

Ecological transition

The dynamic of greening executive jobs has started

- **Although still low, the number of executive jobs and professions environmental purpose will continue to grow**
 - About 25,500 jobs in the private sector are now purely environmental, also known as “green” jobs. This accounts for a very small part of the executive population.
 - Offers for executive employment for these profiles are continuing to increase : +48 % between 2019 and 2022. The biggest rise is amongst jobs in the energy sector.
 - Depending on the profile sought, recruiters are on the lookout for specific technical skills. However, a common skills base still remains.
- **In addition to purely green jobs, businesses are addressing the subject of the environment and the greening process will have an effect on the executive jobs market**
 - The greening of businesses is an asset in making them attractive, even though not everyone realises this.
 - Most businesses have put specific actions in place to reduce their impact on the environment.
 - With almost twice as much investment in sustainable development in 2022 compared to 2019, the greening process is well under way both in businesses and in territories.
 - For two out of every three executives, this greening will affect their job greatly.
- **The “greening” manifests itself in different ways depending on the sectors and the executive's actual jobs (zoom to 13 different executive functions)**
 - Regulations are a powerful lever in bringing about ecological transition. They bring about a transformation in jobs and activities alike.
 - Reduction in energy consumption and taking account of the life cycle of products and services are the main actions being undertaken.
 - Greening helps transform both jobs and ways of working. In fact, when seeking to recruit executives, businesses are keen to express needs for skills that have a positive effect on the environment.

Summary

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The ecological transition: huge changes in practices and in the jobs market

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The ecological transition is affecting executives' jobs

Source

Apec internal data

- **The executive employment database published on apec.fr (2019-2022)** to quantify and define executive job opportunities in environmentally-orientated areas. It is used with partner offers and duplicate offers excluded.
- **An on-line inquiry conducted in April 2023 amongst 1,000 executives** to obtain elements of opinion. The sample is representative of the private sector with regard to gender, age, area of activity, size of business and region.
- **A telephone inquiry conducted in June 2023 amongst 1,000 recruiters in businesses** to obtain elements of opinion and information on recruitment practices. The sample is representative of private sector businesses employing at least one executive, and is based on activity sector, salaries paid and region of location of head office.
- **15 conversations held with confirmed executives or experts** representing professional organisations or Opco. This helps identify the changes brought about by the ecological transition in jobs and activities. The field of inquiry was conducted during the first six months of 2023, using Blue Search Conseil.
- **The Apec referential for executive skills.** Among the 8,000 executive skills identified, 320 were skills with a positive impact on the environment. Grouped into 100 different titles, they allow a link to be made between the skills expected by the recruiters and the actual jobs.

- **The National Observatory of Jobs and Work in the Green Economy** (Onemev – Ministry of Ecological Transition and Cohesion of Territories), to identify environmentally-orientated executive jobs amongst the 444 jobs in the Apec executive jobs flow diagram.
- **The SPCC nomenclature and the population survey conducted in 2020 by INSEE** to determine the number of executives working in environmentally-orientated private sector businesses and to establish their profile. They correspond to categories 37 and 38 of SPCC (socio-professional professions and categories).
- **The Trendeo Observatory of Employment and Investment designed** to measure the number of investments intended to create jobs in the field of sustainable development between 2019 and 2022. The analysis excluded investments relating to the development of gardens and green spaces and plans for projects for which there was any uncertainty regarding realisation.
- **An observatory tracker**, especially of publications from observatories in that branch of industry or in Opco.

External data

01

**The ecological transition:
great changes in the jobs
market and in practices**

Environmentally-orientated executive jobs: an increase in businesses' needs

The ecological transition is a major challenge for society

For several years now, environmental and climate-related concerns, combined with the increasing scarcity of fossil fuels (such as oil, gas and coal) and fissile fuels (such as uranium) and increased in energy consumption, have encouraged political groups and associations to campaign for ecological transition. This is now a major challenge in society as a whole, especially for the young and future generations. It is defined as follows :

A change towards a new economic and social model, a model of sustainable development which transforms our ways of consuming, production, work and living together in order to meet the major environmental challenges of climate change and scarcity of resources.

Ministry of Ecological Transition and Cohesion of Territories

The European policies and national road maps that have arisen are the driving forces in the ecological transition. This is the case with the National Low Carbon Strategy (SNBC). Introduced in France by the Law of Energy Transition to Green Growth (LTECV), it provides "directions for implementing in every activity sector a transition to a low-carbon sustainable and cyclic economy" (Ministry of Ecological Transition and Cohesion of Territories). Among other things, it sets the objective of reaching a state of carbon neutrality by 2050, that is, achieving a balance between greenhouse gas emission levels and levels of greenhouse gases absorbed by the atmosphere.

The war in Ukraine and the inflation situation have accelerated the need for this transition.

More than 25,500 executives are already actively involved in the ecological transition

Many environmentally-orientated jobs are already involved in the transition. The aim of these jobs is to ensure preservation of the environment, in fields such as treatment of pollution or waste water. Jobs dedicated to energy resource management are also implicated, as are jobs in the protection and enhancement of biodiversity. All these jobs include prevention, monitoring, control and reparation measures.

Among these jobs, 17 are executive jobs. In 2022, they accounted for 25,500 executive jobs in the private sector, that is, 1% of the total number of executives. These executives are most conspicuous in the energy and water sector (56%). They have very highly qualified background : 69% have a diploma at Bac +5 level and higher (compared with 54% overall). The proportion of men is also higher (68% compared with 64% overall), as is that of executives aged under 35 years (37% compared with 29% overall).

Executive job offers are increasing for professions with an environmental focus

In 2022, nearly 12,000 executive job offers for green positions were published on *apec.fr*. Representing some 2% of all executive job offers published over the same period, this is a niche market. This market is mainly driven by the need for profiles specialising in analysis, management and prevention of risks. Job opportunities in this field account for 50% of executive offers for jobs with an environmental focus.

This volume of managerial job offers is significantly increasing compared to 2019 (+48% compared to +19% for all managerial job offers). Executive jobs in energy are not the only field in which demand has shown the greatest increase (3,265 offers in 2022 vs 1,827 in 2019). Demand for executives in the field of analysis, management and prevention of risk, on the other hand, has increased the least, even though the jobs are more numerous (5,791 offers in 2022 versus 4,334 previously). Executive employment opportunities linked to regional planning, living conditions and preservation of diversity have also increased significantly, having increased by a factor of 1.5 between the end of 2019 and the end of 2022.

The offers are distributed unevenly, in volume, across the territory. In 2022, most of them were located in the two main driving regions for executive employment, namely Île-de-France (3,366 offers) and Auvergne-Rhône-Alpes (1,833 offers). Next, but quite far behind, are Provence-Alpes-Côte-d'Azur (929 offers) and Occitanie (872 offers).

Needs have increased by more than average for certain groups of management professions and in certain territories. This is the case, for example, in Centre-Val de Loire and Grand Est for energy professions. In these regions, offers have increased by factors of 2.7 and 2.3 respectively within just 3 years. For their part, Drom-Com and Hauts-de-France are the regions which have seen the greatest increase in executive job offers linked to regional planning, living conditions and preservation of the biodiversity (x2.3 and x1.9 versus x1.5 on average). Concerning the professions of risk analysis, management and prevention, Normandy and Provence-Alpes-Côte d'Azur also stand out, with offers having increased by 1.7 between 2019 and 2022, compared to 1.3 on average.

The skills requirements vary between different groups of jobs

For environmentally-orientated jobs, recruiters are searching for specific types of know-how. As an indication, although skills in heat and climate engineering are deemed necessary to qualify for a management position in the field of energy, they are never, or very rarely, prerequisites for getting a job linked to territorial development or risk analysis. For these last two job groups, the skills needs will require expertise specific to them, such as geoscience for some or auditing techniques for others.

However, a certain number of skills are still frequently sought after by companies in these different fields. This particularly concerns the ability to manage projects or call for bids, for example. Quality management is also part of the transverse skills common to all three of these job groups. To these it is possible to add behavioural skills (also known as *savoir-être* or soft skills), which are common to all executive jobs in the same way as autonomy and self-discipline.

25,500 executives in the private sector work in environmentally-orientated jobs, accounting for less than 1% of the total number of executive jobs.

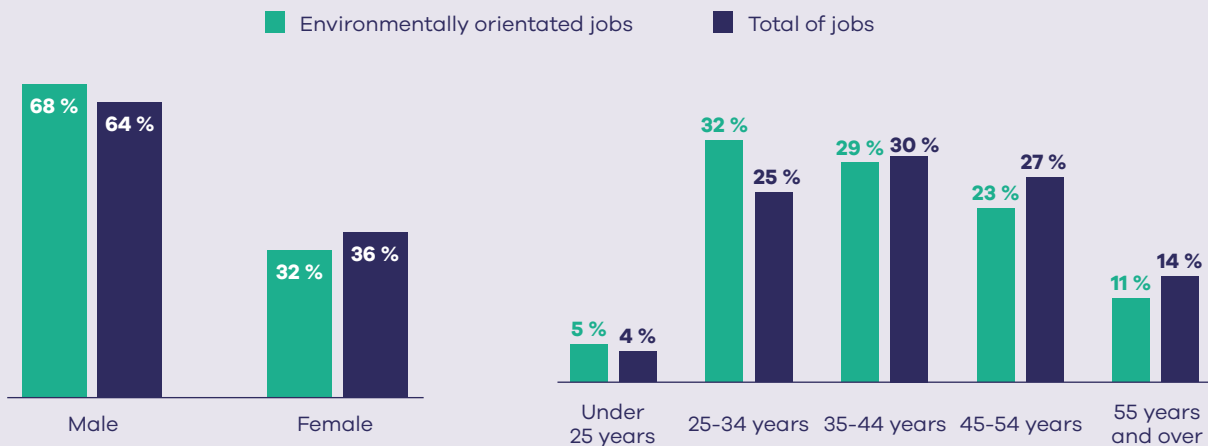
Environmentally-orientated executive jobs

Executive jobs in energy	Executive jobs in territorial development, living conditions and preservation of biodiversity	Executive jobs in analysis, management and prevention of risks
<ul style="list-style-type: none"> Energy networks engineer Energy efficiency engineer Renewable energy engineer Energies engineer Business Manager, Environment and Energy 	<ul style="list-style-type: none"> Environment and Ecology Specialist Geologist Engineer Town Planner Territorial Development Project Engineer Hydraulic Engineer 	<ul style="list-style-type: none"> Sustainable Development Manager QHSE Manager HSE engineer HSE manager Environmental Studies Engineer Polluted sites and soils project manager Biotechnology Engineer

Source: Apec/Onemev

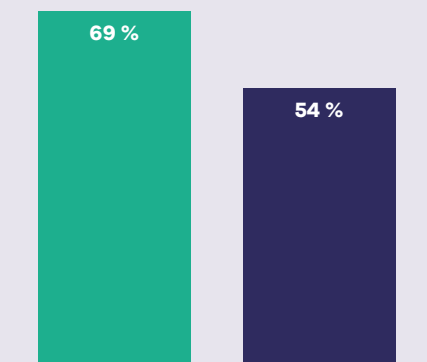
Very much evident in the energy and water sector, these executives are generally more highly qualified and about 70% of them are male.

Gender and age breakdown of private sector executives working in environmentally-orientated jobs



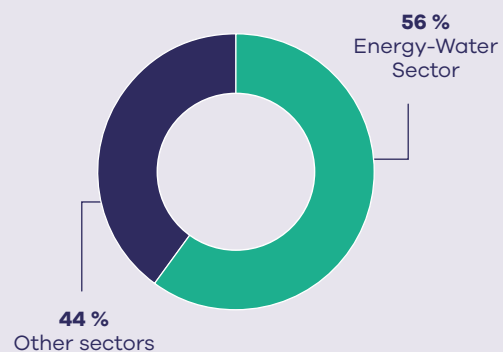
Source: Onemev - INSEE, 2020 population survey, processed by Apec

Portion of executives holding a Bac +5 and higher degree



Source: Onemev - INSEE, 2020 population survey, processed by Apec

Portion of private sector executives working in environment-orientated jobs in the energy-water sector



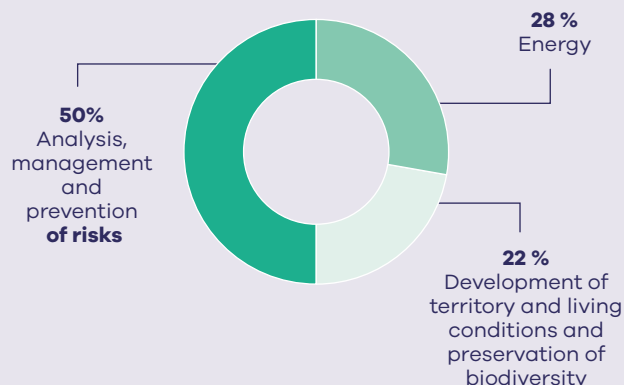
Source: Apec

Executive job offers for environmentally-orientated disciplines increased by 48% between 2019 and 2022.

Changes in executive job offers for environmentally-orientated jobs



Breakdown of 2022 offers into groups of environment-orientated executive jobs



Characteristics of executive jobs offers in 2022 according to group of environmentally orientated jobs



Changes in executive job offers between 2019 and 2022



Changes in each region

- Above average
- Within average
- Below average

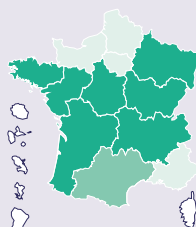
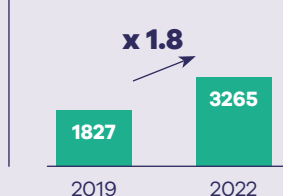


Most searched profiles



Portion open to beginners

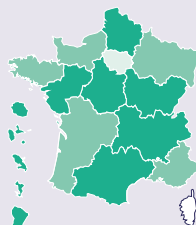
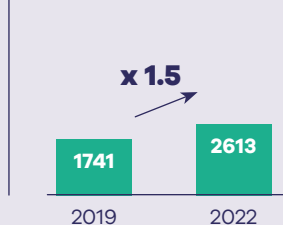
Energy



- Heating engineer
- Energy project manager
- Energy efficiency engineer
- Photovoltaic project manager
- Energy engineer

29%

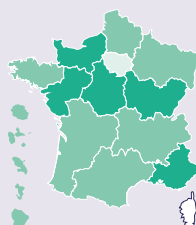
Development of territory, living conditions and biodiversity



- Operations manager
- Hydraulic engineer
- Development project manager
- Ecologist
- Hydraulics project manager

29%

Analysis, prevention and management of risks



- HSE manager
- Safety engineer
- HSE engineer
- Safety manager
- Environmental engineer

23%

Source: Apec

For these profiles, the recruiters expect very specific skills

The requirements for each principal group of executive jobs environmentally orientated

shared skills

- Quality management
- Project management
- Managing invitations to tender and procurement contracts code
- Microsoft or OpenOffice
- Administrative, budgetary and accounting management



Analysis, management and prevention of risks

OTHER SKILLS

- Analysis, management and prevention of risks
- Waste management, pollution clearance, recycling
- Surveys and statistics
- Awareness techniques and training engineering
- Safety rules and equipment
- Sector regulations, application of procedures
- Control of hygiene
- Technical audit and impacts studies
- Ongoing improvement and conducting change



Energy

OTHER SKILLS

- Energy engineering
- Site management, operation and monitoring
- Business development and client strategy
- Electrical engineering
- Air-conditioning and heating engineering
- Calculation, modelling and simulation (digital)
- Process engineering
- Industrial engineering
- Compliance control



Development of territory and living conditions, preservation of biodiversity

OTHER SKILLS

- Computer Aided Design / Computer Assisted Drawing
- Site management, operation and monitoring
- Surveys and statistics
- Earth sciences, geoscience, hydrology and biodiversity
- Prime Contractor Team / Project Owner Support
- Improvement of urban areas or landscapes, and relevant regulations
- Dimensioning
- Geographical information system
- Audit techniques and impact studies

Source: Apec

Companies are taking up the environmental issue, but few are aware of what an asset it can be

Executives are concerned about environmental deterioration and climate change

All companies are required to make efforts to reduce their impact on the environment. This dynamic takes place in a context in which environmental degradation and climate change are sources of major concern. Among private sector executives, a large majority (86%) say that they have concerns. Concerned about finding a job that corresponds to their values, 56% of executives are struggling in 2023 to plan their careers in a company that makes no effort to reduce

its environmental impact and 68% do not plan to join a business whose activity is considered harmful to the environment. These indicators are down compared to 2022; inflation and the drop in purchasing power have led to a downward revision in requirement levels. The fact remains that a business that pays attention to its environmental impact can appear more attractive to executives.

Many businesses are taking action, but few are aware of how much more attractive it can make them.

In 2023, 40% of businesses consider that responding to the challenges of ecological transition is difficult. However, most have taken action aimed at reducing their negative environmental impact. The scale of these initiatives differs depending on the size of the business, with a higher proportion among medium-sized and large businesses compared to SMEs. The explanation for this is that large businesses have more human and material resources at their fingertips to launch initiatives. The

measures relate mainly to the introduction of eco-friendly actions in businesses, in line with the incentives and regulations provided by the Pacte Law and the Climate and Resilience Law. However, businesses do not always see the benefits that they could derive from it. A significant proportion of businesses even consider that this has no influence on attracting candidates (56%), obtaining contracts (46%) or securing new clients (44%).

Although still something very new, the greening of businesses and territories is on the move

In 2022, more than 540 investments were announced by companies to develop a service, product or production unit oriented towards sustainable development. This is almost twice as much as in 2019, and represents 11% of investments compared to 5% in 2019.

Facilitated by State aid and by regulations aimed at bringing an end to thermal engines very soon, investments in hydrogen, batteries and motor vehicles have increased the most. Their number increased by factors of 3 and 2.3 respectively between 2019 and 2022. In 58% of cases, it is engineering and R&D companies that are investing in hydrogen. Their share is a little less significant with regard to batteries and motor vehicles (16%) as this market is mainly driven by automotive or aeronautical manufacturers and equipment suppliers, as well as by manufacturers of electrical and electronic equipment. Geographically, businesses carrying out projects in the field of batteries and electric vehicles are, in 4 out of 10 cases, concentrated in Île-de-France and Auvergne-Rhône-Alpes, while Occitanie is the territory that invested the most in hydrogen in 2022 (10 out of 33 operations).

Although less frequent in volume, investments in heat recovery systems have also

increased significantly. Finding application both in industry and in construction, they increased by a factor of 2.4 during the same period. Conversely, investments relating to development of renewable energies have increased less than the average (x1.3), but remain by far the most numerous (87 in 2022). They mainly concern solar energy, and in a third of cases are the fruit of work by of engineering and R&D companies. These operations are more numerous in Pays de la Loire and Brittany (40% of investments are located there), where at least 8 photovoltaic power plants are expected to see the light of day.

More globally, investments are principally distributed around 6 regions: Auvergne-Rhône-Alpes (14% of investments), Nouvelle-Aquitaine and Île-de-France (13% each), Occitanie and Pays de la Loire (12% each) and Brittany (11%). These six regions alone represent three-quarters of investments in sustainable development. In addition, 48% of investments linked to sustainable development in 2022 come from SMEs. Being very much focused on innovation, micro-enterprises (with fewer than 10 employees) account for almost a quarter of these investments. Among them, 55% are start-ups.

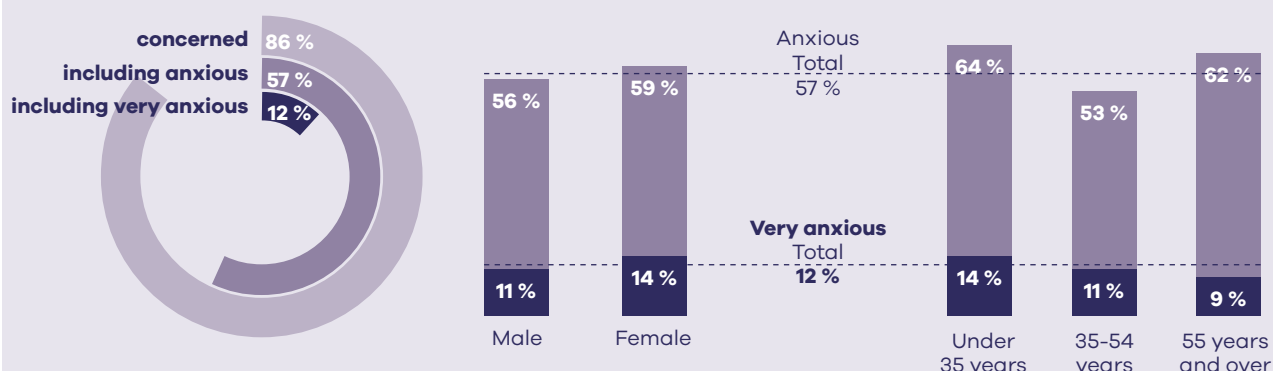
For executives and businesses alike, this greening will have consequences on their jobs and their activities

64% of executives believe that the ecological transition will have a significant impact on their job, and 14% believe that this impact will be very significant. This feeling is stronger for construction executives, a sector very much concerned by energy performance requirements. On the other hand, it is less pronounced in services with high added value, even though engineering, R&D and IT are already developing solutions for the ecological transition and are in fact already involved with it. On the business side, developments are

also expected. 24% of recruiters therefore believe that products and services provided by their companies will be fundamentally transformed, and 19% consider that the same will be true of their production methods. On the other hand, only 13% anticipate impacts in terms of skills and human resources needs, even though these impacts will be inevitable. In the field of construction, these transformations are a little more perceptible. Recruiters anticipate these developments in 32%, 24% and 28% of cases respectively.

In 2023, 86% of executives have said that they are concerned about environmental degradation and climate change, with those most concerned being the youngest

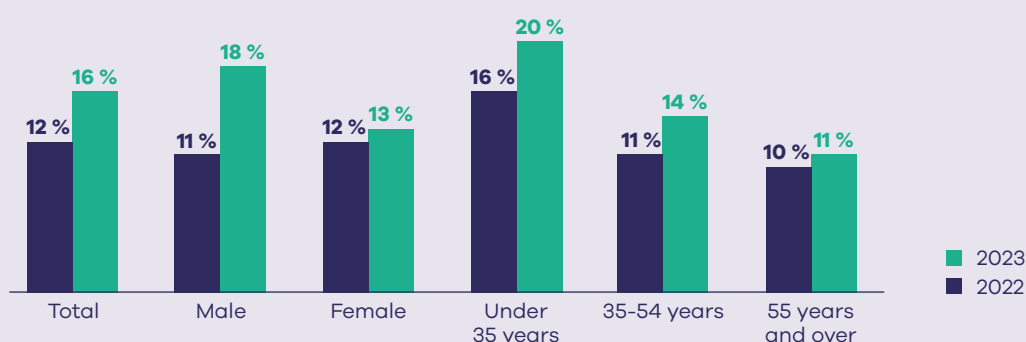
Are you personally concerned about environmental degradation and global warming?
(question asked to 1,000 executives in the private sector)



Source: Apec

If they were to consider a position and apply, 16% of executives would pay great attention when considering the subject

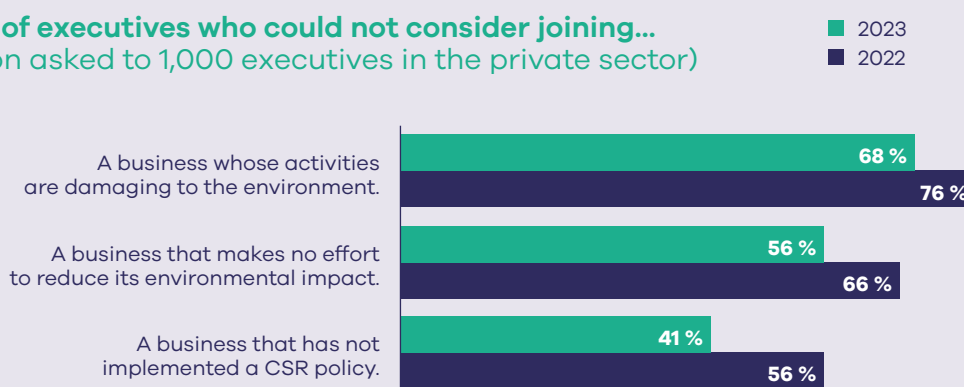
Portion of executives considering the social or environmental criterion of the business's activity essential if they were to apply for a job
(question asked to 1,000 executives in the private sector)



Source: Apec

More than half would not consider joining a business that makes no effort to reduce its environmental impact or whose activities are considered harmful to the environment

Portion of executives who could not consider joining...
(question asked to 1,000 executives in the private sector)



Source: Apec

For their part, recruiters are little aware of the fact that their attractiveness is partly based on their environmental impact. However, consumer expectations towards more eco-responsible behaviour could change this situation.

Portion of recruiters judging that their business's effect on the environment is more of an asset / more of a liability / has no influence
(question asked to 1,000 recruiters in the private sector)



Source: Apec

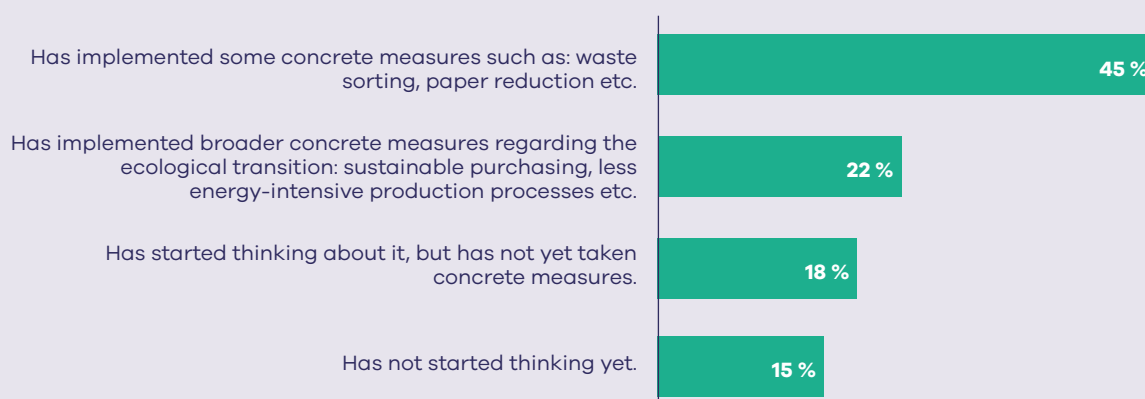


I consider that the expectations of clients and consumers are quite clear, and I cannot imagine a business remaining bound by its offer of products and services when it knows that its clients' expectations are changing.

Industry specialist

Moreover, 67% of companies have already introduced actions to reduce their environmental impact, and of these, 22% have already gone beyond measures relating to waste sorting, paper reduction, etc.

In terms of ecological transition, would you say that your company...
(question asked to 1,000 recruiters in the private sector)

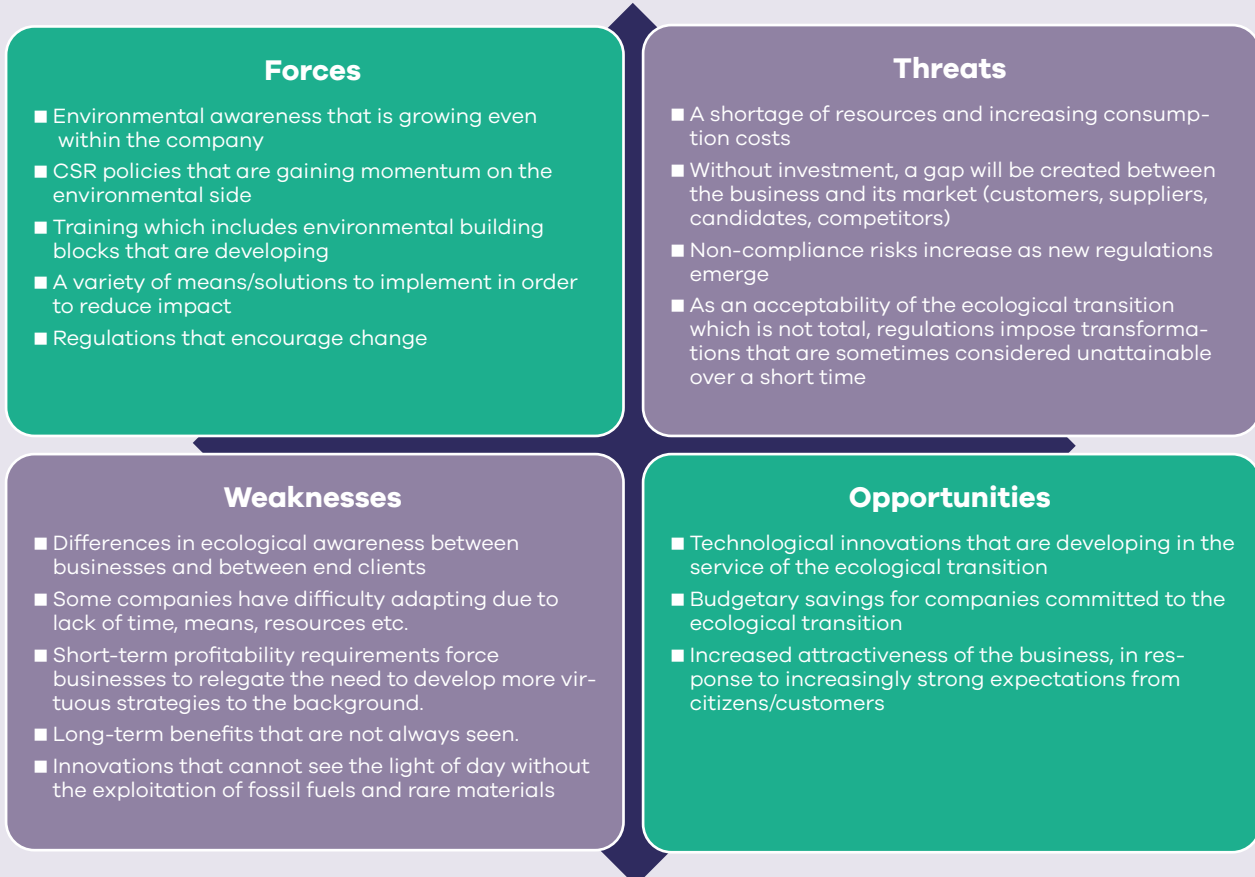


Source: Apec

The implementation of more environmentally friendly measures is dependent on business strategies and can be slowed down by short-term profitability logics.

“From the moment you have a manager who focuses the entire business strategy on sustainable development and ecology, we hear it and will be encouraged to start integrating it.”
Industry executive

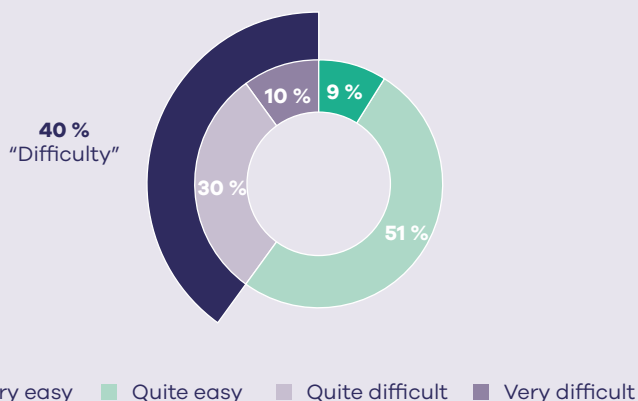
“Leaders are supposed to have a vision, particularly on this subject. Afterwards, some companies are focusing on their short-term difficulties. We can clearly see that there are shortcomings at present. However, the businesses that are still in good health must ask themselves : to what extent could I be affected, and when, and what actions should I be taking today to keep myself safe in future?”
HR specialist



Source: Apec

In 2023, 4 out of 10 companies believed that responding to the challenges of ecological transition is difficult

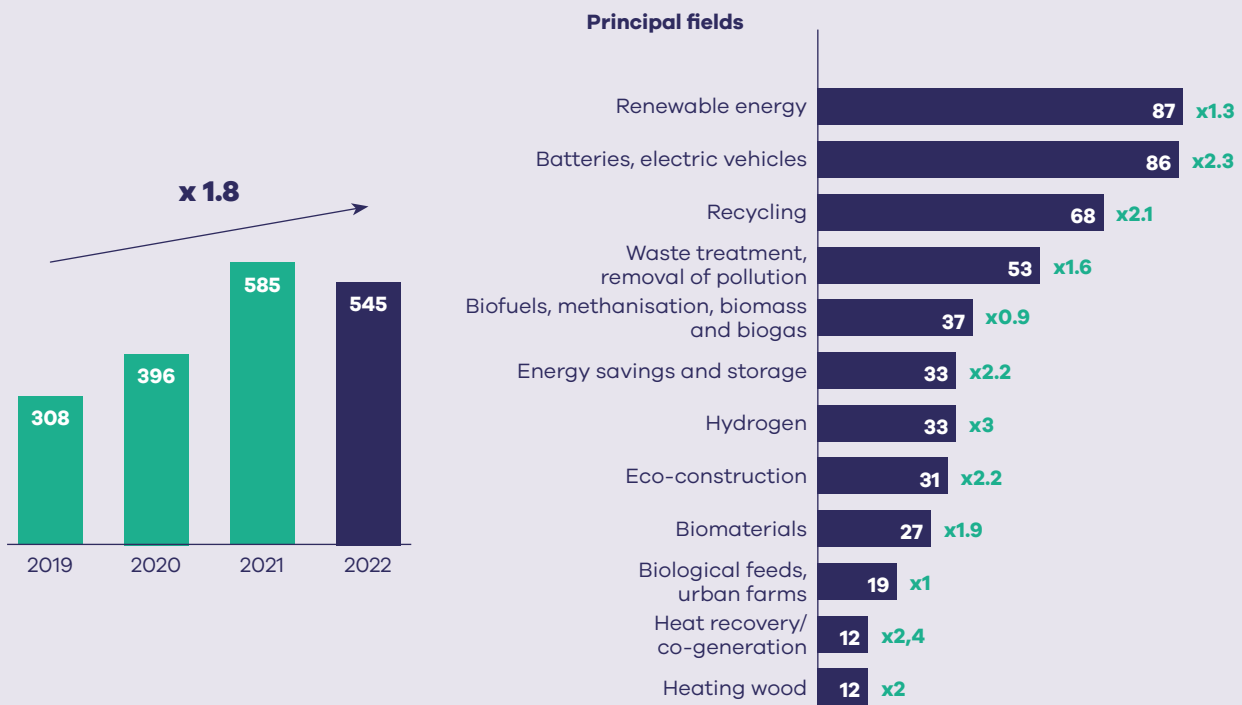
Portion of recruiters considering that meeting the challenges of the ecological transition is difficult (question asked to 1,000 recruiters in the private sector)



Source: Apec

The greening of activities has however already started; investments by private companies in sustainable development projects have increased of 1.8 since 2019

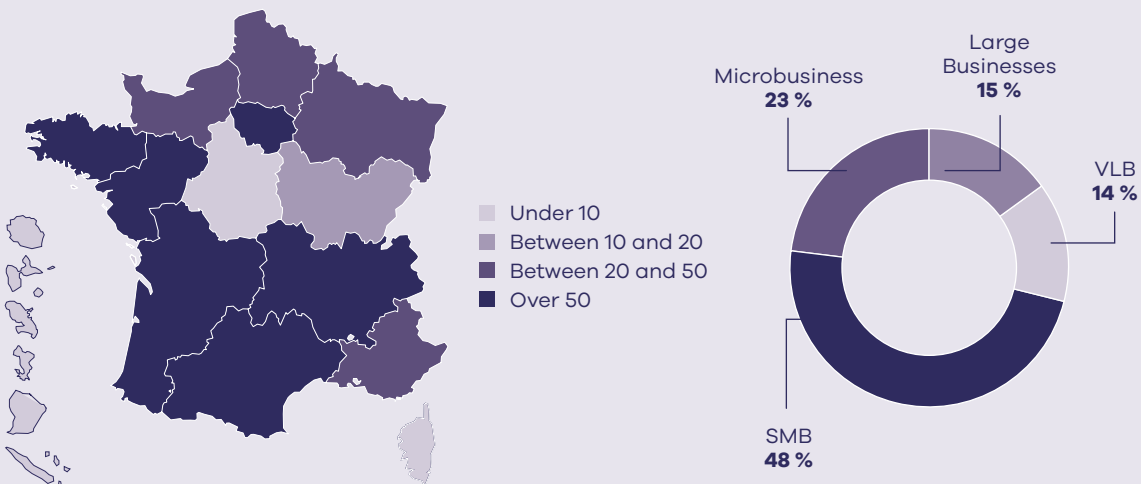
Number of investments per area in 2022 and change compared to 2019



Source: Trendeo, Apec processing

Source: Trendeo, Apec processing

Number of investments in sustainable development in 2022 by region and size of business



Source: Trendeo, Apec processing

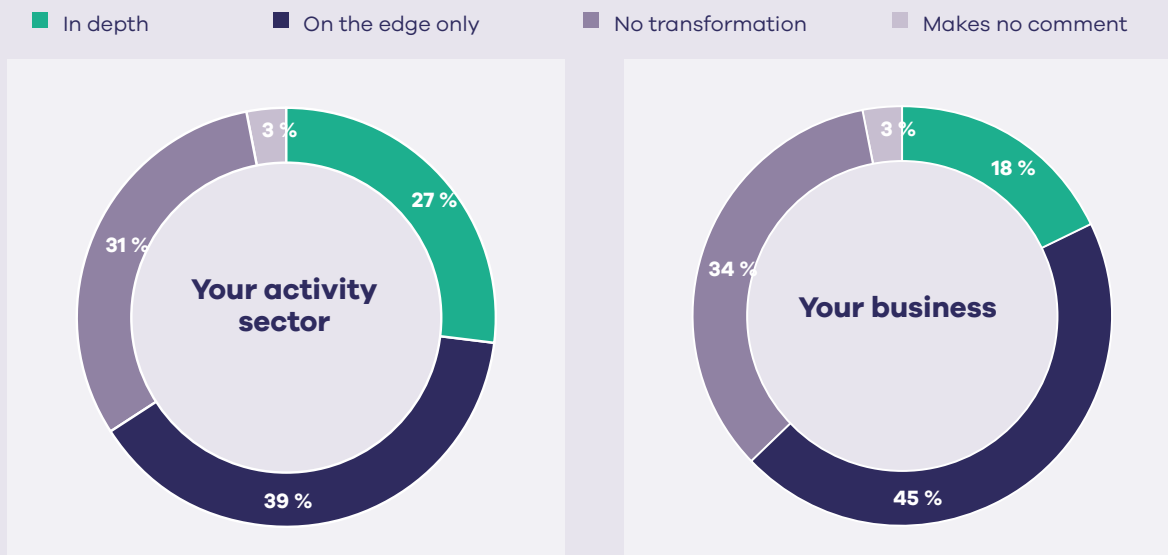
Source: Trendeo, Apec processing

Example of investment made by an SME

Specialising in the development of industrial projects in green hydrogen, we are continuing our investments in the Grand Est region. Our company has just placed an option to acquire a 31-hectare industrial wasteland and must invest 500 million euros there to install four 100-megawatt units in order to produce 56,000 tonnes of renewable hydrogen per year through electrolysis of water, with the aim of supplying a network of hydrogen stations spread over a 300 km radius in the region. A first phase should be commissioned in 2026 and will generate 120 jobs. All types of hydrogen vehicles, including buses, dust carts and heavy goods vehicles, will be able to refuel there. Our company plans to open two hydrogen production units in 2025.

Executives and recruiters believe that the ecological transition will have an impact on their activities, companies and professions. Although fundamental, the consequences in terms of skills requirements are proportionally less well defined than others.

In your opinion, will the ecological transition transform in the near future... (question asked to 1,000 recruiters in the private sector)



Source: Apec

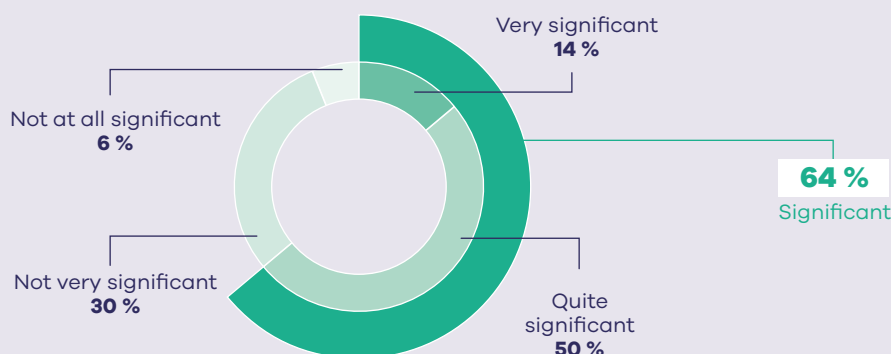
More precisely, for your business, is the ecological transition bringing about, or will it bring about, a momentous change or transformation...

(question asked to 620 recruiters in the private sector anticipating transformations)



Source: Apec

Do you think that in the future, the ecological transition will have a significant impact on your job? (question asked to 1,000 executives in the private sector)



Source: Apec

“ Today, human resources executives must be able to identify and evaluate profiles that include greening skills. As for professions in urban transport, the impact of the ecological transition will be stronger in terms of know-how than of interpersonal skills. For example, engineers need to know how to repair and recycle an electric motor, and do it safely. Operations jobs must take account of infrastructures adapted to new modes of transport when planning.

Transportation specialist

“ If anybody wants to develop infrastructures to better manage water networks, an approach to procurement works will be made. It is known that cities are now thinking about adapting their infrastructure to fight global warming. This also requires procurement works to intervene to adapt the roads, taking particular account of biodiversity. All sectors are of course concerned, but these professions and activities are at the forefront. All of this has a significant effect on the way the profession is practised.

Construction specialist

“ The ecological transition calls for additional actions not yet fully ingrained in mind sets. This requires training and increasing skills, which in turn require time and investment. The first to be affected are management jobs and manager posts, because they are the ones who will introduce operational staff to the subject.

Expert in IT and information systems

02

**The ecological transition
is affecting the executive
functions**

The ecological transition is having an impact on executive activities and professions

Executive jobs and activities are transforming under the effect of energy and environmental regulations

For several years now, businesses have been transforming themselves to integrate principles of sustainability. A number of regulations require them to do so, in fields varying as widely as construction, energy, transport and commerce. Many come from the roadmap of the National Low-Carbon Strategy (SNBC) of 2015 and from the Citizens' Climate Convention of 2019. The 2021 Climate and Resilience Law speeded up the ecological transition by strengthening existing measures, issuing

new directives and setting deadlines. The implementation of the National Biodiversity Strategy 2030 (SNB) also demonstrates this regulatory dynamic.

In this context, each company must be able to master the regulations relating to its field of activity and be able to monitor their developments. Businesses must be able to anticipate changes, and to relay new standards to operational managers and their teams.

Becoming an actor in the ecological transition means adopting both a more committed CSR policy in the field of the environment, as well as a change management policy

It is now common to see businesses highlighting their commitment to the ecological transition in their job offers. The importance they attach to the environmental aspect of CSR policies is often noted there. Also, they may want to recruit a profile able to develop and deploy a CSR policy or become its vector, or quite simply an applicant who can integrate CSR measures into each of their business actions. This is aimed at executives in support functions (HR, purchasing, communication) but also those in industrial production or logistics.

Beyond this HR aspect, companies that commit to the ecological transition necessarily develop a change management policy. This policy very often driven by senior executives and management. HR executives in particular have a role to play. They have and will have to provide optimum support for all employees in this change, as they have done and continue to do for the digital transformation. It is not a question of convincing those most resistant to change, but of ensuring the development of each employee's skills in numerous areas.

The ecological transition very often requires highly technical skills for compiling impact studies and life cycle analyses

Engineering professions are essential for successfully meeting the challenge of the ecological transition. Whether in chemistry or automotive, for example, the ability to measure the environmental impact of an activity (on biodiversity, air, water, soil and health) is a prerequisite of the tasks. The same is true of risk assessment before a new activity is developed. These analyses require highly technical skills in the field of data collection and analysis. A knowledge of the methods of sampling and modelling is therefore essential. It is also necessary to demonstrate self-discipline, a sense of observation and an ability to communicate with different stakeholders.

In order to find solutions and products that consume less energy but are also less harmful to the environment, life cycle analyses (LCA) are usually undertaken. This method is often used by R&D engineers, but also by managers in the "process and methods" function. It allows the environmental qua-

lity of products, from the origin of the raw materials needed for their manufacture to conditions of biodegradability or recyclability, to be assessed. A LCA generally involves strong sectoral expertise, to which skills in chemistry, materials engineering or process engineering may be added. This also requires the ability to collect and process appropriate data. Basically, this requires the ability to use specific software such as GaBi and OpenLCA, and mastering the ISO 14040 and 14044 standards which govern these analyses.

In other less technical functions, managers may also be asked to determine whether a particular product or equipment can be recycled. This level of knowledge generally allows them to make the environmental quality of a product clear to customers. This is the case in the "Business and Sales", "Human Resources and Training" and "Communication, Creation and Culture" job areas.

The ecological transition involves all stakeholders in an activity

One profession cannot be affected by this dynamic without another being affected as well. The ecological transition is very systemic, engaging and implying changes in practices at all levels. The case of purchases is particularly exemplary. Indeed, this function cannot evolve towards greater sustainability without the involvement of suppliers, distributors, salespeople, internal clients and service providers. Similarly, transport executives cannot offer more environmentally-friendly offers without the innovations brought about by manufac-

turers and without discussion with public authorities on the way of thinking on collective transport networks. For this reason, the ecological transition also reviews the ways of exchanging and collaborating with other services, both internal and external. In addition, it induces a strong sense of communication and also requires education to explain the benefits to be gained from this transition (economic benefits, image, attractiveness, competitiveness and societal benefits).

Zoom on the impact of the ecological transition on 13 executive functions

The following pages describe the signs and impacts of the ecological transition for the jobs most affected by the greening challenge (this carries no sense of hierarchy): "Human Resources and Training", "Business, Commercial, Sales", "Communication, Creation and Culture", "Automotive

Engineering", "Chemical Engineering", "Electronic Engineering", "Computer Science and Information Systems", "Works and Construction sites", "Urban Transport", "Logistics", "Industrial Production and Maintenance", "Processes and Methods", "Purchases".



Signs of greening

- Setting up time to raise awareness of the issues of ecological transition, at the request of employees.
- Companies which are gradually becoming aware that their attractiveness depends on the measures put in place to reduce their impact on the environment. In addition, alerting managers to the difficulties they will have in recruiting and retaining talent if they do not make this change of direction.
- Making visible the concrete actions taken by the business to reduce its environmental impact, during recruitment.
- Supporting employees in the process of acquiring additional skill sets.
- A reinforced contribution to sustainable development issues, as defined in the 2019 Pacte Law on corporate social responsibility (CSR). In small companies, this aspect is the remit of general HR managers, while in larger companies it is addressed by one or more dedicated managers.
- In accordance with the measures unveiled by the government in October 2022, the deployment of sobriety plans. These actions must make it possible to respond to the problems of energy resource shortages and climate change.
- Extending the powers of social and economic committees (CSE) to include the question of the company's environmental impact. This is specified in the Climate and Resilience Law. The CSR manager is required to monitor all data relating to the environment, including that relating to the environmental impacts of projects carried out by the company. He/she must make them available to the CSE for consultation.
- Taking account of sustainable development criteria in the development of employee savings schemes.

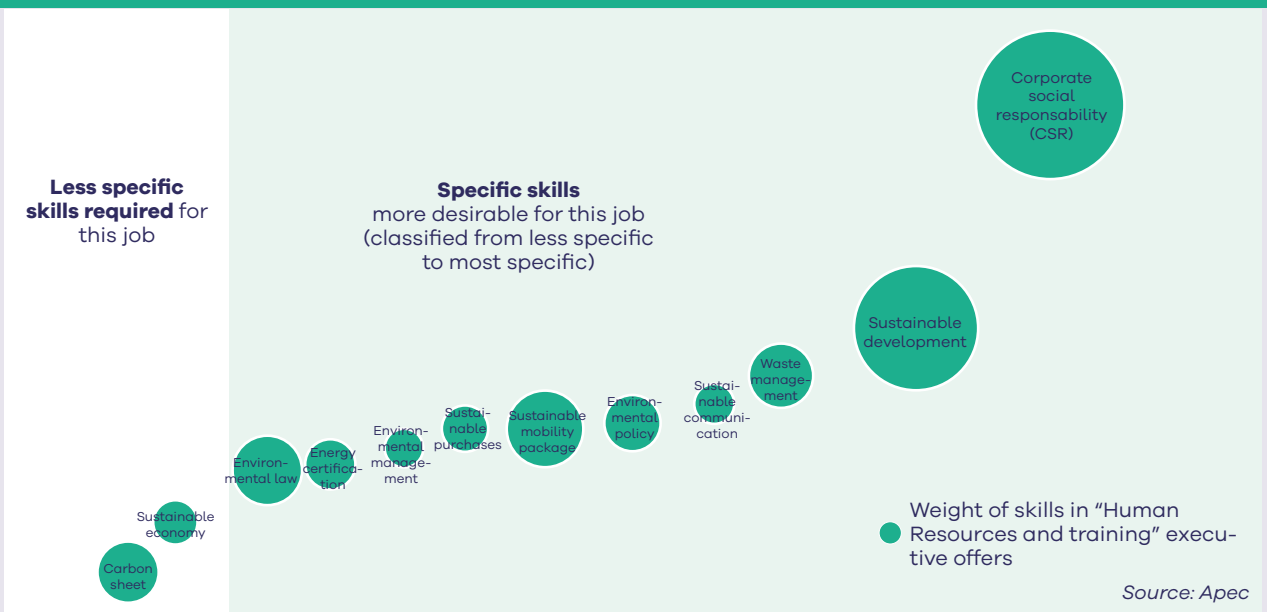


Implications in terms of missions and skills

- Identifying training courses that enable the identification of talents already aware of ecological transition issues and trained in the integration of environmental-skill building blocks into their professional actions.
- Knowing the financial aid schemes that allow recruitment of young talents likely to contribute to the greening of the company.
- Knowing how to conduct a materiality analysis. This allows companies to prioritize CSR issues and thus improve their sustainable development strategy.
- Mastering the ISO 26000 standard (CSR) and regulations relating to the environment and sustainable development.
- Mastering the rules of social dialogue, in order to co-construct a CSR policy with all stakeholders, particularly trade union organisations.
- Making the ecological transition an asset of the company's employer brand, and working with the communications department to reflect it on recruitment channels.

“ There is a whole set of tasks and processes to be developed in the company. Obviously, the human resources department will be there to work on the professions, skills and missions that will evolve and on the training to be provided to support employees at this level. In the most extreme cases, this can be integrated into the management of jobs and career paths (GEPP). Moreover, in the long term, we could evolve towards a green GEPP. **Human resources specialist** ”

Skills with a positive impact on the environment sought by the recruiters



Reading note: if you are a human resources and training executive, the ability to set up and deploy a CSR strategy is the most sought-after positive impact skill. It is also the most specific to your function, ahead of knowledge in the field of sustainable development.

Extracts from offers

HR F/M task manager

Tasks: HR support and advice : meet with clients, realise and compile diagnostic procedures, creation of tools (job sheets, flow charts, integration processes, professionalism improvement courses), preparation of supports, reports of various kinds

- Supporting organisations in the diagnosis and implementation of their change implementation process
- Areas of intervention : HR, Forecast management of jobs and skills, Quality of life and working conditions, employer brand, strategy, **CSR, ecological and digital transition.**

Profile: Bac +4/5, specialising in human resources • Successful initial experience in a similar HR function

- Autonomy • Self-discipline • Inquiring mind • Power of proposition • Interest in working in a team.

Source: apec.fr

CSR Manager F/M

Tasks: Piloting and organising the **business's societal responsibility**, either in the environmental, societal or economic field • Putting measures in place to reduce **the environmental impact** and improve the organisation's societal impact • Facilitate the integration of **CSR** in all departments within the business.

Profile: Engineer with speciality **CSR** • 5 years of experience • Knowledge of **CSR** and its regulatory obligations • Very good communicator • Organisational skills • Spirit of analysis and synthesis

- Good understanding of relations and negotiations • Taste for challenge and the culture of change.

Source: apec.fr

EXECUTIVE JOBS IN BUSINESS, COMMERCIAL AND SALES



Signs of greening

- Extension of shelf sales of bulk consumer products. The 2021 Climate and Resilience Law is designed to strengthen this practice because it requires retail businesses with more than 400 square meters to allocate at least 20% of their sales area to these products (deadline 2030).
- The affixing of "Eco-score" or "Planet-score" labels to food product packaging.
- The marketing of second-hand products, in response to specific client requests or otherwise.
- Sales of products from small circuits, products from organic farming or even sale of services designed to raise awareness and promote the territories and their resources.
- The use of digital technology at all stages in the sales process, instead of paper : presentation of products and services in e-catalogues and electronic tickets and bills etc. From August 2023 onwards, heat printing is only carried out on request for small purchases.
- The development of web rooms instead of showrooms, which helps save on exhibition space and travel, both when sending goods and when attracting clients. This helps reduce energy consumption.
- The act of actively measuring a shop's electrical consumption to minimise the risk of excess heating and lighting.
- The choice of reorganising business itineraries when visiting clients or prospective clients. This will minimise the business's carbon footprint.
- The inclusion of recovery and/or reuse in the management of unsold goods, in accordance with the anti-waste law for a circular economy (Agec law).



Involvement in matters of tasks and of skills

- Development of new sales pitches, in order to attract clients, even those most resistant to change. This will also help promote the ecological commitment of businesses.
- Integrate new hygiene and safety criteria in order to reduce the risk of loss on non-packable products, whether perishable or non-repairable.
- Develop sales areas in different ways.
- Master new regulations, standards, labels, environment-related certificates, fair trade, etc.
- Evaluate the environmental impact of supply and storage methods and rethink relationships with suppliers and carriers if necessary.
- Include recovery circuits for unsold goods in the waste management policy.
- Strengthen product knowledge (origin, durability, recyclability, reparability, energy performance) in order to inform consumers better.
- Reconciling regulatory requirements linked to the ecological transition with quality and profitability objectives.
- Act in line with other company departments on the subject of eco-responsibility.

“ Our CSR process is already well developed. This summer, we will be progressing further with optimising the client route CSR. Our website presents the eco-responsible approach, as well as a heading with a list of more eco-responsible products. This will help better promote the more durable or eco-designed products. We have prepared green labels which employees must attach to the products concerned. When broken products are returned to us, we don't throw them out. Those that cannot be repaired are dismantled so that the service provider sending items to the waste centre can place plastic with plastic and metal with metal. **Retail specialist**

Skills with a positive environmental impact sought by recruiters



Reading note: If you are an executive in a commercial and sales department, the ability to communicate at any stage in the sales process that your company is environmentally friendly is the most sought-after positive impact skill. However, knowledge of eco-products is more specific to your function.

Extracts from offers

Commercial assistant F/M

Tasks: Export market analysis • Prospecting • Support for commercial and after-sales teams.

Profile: Bac +4/5 with specialism in business, exports, sales • Initial experience • Interest in the industrial environment and awareness of **sustainable development and the circular economy** • Must get on with people and be disciplined and organised • Professional level knowledge of English.

Source: apec.fr

Business person for the agribusiness sector F/M

Tasks: Ensuring commercialisation of service offers of clients in the agribusiness sector • Managing client relations • Putting together targeted prospecting activity • Putting together new offers that meet client needs in the field of **reuse** • Maintaining good relations with suppliers.

Profile: Knowledge of B to B commercial methods • Interest in / technical skills with **sustainable development and the circular economy** • Ability to synthesise • Excellent relations with people • Independent, multi-skilled, versatile • Capacity to convince.

Source: apec.fr

EXECUTIVE JOBS IN COMMUNICATION, CREATION AND CULTURE



Signs of greening

- The search for means of communication and circulation that reduce negative impacts on the environment. In practice, this most often involves limiting use of paper, carbon printing and plastic in favour of alternative digital solutions, ensuring that their environmental impact is not greater.
- The choice to communicate responsible content and messages in order to raise both internal and external public awareness of energy and environmental issues. This practice is already widespread in cultural activities.
- For the organisation of any event, choosing accessible local spaces, using reusable or biodegradable totems, and eliminating distribution of non-eco-responsible goodies.
- Communication reduced to the bare necessities, even in time, which prevents information media from becoming obsolete.
- The development of partnerships with eco-responsible businesses or organisations.
- A more restrictive legal framework for environmental communication, in order to limit the practice of *greenwashing*, with a prohibition, in the anti-waste law for a circular economy (Agec law of 2020), on allegations that are vague or devoid of scientific proof, such as : "environmentally friendly", "green", "ecological".
- Regulations relating to restricted use of illuminated advertisements (Decree no. 2022-1294 dated 5 October 2022).
- The development of good practices and standards for communication of environmental messages, such as Standard ISO 14021, which defines the requirements relating to environmental self-declarations.



Implications in terms of missions and skills

- Mastering CSR issues and practices and becoming their vector within the business.
- Internally, being aligned with marketing executives on ways to promote a brand, and, if not, knowing how to provide them with convincing arguments.
- In an agency, being convincing and proactive with companies, in order to encourage them to opt for more sustainable and attractive communication solutions for consumers.
- Within the agencies, providing proof of the critical and ethical meaning in order to alert clients to the temptation of *greenwashing*.
- In graphics activities, taking into account the environmental impact of different types of production (games, films, 3D etc) and different modes of distribution (audio, video, mixed etc).

“ We have an essential role to play in providing information and awareness to any audience : raising awareness of climate and environmental issues, raising awareness of eco-friendly actions by relaying good practices, and raising awareness of sustainable purchasing. However, in our daily business practices, there is much to do beyond the reduction of paper printing or the use of recyclable media. And the environmental impact of digitisation should raise questions for us, **Field of communication** ”

Skills with a positive impact on the environment sought by the recruiters

Less specific skills required for this job

Specific skills more desirable for this job (classified from less specific to most specific)



Source: Apec

Reading note: if you are a communications, creative or cultural executive, the ability to communicate around CSR actions is the most sought-after positive impact skill. However, the ability to communicate around climate change using data provided in reports such as those of the IPCC is most specific to your role.

Extracts from offers

Communications Manager F/M

Tasks: Developing the communication strategy and designing and taking actions to achieve the objectives set while respecting the approach that is **environmentally friendly** • Manage and monitor the various communication tools and actions • Ensure an interface role between the company and service providers • Control the budget linked to the mission • Control the return on investment • Evaluate, analyse the actions carried out and adapt them according to the objectives set • Promote the circulation of information.

Profile: Minimum of 3 years of experience • Strong communication culture • Team spirit • Strength of proposal • Excellent writing skills • Self-disciplined • Organized • Empathy, good listening skills • Awareness of **responsible communication** • Mastery of office tools, desktop publishing tools, social networks • Experience in visual creation, image work and digital communication.

Source: apec.fr

Dematerialisation and digital document project manager F/M

Tasks: Managing projects while ensuring compliance with costs, deadlines and quality • Providing expertise in digitization and electronic document management • Collecting and analysing needs up to implementation of production • Supporting the deployment of corporate EDM (Electronic Document Management) • Defining and implementing a change management policy for the business lines • Taking account of **environmental challenges in conducting projects:** move towards **carbon-free dematerialisation**.

Profile: Bac +4/5 in information and documentation sciences • Good knowledge of standards • Knowledge of dematerialisation and existing technological solutions • Awareness of human relations • Writing and communication skills • Ability to lead a team.

Source: apec.fr



Signs of greening

- The progressive electrification of the European fleet, after the European Union bans the sale of new vehicles with thermal and hybrid engines in 2035, with a milestone in 2026.
- A requirement for increased sustainability for vehicle manufacturers to comply with new European standards. Together with the standard Euro 7 (2025), vehicles must be capable of going for at least 200,000 kilometres or for 10 years.
- The conversion of internal combustion vehicles to electric vehicles by means of “retrofit”, which involves installing an approved electrical conversion kit in an internal combustion vehicle. Authorised since 1 June 2020 for vehicles over 5 years old, retrofit confers the right to a conversion premium.
- The development of fuels (e-fuels) which offer an alternative to fossil fuels and reduce the environmental impact of vehicle use.
- The development of the hydrogen engine as an alternative to the electric motor. The fuel cell present in hydrogen vehicles offers greater independence and a shorter charging time than the lithium battery.
- Development of training plans to acquire skills useful for the design of clean vehicles. This is included in the automotive support plan for a green and competitive industry (2019), and must prevent certain skills in the automotive sector from becoming obsolete.

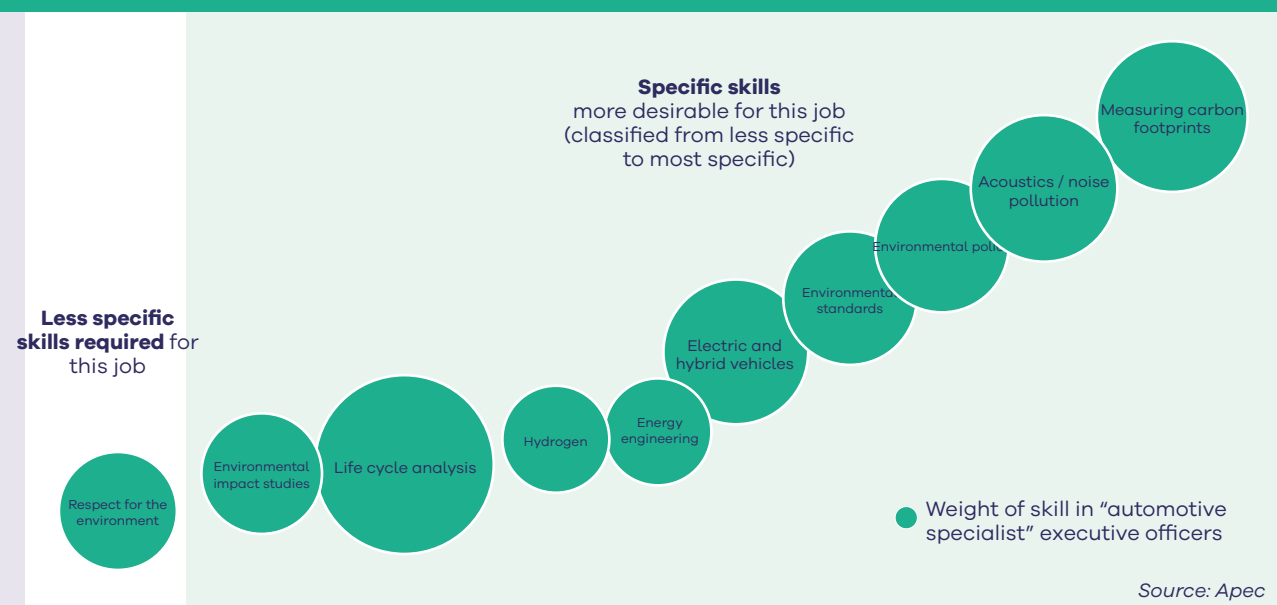


Implications in terms of missions and skills

- Being able to use simulation software to test the performance and durability of each part before putting it into production.
- Mastering the fundamentals of electrical technology (operation of motors, charging systems, regulatory aspects) as well as more advanced skills in areas such as predictive maintenance, battery management and vehicle conversion.
- Developing knowledge of electrochemistry and thermodynamics to master the operation of lithium-ion batteries and their cooling system.
- Ensuring technological monitoring in thermodynamics, in particular with regard to heat recovery and energy recovery of cars at the end of their life.
- Developing transverse skills in mechatronics to integrate battery management and power electronics into vehicle design.
- Identifying and selecting lighter and less bulky components and developing skills in aerodynamics in order to reduce the vehicle weight and therefore consumption.
- Relying increasingly on the skills of data management and on-board software specialists, as the next generations of cars will include more and more sensors and other intelligent software solutions.

“The main constraint for driving green is the price of vehicles, which is directly linked to the cost of production. Vehicle prices will fall as technology advances and mass production becomes less expensive. Batteries will become lighter and cheaper to produce, their efficiency will increase and prices will fall. The huge challenge facing engineers is that of adapting technology to new consumer needs. This is an additional source of motivation, particularly for young engineers who will mainly be interested in electric or hydrogen engines; this also has an effect on decision-makers. **Automotive specialist**”

Skills with a positive impact on the environment sought by the recruiters



Reading note: if you are an automotive engineering executive, the ability to conduct a life cycle analysis is the most sought-after positive impact skill. However, the ability to measure the carbon footprint is more specific to your role.

Extracts from offers

Electrical mobility project manager F/M

Tasks: Enthusiastic and driven by the desire to actively participate in a **greener mobility**, you will be committed to developing electrification solutions for your customers and supporting them in their **energetic transition** • Sizing a project that meets the customer's needs • Carrying out a study of the electrification potential of the customer's fleet • Proposing electrification solutions and managing their implementation in line with the technologies available on the market and with regulatory constraints and the client's objectives • Managing the deployment of the **energy transition** at the customer's premises and taking charge of all the elements of the business offer (**electric vehicles**, charging infrastructure etc) • Ensuring technological monitoring of the **sustainable mobility**.

Profile: Engineer or post-graduate degree • 3 years of experience in energy and mobility • Organisation and strength of offer.

Source: apec.fr

Draughts person F/M

Tasks: Design products for transmission systems and components for **clean vehicles** road and off-road according to specifications • Carrying out design or modification studies, sizing calculations • Writing calculation notes • Proposing technical solutions to reduce manufacturing costs and ensure product reliability • Creating and modifying plans and 3D models, participating in the monitoring of assembly of prototypes as well as associated tests.

Profile: Bac +2/3 in mechanics • Experience in study office • Knowledge of software packages Creo, *Simulate* and *Windchill* • Reliable, motivated and self-disciplined.

Source: apec.fr



Signs of greening

- Awareness of the significant impact of the chemical industry on the environment, especially following major industrial accidents, as well as growing consumer demand for biodegradable or recyclable products.
- Chemistry, a provider of solutions to meet the major challenges and issues of tomorrow (food, drinking water, medicines etc).
- The reduction of plastic materials in the chemical industry. This will continue to intensify in light of the anti-waste law for a circular economy (Agec law) of 10 February 2020, with the threshold of zero single-use plastics to be reached in France by 2040.
- The rise of plant chemistry, which uses bio-sourced materials (plants, wood, algae etc) as alternatives or in addition to fossil resources for the manufacture of products and materials.
- The use of milder conditions to design syntheses, favouring the 12 founding principles of green chemistry (prevention of pollution at source, using renewable resources instead of fossil products, limiting energy consumption etc).
- The development of substitutes for mineral raw materials (soft water, metals, rare earths etc) and fossil substances (oil, coal etc), which are becoming rarer. Recourse to recycling techniques *via* waste management industries and more generally the circular economy.
- The contribution of chemical innovation to design materials to be used in the construction of sustainable energy systems (wind turbines, solar panels).



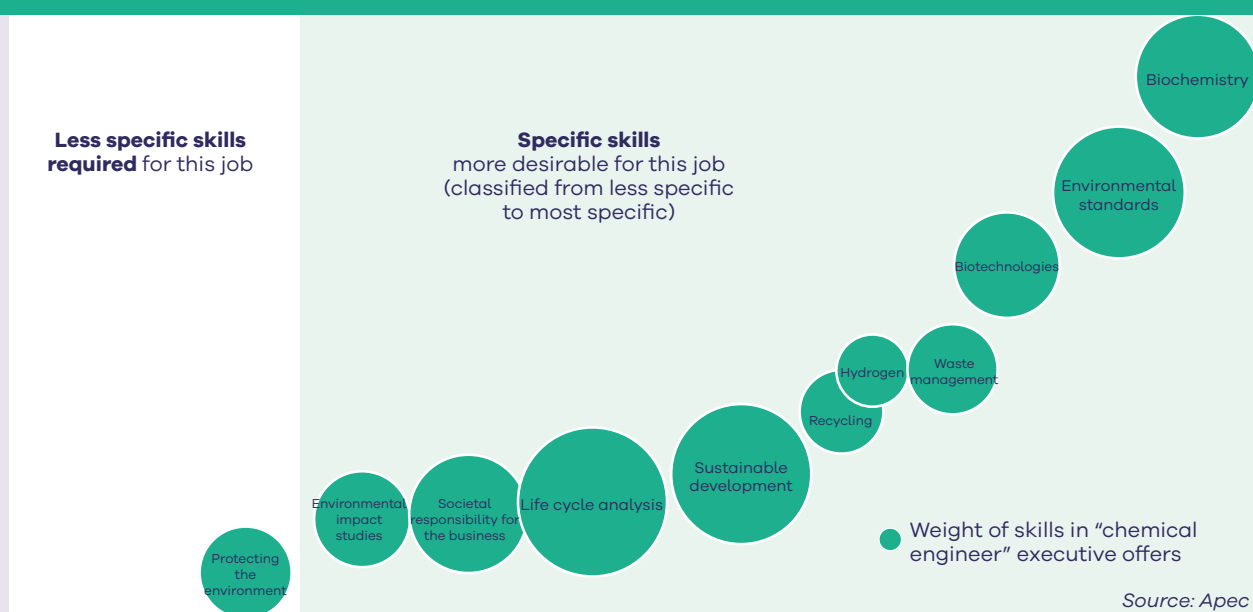
Implications in terms of missions and skills

- Know the different bio-sourced materials, their characteristics and the recovery processes (biodegradation, composting, methanisation) designed to include them in the design and development of biotechnological products.
- Expand your professional skills base to include know-how in physics/chemistry (e.g. gas projection calculation) or data analysis (e.g. data collection).
- Have a detailed knowledge of the different characteristics of products and materials in order to identify potential substitutes with a less significant environmental impact.
- Know the main sources of waste or co-products linked to industrial processes in order to identify suitable reduction, reuse and treatment options.
- Know the different types of pollution typical of effluents and the associated purification treatments.
- Develop new approaches to optimise the design of products and processes, reduce testing on humans and animals, and thus limit their impact on the environment.

“Already mobilized for years in its decarbonation trajectory, chemistry will reinvent itself and continue its transformation, and we can already cite many examples of substitution of materials and substances which are no longer used or which will cease to be used. The objective is for chemistry to become a reference and a sector of excellence for the development of the bioeconomy, relying in particular on biosourced chemistry, fully contributing to a sovereign and carbon-free economy.

Specialist in Chemistry

Skills with a positive environmental impact sought by recruiters



Reading note: if you are a chemical engineering executive, the ability to conduct life cycle analyses is the most sought-after positive impact skill. However, biochemistry skills are more specific to your role.

Extracts from offers

R&D Engineer F/M

Tasks: Replace chemical components to find others **more virtuous** without altering the final properties

- Produce better, in a way that **better respects the environment**
- Create the detergent products of tomorrow from renewable **raw materials**
- Ensure that information complies with current regulations
- Create safety sheets, technical sheets, synapse declarations and declarations **environmental** for new products.

Profile: Bac +5 minimum in chemistry/biochemistry • 6 years of experience in formulation • Knowledge of chemical analysis, compositions of detergents and applicative tests • Good knowledge of regulations

- Organised, structured and self-disciplined
- Analytical, decisive and initiative-taking mind
- Adaptability.

Source: apec.fr

R&D Engineer, polymer coverings F/M

Tasks: Formulating polymer-based coatings (such as paint, coating, adhesive) to be used in construction materials • Evaluating the **carbon foot print** new materials via standardized methods (**LCA**) and promote **ecodesign** • Studying the durability of new materials by developing accelerated ageing tests.

Profile: PhD • Specialisation in polymers, expertise in formulation of organic coatings or adhesives • Taste for challenges linked to construction materials **low-carbon, sustainability and ecodesign** • Creative and proactive • You like working in a team.

Source: apec.fr



Signs of greening

- The development of meta-materials, that is, artificial composite materials with properties not found in other materials. Among other things, they help improve the energy performance of certain electronic devices and reduce the risk of overheating by dissipating heat.
- Miniaturisation of electronic components. The quantity of raw material used in producing components may be reduced.
- Designing low-consumption processors to ensure that finished products consume less. In the same perspective, designing of electronic programs capable of going into standby mode.
- Increased quality requirements, whether in the design, mechanical assembly or testing phase. This is about ensuring that finished products do not become obsolete.
- Equipment approval criteria taking greater account of the life cycle of the equipment used.
- The inclusion in responses to invitations to tender in a section relating to the environmental impact of projects, most notably highlighting the ageing conditions of electronic components.
- Strengthening the legal framework relating to waste management and recycling of electrical and electronic equipment (Anti-Waste Law for a Circular Economy, 2020). It gradually persuades producers of electronic equipment to communicate and guarantee their reparability.

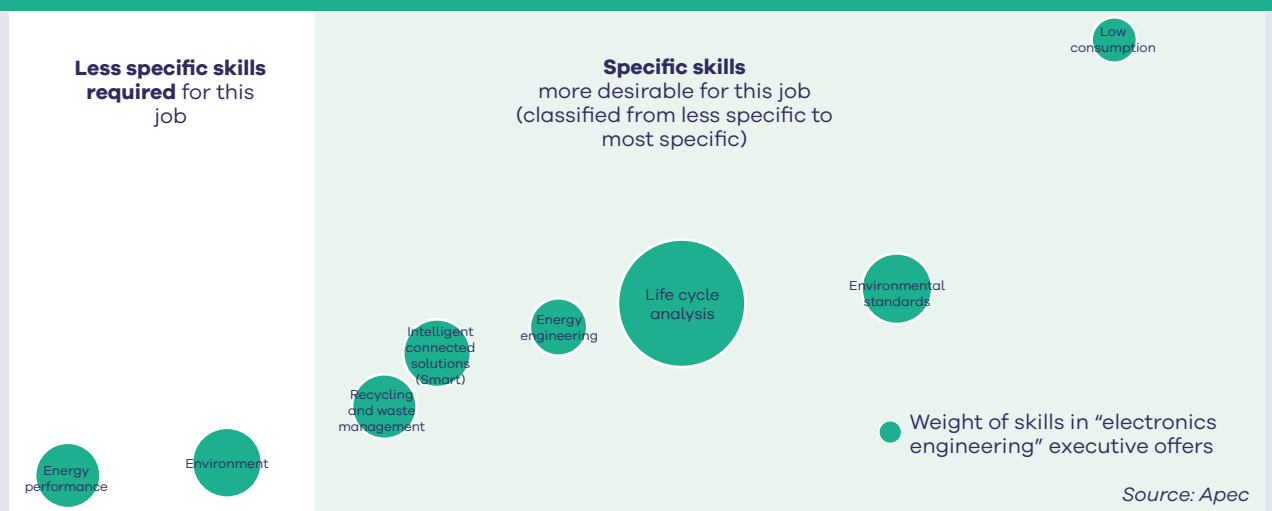


Implications in terms of missions and skills

- Knowing the regulations relating to the electronic field, being able to design sustainable equipment using an eco-design approach.
- Mastering life cycle analysis methods. This involves assessing the environmental impact of the elements (chemical and metallic) and mechanical processes (alloys etc) used to manufacture the components.
- Being able to mobilise expertise in materials engineering, mechanical engineering, energy engineering and chemical engineering, in addition to recycling skills still to be developed.
- Demonstrating education to inform choices made by decision-makers and customers in favour of low-carbon solutions, relying on analyses and decision-making tools based on technical, economic, social and environmental criteria. Getting immersed in their sectoral culture.
- Developing skills in LiFi-Led. This electronic technology uses LED lighting to transmit radio, photo and video content.
- Developing skills in quantum mechanics. This is particularly useful for designing less energy-consuming computers. As they include fewer transistors, they are faster and more efficient in data processing.

“In our electronics businesses, the environmental issue affects several aspects. First, that of dangerous substances, as our specifications are subject to the REACH directive. Then there is the production of electronic products and components. We set performance and energy consumption requirements, knowing that clients are increasingly looking at the power and electrical consumption of the products they buy. Finally, there is the more complex question of the life cycle of these products. We have constraints so that the systems produced can be dismantled, but this depends on the client's support and maintenance contract. **Electronics executive**

Skills with a positive environmental impact sought by recruiters



Reading note: if you are an electronic engineering executive, the ability to conduct life cycle analyses is the most sought-after positive impact skill. However, the ability to develop low-consumption products is more specific to your role.

Extracts from offers

Electrical engineer in innovation F/M

Tasks: Being in charge of the electrical and electronic aspect of the development of new products • Participating in various technological monitoring actions • Synthesising analyses into innovative solutions • Participating in the innovation steering group and report • Guaranteeing compliance with costs, development deadlines and final quality of technical solutions • Managing teams • Respecting **good environmental practices** in force in the company • Acting so as to prevent and/or **minimise impacts on the environment** • Reporting to your manager any anomaly that has occurred or may occur • Raising the alarm and intervening if an emergency situation is detected.

Profile: Electronic engineer with a specialisation in IoT, sensors, RF communications • Experience in electrical, electronic, optical and mechanical design • Excellent practical knowledge of developing communicating electronic systems and RF devices • Proficiency in electronic card development software • Professional level of English • Creativity, taking initiative.

Source: apec.fr

Electronics engineer F/M

Tasks: Developing a knowledge/data base on the materials and processes used in power electronics (PE) with a view to conducting **life cycle analyses (LCA)** • Developing and validating **LCA** that are simple and educational • Developing knowledge bases to illustrate the basic principles of teaching in **ecodesign** in EP • Participating in meetings and events linked to the development project for teaching in **ecodesign** in EP.

Profile: Bac +5 (PhD or diploma in engineering) • Knowledge of basic principles of EP and technological processes and materials used in PE • The ability to conduct a **LCA** on electronic systems, with at least one of the following software packages : OpenLCA, EIME, SimaPRO • Professional level of English • Managing priorities and prioritising emergencies.

Source: apec.fr

IMPACT OF THE ECOLOGICAL TRANSITION ON EXECUTIVE JOBS IN COMPUTING AND INFORMATION SYSTEMS



Signs of greening

- Becoming aware of the environmental and energy-related impact of digital services, which will favour the emergence of a search for digital sobriety in equipment design (hardware, networks) and software development (software). This eco-design approach should become increasingly prominent following the adoption of the law on environmental reduction in digital technology (REEN law) of 15 November 2021, which sets out measures to reduce the environmental footprint of IT.
 - Reflections that arise from this with the aim of making networks and data centres less energy-intensive. Closely related to this, reducing quantities of storage spaces to free up bandwidth. This can ensure data transmission that consumes less energy.
 - The choice of giving priority to the so-called “craftsmanship” approach. It aims to make codes more efficient, which in turn helps reduce programme execution time and therefore the associated energy consumption.
- Recycling of IT equipment, with increased use of reconditioned or second-hand devices, which reduces the level of manufacturing upstream and thus all the associated environmental impacts.
- The promotion of a responsible digital strategy, both by and with corporate executive committees and clients. The necessary adjustment of IT services to meet international standards ISO 50001 (energy management) and ISO 26000 (corporate social responsibility) can become a lever for this.
- Better air conditioning of server rooms, with introduction of cooling systems (cold corridor) and recovery and value enhancement of the heat produced.

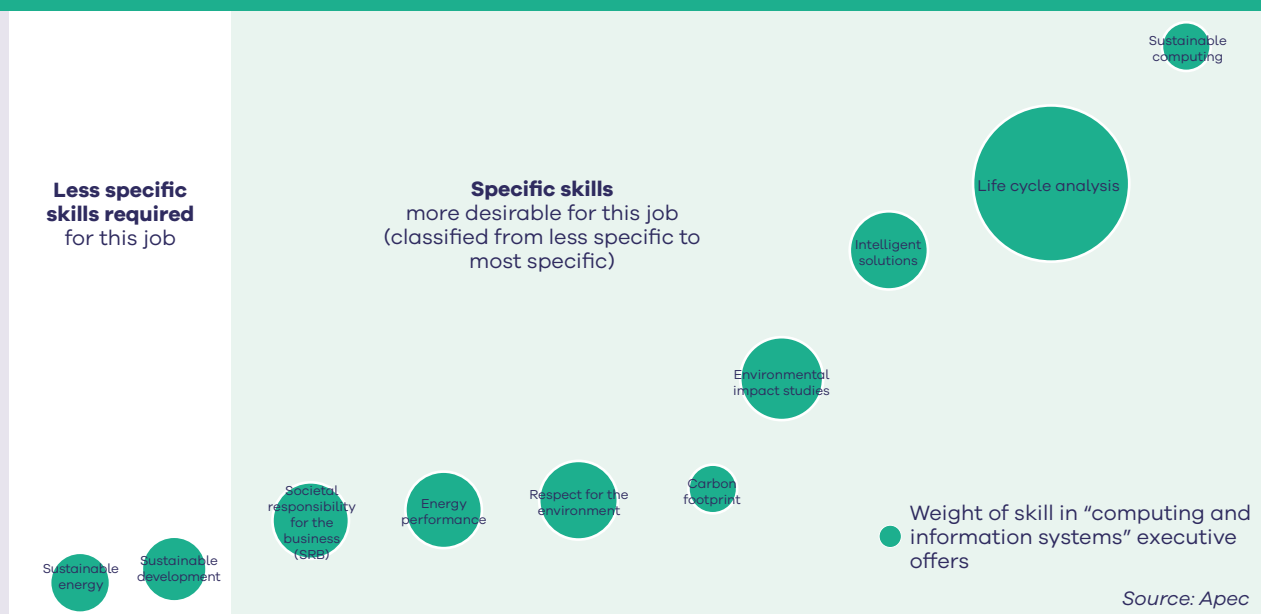


Implications in terms of missions and skills

- Set up dashboards and measurement tools to assess the environmental impact of IT tools, languages and services.
- Set up collaborations between information system management teams and purchase departments in order to implement sustainable sourcing strategies.
- Prepare and plan the end of life of all or part of digital tools and services, in order to ensure maximum use of their capabilities.
- Know how to evaluate opportunities linked to the emergence of new technologies in order to go further in digital sobriety and limit the environmental impact of computing and information systems.
 - Master the LCA (life cycle analysis) methodology of a digital service, which will allow a decision to be made on the future of software components, computer hardware and associated data at the end of their life.
 - Demonstrate teachability and acclimatise to eco-design.
 - Be sensitive to energy and environmental issues, in order to develop sustainable digital solutions at the request of customers.

“ For years, we have been in a phase of acculturation, of awareness of the subjects of greening digital services and, more generally, of CSR. For example, we are working on the ecodesign roadmap for our services. We are still only at the beginning, but these things are becoming clearer and more commonplace. Purchasing departments are also directly concerned, because we now ask to work with IT companies that are ISO certified or have a “Green IT” label. The objective is to have real CSR governance by 2025. **Computer specialist**

Skills with a positive environmental impact sought by recruiters



Reading note: if you are an IT and information systems executive, knowing the life cycle of your IT assets is the most sought-after positive impact skill. However, knowing the principles of sustainable IT is more specific to your role.

Extracts from offers

R&D study and development engineer IoT Edge computing F/M

Tasks: Within the framework of a **smart grids** project designed to put together a sustainable and **clean energy system and resilient** : designing, creating and then testing and documenting programmes based on specifications, in accordance with standards and project requirements • Ensure the installation and testing of software components and their interfaces to deliver a system ready to operate in the intended hardware environments.

Profile: engineer training or university course Bac +5 in computing • Passionate about technological solutions that serve everyone • **Concerned about the energy transition** • Interest in computing and programming.

Source: apec.fr

Lead developer Python sustainable development F/M

Tasks: Developing and deploying a calculation tool for **atmospheric emissions from factories** • Improving a tool intended for construction site safety • Analysing technical and functional needs • Writing specifications • Putting into production • Developing the different test phases • Management.

Profile: 3 Years years of experience with Vue.JS • Initial experience as lead developer • Technological environment : Python 3+, Django JavaScript • Docker, Kubernetes, Git, PostgreSQL, MySQL, micro-service architectures.

Source: apec.fr



Signs of greening

- The energy renovation of buildings in line with the RE2020 environmental regulations and the roadmap for the de-carbonisation of buildings. There are also renovation challenges concerning underground networks that must be maintained or replaced, for example in order to avoid water loss.
- The development of positive energy buildings (PEBs), for example by including solar panels to generate energy.
- The construction of intelligent buildings that allow predictive breakdown diagnostics and remote intervention, with the aim of maintaining the buildings and keeping them sustainable.
- The use of eco-materials such as green concrete, clay cement and wood.
- The use of digital tools which allow compulsory traceability of certain products and construction site waste, such as excavated soil and sediments (required by Decree No. 2021-321 of 2021) in the National Register of Waste, Land and Sediments (RNDTS). This traceability has been compulsory for certain construction sites since 2022.
- Development of circularity in buildings. This approach is designed to take account of the use that will be made of a building, from the design phase onwards. It also includes the question of its renovation and possible dismantling. The question of reuse or recycling of materials used during construction is also taken into account.
- Invitations to tender that are better supervised and more focused on the issues of protecting biodiversity, limiting nuisance, managing and recovering waste from construction sites, and the life cycle of the building, in response to the objective of zero net artificialisation (ZAN) set for 2050.

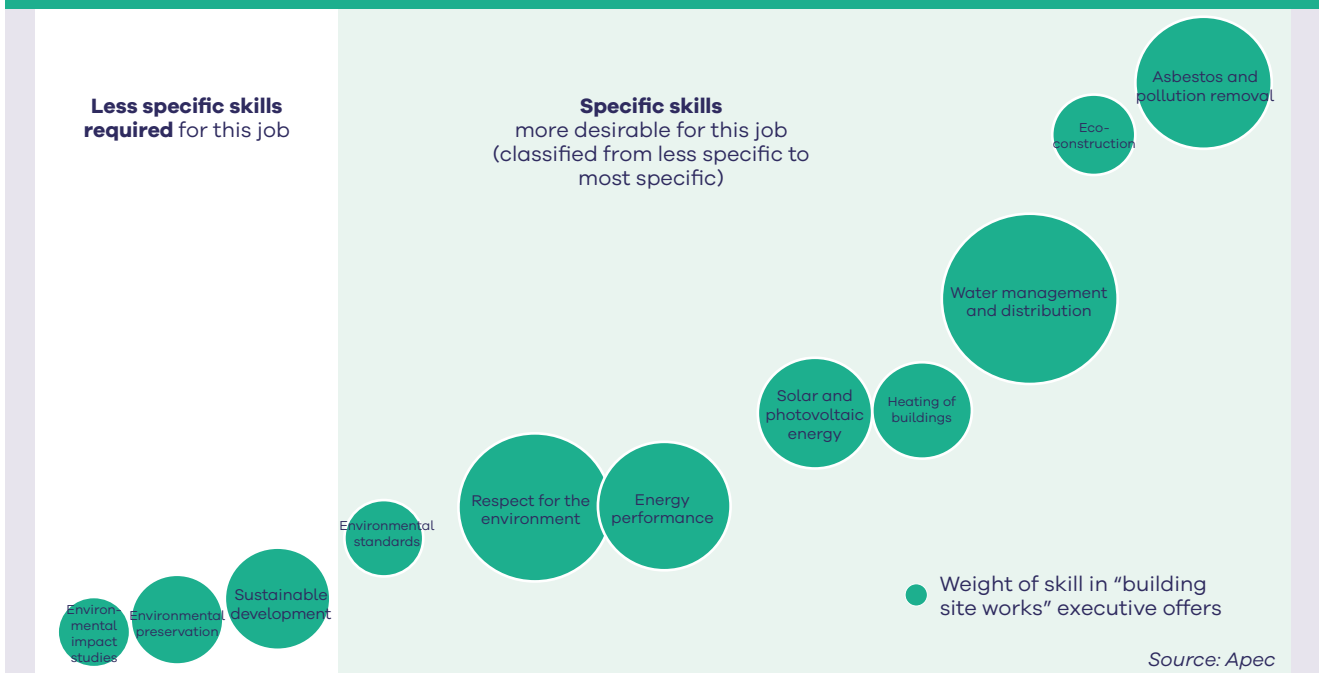


Implications in terms of missions and skills

- Involving all the various trades in this transition.
- Integrating the concept of building life cycle.
- Knowing the new standards and regulations on issues of energy and thermal performance, acoustics, water, effluent and waste management.
- Knowing the eco-materials supply chains and the waste collection and recovery circuits (from buildings and construction).
- Adjusting your price offer according to the total eco-contribution set by eco-organisations and eco-variants (sustainable road, pipe renovation, etc).
- Being able to convince a larger number of people on construction sites, local residents or associations about the challenges of a construction project and its low environmental impact, by surrounding yourself with experts in impact studies and communications specialists.
- Supporting employees in their development of skills in mastering BIM software (Revit, Dynamo etc) as well as in knowledge of new materials, equipment and procedures.
- Strengthening synergies with real estate developers and/or land development managers in order to properly target needs, and being proactive in making structures and buildings more virtuous.

“The subject of building energy performance is at the very heart of discussions. There is a whole range of existing things that need to be renovated. New construction is moving upmarket in terms of environmental requirements, particularly through the recently introduced RE2020 regulations. It pushes the entire sector to review processes to make them much more efficient, which changes the way of working. **Construction Specialist**

Skills with a positive environmental impact sought by recruiters



Reading note: if you are a works and construction site manager, mastering water management and distribution systems is the most sought-after positive impact skill. However, skills in asbestos removal and pollution treatment are more specific to your role.

Extracts from offers

Sustainable building engineer F/M

Tasks: Ensuring project management of **sustainable construction** by taking charge of all phases of a construction project • Working on different construction tasks **environmental advice** • Develop virtuous solutions on the themes of **carbon** and of the **circular economy** : support on offers for **reuse**, looking for versions that contain **less carbon** or are **biosourced**.

Profile: Construction and environmental engineer • 5 years of experience minimum • Conviction • Inquiring mind • Knowledge of policies and regulations linked to **environment** and to **biodiversity** • Adaptability, listening ear, ability to persuade • Ease in relations with people and with writing.

Source: apec.fr

Demolition works leader F/M

Tasks: Supervising and supporting the work teams • Defining and preparing the work • Searching for subcontractors and suppliers • Supervising project execution • Guaranteeing compliance with rules and procedures **QSE** • Representing the subsidiary before clients • Establishing and monitoring budgets.

Profile: Procurement Engineer, experience 2 years minimum in a similar post in works in demolition, **asbestos removal, pollution clearance** • Self-disciplined and reliable.

Source: apec.fr



Signs of greening

- The development of a service offer that encourages users to reduce car journeys in favour of public transport. In several major cities, this involves the establishment of low-emission mobility zones (or LEMZ), and the development of inter-modal networks. The 2019 mobility orientation law has also set itself the objective of developing cleaner everyday transport.
- The renewal of motorised transport fleets with more sustainable modes of transport, that is to say vehicles equipped with electric, hybrid or biogas-powered engines. The Climate Plan adopted by the European Union will accelerate this movement, as sales of new vehicles with thermal engines will be banned from 2035 onwards.
- The introduction of measures designed to make better use of collective transport and lessen its adverse effects on the environment : abolition of printed transportation tickets, creation of specific routes in collaboration with municipal authorities.
- Subsidies granted by communities to car poolers.
- An obligation for transport companies to train all their professional drivers in the techniques and principles of eco-driving. The Climate and Resilience Law of 2021 provides training for state and local authority agents and for employees of companies with fleets of more than 100 vehicles. It aims to improve the energy efficiency of vehicles and reduce greenhouse gas emissions. It also aims to promote more environmentally-friendly driving.



Implications in terms of missions and skills

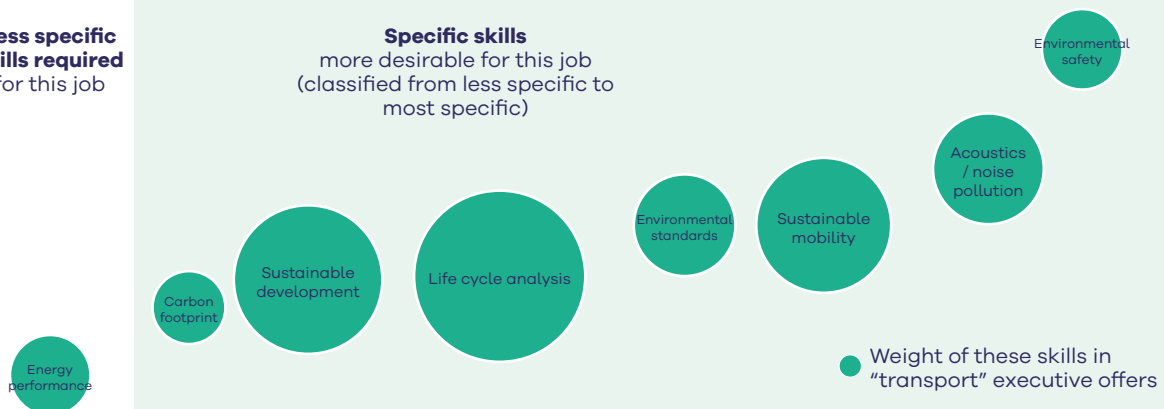
- Developing knowledge of automotive mechanics, propulsion techniques, electrical and electronic engineering to master new fuels (gas, electricity and bioethanol), and operation of electric batteries and hybrid engines.
- Rethinking routes in a way that reduces greenhouse gas (GHG) emissions while continuing to meet user needs.
- Including in traffic planning and control the capacities and constraints linked to cleaner methods of transport : recharging time, vehicle autonomy.
- Developing safety protocols specific to the handling of electric batteries.
- Establishing training for maintenance technicians to enable them to obtain the mandatory authorisations governed by standard NF C 18-550 (electrical risk) to work on electric or hybrid vehicles.
- Strengthening training and safety procedures for driving in an environment where inter-modality generates new risks.
- Ensuring fleet maintenance (cleaning drains, replacing particle filters) in order to minimize GHG emissions.
- Taking account of the life cycle of vehicles and knowing the circuits, in order to allow recycling of electric batteries and other new components.

“Engineers and researchers have had greening of urban transport in their sights for over ten years now. The role of public policies has been decisive in accelerating this movement, particularly in the field of research. Indeed, today's engineers are tasked with adapting our current networks to environmental standards. Researchers, meanwhile, are thinking about new modes of propulsion, testing more coherent energy mixes or imagining the transport of tomorrow. However, we must remember that urban transport is a market that responds to invitations to tender with substantial financial totals. Developments were therefore also made according to market opportunities. **Transport Specialist**

Skills with a positive environmental impact sought by recruiters

Less specific skills required for this job

Specific skills
more desirable for this job
(classified from less specific to most specific)



Source: Apec



Reading note: if you are a transport executive in an urban environment, the ability to carry out a life cycle analysis is the most sought-after positive impact skill. However, environmental safety skills are more specific to your role.

Extracts from offers

Major projects and guided transport safety engineer F/M

Tasks: Piloting projects linked to the **energy transition**, especially purchases of buses with **zero emissions (electric and hydrogen)** and technical and organizational assistance to other departments of the company • Ensuring monitoring of the system for permanent control and evaluation of safety levels in guided transport (metro and buses with high level of service) • Implementing projects from design phase through to completion • Being the reference point for investment projects supported by the community • Organising the network's urban guided transport safety management system • Organising and participating in audit missions • Proposing continuous improvement actions.

Profile: Engineer or university graduate, general or risk management, safety of operation • 4 years of experience minimum • Excellent writing skills and very good spoken expression • Capacity for examining risks and their level of criticality.

Source: apec.fr

Multi-modal terminal manager F/M

Tasks: Coordinating actors and respecting specifications • Designing the organisation to be introduced and seeking to allocate the resources to be deployed • Managing, leading and optimising the terminal's production activity • Analysing KPIs and proposing corrective actions • Supervising and leading teams • Managing site security and quality processes • Ensuring compliance with safety procedures and instructions.

Profile: Bac +4/5 in transport/logistics • 7 years of experience minimum • Field manager • Sense of communication • Organisation • Team spirit • Your wish will be to integrate a large, pioneering project into the world of multi-modal transport • You will be **aware of ecological themes and the decarbonation of transport** and will wish to establish yourself as **an eco-responsible** actor • You are keen to work in a new terminal with cutting-edge technology and tools.

Source: apec.fr



Signs of greening

- Installation of energy-producing warehouses in privileged locations. This practice is reinforced by the Climate and Resilience Law of 2021 which is designed to reduce land-take and install photovoltaic panels or green roofs on warehouses from 1st July 2023 onwards.
- Optimisation of storage spaces to reduce storage areas in order to avoid wasted areas that need a supply of electricity, for example.
- A trend towards reduction of packaging and waste. In warehouses, reducing waste involves managing the life cycle of stored products, in order to offer them for distribution before their expiry date.
- Favouring the use of road transport only for delivery of goods in the last few kilometres. Over intermediate distances, which are often the longest, use river or rail transport.
- Improve vehicle occupancy rates to avoid empty return journeys, and include inter-modality into transport planning. This practice allows the reduction both of greenhouse gases and of costs.
- The use of information and traceability tools, such as bar codes and radio frequency identification (RFID) systems. This, for example, allows flow of goods to be monitored in real time and their carbon footprint measured.

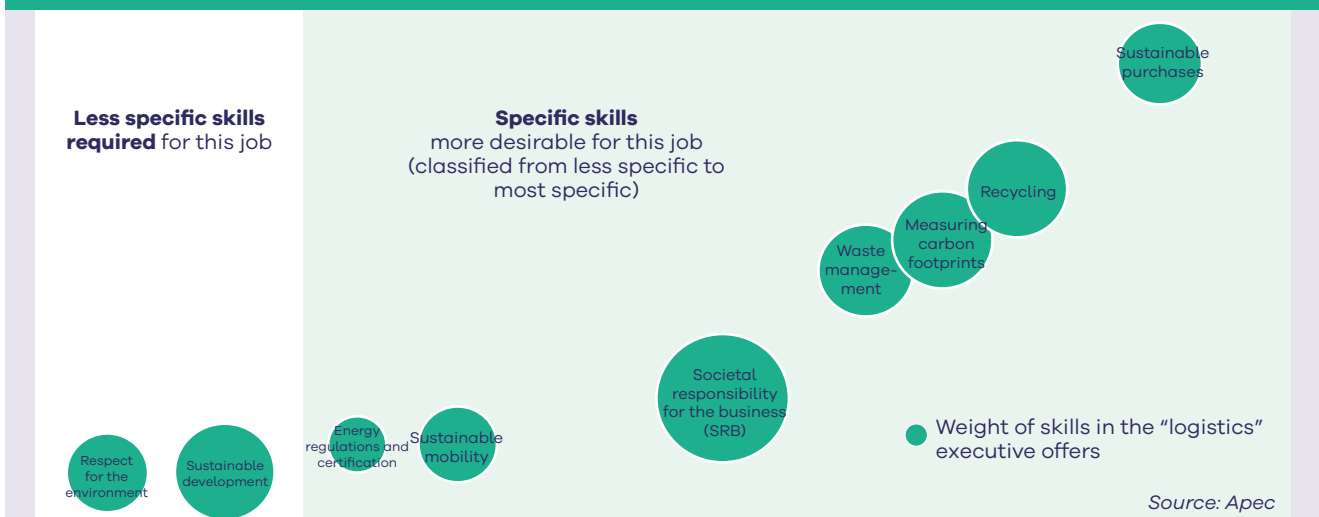


Implications in terms of missions and skills

- Knowing how to anticipate demand to make the right product available in the right place, at the right time and in the right quantity, in order to avoid surpluses and accumulation of waste.
- Controlling risks linked to the introduction of more sustainable methods of transport and storage, in order to ensure that these do not undermine product quality.
- The ability to collect and analyse data, particularly in a predictive manner, is an advantage. Mastery of information and traceability tools allows continuity of monitoring throughout the logistics chain, optimise transported flows and act on downtime, modal choice and reverse logistics (from customer to supplier).
- More generally, being able to develop an energy saving approach without undermining customer satisfaction. Clients' demands are in fact becoming ever stricter in terms of quality and delivery times.
- Rethinking return procedures and the processing of returned products to determine quickly whether they can be repaired or recycled.
- Implementing a continuous improvement approach with one's teams.
- Knowing the environmental regulations relating to transport, purchasing and inventory management, and monitor changes in these regulations.

“Initiatives are taken gradually and can come from anywhere. The choice of carriers most often stems from a desire by management to reduce emissions in accordance with national and European regulations, although the costs involved are higher. The change in packaging often comes from the field, from what suppliers can offer, or even from consumers. End customers generally appreciate receiving their purchases in colourful boxes that highlight the product, especially when the purchase price is high. However, we also receive comments pointing out the use of plastic, although they are few in number. The main challenge for logistics today is to limit the environmental impact without compromising the quality of service. **Logistics Specialist**

Skills with a positive environmental impact sought by recruiters



Reading note: if you are a logistics executive, integrating your processes into a CSR approach is the most sought-after positive impact skill. However, the ability to engage and understand sustainable purchasing channels is more specific to your role.

Extracts from offers

Logistics coordinator F/M

Tasks: Refining the needs on each site: furniture, storage spaces, volumes and means of logistical transport • Specifying operational monitoring by integrating the needs of the different stakeholders and guaranteeing logistical security • Ensuring the operational and logistical functioning of the site, including **waste management** and supply • Defining the organisation of logistical and operational operations on site in interaction with the various stakeholders, internal and external.

Profile: Bac +3 • Ability to work in project mode with autonomy and flexibility • Ability to adapt in demanding situations involving multiple stakeholders • Prior experience desirable • All-round writing and oral skills • Professional level of English.

Source: apec.fr

Green logistics project manager supply chain F/M

Tasks: Be the reference point on **green supply chain** matters • Understand how the supply chain works in Europe by providing support on matters of logistics / transport • Collect and analyse data • Coordinate and deploy the action plan for **Reduced levels of CO²** in connection with various services • Implement KPI for advancing various actions and indicators for measuring emissions of CO² • Updating and formalising progress • Implementing communication tools **green** to promote actions and engage teams in the process • Being proactive with the aim of increasing productivity and **reduction of CO² emissions** and waste • Identifying areas of reduction by calculating the **impact on the planet** compared with the cost impact.

Profile: Bac +5 • 3 years minimum of experience • Interest in subjects linked to **sustainability** and to **CSR** • Mastery of English and the Office Pack, notions of SAP, tables and **EcoTransIT World** • Spirit of analysis and synthesis • Very good level of oral and written communication • Inquiring and critical mind interested in aspects of **green** and **CSR**.

Source: apec.fr

EXECUTIVE JOBS IN INDUSTRIAL PRODUCTION AND MAINTENANCE



Signs of greening

- The use of solutions that demand less energy and produce less pollution. The 2019 Energy and Climate Law sets the objective of achieving carbon neutrality in 2050 and asks heavy industries to reduce greenhouse gas emissions by 50% within 10 years (in connection with the SNBC roadmap).
- Carrying out environmental impact studies (measuring the carbon footprint, water expenditure, quantities of waste produced etc). Identifying the stages of production that consume the most energy and produce the most pollution. This allows work to be done on areas of improvement while optimising production flows.
- Implementation of preventive actions on production tools in order to keep them in good condition. These tools, if poorly maintained, can consume more energy than necessary or even stop working, necessitating their replacement, which is also costly. Using connected technologies to leverage real-time data can help prevent this.
- Promotion in the maintenance, recycling and reconditioning phases of used products or materials.
- Installation on production sites or maintenance centres of systems for recovering and transforming heat produced.
- Better management of waste water and effluent through installation of treatment and recovery systems.

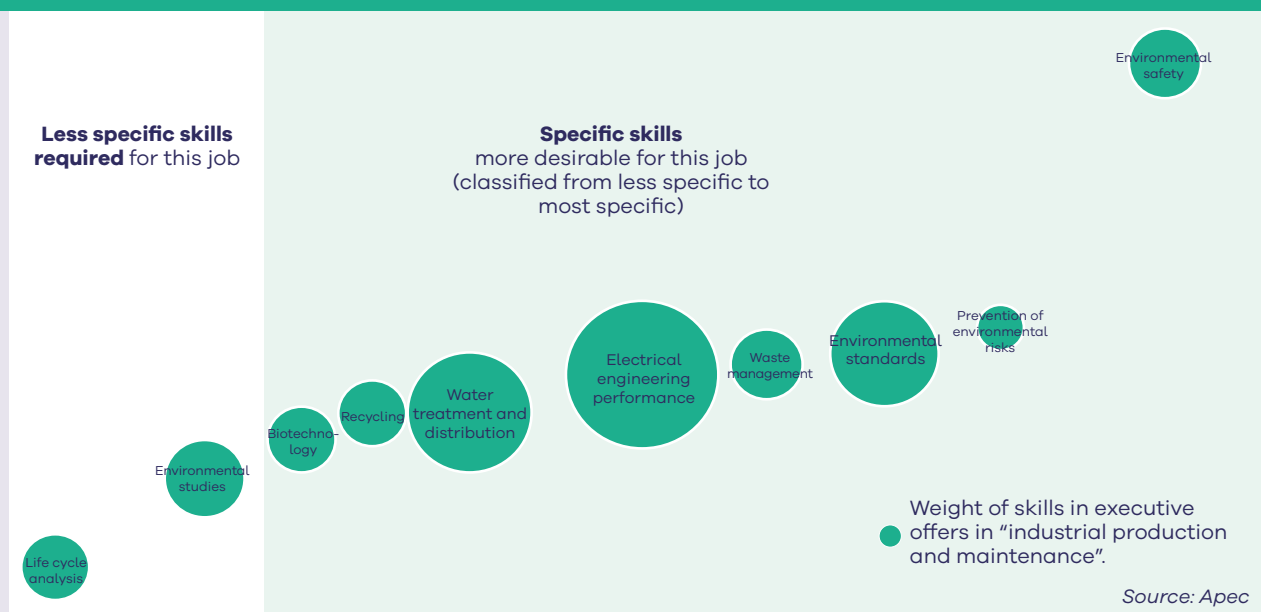


Implications in terms of missions and skills

- Knowing the risks associated with handling hydrogen. The risks of explosion or fire in electric batteries must also be controlled in order to prevent these situations from arising. A knowledge of how to manage crisis situations is also essential.
- Raising awareness among employees, clients and suppliers about eco-responsible production practices and their benefits.
- When drafting specifications or road maps, take account of new indicators such as waste rate, carbon footprint, rejection rate, recycling rate and waste pollution rate.
- Implementing continuous improvement actions and demonstrating learning in current and future transformations.
- Being on the lookout for new environmental regulations likely to affect the production or maintenance chain.
- Raising the skills of teams in the use of intelligent solutions. The Internet of Things allows for predictive and preventive maintenance of equipment, thus reducing their environmental impact.
- Being able to reconcile the objectives of ecological transition with those of company performance. Providing risk management.
- Being familiar with short supply chains for raw materials, recycling channels etc.

“ Today, it is essential to be constantly vigilant and anticipate the effects of the ecological transition. Industrial companies face many crises. They have two possibilities : either react and adapt, or take a prospective approach and anticipate. Today, it is the role of managers in companies and production sites to guard against all possible risks. We can therefore monitor not just technologies, materials, energy, but also the pace of these transformations. **Industry specialist**

Skills with a positive impact on the environment sought by the recruiters



Reading note: if you are an industrial production and maintenance manager, engineering and energy performance skills are the most sought-after positive impact skills. However, knowing and being able to guarantee environmental safety is more specific to your role.

Extracts from offers

Production sites director F/M

Tasks: Training the team and giving them responsibility

- Ensuring suitable standards of ambiance and hygiene, working conditions, travail, safety of persons and property and the environment (**energy savings, waste recycling, etc**)
- Write a single risk assessment document, etc.
- Monitor the quality of products sold, deadlines, prices and costs of products, customer satisfaction rate and internal scrap
- Develop the site in accordance with the group's objectives, as well as interactions between the manufacturing and logistics departments
- Manage the production site
- Gather accounting elements : cash flow, purchases, invoices, inventories etc.

Profile: Field person close to his/her team • Minimum 3 years of experience in production and management • Self-discipline • Perseverance • Motivation • Endurance.

Source: apec.fr

Industrial maintenance manager F/M

Tasks: Managing a team of 5 people • Being responsible for all activities as part of a continuous improvement process • Managing maintenance via CMMS • Improving/adapting production tools and **optimising energy consumption** • Implementing and analysing indicators/KPIs.

Profile: Bac+3/5 • At least two years' professional experience in managing an industrial maintenance department • Skills in mechanics, electricity, pneumatics, automation • Knowledge of CMMS software • English desirable • Independent and organised • Natural leadership.

Source: apec.fr



Signs of greening

- Identification of new methods and new processes more respectful of the environment. This may involve optimising raw material consumption, ensuring sustainability of production materials, or even reducing effluent resulting from a production activity.
- Creation of objectives centred on preservation of natural resources and product recyclability. The Anti-Waste Law for a Circular Economy (AGEC Law of 2020) gives directives on portions of renewable energies to be used in production, and in particular prohibits destruction of unsold non-food items.
- Strengthening relationships with stakeholders, in order to contribute to the development of a more respectful and sustainable product. Information-sharing and transparency are desirable in order to minimise the gap between estimated production forecasts and actual production.
- The increased use of digital tools such as ERPs for inventory and data management, allowing a much more predictive approach to supply needs to be adopted and inventory data to be brought as close as possible to reality.

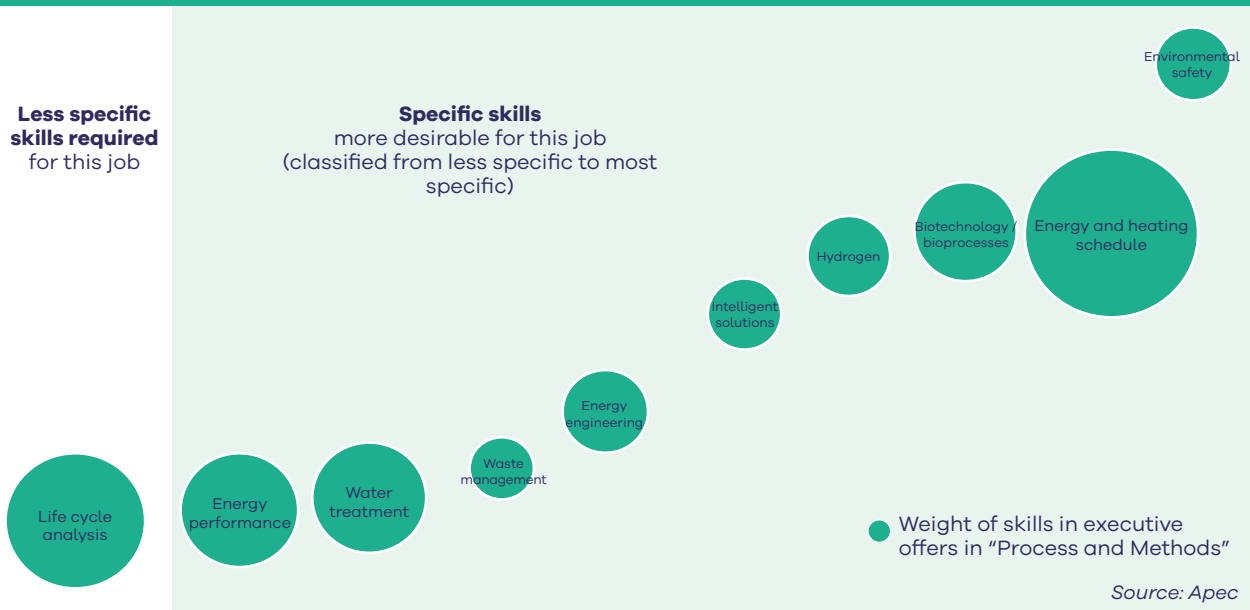


Implications in terms of missions and skills

- Strengthening knowledge of the application and method of use of new materials, new raw materials or alternative raw materials through training for employees or implementation of appropriate protocols.
- Making the logistical flows of these new materials more reliable.
- Integrating the potential impacts of climate change, such as droughts, into thoughts on production processes.
- Taking environmental dimensions into account in feasibility studies or drafting of specifications, such as cost of alternative raw materials, production techniques, market developments etc.
- Being able to interact with different design offices in order to adapt best to changes.
- Knowing how to study the life cycle of a product and find solutions to improve it.
- Questioning the relevance of technologies, in order to select one that integrates environmental issues.

“Developing production processes, working with suppliers, communicating with customers; this is also a “skills” subject. Because we cannot focus on the evolution of production processes and equipment without also focusing on the skills of employees who will help activate this lever. Companies may not spontaneously mention it as an action, but it forms an integral part of other actions cited as priorities. **Industry specialist**

Skills with a positive environmental impact sought by recruiters



Reading note: if you are a process and methods manager, the ability to conduct an energy and thermal assessment is the most requested positive impact skill. However, the ability and capability to guarantee environmental safety is more specific to your function.

Extracts from offers

Process engineer F/M

Tasks: Optimising production workshop organisation • Improving industrialisation and adapting the production apparatus • Participating in the design of product manufacturing ranges • Helping put new equipment and processes into production • Supervising test and development phases • Analysing the different stages of the manufacturing process to make production processes more reliable • Writing technical reports • Studying technological solutions to reduce industrial risks (**gas emissions, noise pollution**, etc.) • Leading technical meetings.

Profile: Bac +5 or production management master's degree with specialisation in process engineering.

Source: apec.fr

Doctor Engineer Lean/ Ongoing improvement F/M

Tasks: Design new operational support offers • Define the indicators and the strategy for implementing **climate transformation** • Identifying opportunities for gains and areas for optimisation of operational organisations on customer sites (such as **reducing carbon footprint**), optimising flows, and **reducing emissions and their impact on natural environments, energy and water efficiency** • Carrying out field analyses to launch the Lean approach in the service of **environmental performance** • Mobilising, uniting and supporting customer teams in process optimisation.

Profile: Bac +8 in Lean / ongoing improvement / operational excellence / **ecodesign** • Initial experience in CDI • Keen interest in the challenges of **climate transformation** and of **decarbonation** in the industrial sector and desire to become an expert • Proven experience in training • Team management • Self-disciplined • Independent • Adaptation skills • Educator • Relational and editorial qualities • Definite interest in field and customer relations.

Source: apec.fr



Signs of greening

- The deployment of a responsible purchasing policy as part of CSR initiatives. The guidelines are listed in the Standards ISO 20400:2017, NF X50-135-1 and ISO 26000. This policy aims to integrate environmental criteria and life cycle and overall cost logic into businesses' purchasing processes, following the creation of specifications and the launch of an invitation to tender.
- Purchase of products from short routes, without plastic packaging and with better calibration. The 2020 Anti-Waste Law for a Circular Economy of 2020 (Agec law) requires companies to always go a little further in these practices. The practices have been regulated in the agrifood industry since the passing of the EGalim law in 2018.
- Creation and monitoring of indicators relating to suppliers' environmental criteria (certifications, carbon footprints, etc) and their inclusion in purchasing processes in the same way as budgetary costs, delivery times and quality.
- Compilation of specific codes of conduct aimed at suppliers.
- Implementation of digital purchase processes (e-procurement and e-sourcing) in order to centralise and simplify purchase processes. Although it saves on printing, this digital solution is not zero-impact.



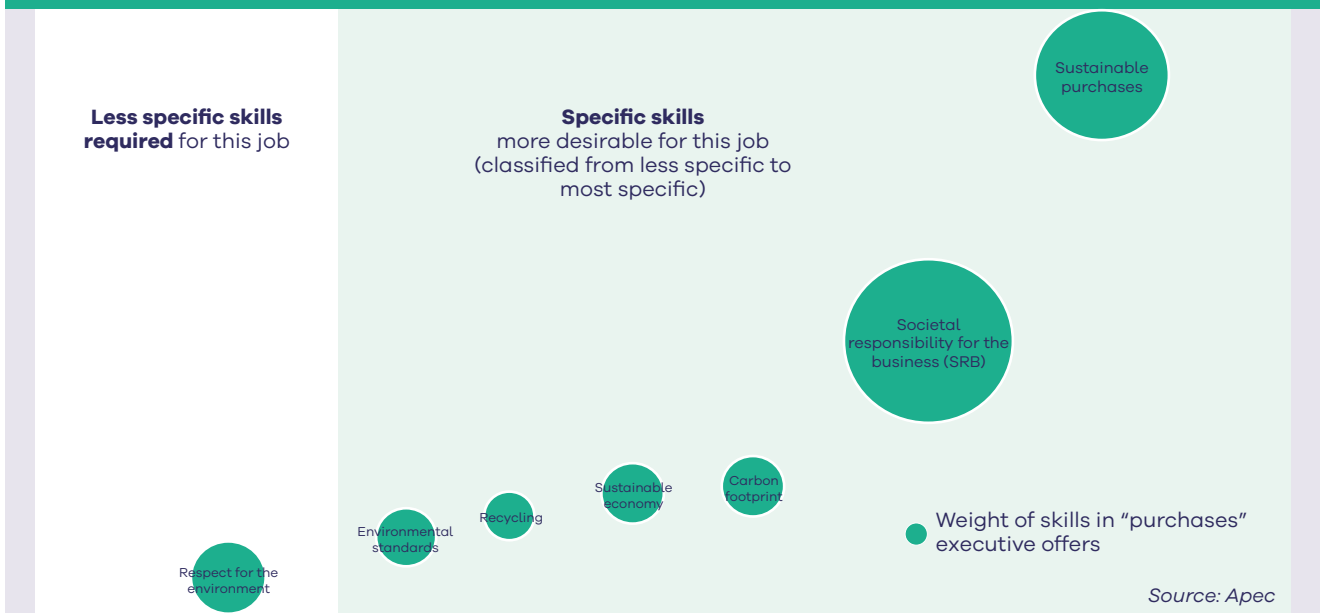
Implications in terms of missions and skills

- Being a stakeholder in the development of a company CSR approach plan.
- Developing new criteria for analysing supplier ecosystems by collecting data beyond level-1 suppliers.
- Collaborating with suppliers to develop substitute alternatives.
- Expanding your core business skills, including mastery of commercial law, the public procurement code, negotiation techniques, mastery of CSR norms and standards, and responsible purchasing.
- Deploying awareness-raising actions with each department within the business, on the subject of responsible purchasing policies, while continuing to guarantee harmonisation of practices.
- Knowing the different labels and certifications linked to sustainable development such as the eco-label (used for cleaning or stationery products, for example), or the European organic and AB labels concerning all production derived from organic farming.
- Developing knowledge of product sustainability and being able to analyse the life cycle of products.
- Relaying this issue to its suppliers by emphasising to them the decisive nature of environmental criteria in future purchasing processes.
- Control the risks of responsible purchasing to ensure that it offers guarantees in terms of quality, conformity, delivery time and volume.

“ This trend towards greening comes first from managers, but we within the purchasing departments have taken up the subject at the agri-food level. Our duty is to define a charter together, especially for everything that will depend on collaborative mutual exchanges, slightly more quantified objectives such as CO² emissions. The brand and the supplier work together to define objectives.

Purchases executive

Skills with a positive environmental impact sought by recruiters



Reading note: if you are a purchasing executive, mastering the field of CSR is the most sought-after positive impact skill. However, knowledge of the practices and standards of sustainable purchasing is more specific to your role.

Extracts from offers

Indirect purchases manager F/M

Tasks: Building the indirect purchasing strategy from A to Z, deploy and implement it on the basis of an internal and external ecosystem • Co-construct a roadmap and implement a procurement policy for **responsible indirect purchasing** • Mapping all of the company's indirect purchases and identify opportunities for centralisation • Working with order issuers to listen to needs and propose optimisations, in **a responsible and ethical approach**, that is, by favouring committed and inclusive local actors • Establishing a process for choosing partners and piloting and negotiating purchases • Conducting calls for tenders and contracting • Promoting good practices in purchase • Analysing the impact **CSR** .

Profile: Bac +5 • Business or Engineering School • Experience as indirect purchaser, 5 years minimum in a **CSR process** • Entrepreneurial mind • Organised • Excellent relations and very good communication • Committed to a **responsible process**.

Source: apec.fr

Purchases manager F/M

Tasks: Deploy framework contracts • Negotiate contracts • Carry on contractual management • Promote good purchasing practices • Monitor and manage suppliers • Answer questions from directors and support them if necessary • Bring to life the sustainable **development internally**.

Profile: Bac +3/5 in business school, political studies institute or engineering school • Minimum 2 years of experience • Interest in **sustainable development** and basic knowledge of **environmental challenges** • Initial experience around purchases **CSR** • Self-discipline • Capacity for initiative • Versatility • Excellent interpersonal skills • Taste for negotiation.

Source: apec.fr

The observatory of executive employment



**RECRUITMENT
PREDICTIONS
& PROCESSES**



**CAREER PATHS
ROUTES
& INEQUALITIES**



**SKILLS
JOBS
& SOCIETY**

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