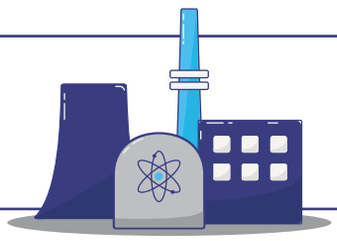
NUCLEAR & SMR

Bringing nuclear quality and standards to system simulation.

FLOWNEX® SIMULATION ENVIRONMENT



Flownex® SE enables system level modeling of nuclear plant fluid mechanics, heat transfer and neutronic response in both transient and steady state.

TOTAL PLANT MODELLING

Leading nuclear companies use Flownex SE for complete nuclear plant modeling. The reactor, balance of plant and control logic are all integrated into one versatile model, focusing on system level performance and solutions. It includes:

- Integrated reactor response using point kinetic neutronics
- Balance of plant performance management using state of the art flow and heat transfer
- Control system configuration and testing using industry standard and analog control logic capability

SMR DESIGN

Flownex SE advances SMR plant design from concept to detail design phases. Its fast solving speed and accurate representation of expected performance allows quick and informed decision making. This drives SMR projects beyond research towards successful implementation by performing:

- Technical feasibility studies
- Parametric and optimisation studies
- Component performance assessments
- Plant response simulations
- Accident scenario investigations
- Qualification of promising designs for primary, auxiliary and safety systems

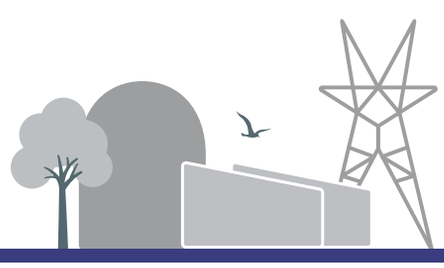
LICENSABLE TECHNOLOGY

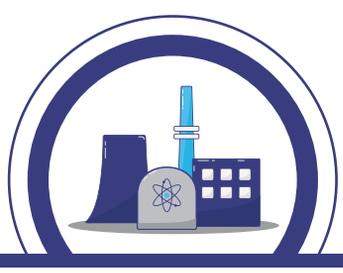
Nuclear technology is built on licensing. The Flownex nuclear version can be issued with a Certificate of Compliance and a Verification & Validation pack is available for purchase, leading the way towards your design approval.

Flownex® is developed within an ISO 9001:2015 quality management system that is ASME NQA-1 compliant.

ASME NQA-1
10 CFR 50 Appendix B
ASME NQA-1-1994 (95a) | 2008 (09a)

CERTIFIED ISO 9001:2015 COMPANY





PADT

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Find us on:

INTEGRATED PLANT SYSTEMS

REACTOR & RCCS

- Reactor temperature and flow distribution
- Core power distribution profiles
- Point kinetic neutronics behavior
- Reactivity temperature feedback
- Control rod influence
- Natural circulation modelling

BALANCE OF PLANT

- Start-up, shut-down and load following
- Steam generator boiling and superheating
- Valve, pump & pipe sizing
- Comprehensive library of plant modeling components, fluids and materials

CONTROL SYSTEM

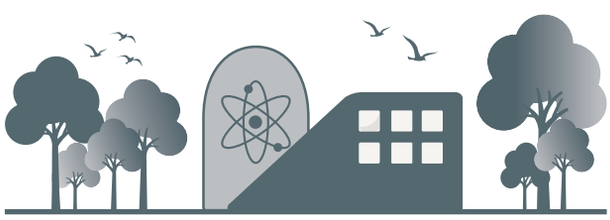
- Built-in Distributed Control System library of analogue and digital control components
- Integrated plant-control response modelling
- Control system testing & soft commissioning
- On-line simulation

ACCIDENT & SAFETY ANALYSES

- Natural circulation with full radiative and conjugate heat transfer
- Safety valve operations sizing & simulation
- LOCA, DLOFC, PLOFC, & other scenarios

3rd PARTY SOFTWARE

- User command coding
- RELAP for addition of established models
- MATLAB and Simulink coupling
- OPC server link for live control systems
- CAESAR II for pipe stress analyses
- Ansys Fluent for detailed 3D
- Ansys Mechanical for fluid-structure interaction



energy TERRESTRIAL ENERGY · KINECTRICS · INL Idaho National Laboratory · TerraPower OKLO · PBMR · batan · HYUNDAI ENGINEERING & CONSTRUCTION · BHI

TESTIMONIAL

TERRESTRIAL ENERGY

Akash Dhuandhukia
P. Eng., PMP
Thermal Hydraulics Manager

We have used Flownex® to develop the Thermal-Hydraulic model of our Integral Molten Salt Reactor by using the components in the Flownex® library. The user interface for transient simulations has multiple options to record and present results. Flownex® provides excellent customer support every time we need their assistance.