



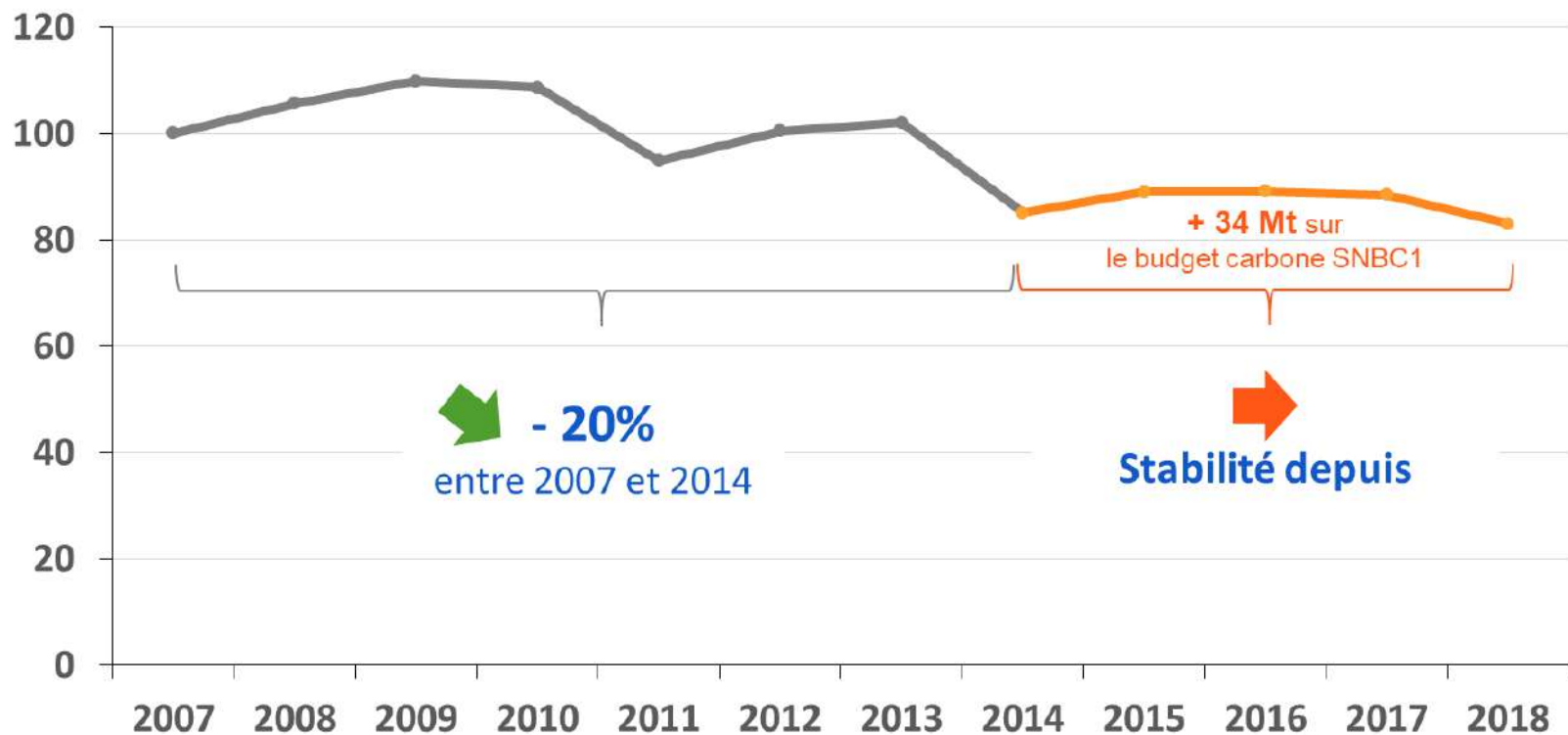
EDF promotes efficient electrification of heating

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Consumption stable, emissions struggling to fall

Emissions CO2 (Mt/an) du secteur résidentiel / tertiaire



The building sector in France

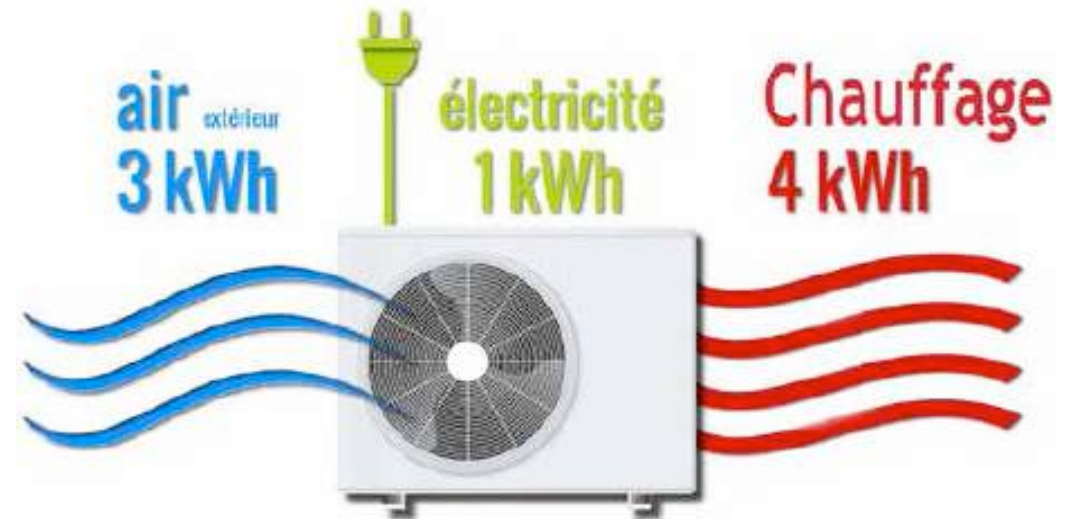
- 1st energy consumer with 45% of consumption
- 2nd largest emitter of CO2 with 25% of emissions



How can we achieve a "near zero emission" building sector?

Heat Pumps enable this breakthrough

- Heat Pumps are efficient : on average, a production of 4 kWh of heat with 1 kWh of electricity and 3 kWh of ENR.



- When replacing a fossil boiler
 - Electric Heat Pump **power is 3 to 4 times** less than the power of thermal boilers
 - Heat Pump consumes **5 to 6 times less final energy** than the old inefficient boilers
- Heat Pumps tick several boxes



Massive roll out will have limited impact on consumption and load

The RTE/ADEME study (December 2020) shows that the development of electric heating with efficient solutions such as heat pumps :

- Has no significant impact by 2035
- Generates a small or even decreasing evolution of the electricity consumption and peak

And the peak(s) will also be much more managed using:

1. the flexibility potential of thermodynamic water heaters
2. new flexible uses such as electric vehicle charging

EDF aims to be the leader in the sale of air-to-water heat pumps on the French Renovation market of Houses

Focus on some EDF Actions :

- Investment in EDF R&D laboratories in material testing and co- development with selected OEMs to expand the product range
- Preparation of value-added and digital tools/services
 - On the short term, development of sizing and parameterization tools for of heat pumps to be installed in homes
 - On the medium term, artificial intelligence for (predictive) e-maintenance

What's needed to accelerate the pace

- **A Carbon first policy**, in addition to policy measures on energy efficiency
- **Review of the taxation policies** of carbon-based energies
- Make the installation of a heat pump **accessible to low-income households**
- Help decarbonized industry with heat pump (financing funds)