Energy-Climate Perspectives in France 2035-2050

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OFATE DFB EW - Berlin - Energy transition funding in France and Germany
ADEME at a glance

- **Public establishment** under the joint authority of the Ministries in charge of:
  - Ecological And Solidary Conversion
  - Research

- **Areas of activity:**
  - Waste management
  - Transport & mobility
  - Sustainable city
  - Energy & Climate
  - Energy efficiency

- **Budget:**
  - 570 M€, in 2018
  - 3 300 M€, for the « Investments for the future »

- **ADEME’s missions:**
  - **Forerunner** for the energy & environmental transition
  - **Generalizer** of good practices
  - **Expert** of the energy & environmental transition

- **How many, where?**
  - Around 900 employees
  - Head offices (Angers, Paris, Sophia Antipolis)
  - 17 regional Directorates
ADEME’s Energy climate scenarios:

- An ambitious and realistic multi energy scénario
- CO₂ / 4 by 2050
- Energy consumption / 2 by 2050

2012, updated in 2017

Other more technical and exploratory studies

- 100% REN Power Mix

- 100% REN gaz Mix:
Energy Prospective 2035 – 2050 at a glance

Final energy demand MToe

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2035</th>
<th>2050</th>
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<tr>
<td></td>
<td>149</td>
<td>105</td>
<td>82</td>
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Percentage of energy demand decrease: at 2035 (red), at 2050 (green)

Share of renewable energy in energy mix (3 options)

2010: 10%
2035: 34% ↓ 41%
2050: 46% ↓ 69%

Percentage of renewable energy in the mix for each option

GHG CO₂ eq. emissions

<table>
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<tr>
<th>Year</th>
<th>1990</th>
<th>2035</th>
<th>2050</th>
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<td>529</td>
<td>260</td>
<td>158 - 146</td>
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Percentage of CO₂ emissions reduction respectively to 1990: in 2035 (red), in 2050 (green)
Energy demand evolution by 2035 and 2050

- **Building**: 500 000 thermal refurbishing/year to 2035 then 750 000/year in residential. Best heating equipment and appliances,

- **Transport**: performant thermal motorization and penetration of alternative motorizations. Mobility services, collective transports, lower mobility

- **Industry**: growth of global production, gains in energy efficiency and recycling

- **Agriculture**: avoiding agriculture losses, agro-ecology, after 2030 evolution of alimentation diet
Energy demand evolution by 2035 and 2050

• No more petroleum nor coal by 2050

• **Electricity**: relative share growth from 25% to 40%, but absolute value decrease

• **District heating network**: twice more
3 options envisaged for electricity mix
Between 46% and 69% of REn in the production
Ambitious but realistic development trajectories
Energy vectors and renewable

- REn share depends on vectors
- Electric REn potential to make other vectors « greener »
Lessons to be drawn

• **Significant efforts must be deployed in the short and medium term, up to 2035:**
  
  – Need to boost the existing buildings refurbishment
  
  – Rapidly and broadly reduce the number of fossil fuel internal combustion vehicles in use

• **Equilibrium and convergence of energy vectors will be of major importance:**
  
  – Biomass resources uses: between heat, biogas....
  
  – New scenarios to explore

• **New levers must be explored to reach a carbon neutral society in the longer term**
The growth impacts of the energy transition outweigh the recessionary effects:

- **GDP**: More than + 3.6% by 2050
- **Employment**: More than + 830,000 employees
- **Disposable household income growth**