



**RÉPUBLIQUE
FRANÇAISE**

*Liberté
Égalité
Fraternité*



Energy Evaluation Europe 2022

ADEME's Long term scenarios to influence decisions makers

ACT MORE, FASTER...

State operator under supervision:

- Of the Ministry for an Ecological Transition and Territorial Cohesion;
- Of the Ministry for the Energy Transition
- and the Ministry for Higher Education and Research.

Sectors of activity:

- Climate change;
- Air and mobilities;
- Energies;
- Sustainable production;
- Sustainable urban planning;
- Agriculture and forestry;
- Circular economy;
- Buildings;
- Behaviour change and mobilisation.

Budgets

- € 973 million in 2022;
- 2 billion as part of France Relance (2021-2022).

Our missions:

- Amplify the deployment of the ecological transition;
- Contribute to collective expertise;
- Innovate and prepare for the future.

Human resources

- 919 employees, including 383 in the regions;
- Engineers, economists, sociologists, modelers ...

<https://agirpourlatransition.ademe.fr/>

<https://www.ademe.fr/en>



ADEME performs different types of evaluations (on EE matters)

	Ex-Ante	Ex-Post
Top-Down	Long term energy demand models (end-use and econometric models (Medpro, Memphis, Antonio, Threeme))	200 energy efficiency indicators at macro-sectoral levels (ODYSSEE)
Bottom-up	Deemed savings : 300 sheets for EE Obligation ADEME's accounting system : 30 000 files a year	Around 1-2 case studies per year (ex energy efficiency Obligation, heat)

Collective
context



Objectives
of this work



Originality
of the work

TRANSITIONS 2050

DECIDE NOW
ACT FOR THE CLIMATE

4 carbon-neutral scenarios for France



Levers:

Sufficiency:



Efficiency:



Governance



Env. impacts





S1 FRUGAL GENERATION

Forced Frugality

3x less meat

Local based

Medium sized towns
and rural areas

Massive renovation

Low-tech

New
indicators of prosperity



S2 REGIONAL COOPERATION

Sustainable lifestyles

Managed Mobility

Cooperation
between regions

Sharing economy

Open
Governance

Targeted
Reindustrialisation



S3 GREEN TECHNOLOGIES

Decarbonisation Technologies

Demolition/reconstruction

Metropolitan
Areas

Exploited Biomass
Hydrogen

Green
Consumption

Minimum regulation



S4 RESTORATION GAMBLE

Mass
Consumption

Urban sprawl

Intensive
Agriculture

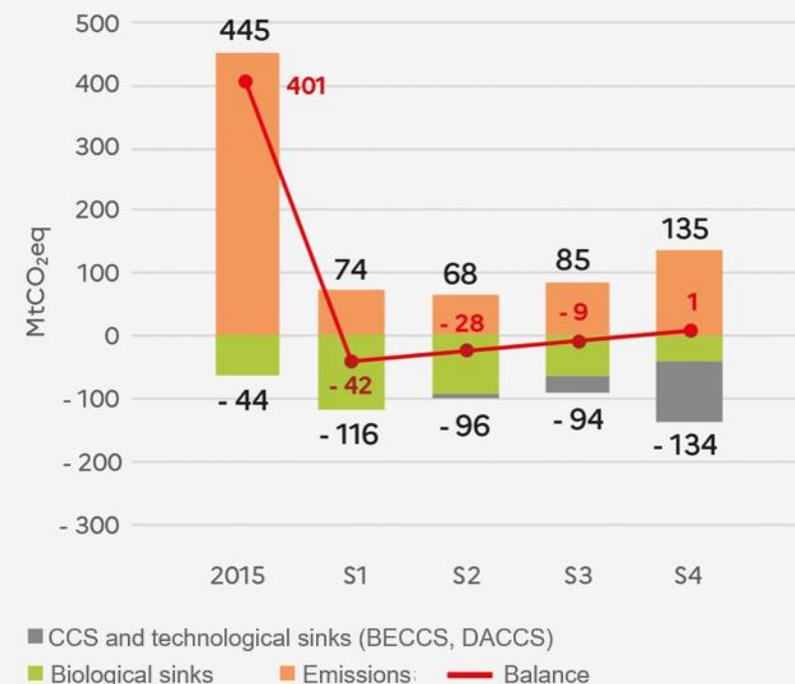
Artificial
Intelligence

Uncertain
Technologies
CO₂ capture from
the air
Globalised
Economy

Carbon neutrality, a difficult road

- **We must act immediately** because the social and technological transformations to be carried out are far-reaching.
- **Achieving neutrality depends on major human or technological gambles** that differ depending on the scenario.
- **Two scenarios appear higher risk:**
 - Scenario S1: Frugal Generation: highly socially divisive regarding its desirability.
 - Scenario S4: Restoration Gamble: high risk of technological feasibility.

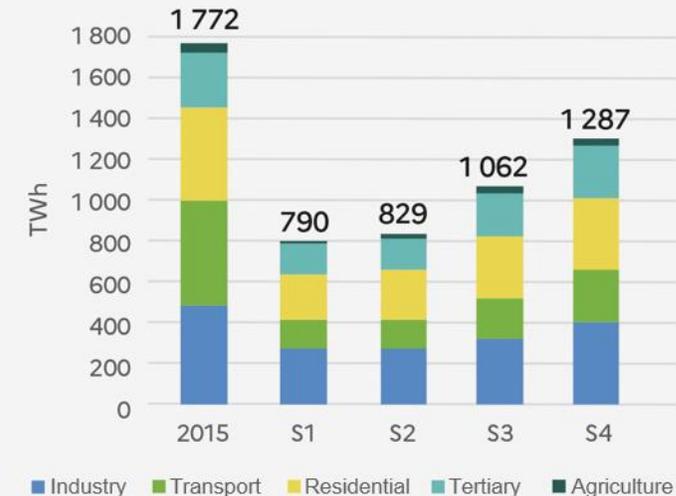
Balance of CO₂ emissions and sinks in 2015 and 2050



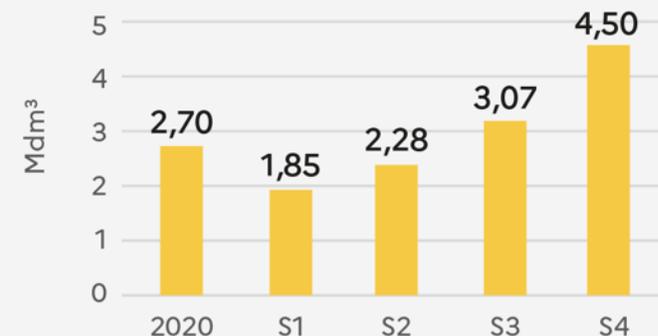
Reducing energy demand and controlling consumption of resources

- **Reducing demand** is the key factor for achieving carbon neutrality through:
 - Moderate consumption.
 - Energy efficiency.
- **Need for radical change** in lifestyles and productive systems.
- **Circular Economy** → saves resources → reduces energy demand.
- **Pressure on natural resources** varies considerably from scenario to scenario.

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

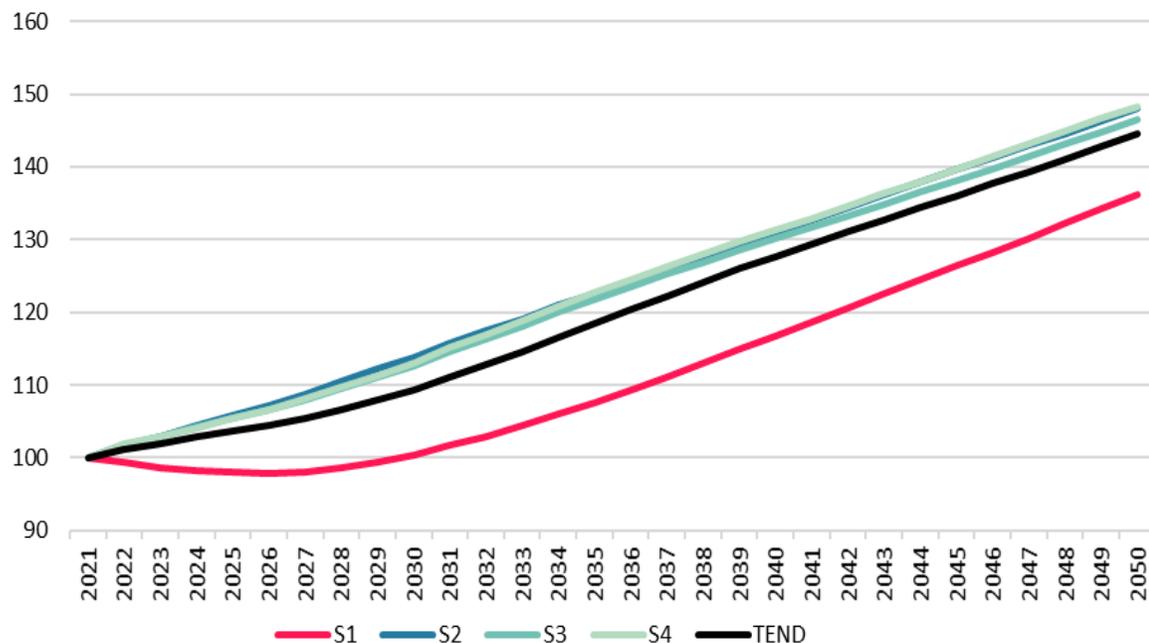


Water requirements for irrigation in 2020 and 2050

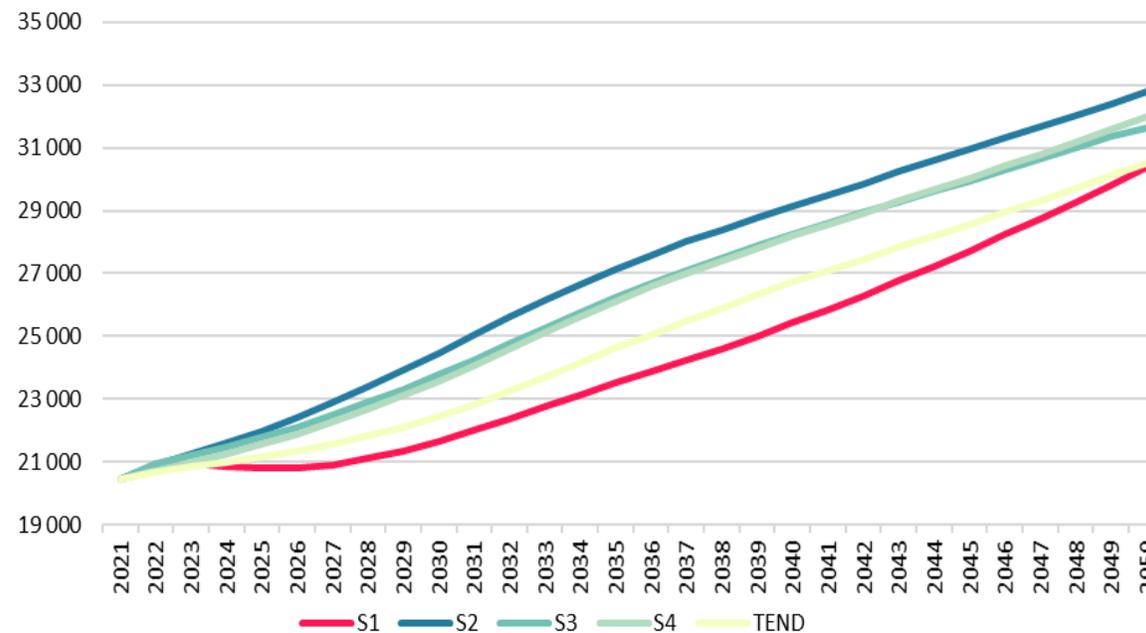


Main macro-eco. results

Evolutions of GDP (base 100 in 2021)



Household disposable income (EUR 2021/inhabitant)



A decoupling of GDP – territorial GHG emissions is possible: Neutrality is achieved, regardless of the transition chosen, without a drop in GDP (except S1 in the short term).

The transition has **little impact** on macroeconomic aggregates (GDP, employment, standard of living, etc.)

The economic balance sheet of the scenarios focusing on sobriety and energy efficiency (S2-S3) is comparable to that of the scenarios of continued growth (S4).

Limits: **GDP is not necessarily a good indicator of value creation !!**



Sufficiency: how far can it go?

- **Food:**

- Division by 3 (Sc1) and 2 (Sc2) of the quantities of meat consumed;
- Majority demand for agro-ecological / organic products, minimally processed;
- Provenance of food mainly local / national;
- Reduction of packaging volumes (drinks, bulk, local)...



- **Transportation / mobility:**

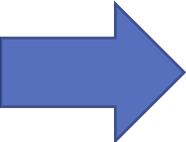
- Decreasing sales of new cars; lighter cars;
- Less travels by car / plane and more on foot / cycling.



- **Building:**

- Restriction of construction, rapid renovation and major change lifestyles:
- Transformation of vacant homes and secondary residences into main residences;
- Drastic reduction in the number of new constructions;
- Energy renovation on an unprecedented scale;
- Pooling of equipment across residential areas, limitation of their use...



 **Sufficiency collides with the dominant mode of consumerist thinking. What seems like hardship for a generation or an individual may on the contrary appear to be self-evident to another.**

It means that we can definitely achieve the objective of carbon neutrality.

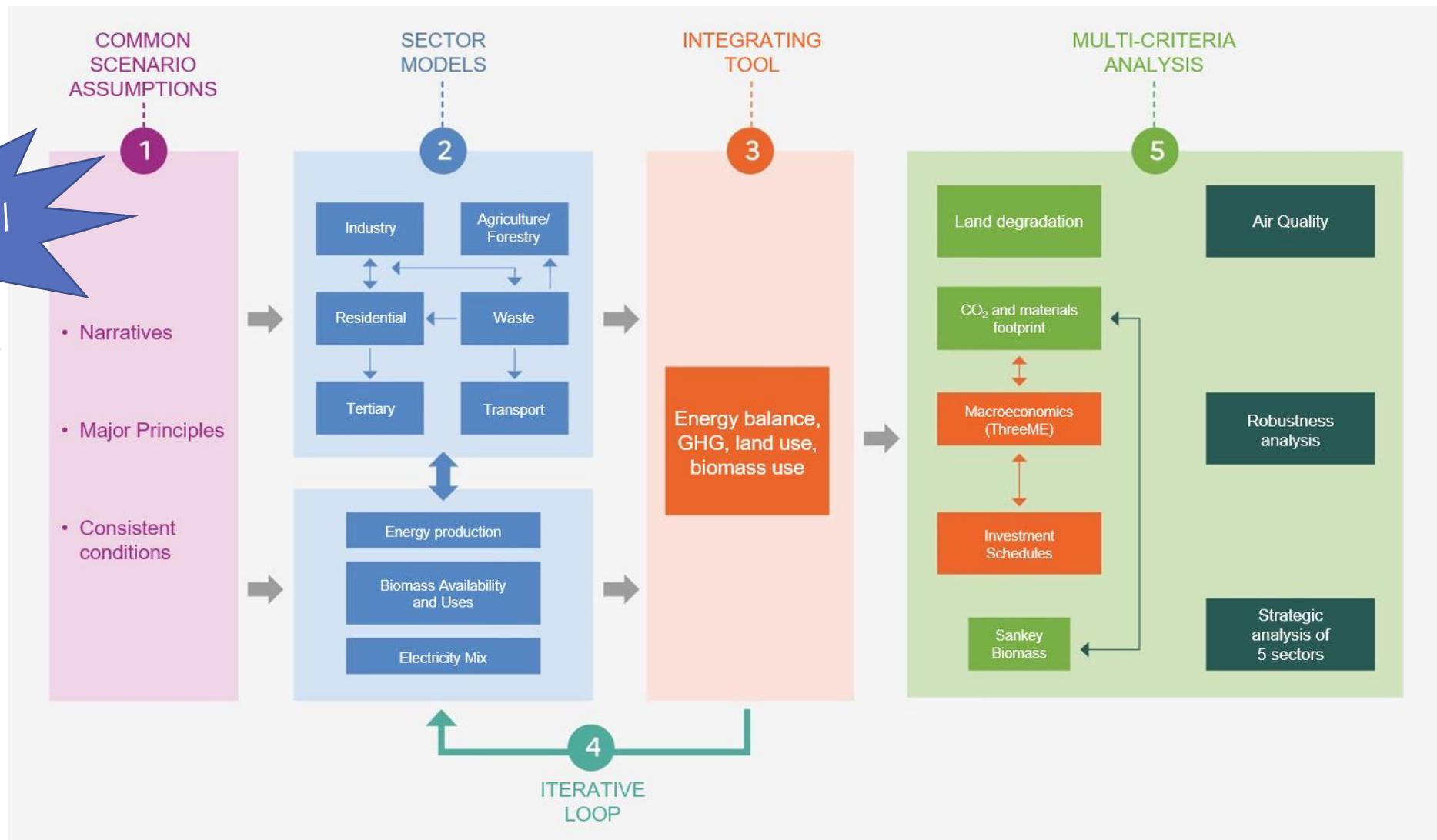
Questions about sufficiency cannot be dissociated from questions about inequality.

Lifestyle results: collective conditions to structure and manage the transition

- Of 31 people questioned, no scenario is unanimous for or against it
- Need to embed individual actions in larger social, economic and institutional systems
- Finding a balance between individual freedom and collective aspiration in the face of public policy tools
- A desire to renew democratic forms and methods of participation

Working Method, inside ADEME: A pool of expertise and a lot of discussions !

Need for consistency / dialogue



External collaboration

- Regular exchanges with a scientific committee.
- Hypotheses and models have been refined and enriched through intensive exchanges with around a hundred external partners and service providers, specialists in the various fields, ...
- ... as well as through the organization of several webinars, during the design phase of the scenarios and for the presentation of the results



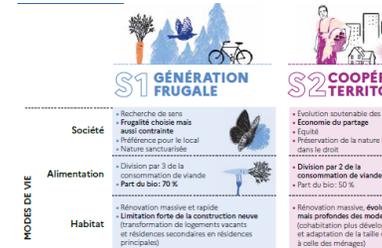
→ Test the robustness of the scenarios

Communication

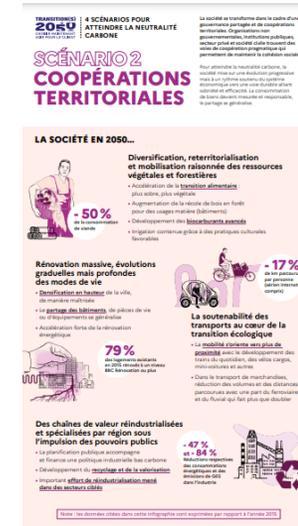
Executive summary
12 pages



Infographies



Future Generations Tribunal
Usbek et Rica



So Good



Motion capture video



Podcasts

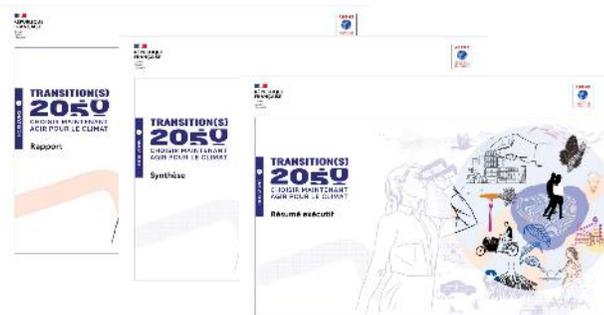


A website to motivate action
nosgestesclimat.fr



Download on transitions2050.ademe.fr

The report
Synthesis
Executive summary



[YouTube](#)

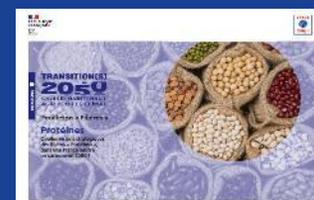


[podcasts](#) Demain c'est pas loin



Download datasets : data-transitions2050.ademe.fr

Additional reports:
Electric Mix
Energy transition materials
Macroeconomic effects
Adaptation to Climate Change
Soils
Lifestyles
Proteins
New construction
Last miles logistics
Gases and Liquid Fuels
Territories



... and soon:
Air quality
Digital
Material & CO₂ footprint

To follow ...

- Transition(s) 2050:
 - Study on inequalities between households in the transition
 - Public policy measures and instruments for the scenarios S2 & S3
 - Territorial prospective

- Future use in the French Strategy for Energy & Climate: participation to working groups; ecological planification
- Observation and evaluation !! Need for data to monitor action against goals.





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