NOTE RAPIDE
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ECONOMY
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"GREEN" AND "GREENISH" JOBS: ESSENTIAL SKILLS FOR ECOLOGICAL TRANSITION

IN PARIS REGION IN 2018, 26,100 EMPLOYEES WERE INVOLVED IN GREEN OCCUPATIONS AND 790,300 IN GREENISH OCCUPATIONS. THEY ARE MAINLY BLUE-COLLAR OR EXECUTIVE ROLES RARELY FILLED BY WOMEN. SEVEN OUT OF TEN "GREEN" OCCUPATIONS ARE LOCATED IN PARIS AND THE IMMEDIATE SUBURBS. "GREENISH" OCCUPATIONS ARE OVERREPRESENTED IN THE OUTER SUBURBS DUE TO THE PRESENCE OF RESEARCH CENTRES. OVER THE PAST TEN YEARS, MORE PEOPLE HAVE BEEN INVOLVED IN "GREENISH" OCCUPATIONS THAN IN PUBLIC TRANSPORT, CONSTRUCTION OR CONSERVATION.

14.2%
OF EMPLOYEES IN PARIS REGION HAVE "GREEN" OR "GREENISH" JOBS

26,100
"GREEN" PROFESSIONALS

790,300
"GREENISH" PROFESSIONALS

The recent reinforcement of French and EU climate and biodiversity goals (French Energy and Climate Act of November 2019, French Climate and Resilience Act of August 2021, European Green Deal[1]) has made it necessary to speed up the development of new skills and improve the range of initial and continuous training available to employees (see box).

These challenges have led to the identification of two categories of jobs: "green" jobs, which are directly connected to environmental concerns, and "greenish" jobs, which embrace new skills to allow for the environmental dimension they possess (See Definitions p. 6).

In 2018 there were 816,400 people in "green" and "greenish" occupations in Paris Region, accounting for 14.2% of its jobs.

26,100 EMPLOYEES IN GREEN OCCUPATIONS IN 2018

In 2018, green occupations represented only 0.5% of jobs in the region: the same percentage as in the whole of Metropolitan France. Green jobs in Paris Region represent 19% of all green jobs in France. Sectors include energy and water production and distribution, sewage and waste processing, and conservation.

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Cover
The energy renovation industry is booming. Construction is responsible for 33% of CO_2 emissions in Paris Region.

Technicians at an industrial power plant.

Worker at a waste sorting facility.

THE GREEN ECONOMY: REGIONAL CHALLENGES

The 2030 Sustainable Development Agenda and the Paris Climate Agreement were adopted in 2015. Paris Region organised its first Climate Change Conference (COP) in 2020. The aim was to discuss the environmental challenges Paris Region faces and to come up with concrete proposals.
As a result, the Institut Paris Region was tasked with carrying out a study on new occupations within the green economy.
The goal is also to double the number of endorsed training courses relating to green jobs and the circular economy available to jobseekers by 2022.
In addition, since 2016 the Region has adopted a number of cross-sectoral environmental strategies in response to the collapse of biodiversity and the climate emergency: the Regional Waste Prevention and Management Plan, the Circular Economy Strategy, the Cycling Plan, the Energy/Climate Plan, the 2020-2030 Biodiversity Strategy, etc.

Jobs in sewage and waste processing overrepresented in Paris Region
39% of green occupations in Paris Region are in the sewage and waste processing sector, compared to 36% nationwide. This is partly due to the size of the region's sewage network, whose maintenance requires a large number of unskilled labourers (sewer and sewage farm workers, refuse collectors, etc.) of which over 7,300 work in Paris Region. The long-standing presence of waste processing actors and infrastructure also explains the fact that this sector is so well represented, as planning, collecting and processing the 40 million tonnes of waste produced annually in Paris Region requires a diverse range of jobs and facilities.

Conversely, green occupations in the conservation sector are not specific to the region (20%, compared to 22% across France). There are proportionally fewer operatives dealing with pollution or managing green spaces and natural areas: this may be explained by the high level of land take in Paris Region.

3.5 times more workers in green occupations than in Paris Region economy as a whole.
In 2018, 80% of people working in green jobs were men. More were unskilled (43%) than in all jobs across the region (13%). They were less likely to be graduates, (41%, compared to 54% across all jobs in the region). 91% had permanent contracts or were public service employees.

On the other hand, women in green jobs were mostly graduates (55%, compared to 23% of men) in executive or middle management roles. Between 2008 and 2018, the number of women in green occupations rose by six points. Executive roles increased by three points, while middle management positions fell by the same amount. The proportion of graduates rose by nine points, which is slightly lower than the growth observed across all jobs.

Increase in green jobs in the conservation sector
Between 2008 and 2018, with 600 more jobs in Paris Region, jobs in green occupations grew rather more slowly than in France as a whole (+2.4% compared to +3.1%). This growth was essentially driven by jobs in conservation (+1,500 jobs, +39%). The increase mainly involved environmental engineers and managers (biodiversity research engineers, ecologists, naturalists, etc.) and environmental operatives (ecosystem restoration workers, nature reserve wardens, etc.).

Conversely, the number of professionals working in energy production and distribution is falling more sharply in Paris Region than in France as a whole (-1,100 jobs: -10% compared to -6%): this particularly concerns supervisory staff and technicians working in energy production and distribution, water and heating. This drop is due partly to the automation of tasks in the energy distribution sector and partly to the recently initiated transformation of power plants (the Porcheville and Vitry-sur-Seine plants in particular).

Seven out of ten green occupations are in Paris and the immediate suburbs
Paris remains a hotbed of green occupations: it is home to the head offices of major groups (Veolia, EDF, Paprec) and to large numbers of engineering firms and research centres (CNRS, INRAE [Agricultural Research Institute], etc.).

The highly specific Paris Ouest-La Défense area (T4, see map) is home to leading engineering and construction firms (Suez, Vinci, Air Liquide) and key energy research centres. Highly qualified employees (engineers and senior managers) are very well represented in this area. The historic hub of Gennevilliers, which specialises in the processing of metals (e.g. crushing cars for scrap), is one of the largest in the region and comprises its very own ecosystem.

The Plaine Commune area (T6) is also very specific, with an over-representation of engineers in water and energy distribution in Saint-Denis (Veolia Eau, Engie Énergie Services) and Saint-Ouen (Engie Ineo). It is also a long-standing waste collection hub with a high concentration of waste processing plants including scrap dealers and a paper sorting centre (Paprec in La Courneuve).

Major waste processing hubs in the outer suburbs
Available land and diverse transport infrastructure (river, rail and road) make the so-called "Seine Axis" ideal for heavy and industrial activities, in particular eco-activities (see Definitions, p. 6). These have been in the area for a long time, in particular waste processing facilities, which are over-represented, for example the Écopôle Seine Aval industrial park in Carrières-sous-Poissy, continuing on from the Grand Paris Seine et Oise urban area where the Limay-Porcheville industrial hub is located.

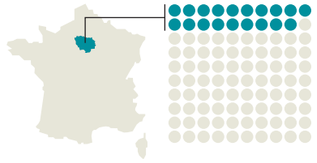
There are other more isolated specialist hubs, especially in the Moret Seine et Loing and Val d'Essonne areas, including the 150-hectare Vert-le-Grand eco-hub devoted to waste processing (recycling to generate power; waste sorting; and clinker production). These facilities, infrastructures and related occupations are essential to the economy of Paris Region. In this context, and given the environmental challenges we now face (scarcity of resources, greenhouse gas emissions, etc.),

jobs now included in the green occupations are in the front line of ecological transition in Paris Region. The location of green occupations is closely linked to that of installations that contribute to the supply of energy and waste management. Among these, waste processing plants—mainly incinerators—play an important role. These companies (and related jobs) generate the highest amount of pollution (e.g. nitrous oxide: NOx). The waste processing sector (incinerators) and heating sector (including urban heating) remain the main contributors, accounting for 52% of industrial emissions[2], although a steady drop in emissions has been observed since 2013.

GREEN AND GREENISH PROFESSIONS: ESSENTIAL SKILLS FOR ECOLOGICAL TRANSITION

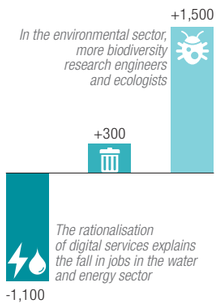
GREEN PROFESSIONS

19% of green professions are located in Paris Region



26,100 green professionals in 2018 divided into **3** main fields

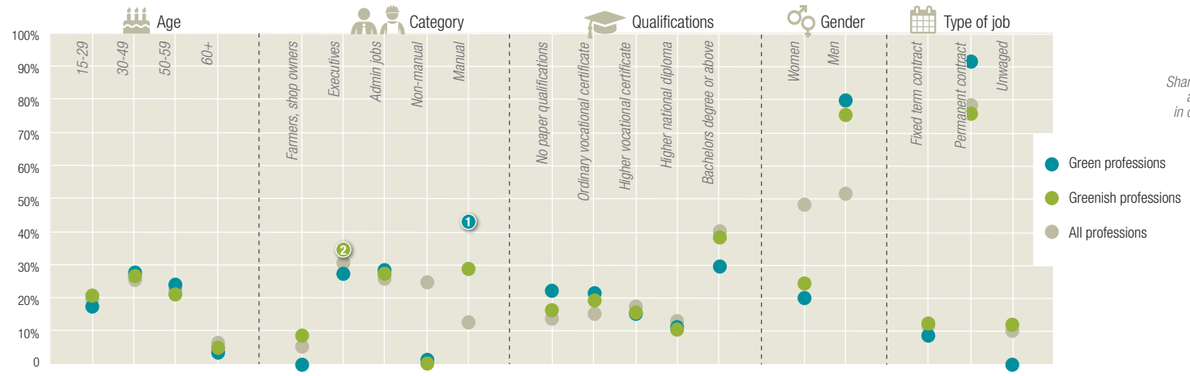
+700 green professions between 2008 and 2018



Profile of employees

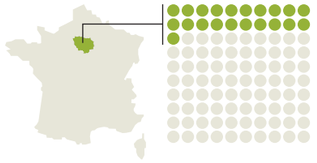
❶ **43%** of people employed in green professions are manual workers

❷ **35%** of people employed in greenish professions are executives

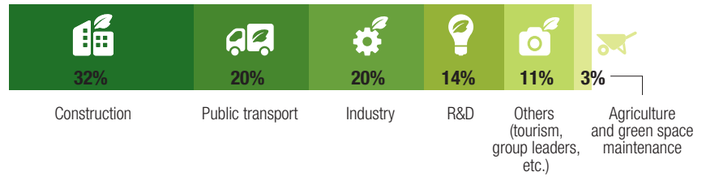


GREENISH PROFESSIONS

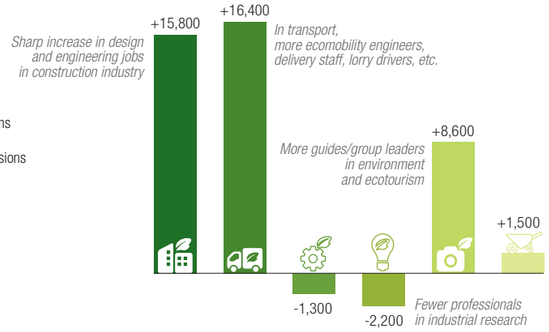
21% of greenish professions are located in Paris Region



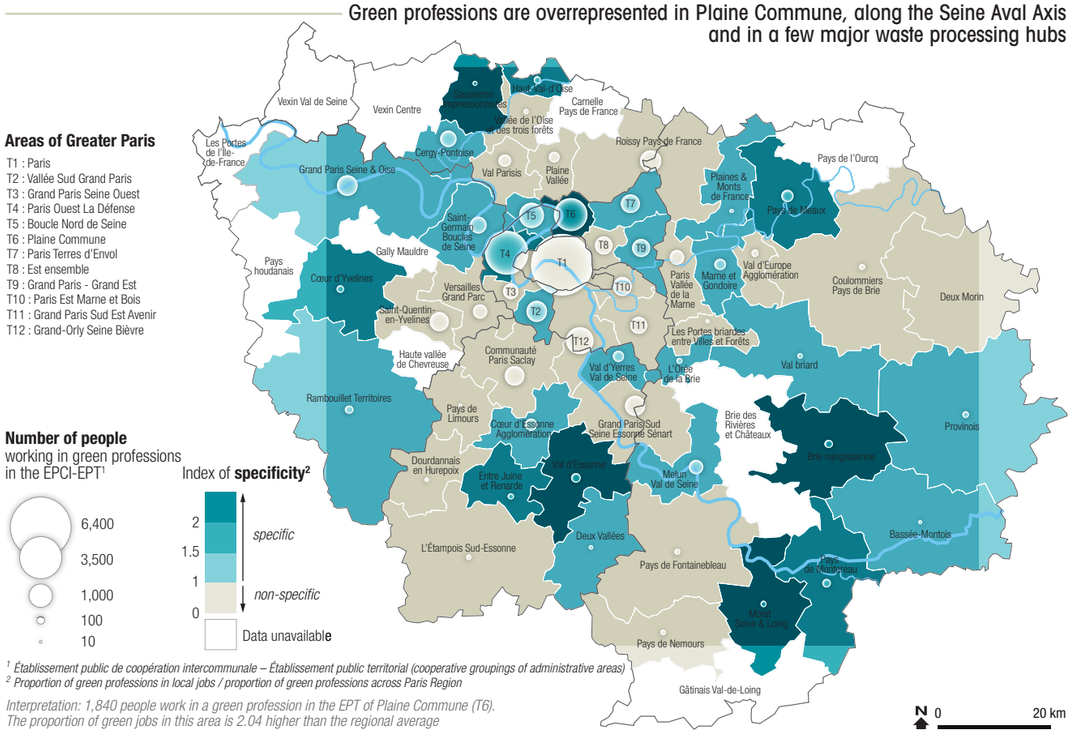
790,300 greenish professionals in 2018 divided into **6** main fields



+38,000 greenish professions between 2008 and 2018



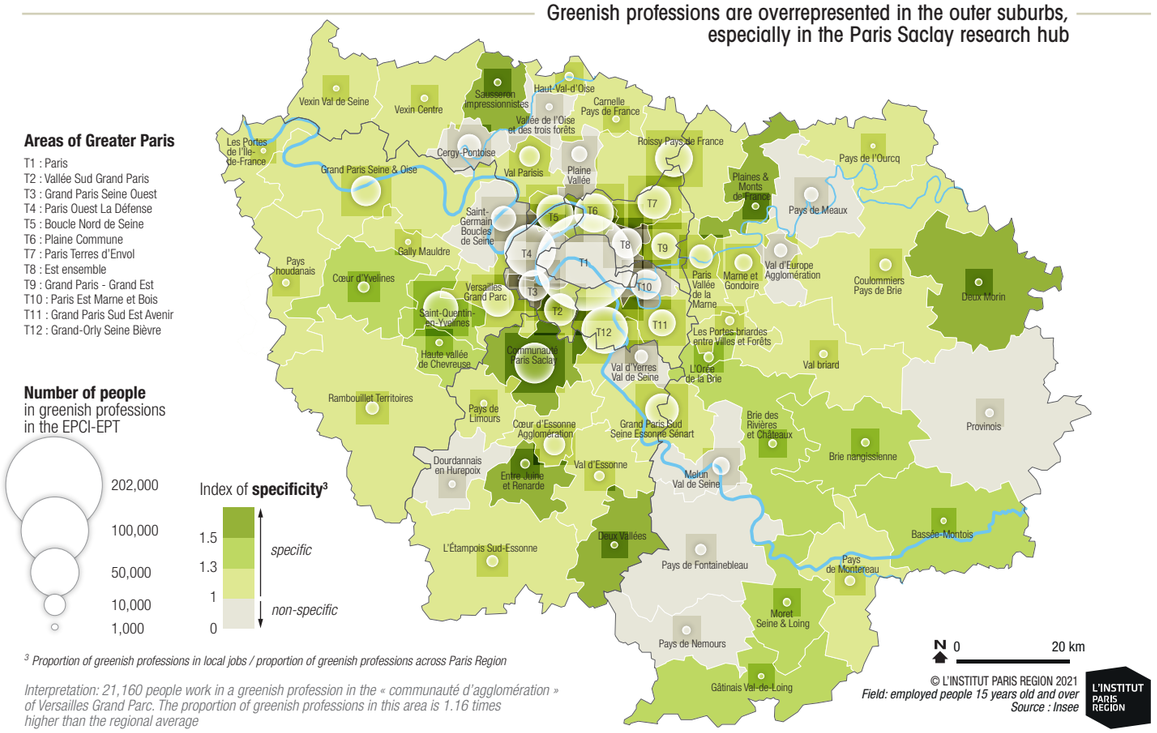
Green professions are overrepresented in Plaine Commune, along the Seine Aval Axis and in a few major waste processing hubs



[1] *Établissement public de coopération intercommunale – Établissement public territorial (cooperative groupings of administrative areas)*
[2] *Proportion of green professions in local jobs / proportion of green professions across Paris Region*

Interpretation: 1,840 people work in a green profession in the EPT of Plaine Commune (T6). The proportion of green jobs in this area is 2.04 higher than the regional average

Greenish professions are overrepresented in the outer suburbs, especially in the Paris Saclay research hub



[3] *Proportion of greenish professions in local jobs / proportion of greenish professions across Paris Region*

Interpretation: 21,160 people work in a greenish profession in the « communauté d'agglomération » of Versailles Grand Parc. The proportion of greenish professions in this area is 1.16 times higher than the regional average

Field: employed people 15 years old and over
Source : Insee

790,300 EMPLOYEES IN PARIS REGION ARE INVOLVED IN GREENISH OCCUPATIONS

Greenish occupations account for 13.7% of jobs in the region, compared to 14% nationwide. 21% of French greenish jobs are located in Paris Region.

Greenish occupations do not have a specifically environmental purpose. People in such jobs in Paris Region mainly work in construction (32%), transport (20%), industry (20%) or tourism. These are termed "greenish" occupations because they include new skills that take environmental factors into account (eco-friendly driving for lorry drivers, improving the energy efficiency of buildings, working as guides in the ecotourism sector, etc.).

More greenish occupations in R&D

Greenish occupations in the R&D sector are overrepresented in Paris Region (14% of greenish occupations, compared to 9.2% in France as a whole). This is largely due to the large number of research centres in the region. The main greenish occupations in R&D in Paris Region are: researchers in public bodies (31,000 jobs), engineers and supervisors in electricity and electronics (22,100 jobs); and engineers and supervisors in mechanical engineering and metals (22,500 jobs).

The proportion of greenish occupations in transport (eco-friendly driving for lorry and bus drivers, eco-mobility engineers, logistics, etc.) and in industry (industrial design and quality control) are similar in Paris Region and in France as a whole (almost 20% for each of these fields).

Conversely, greenish occupations in agriculture and green space maintenance are underrepresented in Paris Region (3.1%, compared to 6.1% in France as a whole): there are relatively few gardeners (15,100 jobs) and landscape gardeners (2,600 jobs), due to the amount of land take in the region. Greenish jobs in the construction sector are also underrepresented in Paris Region. These are mostly filled by unskilled construction workers (35,000 jobs) or engineers and supervisors working in construction and civil engineering (27,500 jobs).

Executives and blue-collar workers in greenish occupations

Overall, knowing the profiles of people in greenish jobs is essential if we are to understand the training requirements of these occupations.

In 2018, people in greenish occupations were more likely to be blue-collar workers (29%) or executives (35%) than other types of employees in Paris Region. Three quarters of them were men, and they were less likely to have gained a baccalauréat than employees as a whole across the Region (29% versus 36%). Three quarters were on permanent contracts. Women in greenish jobs were mainly graduates (68%, compared to 30% of men), and were more likely to be in management positions (52%, compared to 29% of men). Between 2008 and 2018, the proportion of women in greenish occupations increased slightly (up 3 points). Freelance jobs and management roles both increased by two points, to the detriment of administrative and blue-collar jobs.

More employees in transport and construction over a ten-year period

Between 2008 and 2018, greenish occupations grew more rapidly in Paris Region than in France as a whole (+38,800 jobs, +4.9% compared to +1.8%). Greenish occupations grew in the construction sector (+15,800 jobs, +6.7%) but shrank in France as a whole (-91,900 jobs, -6.3%). In particular, more people occupied positions as engineers or engineering supervisors in construction and civil engineering (+14,200 jobs, +110% in ten years). In the construction industry, there were an increasing number of jobs involving greenish and eco-friendly architecture (biomimetics, ecological consultancy, the production of biobased materials, etc.). In the transport sector, greenish occupations developed more than in France as a whole (+16,400 jobs, +12%, compared to +51,100 jobs, +7.4%), in particular lorry drivers, public transport drivers and eco-mobility engineers (see Definitions p. 6). By contrast, jobs in research were on the wane, especially in industrial research (engineers and supervisors in the processing industries: food, chemicals and metals).

The increase in the number of people occupying jobs in these sectors should also be viewed in the light of the existence of regional development schemes (in particular the Grand Paris Express and the 2024 Olympics) and regional construction policies tackling housing shortages.

More greenish occupations in the outer suburbs

Greenish occupations are more widespread in the outer suburbs, due partly to the presence of research centres in the south and west of the Region. The Paris Saclay urban area has employees whose jobs are connected to eco-activities (see definition below), mainly engineers and R&D managers at the Inrae and the Atomic Energy Centre (CEA) in Saclay. There are also engineering firms at Massy and Palaiseau. Saint-Quentin-en-Yvelines is chiefly home to major group headquarters and engineering firms specialising more in construction and transport, but it also has some leading players in the energy efficiency sector. In Guyancourt we find the Bouygues Énergie & Services tech hub and the Renault Technocentre. In the Seine-et-Marne, greenish activities are highly diversified and more widely spread across the area, from Marne-la-Vallée to more rural areas. Some hubs are emerging, for example in the Brie, Gâtinais and Deux Morins areas, where biobased materials industries are developing. In particular, the development of hemp production for eco-construction—energy-efficient buildings whose construction causes as little pollution as possible—is creating new needs and driving new skills (architects, builders, carpenters, etc.).

Ecologists taking part in a rewilding scheme on the River Yvette in the Essonne.

Micro-algae cultivation by Ennesys, a firm specialising in recycling waste to produce energy.

Identifying green and greenish occupations is a key to ecological transition. We now need to assess the relationship between these jobs, the skills companies are looking for (manpower requirements) and the training available across Paris Region. Adapting skills to recruitment needs so that it can embrace these transformations and meet support and training requirements is a key challenge for Paris Region. ■

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DEFINITIONS AND METHODOLOGY

The Observatoire National des Emplois et Métiers de l'Economie Verte (Onemev) has defined what it calls occupations vertes and occupations verdissantes, which we have translated respectively as **"green" occupations** (whose purpose is environmental) and **"greenish" occupations** (which, although not directly "environmental", require new environment-related skills). Based on the French nomenclature of occupations and social categories (PCS 2003), nine "green" occupations and 69 "greenish" occupations have been identified. Green and greenish occupations have been split into fields (three for green occupations and six for greenish occupations) according to the nomenclature used by the research and statistics department of the French Employment Ministry. The study focuses on census data between 2008 and 2018 provided by the French Institute of Statistics (Insee).

This approach has its limitations, however. Occupations are not all equally affected by the transition towards a greener economy, and it is difficult to estimate the proportion of each that will have to evolve. For example, waste processing cannot be seen as green as a whole because landfill causes pollution, whereas composting, sorting and recycling are "green". Conversely, some "non-green" occupations are carried out in organisations whose main activity is related to the environment, for example a geomatician working on river restoration projects. Eventually, all professionals are expected to adopt "green" attitudes and contribute to the decarbonisation of the economy. Adaptation of occupations is under way (the French socio-professional nomenclature [PCS] was updated in 2020), driven by new regulations and increased environmental awareness.

Eco-activities are activities that produce goods or services whose purpose is to protect the environment or to sustainably manage natural resources (air, water and soil pollution, waste management, etc.).

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Additional on-line resources
- Nomenclature of green and greenish occupations
- Supplementary data

1. The Energy and Climate Act (Loi énergie-climat) states that France must achieve carbon-neutrality by 2050 and establishes the framework for energy and climate policy resting on four pillars: the gradual abandonment of fossil fuels and the development of renewable energy sources; preventing thermal leakage; implementing new management, governance and assessment tools for climate policy; and regulating the electricity and gas sector. The Climate and Resilience Act (Loi climat-résilience) is part of the fight against climate change and overconsumption of resources and aims at improving air quality in large cities, renovating housing to improve energy efficiency, and reducing land take. Launched in 2019, the European Green Deal commits countries to achieving carbon neutrality by 2050. The goal is to reduce net greenhouse gas emissions by 55% by 2030.
2. Source: Direction régionale et interdépartementale de l'environnement et de l'énergie (DRIEE), L'environnement industriel en Ile-de-France, Édition 2018.

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