



LA TRANSITION ÉNERGÉTIQUE pour la  
**CROISSANCE VERTE**

# Cross-integration and energy transition

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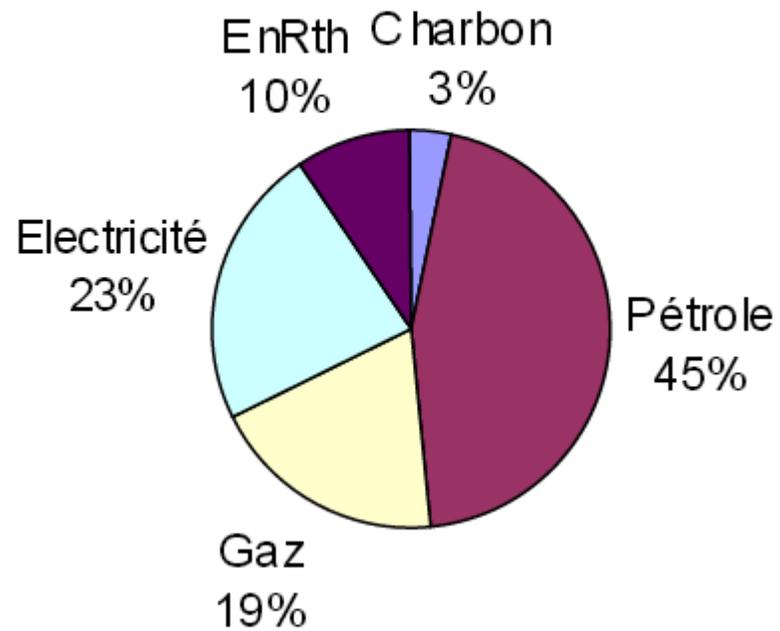
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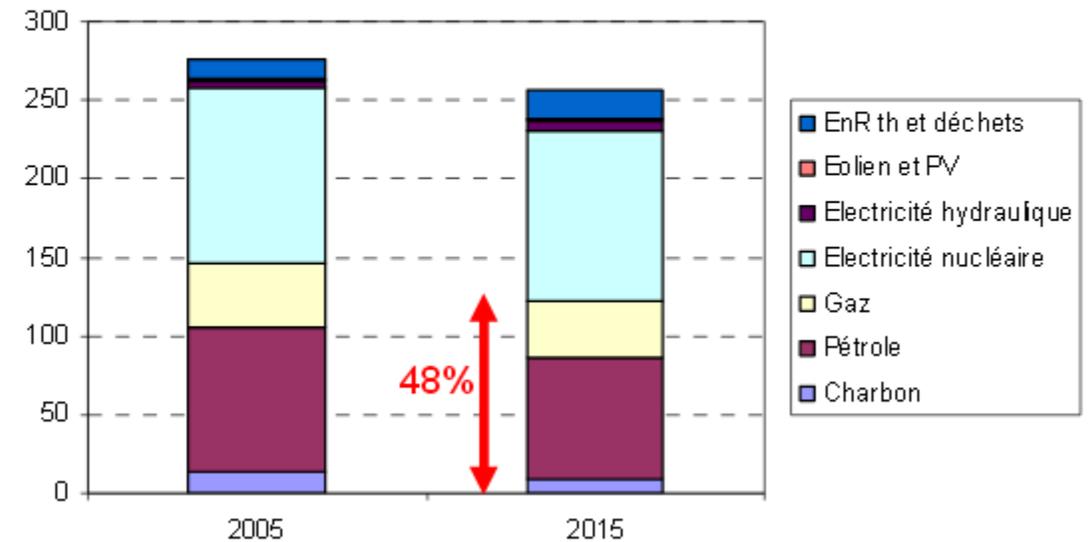
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# Final energy consumption (% per energy and in Mtep) in France

**Consommation totale d'énergie finale par énergie (2015)**



**Consommation totale d'énergie primaire (Mtep en 2015)**





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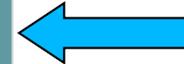
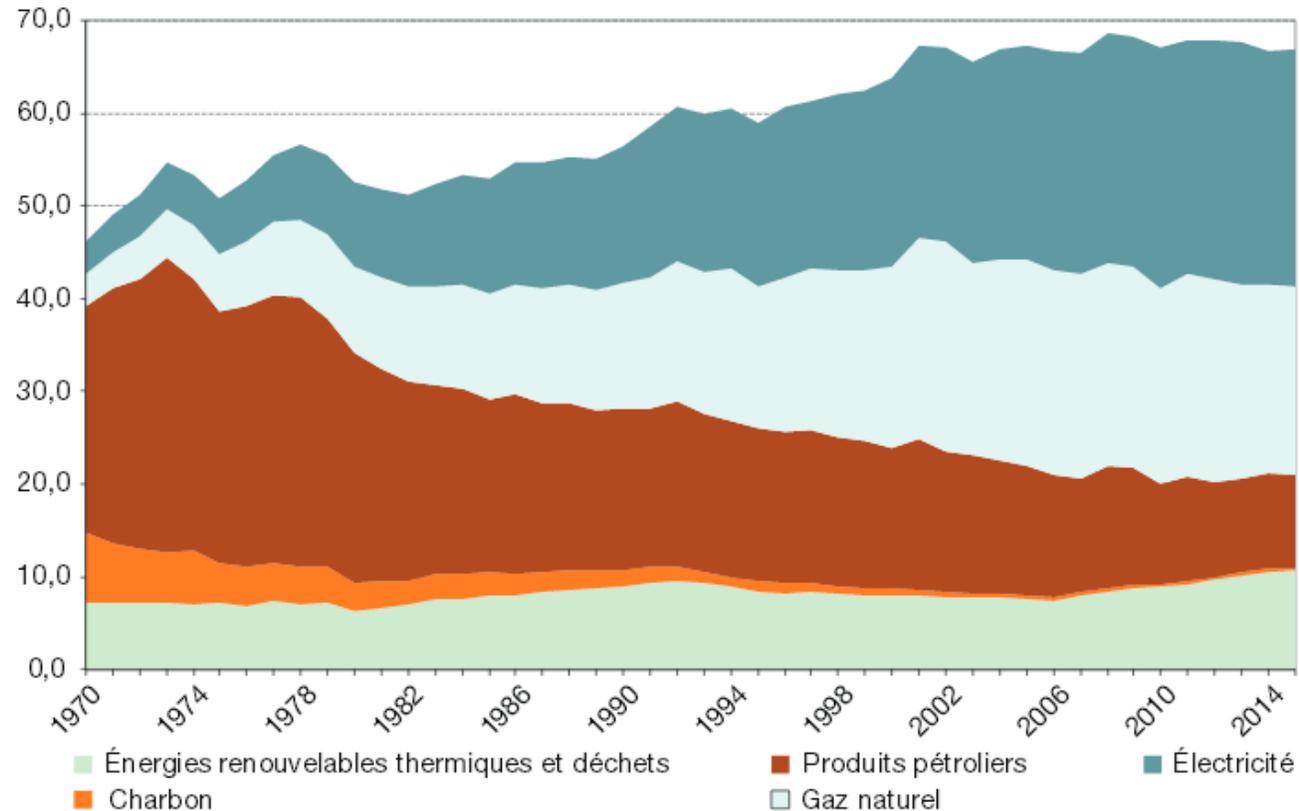
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# Focus on residential / tertiary sector

**Figure 5.2.2 : consommation finale d'énergie dans les secteurs résidentiel et tertiaire**

Données corrigées des variations climatiques

En Mtep



Electricity heating in about 35% of all housings + 14 million of hot-water tanks that avoid 3GW of peak-hour electricity

Source : calculs SOeS, d'après les sources par énergie



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# Situation before the Energy Transition towards Green Growth Act (LTECV)

- ✓ Three framework documents relative to investments in the energy industry
  - ✓ Electricity (introduced in 2000), Gas (2003), Heat (2005)
  - ✓ they have been updated at least once by every administration, last 2009
- ✓ Where energy policy and individual decisions come together
  - ✓ To set objectives for the development of infrastructures and production capacities
  - ✓ To give visibility to project developers and investors
- ✓ A follow-up committee with several workshops
  - ✓ Electricity, gas and heat examined together
  - ✓ Participation of the energy department, the industry stakeholders (production and consumption), NGO's, trade-unions



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# Multi-annual programming for energy (PPE)

- › Multi-annual programming for energy (PPE) replaces the three existing plans. The bill merges existing planning periods in all energy sectors (electricity, gas and heat) into a single instrument and widens them to include consumption, networks and security of supply
- › PPE defines priorities for public action in **integrated and global** energy approach in order to achieve the goals of the law
- › PPE covers two periods of five years except for the first PPE which covers two periods three years and five years (2015-2018; 2019-2023).
  - To be align with the general election periods
  - PPE shall be reviewed every five years.



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# Multi-annual programming for energy (PPE)

## › PPE includes various areas:

- **Security of energy supply** (including import assessments, e.g. biomass imports); definition of a reliability standard for the power system
- **Energy efficiency** and decrease of energy consumption (more specifically fossil fuels)
- **Development of renewable energy** and recovered energy through tendering procedures
- **Development of transmission network, storage of energy, demand-side management** (with curtailing consumption policy), development of smart energy system technologies and self-consumption and self-production
- **Strategy for development of a sustainable mobility**
- **Support of household purchasing power and energy price competitiveness**



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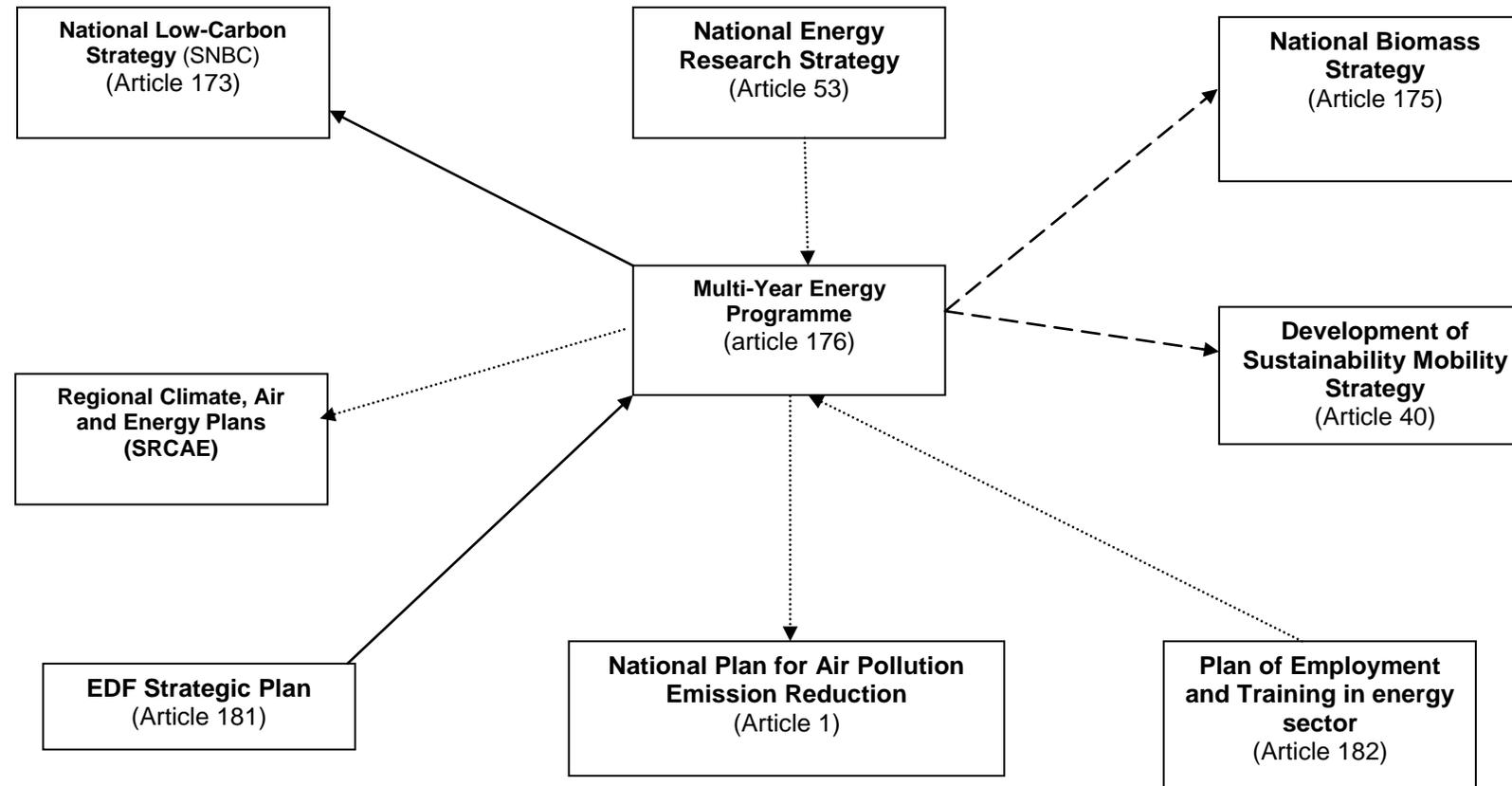
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# Multi-annual programming for energy (PPE)

- › PPE includes **various energy demand scenarios** taking into account different assumptions (macroeconomic forecasts, demographic forecast, and energy efficiency)
- › For the second period, the law requires to **take into account economic and technical uncertainty and to consider contrasted scenarios**. For instance, we provide two objectives for the development of wind energy in 2023.
- › PPE must define an **indicative public spending trajectory** required to reach its quantitative objectives (RES and energy efficiency, notably).
- › PPE must also include an **assessment study on economic and social impact** (employment, GDP, households, competitiveness of firms), and skills
- › PPE is subject to an environmental assessment as required by the Directive 2001/42/EC (assessment of certain plans and programmes on the environment).
- › PPE includes an impact assessment : environnement, macroeconomic, social, skills

# Multi-annual programming for energy (PPE)

## › Linkages between PPE and other planning documents



- ▶ : Plan or strategy XX must be compatible with YY
- .....▶ : Plan or strategy XX takes into account plan or strategy YY
- - - -▶ : Plan or Strategy XX defines measures from orientations of PPE

*Example: there is a legal link of “compatibility” between Low-carbon development strategy and Multi-annual programming of energy which reflects the integration of the two plans.*



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# Multi-annual programming for energy (PPE)

## Main orientations

- › Reduce final energy consumption (12 % by 2023) and primary consumption of fossils (-22 % by 2023)
- › Accelerate the development of renewables in all sectors ; +70% for electric RES capacity, + 35% for heat RES, advanced biofuels (3.4% in fuel and 2.3% in diesel by 2023)
- › Guarantee the security of supply without prejudice to environment : develop demand-side response in electricity, ban on new coal plant
- › Prepare tomorrow's energy system, through a more decentralised approach : develop smart grids and storage, self-consumption, reduce the share of nuclear in electricity production.
- › Summary (in english) of the PPE : [here](#).



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# Multi-annual programming for energy (PPE)

- › 7 PPE in non-interconnected zones like Corse, Guyane, la Réunion, Saint-Pierre et Miquelon, Guadeloupe and Martinique
- › Those specific PPE will define the implementation of measures to achieve the following goals : 50% of renewable energy in 2020 and “energy autonomy” en 2030
- › **Co-elaboration** between state authorities and local authorities
- › Define a disconnection threshold of intermittent energy power, consistent with the goal of increase renewable energy
- › Define goals and schedule the deployment of low emission vehicles



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# Perspectives for the next MEP (2018-2023)

## The MEP in numbers

Renewable energy for electricity	<b>Increasing the installed capacity by over 50% by 2023, in order to achieve installed capacity of between 71 and 78 GW</b>
Renewable energy for heating	<b>Increasing the production by over 50% to achieve output of 19Mtoe</b>
Bio-methane to be injected into the gas network	<b>8 TWh by 2023</b>
Total energy consumption	<b>Down by 12.3% in 2023 compared with 2012</b>
Primary consumption of fossil fuels	<b>Down by 22% in 2023 compared with 2012</b>
Primary consumption of coal	<b>Down by 37% in 2023 compared with 2012</b>
Primary consumption of oil products	<b>Down by 23% in 2023 compared with 2012</b>
Primary consumption of gas	<b>Down by 16% in 2023 compared with 2012</b>
Emissions of greenhouse gases from energy production	<b>294 MtCO<sub>2</sub> in 2018 (&lt; carbon budget of 299 MtCO<sub>2</sub>) 254 MtCO<sub>2</sub> in 2023 (&lt; carbon budget of 270 MtCO<sub>2</sub>)</b>
Economic growth	<b>GDP growth 1.1% greater than the baseline scenario in 2030</b>
Jobs	<b>Difference between the number of jobs created in the baseline scenario and in our forecast: c. 280,000 more jobs by 2030</b>
Gross disposable household income	<b>Increase in the gross disposable income of French households in the forecasting scenario calculated for the MEP: 13 billion Euros in 2018 and 32 billion Euros in 2023</b>

“Preparing for the future of our energy system means:

- coordinating the diversification of the energy sector and reducing our dependence on any given energy source, for electricity (target of reducing nuclear power to 50% of total supply by 2025), heat generation and fuel;
- supporting the decentralisation of production, which requires to make networks smarter and more flexible through balanced development of energy networks, storage and transformation, demand-side management, local energy production, smart grids and self-production;
- paving the way for greater interaction between the electricity, gas and heat networks ('power to gas' and 'power to heat') at different levels, optimising costs and operations.”



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# Examples of current actions for cross integration promotion

- Developing smart grids and supporting the transition from test phase to industrial deployment (art. 200 of LTECV), based on feedback from tests currently in progress : on-going deployment in PACA region and Brittany / Pays de la Loire.
- Flexibility experimentation (art. 199 of LTECV) : remuneration by the DSO for project avoiding network investment and management costs.
- Supporting the development of storage : new [regulatory framework](#) in the French islands.
- Promoting the widespread densification of existing networks and the creation of new heating and cooling networks, in order to increase fivefold the amount of renewable and recycled energy reaching the grid by 2030 (doubling it by 2023).
- Power-to-gas demonstrators :
  - GRHYD (Dunkerque) : injection of hydrogen in the distribution gas network. [More information.](#)
  - JUPITER 1000 : 1MW electrolyser, methanation and injection in the transmission gas network. [More information.](#)
- National call “Hydrogen territory” :
  - Developing various uses of carbon-free hydrogen in order to make the investment profitable : storage, mobility, industry
  - Over 100 applications
  - [39 laureates in different fields](#) : hydrogen surpluses from industry, transportation (road, boat, APU for airplane...), storage for buildings, combination of energy and transport projects (e.g : onshore wind farms that will sell electricity to the market and when the prices are low will produce hydrogen for mobility)



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Thank you  
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