Innovative technology for safe, sustainable nuclear energy
ONET at a glance

- Over 80 fields of expertise
- More than 212,000 training hours
- Over 470 facilities
- Over 20,000 customers
- €1.466 billion in sales
- More than 61,000 employees
- A workforce that is 86% permanent staff
- Operations in 8 countries
Services structured around each of our business areas

Cleaning (service sector, cleanrooms, events, transport, processes, pest control, etc.)
Related services (building services, occupant services)
Waste management

New facility design and construction & plant revamping
Operations support
Maintenance
Testing and inspection
Decontamination, dismantling
Waste treatment
Asbestos removal
Training

Human security
Electronic security
Video protection
Remote monitoring
Engineering and training

Logistics consulting and engineering
Loading/unloading
Inventory management
Goods and flow tracking
Rail operations

Traffic/coordination services
Runway/ramp services
Passenger assistance
Transit
Aircraft cleaning and services
Cargo

Corporate reception
Assistance for people with reduced mobility in airports and railway stations
Event hospitality
In-store and out-of-store promotions

A subsidiary specialising in human resource outsourcing services:
Temporary employment and recruitment, Executive searches, and Training

AXXIS RESOURCES

ONET 2015
Onet Technologies at a glance

- **€242 million*** in sales volume in 2014
- **4 operating divisions**
- **30 facilities** in France
- **400 engineers** with expertise in multiple fields
- **2,625 employees**
- **8 businesses**
- Active throughout the entire life cycle of industrial installations
- A presence in **8 countries**

* Excludes extraordinary items
A history rooted in the growth of the nuclear industry
An organisation focused on operational performance

**Onet Technologies**

**ENGINEERING DIVISION**
A. GAUVIN

400 employees in engineering and research

**NUCLEAR SERVICES & NDT DIVISION**
F. SAMONINI

Over 1,000 employees responsible for dismantling, waste treatment and nuclear services as well as non-destructive testing for the nuclear and manufacturing industries

**DISMANTLING / WASTE / ASBESTOS DIVISION**
L. DE RASPIDE

Over 1,000 permanent employees to provide training and support for operators on behalf of facility owners

**OPERATIONS & TRAINING DIVISION**
T. NAUDIN

**HUMAN RESOURCES**
C. QUIBEL

**FINANCE**
S. MATABON

**COMMUNICATION**
G. GOZE

**LEGAL AFFAIRS**
SAJE

**PROJECTS**
P. CLERGUE

**PROJECT METHODS & PERFORMANCE**
S. CHEVASSU

**SALES DEVELOPMENT**
M. MICHEL-NOEL

**TECHNOLOGY & INNOVATION**
Ph. PANCRAZI

**Q3SER**
H. IRR

**PURCHASING**
P. LORANT

**GENERAL MANAGER**
P. CLERGUE

**CHAIRMAN**
D. GASQUET

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Our strategic objectives

Consolidate and improve our positioning in the CIVIL NUCLEAR INDUSTRY

INCREASE OUR BUSINESS in related markets
- Defence
- Non-destructive testing/inspections

Expand our INTERNATIONAL presence
Our businesses

1. New facility design and construction & plant revamping
2. Operations support
3. Testing and inspection
4. Maintenance
5. Decontamination, dismantling
6. Waste treatment
7. Asbestos removal
8. Training

Our operational divisions are specialised by business.

We develop and implement solutions over the entire life cycle of industrial facilities.
**OUR ADDED VALUE**
- Expertise tailored to specific needs
- Turnkey solutions
- Primary contractor know-how (Engineering, Procurement, Construction)
- Synergies from multiple areas of engineering expertise

**OUR MARKETS**
- Basic nuclear installations (INB)
- Research laboratories and scientific facilities
- Facilities for treatment and intermediate storage of nuclear waste
- Industrial facilities and facilities classified for environmental protection (ICPEs)

**Engineering & Consulting**

**Design and qualification of special equipment and subsystems**

**1. New facility design and construction and plant revamping**

**Comprehensive project management**

**EPC**

**Turnkey solutions**

- Special machinery and processes
- Next-generation reactors and research reactors
- France and international markets
New facilities and plant revamping

ENGINEERING & CONSULTING
Mechanical engineering and general installation / Electricity and command-control / Chemical engineering and industrial processes / Special machinery / Nuclear safety, fire safety, human and organisational factors / Core ventilation / 3D CAD, BIM / Multiphysics calculations / Regulations

DESIGN / CONSTRUCTION
Plant purchasing and manufacturing
Worksite management
Mechanical assembly
Testing and commissioning

COMPREHENSIVE EPC / TURNKEY SOLUTIONS

References

EDF – Re-sizing studies for the ventilation and cooling system of the inter-containment cavity in a reactor building

CEA Cadarache – Design studies for the Jules Horowitz research reactor

CEA DAM Valduc – Project management for the design and construction of an automated nuclear waste storage facility

AREVA Pierrelatte (Trident) – Project management for the design and construction of a waste treatment facility

SOGIN Italy, Saluggia – Design and construction of an intermediate storage facility for D2 radioactive waste
Comprehensive support services for nuclear maintenance operations

Operation of nuclear installations (industrial operator)

OUR MARKETS
- The entire fleet of French nuclear power plants
- Basic nuclear installations

OUR ADDED VALUE
- An integrated, coordinated service chain
- Complete attention to customer concerns
- Diversified services governed by significant industrial and regulatory constraints
- Adaptation to seasonal fluctuations in maintenance activities thanks to more than 1,000 permanently employed staff

2. Operations support

Support for plant operators on behalf of their owner clients

- Firm commitment to innovation for enhanced productivity and security
COMPREHENSIVE SUPPORT SERVICES FOR WORKSITE MANAGEMENT

Prevention of radioactive contamination
Operation of filtering systems
Sorting and conditioning of radioactive waste
Materials handling
Radiological monitoring, regulatory compliance
Laundry management
Radiological and conventional cleanliness
Storage and distribution of tools and more...

The leading provider of nuclear maintenance support services

INDUSTRIAL FACILITY OPERATOR
Management
Consulting services
Responsibility for the installation

References

EDF – Multi-year worksite support contract in French nuclear power plants, particularly for maintenance work during plant shutdowns
EDF – Operations support contracts for plants being dismantled
CEA Cadarache (La Rotonde) – Outsourced operation of an LL/VLL waste characterization, sorting and intermediate storage facility
CEA Cadarache – Operations support for the LECA/STAR plant: Dismantling of the lead chain and INB 55 building
3. Testing and inspection

On-site activities

Automated UT* and ECT* inspections (conventional, TOFD*, multi-element)


OUR MARKETS
- Nuclear fleet
- Oil & gas market
- France and international markets

Non-destructive testing (NDT) and inspections during operation

Design and development of customised methods and tools

OUR ADDED VALUE
- A unique platform of experts: engineers and technicians who specialise in conventional and advanced NDT techniques
- Experts with Level III certification
- PINC: a joint venture with the Institut de Soudure
Performance of manual and automated NDT with various processes

**PROCESSES**
- UT / PT / MT / MANUAL ET - PHASED ARRAY / TOFD
- AUT: Automated Ultrasonic Testing / ACFM: Alternative Current Field Measurement / Helium/vacuum leak testing / Video inspections / X-ray, gamma and digital radiography

Development and qualification of non-destructive inspections using a dedicated R&D platform

References

**EDF** — Eddy current inspection of anti-vibration bars on MHI steam generators in the process of being replaced

**EDF** — Development of a UT examination procedure for inspecting the corner of the pressuriser spray nozzle during operation

**Aubert & Duval** — Development of a UT test for the forged blanks in the core compartment of the Jules Horowitz Reactor

**Total/BP, Block 17 and Pazflor** — AUT surveillance during the laying of a pipeline

**ITER** — Development and deployment of a phased array UT technique for inspecting radial plates
4. Maintenance

**OUR MARKETS**
- The French nuclear fleet
- ‘Grand Carénage’* and post-Fukushima renovation projects
- Nuclear installations upstream and downstream from production

*EDF programme to extend the operating life of French NPPs

**OUR ADDED VALUE**
- Expertise in the French nuclear fleet
- The ability to innovate
- Strategic partners (MHI, GDES, etc.)
- A pioneer in specialised markets (PIGV, replacement of heater rods, and diving)
- Design, manufacture and industrial commissioning of specialised tools

**Specialised maintenance on reactors and critical nuclear power plant components**

**Modification and replacement of primary components in nuclear power plants**

**Outsourced maintenance of fuel cycle facilities**
ENGINEERING & EXPERTISE
Maintenance engineering
Development of specialised tools
Expertise in welding and pressurised equipment
Licensing documentation

MAINTENANCE
Electro-mechanical maintenance of systems/equipment
Outsourced facility maintenance
Repair and replacement of major components
Underwater operations by divers
Chemical cleaning of large components and waste treatment

References
EDF – Modifications to the closure systems on the material access hatches in NPP reactor buildings
EDF – Replacement of pressuriser heater rods, all pressure levels
EDF – Maintenance of instruments in PWR reactor core
AREVA – Dismantling and radiological cleaning by divers of the decladding pool
EDF – Design and supply of replacement steam generators (in partnership with MHI)
EDF – Preventive cleaning of steam generators
A closer look at our reactor maintenance

**Pressuriser**
- Replacement of heater rods
- Decontamination of dissimilar welds
- ‘Optimised’ radiographic inspection of the pressuriser base
- Ultrasonic and radiographic weld inspections

**Steam generator**
- Lancing and video inspection of the partition plate
- Video inspection of the support skirt blocks
- Recovery of floating debris
- Ultrasonic and radiographic weld inspections

**Reactor vessel and primary loops**
- Maintenance of core instrumentation
- Video inspection of penetration tubes in the vessel bottom
- Video inspection of the cluster drive mechanisms
- Video inspection of the canopy seal
- Video inspection of the nuclear fuel
- Video assistance during opening/closing and loading/unloading operations

**Turbo**
- Automated ultrasonic inspection of LP turbine shafts and rotors

**Auxiliaries**
- Sump strainer replacement (SIS/CCS)
- Modifications to material access hatch
- Water box replacement for RHRS coolers
- Non-destructive testing
OUR MARKETS
- Electronuclear fleet, experimental reactors, power reactors, post-accident reactors
- Fuel cycle facilities
- Research laboratories
- Pharmaceutical industry
- Defence
- France and international markets

Nuclear decontamination and dismantling
Remote-controlled dismantling operations

OUR ADDED VALUE
- The ability to work on all types of projects and facilities, even the most complex
- A workforce of 1,000 specialised employees
- Experience accumulated over more than 40 years
- The use of innovative techniques such as laser technology and virtual reality

5. Decontamination, dismantling
Decontamination, dismantling
Details and references

ENGINEERING & CONSULTING
Site audit and diagnosis / Dismantling strategies / Modifications to facilities prior to dismantling / Development of special equipment / Regulatory and environmental studies / Technical-economic analyses / Planning

DISMANTLING OPERATIONS
Site clean-up / Cutting (laser, plasma, UHP) / Remote-controlled dismantling operations / Mechanical disassembly / Heavy materials handling

COMPREHENSIVE EPC / TURNKEY SOLUTIONS

References

Bohunice power plant, Slovakia – Decontamination of the primary circuit using DfD process (chemical treatment, Onet Technologies patent)

EDF – Dismantling of electromechanical equipment at Saint Laurent A2 and the heat exchanger building at Chinon A3

CEA Grenoble – Deconstruction of the waste and effluent treatment plant

CEA Grenoble – Project management support for the denuclearisation of the entire site

CEA Marcoule – Dismantling of MAR 200 dissolvers, UP1 plant
OUR MARKETS
- Electronuclear fleet
- Fuel cycle facilities
- Laboratories
- Radioactive waste storage facilities
- France and international markets

Collection, sorting, conditioning, intermediate storage and treatment of radioactive waste

Radiological and chemical clean-up of soil

OUR ADDED VALUE
- SOGEVAL, our own classified facility for the treatment and intermediate storage of radioactive waste
- Management of the waste cycle from characterisation to storage
- Use of over-containers
- Supplier of special patented containers

6. Waste treatment

Removal of asbestos from nuclear and conventional environments
All types of waste (Lead, Mercury, Cyanide, Explosives, Radioactive Substances, etc.)

ENGINEERING & CONSULTING
- Waste diagnosis, characterisation and inventory
- Development of treatment/conditioning processes
- Regulatory and environmental studies
- Technical-economic analyses

WORK ACTIVITIES
- Waste recovery/removal
- Treatment (including equipment construction)
- Conditioning and inspections
- Transport

COMPREHENSIVE EPC – TURNKEY SOLUTIONS

References

SOGEVAL, our own classified facility for the treatment and intermediate storage of radioactive waste

Kozloduy power plant, Bulgaria – System for the recovery and treatment of borate effluent: design, construction, installation and commissioning

ONDRAF, Belgium – Sodium waste treatment facility

SOGIN, Italy – Design and construction of a historical waste recovery plant at the Trisaia site

CEA Cadarache (Pégase reactor) – Design, construction, commissioning and operation of a plutonium waste treatment unit
Asbestos removal for every industry
Removal of asbestos from nuclear and non-nuclear environments

OUR MARKETS
- Construction and public works
- Manufacturing
- Local authorities
- Hospitals

OUR ADDED VALUE
- Highly specialised operations or all-inclusive turnkey solutions, including building demolition
- More than 30 years of experience, with recognised certifications

7. Asbestos removal
Asbestos removal
Details and references

ALL TYPES OF ASBESTOS
Friable asbestos (flocking, jacketing, equipment insulation, etc.)
Non-friable asbestos (floor coverings, items made from asbestos cement, exterior shell of buildings)

ALL TYPES OF ACTIVITIES
Highly specialised operations or all-inclusive turnkey projects, including building demolition

References

Michelin plants, Vannes and Roanne – Dust extraction and removal of asbestos insulation and braids, with no disruption to site operations
Henkel plant, Saint-Fargeau Ponthierry – Asbestos removal and demolition
SNCF, Le Mans: Design and construction of a dedicated ICPE facility and remote-controlled system for removing asbestos from 1200 rail cars
DCN - SSN Le Triomphant (nuclear-powered submarine) – Removal of asbestos cladding
8. Training

Customised training
- Objectives defined with our customers
- Identification of trainee profile
- Instructional content and timetable
- Systematic feedback

Specific training for the nuclear industry
Radiation protection / Safety / Quality / STARS (Technical training in radiation protection and security) / Use of respiratory PPE

Training for construction and manufacturing
Lifting and handling / CACES driver safety certificate / Asbestos risks / Risk prevention / Security / Scaffolding and insulation
Our human and logistical resources
More than 100 trainers
A training services department that can create or modify training content on request

- 55 instructional classrooms distributed across 12 sites in France
- 10 worksite training centres for Risk Prevention
- 10 worksite training centres for Common Nuclear Knowledge & Supplemental Quality/Safety
- 3 worksite training centres for Asbestos
- 1 workshop for valve training

Training given to 25,000 participants each year

Approvals and certifications
Intertek, CEFRI, EDF fCIN, EDF STARS, I.Cert (subsection 3 asbestos), Global (CACES), SF ECE (scaffolding), INRS (SST and PRAP)... Approval for non-radiological risk prevention
Partnership with EDF for training services

References

Nuclear: EDF, Haute Normandie regional council, SPIE, Manpower, Axxis, Assystem, Start People
Asbestos: Colas, SBDR, Cise TP, Sade, etc.
Lifting & handling: Alstom Power, Adecco, Kaefer Wanner
Scaffolding: GDF Suez, Ortec, etc.
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<tr>
<th>Principal certifications and qualifications</th>
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<tr>
<td>• French Atomic Energy Commission (CEA)/AREVA qualification</td>
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<tr>
<td>• EDF qualifications - Case 1</td>
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<td>• EDF qualifications - level 1 and 2</td>
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<tr>
<td>• Integrated services, DEA (EDF)</td>
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<td>• Approvals - Energoatom, MHI</td>
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<tr>
<td>CEFRI No. 161E, No. 222E / CEFRI No. 015F</td>
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<tr>
<td>ISO 14001 Version 2004</td>
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<td>MASE</td>
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<td>AFAQ-ASCERT</td>
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<tr>
<td>QSP – Post QSP (contractor safety quality control)</td>
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<tr>
<td>Approval by French Nuclear Safety Authority (ASN)</td>
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<td>CACES® (driver safety)</td>
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<td>I.CERT (Certification institute)</td>
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<td>Refrigerant qualification certificate</td>
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Our locations in France

A network that serves our customers where they operate
Principal projects worldwide

UNITED KINGDOM
Sellafield – renovation of the B229 laboratory & installation of a B30 test platform.
Dounreay – Framework contract for cutting services.

BULGARIA
Turnkey contract for a decontamination and waste reduction facility.
Turnkey contract for a waste recovery and treatment system for borate concentrate tanks.

JAPAN
Engineering studies for Fukushima

LITHUANIA
Turnkey contract for delivery of a radioactive waste recovery system.

BELGIUM
Engineering and construction of a recovery and treatment facility for liquid sodium effluent.
Turnkey contract for delivery of tank decontamination and dismantling equipment.

UKRAINE
Turnkey contract for delivery of a radioactive waste recovery, breakdown and sorting centre.

SLOVAKIA
Decontamination of the primary circuit in the Bohunice VVR power reactor.

ROMANIA
Studies and DDS regarding the construction permit for the national low- and intermediate-level waste storage centre in Saligny.