

TRANSITION(S) 2050 DECIDE NOW ACT 4 CLIMATE

How to achieve carbon neutrality in 2050?

ADEME has developed 4 "typical" pathways to feed the debate. The summary is here!

4 SCENARIOS for a carbon neutral society

S1 FRUGAL GENERATION

Significant changes in the way we travel, keep warm, eat, buy and use equipment will occur to achieve carbon neutrality only with natural sinks (forests and soils), thus preserving the associated ecological services.



S3 GREEN TECHNOLOGIES

Technological development provides more of the answers to environmental challenges than changes towards more sufficient consumption patterns.



S2 REGIONAL COOPERATION

To achieve carbon neutrality, society relies on a progressive but steady change of the economic system towards a sustainable path combining sufficiency and efficiency.



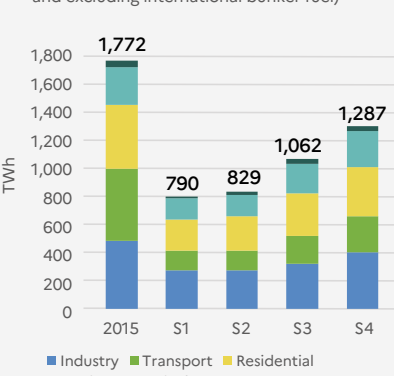
S4 RESTORATION GAMBLE

Society places its trust in its ability to manage and even repair social and ecological systems with more material and financial resources to maintain a liveable world. Carbon capture and storage technologies, which are essential, are uncertain and consume electricity.

Overview of the 4 scenarios

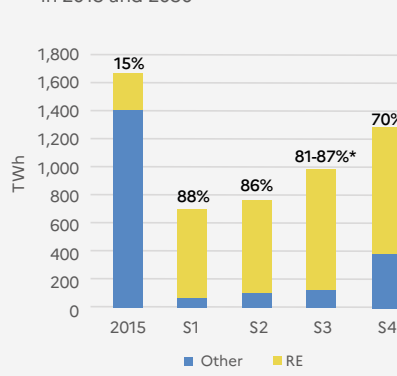
REDUCED ENERGY DEMAND

Final energy consumption by sector in 2015 and 2050 (including non-energy uses and excluding international bunker fuel)



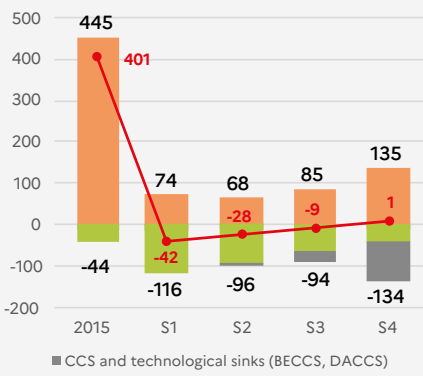
MORE THAN 70% RENEWABLE ENERGY IN ALL SCENARIOS

Energy consumption and share of RE of gross final energy consumption in 2015 and 2050



FOUR NEUTRAL SCENARIOS IN 2050, WITH VARYING DEGREES OF RELIANCE ON CARBON SINKS

Balance of CO₂ emissions and sinks in 2015 and 2050



9 KEY MESSAGES

1. A difficult but necessary transition!

The 4 scenarios are all difficult to implement and require orchestrated planning of changes, involving the State, regions, economic players and citizens.

3. Tomorrow is decided today

For all scenarios, it is imperative to act quickly: the socio-technical transformations to be carried out are of such magnitude that they will take time to produce their effects!

5. Industry transformation

Industry will have to transform itself, not only to adapt to a profound change in demand but also to decarbonise its production.

7. Forests and agriculture must adapt

The resilience of ecosystems is all the more crucial as they are increasingly being affected by the impact of climate change.

9. Renewable energies in the front line

In all scenarios, in 2050, more than 70% of the energy supply is based on renewable energy and electricity is the main energy carrier.

2. Overcoming some major challenges

All scenarios involve a degree of risk, but not all of them have the same environmental, social and economic consequences.

4. Less energy for less impact

Reducing energy demand, itself related to the demand for goods and services, is the key factor in achieving carbon neutrality.

6. The biosphere, the best asset of the transition

The biosphere is one of the main assets in this transition, combining three strategic levers: carbon storage, biomass production and greenhouse gas reduction.

8. Natural resources to be preserved

The pressure on natural resources varies considerably from one scenario to another.



5 ISSUES for debate

#1 Sufficiency : how far should it go?

The lower the demand, the easier it will be to decarbonise energy. However, reduction in demand is determined by two factors: sufficiency and energy efficiency. The potential of energy efficiency comes up against physical limitations and especially the limits of available technologies. So we cannot escape the question of sufficiency.



#2 Can we rely on natural carbon sinks to achieve neutrality?

The 4 scenarios show that achieving carbon neutrality cannot be achieved without natural CO₂ sinks (plants, soils and forests) because their potential is very high compared with technological sinks (carbon capture and storage).



#3 What is a sustainable diet?

In France, food is responsible for a quarter of the carbon footprint and is at the center of multiple health and environmental issues, particularly preservation of biodiversity, and water and soil quality.



#4 Land degradation, fuel poverty, renovation: can the construction sector adopt a different economic model?

Today, residential and tertiary buildings account for nearly half of national energy consumption and nearly a quarter of GHG emissions, consume 51 thousand tonnes of materials per year for their construction, and directly contribute to land degradation.

#5 Towards a new industrial model: is sufficiency harmful for French industry?

It is now widely accepted that relocalisation of industry to France is vital for our economy and its resilience. However, this relocalisation will not happen by itself in a globalised world and will not be without impact. The competitiveness of industry will be developed using two levers, activated to a greater or lesser extent depending on the scenario.

