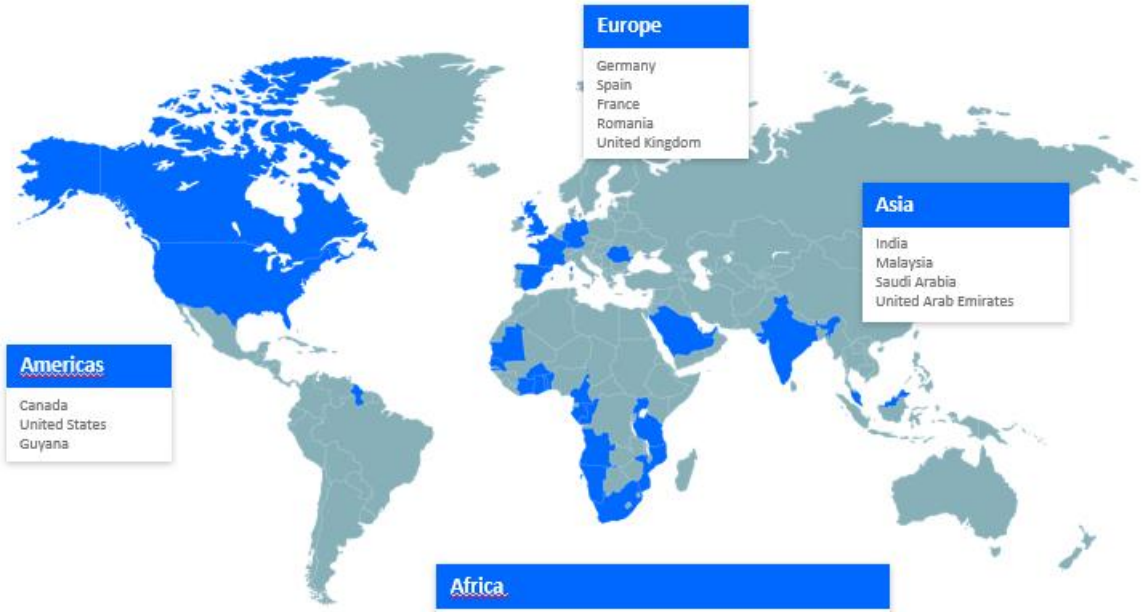
ITER Business Forum

ORTEC Presentation

Patrick PANADOUR : *SOM Operations Director*
Pierre-Yves DELIANT : *ORYS Operations Director*

ORTEC Group



350
Trade experts

15,000
employees

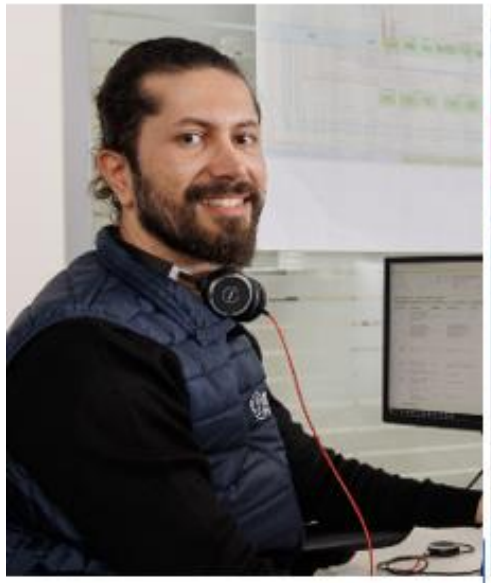
300
Establishments around the world

€1.6 billion
in turnover

€200 million
invested over the last 5 years

TotalEnergies · EDF · AIRBUS · SANOFI · cea · STELLANTIS · NAVAL GROUP
SOLVAY · LyondellBasell · iter · DASSAULT AVIATION · P&G · ExxonMobil · ARKEMA
FOXTROT International · RioTinto · PERENCO · YARA · SNCF · alteo
AEROSPACE TECHNOLOGY INSTITUTE · Schneider Electric · SAIPEM · SIAAP · L'ORÉAL · VENATOR · ROQUETTE
Ynsect · VERKOR

ORTEC Group



ENGINEERING

Engineering
Aeronautics and defense

—

Engineering
Energy, industry and transports

CONTRACTING FRANCE

Major energy projects

—

Energy works

—

Metallurgy - East region

—

Metallurgy - North region

CONTRACTING INTERNATIONAL

Major projects and works

—

3C Métal

GLOBAL SERVICES

Industrial maintenance
& Environment

—

Pollution cleanup

—

Waste treatment
& Recycling

—

Environment France

—

environment - Africa
Oil logistics

—

Environment - Canada

—

Depollution North America
& United Kingdom

ENERGIES

Electricity & HVAC system -
Weak electrical current

—

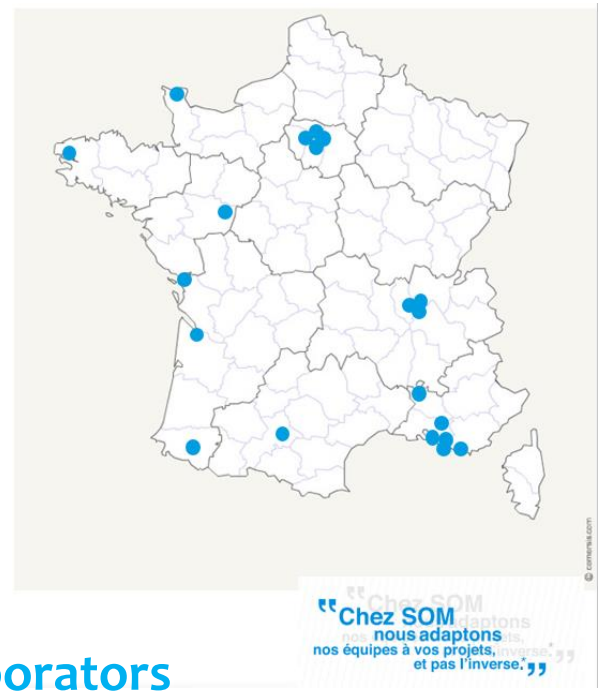
Energies Île-de-France

—

Infrastructure electric mobility

ENGINEERING : SOM

- Company founded in **1980**, 100% subsidiary of the **ORTEC Group**
- **40 years of experience** in industry
- Historical strategy of proximity with our customers



- **1 800 collaborators** en 2024, including 1 000 in the nuclear field
- **12 SOM agencies** en France
- 1 subsidiary dedicated to NDT & inspection: **WORTEST, 75 collaborators**
- 1 subsidiary dedicated to administrative & Supply Chain engineering: **ORALYS, 200 collaborators**

- ISO 9001, ISO 14001, ISO 45001, ISO 19443 **Certifications**
- **CEFRI**, CAEAR

NUCLEAR INSTALLATION: ORYS

10
Agencies

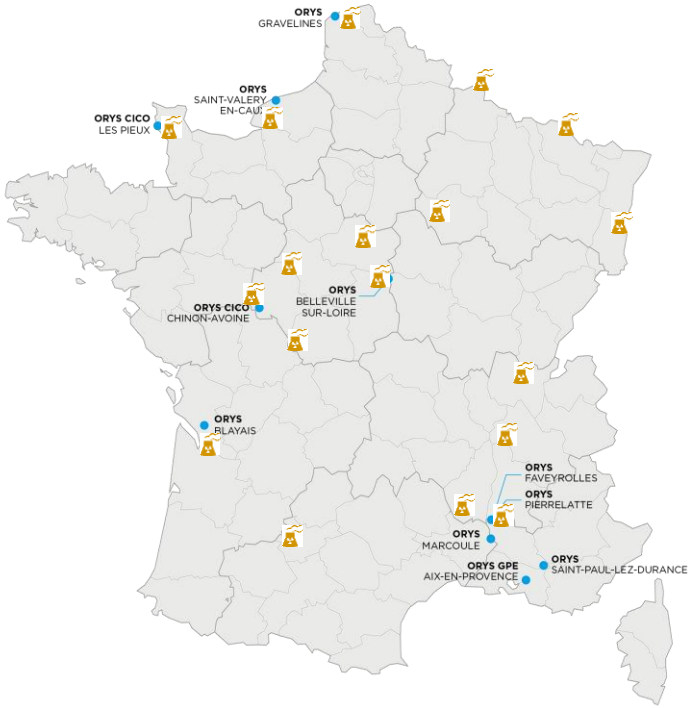
>750
People

>120
Millions € CA

4
Main activities

10 Workshops

25 000 sqm



Maintenance of equipment and installation

Lifting and installation

Piping

Specific operations

EPCC Project: DUS (Diesel Ultime Secours)

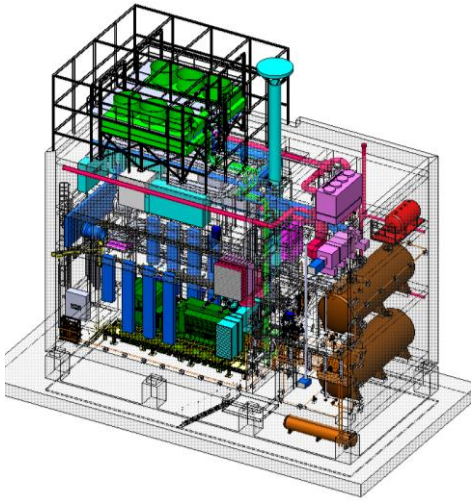
Context: Post Fukushima project, 3 500 kWe generator sets installed inside buildings designed specifically to resist major external aggressions

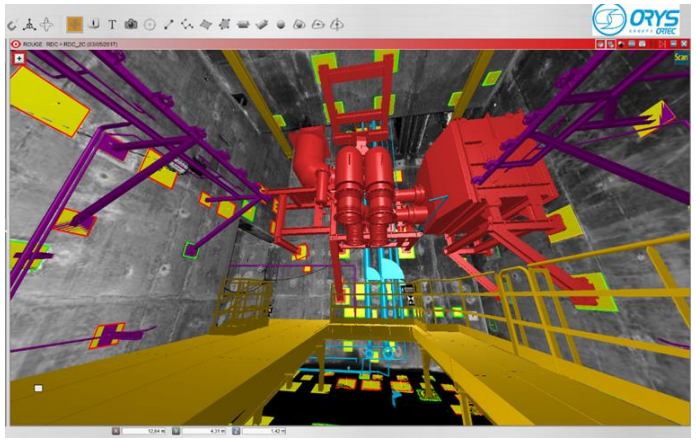
- 36 units built on 10 EDF sites,
- Over 700 ORTEC collaborators.

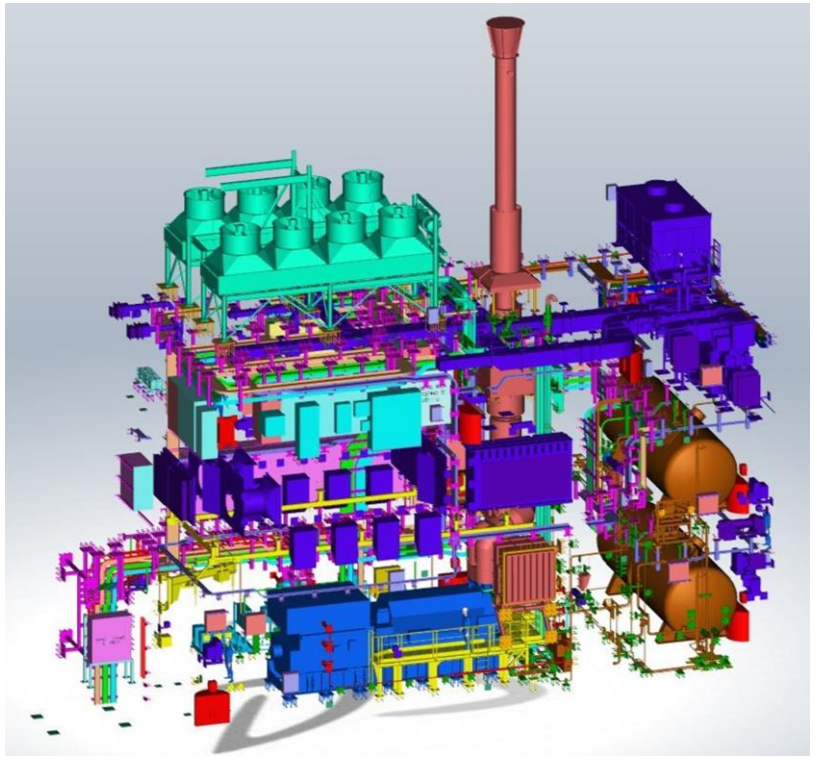
ORTEC Scope : engineering, piping, installation, HVAC, fire-protection, supply, commissioning

Engineering:

- Seismic calculation (piping, supports, steel structures, tooling, etc.)
- HVAC reports surveillance
- BIM model
- 4D model



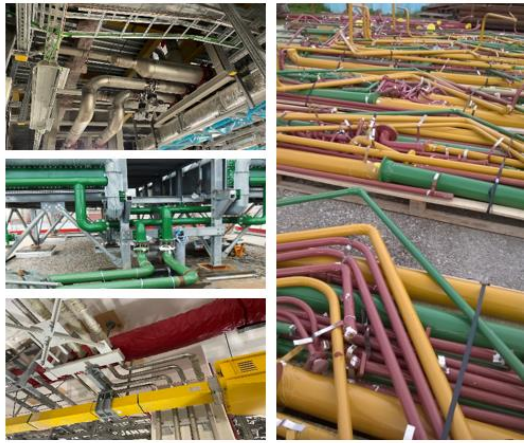




EPCC Project: DUS (Diesel Ultime Secours)

Supply :

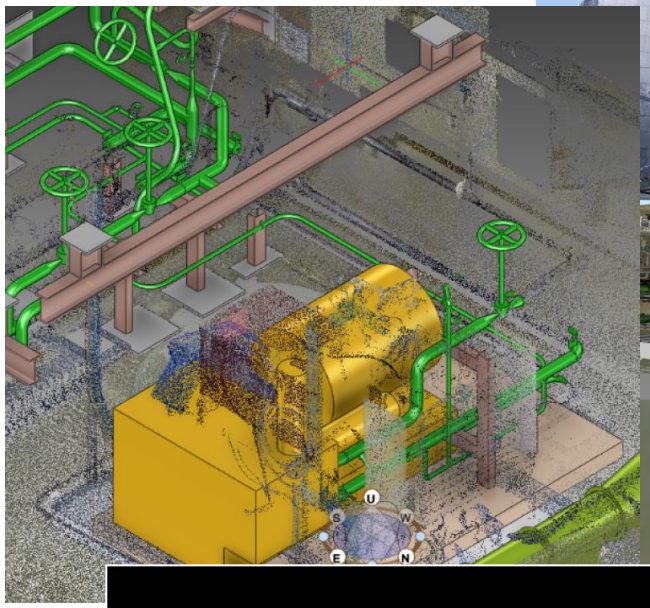
- 360 industrial fans,
- 36 cooling system,
- 36 air-conditioning system,
- 32 km of piping
- 4 500 tons of supports,
- 2 000 tons of metallic structures.

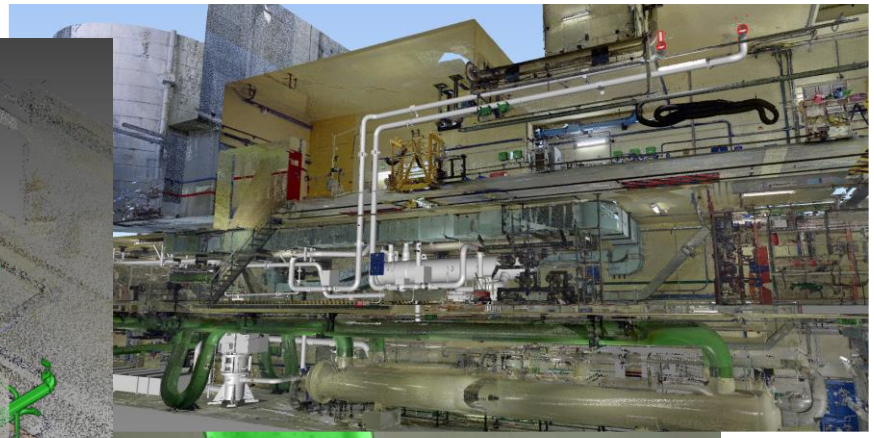


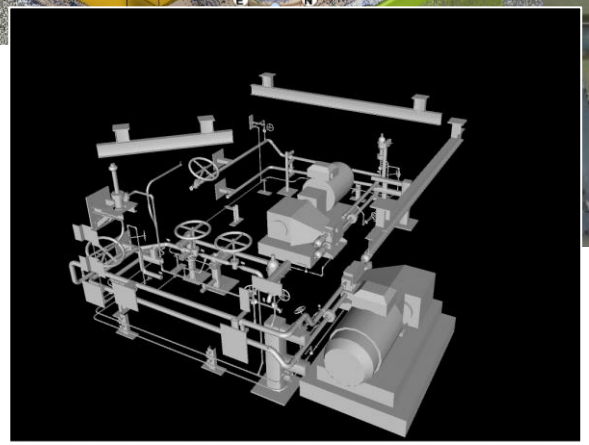
Installation and commisionning :

- 36 units built on 10 different nuclear power plants.
- 1.700.000 Man.hour spent
- Installation of the overall mechanical systems,
  - 49 000 welds (piping, supports, etc.),
  - 1 800 valves installed,
  - 700 mechanical tests, cleaning, flushing,
  - 1000 electric cabinet installed,
  - 800 process skids,
  - 120 cooling systems,
  - 36 Diesel engines (65 Tons per engine),

Example Piping : EASu & MTS23







EAS-u & PTRbis projects

Post-Fukushima measures

Engineering:

- For 10 nuclear power plants, creating a new piping system (« ultimate ») in order to add a new source of cooling for essential heat exchangers
- Project team for the design part up tu 20 people (engineers and draughtmen)
- Site surveys on nuclear power plants
- Seismic calculation and design for ESPN

Marché Tuyauterie-Soudage 2023 (MTS23)

Engineering:

- A Part : creating an emergency piping system in order to inject additional water into the Reactor Building
- B Part : replaning existing pumps aiming to transfer water from an external tank to the Reactor Building
- Site surveys on nuclear power plants
- Project team for the design part up tu 15 people (engineers and draughtmen)

Piping Project: EASu & MTS23

- ESPN N2 RCCM2 2018 : 51 000 inch on Stainless steel,
- EN-13480 : 15 000 000 inch on Stainless steel,

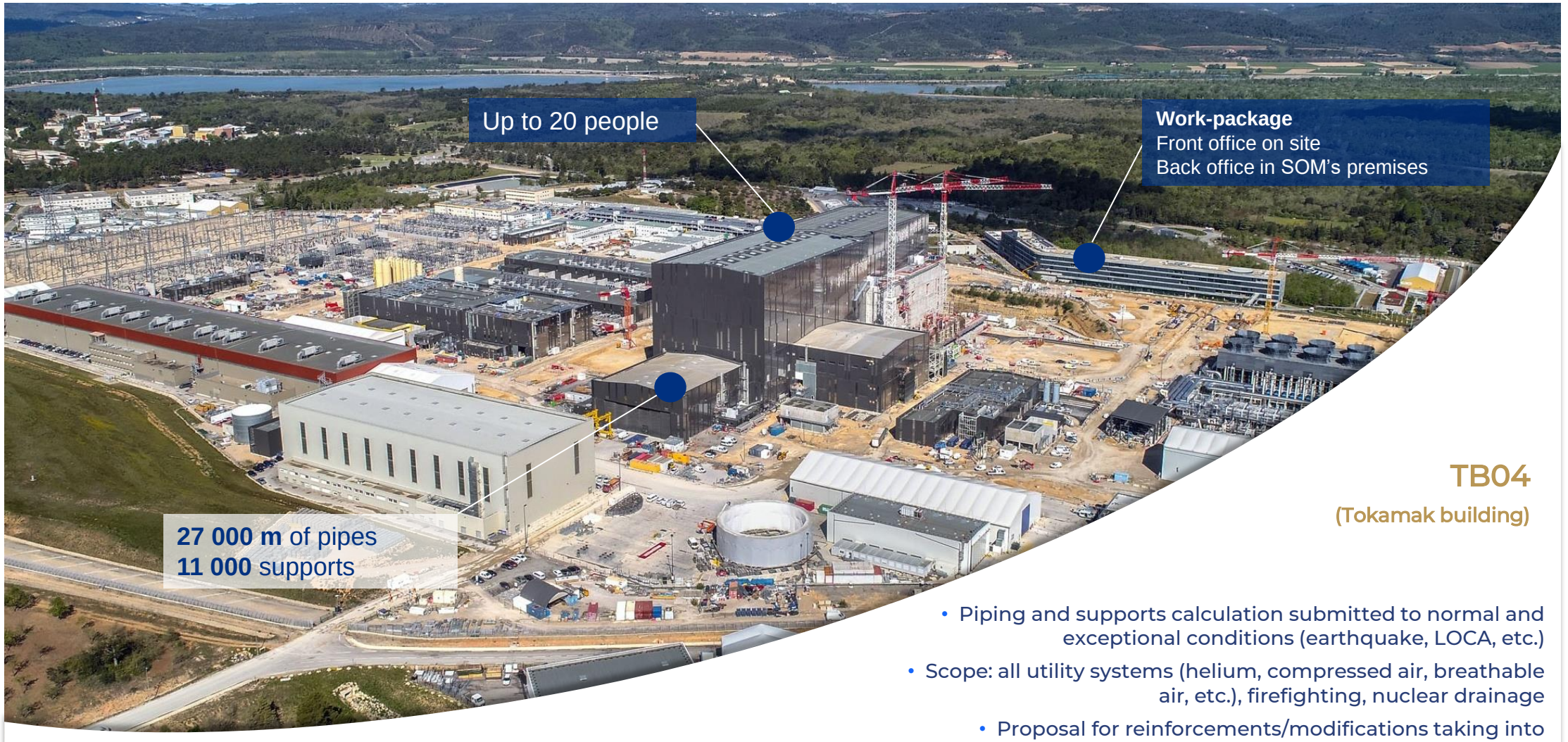
Workshop :

- 1257 Welds (2024)
- 99,28% Welding Conformity,
- Orbital welding,

Worksite

- 1257 Welds (2024)
- 99,28% Welding Conformity,
- 7 worksites in parallel,
- Work in radiologically controlled areas, MTSTE,
- 360 Bar mechanical tests,
- Installation of 16 hydraulic pumps (2T),

What about ITER !



TB04

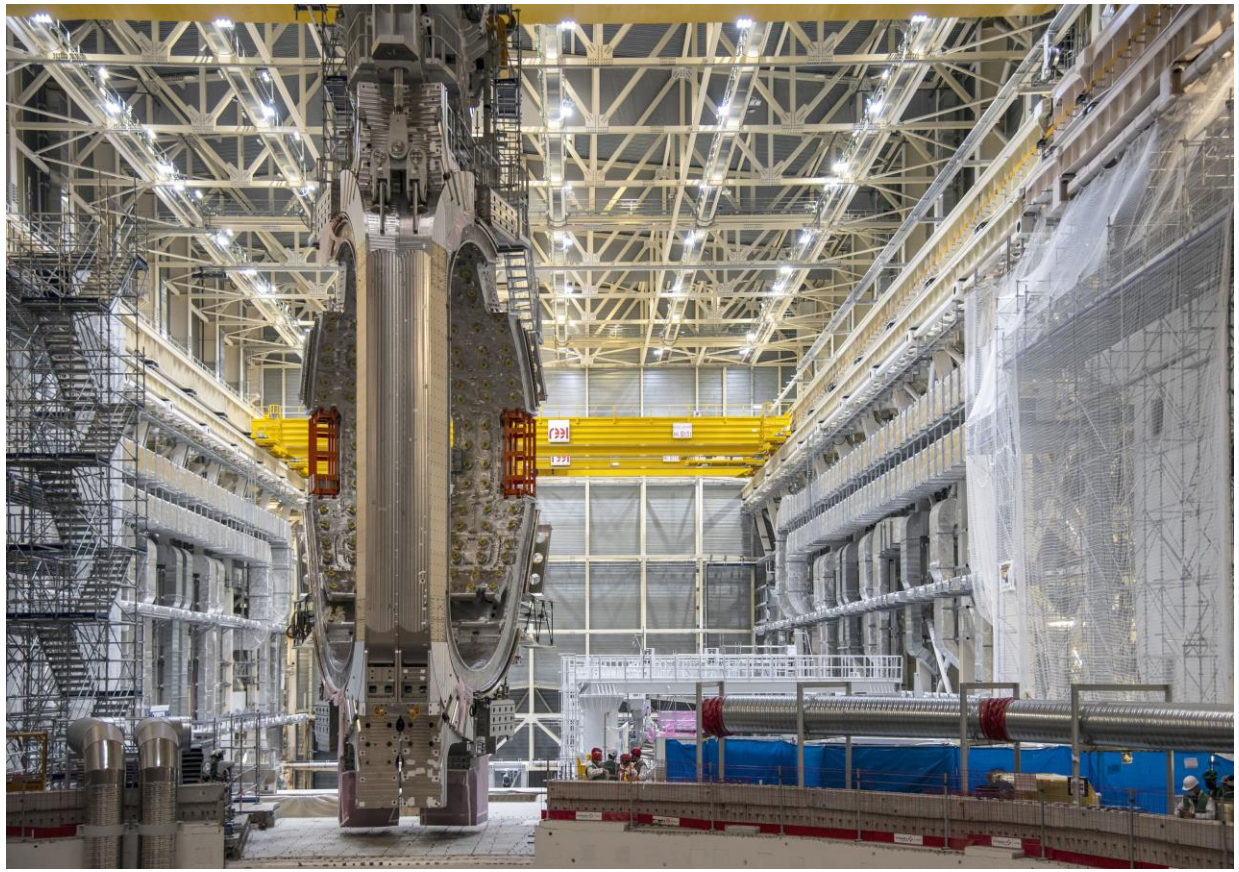
(Tokamak building)

- Piping and supports calculation submitted to normal and exceptional conditions (earthquake, LOCA, etc.)
- Scope: all utility systems (helium, compressed air, breathable air, etc.), firefighting, nuclear drainage
- Proposal for reinforcements/modifications taking into account the space allocation and the design constraints
- Applicable norms: NF-EN 13480 and ITER technical specifications

What about ITER !

3 main contracts on ITER (TCC0, BOP4, TAC2).

- Complex Lifting and assembly of heavy component :
  - > 60 lifting above 300 tons,
  - > 700 lifting above 1 Tons,
- Kinematic studies and development of specific tools for each operation,
- 60 engineers, technicians, and workers on site,



But that's not all!