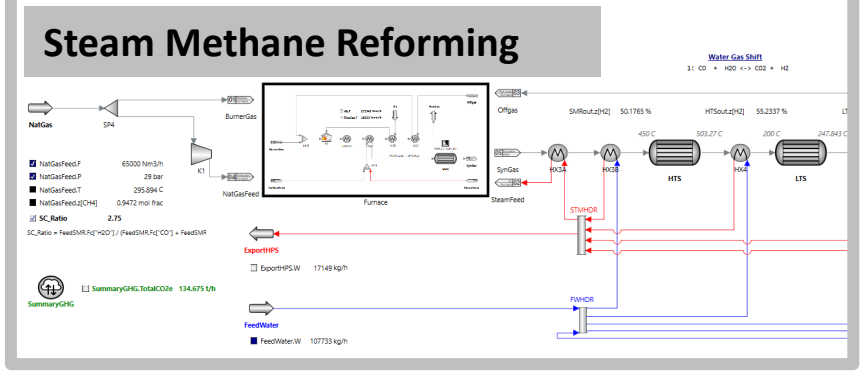
Sustainability metrics with process cost optimization

- AVEVA's simulation portfolio allows you to design with sustainability in mind
- Metrics designed to give you a sense of your overall process sustainability:
  - CO2e Emissions, Global Warming Potential, Carbon Efficiency, Environmental Factor, etc.
- Simplify permitting and reporting by replacing complex spreadsheets with simple drag-and-drop calculations
- Combine sustainability metrics with built-in capital and operating cost calculations to find sustainable operating points that lower your overall costs

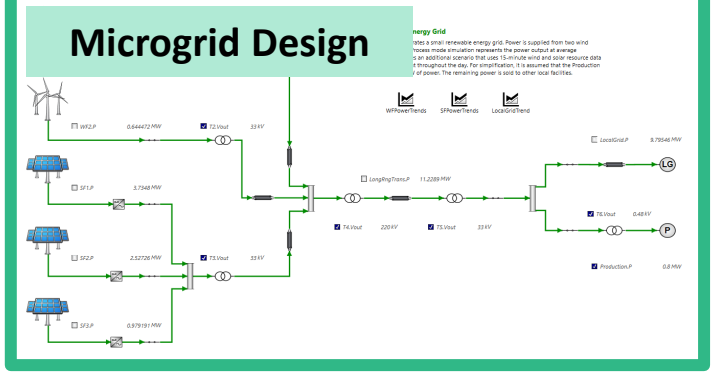


Hydrogen Processing in AVEVA Process Simulation

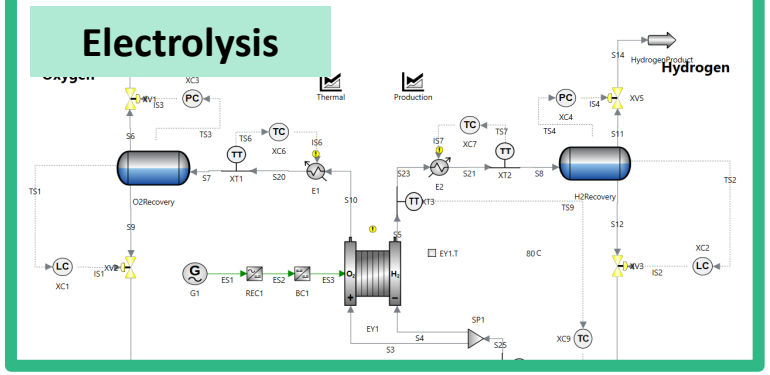
Steam Methane Reforming



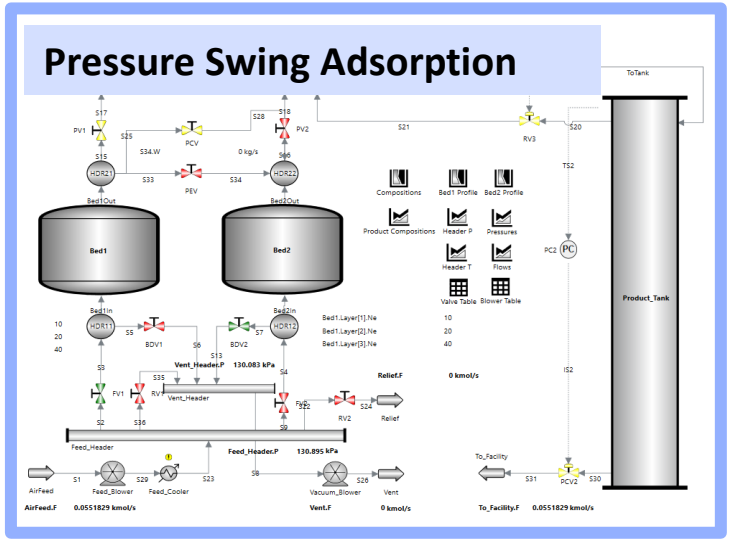
Microgrid Design



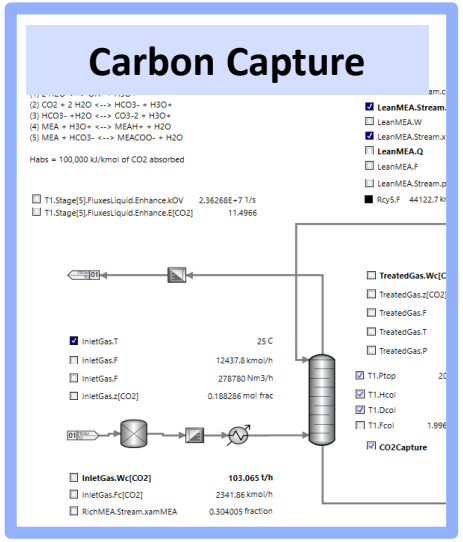
Electrolysis



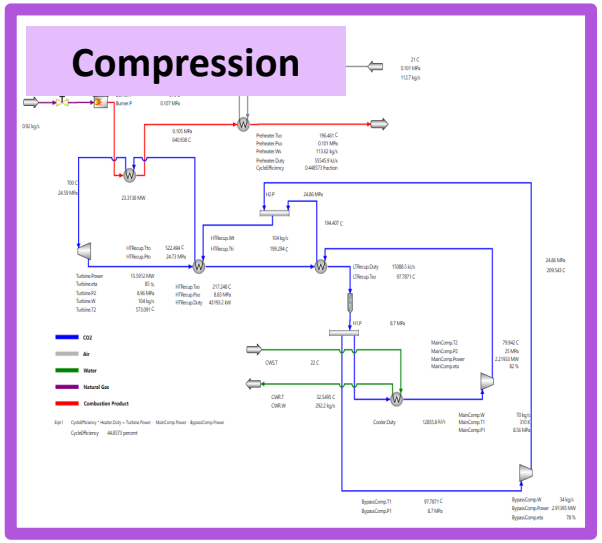
Pressure Swing Adsorption



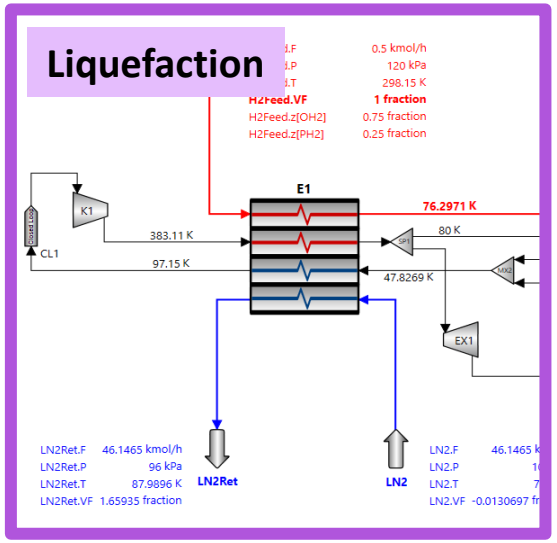
Carbon Capture



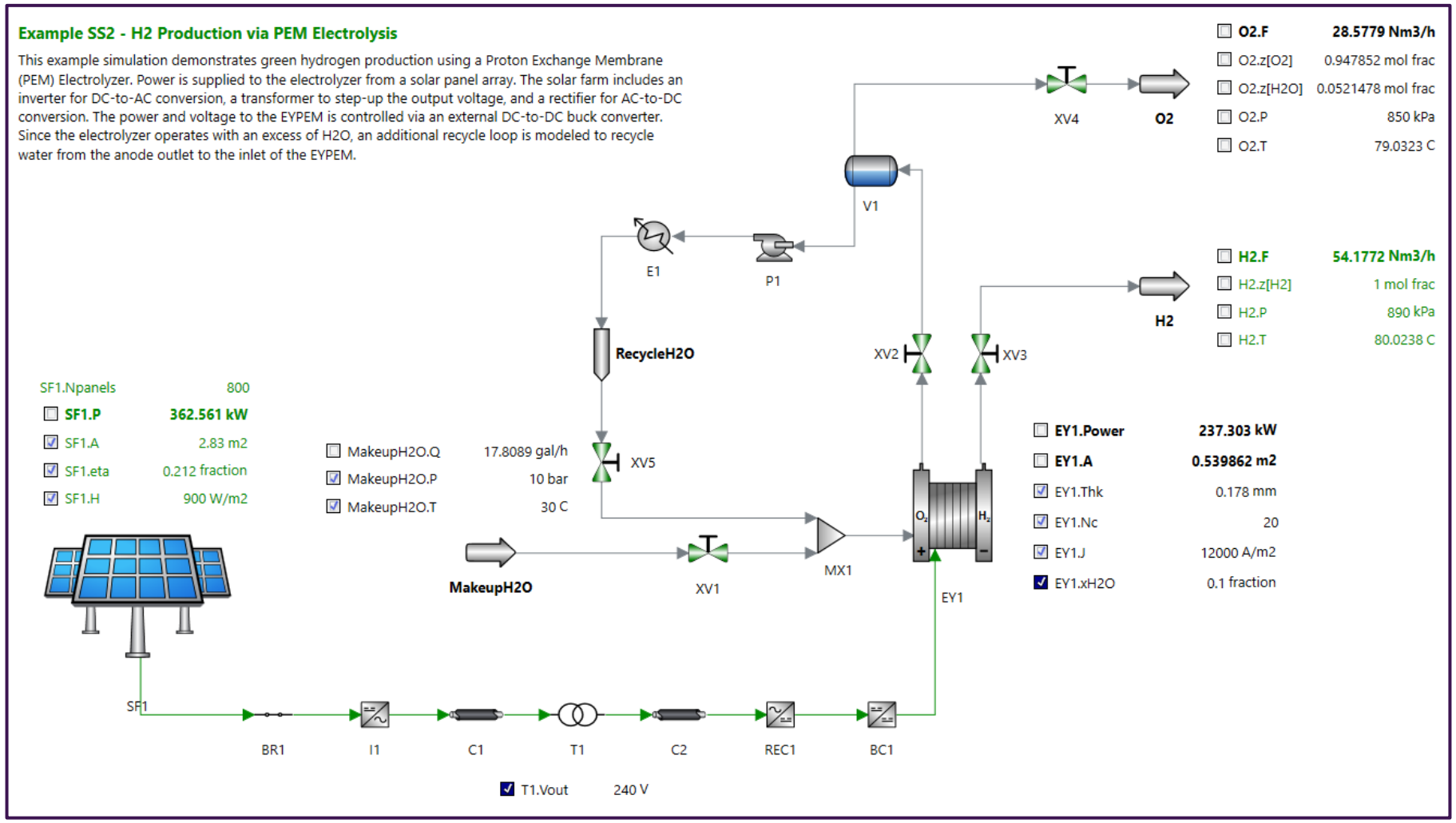
Compression



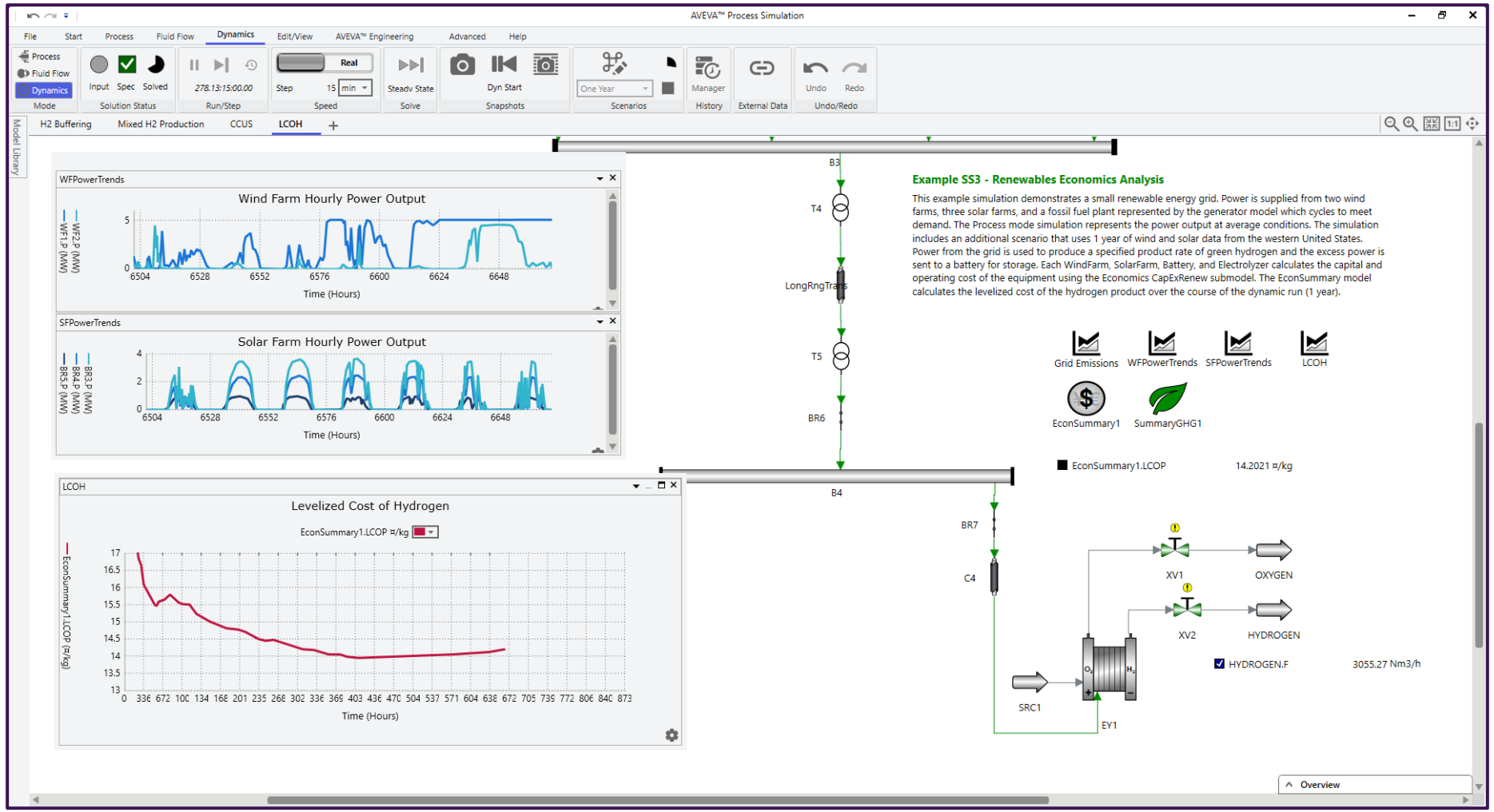
Liquefaction



Green Hydrogen – Electrolysis in AVEVA Process Simulation



Economics Analysis – Levelized Cost of Hydrogen



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ABOUT AVEVA

AVEVA is a world leader in industrial software, providing engineering and operational solutions across multiple industries, including oil and gas, chemical, pharmaceutical, power and utilities, marine, renewables, and food and beverage. Our agnostic and open architecture helps organizations design, build, operate, maintain and optimize the complete lifecycle of complex industrial assets, from production plants and offshore platforms to manufactured consumer goods.

Over 20,000 enterprises in over 100 countries rely on AVEVA to help them deliver life's essentials: safe and reliable energy, food, medicines, infrastructure and more. By connecting people with trusted information and AI-enriched insights, AVEVA enables teams to engineer efficiently and optimize operations, driving growth and sustainability.

Named as one of the world's most innovative companies, AVEVA supports customers with open solutions and the expertise of more than 6,400 employees, 5,000 partners and 5,700 certified developers. The company is headquartered in Cambridge, UK.

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