

Energy transition for green growth act

October 2015



A long and rich democratic process towards the law

- **S1 2013:** national debate on energy transition
- **S1 2014:** stakeholders consultations on the draft law
- **July 2014:** presentation of the draft law to ministers council
 - Prepare the post oil era, with a transition to a low carbon society, focus on energy efficiency and renewables
 - Mobilize stakeholders, seize the opportunity for green growth, job creations and economy competitiveness
- **S2 2014 - S1 2015:** successive readings in French Parliament and final adoption during summer 2015
 - ✓ 150 hours of public discussion
 - ✓ 212 articles

August 2015
The act has been promulgated

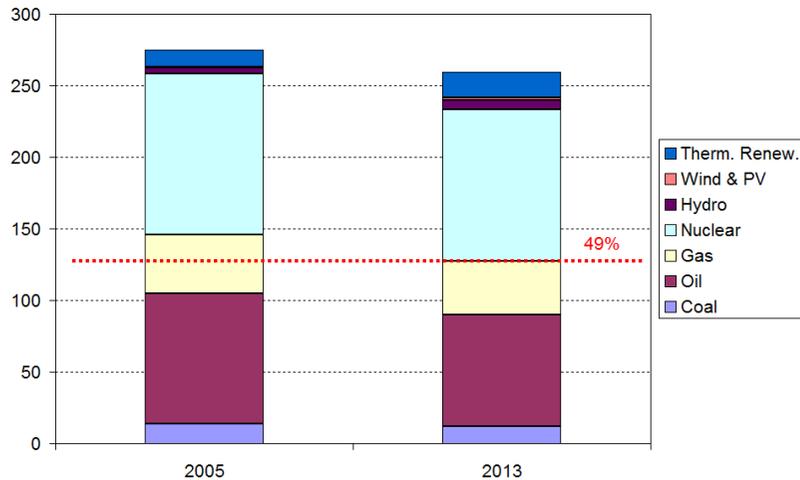


Structure of the energy transition act

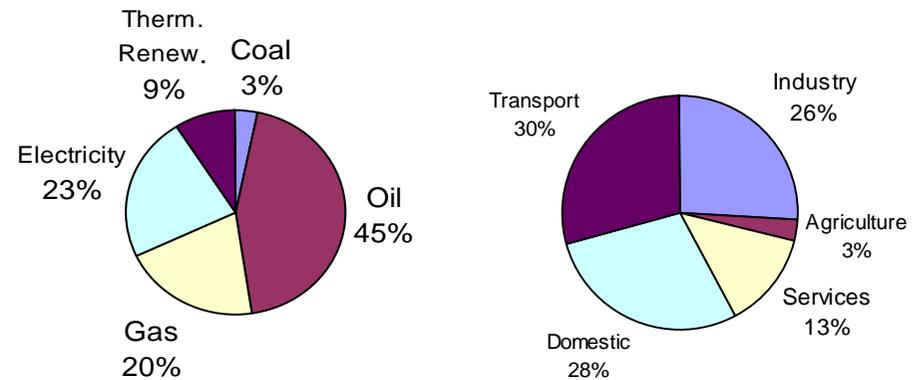
- **Title I** – **Define common goals** to achieve the energy transition, reinforce energy independence, competitiveness and fight against climate change
- **Title II** – **Renovate buildings**, to save energy, cut bills and create jobs
- **Title III** – **Develop clean transports** to improve air quality, protect health and fight against climate change
- **Title IV** – **Develop waste prevention and valorization** and promote circular economy
- **Title V** – **Promote renewable energy**, to create a balanced mix and optimise local resources
- **Title VI** – Reinforce **nuclear safety and public information**
- **Title VII** – **Simplify & clarify procedures** to increase efficiency and competitiveness
- **Title VIII** – Provide citizens, companies and territories the **tools to act together**

Key energy and climate figures about France

Gross inland consumption (2013): 260 Mtoe



Total final energy consumption (2013): 165 Mtoe



- Final energy intensity (2012): 91 toe/M€ GDP or 2.5 toe/capita
 - EU average : 102 or 2.4
- Energy import dependancy (net imports/gross consumption, 2012) : 48%
 - EU average : 53%
- CO₂ emissions (2012): 387 Mt or 5.9 t/capita or 214 t/M€ GDP 2015
 - EU average : 3 995 or 7.9 or 340

Electricity facts and figures

- **Net production of electricity in 2013 : 550,9 TWh**
 - Nuclear power : 404 TWh = 73,3 % of the total electricity production
 - Conventional Thermal : 44,7 TWh = 8,1 % of the total electricity production
 - Hydraulic, wind and solar PV : 96,2 TWh = 17,5 %

- **More than 90 % of the electricity production is “low carbon” (no significant CO2 emissions)**

- **Corrected consumption of electricity in 2013 (including losses) : 476 TWh**

- **France has exported 79,4 TWh in 2013, while importing 32,2 TWh.**

Making a successful energy transition : clear and ambitious goals



40% less greenhouse
gas emissions
in 2030 compared
to 1990



30% less fossil fuel
consumption
in 2030 compared
to 2012



Increase the share of
renewable energy sources
to **32%** of the final energy
consumption in 2030
and **40%** of the electricity
production



Reduce final energy
consumption
by **50%** in 2050
compared to 2012



- **50 %** less waste
in landfill
by 2025



Diversify electricity
production and reduce
the share of nuclear power
to **50%** by 2025

Carbone price : a target of 56 € in 2020 and 100 € in 2030 for a ton of carbon

- For the carbon component of the domestic tax on consumption of energy products (TICPE).
- In order to focus investments on long term horizons and to channel behaviours into low carbon economy
- Will be compensated by a taxation reduction for products and services contributing to the energy transition



Renovate buildings, to save energy, cut bills and create jobs

- building sector : 44 % of French energy consumption in 2012
- largest energy consumer, significant opportunities for energy efficiency

AMBITIOUS GOALS

- Target of 500,000 major renovations per year with the priority of addressing fuel poverty.
- 100% of new buildings to the low-energy building standard by 2050.
- 75,000 jobs creation

Immediate actions

Energy transition tax credit (Crédit d'impôt transition énergétique – CITE)

Amounts to a refund of 30% of the total cost of energy renovation work, up to a limit of €8,000 for a single person and €16,000 per couple.

Interest-free eco-loans

Allows property owners to benefit from an interest-free loan of up to €30,000 for energy renovation works.

Energy renovation platforms

To support private individuals in their renovation works.

Local-rate telephone number (No. Azur Eco Rénov): 0810 140 240

New period for the national White Certificates scheme: energy savings targets doubled for 2015-2017.

New obligation in 2016 for actions dedicated to modest households

Renovate buildings, to save energy, cut bills and create jobs

Speed up the renovation of existing buildings

- **Removing obstacles to energy renovation of buildings**

Mayors can grant exemptions from urban planning rules that could otherwise hinder building insulation projects.

- **Major building works** (e.g. re-roofing, façade renovations and extensions) **shall be used as an opportunity** to significantly improve the energy performance of all buildings.

- **Creation of an operational framework for third-party financing by public companies.**

This allows for funds to be advanced to private individuals wishing to carry out works.

- **Aid for low income households**

- creation of an energy renovation guarantee fund
- creation of a specific white certificates scheme dedicated to fuel poverty

- **Widespread provision of information for consumers**

Rollout of smart gas (Gazpar) and electricity (Linky) meters improves the information given to users about their consumption.

Improve performance of new buildings

- **New public buildings shall be exemplary on the energy and environmental levels** and, whenever possible, shall conform to positive-energy or "high environmental performance" criteria.

- **Creation of a digital monitoring and maintenance record for housing**



Develop clean transports to improve air quality and protect health

- transport sector is the first producer of greenhouse gas, accounting for 28% of France's total emissions in 2013.
- 15% of national particulates and 56% of nitrogen oxide emissions

AMBITIOUS GOALS

- Step up efforts to combat air pollution and reduce dependency on hydrocarbons
- Speed up the replacement of car, lorry, coach and bus fleets with low-emission vehicles.
- Offer 7 million recharging points for electric vehicles by 2030.
- Reach 10% of the energy consumed by all modes of transport from renewable sources in 2020, rising to 15% by 2030.

Immediate actions

Car conversion bonus

The bonus for purchasing an electric vehicle has been extended and increased since 1 April 2015 when accompanied by the scrapping of a polluting vehicle. The total bonus may be worth as much as €10,000.

The scope of polluting vehicles allowing a bonus will be enlarged in 2016.

Aid for the installation of recharging points for electric vehicles

Since September 2014, a 30% tax credit has been available for the installation of recharging terminals for electric cars by private individuals. Support to local authorities which install public charging networks.

Call for projects « Breathable cities in 5 years »

This call, issued in June 2015, will encourage the emergence of urban "laboratories" that volunteer to implement exemplary measures to restore the air quality within their boundaries, within a five-year period. 25 candidates, 20 cities labelled in September 2015.

Develop clean transports to improve air quality and protect health

- **Electric vehicles charging points**

Installed in new car parking provisions, car parks at existing shopping centres and when a car park is renovated

- **Low emission vehicle fleets**

Minimum share of vehicles with low CO2 and air pollutants emissions, when renewing fleets

- 50% for the French State and its public bodies, 25% for local authorities
- 10% for car rental or taxi companies

All new buses and coaches for public transport services from 2025 onwards must be low-emission

- **Restricted traffic areas**

Restriction measures can be implemented by local authorities in areas affected by poor air quality.

- **Travel expenses**

Employers contribute to their employees' travel expenses for journeys made by bicycle or electric bicycle between home and the workplace.

- **Mobility plans for companies above 100 employees**

Such plans may be compulsory in areas suffering from poor air quality.

- **New road uses**

New tools such as differentiated subscriptions proposed by motorway concession-holders, car-pooling and car-sharing, etc.



Tackle waste and promote circular economy

Our economy's linear system – extract, manufacture, consume and discard – has reached its limits.

AMBITIOUS GOALS

- Progressively dissociate economic growth from the consumption of raw materials.
- Reduce household waste and similar products produced by 10% between now and 2020.
- Recycle 55% of non-hazardous waste by 2020 and 65 % by 2025.
- Recover 70% of construction and civil engineering waste by 2020.
- Halve the amounts of waste disposed of in landfill sites by 2025.

Immediate actions

"Zero waste, Zero wastage" call for projects

Identification of 58 successful regions in 2014, which will implement the pioneering actions recommended by the Act, in a participative and voluntary process. A new call for projects has since been issued, for which the successful applicants will be chosen in 2015.

Tacking food waste

Implementation of a plan to tackle food waste in collective catering departments, including school canteens managed by the State and regional authorities.



Tackle waste and promote circular economy

- **Proximity principle**

Strengthening the proximity principle so that waste is treated as close as possible to where it is produced. The target is to reduce distances travelled and energy consumption.

- **Improvement of product design to extend the service life**

"planned obsolescence" – meaning the act of deliberately designing a product to ensure that it has a shorter service life – becomes a punishable offence.

- **The end of disposable plastic bags**

- Ban on the distribution of disposal plastic bags at check-outs, from 1 January 2016.
- They will be prohibited in fruit and vegetable departments from 1 January 2017.
- Ban on the distribution of disposable cooking utensils in 2020.

- **Source separation of food waste**

Local authorities must generalize the source separation of the food waste produced by private individuals by 2025, so that it can be used as a new resource, e.g. compost

- **Construction and engineering waste**

Creating a network of professional waste collection centers for the construction and civil engineering sectors between now and 1 January 2017, by introducing a scheme requiring distributors to collect materials from professionals at (or near) sales outlets.

- **Reinforcement of the Producer's responsibility principle**

Broader scope of existing schemes (paper, textiles and clothes), new schemes (old leisure ships).

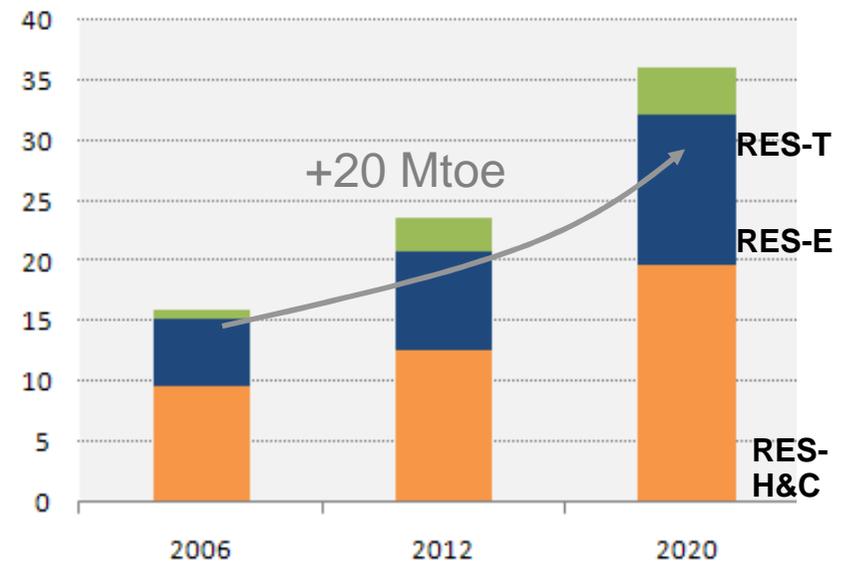


Promote renewable energy, to create a balanced mix

In 2012, 14% of the energy that we consumed was of renewable origin. The aim is to raise this to 23% in 2020 and 32% in 2030.

AMBITIOUS GOALS

- Double the share of renewables in the French energy system over the next fifteen years
 - Promote the improved integration of renewable energy sources into the electrical system via new support mechanisms.
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- **Financial aid for mature renewable energy**
A new support scheme for renewable electrical energy (e.g. solar photovoltaic) has been created. The electricity will be sold directly on the market and benefit from an additional premium.
 - **The management of hydroelectric power plants is being modernized**
 - Concession contracts can be consolidated within large valleys to optimize operations.
 - Semi-public hydroelectricity companies can be created in order to bring regional authorities more closely together to manage different uses for water and improve the transparency and control of France's hydroelectricity facilities, while involving businesses.



Promote renewable energy, to create a balanced mix

- **Acceleration of grid connection for electric renewable energy production sites**

Grid connection delay limited to 18 months (except for particular cases with technical or administrative constraints). In case of longer delay, penalties to be paid

- **Simplification of procedures**

- Widespread implementation throughout France of the single permit for wind turbines, biogas plants and installations governed by the Water Act (Loi sur l'eau), including dams and hydroelectric plants.

- New measures help to reduce the costs of procedures and preliminary studies and reduce the periods of appeal.

- **Investing in projects**

- Municipalities and their inter-municipal bodies shall be able to acquire stocks in limited responsibility companies whose corporate purpose is the generation of renewable energy.

- Incentives for residents to acquire stocks in limited responsibility companies involved in local renewable energy projects.

Promote renewable energy, to create a balanced mix

Immediate actions

- **Call for 1,500 biogas production projects in three years**

To allow for the production of energy (biogas) from agricultural waste.

- **Greater support for the heat fund**

To provide stronger backing for the production of heat from renewable sources (biomass, geothermal, solar thermal, etc.).

The "Dynamic wood" call for expressions of interest, launched in March 2015, allows for the provision of support for the mobilisation of wood resources, in association with the Heat Fund.

- **Several calls for tenders in support of the solar photovoltaic sector**

including calls for large-scale solar plants situated in metropolitan area or in the French overseas departments and Corsica.

- **Calls for innovation projects ("Investments for the future" programme)**

For instance to develop offshore energy technologies (floating wind generator farms and tidal-stream generators).

Deployment of renewable energy: support mechanisms

- Current French RES support mechanisms aim to :
 - Set up a commercial market for large deployment :
 - Tools: **FIT (feed-in tariff)** :
 - For onshore wind (fix FIT), small-size PV under 100kWp (fix auto-adjustable FIT)
 - Or, **tender procedure**
 - For offshore wind, middle-size PV (rooftop 100-250kWp), large size PV (ground over 250kWp), large biomass installations
 - Pave the way to maturity
 - **Tools:** Call for projets (CfP) on Tidal farms, NER300 Floating wind farm, Estuary tidal test site
 - Support fundamental R&D
 - **Tools:** CfP « Grand Eolien », CfP Key Components (Wave, OTC)
- The energy transition law introduces new policy tools: **feed-in-premiums,**
to:
 - Improve RES integration in electricity markets
 - Expose RES generation to short term market signals



Reinforce nuclear safety and public information

Additional steps in terms of providing transparency and public information regarding nuclear safety.

Clarification of operator responsibilities with regard to nuclear safety principles

- **Information and transparency**

Citizens who live close to nuclear plants will be regularly informed of risks and preventive and security measures.

- **Regulation of subcontracting practices**

For certain activities with a significant impact on safety.

- **Control and penalties**

More supervisory resources and powers for the Nuclear Safety Authority, which is given more incremental punitive powers (administrative fines, daily penalties, possibility of making seizures, etc.).

- **Lifespan of nuclear power stations**

Creation of a stricter regulatory framework for the continued operation of nuclear facilities that are over 40 years old.



Simplify & clarify procedures

To improve efficiency, competitiveness and solidarity

- **Guaranteeing the best prices for consumers**
By implementing a new method for calculating the regulated tariffs for the sale of electricity.
- **Creating an energy voucher to help low-income households pay their bills.**
This will be introduced in 2016, beginning with an experimental phase before a full roll-out by early 2018.
- **Monitoring Investment in electricity distribution grids**
Strengthening the involvement of regional authorities with regard to investments in electricity distribution grids by creating a committee for the public electricity distribution system.
- **Supporting competitiveness**
 - ✓ Thanks to a stable and foreseeable consumption throughout the year, electricity intensive companies help to regulate the system as they can absorb fluctuations in supply and demand. So they can get a discount on the price paid for transmission network costs.
 - ✓ These companies are also given incentives to reduce their consumption.



Provide citizens, companies and territories the tools to act together

Planning the energy transition with the
involvement of all stakeholders.

Carbon « budgets » and national low carbon strategy

- Overarching and sectoral policies orientation with long-term visibility
- Flexible tools : fixing objectives (3 x 5 years), revised every 5 years
- First strategy to be adopted in November 2015 for the 2015-2028 period

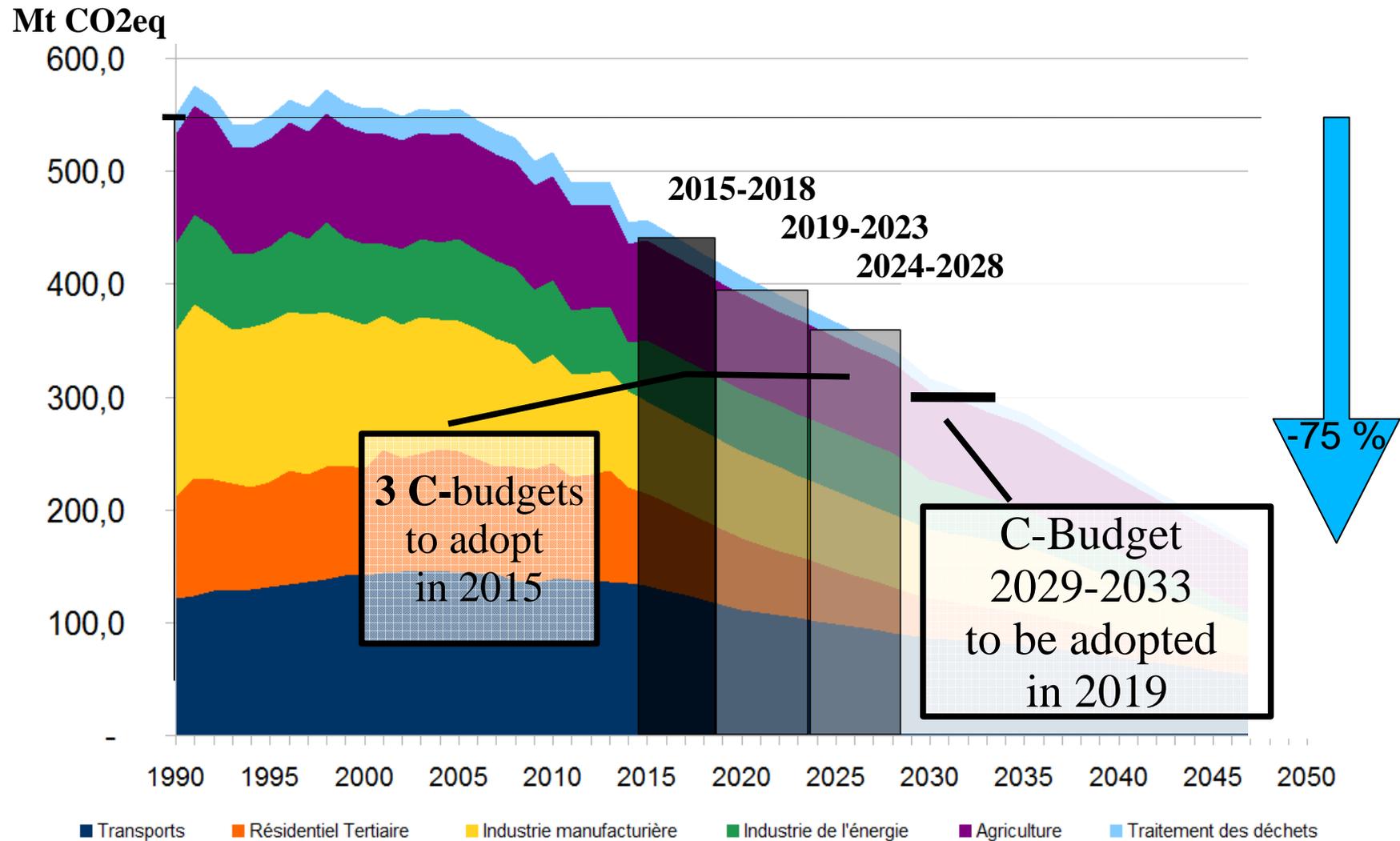
Multi-annual energy programme

- regarding electricity, gas and heating supply,
- includes sections on energy efficiency, security of supply, renewable energy sources, demand side and grid developments
- defines objectives (2 x 5 years) and indicates the budget necessary to achieve them
- First programme to be adopted in S1 2016 for the 2016-2023 period

Electricity mix management tools

- Production investments must be compatible with the multi-annual energy programme
- Ceiling to nuclear installed capacity at the current level (63,2 GW)
- Around 2025 nuclear energy will represent 50% of the French power generation
=> Nuclear will remain an important part of France's electricity mix

Illustration of the Carbon budget approach



GHG Emission trajectory coherent with the -75% target in 2050 for France (MtCO₂eq)

Source : 1990-2013 inventory, proxy inventory for 2014, example of trajectory coherent with the first 3 C-budgets and the long term target of France

Provide citizens, companies and territories the tools to act together

National plan to reduce atmospheric pollutant emissions

- to improve air quality, taking account of its health and economic issues.
- reassessed and revised, if necessary, on a five-yearly basis.

National energy research strategy

- taking into account national low carbon strategy and multi-annual energy programme

A regional planning framework

- Regional climate, air and energy scheme accompanied by a regional energy efficiency plan
- Territorial energy, air and climate plans produced at the inter-municipal level, with the aim of covering the entire territory.

Tools for regional authorities

- Assertion of inter-municipal authority for the distribution of heat
- Creation of a right of access to relevant information for energy transition actions, which will be provided by energy grid operators

500 positive-energy regions for green growth

- Regions of excellence in energy and ecological transition:
- The local authority undertakes to reduce the energy needs of its inhabitants, buildings, businesses, transport and recreational activities.





Financing and supporting energy transition

- **Energy transition financing fund**
- 1.5 billion € to strengthen existing schemes (such as the Heat and the Waste funds) and support new projects,
- especially those of "Positive-energy regions for green growth" and "Zero waste, zero wastage" regions, "breathable cities".

Caisse des dépôts savings fund

- Savings fund that supports key projects in the local public sector increased by 5 billion €. =>Low rate loans for local authorities initiatives: energy renovations and positive-energy buildings, clean transport and renewable energy.

BPI France loans for renewables

- BPI France grants loans to fund the investments of companies that generate renewable energy.
- Total amount will be doubled between 2015 and 2017, rising to 800 million € per year.

Responsible investment

- Major financial institutions and companies publish in their annual reports the social and environmental impact of their investment policy.
- They mention in particular how climate change related risks are taken into account and how greenhouse gas emissions are measured

- Questions & Answers

- To find out more :
 - **Ministry of ecology, sustainable development and energy website :**
<http://www.developpement-durable.gouv.fr/-La-transition-energetique-pour-la-.html>
<http://www.developpement-durable.gouv.fr/-A-lire-voir-et-partager-.html>