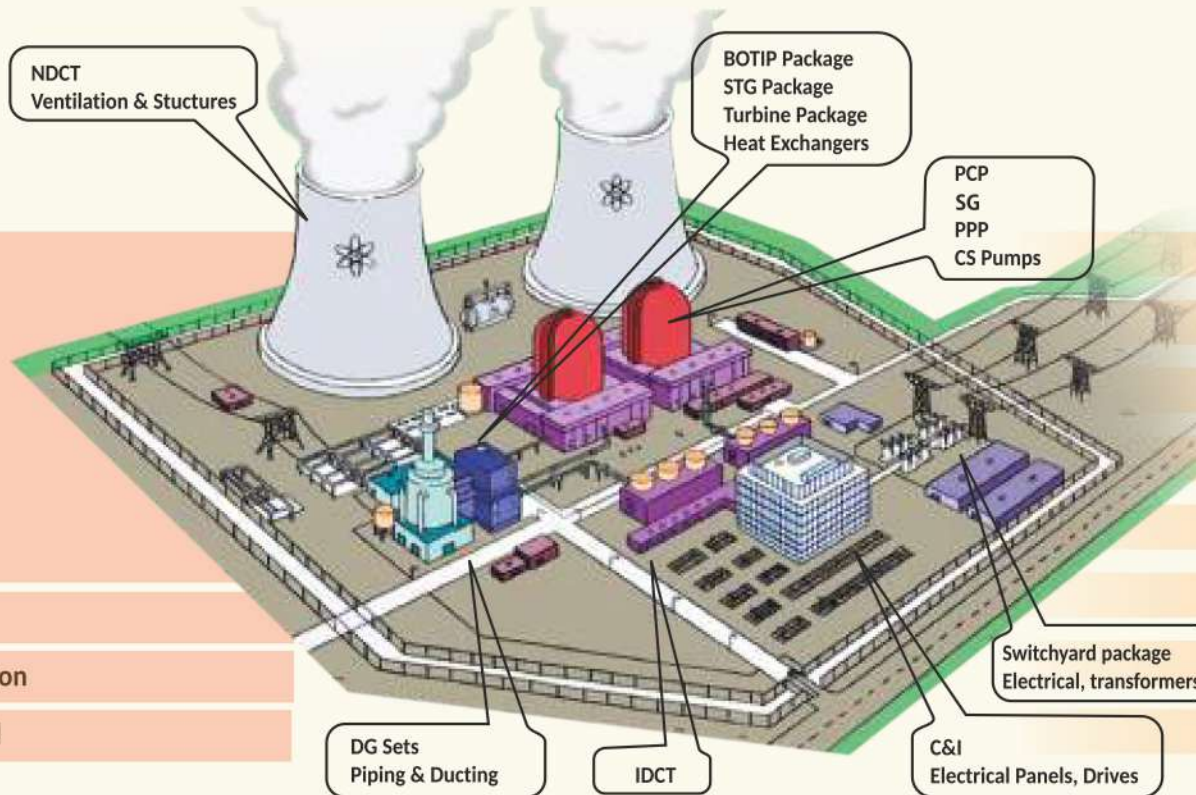


R&D / ENGINEERING SERVICES TO *Indian Nuclear Sector*



Mechanical Equipment

- Pressure Vessels
- Valves
- Heat Exchangers
- Piping
- Gear Box
- Compressors
- Pumps
- Special Equipment

Electrical equipment

Control & Instrumentation

Structures - RCC & Steel

Design calculations and Design documentation

Design Verification by FEM/ Simulations

Design Optimisation

Seismic Evaluation & Re-evaluation

Seismic Margin Assessment (SMA)

Remaining Life Assessment and Extension

Fitness For Service (FFS) assessments

Nuclear Waste Recycling and Disposal

SYSTEMS, STRUCTURES AND COMPONENTS OF VARIOUS PACKAGES OF NPP (ProSIM Experience)

Packages

- Primary Piping Package (PPP)
- Nuclear Ventilation
- Balance of Turbine Island Package – (BOTIP)
- Plant water system
- Common Services
- Pumps
- Upgrading Waste management

Special Independent Packages

- Steam Generator
- Pressurizers
- Reactor Headers
- Heat Exchangers
- Coolant channels
- Reactor Equipments
- Instrumentation
- Field instrumentation
- Turbine package

Mechanical Equipments

- Pressure Vessels/Tanks
- Heat Exchangers
- Custom Design Equipments
- Pumps/Blowers/Compressors
- Valves
- Fire-fighting Systems
- Filters & Strainers
- Support systems for all Equipments

Piping & Structures

- Piping Systems
- Instruments - Thermowells, Gauges
- Piping Supports
- Structures (Steel & RCC)
- Foundation
- Stacks
- Chimneys
- Buildings

Electrical, C&I

- Complete DG set with Alternator, Transformers, Battery Chargers and Inverters, Motor control Centers, Low & Medium Voltage Switchgear, Distribution modules, motors Generators
- Instrumentation and Control Panels, Instruments on Racks, bus-bar ducts, cable trays, Battery stands, relay panel structures, etc

ProSIM

OUR OFFERINGS TO NUCLEAR SECTOR:

- Design calculations and documentation
- Methodology development
- Design verification by simulation
 - FEM analysis (stress, vibration)
 - Thermal Analysis
 - CFD analysis (conjugate heat transfer, fluid structure interaction)
 - Kinematics and Dynamics
 - Electro-magnetic analysis
 - Materials and damage (fatigue, fracture, creep studies)
- Seismic Evaluation and Re-Evaluation (ASME B&PV Code, RCC, PNAE, API, NEMA, IEEE, etc)
- Seismic Margin Assessment (SMA) and HCLPF calculation
- Remaining Life Assessment and Extension (RLA/ RLE)
- Failure analysis/ Root Cause Analysis
- Design of special purpose experimental test apparatus
- Nuclear Waste Re-cycling and Disposal

ProSIM exposure with Indian Nuclear Entities

END USER (DAE entities)

- NPCIL
- IGCAR
- BARC
- IPR
- ITER India
- ..and others



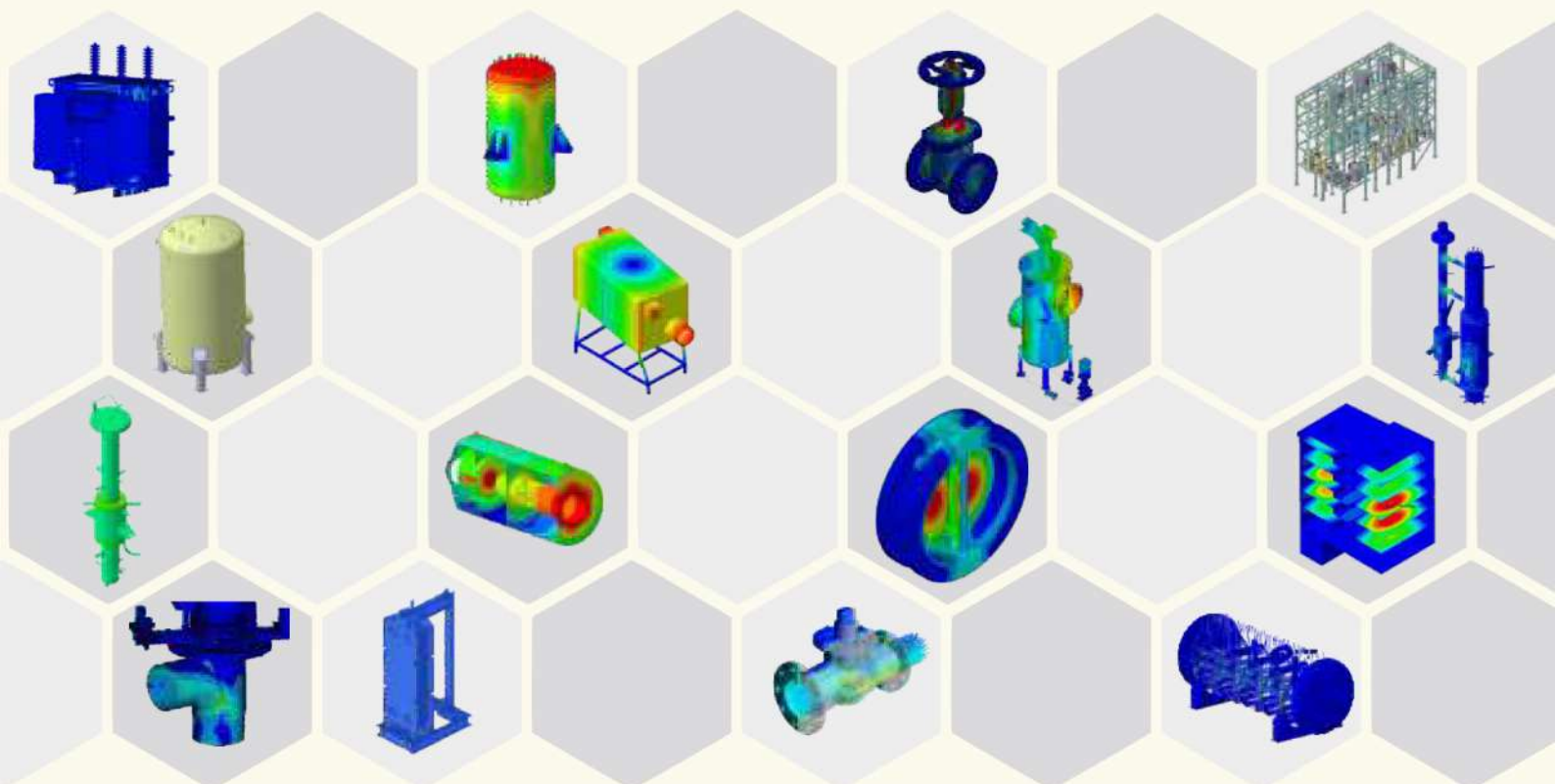
EPC CONTRACTOR

- L&T
- Punj Lloyd
- Dodsal
- GE
- BGR ENERGY
- ..and others



TIER - 2 / 3 SUPPLIERS

- Equipment manufacturers
- System Integrators
- FEIPL
- Jagtap
- Core Energy
- Fujitech
- Toshiba



WHY WORK WITH PROSIM

➤ Knowledge, Competence & Insights

- ProSIM team has **knowledge and competence** in engineering design, analysis, structural integrity assessment that are very critical to safe and reliable design of nuclear systems
- We bring special insights to customise / localise products to specific nuclear applications

➤ Deep exposure with nuclear entities

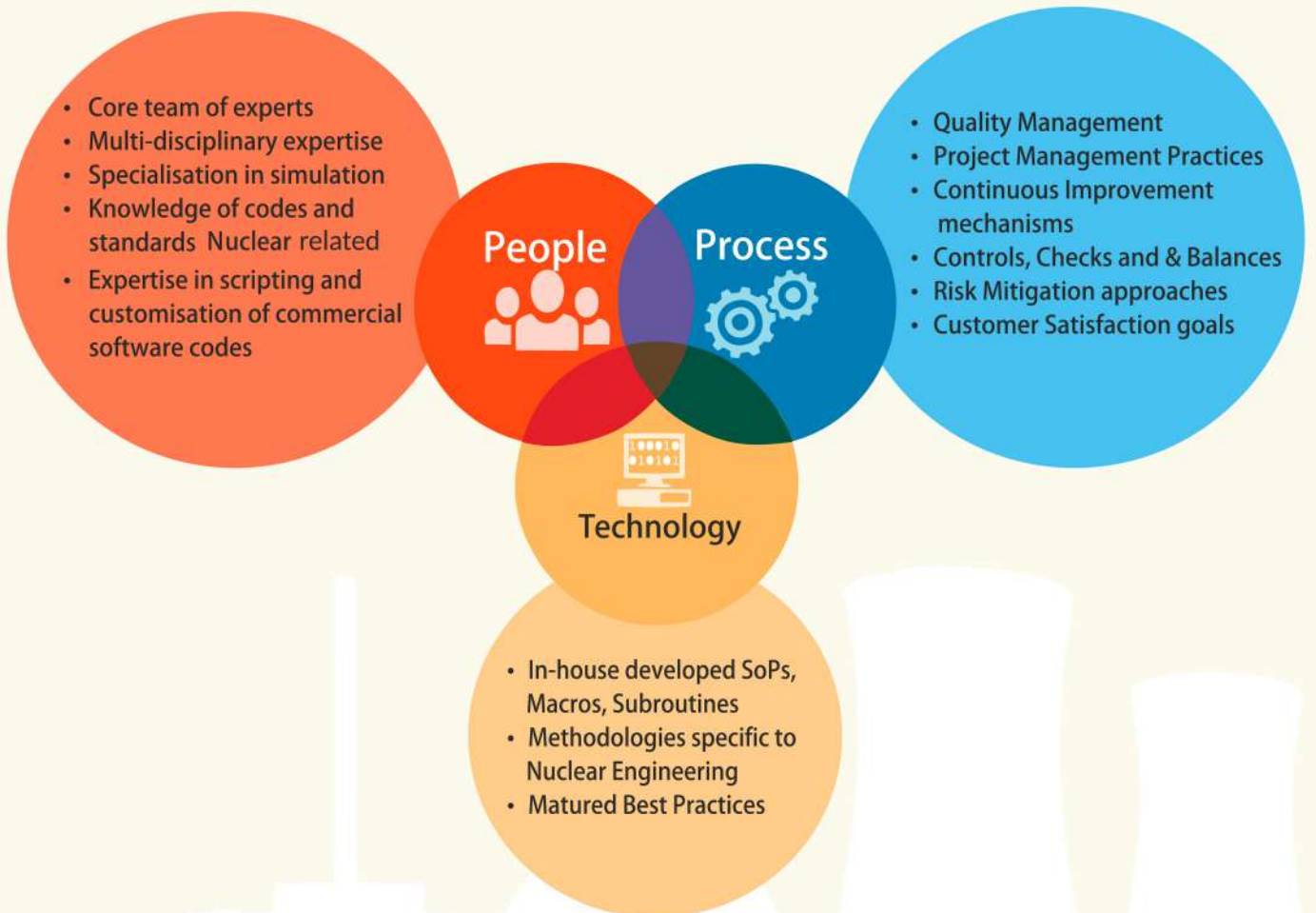
- ProSIM has worked with Dept of Atomic Energy entities such as NPCIL, BARC, IGCAR, BHAVINI, ITER India, etc; and their EPC contractors such as BGR, Dodsal, GE, L&T, Punj Lloyd etc; system integrators such as Kirloskar, Core Energy and several dozens of tier-2/tier-3 vendors.
- ProSIM has worked on projects for ITER I/O, and international companies such as AMEC FW, Assystem, PowerSYS, JSOL, Zentech, etc
- ProSIM has interfaced with the regulatory bodies (such as AERB)
- ProSIM has been a part of World Nuclear Association (WNA) for rationalisation of codes and standards. Is connected with international nuclear community.

➤ Expertise in design and analysis tools

- ProSIM team has expertise in using software such as CATIA, Solidworks, ANSYS, ABAQUS, Caesar, CAEPipe, Pipestress, NASTRAN, CFX, Fluent, HYPERWORKS, JMAG, STAAD, SAP2000, etc.,
- Expertise in customisation, development of macro, scripting

➤ Collaborative Spirit

- Seamless and smooth collaboration with vendors, EPC contractors, operator (NPCIL) and regulatory bodies (AERB)
- Track record of delivering projects in time, with high quality, keeping the concerns of all stake holders
- Interactions with international code committees (ASME, AFCEN- RCC, PNAE, WNA, etc)
- ProSIM has delivered projects with quality and in time, keeping the concerns off all parties involved.



ProSIM
engineering your designs

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