



EKIUM

A COMPANY OF GROUPE SNEF



Ekium

Your partner for projects in the nuclear industry

NIA fusion group meeting – Cambridge

Ekium in a strong and independent group



Specialised in the electrical trades, instrumentation, water and gas treatment, physical protection for the nuclear industry.

Subsidiary of SNEF Power Services:



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Industrial mechanics maintenance:
Piping, Metalworking
Taps

Subsidiary of Fouré Lagadec:



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Engineering,
Automation
& Consulting

Subsidiaries of EKIUM:

Switzerland **United Kingdom**
Belgium
Luxembourg Uganda
AMIO Tanzania
Spain Brazil



Audio & Video Systems



Industrial IT & Supervision



IoT & ITS **NIOS**



Predictive Maintenance

Industry 4.0 **sequor** INDUSTRIAL SOFTWARE

IT architect & Computer integrator **BRINEL** Bring Innovation. Enjoy Life!



About Ekium

Ekium is the French leader in Engineering for industrial facilities, buildings, utilities, and in Automation for process industries and energy. Our engineers and technicians manage structuring projects for the industry, from feasibility to maintenance. Since 1990, Ekium has been accompanying its clients with a common goal: to place industry and energy at the heart of the new challenges facing our society.

Our key figures



Our activities

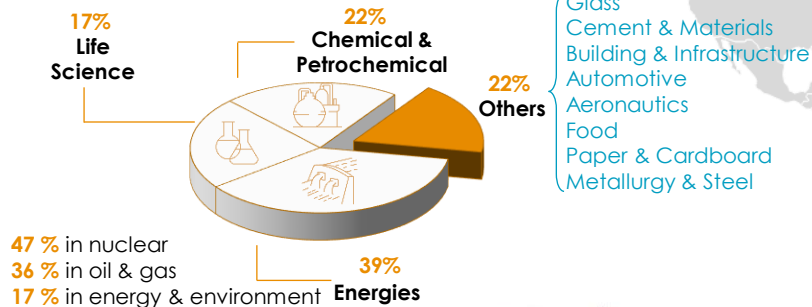
Automation

Industrial Engineering

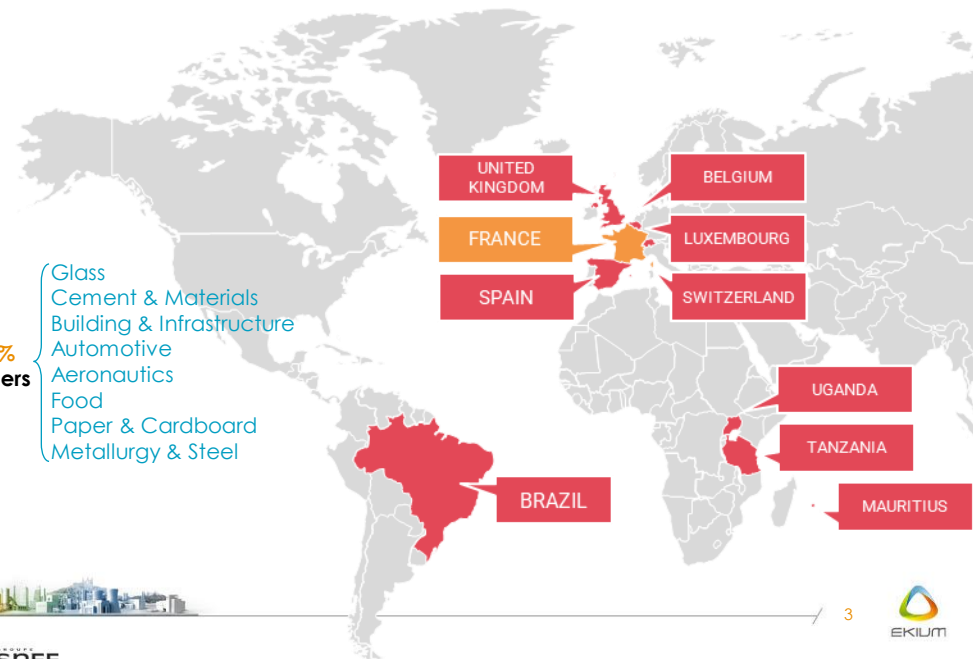
Building Engineering

Consulting

Turnover by sector



Our global presence



A multi-trade & multi-sector offer



We manage the full life cycle of the facilities

STUDY

Need analysis
(requirements /
constraints)
Risks and feasibility
analysis

DESIGN

General &
detailed design
(functional &
technical) + test

EXECUTION

Finding &
developing the
optimal solution

INSTALLATION

commissioning +
test

OPERATION

Logistical,
functional &
technical
coordination &
supervision

MAINTENANCE

Facilities &
equipment
optimisation

DECOMMISSIONING

Need analysis
(requirements /
constraints)
Risks and feasibility
analysis

END-TO-END & TAILORED SOLUTION

Project Management (defining, measuring, analysing, improving, steering, monitoring) & Quality insurance

Consulting,
Expertise &
Know-How

Innovation &
Certifications

Performances
& Warranties

Quality,
Safety,
Environment

Energy,
Efficiency

Cost
Control

Consulting,
Expertise &
Know-How



Ekium and the Nuclear industry



EDVANCE

France & United Kingdom

Engineering and Support Services framework contracts (CP2E and CP2S) in France and the UK.



EDF ENERGY – Bouygues Energies & Services

United Kingdom

Implementation and qualification studies for Emergency Diesels Generators for Hinkley Point C.



EDF DPN (DIVISION DE PRODUCTION NUCLÉAIRE)

France

Ensuring the progress of maintenance activities in nuclear power plants in compliance safety & security regulations.



ANDRA

Bure – France

Securing the vertical mobiles of the Centre de Meuse Haute-Marne laboratory located at a depth of 500 meters.

They also trust us:



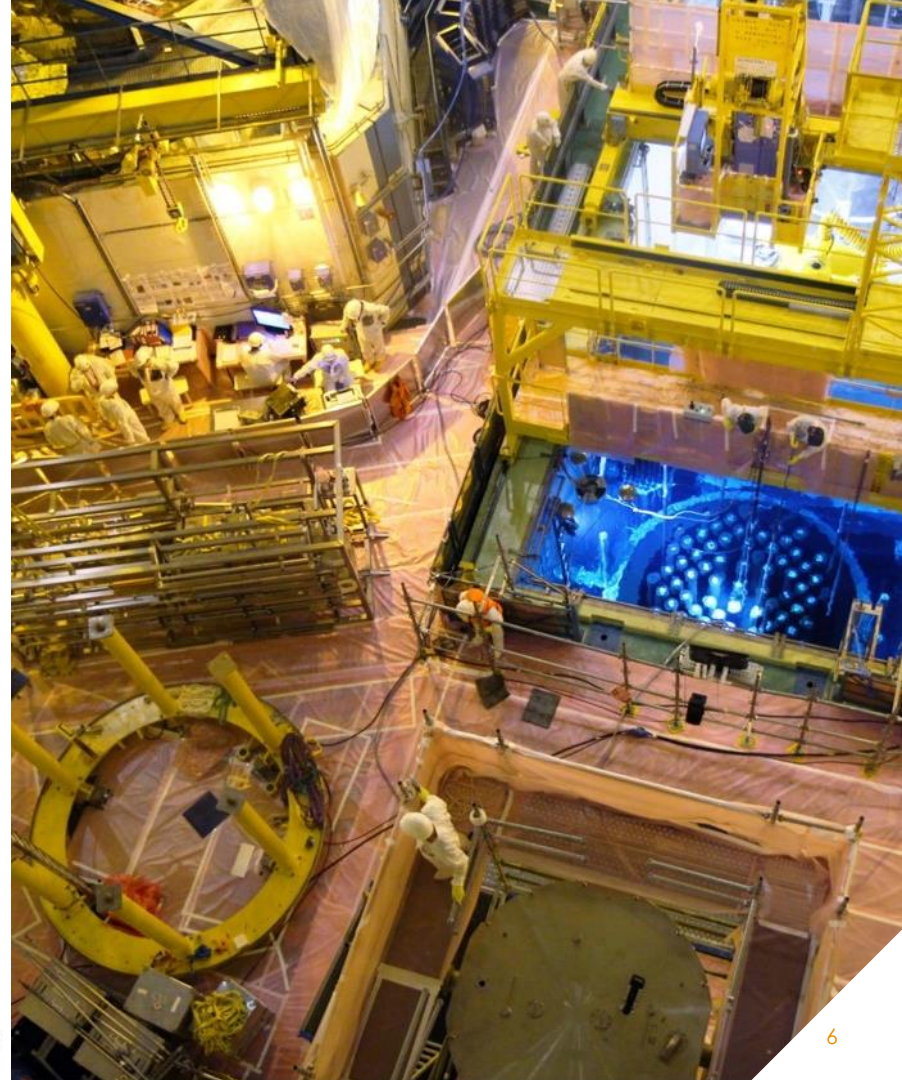
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framatome



iter

by GROUPE SNEF





Ekium

Our References in Fusion



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Ekium and Fusion for

Ekium is involved in ITER since 2010 and continues today to deliver state of the art engineering services for its clients.



F4E (Fusion for Energy)

Expertise in Structure Calculation Notes



OMEGA Consortium: Engie Axima

TB04:

- Requirement management of IEC 61 513 for the Tokamak Complex.
- Protection lightning studies for the Tokamak Complex
- I&C studies and monitoring



OMEGA Consortium: M+W Group / Exyte

Technical management HVAC, Fluids, Elec, FFS

TB04:

- I&C studies and monitoring
- Functional Safety Assessment



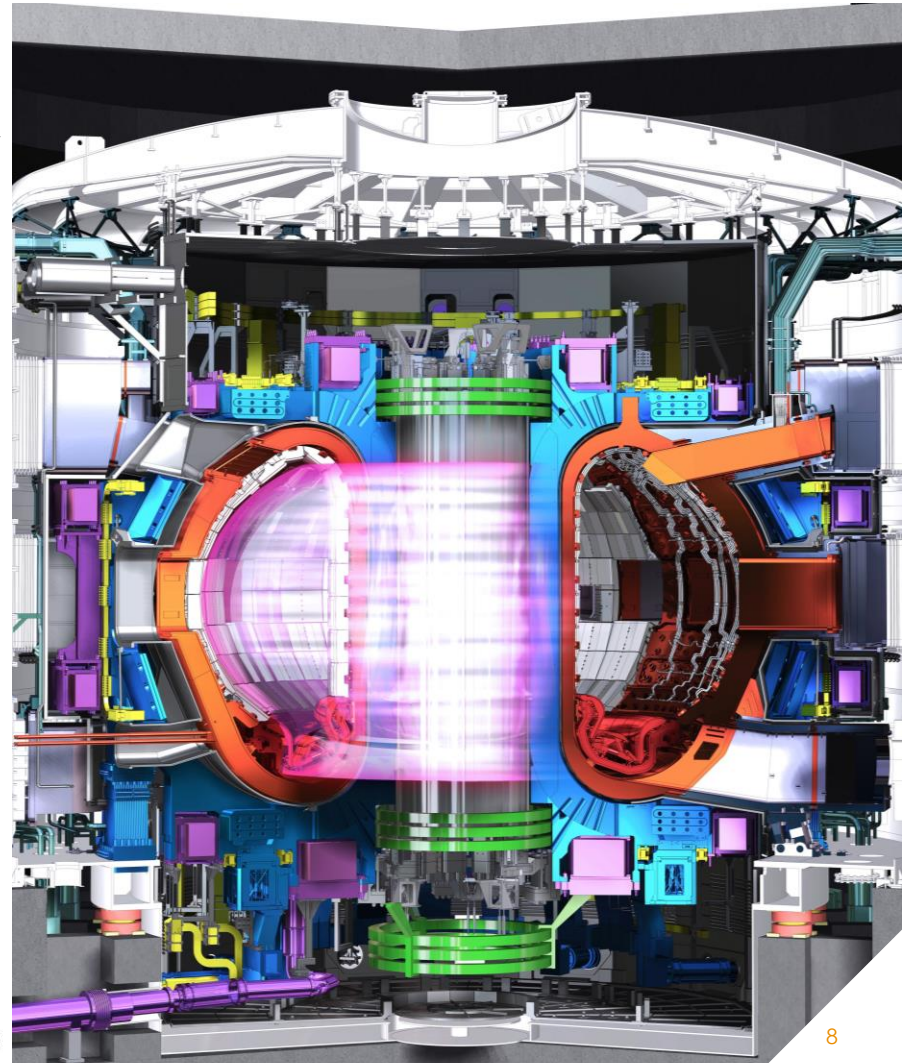
VFR Consortium: Vinci Ferroviale Razel-Bec

Backup power distribution



Engage

Design of the Fire Safety System (FSS) of all the buildings awarded to ENGAGE by F4E



TB21 tender – Electrical Works in Tokamak Complex and Surrounding Buildings

Customer: Fusion For Energy (F4E)

Project: ITER

Site: Cadarache, France



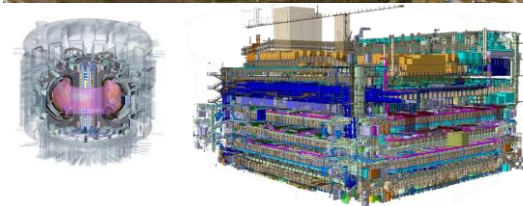
FIDIC Framework Contract

Reopening of competition on specific contracts (Task Orders)

FWC awarding
End November 2022

Bid amount
(Public information)
117 M€

Contract duration
5 years
(2023-2027)



- Consortium with Ferrovial
Multiple contracts awarded on ITER
Civil works in conventional buildings

ferrovial

- Scope of Work
 - Electrical systems (luminaries, power outlets, surge protection)
 - Power supply (cabinets, cables, etc.)
 - Electrical distribution (junction box, switches, etc.)
 - Instrumentation & Control (sensors, logic interfaces, etc.)
 - Fire, gas & seismic detection
 - Load centers
- Services to provide
 - Execution Design
 - Procurement/Supply/Manufacturing (75%)
 - Qualification tests (strategy out of scope)
 - Installation & Commissioning in NNB only

- Subcontractor Ekium
Execution Design
I&C programming/implementation



- Our assets
 - Ferrovial has a long track record on ITER
(5 contracts awarded, including 3 with electrical scope)
 - Ekium involved in some contracts
 - Good quality of technical offer acknowledged by F4E
 - Local SNEF agency resources



TB04: REQUIREMENTS MANAGEMENT IEC 61 513 OF ITER NUCLEAR BUILDINGS

Context of the project

ITER is an experimental tokamak-type machine project to demonstrate the operational and industrial maintenance feasibility of a nuclear reactor using the fusion principle. ITER will be the largest facility of its kind in the world, with a large plasma radius of 6.2 m and a plasma volume of 840 m³. TB04 contract holder, M+W group (member of the OMEGA consortium with Engie) which is in charge of the SSI part of non-nuclear buildings called on Ekium to study and ensure the requirement management of IEC 61 513 for the Tokamak Complex.

Description of the project

- Acknowledgment of the customer documentation (more than 2000 applicable documents)
- Appropriation of IEC 61 513
- Follow-up and traceability of the IEC 61513 normative requirements through the REQIFY tool
- Development of compliance matrix IEC 61513
- Follow-up and verification of documentary deliverables
- Multidisciplinary interface role

Specificities

- Technical mastery of REQIFY software
- Technical mastery of the environment (international, nuclear, normative, and various constraints ...)
- Complex politico-economic system
- Standard IEC 61 513



Market
Nuclear

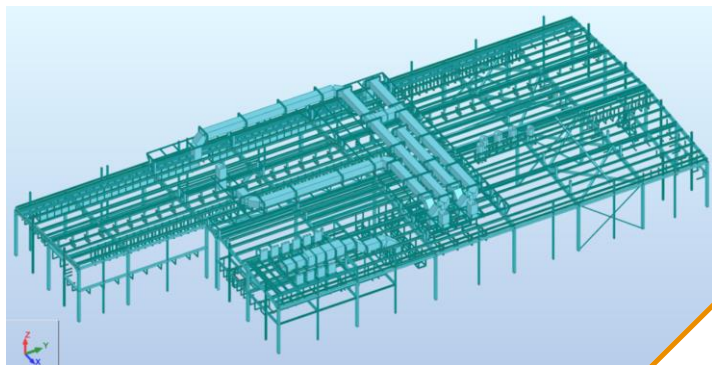
Turnover
100 – 500 k€

Technical field
Quality – IEC 61 513

Project Length
24 months

Cycle
Design & Engineering

Location
Saint Paul Lez Durance (13)



Market
Nuclear

Turnover
500 – 1 000 k€

Technical field
Civil Works Structure

Year
2018 - 2019

Cycle
Design & Engineering

Location
Saint Paul Lez Durance (13)

EXPERTISE IN STRUCTURE CALCULATION NOTES

Context of the project

ITER is an experimental tokamak-type machine project to demonstrate the operational and industrial maintenance feasibility of a nuclear reactor using the fusion principle. ITER will be the largest facility of its kind in the world, with a large plasma radius of 6.2 m and a plasma volume of 840 m³. Fusion 4 Energy has contracted EKIUM to carry out an expertise in the field of Civil Engineering to validate the structure resistance of conventional buildings.

Description of the project

- Check the ROBOT® model, calculations and renderings of ENGAGE Project Management,
- Propose optimizations on the current design with the aim of minimizing the reinforcements of structures that would be recommended by ENGAGE, and this, using the same model and challenging the calculations, margins and conclusions, while remaining within the time frame in service of buildings.

Specificities

- Buildings are already built and equipped or in the process of equipment
- Large interfaces between different contract holders and ITER Org departments
- Large amount of input data

**Market**

Nuclear

Turnover

100 – 500 k€

Technical field

HVAC, General Installation, electricity, instrumentation, detection and fire protection

Year

2019

Cycle

Engineering & Design, Expertise

Location

ITER – Saint-Paul-Lez-Durance

Tools, softwares

Autocad

BACKUP POWER DISTRIBUTION

Context of the project

ITER is an experimental tokamak-type machine project to demonstrate the operational and industrial maintenance feasibility of a nuclear reactor using the fusion principle. ITER will be the largest facility of its kind in the world, with a large plasma radius of 6.2 m and a plasma volume of 840 m³.

VFR consortium has contracted EKIUM to perform an independent audit in the areas of HVAC, General Installations, CFO, Instrumentation and Control and Fire Detection and Protection.

Description of the project

- Appropriation of the input data of the call for tender
- Approval (Visa) of the design documents for ventilation, electricity, instrumentation and fire detection/protection carried out by the Design Office for conventional and nuclear buildings

Specificities

- Documents in English
- General Contracting project with extensive knowledge of nuclear and related regulations

TB04: PROTECTION LIGHTNING STUDIES FOR THE TOKAMAK COMPLEX

ITER – Saint-Paul-Lez-Durance (13)

Context of the project

ITER is an experimental tokamak-type machine project to demonstrate the operational and industrial maintenance feasibility of a nuclear reactor using the fusion principle. ITER will be the largest facility of its kind in the world, with a large plasma radius of 6.2 m and a plasma volume of 840 m³.

TB04 contract holder, ENGIE (member of the OMEGA consortium with M+W Group) which is in charge of the nuclear buildings called on Ekium to study and ensure the requirement management of IEC 61 513 standard for the Tokamak Complex.

Description of the project

- Acknowledgment of the customer documentation (more than 2000 applicable documents)
- Preparation of deliverables related to lightning studies (ARF, ETF...)
- Realization follow-up
- Initial check
- Multidisciplinary interface role

Specificities

- More than 2000 applicable documents,
- Certification Qualifoudre Level 3.



Market

Nuclear

Turnover

100 – 500 k€

Technical field

Lightning Protection

Year

2018 - 2020

Cycle

Engineering & Design

Location

ITER – Saint-Paul-Lez-Durance

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