

The France – England match of decarbonisation: the British comeback

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In 1990, France led 3–0 on the climate scoreboard: an 85% carbon-free electricity mix, thanks to nuclear and hydropower. On the other side of the Channel, the United Kingdom is starting from a long way, mired in coal and oil, which produce more than 70% of electricity. And yet, three decades later, the British are back in the game with great strides. Between a clear strategy, renewable energy in force and the acceleration of nuclear power, Great Britain is now challenging France in the race towards carbon neutrality.

Who is really in charge? Who decarbonises most effectively? Update on the France-England match on the field of decarbonisation.

1. Governance & Strategy: UK Advantage

a. The United Kingdom, a pioneer in climate action under pressure

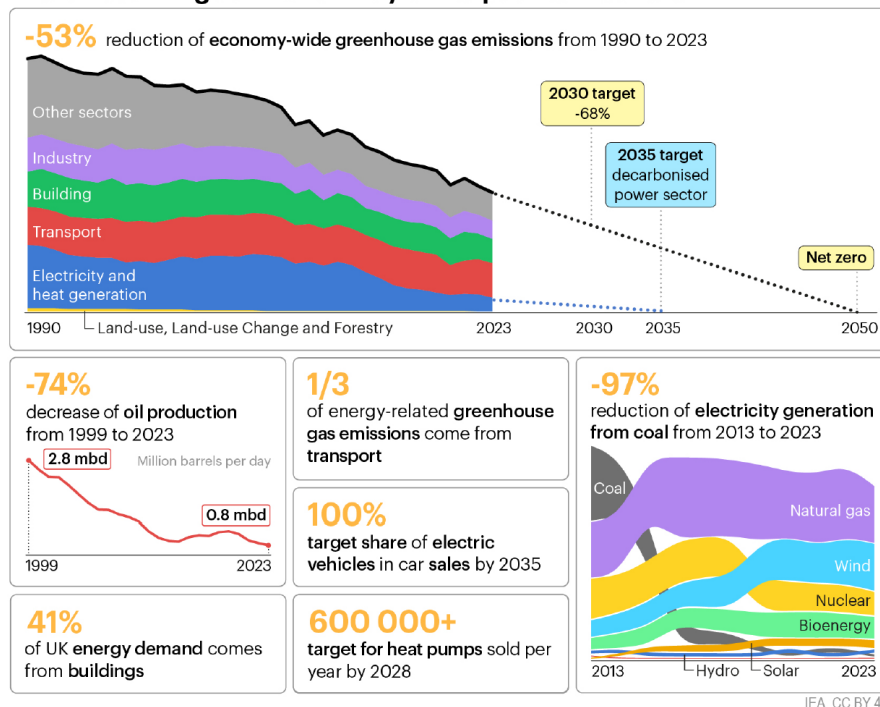
As climate commitments multiply globally, the UK can claim a pioneering role. In 2008, well before other developed countries, it adopted the **Climate Change Act**, the first binding legislation within the G7 setting clear targets for reducing greenhouse gas (GHG) emissions. This founding text laid the foundations for a structured climate policy, with **five-year carbon budgets**, validated by the **Climate Change Committee (CCC)**, an independent body that has since played a central role in the evaluation of policies.

This strategic shift was not insignificant: historically a producer of oil and gas thanks to the North Sea, the United Kingdom was seeking to **anticipate the decline of its fossil resources** while repositioning its industrial fabric towards **green technologies**. This bet was as much industrial as it was ecological, in line with the British ambitions of job creation and innovation.

The trajectory accelerated in 2019, when the country set itself the binding goal of **carbon neutrality by 2050**. A year later, as part of the Paris Agreement, the UK is raising its climate ambition by committing to **reduce emissions by 68% by 2030**, a higher target than the EU's 55%. In October 2021, it published a first action plan that details the levers to be activated in all economic sectors. Among the key measures: **100% carbon-free electricity by 2035**, combining renewables and nuclear, subject to guaranteeing security of supply.

At the dawn of 2025, a new symbolic milestone has been reached: the United Kingdom is one of the **few countries to have submitted** its new **Nationally Determined Contributions (NDCs) on time**, in accordance with the Paris Agreement, which requires a review every five years. The objective is now even more ambitious: **-81% of emissions by 2035**. And the results are already visible: British emissions have fallen by **53% since 1990**, while the use of coal in electricity production has been **almost eradicated (-97%)** (see figure below).

The United Kingdom is halfway on its path to Net Zero



However, these climate ambitions, as structured as they are, are now facing a more complex reality. In its latest report, the *Climate Change Committee* (CCC) sounded the alarm, saying that the UK was "not **on the right trajectory** " to meet its carbon neutrality goals. Progress is considered **too slow** in key sectors such as **transport, construction or agriculture**, and public policies lack coherence and long-term financing.

At the same time, the political and economic context has hardened: **government instability, restrictive budgetary trade-offs, persistent inflation** and **post-Brexit** effects make it more difficult to implement certain measures. In 2023, the government even relaxed some environmental requirements on combustion cars and gas boilers, provoking strong criticism from experts and civil society.

This gap between ambition and execution is now putting the UK **under pressure**, both on the international stage – where it risks losing its status as a climate model – and internally,

in the face of public opinion that is increasingly attentive to the concrete effects of the ecological transition.

b. France, a half-hearted ambition

France, on the other hand, **has been in a wait-and-see attitude** for a long time, and in recent years seems to want to go on the offensive, but with a policy that **is more hesitant**, to say the least. Will the lost time be paid for?

A key player in the **signing of the Paris Agreement** in 2015, it bases its decarbonisation trajectory on its *Energy Transition for Green Growth Law* (2015) and its *Climate and Resilience Law* (2021). This planning is governed by two documents: the *National Low-Carbon Strategy* (SNBC), a global roadmap, and the *Multi-Year Energy Program* (PPE), which is more operational. The High Council for the Climate (HCC) plays an evaluation role, but with fewer resources than its British counterpart.

But in reality, French politics has often oscillated between ambition and hesitation. The first PPE (2016–2018) laid the groundwork, in particular the reduction of coal and oil, as well as a reduction in the share of nuclear power to 50% of the electricity mix (an objective that became symbolic with the closure of Fessenheim alone).

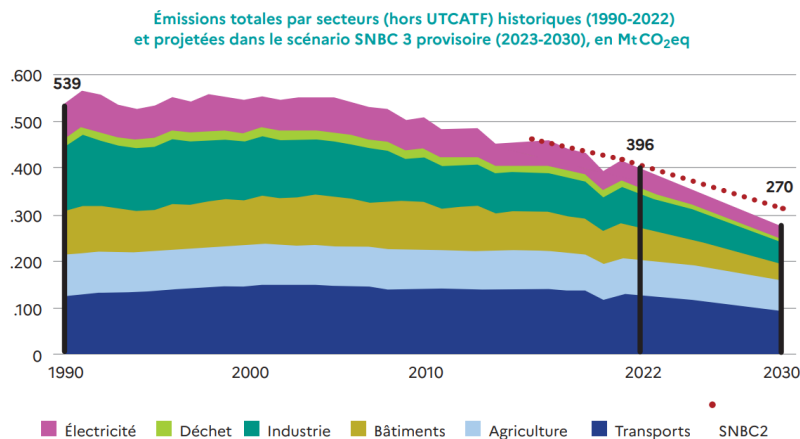
The second PPE (2018–2023), drawn up after a public debate, strengthened the ambition on renewables, wind and biogas, while considering the closure of several nuclear reactors to get closer to the objective of the 50% nuclear mix. However, in February 2022, this course was profoundly changed: the President of the Republic announced a **massive revival of the nuclear industry**, with the desire to extend existing reactors and build **new EPRs**. Today, PPE 3, which is still in the draft (consultation launched in March 2025), intends to articulate the strategy around **four levers**:

1. **Energy efficiency**, including electrification and renovation;
2. **Sobriety** in uses;
3. **Development of renewable energies** (electricity and heat);
4. **Revival of nuclear power**.

The objective remains ambitious: **to phase out fossil fuels by 2050**, thanks to **massively low-carbon electricity**. The share of electricity in final energy consumption is expected to rise from **27% in 2022 to 54% in 2050**, with electricity production expected to rise to **more than 700 TWh in 2035**, thanks to the combined growth of solar, wind and, as main support, nuclear power – whose new capacities will not be built until after 2040.

Despite a **31% drop in emissions between 1990 and 2023**, France is still far from its target of **-50% by 2030**, set in PPE 3. This oscillating French policy reflects the complexity of the social and political consensus around energy choices in France, where the divide

between the defenders of nuclear and renewables strongly influences the pace of decisions. There is still a long way to go, and the effectiveness of the strategy will depend on its concrete implementation, which is still largely under construction.



c. France vs UK: who is decarbonising more effectively?

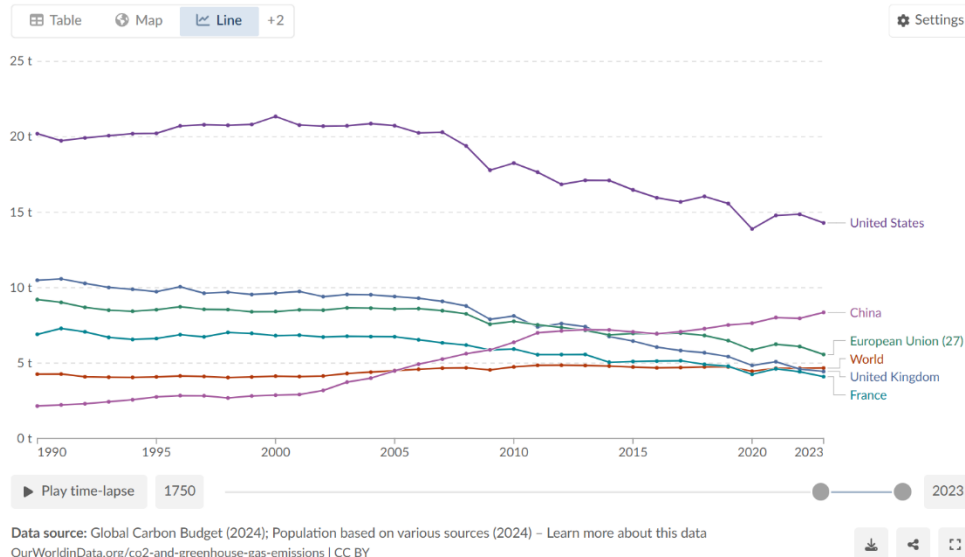
On the surface, **France seems to be lagging behind** the United Kingdom: its emissions have fallen by **31%** since 1990, compared to **53%** in the UK. But this crude comparison deserves to be qualified.

First of all, French emissions started from **much lower levels** (see figure below). In 2023, France emitted an average of **4.10 tonnes of CO₂ per capita**, compared to **4.44 tonnes in the United Kingdom** (excluding imported emissions). While France remains one of the best performers in Europe on this criterion, the gap with the United Kingdom is **now only 8%**, a sign of a gradual catch-up with our British neighbours.

CO₂ emissions per capita

Carbon dioxide (CO₂) emissions from burning fossil fuels and industrial processes. This includes emissions from transport, electricity generation, and heating, but not land-use change.

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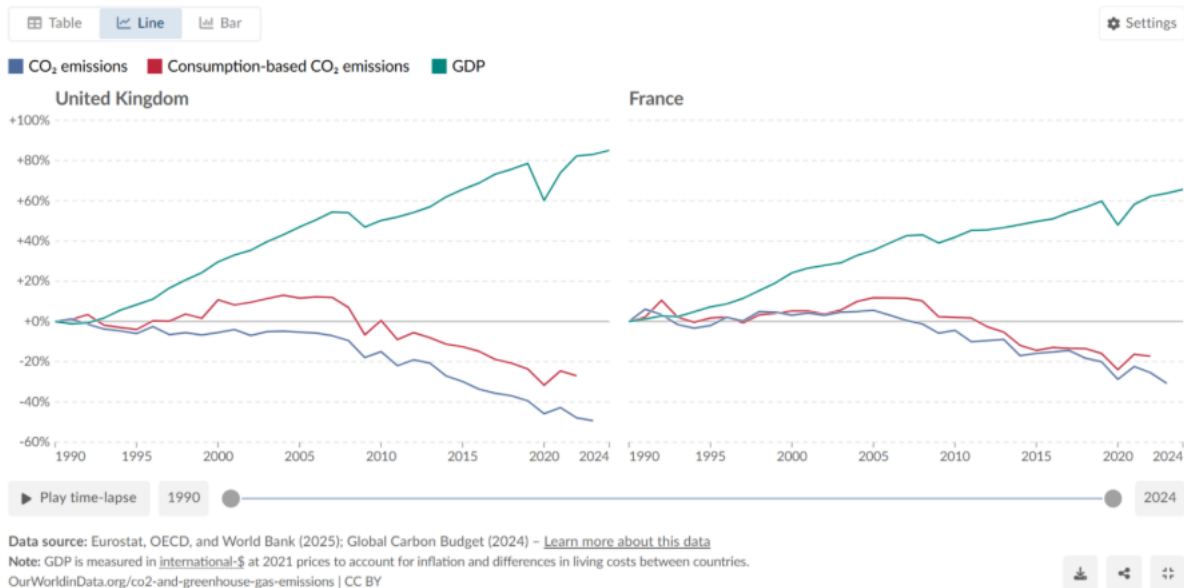
It could be rightly objected that industrial activity and consumption of goods are not the same in the two countries, which is why it is interesting to examine the **annual CO₂ emissions, linked to total consumption** (including imports), **compared to 1 dollar of GDP**. Indeed, France once again appears to be very well placed (**0.15 kgCO₂/\$** in 2022) compared to the EU average (0.20 kgCO₂/\$). The United Kingdom is a close second with **0.19 kgCO₂/\$**. The gap remains **favourable to France**, but is **narrowing every year**, illustrating a convergence of models.

Finally, when economic **growth** is compared with the **decline in absolute emissions**, the UK is clearly doing well (see figure below). Since 1990, it has managed to **decarbonise faster while increasing its GDP more strongly** than France. In both cases, this proves that decoupled growth in emissions is possible.

Change in CO₂ emissions and GDP

Consumption-based emissions are national emissions that have been adjusted for trade. This measures fossil fuel and industry emissions. Land-use change is not included.

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2. Electricity mix: France defends, UK attacks

While France and the United Kingdom share a common goal of decarbonising their electricity, their electricity mixes and strategies diverge profoundly.

In the United Kingdom, more than 50% of electricity production already comes from **renewable sources**, two-thirds of which comes from wind power. The rest of the mix is mainly based on **natural gas (30%)**, **nuclear (15%)** and, to a lesser extent, **oil (3%)**. In 2024, the carbon intensity of the British kWh will reach **150 gCO₂/kWh**, three **times more than** that of the French kWh.

To improve this performance, the country is relying on two levers: the gradual return of nuclear power and the massive development of renewables. On the one hand, two EPR reactors are planned or under construction (Hinkley Point C and Sizewell C), and should increase the share of nuclear power in the years to come. On the other hand, there is an emphasis on the deployment of wind power with **20 GW** already installed in 2025 (including **15 GW offshore**), and targets for 2030 are very ambitious: **43 to 50 GW of offshore wind** and **27 to 29 GW onshore**. In addition, there is a target of **45 GW of solar power by 2030**, supported by a "**Solar Roadmap**" launched in June 2025, which includes the following:

- mandatory **solar panels** on new constructions,
- facilitating **self-consumption in public buildings**, and

- the **use of car parks** as photovoltaic supports.

The British government has thus chosen to accelerate the deployment of renewable energies to diversify the decarbonisation of its mix, without betting everything on EPRs, especially since it is currently the French who are investing in their nuclear sector.

In France, the situation is both more favourable... and more fixed: an **electric kWh that is much less carbon-intensive**, but **has less prospect of improvement by 2040**. In 2024, the mix is dominated by **nuclear power (68%)**, followed by **renewables (26%)** – half of which are hydro – then **gas (3%)** and **oil (2%)**.

In the short term, **little change** is expected in the composition of the mix. Nuclear production will remain stable until 2040 thanks to the **extension of the existing fleet** beyond 50 years, before growing again with the gradual entry into service of the **new EPRs** from 2040 (6 confirmed, 8 optional).

Until then, the effort will mainly focus on the development of **renewable energies**, to respond to an expected increase in electricity consumption (+200 TWh by 2035), linked to the **electrification of uses** (mobility, buildings, industry). The draft **PPE 3** sets objectives for 2035 of:

- **75 to 100 GW of solar power** (compared to 16 GW in 2024),
- **40 to 45 GW of onshore wind power** (compared to 20 GW currently),
- **18 GW of offshore wind** (compared to only 0.5 GW today).

This last point is also revealing: despite a **more extensive coastline** than that of the United Kingdom, **French offshore wind remains very underdeveloped**, which underlines a **structural lag** in this strategic area of the energy transition (see box below).

This electric duel is therefore akin to a race to diversify energy: the United Kingdom is accelerating on the path to renewables, benefiting from a clear incentive policy, while France is betting on the stability of an old but proven nuclear industry, while seeking to catch up on offshore, a key sector.

The United Kingdom, champion of offshore wind power while France procrastinates

*At the end of 2024, Britain was second only to China in terms of offshore wind capacity in the world with nearly 15 GW in operation. The British Hornsea 2 wind farm, commissioned in 2022, is the largest in the world with 1.4GW. In September 2025, the United Kingdom passed the 20 GW mark of installed wind capacity, with, for example, the commissioning of the 659 MW extension of the Walney offshore wind farm. To support the development of offshore wind power, the British government is focusing on market visibility by making massive use of "Contracts For Difference (CFDs)" ⁽¹⁾. In August 2025, it launched its **7th wave of CFD auctions**.*

*France is a **poor relation** compared to its neighbour. With only 2 offshore wind farms operational and connected in 2024 for a total capacity of 1.5 GW, its installed base is **10 times smaller than the English farm**, while the length of the French coast is 19,000 km, compared to 16,000 km for the United Kingdom's coast. To make up at least partially for this delay, about fifteen other offshore wind farms are planned for deployment in France by 2035.*

*It should be remembered that with stronger and more regular sea winds than inland, offshore wind generally produces all year round, with a significantly lower intermittency than that of onshore wind and a fortiori than that of solar photovoltaics. It is one **of the renewable energies best suited to European climates**.*

Overall, 44% of the world's offshore wind installed capacity was in Europe at the end of 2024, including 19.2% in the United Kingdom, 11.1% in Germany, 5.7% in the Netherlands, 3.2% in Denmark, 2.7% in Belgium and 1.8% in France.

3. Heat and buildings: Equal on the table of difficulties

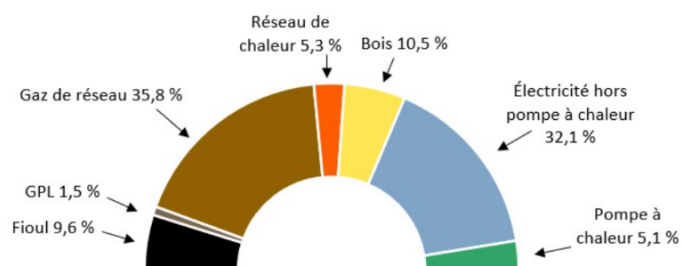
The **decarbonisation of heat** represents a major challenge for both countries, both in terms of technologies and social acceptability.

In the United Kingdom, **nearly 80% of homes** are still heated by **natural gas**. To accelerate the transition, the government has put in place several tools:

- The **Boiler Upgrade Scheme**, which subsidises the installation of **heat pumps (PAC)** or **biomass boilers** ;
- The **Clean Heat Market Mechanism**, which came into force in 2025, imposes a quota on boiler **sales of heat pumps**.

France has a more **diversified mix** : **electricity (37%)**, **gas (36%)**, **fuel oil (10%)** and **wood (11%)** (figure below). It is mainly relying on **MaPrimeRénov'**, a support programme for energy renovation and the replacement of heating systems. However, this system is often considered **cumbersome and complex**, and a revision is underway. French law also provides for a gradual ban on renting housing that consumes too much energy, thus encouraging an acceleration of renovations. With this in mind, PPE 3 sets an ambitious target: to achieve an **average of 600,000 efficient renovations per year by 2030**.

Répartition des logements en 2020 selon leur énergie principale de chauffage
En %



© SDES

Champ : résidences principales de France métropolitaine.
Source : SDES, enquête logement 2020

The battle to decarbonise the thermal sector is a difficult round for both teams, where **costs**, **labour shortages** and **social acceptability** form a triple obstacle. The effectiveness of the aid systems and their simplicity will be decisive in scoring significant points.

4. Transport: Unexpected British acceleration

On the mobility side, the two countries share the objective of banning the sale of new combustion cars by **2035**, but the approaches differ. The **United Kingdom** has chosen a **binding national regulatory tool**, while **France** relies on **European regulations** and relies on the industrialisation of the value chain.

Indeed, the United Kingdom has chosen to ban the sale of new combustion cars in 2035 (initially 2030) with the adoption of the *ZEV Mandate*, which came into force in 2025, which imposes a **progressive quota of zero-emission vehicles** on manufacturers. However, although charging infrastructure is expanding, it remains concentrated around London and the South East.

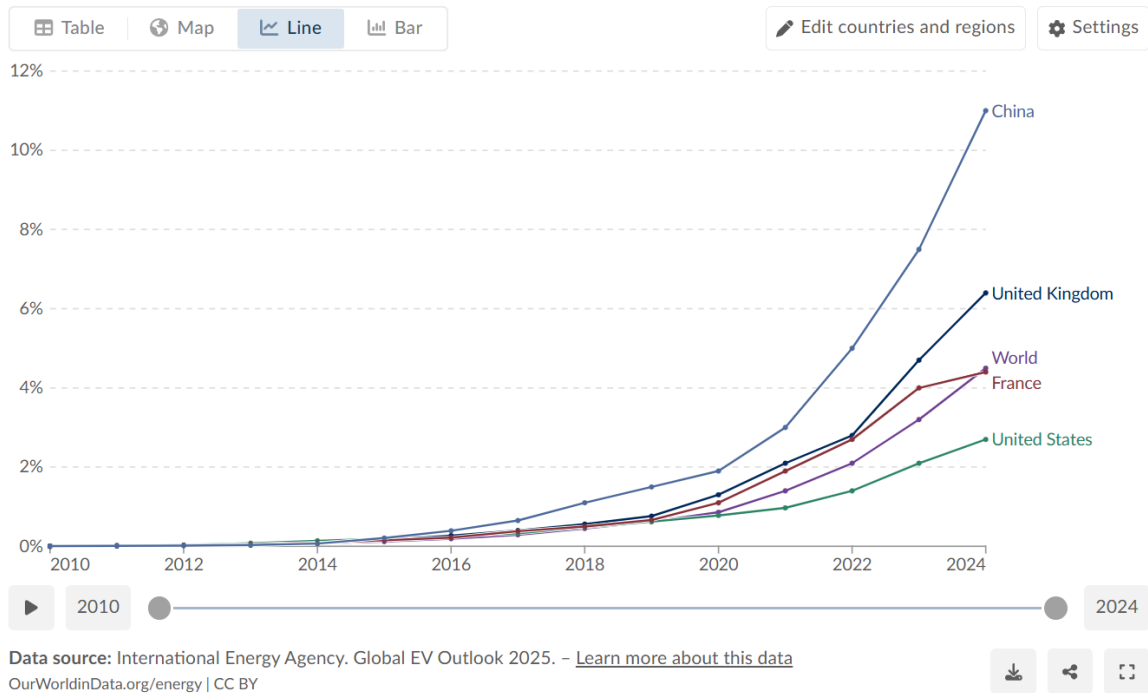
France, for its part, is aligning itself with the **European strategy** of banning new combustion engines by 2035 by supporting **the industrialisation of the sector** via **battery gigafactories** (Dunkirk, Douvrin, etc.).

Despite a **public charging network twice as dense** in France as in the United Kingdom (see figure below: 70 charging stations vs. 32 charging stations per 1,000 vehicles), the latter has a **share of electric vehicles** (100% or hybrid) in the fleet on the road **that is twice as high** as in France.

Share of cars currently in use that are electric, 2010 to 2024

Electric cars include fully battery-electric and plug-in hybrids.

Our World
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Our British neighbours are clearly showing us that **the race for the number of charging stations** undertaken by France (with more than 150,000 public charging stations today, and a target of 400,000 by 2030) is not **an absolutely necessary condition** for the market to take off.

5. New technological sectors: the jokers come out of the bench

Technological innovation is at the heart of UK and French climate ambitions, but each favours **distinct areas of investment**, reflecting their national specificities and priorities

The **United Kingdom** is betting heavily on improving technologies for **offshore wind**, both fixed and floating, and is taking advantage of its North **Sea** infrastructure to advance **carbon capture and storage (CCS)**. The country is also investing in **blue hydrogen**, produced from natural gas with CO₂ capture, while developing **next-generation nuclear power**, particularly through **small modular reactors (SMRs)**. In addition, **electrical flexibility** is a key issue, with nearly **5 GW of stationary batteries** already installed by the end of 2024.

For its part, **France** has been capitalising on its historical assets, in particular its **nuclear fleet**, to direct its efforts since 2021 towards **low-carbon hydrogen** produced by electrolysis, from nuclear or renewable electricity. It is also continuing the development of **EPR** and **SMR** reactors, investing in **next-generation batteries** for mobility, and is committed to the **decarbonisation of industry** as well as the use of **new materials**.

While these two trajectories differ in their technological priorities, they remain largely **complementary**, offering a variety of solutions to meet the challenges of the energy transition.

6. Financing the transition : the Brits take the lead in extra time

The transition to carbon neutrality requires massive investments in energy infrastructure, renewables, building renovation and carbon-free mobility. According to Goldman Sachs Asset Management, achieving net-zero targets by 2050 is estimated to require up to \$300 trillion in global investment, about **60% of which could be financed by private debt or private credit markets**. Private credit has several advantages: it makes it possible to structure **more flexible financing**, adapted to transition assets (for example: renewable electricity production or storage projects, high-voltage lines, carbon-free heat) for which traditional banks may be more cautious in the face of technology, timing or return on investment risks. Indeed, while public finance only covers about 30% of global needs related to decarbonisation, according to the IEA (*World Energy Investment 2024* report), the mobilisation of private capital – notably through the issuance of green bonds, sustainable loans and infrastructure funds – is the main source of financial leverage. In Europe, nearly 60% of new investments in low-carbon energy in 2024 came from private debt (BloombergNEF, *Energy Transition Investment Trends 2025*).

In the United Kingdom, the dynamic of green private finance is particularly pronounced. The British sustainable debt market, **second in Europe behind Germany**, reached **£120 billion issued in 2024** (+18% year-on-year), according to the British Business Bank. This performance is based on an already mature financial ecosystem: the **Green Finance Strategy** (2023) provides a framework for the national taxonomy and encourages banks, funds and insurers to align their portfolios with carbon budgets. As part of this, the **National Wealth Fund**, created in 2024, has granted **£600 million to ScottishPower** to modernise Scotland's electricity grids and better integrate renewable energy. The **Climate Change Committee** also points out that **public-private partnerships** and **municipal green bonds** have played a decisive role in the financing of offshore wind and carbon capture (CCS) projects, two capital-intensive sectors. Nevertheless, despite this advance, the share of **private debt dedicated to greenfield projects remains limited**: out of **£131 billion** of infrastructure debt transactions in Europe in 2024, **only £35 billion** is in the UK, and a small fraction directly targets new renewable projects. The potential

for expansion therefore remains considerable to consolidate London's position as a European hub for transition finance.

In France, the financial structure of the transition remains more focused on **public or quasi-public financing**, via the **Caisse des Dépôts, Bpifrance** or the **France 2030 plan**, even if private debt is starting to grow. In 2024, the French green bond market exceeded **€65 billion in issuance** (+25% year-on-year), according to the Sustainable Finance Observatory, driven above all by large institutional issuers – **EDF, Engie, SNCF Réseau** – rather than by SMEs. The rise of **European ESG regulation** and the strengthening of **extra-financial reporting** are nevertheless attracting a growing number of international investors to French green assets.

According to France Stratégie, market **fragmentation** and **banks' caution** in the face of technological risks still limit access to credit for decentralised projects, particularly in energy **renovation** and **building efficiency**. To address this deficit, the **European Investment Fund (EIF)** launched the **€200 million Green Private Credit programme in February 2025** to mobilise private investors to support companies involved in the climate transition. However, volumes remain modest: according to **France Invest**, private infrastructure debt in France represented only **€1.6 billion** raised in 2022, of which **€1.1 billion was financed for 36 projects**.

7. Summary: two trajectories but a common ambition

In terms of governance and energy policy, the United Kingdom has been on a stable and clear trajectory for more than thirty years, without major challenges and with a growing ambition in terms of decarbonisation, considered as a vector of industrial development and competitiveness and backed by market mechanisms. In comparison, French energy policy over the last thirty years appears hesitant and complicated, with a revival of nuclear power that took a long time to be decided and a lack of consensus on renewables. Despite everything, France remains well placed at the European level in terms of its GHG emissions, but its procrastination in terms of energy choices is significantly slowing down its trajectory towards Net Zero. The result is that it is being caught up by its English neighbour.

In terms of the electricity mix, the United Kingdom has demonstrated the effectiveness of its strategy for the massive development of offshore wind thanks to stable market mechanisms (CFDs in particular), but remains dependent on natural gas for the time being. The ongoing reinforcement of its nuclear fleet will gradually enable it to reduce this dependence. France, for its part, benefits from a historic carbon-free nuclear base, but its slowness on renewables weakens its diversification and risks slowing down the massive electrification of uses before the commissioning of new nuclear power plants, which will not take place before 2040.

On the subject of social issues, the two countries are faced with a tension between climate ambition and acceptability. In France, wind power is the subject of strong local opposition, while nuclear power is enjoying renewed acceptance. In the United Kingdom, offshore wind is more accepted, but onshore infrastructure (high-voltage lines, compressor stations) is encountering resistance.

While both countries are having difficulty financing the renovation of buildings, the development of electric vehicles is on the other hand twice as fast in our British neighbours, who are investing less in public charging stations. But uncertainties about the speed of deployment of electric vehicles remain high in both countries.

Bets on disruptive technologies are different and complementary: the UK is investing in carbon capture and blue hydrogen. France on new nuclear energy and hydrogen produced by electrolysis. Both must quickly train tens of thousands of technicians and engineers for nuclear, wind, heat pumps and hydrogen.

Finally, the ability to mobilise private debt is becoming a decisive factor for success: the United Kingdom, with a mature financial ecosystem and an already deep green market, is attracting massive amounts of capital for its transitional infrastructure, while France is still trying to structure this lever, which is currently too dependent on public financing.

In conclusion, France and the United Kingdom illustrate two complementary paths to carbon neutrality. One is betting on the continuity of a decarbonised nuclear base, the other on the reinvention of a system dominated by renewables and the market. Their success will depend mainly on their ability to execute over the long term: mobilising funding, training skills, and ensuring social buy-in. These two complementary pathways offer a valuable laboratory for Europe and the rest of the world.

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(1) ⁱ : *Contracts For Difference (CFDs) regulate electricity prices with a floor for producers and a ceiling for consumers. It guarantees stable incomes for producers while protecting businesses and households from soaring electricity prices*