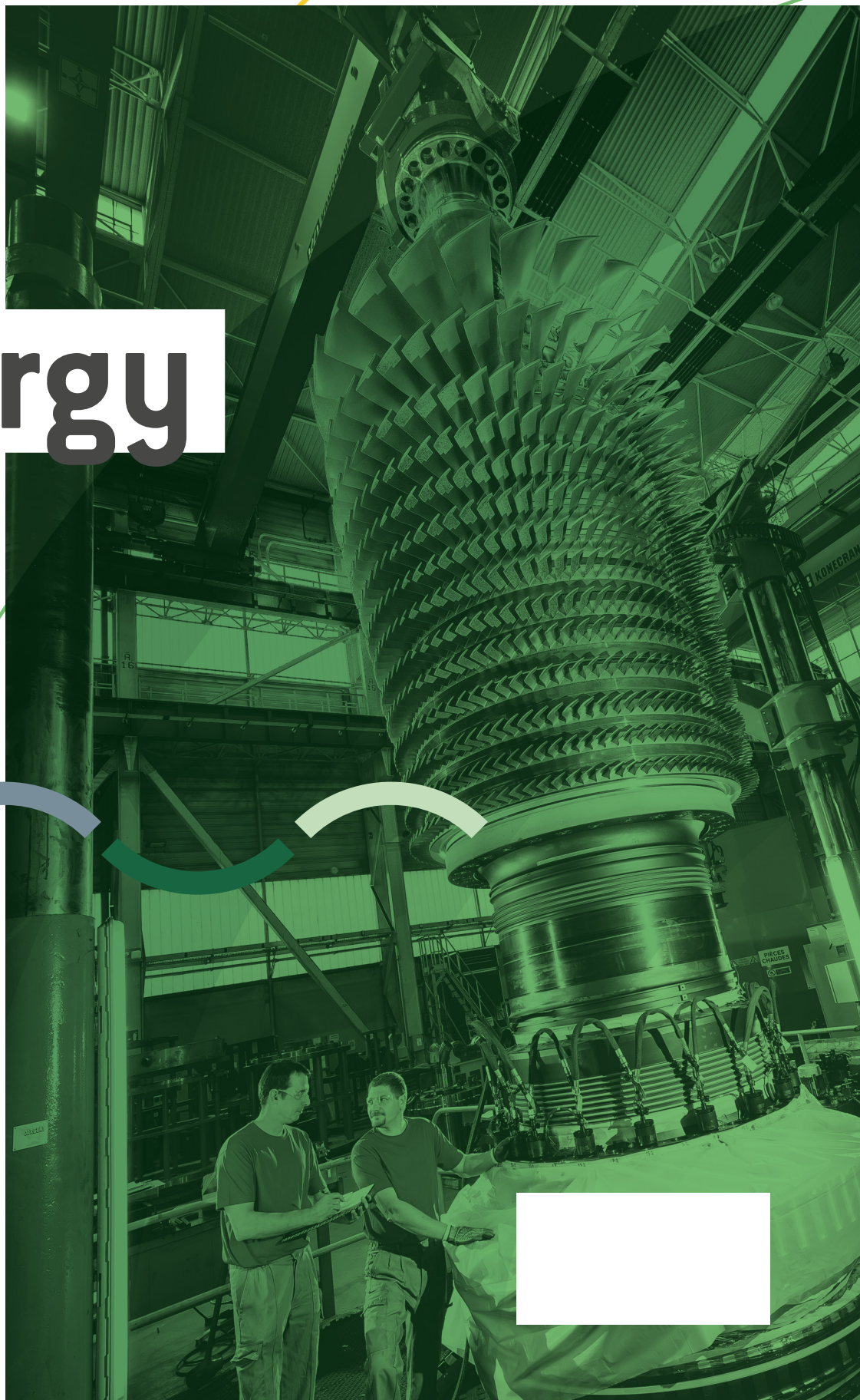


RÉGION
BOURGOGNE
FRANCHE
COMTÉ

Energy



DO YOU HAVE A PROJECT? BOURGOGNE-FRANCHE-COMTÉ WELCOMES YOU!

set up shop

With its business parks and road and airport infrastructure, Bourgogne-Franche-Comté has everything you need to jump-start your projects in an environment designed for entrepreneurial innovation.

No. 1

INDUSTRIAL
REGION
IN TERMS OF JOBS

No. 1

REGION FOR **POWER-
GENERATION EQUIPMENT
MANUFACTURING**

No. 1

REGION
FOR PRIVATE R&D
INVESTMENT

6

INTERNATIONAL
AIRPORTS
NEARBY

9

MOTORWAYS FORMING
A STRATEGIC INTERSECTION
IN THE HEART OF EUROPE

451

KM
OF HSR LINES
14 TGV STATIONS

power generation in BFC*

The region only covers 15% of its final energy requirements with its own power generation, but 85% of this comes from renewable energies.

HYDROPOWER

521

MW INSTALLED

PHOTOVOLTAICS

241

3,000

MW INSTALLED MW TARGET FOR 2030

WIND POWER

590

3,300

MW INSTALLED MW TARGET FOR 2030

METHANISATION

40

30

INSTALLATIONS PROJECTS UNDERWAY

WOOD ENERGY

894

AUTOMATIC
WOOD-FIRED GENERATORS

*source: ADEME



Bourgogne-Franche-Comté has rich biodiversity and resources so is “naturally” committed to protecting the environment and ensuring the energy transition. It has set itself the goal of becoming a Positive Energy region by 2050.

partners, hubs and a dedicated competitiveness cluster

VALLÉE DE L'ÉNERGIE CLUSTER

At the heart of a dense and dynamic environment, the Vallée de l'Energie Cluster brings together stakeholders from the ecosystem to boost synergies and establish a **strategic platform connecting companies in the Energy sector, research laboratories and the academic world**. It promotes the know-how and expertise developed by a network of active members who contribute to national and international industrial excellence. Centred around a **strong base of contractors and suppliers**, the cluster fosters presence in multiple sectors;

4 missions:

- > Creating synergies
- > Taking the energy transition forward
- > Boosting competitiveness through innovation
- > Consolidating know-how to facilitate employment



NUCLEAR VALLEY CLUSTER

The **Nuclear Valley cluster** is the only government-certified competitiveness cluster dedicated to civil nuclear technology in France. It mobilises all the available resources (industrial, institutional, academic and scientific) to foster the emergence of innovative and competitive solutions for the civil nuclear industry.

6 strategic focuses:

- > Design and production of equipment
- > Operation and Maintenance
- > Decommissioning, recycling and storage
- > Civil engineering and concretes for nuclear installations
- > Digital
- > Nuclear Medicine - Radiation protection



WIND FOR FUTURE CLUSTER

Wind for Future (W4F) brings together companies involved in **wind power**, with expertise ranging from **research to maintenance and operation**.



THE REGIONAL ECONOMIC AGENCY OF BOURGOGNE-FRANCHE-COMTÉ

The Regional Economic Agency cooperates closely with stakeholders in business development, innovation, training, and employment to:



ASSIST
in maintaining
and improving
economic activity
and employment
in the region



**SUPPORT
AND DEVELOP**
innovation
and eco-innovation



BACK
the region's
economic
development
strategies



BOOST
the region's
economic
appeal

BOURGOGNE-FRANCHE-COMTÉ AN ECOSYSTEM ABLE TO RISE TO TOMORROW'S ENERGY CHALLENGES

Bourgogne-Franche-Comté is the spearhead of French industry, and now a major player in the Energy sector:

- > engineering and equipment manufacturing for **conventional fossil energies** and **nuclear energy**
- > **renewable energies** (photovoltaics, hydraulics, wind power, etc.)
- > **wood energy**
- > **hydrogen*** as a means of storing energy

Centred on some of the sector's world leaders, the industrial base offers a wealth of complementary expertise and high-level scientific research:

- > Engineering and machining of super-alloys and complex parts
- > Surface treatments
- > Mechanics and micro-mechanics
- > Specialist tooling and machines
- > Fluid mechanics
- > Electronics, electrics, automatic systems

All the expertise the sector requires can be found in the region:

- > **Precision work on very large parts**
- > **Small and medium-scale production runs**
- > **Project management, assistance**
- > **Technical support**

Tailored to the market's requirements, training programmes produce a qualified work force in line with manufacturers' requirements.

STRENGTHS of the region

1 INTERNATIONAL CONTRACTOR => EDF

EDF IN BOURGOGNE-FRANCHE-COMTÉ

90

SITES

3,000

EMPLOYEES

24

PRODUCTION
SITES

3rd

LARGEST DAM IN
FRANCE AT VOUGLANS

2 GLOBAL INDUSTRY LEADERS

=> GENERAL ELECTRIC

=> FRAMATOME

20% OF THE WORLD'S STEAM AND GAS TURBINES ARE PRODUCED BY GENERAL ELECTRIC IN BFC

A COMPETITIVENESS CLUSTER DEVOTED TO NUCLEAR ENERGY

AN ENERGY CLUSTER AND A WIND POWER CLUSTER

A CERTIFIED HYDROGEN TERRITORY



A CHOICE OF DEDICATED TRAINING COURSES UNIQUE IN FRANCE

A FEW COMPANIES IN THE INDUSTRY



CONVENTIONAL ENERGIES



2D DOMECA
AE2I
ALLYN INTERNATIONAL
ASSYSTEM
CITELE INDUSTRIE SA
EST MACHINES TECHNIQUES
DALKIA FRANCE
ESSERT POLISSAGE SARL
GAMMA INDUSTRIE
GCC SAS
GENERAL ELECTRIC
INDUSTEEL
LGE
LUFKIN
MACPLUS
MECAPLUS S.A
MILGRED
TANDEM
USIDUC
WAMAR ENGINEERING



NUCLEAR



APERAM
FRAMATOME
INDUSTEEL
VALLOUREC



HYDROGEN*



DEPHIS
FAURECIA
H2SYS
JUSTY
MAHYTEC
PRESSE ÉTUDE
ROUGEOT ENERGIE
SCHRADER PACIFIC



WIND POWER PHOTOVOLTAICS



ELEC ENR
ENERCON
ENGIE
EOLE RES
H2ION
INNERGEX
JUSTY
LUFKIN
OPALE ENERGIES NATURELLES
GROUPE PSA
SENVION
VESTAS
VELOCITA



WOOD ENERGY WASTE RECOVERY

Primary and secondary wood processing companies generate clean wood by-products such as bark, saw dust, wood shavings and chips that can be used to produce energy.

In 2016, **390,000 metric tonnes of wood-related products were recycled** (community and industrial boilers, wood pellet production) in Bourgogne-Franche-Comté.

*see the Hydrogen sector brochure



BUSINESSES

200

BUSINESSES

14,000

DIRECT
JOBS

2

WORLD
LEADERS



RESEARCH & INNOVATION

4

LABORATORIES
LINKED TO THE INDUSTRY



PROJECT ASSISTANCE

1

DEDICATED
COMPETITIVENESS
CLUSTER

2

DEDICATED
CLUSTER



EDUCATION

2

TRAINING
COURSES
DEDICATED
TO WIND POWER

1

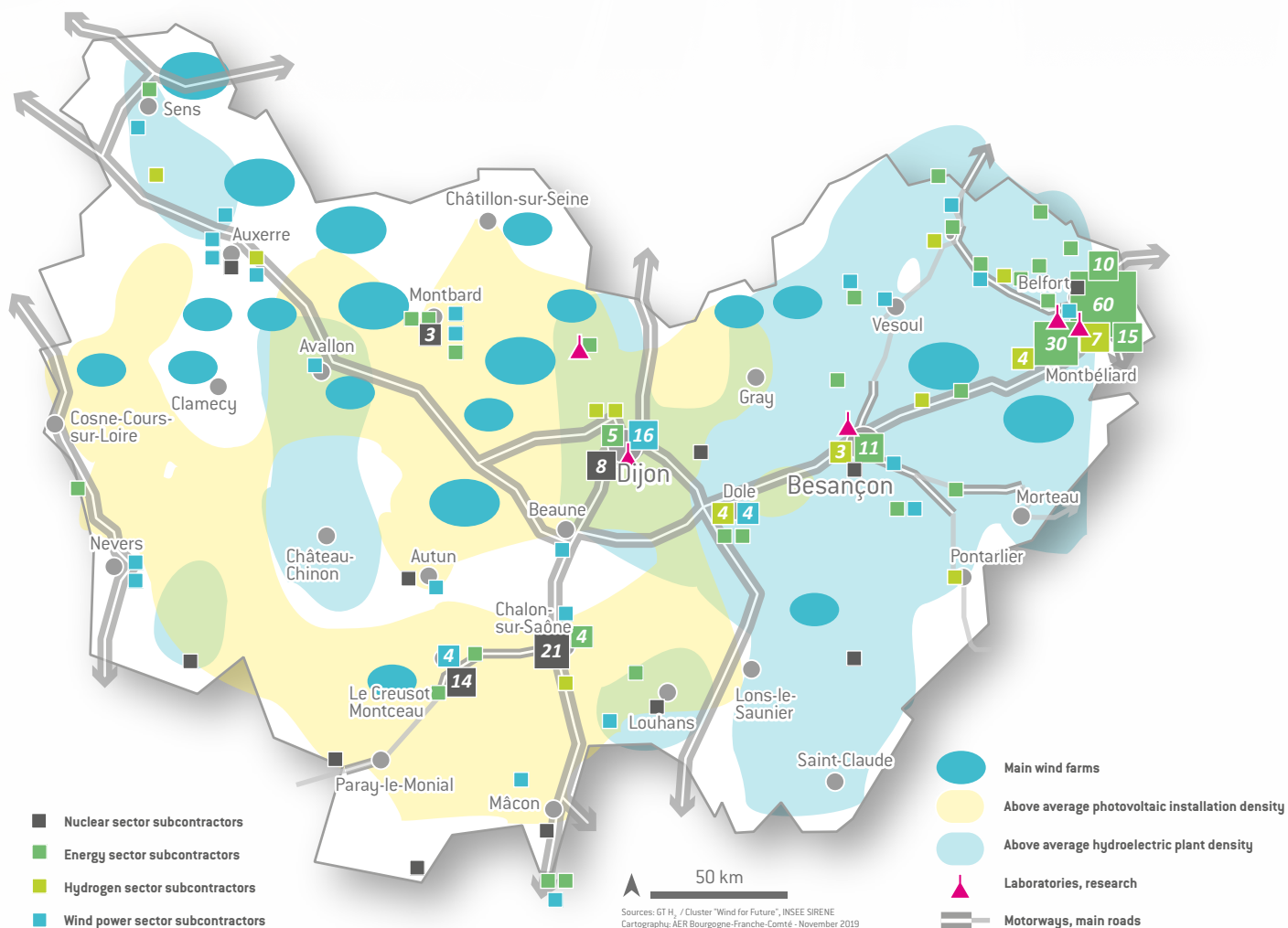
TRAINING
COURSE
DEDICATED
TO HYDROGEN

over
30

TRAINING
COURSE
DEDICATED
TO ENERGY

5

SCHOOLS
TRAINING
ENGINEERS



FORCE 15 kN



BOURGOGNE-FRANCHE-COMTÉ

A TRAILBLAZING SPIRIT

©CETIC

a cutting-edge scientific and technical environment

FEMTO-ST INSTITUTE

ONE OF THE LARGEST CNRS JOINT RESEARCH LABORATORIES

Of the 700 people assigned to the laboratory by the UFC, ENSMM, UTBM and the CNRS, around a hundred work each day on **thermal and electrical power generation, conversion and storage**, with high-level expertise in **electrical hybrid systems for use in transport and stationary applications**. FEMTO-ST is the main academic user of the **hydrogen fuel cell facility** now managed and operated by USR FCLAB.

✓ USR FCLAB

HYDROGEN FUEL CELL SERVICES AND RESEARCH UNIT

This creates a link between six national laboratories specialising in **Hydrogen-Energy**. Supported by UTBM's Hydrogen Fuel Cell facility, it is **the only unit in Europe to combine highly advanced research and engineering** in this field at this scale in a public structure.

LISPEN LABORATORY

ARTS ET MÉTIERS, CLUNY CAMPUS

LISPEN is the engineering laboratory for physical and digital systems (Laboratoire d'Ingénierie des Systèmes Physiques et Numérique) in the Arts et Métiers institute at Chalon-sur-Saône. It works to develop and operate **multi-physical and virtual dynamic systems for the industry of the future**. Some applications involve energy systems.

ICB LABORATORY

METALLURGICAL PROCESSES, DURABILITY, MATERIALS

The ICB is involved in **developing advanced materials, studying their durability, and processes and reactivity phenomena at solid/solid and solid/gas interfaces**.

THE UTBM ENERGY DEPARTMENT

UNIVERSITY OF TECHNOLOGY OF BELFORT-MONTBÉLIARD

The UTBM Energy department works with research teams from several laboratories, including the FEMTO-ST/CNRS Institute and the USR Lab. It has two technology facilities for training and research for its industrial partners:

- > the Energy facility
- > the Hydrogen fuel cell facility

✓ UTBM HYDROGEN FUEL CELL FACILITY

One of Europe's largest public facilities for research, testing and industrial transfer in the field of **Hydrogen Fuel Cell systems** (900 sqm of testing space to test powers ranging from a few watts up to almost 200 kW).

CETIC

CENTRE FOR EXPERIMENTATION AND VALIDATION OF MAINTENANCE TECHNIQUES ON PRESSURISED WATER NUCLEAR REACTORS

The CETIC develops and qualifies maintenance operations implemented on nuclear reactors in France and abroad, and trains operators.

- > Full-scale representative environment with reactor components
- > 50 mock-up work stations or real components available for experimentation

BOURGOGNE-FRANCHE-COMTÉ

A CHOICE OF DEDICATED TRAINING COURSES UNIQUE IN FRANCE

UNIVERSITY OF FRANCHE-COMTÉ

From the DUT (technology diploma) to Master's level, the UFC delivers courses focused on **renewable energy** and **energy efficiency**.

- > Master of Engineering in **Hydrogen Energy and Energy Efficiency**

with an educational facility
focused on **Hydrogen Energy**

UNIVERSITY OF BURGUNDY

From the DUT (technical diploma) to the Master's level, the UB provides courses in **the physics of materials** as well as **civil and mechanical engineering**.

ENSMM (BESANÇON)

A GENERAL ENGINEERING UNIVERSITY SPECIALISING IN MECHANICS AND MICROT TECHNOLOGY

- > Two engineering diplomas with the status of apprentice, with a speciality in Mechanics and a speciality in Microtechnology and Design.
- > Structural mechanics, Creation of connected objects, Materials and surfaces, Mechatronics and robotics, Engineering of production systems, Micromechanics, Innovation engineering, Process engineering

ARTS ET MÉTIERS, CLUNY CAMPUS

- > Studies in **mechanical, industrial, and energy engineering**

LYCÉE LOUIS ARAGON (HÉRICOURT)

PROFESSIONAL BACCALAUREATE, BTS SENIOR TECHNICIAN'S DIPLOMA AND APPRENTICESHIP

- > **Renewable Energies, HVAC and Fluids Engineering**

Partner of the Bourgogne-Franche-Comté Energy Cluster and of the Maison des Énergies in Héricourt.

LYCÉE RAOUL FOLLERAU (BELFORT)

PRE-SERVICE TRAINING AND APPRENTICESHIPS FOR THE ENERGY SECTOR

STI2D stream: Science and Technologies for Industry and Sustainable Development: special courses: **Energies and Environment**, Technological Innovation and Eco-Design, Digital Information Systems

- > BTS **Systems Maintenance**, Production Systems option
- > Preparatory courses for prestigious specialist schools (PT, PTSI, PSI)

Industrial boiler-making sector

- > BTS senior technician's diploma in Design and Production for Industrial boiler-making
- > Professional baccalaureate in Industrial boiler-making

UTBM (BELFORT-MONTBÉLIARD)

BELFORT-MONTBÉLIARD UNIVERSITY OF TECHNOLOGY

- > **Energy Engineering:** Energy production, Networks, conversion and storage, Transport and embedded energy systems
- > **Electrical Engineering** by apprenticeship
- > **Master's Degree course in Electrical Energy**

with two educational facilities:
Electromagnetic compatibility
Energy and land transport

ESIEM (DIJON)

HIGHER INSTITUTE FOR MATERIALS ENGINEERING

- > Materials: R&D or product industrialisation, from design to recycling (sustainable development)
- > IT/Electronics: specialisations in Embedded Systems, Network Security and Quality, Software and Knowledge Engineering
- > Robotics: modelling and simulation, functional and mechanical design, system autonomy, ...

LYCÉE GUSTAVE EIFFEL (DIJON)

PRE-SERVICE AND CONTINUOUS PROFESSIONAL TRAINING ON ENERGY

- > STI2D stream: Industry and sustainable development, **Energies and Environment** options, Digital and Information Systems, Technological Innovation and Eco-design
 - > BTS senior technician's diploma - **Systems Maintenance, wind power option**
 - > BTS senior technician's diploma in **Electrotechnics** and preparatory courses
- Continuous professional training in liaison with the GRETA institute:
- > **Electrical network technician**
 - > **Onshore wind power farm maintenance technician**

Equipped with a 6-metre mast and nacelle

LYCÉE EUGÈNE GUILLAUME (MONTBARD)

PRE-SERVICE TRAINING, APPRENTICESHIPS AND CONTINUOUS PROFESSIONAL TRAINING

- > CAP qualification in Production Plant Operation
- > Professional baccalaureate in: **Industrial boiler-making techniques, Industrial plant maintenance, Digital systems, the Electricity professions and the related environments**
- > Post-baccalaureate level: **Non-destructive testing, Photovoltaic plant operation and maintenance**



YOUR ENERGY SECTOR CONTACT

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COMTE**