

# Energy sector





# A STRATEGIC POSITION IN EUROPE

With its business parks, infrastructure and business services, Bourgogne-Franche-Comté creates ideal conditions for the successful completion of your projects.

## AN EASILY ACCESSIBLE REGION



### POPULATION

**2.8 MILLION** INHABITANTS  
**42 MILLION** INHABITANTS WITHIN 4 HOURS' DRIVE



### EDUCATION

**60,000** STUDENTS  
**30,000** YOUNG PEOPLE IN APPRENTICESHIP TRAINING



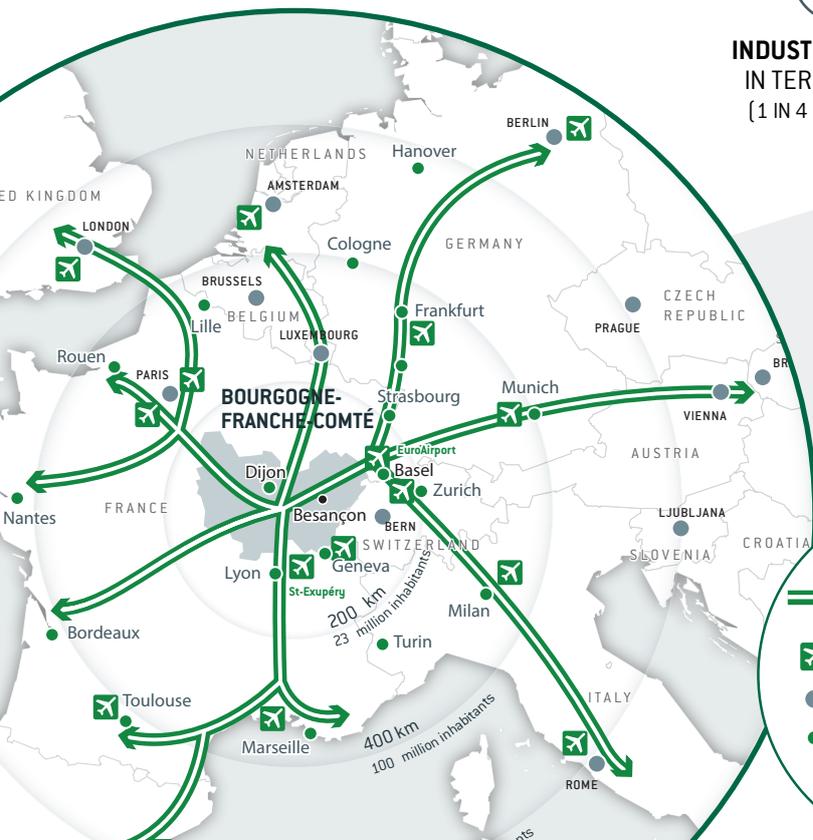
### BUSINESSES

**367,200** BUSINESSES  
**19,300** MANUFACTURING INDUSTRY ESTABLISHMENTS



### JOBS

**1.3 MILLION** PEOPLE IN THE WORKFORCE



**No.1**

**INDUSTRIAL REGION**  
IN TERMS OF JOBS  
(1 IN 4 EMPLOYEES)

**No.2**

REGION FOR THE **SHARE OF INDUSTRIAL ADDED VALUE**

**81.7**

**BILLION EUROS OF GDP AND €21.3 BILLION IN EXPORTS**

**3<sup>rd</sup>**

**LARGEST EXPORTING REGION**  
(COVERAGE RATES: EXPORTS/IMPORTS AS %)

**No.1**

**INVESTMENT REGION**  
(PRIVATE INVESTMENT IN R&D)

- Major European motorways and high-speed railway lines
- International airports
- Capital cities
- Major cities



For more details on the numbers in this chapter, you can flash this QRCode



# REGIONAL SUPPORT FOR ENERGY INDUSTRIES

Bourgogne-Franche-Comté has exceptional heritage in terms of biodiversity and resources, and it is committed to the energy transition. Its goal is to become a positive energy region by 2050. To this end, and in addition to its long-standing steam boiler, nuclear reactor and turbine manufacturing activities, the Region is supporting an active ecosystem conducive to the sector's skill challenges and the development of carbon-free energy production projects.

## THE REGION'S STRATEGIC FRAMEWORKS FOR ENERGY



Regional roadmap for the deployment of **renewable and recovered energy**



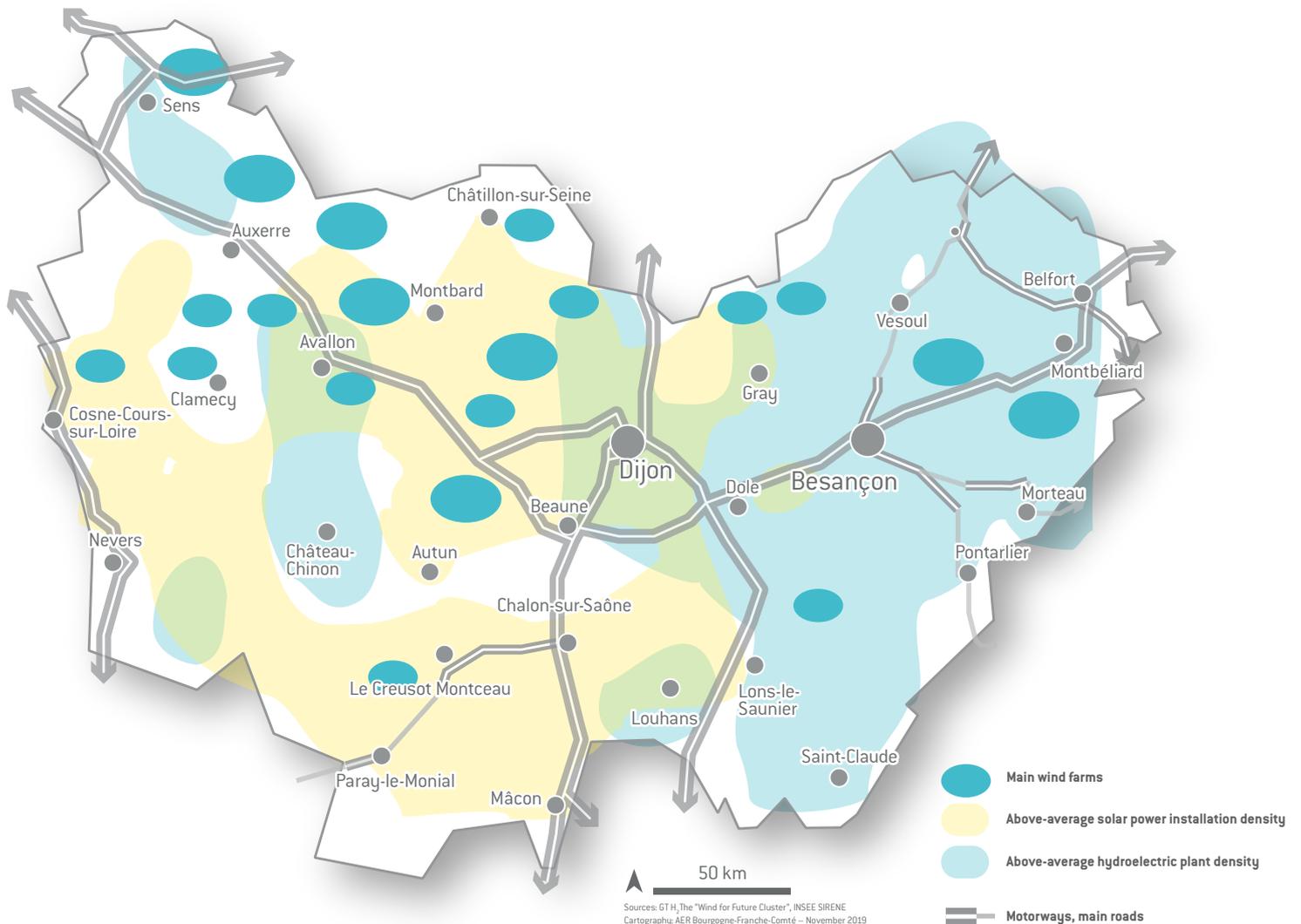
**Support** for clusters and competitiveness clusters



**Action plan** in conjunction with the University of Nuclear Professions (UMN) **to train 100,000 new employees** in Bourgogne-Franche-Comté **over the next 10 years**



€100 million between now and 2030 to support the **hydrogen sector**





# OVERVIEW OF THE ECOSYSTEM

## TRAINING COURSES

### University of Franche-Comté

> From the BUT (university bachelor of technology) to master's level, 26 courses in renewable energies, hydrogen energy, electrical energy, thermal energy and energy efficiency, including a CMI in Hydrogen Energy and Energy Efficiency

Educational facility focused on energy and hydrogen

[www.univ-fcomte.fr](http://www.univ-fcomte.fr)

### UTBM (Belfort-Montbéliard)

> Energy production, transport and storage systems, on-board energy systems, hydrogen energy, mechanics, IT and electrical engineering

Educational platforms:  
Electromagnetic compatibility  
Energy & land transport

[www.utbm.fr](http://www.utbm.fr)

### University of Burgundy

> From the DUT (technical diploma) to master's level, courses in the physics of materials, in chemistry and in nuclear energy as well as civil and mechanical engineering

[www.u-bourgogne.fr](http://www.u-bourgogne.fr)

### University of Bourgogne Franche-Comté

> Graduate school EIPHI in the following fields: Physics, Mathematics, Intelligent Systems, Energy, Materials Science, IT

[www.ubfc.fr](http://www.ubfc.fr)

### Arts et Métiers (Cluny)

> Materials, manufacturing processes, digital models and virtual imaging

Hosted laboratories:  
LISPEN  
LaBoMaP

[artsetmetiers.fr](http://artsetmetiers.fr)

### Polytech Dijon (formerly ESIREM)

> Materials, IT & Networks, Electronics & Digital Systems, Robotics

[esirem.u-bourgogne.fr](http://esirem.u-bourgogne.fr)

### IUT (Le Creusot)

> Physical measurements, electrical engineering and industrial IT, mechanical and production engineering, CAD/CAM, mechatronics, robotics, marketing techniques

[iutlecreusot.u-bourgogne.fr](http://iutlecreusot.u-bourgogne.fr)

### IUT (Chalon-sur-Saône)

> Non-Destructive Testing of Materials and Structures, Industrial Engineering and Maintenance, Logistics and Transport Management, Materials Science and Engineering

[iutchalon.u-bourgogne.fr](http://iutchalon.u-bourgogne.fr)

### SUPMICROTECH-ENSMM

(Besançon)  
> Microtechnology, precision mechanics, mechatronics and microsystems, materials, manufacturing processes and surface treatments

[www.supmicrotech.fr](http://www.supmicrotech.fr)

### GRETA (21)

> Senior wind turbine maintenance technician – BZEE

[www.bourgogne-greta.fr](http://www.bourgogne-greta.fr)

### ANEMOS France

> Mandatory courses in wind energy

[www.anemosfrance.com](http://www.anemosfrance.com)

## VOCATIONAL DIPLOMAS, BTS

### LYCÉE LÉON BLUM (Le Creusot)

> Vocational Diploma in Nuclear Installation Techniques (TIIN – Techniques d'Interventions sur Installations Nucléaires)  
> Senior Technician's Diploma (BTS) – Nuclear Environment (ENU)

[lyc-lblum-le-creusot.eclat-bfc.fr](http://lyc-lblum-le-creusot.eclat-bfc.fr)

### LYCÉE GUSTAVE EIFFEL (Dijon)

> BTS – Systems Maintenance, wind power option  
> Electrical network technician (in association with GRETA)  
> Onshore wind farm maintenance technician (in association with GRETA)  
> Provision of a 6-metre mast and wind turbine nacelle

[lyc2l-eiffel.ac-dijon.fr](http://lyc2l-eiffel.ac-dijon.fr)

### LYCÉE EUGÈNE GUILLAUME (Montbard)

> Voc. Diploma in Electricity and Connected Environments (MELEC) – renewable energy focus  
> Certificate of Specialisation – Renewable Energy Technician option A  
> Non-Destructive Testing Agent

[lyc-eguillaume-montbard.eclat-bfc.fr](http://lyc-eguillaume-montbard.eclat-bfc.fr)

### LYCÉE JANOT - CURIE (Sens)

> Voc. Diploma – Plastics and Composites  
> BTS – Europlastics and Composites

[lyc-janot-curie-sens.eclat-bfc.fr](http://lyc-janot-curie-sens.eclat-bfc.fr)

## SUCCESS STORIES

1957



Laboratory © CEA

Creation of the **CEA** site in Valduc, a research and production site for deterrent weapons.

1968



Vouglans dam © D. Maraux

Commissioning of the **Vouglans hydroelectric dam**, 3<sup>rd</sup> largest reservoir in France.

1928

Founding of Alstom Belfort, which in 1998 was renamed **Alstom**, without the "h", which is easier to pronounce in all countries.

1958

The result of a merger between the Creusot-Loire subsidiary of the Schneider group and the American company Westinghouse Electric, **Framatome** is created and produces its first nuclear reactors.

1999

ALSTOM creates a joint venture with ABB, named **ABB ALSTOM Power** in the field of power generation systems.



## RESEARCH

**FEMTO-ST** (Besançon, Belfort, Montbéliard)  
 > Engineering and computer sciences  
 > Hydrogen fuel cell systems, thermal and electrical energy measurement, production, conversion and storage systems  
 Collaboration between the CNRS, University of Franche-Comté, SupMicroTech – ENSMM, UTBM  
[www.femto-st.fr](http://www.femto-st.fr)

**FC LAB** (Belfort)  
 > Hydrogen Fuel Cells and Hydrogen Energy  
 Collaboration between the CNRS, University of Franche-Comté, SupMicroTech – ENSMM, UTBM  
[www.fclab.fr](http://www.fclab.fr)

**ICB** (Dijon)  
 > Optics, photonics and metallurgical processes  
 Collaboration between the UTBM, University of Bourgogne Franche-Comté and CNRS  
[icb.u-bourgogne.fr](http://icb.u-bourgogne.fr)

**LaBoMaP** (Dijon)  
 > Materials and manufacturing processes.  
 Campus Arts et Métiers collaboration  
[labomap.ensam.eu](http://labomap.ensam.eu)

**LISPEN** (Chalon-sur-Saône)  
 > Multi-physics modelling, human-system interaction  
 > Virtual immersion (virtual/augmented reality)  
 Collaboration between the Arts et Métiers, Cluny, Lille and Aix-en-Provence campuses  
[lispensam.eu](http://lispensam.eu)

## BUSINESSES (non-exhaustive list)

### CONVENTIONAL ENERGIES

Alfa Laval  
 Comeca  
 Dalkia France  
 FluidExpert  
 General Electric  
 Industeel  
 Jeumont Electric  
 Leroy Somer  
 Lufkin  
 M-Plus Group  
 Nexans  
 Neotiss  
 Prysmian  
 Saint Gobin Seva  
 Schneider Electric  
 Turbine Casting  
 Tyco  
 Valinox  
 Vallourec

### NUCLEAR

APAVE  
 Aubert & Duval  
 CEA  
 CETIC  
 CLM Industrie  
 EDF  
 Framatome  
 General Electric  
 Manesmann Stainless Tube  
 Technatom

### WIND POWER - SOLAR ENERGY

Connected Wind Services  
 EDF Renewables  
 Elec ENR  
 Engie  
 H2ion  
 Innergex  
 Opale Energies Naturelles  
 Servion  
 WPD Onshore

### HYDROGEN

Clhynn  
 FORVIA Faurecia  
 Gen-Hy  
 H2sys  
 Hynamics  
 MaHytec  
 Mcphy  
 Schrader Pacific

## COMPETITIVENESS CLUSTERS

**NUCLEAR VALLEY CLUSTER** (Chalon-sur-Saône)  
 Promotes the emergence of innovative and competitive solutions for the region's civil and defence nuclear industry by mobilising all the resources (industrial, institutional, academic and scientific) in the area.  
[www.nuclearvalley.com](http://www.nuclearvalley.com)

426 members, including AURA  
 12,000 direct jobs  
 20,000 indirect jobs

**VALLÉE DE L'ÉNERGIE CLUSTER** (Belfort)  
 Fosters and promotes the know-how and expertise developed by a network of companies and active members who contribute to the industrial excellence of the low-carbon energy and solutions sector.  
[vallee-energie.com](http://vallee-energie.com)

60 members  
 14,000 direct jobs  
 35,000 indirect jobs

**WIND FOR FUTURE CLUSTER** (Dijon)  
 A group of wind and solar energy companies with skills ranging from research to maintenance to operation, with a focus on training.  
[linkedin.com/company/wind-for-future](https://www.linkedin.com/company/wind-for-future)

50 members  
 1,000 direct and indirect jobs

**ROBOTICS VALLEY CLUSTER** (Dijon)  
 Creates synergies between companies, supports R&D, monitors emerging markets and aims to improve the region's attractiveness in terms of robotics and the industry of the future.  
[www.robotics-valley.eu](http://www.robotics-valley.eu)

71 members

## IN BOURGOGNE-FRANCHE-COMTÉ

2007

> First **methanisation support programme**.  
 > Commissioning of the region's **1<sup>st</sup> wind farm** on the Lomont site.



Picarreau solar farm © Corsica Sole

2022

Commissioning of the **Picarreau solar farm** (Jura), spanning 27 hectares.

2021

General Electric Belfort delivers **Arabelle, the world's most powerful turbine** for installation at Hinkley Point C in England.

2023

> **Framatome relocates production** of nuclear reactor vessel internals for an investment of €100 million.  
 > Framatome **delivers the first reactor vessel** for the Hinkley Point C EPR.  
 > The Atlantic Group invests €150 million to **build a heat pump assembly site**.



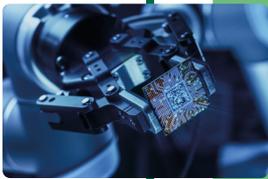
Arabelle © GE



# EXPERTISE SERVING ENERGY

  
**BUSINESSES**

<b>200</b>	<b>39,500</b>	<b>2</b>
<b>BUSINESSES</b>	<b>JOBES</b>	<b>GLOBAL LEADERS</b>



**ELECTRICITY –  
ELECTRONICS,  
AUTOMATION &  
ROBOTICS**



**METALLURGY**



**SPECIALIST TOOLING  
AND MACHINES**

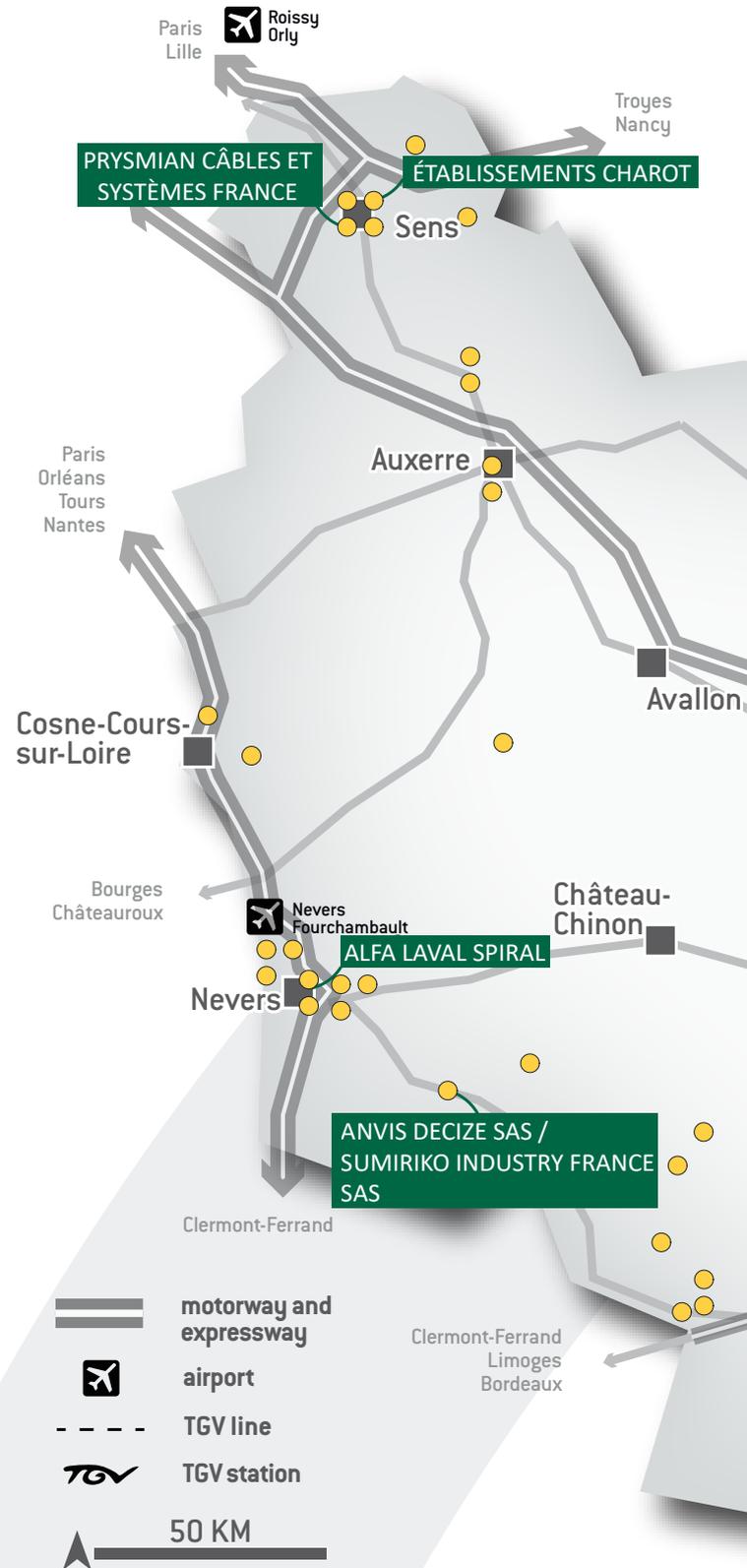


**POWER CONVERSION**

**MECHANICS AND  
MICROMECHANICS**



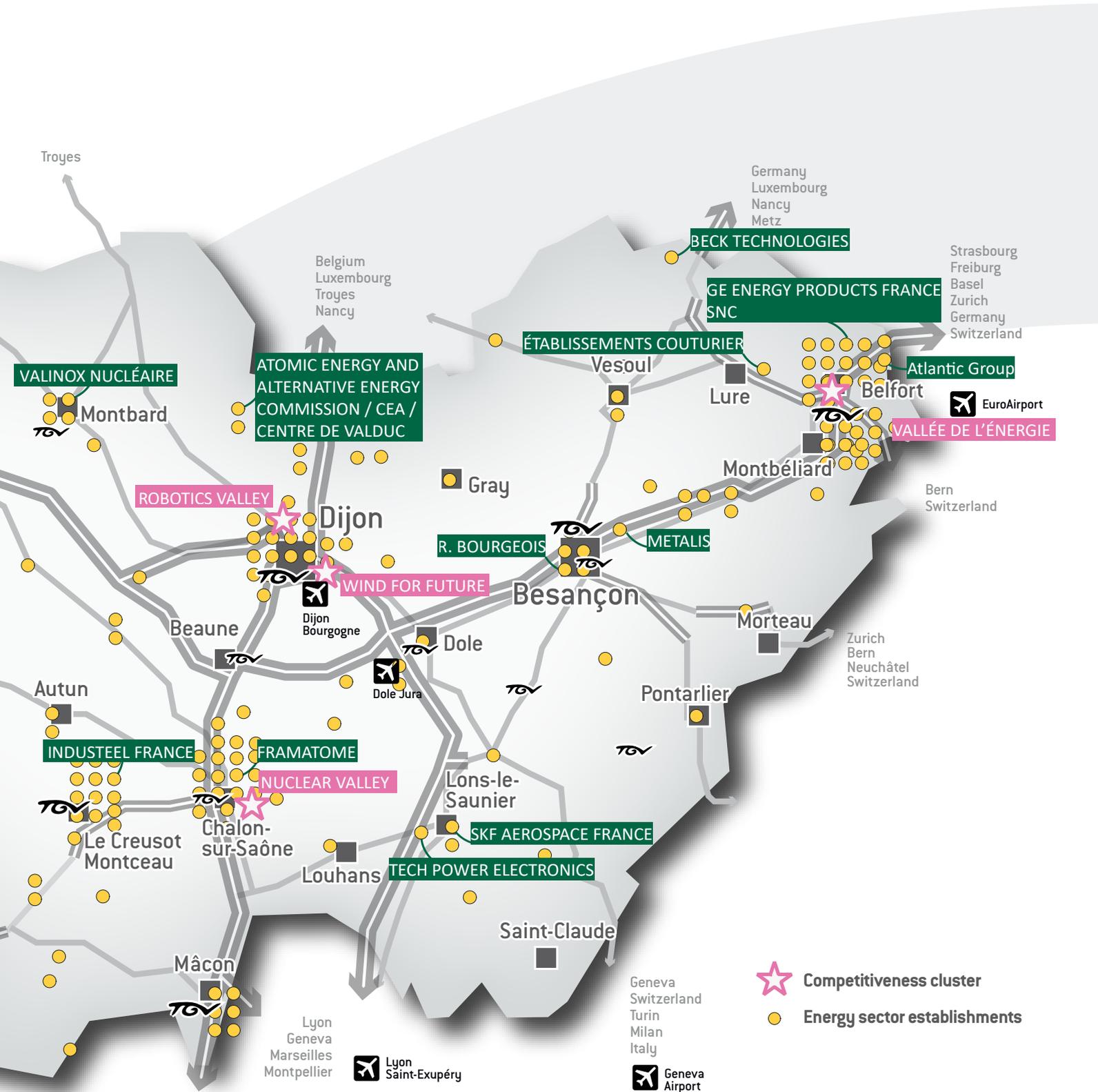
**ENERGIES**





# SECTOR SERVING MAJOR PROJECTS

Steam boilers, nuclear reactors and turbines, including Arabelle, the most powerful in the world, have been manufactured here for over 150 years. For example, 20% of the world's power plants and 100% of France's nuclear power plants are equipped with turbines manufactured in the region, and 85% of the energy produced in Bourgogne-Franche-Comté comes from renewable sources: hydroelectricity, solar power, biomethanisation, wind power and wood. Having received the Hydrogen Territory label, the region is also a pioneer in hydrogen production.



## YOUR ENERGY SECTOR CONTACT

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21071 Dijon Cedex  
Tel. +33 (0)3 80 40 33 88

Local economic developers  
in all 8 of the region's departments

## THE REGIONAL ECONOMIC AGENCY OF BOURGOGNE-FRANCHE-COMTÉ

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



Business project engineering by regional and strategic sector



Financial engineering



Innovative project engineering, ecological transition and energy recovery



Economic changes



Promotion and communication