2030 MILESTONE FOR THE ECOLOGICAL TRANSITION

FEBRUARY 2024

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The French Association Entreprises pour l'Environnement (EpE), set up in 1992, brings together some sixty major French and international large companies. Its raison d'être - **one a single planet and a thriving world** - sums up the resolve of its members to lead their own and society's ecological transition, and to ensure that economic development compatible with planetary boundaries is socially accepted, indeed desired. EpE is the French partner of the World Business Council for Sustainable Development (WBCSD).

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Table of contents

4 — Chairmen’s message

6 — Executive summary

11 — Thirteen keys to a successful transition

27 — At the heart of an ongoing transition: scenarios

34 — Towards 2030: lessons and priorities

Ecological transition: businesses for collective acceleration

2030 Milestone for the Ecological Transition Report (ETE 2030) is the fruit of thinking similar to that on environmental planning. We have spearheaded this thinking since 2022 to address, in line with the corporate vision of our member companies, the issue of priorities: what do we have to do by 2030 to be on a credible ecological transition pathway which delivers on France's and Europe's commitments?

Europe and France have made ambitious commitments that are among the most progressive in the world. They consist, under the Paris and Kunming-Montreal agreements, in achieving carbon neutrality and restoring biodiversity by 2050 without placing further strain on the resources of the rest of the world, and in doing our part to preserve the habitability of our planet.

Scientists, along with the French High Council on Climate, point out that we are not on an emission pathway compatible with those commitments. It is essential to further step up the already considerable transition investments made by the public authorities, the French people and our member companies to reduce emissions, switch energy, invest rapidly in a decarbonised production and consumption model, adapt ourselves, and train stakeholders. We must also make integrated efforts to adapt to climate change and regenerate nature with emission reduction measures.

Last year we collectively showed that sufficiency is indeed possible. The 2022 joint winter plan achieved combined gas and electricity savings of 12%. We now need to step up investment to increase and sustain these energy savings over time.

We believe it is possible to build new prosperity together within the limits of our planet and propose to centre it on innovations and investments which develop circularity, structural sufficiency and a new relationship with living beings. We also believe that doing so will create more meaningful jobs thus enhancing our health and well-being.

This study outlines our convictions and sets them out in concrete form to help everyone plan their own transition with their partners. It is also a joint appeal by our companies addressed to all components of society.

This transformation requires everyone's participation to happen: economic players (who have solutions and a capacity for innovation, training, financing and collective action); public authorities (because the transition requires support through clear frameworks and mechanisms as well as equity of effort); citizens and inhabitants; consumers; elected officials; leaders; employees and shareholders - all of whom can choose to play an active role and adopt the new lifestyles proposed.

We call for collective and concrete progress on two priorities

The first involves each of us reallocating our spending and time, reinventing and reinvesting in our production, distribution and service systems, and in our housing, transport, and consumption patterns with the aim of decarbonising, limiting waste, recycling, and regenerating nature. Long-term savings in energy, materials and land are essential to reduce strains on the planet and mitigate our vulnerabilities. We believe it possible to combine improved well-being with a lighter material footprint. We should be able to live better and enjoy new economic prosperity if we resolved together to change our consumption patterns resulting in better food, comfortable housing, accessible services and a better environment more conducive to our health.

The second concerns re-engineering our social model together. For example, our businesses are actively engaged in investing to reinforce our positive impacts and limit our negative impacts. Furthermore, rules governing life in society are necessary to sustainably and equitably manage the scarcity of resources, support the most vulnerable in this transformation in a way that will protect them, and strengthen our resilience and ability to anticipate crises of various kinds. For the French to adhere to this transformation process, it must clearly be perceived as creating more fairness.

Overwhelming support for this transformation is a precondition for its success. Not only are we fully committed to it, but we also consider it to be a realistic path to prosperity, health and well-being. Daunting though it is, the challenge, which is unprecedented in the history of mankind, must be taken up. In this emergency, everyone needs to respond and contribute with every available solution, in a concerted move. We are ready for it and attentive to what you want to tell us. Together let's go for it!

This text appeared in the form of an open letter on 26 November 2023 in 'La Tribune du Dimanche'.https://www.epe-asso.org/accelerer-la-transition-ecologique/

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2030 milestone for the ecological transition

Executive summary

The purpose of this study is to identify the conditions for a successful ecological transition in France. As well as factoring in the lessons of the earlier ZEN 2050[1] study, this involves taking into account biodiversity loss, related decisions that were taken internationally, surveys of the economic and social difficulties faced during the early stages of the ecological transition, and the need to adapt to climate change, todayperceived as being urgent.

The question raised is what direction to take in the short term, i.e. what must be done between now and 2030 to put France on a credible ecological transition pathway which ensures we uphold our commitments on climate (Paris Agreement) and biodiversity (Kunming-Montreal Agreement)?

The study begins with a selection and analysis of thirteen key transition challenges, some of which concern limits to the planet's capacity (ceiling) and others the socio-economic aspects (Social foundation). For each topic, we draw up a summary based on available scientific studies and reference works, in particular ADEME's 2050 transition scenarios.
Some issues (climate change mitigation, agricultural developments, etc.) are dealt with in several summaries.

Planetary boundaries ceiling

Biodiversity: each of our decisions impacts it directly or indirectly. Reducing the five pressures on nature from human activity requires more understanding as well as ambition and factoring this issue into all decisions. In short, a change initiating as soon as possible a new relationship between each human and living beings based on tangible actions.

Land and biomass: the need for natural resources to replace fossil fuels is, in addition to food and other needs, today met by renewable resources, engendering conflicts of use and wranglings over resource allocation priorities. Anticipating them, identifying the room for manoeuvre and getting organised to manage them would ensure long-term availability.

Raw materials: the energy transition under way reveals new scarcities of some resources, whether or not renewable. The circular economy in its multiple aspects provides solutions, coupled with policies on security of supplies and sufficiency to reduce our material footprint.

Water: water bodies and water cycles are already affected by climate change and increasingly impacted by human activity, both quantitatively and qualitatively. Regional governance could focus more on water sufficiency and help ensure security of supply by providing high quality water through renaturalised water bodies.

Scope of freedom

Sufficiency governance: faced with finite resources, much-needed sufficiency will only be effective if built into new collective lifestyles, understood, and agreed to jointly by the different stakeholders. As with emission and land-take quotas, the priority by 2030 is collectively to negotiate ceilings on the use of certain resources and to manage their implementation.

1 - https://www.epe-asso.org/en/zen-2050-imagining-and-building-a-carbon-neutral-france/

Sectoral transformation: the issue currently hinges on roadmaps for the building, mobility, energy and industrial sectors which have been drawn up by public authorities and businesses with the aim of speeding up the process. Between now and 2030, the two priorities will be gradually mainstreaming restrictions to speed up comprehensive, low-carbon building retrofits (a precondition for large-scale implementation) and cushioning the effect of forthcoming further energy price increases availability as a result of supply (biomass, carbon-free electricity, etc.) aswell as higher carbon prices arising from moves to restrain the use of fossil resources.

Transition finance: the challenge is to double transition investments in businesses and households by 2030, even where they post lower short-term profitability. One priority is to stimulate private investment and savings by households in line with transition needs, whether backed by public grants to reduce risks or through regulations, while leveraging financial innovations and the market to finance the ecological transition. Public support for the transition of the most vulnerable sections of society is needed to make their transition affordable.

Geopolitics of transition: accelerating France's and the EU's transition may generate new tensions with our trading partners. Nonetheless, Europe needs to translate this goal into new trading terms and conditions, joint industrial strategies and its international positions, thereby also motivating its partners to speed up their own transition.

Social norms and values: designed to deliver a new promise of collective prosperity - as desirable as that underpinning the consumer society model – and firing new imaginations mainly conveyed by a new kind of advertising. Supporting the ecological transition of employees is an important way to boost this change.

Social foundation

Support for professionals: the need for support is already huge and involves integrating the ecological transition into all professions and helping fossil resource players to develop new business models. Regular communication with trade unions on these issues will be helpful. The attractiveness of the ecological transition professions that already experience skilled manpower shortages should be enhanced by 2030.

Household transition: solidarity, in channelling public subsidies for the benefit of the lower-income households and developing collective infrastructure, should make their transition affordable. Moreover, efforts to promote fairness by reducing inequalities in response to strong societal demand would be a just return on the collective efforts demanded and made.

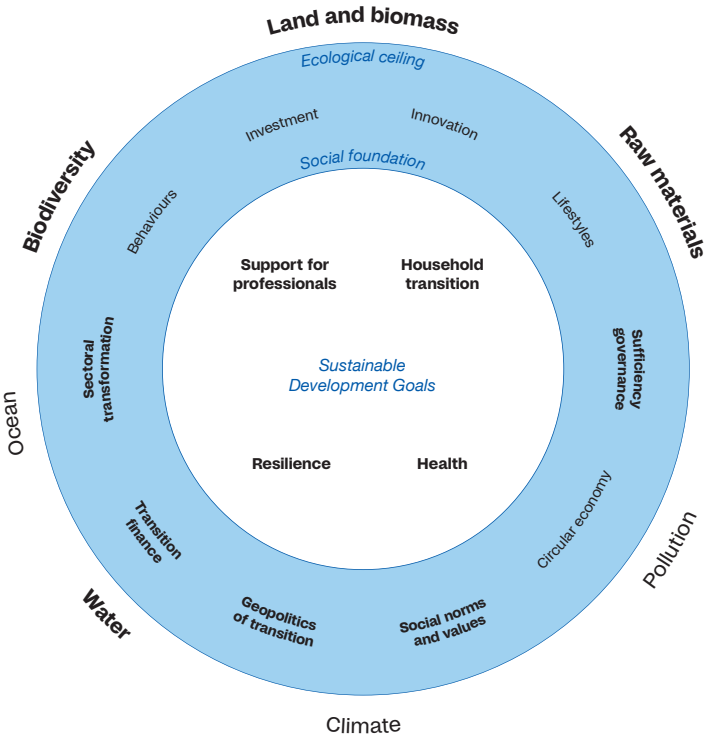
Resilience: in addition to the environmental challenges of reducing emissions and protecting biodiversity, there is now a need to adapt and reduce society's vulnerabilities to climate change and economic as well as health crises. The challenge is to integrate this dimension into mindsets, decisions and investments by anticipating forthcoming changes.

Health: our current lifestyles have impacts on our health caused by climate change, economic insecurity or exposure to various types of diffuse pollution. This area indeed seems one where the ecological transition should deliver the greatest benefits

The above considerations serve to circumscribe the scope of economic freedom between the floor of social needs and the ceiling of planetary boundaries.

Keys to a successful transition

The thirteen challenges in bold that follow are addressed in the pages below



Three implementation scenarios

The concrete implementation of the transition model sketched thus far is illustrated by three iconic products of our consumption model: automobiles, yoghurt, and biosourced insulation.

These three concrete examples present various yet-to-be-determined solutions and scenarios based on how the different actions are coordinated, what policies are adopted, which innovations emerge, and when or how quickly Europe's trading partners' own ecological transition occurs. They also show how various changes, beyond their effect on emissions, depend on soil management, town and country planning, agricultural development and the economy's circularity. The examples prompt us to reinvent many of our operations and redesign our development as close as possible to the grass roots.

Lessons learned

An examination of the thirteen keys and of individual implementation scenarios allows us to draw lessons about economic and social development policies in answer to the question: what do we have to do by 2030 to be on a credible ecological transition pathway which delivers on France's and Europe's commitments?

The lessons drawn serve to define possible 'specifications' for the ecological transition. The first condition is that we should deal with the various issues in an integrated manner. Acting on one issue often brings benefits to another, but if one improves the climate at the expense of biodiversity or health this will only trigger other crises. Moreover, social cohesion around the transition is a key driver of its progress.

The second condition is that we change our model of society. The transition will see us live better though differently, exercising greater material sufficiency while protecting the social principles we adhere to. The success of this transition will depend on several factors: technical and organisational innovation underpinning sufficiency, circularity, a new, more respectful relationship with nature, and new partnerships. Long-term sufficiency will be easier to exercise if it is structural and based on the reallocation of time, financial and other resources.

Appropriate collective lifestyles will be a prerequisite for reducing the material footprint with, for example, collective caps on the use of some resources. This is already the case for emissions and land-take where transition deadlines are democratically set, so that actors can anticipate and prepare for change.

Priorities to 2030

The study has identified twelve priorities to be completed by 2030 collectively or individually by businesses, public authorities and citizens.

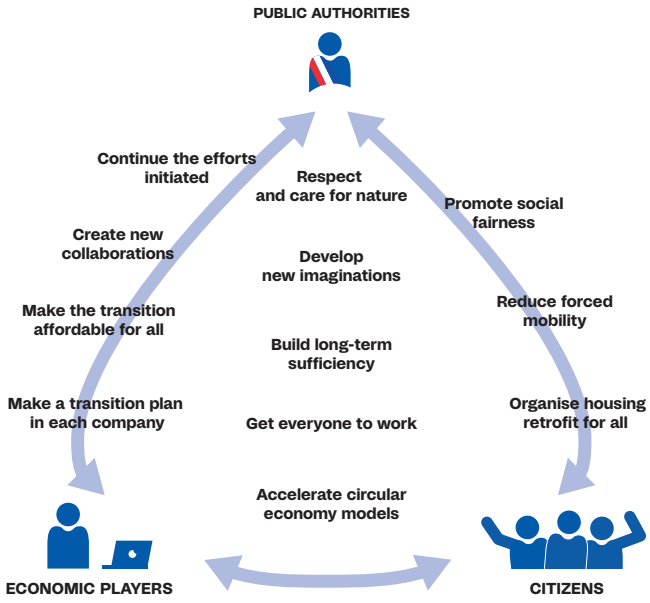
The first three aim to build a shared vision of the transition by 2030 based on training, information and culture, the integration of long-term material sufficiency into mindsets and collective lifestyles, and the alignment of advertising with corporate ecological transformation plans.

The following six seek to ensure that the basic needs of inhabitants are met within the planetary boundaries. They include making the transition affordable for all, limiting extensive use of car travel prompted by town and country planning policies, massively scaling up home retrofit through timely and state-supported mainstreaming of obligations, organising natural resource sharing and the transition of the farming system towards a healthier diet, stepping up the deployment of the circular economy, and enhancing the attractiveness of ecological transition jobs to ensure the transition's success.

The last three involve mobilising all stakeholders through policy continuity, consistency and visibility, including multi-annual planning of financing and contributions by the state, households and businesses. This mobilisation would be best achieved through partnerships between players, industrial cooperation ventures, regional and local partnerships, and the close involvement of the financial community.

All these priorities call for combined action by three groups of players. Rather than spreading the effort among them, the focus is on working together and organising the complementarity of contributions. It is therefore proposed to strengthen nationwide support for the transformation process by coupling it with actions to reduce inequalities that make it fairer, and to promote joint decision-making on the transformation through dialogue and collective discussions involving experts, citizens, stakeholders and policymakers.

The contributions of businesses, public authorities and citizens to joint priorities, based on the inputs of each, are illustrated in the diagram below.



Another view of the transition

The 'Field of possibilities', a year-by-year series of short narratives to 2030, illustrates how various players might experience the transition voluntarily or through the pressure of events and public policies. In fact, similar stories already exist in their thousands. The challenge is to mainstream and help fast track them better than would be the case spontaneously. In addition to their role as a powerful incitement to transition, the narratives afford a lively illustration of the studies and proposals and allow us to approach them from a different perspective.

Methodology

In May 2019, EpE published the ZEN 2050 study, a product of 18 months of collective exploration to identify the drivers, constraints and factors for success in the achievement of carbon neutrality by 2050. The study answered three key questions: is this goal realistic? What are the implications for French lifestyles? What are the effects on economic activity? Encouraging answers to these questions have helped speed up the ecological transition in the business world.

In early 2022, it appeared that the conditions identified had not been met and new issues needed to be integrated into policy thinking, including biodiversity loss, resource availability, active citizen participation, adaptation to climate change and impacts on human health.

The approach adopted involved:

- a consortium of experts conducting an in-depth analysis of existing studies and dealing with the issues selected by the committee;
- a steering committee holding monthly meetings with representatives of the 28 companies mentioned on page 5, as well as the Boston Consulting Group and an ADEME representative;
- a committee of stakeholders who met twice to discuss finding.

Right-hand page plan

The thirteen selected issues as well as the drivers available to address them are set out in part one.

The study continues with three scenarios illustrated by concrete examples based on existing data and on the deployment of drivers identified previously.

The last chapter outlines the lessons learned and the twelve priorities for action between now and 2030 committing French society to the defined pathway.

By turning the book around, the reader will approach the subject through 'Field of possibilities'- a collection of short narratives illustrating tangible individual transition pathways.

Acknowledgments

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Thanks are due to the EpE team: David Laurent for coordinating the study, and Nathalie de La Falaise, Delphine Bourloton, Alexia Devès, Benoit Galaup, Ken Guiltaux, Alicia Lachaise, Jean-François Mathieu, and Marie Marchand-Pilard for their respective contributions. A special thanks also to Govind Bhinder of FEAT for the English translation.

The study was carried out with the support of a consortium of the following experts, who assisted with the corporate studies and thinking

Enerdata · carbone4 · Solagro · Missions Publiques · Institut négaWatt · Dominique Pialot

The following stakeholders were invited at two stages of the project to provide the steering committee with a critical perspective and formulate opinions and suggestions.
4D, AFEP, Alumni for the Planet, C3D, Campus de la Transition, European EESC, Climate Chance, employee collectives (Communauté des Fresqueurs, Le Rhizome, positive impact generation), Comité 21, FNH, FNSEA, FRB, Green Cross France and territories, Groupe Advitam, I4CE, ICC France, IDDRI, Institut de l'entreprise, Institut du capitalisme responsable, Lobby Climat Citoyen, MEDEF, French Business Ombudsman, ORSE, Paie ton influence, Partenariat français pour l'eau, Pour un réveil écologique, Pour une agriculture du vivant, the Shift Project, TNFD, Union Nationale pour l'Habitat des Jeunes, WWF.

Thirteen keys to a successful transition

14 — Biodiversity: reconnecting our society to living beings

15 — Land and biomass: arbitrating competition between uses

16 — Raw materials: managing the circular economy and scarcity

17 — Water: anticipating scarcity and organising governance

18 — Sufficiency governance: collective frameworks and consultations

19 — Sectoral transformation: accelerating towards a low-carbon society

20 — Transition finance: aligning ambitions and resources

21 — Geopolitics of transition: delivering on our ambitions while ensuring our security

22 — Social norms and values: firing new imaginations

23 — Support for professionals: anticipating needs

24 — Household transition: relying on solidarity and fairness

25 — Resilience: pre-empting and adjusting to crises

26 — Health: reaping the benefits of ecological transition

Thirteen keys to a successful transition

Faced with the diversity and multiplicity of actual interdependencies, the ETE 2030 approach has been to combine environmental and socio-economic issues in thirteen key challenges.

Several reference frameworks are used as background material for ecological transition challenges, including the Stockholm Resilience Center's planetary boundaries, the United Nations Sustainable Development Goals, and Kate Raworth's Doughnut Economics.

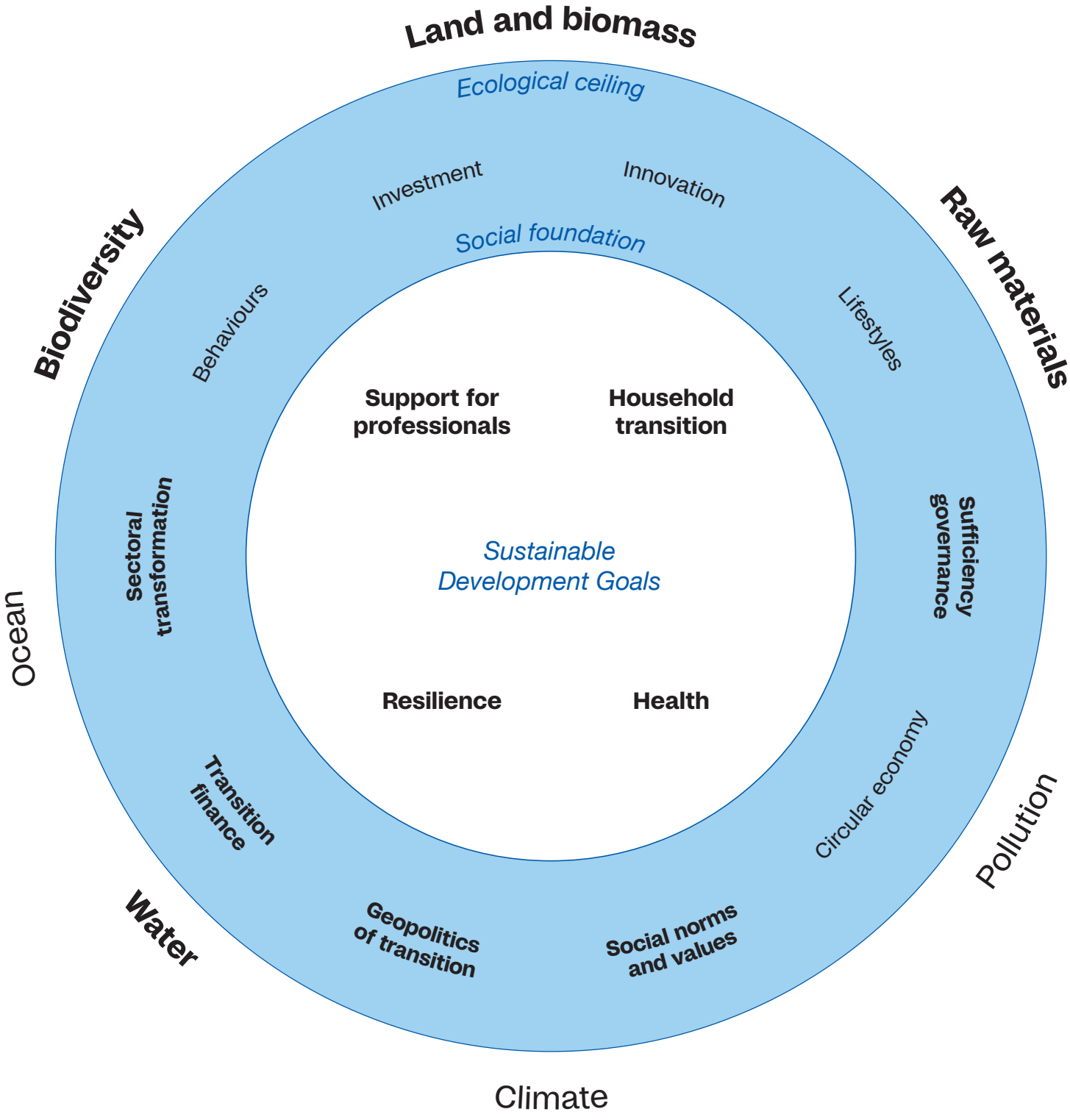
An initial analysis of the challenges, conditions of success and obstacles concerning the ecological transition provided a representation similar to the "Doughnut":

- social foundation denotes satisfaction of the population's basic needs as defined in the Sustainable Development Goals;
- planetary boundaries ceiling represents the planet's physical and biological carrying capacity thresholds;
- the ring between the two represents the scope of freedom in which human societies can organise themselves, and individuals, social groups and economic players can thrive and develop.

While the Doughnut is an interesting framework within which to study these issues, ETE 2030 is not the result of the systematic application of this theory.
The study's steering committee chose to focus its analyses on the thirteen key challenges selected.
Other issues, such as climate and the transformation of agriculture, are dealt with as a cross-disciplinary theme.

Based on a summary of knowledge and solutions, the steering committee chose for each challenge a few priority actions it felt could be carried out by 2030 and lead to tangible pathway changes.

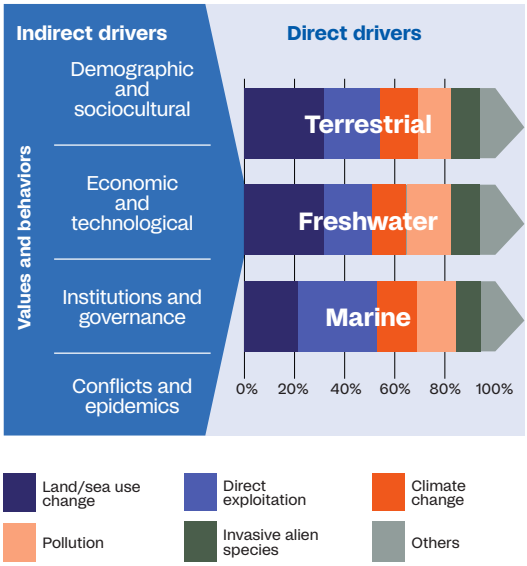
The study's steering committee chose to focus its analyses on the thirteen key challenges selected.



The thirteen challenges in bold are covered in the following pages.

Biodiversity: reconnecting our society to living beings

Five factors of erosion[1]



Challenges

The five factors of biodiversity erosion are all linked to our lifestyles and consumption patterns, as well as our highly globalised production system[2]. Our diet has a major impact due to the consumption of animal proteins, intensive use of inputs and standardisation of agricultural practices. Our lifestyles (buildings, mobility, etc.) result in overexploitation of many natural resources, pollution and rapid habitat loss. As with climate, our footprint on nature is too large for nature's regenerative capacities to bear, accelerating biodiversity loss although the habitability of the Earth depends on nature and the services it provides for us. The IPBES therefore makes it a priority to mitigate these five pressures. The actions beneficial to biodiversity and those that mitigate and adapt to climate change present synergies. Nature-based solutions, for example, could deliver 30%-40% of the required CO_2 emission reductions[3], but they depend on the availability of land and ecosystems.

Deployable drivers

SOCIETY: STRENGTHENING THE MAN-NATURE BOND

- **Factor** nature into business decisions.
- **Educate** younger generations about nature through direct contact with it.
- **Inform** consumers about the footprint of their purchases, especially food.

PUBLIC AUTHORITIES: RAISING AMBITIONS AND RESOURCES

- **Protect** natural spaces.
- **Increase** public and private funding to preserve and restore biodiversity and reduce harmful financial flows.
- **Reward** actions to restore ecosystems and increase environmental services rendered.

BUSINESSES: LIMITING IMPACTS

- **Avoid and reduce** all production-related pressures along value chains.
- **Participate** in nature regeneration[4].

Priorities to 2030

- Promote a new relationship with living beings based on respect, protection, support and regeneration.
- Regenerate natural habitats and ecological infrastructures (reservoirs and corridors, etc.), promote agroecology, contain forest harvesting and introduce biodiversity into managed areas.
- Pursue more sufficiency-friendly policies on the use of nature (limits on imported deforestation, reduction of pollutants, environmental clauses for external trade).
- Factor biodiversity into all policies, including agriculture and climate policies.

45% - 70%

of biodiversity losses arising from France's consumption patterns occur abroad[5].

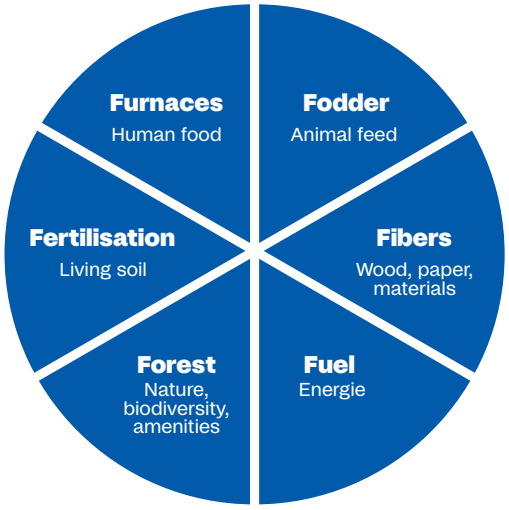
1 - Global Assessment Report, IPBES, 2020.
2 - Global Assessment Report, IPBES, 2020.
3 - Natural Climate Solutions, PNAS, BW Griscom, 2017.
4 - Biodiversity: awarding value and acting, EpE 2023.
5 - Empreinte biodiversité importée de la France : état de l'art, 2022, OFB.

Land and biomass: arbitrating competition between uses

Challenges

The ecological transition is leading to the replacement of fossil resources with biomass for non-electrification uses such as solid fuels, fuels, gas or materials, and spiralling biomass demand in the face of limited resources. This calls for new trade-offs in biomass resource allocations which help avoid heavy reliance on imports that would accelerate global deforestation, while preserving carbon absorption by forests and grasslands and reducing emissions from the use of nitrogen fertilisers and intensive livestock farming[1]. Meeting these new needs requires changes in land use and in allocations between the different uses of biomass, although the transformation of production systems is hampered by cultural, technical and natural (forest-related) inertia. According to ADEME's 2050 scenarios for France, up to 4 million hectares of land could change use during the transition. These land requirements underpin the importance of reducing land-take, which is limited under the two most sufficiency-friendly scenarios[2].

The 6Fs of biomass[3]



Deployable drivers

'FARM TO FORK' FOOD SYSTEMS

IPCC and WHO[4] reports, like more local studies, highlight the nutritional and environmental benefits of low-meat diets. Reducing livestock by continuing to give priority to extensive livestock farming also reduces dependence on imported inputs and preserves grasslands[5].

STRONG REGIONAL GOVERNANCE

- Develop capacity to forecast and plan resources and needs.
- Enhance trade-offs between uses at different geographical levels from European to local.

BETTER INTEGRATED EXTERNALITIES IN NATIONAL AND INTERNATIONAL POLICIES

Factor environmental externalities (climate and biodiversity) into bioenergy management and support arrangements, the Common Agricultural Policy (CAP) and international trade agreements.

Priorities to 2030

- Continue land-take reduction policies.
- Factor the rise in non-food biomass uses into the Common Agricultural Policy.
- Initiate food transition in accordance with WHO recommendations.
- Develop biomass governance tools at different levels (European, national (France), regional, and sometimes departmental or intermunicipal) involving all stakeholders (producers, users, citizens, scientists, etc.).

17 Mt

Carbon dioxide absorption by soils and French forests in 2022. Down 21% on 2021, or half the targets set due to droughts and land-take[6].

1 - Avis sur les besoins de gouvernance de la biomasse, May 2023, CESE.
2 - Transition(s) 2050, ADEME.
3 - ZEN 2050, EpE.
4 - World Health Organization.
5 - Special Report on Climate Change and Land, 2019, IPCC.
6 - Rapport annuel du Haut Conseil pour le climat, 2023 ; SNBC, 2020.

Raw materials: managing the circular economy and scarcity

Challenges

Over the past 50 years, a significant increase in metal and mineral[1] mining and extraction has been an essential element in industrial processes, occurring hand in hand with resource depletion, increased fossil fuel consumption, and mounting impacts on water. In fact, the level of technological development needed for the energy transition (carbon-free electricity production, electric vehicles, batteries, etc.) is highly resource-intensive[2]. For many critical materials, Europe is today dependent on other countries and their reserves, production capacities and therefore industrial, commercial and political strategies. The deployment of low-carbon technologies requires a strategy that ensures secure supplies of certain materials and control of their consumption. This raises the complex question of instruments, in particular budgets and management indicators that must take into account issues of volume, price and even fairness between countries in non-renewable resource use.

The availability of raw materials is undermined by ever-rising consumption rates and various limiting factors (conflicts, impacts, etc.)[3].

Deployable drivers

PUBLIC AUTHORITIES

- **Establish,** in consultation with economic stakeholders and the population, a global vision of reduction needs and goals in an ecological transition context.
- **Think out** its breakdown into secondary goals by material, sector and period.

BUSINESSES

- **Identify** critical resources for the business using multiple criteria (volume, value, criticality, etc.).
- **Develop** circular economy solutions and partnerships[4] for production and sales strategies designed to reduce required volumes and related dependencies.

CONSUMERS

- **Factor** issues of raw materials scarcity and volume reduction into purchasing decisions.
- **Prioritise** the use of the functional economy: leasing, sharing, subscription, repair, etc.
- **Shift away** from 'everything is disposable'.

Priorities to 2030

- Implement a strategy to obtain secure critical raw material supplies consistent with the transition pathway.
- Develop the circular economy to reduce consumption of new materials.
- Plan changes in the material footprint by setting reduction targets for materials and sectors, including imports.

Target

-40%

Potential reduction in the volume of our waste and imports thanks to intensive recycling and reuse[5].

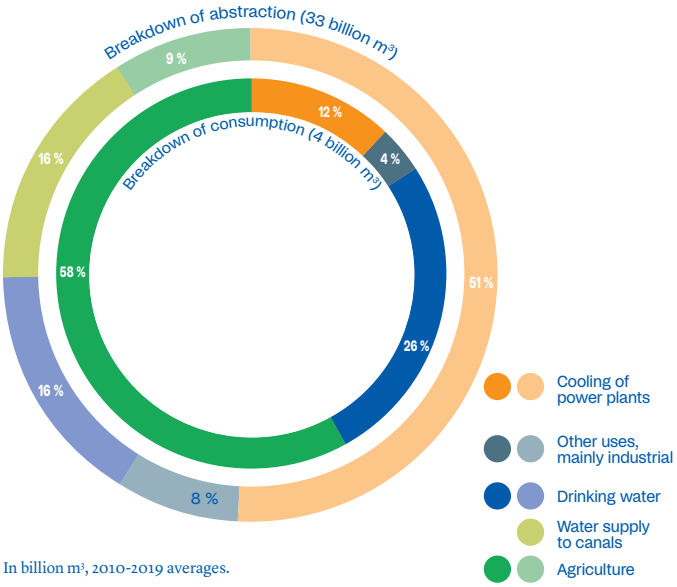
1 - Renewable raw materials are dealt with in the 'Soils & Land' factsheet. More specifically, it concerns metals and minerals.
2 - Digitalisation: ally or enemy of, the ecological transition? EpE, 2022.
3 - 'The 90 natural elements that make up everything', EuChemS – European Chemical Society (2021).
4 - Partnerships: cornerstone of the circular economy, EpE, 2021.
5 - 'SNBC sous contraintes de ressources' report, INEC and Capgemini.

Water uses: anticipating scarcity and organising governance

Challenges

While organic and metallic water pollution has decreased over the last 30 years (thanks to urban and industrial wastewater treatment and reduction in direct discharges), diffuse agricultural, urban and industrial pollution on the contrary has increased. Climate change is increasingly affecting water cycles, which affects agricultural yields and disrupt forests, biodiversity and human activities. About 88% of water abstracted for canals or for cooling nuclear power plants quickly returns to the natural environment despite having in general been modified (temperature, dynamics, etc.). Of the 4 billion m³ consumed, 60% is taken up by agriculture and mainly diverted to irrigate intensively cultivated crops intended for animal feed. Increasing stress on water resources can lead to tensions, even conflicts, which may become critical if not anticipated and handled in a concerted manner.

Utilisation of water resources in France by use[1]



In billion m³, 2010-2019 averages.

Deployable drivers

BETTER AVAILABILITY

- **Invest** to reduce leaks in water networks and to treat new pollution.
- **Protect** soil through agroecology and the reduction of land-take so as to foster the replenishment of good-quality groundwater.
- **Reduce** the various types of pollution.

FEWER DIRECT AND INDIRECT WATER NEEDS

- **Encourage** measurement and management of our lifestyles' water footprint.
- **Reduce** irrigation by developing agroecology and food transition.
- **Promote** reuse of treated water.

STAKEHOLDER INVOLVEMENT

- **Innovate** to promote the natural water cycle and nature-based solutions.
- **Strengthen** awareness and training of all users in sufficiency, efficiency and land management.
- **Improve** regional governance to ensure risk management, investment and trade-offs.

Priorities to 2030

- Reduce the 'water footprint' and direct and indirect abstraction as well as consumption across all uses, while promoting water body renaturalisation, agroecology and ecological continuity.
- Promote circular water uses to improve security of supply.
- Integrate new issues of resilience and sufficiency into water governance and economic models.

Target

-10%

2030 water abstraction reduction target in France, as set out in the 'Water Plan' published in March 2023.

1 - L'eau en France : ressource et utilisation - Synthèse des connaissances en 2022, SDES.

Sufficiency governance: collective frameworks and consultations

TRANSITION(S) 2050
CHOISIR MAINTENANT
AGIR POUR LE CLIMAT

S2 'regional cooperation', one of ADEME's four transition scenarios (2050), puts the issues of shared governance and regional cooperation at the centre of the transformation. Non-governmental organisations, public institutions, private sector and civil society are finding pragmatic ways to cooperate on driving the transformation and maintaining social cohesion

Challenges

Given the planetary boundaries and competition over limited resources, sufficiency appears essential. But how to achieve it? What to limit first: supply or demand?
Sufficiency policies are already in place for some resources: CO_2 allowance market, no net land-take pathway, protection of 30% of land and marine areas, etc. This governance method should unquestionably be extended to other resources, including imported ones. The structural sufficiency produced by investment could trigger rebound effects that would wipe out improvements. Mechanisms for regulating prices and uses are therefore not only important but could also be useful in financing transition investments.

Lines of action

Studies point[1] to a pathway towards planned and socially accepted sufficiency.

STEP 1: DEVISE A FRAMEWORK FOR SUSTAINABLE AND RESTRAINED USE OF NATURAL RESOURCES AT EUROPEAN OR NATIONAL LEVEL (PUBLIC AUTHORITIES)

- **Establish** resource utilisation ceilings consistent with scientific observations[2], together with monitoring indicators and flow control procedures.
- **Arrange** distribution mechanisms, sufficiency-friendly infrastructure investment and support systems (equipment grants, redistributive taxation, etc.).

STEP 2: ORGANISE REGIONAL AND (INTER)SECTORAL IMPLEMENTATION

- **Build on** existing governance practices and collective decision-making methods.
- **Raise awareness,** inform and involve consumers in collective decision-making so that they identify and adopt much-needed lifestyle changes.

Priorities to 2030

- Determine local, national and European ceilings for critical resources and sufficiency pathways for their use.
- Strike a fine balance between legal constraints and negotiated agreements to avoid exacerbating social tensions and unwanted rebound effects.
- Discuss acceptable compromises between stakeholders, potential contributions and each player's essential needs and how to meet them.
- Develop corporate ecological transformation plans which are consistent with this sufficiency goal.

2005

European carbon allowances system for big industry.

2021

No net land-take (ZAN) law establishing 'land-take' budgets for local authorities.

1 - Among others: Scénarios ADEME, Transition(s) 2050 ; Crise écologique et démocratique : quelle ambition de réforme ? Soutenabilités ! Orchestrer et planifier l'action publique, France Stratégie report, May 2022 ; Économie pour le XXIe siècle – Manuel des transitions justes, Éloi Laurent, La Découverte, 2023.
2 - Quels besoins de gouvernance pour les différents usages de la biomasse ?, CESE, May 2023.

Sectoral transformation: accelerating towards a low carbon society

Challenges

Unlike many countries, France takes diffuse emissions (mobility, buildings)[1] very seriously, owing to its high share of nuclear electricity production and its deindustrialisation which began in the '90s. The lines of action described here mainly flow from the recommendations of the 2022 report by the High Council for Climate and the studies prepared under the National Low Carbon Strategy.
They aim to reindustrialise France, in particular through the development of the circular and functional economies, which are based on non-offshoreable activities.

Deployable drivers

MOBILITY

32% (SHARE OF EMISSIONS IN FRANCE, HCC 2023))

- **Promote** town and country planning and urban planning public policies that reduce the need for individual motorised mobility.
- **Support** the switch away from fossil fuels to electric mobility, targeting light vehicles and lower-income households.
- **Develop** soft and collective mobility and related role models that turn their back on the 'car-centred dream'.
- For freight, **reduce** overall mileage driven (efficient load fill, last-mile pooling, even reindustrialisation) and prioritise rail and river transport[2].

INDUSTRY

18% (SHARE OF EMISSIONS IN FRANCE, HCC 2023)

- **Deploy** an ambitious industrial products sustainability policy (eradicate planned obsolescence, etc.) through functionality, quality, reparability and reuse requirements.
- **Finance,** organise and encourage collective approaches in transition sectors (electric mobility, solar panels, bicycles, batteries, wood, etc.) at French and European levels[3].
- **Align** intra-European industrial and environmental policies with external trade frameworks so as to discourage high-impact imports[4].
- **Remove climate-unfriendly subsidies** and replace carbon-based energy with low-emission energy, especially electricity.

BUILDINGS

16% (SHARE OF EMISSIONS IN FRANCE, HCC 2023)

- **Systematise** the sufficiency approach in housing policies for both use (energy consumption, occupancy rate, modularity, etc.) and construction (vacant stock mobilisation, retrofit rather than building, stable per capita floor area, etc.).
- **Support** organisation of circular economy sectors and reuse of buildings and materials.
- **Speed up** development of a mass market in comprehensive and efficient low-carbon housing retrofit by focusing public grants on low-income owners, training professionals and planning for mandatory retrofit.
- **Develop** and implement sectoral roadmaps, including one for building retrofit.

ENERGY

11% (SHARE OF EMISSIONS IN FRANCE, HCC 2023)

- **Deploy** structural and where necessary restrictive measures (targeting businesses and households, along with adequate support) to pursue the individual and collective energy sufficiency plan initiated in late 2022, particularly for the purposes of avoiding unwanted consequences (rebound effects) and securing energy efficiency gains.
- **Facilitate** and accelerate the deployment of renewable energy systems, especially local ones, by involving the population.
- **Define** and share with stakeholders a clear vision of the medium- and long-term electricity mix, including nuclear power (extension of existing nuclear reactor life, construction of new reactors, development of small modular reactors, etc.).
- **Prepare** for a sustained rise in energy prices, particularly via public communication.

1 - Agriculture (19% of emissions) is not mentioned here because it is treated cross-dimensionally.
2 - See in particular 'Dealing with freight in a finite world' - the Shift Project (2022).
3 - See 'Dépasser les constats, mettre en œuvre les solutions' - HCC (2022).
4 - See 'Dépasser les constats, mettre en œuvre les solutions' - HCC (2022).

Transition financing: aligning ambitions and resources

Challenges

Over the coming ten years, decarbonisation will require additional large-scale investment (more than two GDP points in 2030)[1]. The main challenge is to mobilise financing for transition-friendly projects, even if they post low short-term profits.
As things stand, a significant proportion of investments to be made will have to be financed by households, in particular for home energy retrofit and mobility.
The second challenge is to organise effort sharing effectively and fairly between different players (government, business, consumers (carbon price), landlords, taxpayers and future generations who would have to bear the brunt of today's public indebtedness).

Deployable drivers

- **Convert** budgetary and fiscal expenditures that slow transition down (tariff shields, subsidies and tax advantages for emitting activities or land-take) into transition aid.
- **Strengthen** the polluter-pays principle by gradually increasing carbon prices and pricing nature's destruction and make it acceptable through more transparent and equitable use of revenues.
- **Increase** the feasibility of transition projects by reducing their financing costs (interest rate subsidies, public loan guarantees).
- **Divert** savings towards financing the transition, in particular by training and informing savers.
- **Support** implementation of reporting standards and mainstream environmental impact assessments.
- **Develop** multi-annual planning of transition-related public financing.

Priorities to 2030

- Transform environmentally harmful public aid (€55 billion[2] in 2023) into transition aid.
- Increase private investment in the ecological transition, particularly by improving profitability and reducing risks through public incentives.
- Leverage financial innovations and the market to finance the ecological transition[3].
- Mobilise household savings more and get households to accept the financial efforts needed for the transition.
- Highlight the non-monetary benefits of these expenditures: ease of living, reduction of risks related to poor air quality and environmental degradation and preserving the future.

Target

+100%

Public and private (household and business) investment would have to be doubled to achieve the ecological transition[4] from €80 billion in 2022 to €150 billion per year[5], accounting for almost a quarter of national investment (€650 billion in 2022). What is required is redirection of these flows.

1 - Les incidences économiques de l'action pour le climat, France Stratégie, May 2023.
2/3 - Ibid.
4 - See 'Panorama des financements climats', I4CE, 2022
5 - See 'L'action climatique : un enjeu macroéconomique', France Stratégie, November 2022.

The geopolitics of transition: delivering on our ambitions while ensuring our security

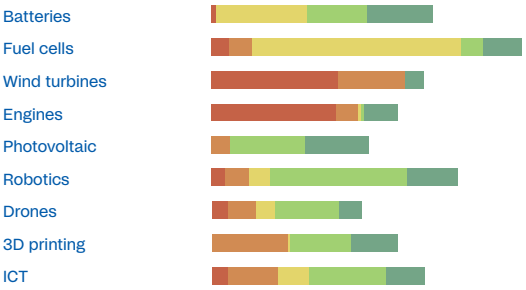
Challenges

Rising tensions between China and the United States, the invasion of Ukraine and the resurgence of the Israeli-Palestinian conflict mark the return to energy and territorial geopolitics. The Covid crisis has shown the risks of heavy dependence on certain supplies as new vulnerabilities emerged due to the globalisation of value chains and competition for natural resources. We have entered a new stage of history, marked by strong instability, the calling into question of the globalised economy and a revival of sovereignty concerns[1].

The migratory flows produced by these multiple crises add to the uncertainty. In generating resource savings, the ecological transition would improve European resilience, although geopolitical issues could limit access to some of the critical resources required for it. In the business world, the transformation of business models and the diversity of transition policies are creating a context of uncertainty regarding the challenges of resilience and international competitiveness.

Supply risks[2]

VERY HIGH	HIGH	MODERATE	LOW	VERY LOW
Light rare earths Heavy rare earths	Magnesium Niobum Germanium Borate Scandium	Strontium Cobalt MGP Graphite	Indium Vanadium Lithium Tungsten Titanium Gallium Hafnium Silicium	Manganese Chromium Zirconium Tellurium Nickel Cuivre



To secure the production of critical technologies, the Critical Raw Materials bill of March 2023 proposes minimum European capacity targets by 2030: 10% of annual EU consumption for extraction, 40% for processing, 15% for recycling.

Deployable drivers

SUFFICIENCY: DRIVER OF RESILIENCE, INDEPENDENCE AND POWER

The 2022 crisis over energy prices and availability has underlined the importance of sufficiency. When exercised collectively and extended to other sensitive or strategic resources, it will increase our room for manœuvre.

INTERNATIONAL COOPERATION AND INDUSTRIAL PARTNERSHIPS: CONDITIONS FOR SUCCESSS

The transition requires the development of industrial sectors that ensure the sustainable production of essential goods and services. The size of the European market allows for the investments required for the ecological transition, including targeted reindustrialisation.

PROTECTING EUROPEAN TRANSITION: BEARING THE COST

Europe must promote its transition model among its partners, subject its external trade to equivalent environmental requirements and accept the cost of this security[3].

Priorities to 2030

- For each sector, identify the mineral or renewable resources necessary for the EU's essential needs and consider alternatives for reducing the risk of geopolitical tensions.
- Strengthen and enforce environmental clauses in international trade agreements.
- Change lifestyles. A successful lifestyle and economic transition would help boost Europe's global reach.

2026

This is the year when EU importers of certain commodities will have to pay a carbon price across the steel, cement, fertiliser, aluminium, electricity and hydrogen industries[4].

1 - Cinq plans pour reconstruire la souveraineté économique, Senate Information Report No. 755, July 2022.
2 - Critical Raw Materials for Strategic Technologies and sectors in the EU - A Foresight Study, 2020, European Commission.
3 - Examples: Carbon Border Adjustment Mechanism (CBAM) and Critical Raw Materials Act.
4 - Carbon Border Adjustment Mechanism.

Social norms and values: firing new imaginations

Our social norms and values are derived from different sources[1]

Challenges

Many citizens around the world aspire to the Western way of life, based on growth, material abundance and mass consumption. However, mainstreaming this lifestyle globally is incompatible with keeping our planet liveable. This model no longer seems capable of delivering on all its promises, especially in terms of health. In a number of countries, rising inequality negates the satisfaction brought by mass consumption[2].

In France, growing eco-anxiety is accentuating this reappraisal, but ensuring that our lifestyles are consistent with environmental challenges remains complex. This situation largely stems from our mindsets and our inertia in the face of change. Consumption has become central to our lives, our imaginations, our economic systems and many of our social norms.

Deployable drivers

BUSINESSES

- **Develop** green advertising and marketing that 'convey other stereotypes'[3], project positive representations of sufficiency and focus on products and services that have little impact on the environment.
- **Participate** in the creation and dissemination of positive representations of the transition, such as support for related audiovisual creation by giving it plenty of broadcasting airtime, projection of different models, development of popular culture, narration of positive stories, etc.
- **Review** all processes (innovation, training, reorientation of processes and products) in order to support these new imaginations by inducing change in economic models.

PUBLIC AUTHORITIES

- **Encourage** new social norms by including rules, modes of operation and requirements in a clear politically backed project, accompanied by support for the lower-income sections of the population.
- **Give** increased priority in education to our relationships with nature and our environmental behaviours.

CITIZENS

- **Multiply** personal experiments and experiences to create a strong 'social contagion' effect: family challenges, eco-festivals, discussions, citizen meeting places, etc.
- **Strengthen** direct nature experiences and another sort of connection to living beings so as to better understand and protect nature.

Priorities to 2030

- Build a new representation of prosperity, as inspiring as and more robust than that of material abundance.
- Foster the emergence of new imaginations and compatible social norms, particularly by transforming advertising.
- Support the transformation of social norms.
- Cause changes in the organisation of society (regulations, economic measures, pace of life, etc.).
- Support the ecological transition of employees in their individual and personal lives so as to create consistency between individual values and a sense of purpose at work.

83%

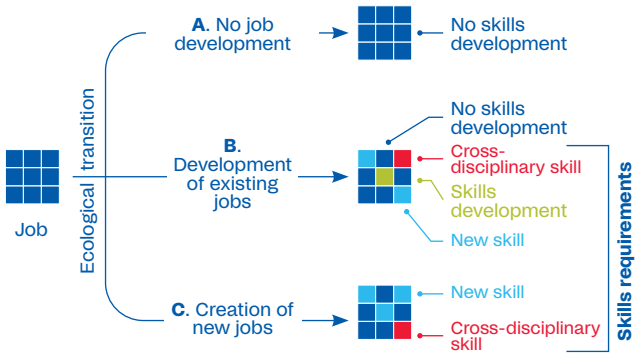
Share of French people[4] who say they wish to live in a society where consumption is less prevalent.

1 - 2030 Milestone for the Ecological Transition Report, EpE, 2024.
2 - Quel contrat social dans un monde fini ? Mathieu Saujot, IDDRI note, October 2022.
3 - Lifestyle representations and the ecological transition, EpE, 2021.
4 - 15th GreenFlex-ADEME responsible consumption poll, 2022.

Support for professionals: anticipating needs

Challenges

The ecological transition involves reducing activities that generate greenhouse gas emissions and developing activities that do not. Several studies have explored these transformations[1] whose detailed requirements in terms of conversion and initial and further training are mainly related to the specific features of each labour market. Some transition jobs are already under pressure (construction, public transport, agriculture, forestry) due to trained manpower shortages or job-specific issues (job insecurity, restrictive working conditions)[2]. Other key transition sectors such as agriculture and industry are even suffering job losses, and attracting new professionals is becoming a major challenge. At the same time, the demand for ecological transition-related skills is growing in the vast majority of current jobs (manufacturing, purchasing, finance, sales, communication, etc.) across all sectors.



Anticipating the future of employment and the potential effect of the transition is particularly difficult today in light of the economic volatility we face today and the uncertainties surrounding ecological transition pathways[3].

Deployable drivers

PUBLIC AUTHORITIES

- **Use** ecological planning to forecast conversion and training needs.
- **Fine-tune** local needs in terms of jobs and skills.
- **Foster** the development of vocational training in line with local sectors, vocational skills support bodies (OPCOs) and businesses.

BUSINESSES

- **Develop** and support professional transition schemes.
- **Support** changes in sectoral ecosystems, particularly for SMEs that are customers or suppliers of large groups.
- **Strengthen** the attractiveness of transition professions.

CITIZENS

- **Train** to integrate the ecological transition into all vocations.
- **Explore** transition-related opportunities and vocations.
- **Talk** about it in your professional circle.

Priorities to 2030

- Open and continue social dialogue with trade unions to anticipate the impacts of the ecological transition on skills and jobs.
- Improve the attractiveness of transition jobs (social recognition, pay and working conditions).
- Help professionals in activities with a high environmental footprint to convert by strengthening training schemes with dedicated organisations.

25%

Share of businesses systematically engaged in skills management[4].

1 - ADEME, ONEMEV, ZEN 2050 in 2019, Shift Project French Economy Transformation Plan (PTEF).
2 - 'Les métiers de l'économie verte rencontrent des difficultés de recrutement en 2020 et 2021', SDES, 2022.
3 - 'Quels besoins en compétences et en formations en lien avec les métiers de la transition écologique ?', CARIF-Oref Network, 2023.
4 - Analysis Note 77, France Stratégie, 2019.

Household transition: relying on solidarity and fairness

Social contract of the transition - ADEME[1]
Four principles of equitable carbon value reform

1. Restore confidence by proposing long-term public finance programming with a dedicated assessment body.

2. Ensure fairness by defining the arrangements for supporting conversion investments and those relating to energy cost control.

3. Ensure efficiency by increasing carbon values in taxation, defining the conditions for reducing corporate and household taxes, and controlling the spread of production cost increases.

4. Open up governance by involving the state, local authorities, social partners and social actors in improving targeted transition aid for the most disadvantaged.

Challenges

Direct household energy consumption related to housing and transport is significant, accounting for 40% of total final energy consumption (20% for each item). Lifestyles are dependent on basic needs as well as socio-technical determinants (such as availability of public transport). They are also influenced by advertising and social models. Initial differences in lifestyle (i.e. household size) create significant inequalities in terms of the relative costs of transition depending on income or location, and thus on burden sharing.
Social justice is a key success factor in the transition. It means supporting the most vulnerable households in their transition investments (home insulation, change of mobility, etc.). A more equitable society would also be a just return on the collective and individual transition efforts required.

Deployable drivers

PUBLIC AUTHORITIES

- **Inform** people about investment finance methods, estimated at 2% of GDP in 2030[2], and their redistributive effects.
- **Strengthen** targeted aid schemes (bonus-malus, conversion allowance, MaPrimRénov' retrofit allowance), standards and economic incentives.
- **Invest** in urban planning and infrastructure to provide households with sustainable and affordable decarbonisation solutions.
- **Secure acceptance** for collective efforts by reducing inequalities and ensuring that society is perceived as more equitable.

BUSINESSES

- **Support** the personal transition of their most vulnerable employees.
- **Develop** affordable transition solutions and financing more geared to the functional and sharing economy.
- **Use** advertising and marketing to promote new lifestyles.

CITIZENS

- **Involve** family members in the learning process of transition issues by joining community centres or local voluntary associations.
- **Participate** in local public policies.
- **Experiment** with innovative products and services.

Priorities to 2030

- Prioritise transition aid to households in the first decile.
- Design and implement infrastructure investments that will minimise transportation demand and maximise active and collective travel.
- Promote sufficiency models emphasising product quality and sustainability as well as reuse.
- Engage in the reduction of inequalities as a contribution to a more equitable society, or a fair compensation for the collective efforts made.

17%

Share of individuals with eco-friendly values as well as practices in 2022[3].

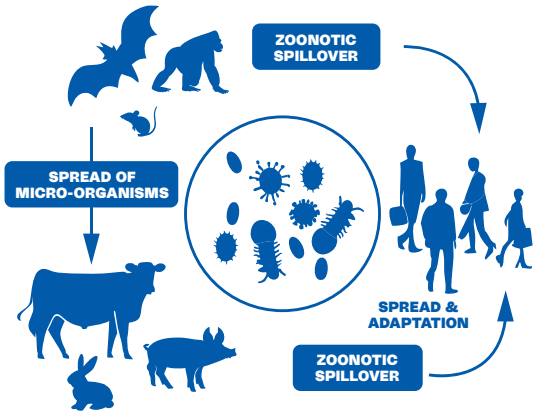
1 - Analyse des conditions de reprise d'une valeur équitable du carbone, July 2022.
2 - Les incidences économiques de l'action pour le climat, Jean Pisani-Ferry, Selma Mahfouz, France Stratégie, 2023.
3 - Coulangeon et al., Sciences Po, 2022.

Resilience: pre-empting and adjusting to crises

Challenges

Floods, hurricanes and droughts, Covid-19, the war in Ukraine - the events of the last few years have highlighted the growing risks to and the vulnerabilities of the economic and social order in the face of economic, geopolitical, climate or health shocks. Complex and global value chains are exposed to many dangers. The physical impacts of climate change are hitting us faster than expected. Our dependence on transport, energy and communication networks requires collective and territorial resilience as the most disadvantaged populations are also the most vulnerable. The multiplication of climate disasters is an insurance challenge, threatening increased premiums and the risk of uninsurability of foreseeable losses. Despite the plethora of studies (HCC[1], I4CE[2], etc.), the emergence of methodologies to guide organisations on assessment[3], and the establishment of institutional frameworks (CSRD, TRACC[4], etc.), the risks and systemic nature of the issues are still underestimated[5]. Finally, increased migratory flows resulting from climate change and biodiversity loss are also to be expected.

Spillover between wildlife, livestock and humans[6]



Deployable drivers

PUBLIC AUTHORITIES

- **Define** reference pathways for the adaptation of sectors and essential infrastructures and enforce them at local level.
- **Build** awareness among all stakeholders and factor adaptation into all decisions.

COLLABORATION

- **Promote** the link between research, business and local authorities in order to develop operational solutions.
- **Involve** all stakeholders in risk assessment and management processes.

BUSINESSES

- **Inform** the market and stakeholders about physical risk exposure and adaptation strategies.
- **Factor** the potential impacts of climate change and biodiversity loss into all decisions.
- **Develop** financial and technical solutions to prevent and reduce risks.

Priorities to 2030

- Initiate, foster and maintain dialogue and co-construction on resilience.
- Enhance everybody's acculturation and awareness of the risks and challenges of organisational and infrastructure resilience.
- Support stakeholders through the introduction of regulations, analytical frameworks and solutions.

+4°C

The reference warming trajectory for France's adaptation (TRACC) under preparation.

1 - Acter l'urgence, engager les moyens, annual report of the Haut Conseil pour le climat, 2023.
2 - Se donner les moyens de s'adapter aux conséquences du changement climatique en France : de combien parle-t-on ?, I4CE, 2023.
3 - See ACT adaptation methodology, ADEME.
4 - Corporate Sustainability Reporting Directive, reference warming trajectory for climate change adaptation.
5 - See the joint AMRAE and AXA Climate 2022 climate commitment poll, which shows that 45% of risk managers have a poor understanding of the risks in their value chain; similarly an examination of climate change adaptation in the territorial climate-air-energy plans (PCAETs) reveals that of the 155 PCAET action programmes analysed, only 72 mention the word 'adaptation', 32 'risk' and 17 'resilience'.
6 - Workshop Report on Biodiversity and Pandemics of the Intergovernmental Platform on Biodiversity and Ecosystem Services, IPBES 2020.

Health: reaping the benefits of ecological transition

Challenges

The health impacts of climate change are well identified: excess mortality (heatwaves), increased respiratory diseases, new vector-borne diseases, health consequences of disasters (storms, fires, floods), deterioration of food's nutritional quality, impacts on mental health (psychological distress, anxiety) and psychosocial well-being. Disadvantaged more vulnerable populations are also more exposed to environmental risks (fuel poverty, less vegetated habitats, proximity to polluting and noisy infrastructure, exposure to chemicals, etc.). Even excluding climate, environmental degradation and inequality could reverse the health gains made over the past 50 years.
Transition scenarios such as those developed by ADEME show how to significantly reduce many health impacts associated with outdoor and indoor air quality, noise, lifestyles and food. The more dynamic scenarios on active mobility and food transition are also the ones that offer the most co-benefits.

One health

One Health, une seule santé, www.inrae.fr

Health benefits of environmental actions

HABITAT

Retrofit helps combat pathologies caused by fuel poverty, the social costs of which are considerable, and increases thermal and sound comfort. Only comprehensive retrofit can achieve triple energy, financial and health gains. Choosing the right materials has a positive impact on indoor air quality. Finally, there is a correlation between a person's state of health and their proximity to nature, even on a small scale[1].

TRANSPORT

'Green' active mobility reduces air pollution, responsible for 48,000 premature deaths a year[2] in France, the social cost of noise[3] (€156 billion/year), and physical inactivity (€140 billion/year and 38,000 premature deaths[4]).

FOOD

More biodiversity-friendly agriculture and less consumption of meat products and industrial livestock reduce the impacts of food on health, including many chronic diseases. Import regulatory frameworks reduce related risks, whether direct or indirect.

Priorities to 2030

- Promote preventive approaches aimed at minimising the sources of exposure to health risks (transparency, education, chemicals sufficiency, etc.).
- Integrate climate considerations into mental health programmes in line with WHO recommendations.
- Identify and publicise the benefits of actions (well-being, efficiency, longer healthy lifespan, employee loyalty, etc.).

Target

€10 billion

Estimated health costs avoided by retrofitting 1.3 million dwellings presenting a health risk related to low indoor temperatures in France[5].

1 - De quelles preuves scientifiques disposons-nous concernant les effets des forêts et des arbres sur la santé et le bien-être humains ? Santé publique, 2019.
2 - Impact de l'exposition chronique aux particules fines sur la mortalité en France continentale, Santé publique France, 2019.
3 - Coût social du bruit, ADEME, CNB, 2021.
4 - L'évaluation socio-économique des effets de santé des projets d'investissement public, France Stratégie, March 2022.
5 - Évaluation socio-économique, France Stratégie, March 2022.

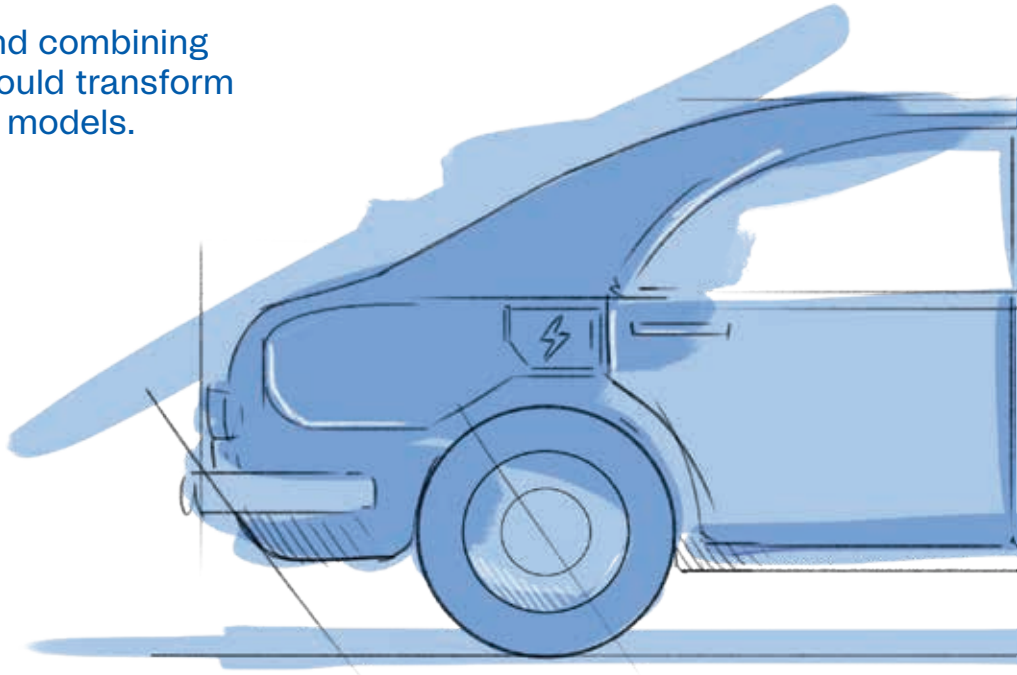
At the heart of an ongoing transition: scenarios

28 — Corporate vehicle fleets
30 — Biosourced insulating materials
32 — Yoghurt, the mirror of food

For each of these three practical cases, a scenario describes the situation in 2023, the transformations that could occur by 2030 and the potential state of transition in 2030.

Corporate vehicle fleets

Financial gains, health benefits, energy independence...despite the many advantages of carbon-free mobility, the transition to electricity and shared mobility remains an ambitious project even for corporate fleets. Fortunately, there are ways to change our habits.
Implementing alternatives and combining restrictions and incentives could transform organisational practices and models.



2023: where are we?

10%

of vehicles in circulation are owned by companies and administrations (purchases and long-term leasing combined). Vehicle fleets therefore account for a significant share of transport-related emissions.

1 in 2 vehicles in corporate fleets

is used for purely professional purposes, the same as so-called 'official' vehicles which can also be used for personal travel.

95%

of the vehicles in question today are internal combustion vehicles.

• Opportunities to be seized

Car fleets are the main driver of private car renewals. They account for half of new purchases that end up on the second-hand market in three years.

• Challenges to be tackled

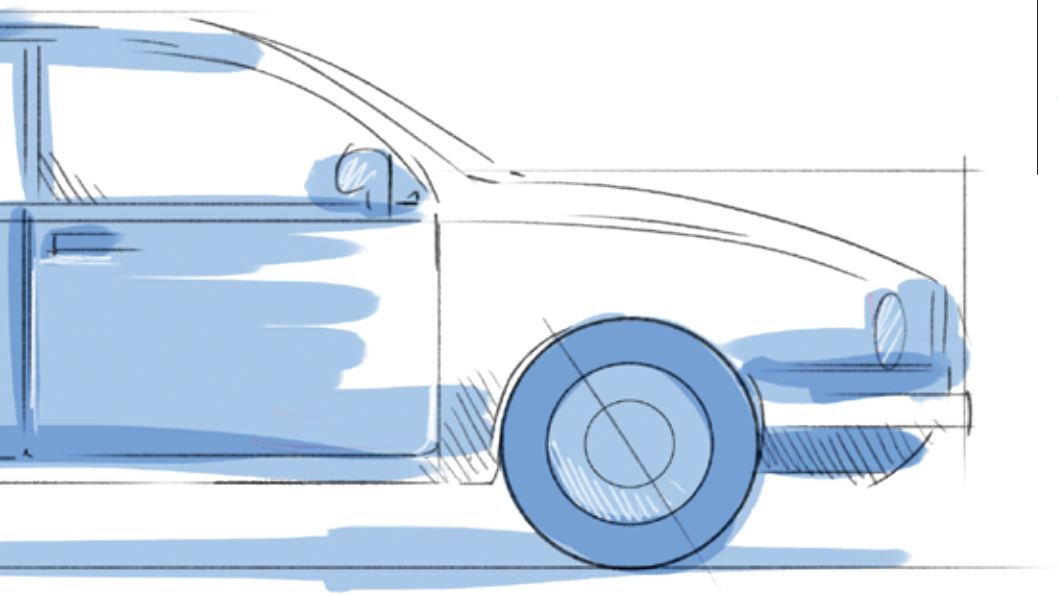
Taking into account job (range, etc.) and personal (travel time, etc.) constraints.
Changing the imagery related to the car.
Developing charging infrastructure.
Cutting prices for electric models.

2024 - 2030: transformation potential

Internal contests as incentive for change
Within and between companies, contests abound to encourage energy savings across car fleets. Fun and easy to set up, these competitions call for limited investment thanks to data already available in embedded vehicle electronic control units. From SMEs to large groups, all businesses are jumping on the bandwagon.

Personalities who lead the way
2024: Rally driver Sébastien Prost emerges transformed from the Dakar Rally in Argentina and its landscapes devastated by fires.
The champion is now entirely dedicated to electric motor sport and gives a lot of interviews in the press to highlight his conversion. He has quickly become a champion of sufficiency-driven, low-carbon mobility.

New 'mobility packages' for employees
Rather than a company service vehicle, businesses now offer their employees 'mobility packages' that include:
- a catalogue of smaller, energy-efficient and light low-carbon vehicles available under car sharing;
- greater flexibility in the way journeys are made (bicycle one day, motorised vehicle the next, etc.);
- the possibility of renting a higher-capacity vehicle on an ad-hoc basis at company expense;
- the provision of an electric bicycle or other similar equipment.



2030: where will we be?

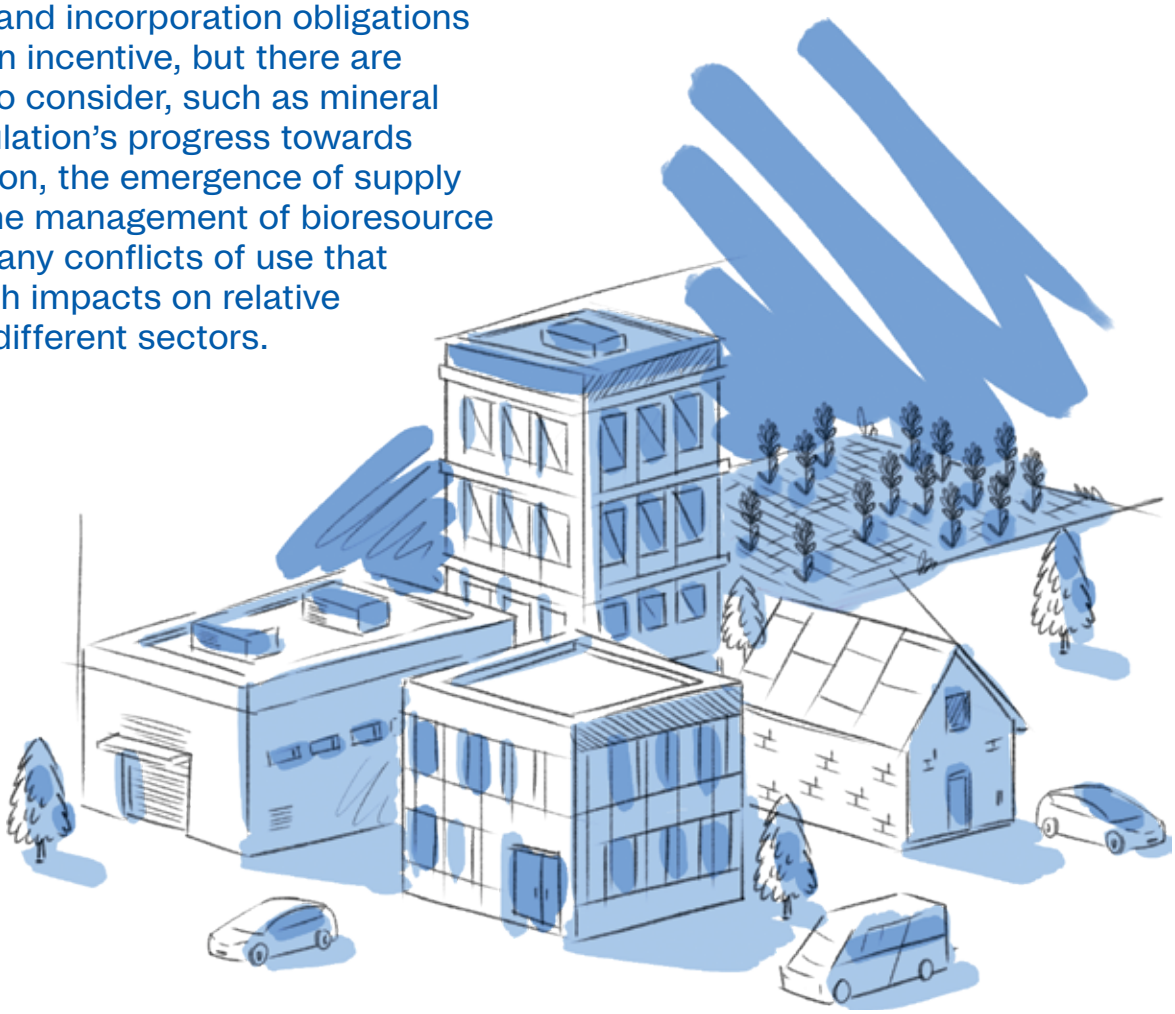
100% EV registrations in pole position
An historic achievement: in 2030, for the first time ever, EV registrations outstrip those of internal combustion vehicles, announces the press. Experts cite two main reasons: driving pleasure and user cost.

European carmakers: leaders in EVs
Manufacturers have been supported by carbon taxation at borders and public investments, as much as they have been restricted by regulation (bonus-malus system for energy performance and CO_2 emissions). To top it all: accelerated production, more efficient batteries thanks to R&D, and increased competitiveness.

A radically transformed mobility market
Gone is the one vehicle for all uses! Incentives for active and collective mobility have revealed its benefits, while the 100 companies running the largest car fleets are committed to energy-efficient low-carbon vehicles. New corporate 'mobility packages' have limited the exclusive use of personal vehicles.

Biosourced insulating materials

As the demand for retrofit soars, what contribution could biosourced insulation sectors make? Market conditions, public procurement and incorporation obligations will work as an incentive, but there are other issues to consider, such as mineral or plastic insulation's progress towards decarbonisation, the emergence of supply chains, and the management of bioresource deposits and any conflicts of use that may arise, with impacts on relative costs for the different sectors.



2023: where are we?

10%

of the market today consists of biosourced insulation[1], the other solutions being mainly mineral wools (glass and rock) and fossil fuel-based plastic insulation.

- **Opportunities to be seized**

The need to speed up comprehensive thermal building retrofit should increase demand for insulation.

- **Challenges to be tackled**

Organising the different sectors. Logistical aspects are critical in view of increasing transport costs.

Ensuring the competitiveness of biosourced insulation in a context of increased demand for biosourced products and for viable business models in the agricultural sector.

Anticipating and managing conflicts over the use of biomass products, including at regional level.

2024 - 2030: transformation potential

The decarbonisation of mineral insulation is carried out by the use of recycled products (glass wool in France contains more than 60% of recycled glass, rock wool more than 50%) and the gradual electrification of glass furnaces.

The decarbonisation of plastic insulation can be achieved by the gradual use of biomass as an input, subject to the proportion of biomass available for these products.

Better resource management to avoid competition between uses
Some flax-, straw- or wood-based insulation is mainly derived from co-products or waste, hitherto little exploited[2] and therefore diffuse and unpredictable. Other insulation raw materials (hemp) will be deliberately grown for their fibres. Reducing the consumption of animal protein can also free up land, with the shift to agroecology promoting this low-input crop. The organisation of the wood sector and resources regulation should enable trade-offs between uses (insulation, energy).

Government assistance in organising and developing sectors
There is a minimum biosourced insulation requirement for the renovation of public buildings and housing. Manufacturers who source locally also receive financial support.

New jobs and local economic channels
In response to the demand for biosourced materials, key players are approaching local specialists to develop dedicated product lines for a particular region.

2030: where will we be?

ADEME proposes two scenarios for biosourced insulation in 2030

In the 'frugal generation' scenario, retrofits are comprehensive, at scale and quick, with little new construction. There is rising demand for biosourced insulation, which is partly met by recycling wood fibre panels and paper.

In the 'green technologies' scenario, retrofits abound, but for comprehensive retrofits demolition followed by reconstruction with carbon-free mineral insulation is preferred.

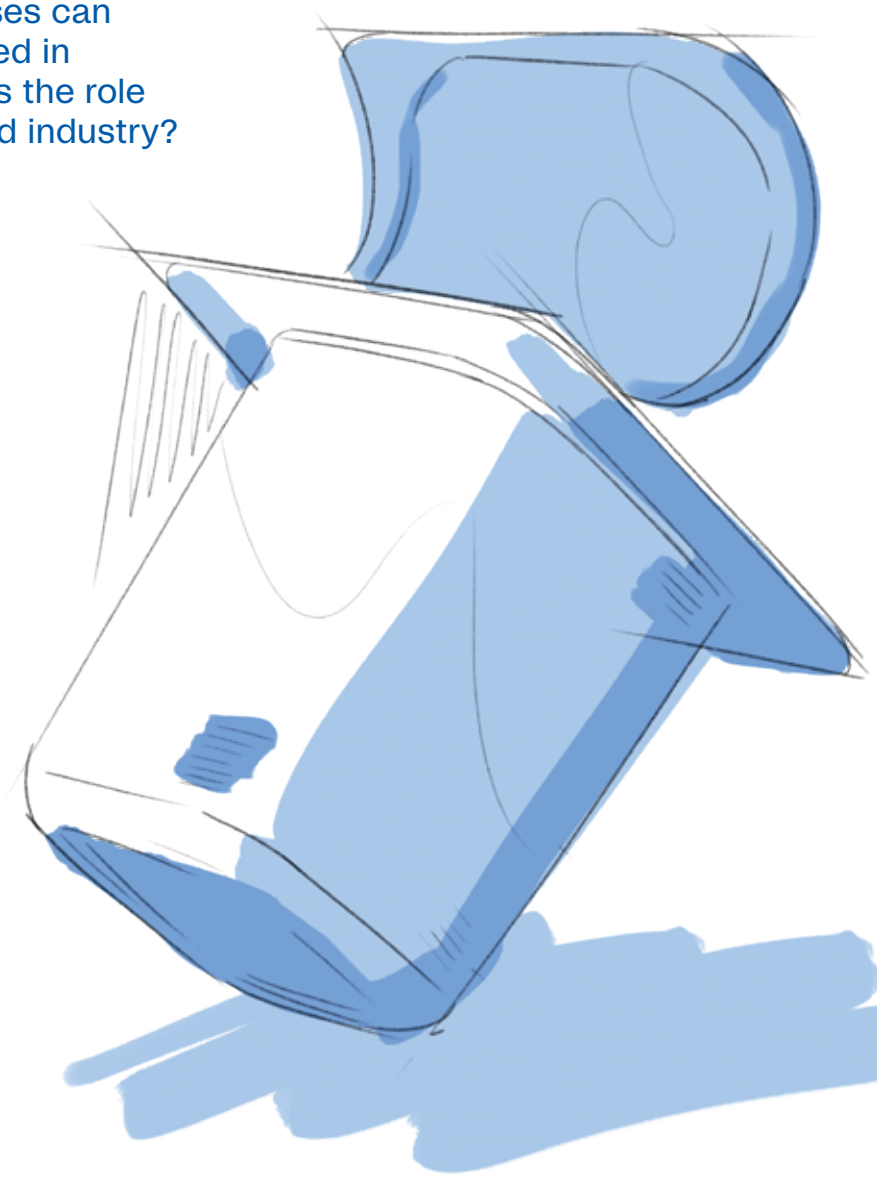
ADEME scenarios - Transition(s) 2050	**Frugal generation**	**Green technologies**
Biosourced insulation in new builds	29 kt/year	43 kt/year
Biosourced insulation in retrofits	196 kt/year	30 kt/year
Total	215 kt/year	73 kt/year

In both scenarios, the share of biosourced insulation remains low (~12%), principally because of the pressures on resource availability.

1 - Insulation made from wood fibre or wool, hemp, cellulose wadding, flax wool, recycled textile, expanded cork, straw.
2 - AGPL Lin, InterChanvre, FCBA BIPE, 2019.

Yoghurt, the mirror of food

‘From farm to fork’ – there is plenty of data to back the view that the highly popular yoghurt pot illustrates the possible mutations of our food system. What agricultural compromises can we find? What are the changes needed in household eating behaviours? What is the role of business, in particular the agri-food industry?



2023: where are we?

Iconic

Yogurt is an iconic consumer product, but its simplicity hides a complex industrial chain, many ingredients and huge diversity.

1 to 3

dairy products a day are recommended by the 2019 National Nutrition and Health Programme. Household yoghurt consumption is declining slightly but remains generally stable.

60%

of a yoghurt’s carbon footprint is due to milk production, with little room for improvement[1].

- **Opportunities to be seized**

‘A playground for innovation’: This is how manufacturers talk about yoghurt because of its wide range of ingredients, variations, formats and flavours, as well as its relatively affordable price.

- **Challenges to be tackled**

Integrating all the issues: agricultural systems, globalised market, carbon footprint and biodiversity, livestock changes, changing tastes, etc.
Taking into account the key economic and social importance of the milk industry in rural areas.

2024 - 2030: transformation potential

The state provides clarity to consumers
How do you find your way through the maze of labels, nutritional and environmental claims and sustainability discourses? Consumers are the target of contradictory messages and injunctions that limit their ability to make informed choices. That is why the government is introducing a National Food, Nutrition and the Environment Strategy (SNANE) which proposes a consistent framework for displaying products.

Industrial innovation and demand are creating two new segments
'Improved' yoghurt draws on the enthusiasm for local, short food supply chains, the campaign against food waste (bulk, special 'short lead time' supply chains), and recycled and recyclable packaging. 'New' yoghurt comes with a complete vegan range that meets the demand of a growing number of consumers who prefer a plant-based, organic and zero-waste diet.

Farmers in transition
A significant proportion of livestock farms and dairies are reconverting and choosing sustainable and more crop-based production. They are supported by the public authorities and major agri-food players to develop their business along more responsible and sustainable lines.

2030: where will we be?

EU maintains its position in world dairy products[2] trade
This despite production declining faster than consumption. The new equilibrium price of raw milk in the EU, below 2023 record levels, is stabilising markets.

'Improved' and 'new' yoghurts flourish
And with them so does production from more sustainable systems (plant, organic, GMO-free or pasture-based), even though conventional agriculture remains preponderant.

Two possible scenarios[3] for the same cattle population
The first, supply-based, scenario would maintain the current dominant system of production, with activity being concentrated in certain regions. The second, more innovative, scenario uses a local, multifunctional approach coupled with actions to change demand, and results in delivering more jobs and environmental benefits.

1 - The reduction potential through best practices and innovations varies from 1% to 7% for grassland systems and from 8% to 14% for mixed systems. Agribalyse data.
2 - EU Agricultural Outlook 2022-32, January 2023.
3 - Towards a just Transition of Food Systems, IDDRI, 2021.

Towards 2030: lessons and priorities

35 — What scope of freedom for everyday life and economic activity?

37 — Proposed priorities between now and 2030 to meet our commitments

What scope of freedom for everyday life and economic activity?

Previous studies have shed light on certain foreseeable constraints that will restrict stakeholders' room for manoeuvre. According to the Doughnut image, our activities should occur between an environmental ceiling set by the planetary boundaries, and the Social foundation, i.e. the level at which the essential needs of people are met.

For businesses, as for citizens, the scope of freedom defined by the foundation and ceiling would be significantly different from what it is today. On the one hand, significant pockets of extreme poverty remain in our country, i.e. unmet basic needs. On the other hand, the environmental footprint of the French not only outstrips by far the country's soil[1] resources, but also exceeds what may be considered a sustainable share of the planet's carrying capacity in light of the aspirations of developing countries to a standard of living comparable to ours.

The ecological transition referred to in this study would consist for France and Europe in returning within this scope of freedom based on the outcomes of ETE 2030.

- The transition should be conducted by **simultaneously** addressing all the different issues related to climate (mitigation and adaptation), biodiversity, health, natural resources, and social cohesion. We do not have time to deal with issues one after the other, which are largely interdependent, conflicting or synergistic.
- The transition should lead to **living differently but better.** The benefits of a healthier life in a prosperous and resilient environment, with enhanced welfare and social ties and improved social cohesion, should surpass efforts to reduce the material and energy footprint. It seems to us compatible with the moderate economic growth on which our social model is based. Recognised economists believe such decoupling[2] is possible, as also demonstrated by the ADEME models which show that GDP growth is not a differentiating criterion between the four scenarios[3] whose material footprints, nevertheless, differ substantially.
- The new prosperity can be based on numerous technical and organisational innovations. It can also include **new models** calling for resource sufficiency, circularity, and a new relationship to living beings consisting in reducing the pressures exerted on nature, while enhancing, protecting, restoring, and even regenerating nature.
- The transition requires **massive investments** by stakeholders, businesses, public authorities and households to implement this new way of life.
  The investments should be funded by appropriate business models and by financial support for the most vulnerable people, households, SMEs or regions.
- **A decrease in the material footprint** requires **long-term sufficiency to be embedded in the infrastructures,** cities, and structure of the services offered. Material sufficiency is offset by a diversified and attractive offering of services that are less costly in terms of resources.

1 - The same imbalance is noted at European level.
2 - La transition climatique signifie-t-elle un arrêt de la croissance économique ?, France Stratégie webinar, September 2023.
3 - Transition(s) 2050, ADEME, 2022, 'les effets macro-économiques' series.

- To avoid rebound effects, sufficiency would have to be managed by new **collective life rules** that organise and limit the use of resources within sustainable levels, as is already the case with European greenhouse gas emissions and land-take. This mechanism could be extended to different types of resources, including renewables (wood, biomass, etc.). The rules should be established at the relevant geographical level and are already calling for conditions to be placed on external trade (CBAM, critical Raw Materials Act, etc.).
- The adoption of this new model of prosperity calls for a **new social contract.** The change and investment required of all, even with plans to help the most vulnerable, deserve compensation in return for the relatively greater burden people will bear. This could be sought in terms of overall social equity and the reduction of inequalities. These two expectations are running so high that they could become preconditions for social cohesion at a time when the future seems more uncertain than ever.
- The new model has to be invented and jointly built from **new social narratives** based on already abundant local experiences as well as innovations and new service offerings. It would lend meaning to many activities, and it appears to meet the expectations of many French people who say they wish to wean themselves off the current overconsumption model.

As recent history has shown, a future without this transformation will bring major environmental, health or geostrategic crises caused by climate change, resource scarcity or ecosystem collapse. It is only at the cost of collective and individual transformation that we can strengthen our resilience, and limit, if not avoid, future crises and their effects.

The lines of action identified above also help to answer the study's main question: 'What can be done between now and 2030 to put ourselves on a credible pathway of ecological transition compatible with France and Europe's commitments on climate and biodiversity?' The answers are discussed in the next chapter.

Proposed priorities between now and 2030 to meet our commitments

The results of the study identify actions that, if completed by 2030, should put France and Europe on a credible pathway of ecological transition compatible with their commitments on climate and biodiversity. Otherwise, the upholding of these commitments is in jeopardy. Some of the actions can be carried out by businesses, others require the intervention or backing of other players. The study's conclusions accordingly also serve as proposals, an invitation to everyone to grasp their meaning as quickly as possible, as well as a sign of EpE members' support for the policies and actions discussed.

Building a shared vision of the transition

Develop new imaginations

Harness training, information and cultural resources to embed France's ecological transition in **collective narratives** at various levels of European, national, regional and local governance. The narratives would build the transition on sufficiency, innovation, circular economy principles, new relationships with nature, and desirable prosperity that is compatible with the limits of the planet. The **expected benefits** include improved individual health and well-being, a meaningful personal and social life, and greater resilience to international and climate hazards.

Build long-term sufficiency

Prolong everyone's efforts towards **long-term sufficiency.** Currently initiated through voluntary actions, people's efforts will need to be reinforced by measures transforming the individual and collective practices of businesses, citizens and public authorities. The measures could come in the form of incentives or rules of collective life, the need for which should be widely explained by diverse and consistent voices, discussed and understood so that they are well accepted.

Make a transition plan in each company

Draw up in each organisation **an ecological transformation business plan** integrating climate, biodiversity, resources and social impacts. Identify which activities to encourage and which to reduce during the transition, and involve all departments— innovation, procurement, production, finance and marketing. In particularly **on advertising and marketing** to provide incentives that aim for 'better and better' rather than 'more and more', and to promote new lifestyles compatible with the ecological transition.

Meeting the needs of inhabitants while respecting the limits of the planet

Make the transition affordable for all

Develop effective solutions collectively and mobilise private and public financing appropriate for the scaling up of transitional investments, which must be tailored to the resources of different categories of households and businesses and must shield them from commodity price increases and foreseeable hazards.

Organise housing retrofit for all

Highlight the benefits of mandatory comprehensive retrofit of **all housing and identify the conditions for its success.** Alternatives based on adaptive reuse could also be developed by local authorities, integrating the goal of no net land-take, the need for adaptation to climate change and new-build requirements.

Accelerate circular economy models

Plan changes in society's material footprint through global targets and pathways (including imports) for the use of some materials, primarily renewable resources. Also improve product sustainability by promoting functionality, quality, reparability and reuse.

Reduce forced mobility

Promote spatial planning and urban planning practices in public policies that **limit the need for motorised individual mobility in favour of soft and collective mobility,** while supporting the switch of vehicles to electric or low-carbon mobility.

Respect and care for nature

Strengthen co-construction, guidance and arbitration capacity from European to local level in order to organise **the sharing and use of natural resources** (water, soil, biomass), and support **agricultural transformation.** This would include promotion of healthy food practices by reducing animal protein consumption, development of local, high-quality, multiple-use supply chains, and enhancement of environmental services provided by nature, which is respected, supported, even regenerated.

Get everyone to work

Strengthen the attractiveness of **ecological transition jobs** – in particular nature, industrial or manual jobs with a shortage of manpower – while mobilising all the various stakeholders, businesses, general and vocational education schools, vocational skills support institutions (OPCOs), trade unions, and France Travail to provide the necessary training.

Mobilising all stakeholders at all levels

Continue the efforts initiated

Ensure **continuity of the collective transformation policies** initiated in Europe by the Green Deal and bring external trade frameworks into line with those policies. In France, implement sectoral roadmaps in line with environmental planning goals, supported by multi-annual transition finance planning which includes contributions from the State, business and households.

Create new collaborations

Develop **new partnerships between stakeholders:** enhanced cooperation between European players over industrial projects related to the ecological transition; involve businesses to support and technically assist the transition and adaptation efforts of regional and local authorities; promote collective actions to transform value chains; call upon the financial sector to support the transition.

Promote social fairness

Create national support for this transformation drive by associating it with the reduction of inequalities so that it results in **more fairness.** Many of the above changes will indeed require democratic decisions. Promote acceptance of transformation decisions through regular dialogue and collective discussion including experts, citizens, stakeholders and decision-makers.

Where do I start ?

Upon reading the foregoing, the depth of transformation required in mindsets, business models and lifestyles appears so daunting that some may wonder whether this is really possible.

To answer this question, we invite you to turn this publication over and examine the transition from another point of view. You will discover narratives of feasible individual pathways along workable transformation paths already followed by people. The point is for everyone to project themselves into this transition their own way, to discuss it around them, and then to apply it concretely to all aspects of their life.

It's up to us, to you, to everyone to act!

To continue reading, flip over


To continue reading, flip over

THE FIELD OF POSSI-BILITIES

SHORT STORIES

Immerse yourself
in 7 distinct pathways
of ecological
transformation

epe
entreprises pour l'environnement

We are approaching 2030

Personal values, family and economic background, life experiences, opportunities, constraints and initiatives guide each individual journey. The following narratives are intended to illustrate diverse ways of approaching the ecological transition. While necessarily piecemeal, they nevertheless show the complexity, hindrances and drivers of individual and collective transformations.

Independently of their benefits for health, everyday life and future generations, any such life paths are subject to circumstances and opportunities. Accordingly, our characters will discover and propose multiple solutions, whether human, political, democratic or technological.

These stories each reflect a distinct and complementary approach to the analyses set forth in the part one of the book to be read by flipping it over.

Enjoy your reading!

06
Matteo and the green industry
2024

09
The fabulous world of Julie
2025

12
An ambitious retrofit of Isabelle and Rémi's home
2026

18
Sonia's neighbourhood tour by bicycle
2028

15
Isabelle: wind and water
2027

21
Karim's own business
2029

24
Chloé, a new generation farmer
2030

The everyday life heroes of the transition

2024

Matteo

23 years old and completing his engineering studies.

Matteo is completing his engineering degree with an internship at a gigafactory manufacturing EV batteries. Production has been stopped due to an electric cell shortage after China was hit by severe drought. Before his internship started in earnest, he was trained to master the industrial ecology practices developed at the plant.

2030

Chloé

32 years old and a cousin of Matteo's and Julie's, Chloé is taking over her parents' farm with a group of other young farmers.

Her parents ran a mixed crop-livestock farm holding and had already begun the transition to agroecology, which she and her partners will continue. They are set to downsize their dairy cow herd, develop pulse production and convert to organic systems. They are doing a good job of diversifying both the distribution channels for their products and their core farming business.

2029

Karim

42 years old and former colleague of Rémi's, Karim has just set up his own, innovative building materials business.

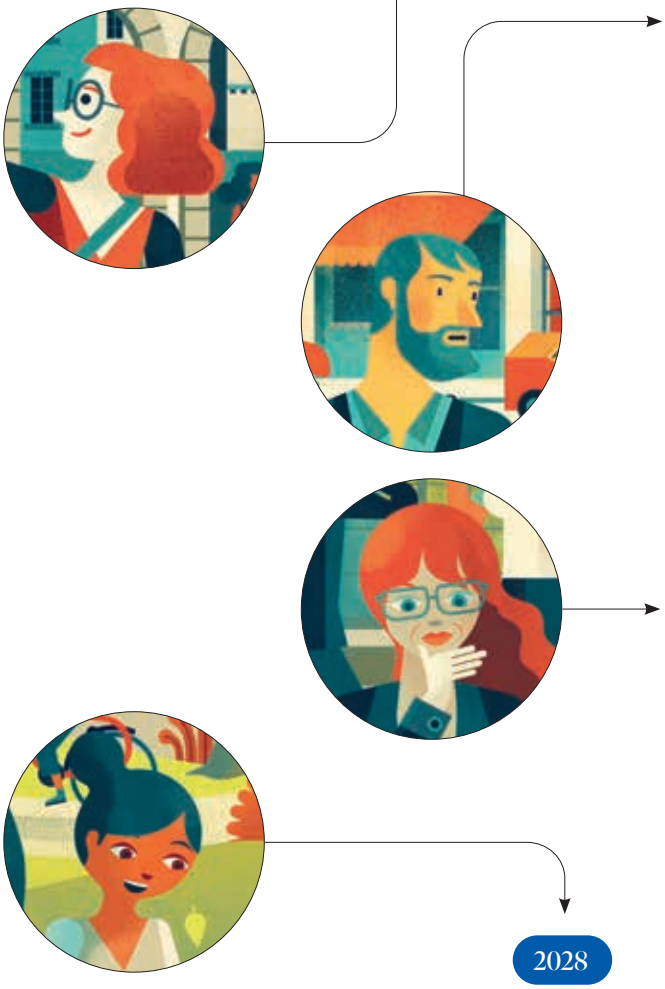
Rémi keeps in touch with Karim, his former colleague, and so they regularly share their respective experiences. Karim works in a local household appliances subcontracting business. This regularly faces supply shortages for some materials which leads him to develop new collaboration deals with his corporate partners. As a small company owner, he has to meet all the challenges of starting up in business. He and Rémi also share more personal considerations about the ecological transition and how it affects their lives.

2025

Julie

19 years old and Matteo's sister, Julie is taking a cabinetmaker course.

Julie is the family's chief environmentalist. She moved out of the family home when starting her cabinetmaking apprenticeship and now lives in a cohousing development. While she shares highly restraint-driven consumption values with her neighbours, she finds that pooling is not as easy as it seemed it might be.



2026

Rémi

60-year-old Rémi, Matteo's and Julie's father, works for the subcontractor of a household appliance manufacturer. Didier, aged 45, is the boss of a small construction business.

Rémi and Isabelle, whose children now stand on their own feet, have set their sights on a house located in a mid-sized town. They are planning to retrofit the house from top to bottom before moving in. Despite reservations from Didier, the builder who is coordinating their work, they have managed to go ahead with their project.

2027

Isabelle

52-year-old Isabelle is the mother of Matteo and Julie and first deputy director of ecological transition at their municipality. Gérard is 70 years old and a retired neighbour on a low income.

In charge of ecological transition in the municipal team, Isabelle takes an active part in consultations prior to the installation of a local wind farm and a water-sharing system. She has been instrumental in the implementation of several climate change adaptation measures.

2028

Sonia

Matteo's and Julie's 45-year-old former nanny, Sonia lives with her 21-year-old son Sami in a social welfare district of the city.

Their neighbourhood is improving thanks to the national urban retrofit board ANRU's 'resilient neighbourhoods' programme of comprehensive measures. Initially quite indifferent to the environment, Sami is gradually changing his views, as he now finds he can make a living repairing bicycles after a short training period.

2024

Matteo and the green industry

Matteo: what planet-friendly job should I go for?

Matteo was set to complete his last year of engineering school by starting his graduation internship two weeks ago at Franergie, a young company that has just opened a brand-new battery plant. To do his bit for the ecological transition, he has opted for this sector of activity within an international industrial consortium.

Some of his classmates are considering becoming energy consultants, low-carbon material engineers or retrofit specialists, areas in which they should quickly find a good job as demand for skilled manpower is high in these sectors.

While Franergie easily won over many interns when the company visited his school campus, other companies were ostensibly boycotted by the students. All students had followed a core curriculum on climate and biodiversity issues which sparked lively discussions on the 'greenest' path. Some of his classmates in fact decided to 'switch off', refusing to place their skills at the service of companies they hold largely responsible for the environmental crisis. Others joined mission-driven companies or SMEs clearly dedicated to ecological transition solutions, or even environmental NGOs, solidarity-driven social organisations, or local projects. David, an old friend for many years, for his part, entirely changed course and joined an autonomous eco-village to train in permaculture. Finally, though incredible and depressing in his eyes, a number of students entirely failed to grasp the issues at stake. His chosen path, for one, was to conduct the transformation 'from within'.

Securing European supplies

Unfortunately, the Franergie plant had to shut down for at least three weeks following a disruption in the supply of electric cells from China. Recurring power cuts caused by the severe drought in Sichuan province led to stopping electric cell production temporarily. Though dismayed, Matteo keenly takes up his internship supervisor's cue and attends the crisis meetings organised in response. With no solution in sight to resume manufacturing operations, management negotiates with emerging European cell manufacturers to secure future supply volumes at negotiated prices. The plant CEO believes that carbon taxes on imports will gradually increase such that sourcing in Europe will make financial sense in the long run. Nevertheless, although car fleets should shrink as a result of car sharing, carpooling and better urban and rural public transport, not to mention the impact of electricity-driven mobility, there will still be a shortfall in the medium term. Accordingly, Franergie is looking at new technologies that would free it from dependence on critical materials and so provide greater autonomy.

Latest headlines

Imports of carbon products soon to be taxed at EU borders

The Herald – 17 September 2024

Chinese industry faces slowdown due to new historic heatwave

The Times – 13 May 2024

Management decided to allocate their battery production to smaller vehicles (under 1.6 tonnes) as these have been identified by the government as a strategic segment to be developed to curtail imports from China. This will entitle the company to government subsidies to help it implement its new production policy.

Matteo also attends a meeting arranged by the human resources department to prepare for a value sharing conference convened by employers' organisations including corporates, shareholders, trade unions and citizens. He finds it will be very difficult to reach a common stance, but thinks the initiative is important.

The winning rationale of industrial ecology

While waiting for his internship to begin operationally, Matteo discovers industrial ecology. For decades, more and more manufacturers seeking to operate in a closed loop along the lines of the circular economy have been relocating to the industrial area where Franergie is based. Energy companies recover their neighbours' industrial gases or give their cooling waters to an aquaculture farm. The city's urban heating system is supplied by waste heat from blast furnaces and in smaller measure even from wastewater! Cement manufacturers recover the co-products of steelmakers to decarbonise their production. "*These companies have not waited for state-backed efforts to embark on their own ecological transition and design new, environment-friendly practices*". He feels this is so simply because these practices make economic sense.

Recently, the plant site has equipped itself with a CO_2 capture, storage and recovery facility to produce low-carbon hydrogen for use by the local steel plant. Matteo has read in the press that huge amounts of hydrogen will be needed to decarbonise industry along with shipping and aviation at European level. Until the vast wind farms to be installed in the North Sea can produce the low-carbon electricity needed to power the electrolysers required to produce this hydrogen, demand will have to be severely curtailed and hydrogen may well have to be imported. "*This would enable some fossil fuel exporting countries - confronted by the exhaustion of their reserves but particularly well endowed in renewable resources - to diversify their economies*", so he heard at a conference on the subject.

He also learns that the opening of the Franergie plant has facilitated the retraining of employees of some neighbouring companies that had to shut down, particularly those manufacturing tyres, automotive furnaces and household appliances. However, despite the support offered under an ecological transition contract, some people are struggling to find a job in the region. Matteo understands that they do not want to leave because they have built everything here, professional life, circle of friends, home with loans still outstanding, etc.

A nursing home on the road to resilience

Since his internship at Franergie, Matteo regularly visits his grandmother who has recently moved to a nursing home in her native region. During his visits he is informed that the meals provided for residents by the nursing home are mainly based on short supply chains, organic foods and include less meat. The home's management has also taken measures to deal with climate events that keep plaguing the region year after year, especially heat waves. Leisure activities, meal and nursing care schedules have been adjusted in the event of a heat wave. Moreover, to remedy the shortcomings of the 1980s building, rainwater recovery systems have been integrated and several plots of land have been depaved and vegetated, so that residents can enjoy cool areas in which to sit and relax. Matteo's grandmother loves walking with him along the new richly vegetated pathways, the therapeutic and mental health benefits of which are well known.

2025

Julie's fabulous world

Julie wins her independence.

"*If my father saw me, he would just snigger away,*" Julie despairs. And she wonders whether she did the right thing to go for cohousing so she could live close to the cabinetmaker she chose for her apprenticeship. Already, she has had to fight hard to get her parents to accept this choice. For them, this is just another fad of their young daughter who tends to irritate them with her 'eco-friendly' ideas. For example, she refuses to fly so it is much more difficult to choose a destination for family holidays. "*Plus, we end up paying more!!*" erupts her father Rémi.

However, she will stand up to them and live according to her convictions. First she had to make them accept her vocational training as a cabinetmaker, although they would have preferred her pursuing higher education like her brother Matteo. But what she loves is handling wood, seeing furniture come to life in her hands, and she wants a job aligned with her environmental concerns. In fact her teachers encouraged her. A looming shortage of manual skills could hinder the ecological transition, and what helped is that mindsets are at last beginning to change. What's more, manual trades are gaining fresh status as they are more innovative and creative. Last but not least, Julie likes the prospect of standing on her own two feet soon.

Sufficiency-friendly shared spaces

Tonight, she emerges from a stormy meeting held by the flatmates and co-owners to define the conditions of use of the shared spaces. A recently arrived couple have just announced they plan to house friends in there for three months. Yet, the tacit principle observed so far has been to use these spaces only very occasionally and to give advance notice so that everyone can benefit from them in turns.

Ever since moving here, Julie has had the impression that a perfect understanding existed between the occupants. Has not everybody chosen this way of living and have they not come together in pursuit of the same goal of sufficiency by pooling many spaces and equipment (laundry room, party room, guest rooms)? Moreover, most of them are quite the trailblazers in terms of lifestyles and consumption patterns. For example, parents choose to hire all the furniture for the baby's room rather than buying items they will only use for a few years before they end up in their cellar or in a rubbish dump. The inhabitants also agreed to jointly buy two vacuum cleaners for the residence, scrutinising their environmental label and reparability index, especially as the VAT rate is inversely proportional!

Many of them have joined the local cooperative supermarket (SCOP). In return for providing a few hours a month to the SCOP, they own shares and have access to organic products at lower prices than at supermarkets. This, among other reasons, explains why Julie decided to join them. Since leaving the family home, she sometimes has to make concessions and forego certain purchases that have steadily become too expensive. It is also for financial reasons that she chose cohousing in this recently refurbished former office building.

Latest headlines

OPEC cuts production and oil prices rise again

The Echoes - 15 January 2025

Rugby fans switch to soft mobility

Hundreds of spectators got on their bicycles on Sunday to attend the local Bayonne-Biarritz derby in return for discounted ticket prices

South of France – 24 June 2025

No tariff shield as gasoline prices soar

The Francilien – 3 March 2025

A festival with more or less welcome incentives

Her main concern for the time being is to persuade her friend Zoe to take her to a music festival. Of course, she doesn't have a car and usually does not need one. To get to work, she borrows a bicycle from one of her neighbours who only uses it on weekends. It takes her upwards of half an hour to get there. At first, she found it a bit long, especially in winter. But she now enjoys it, after all. Traffic jams and the vagaries of public transport in her poorly connected neighbourhood have become a thing of the past!

She had planned to borrow her brother's car to go to the festival but the organisers have decided to offer discounted tickets to those who come by train or carpooling, and they increase ticket prices for the others. As the train is getting more expensive with the date approaching, she has to find ridesharers to get the best rates.

"*With their dry toilets, their returnable plastic cups, their sound system supplied by a green energy-powered generator, they are quite an attractive festival,*" she tells Zoe on the phone. "*But this business about variable rates is stretching it a bit too far!*"

– "*It's true it may seem unfair but I think it's good to reward those who make the effort. As you know the transportation of festival-goers accounts for most of their carbon footprint! Okay, I'll come with you, so we'll pay less! Meanwhile, will you come shopping with me tomorrow?*"
– "*Shopping? Where? You know I buy almost only second hand!*"
– "*It so happens I was told about a new outlet in a third place that sells 70s clothes in excellent condition and at unbeatable prices!*"
– "*OK, let's go. I'll also take this opportunity to have my grandmother's old leather handbag repaired. The fixed price repair shouldn't set me back by much.*"
– "*Unless the repair people take advantage of the situation and double their rates,*" laughs Zoé. "*By the way, did I tell you about the crisis in my advertising agency? Can you imagine one of the biggest clients has just been sanctioned for greenwashing due to one of their campaigns? It's causing quite a stir! At the same time, it's difficult to fire the imagination around restraint, isn't it?*"
– "*We'll have time to talk about it on the way to the festival; I have a bunch of ideas!*"

The Finnish example

Oona, a young Finnish woman, is staying for a few weeks in one of the studios at the residence. Talking to her, Julie discovers that Finland is far ahead in terms of energy transition. Back there Oona lives with her parents in a residence where each flat has a small private outdoor area, but everyone has access to a larger common space. Another aspect aroused Julie's interest: the town of Lahti has developed a personal carbon budgeting system for its inhabitants. For the time being, only transport is costed, and accounts are credited (for example, when using the bikeshare scheme) or debited (when filling up at the petrol station) depending on the option chosen.

2026

An ambitious retrofit of Isabelle and Rémi's home

Isabelle and Rémi are renovating their home

Now that their children fend for themselves, Isabelle and Rémi have decided to move into their new home which is smaller and more suited to their new lives. For the last years of Rémi's working life, and especially for their retirement, they have opted for a town-house in a rather well-connected medium-sized town where they had spent some years in their youth. Just one and a half hours from Paris by high-speed train, Matteo and Julie will have no excuse for not coming to see them from time to time! Isabelle is tired of hunting for solutions that suit everyone, be it for water or land issues, so she is not standing for re-election to the municipal council of their home town. Thanks to good teleworking arrangements, Rémi, for his part, will only need to join his colleagues twice a week, which can be done by train. Should he need more social contact, he could always use the coworking space set up in the recently refurbished train station with its solar panelled roofs as part of the French railway operator SNCF's vast electrification plan.

Rémi and Isabelle were won over by the diversity and quality of local services, all within walking or cycling distance. They fell for a charming old house but it needs comprehensive retrofitting. They had first spotted another, but were discouraged by the cracks probably brought about by clay shrinkage – an all too common sight in recent years due to increasingly frequent droughts. Their insurance company had warned them of the risk of a higher premium such a situation would entail because of the surge in reported claims, and they were put off by the related renovation costs.

A long story

Encouraged by easily available retrofit grants offered by the government, they have decided not to skimp on expenses as they are here for the long haul. Soaring energy prices in the last few years and the need for better comfort in winter and summer have persuaded them to accept a substantial outlay out of their own pocket. Besides, when retrofit becomes mandatory, grants will surely be cut!

To replace the old gas boiler, they want to be connected to the urban heating network, powered by incinerator heat recovered from the local paper mill, and by geothermal energy. But Didier, the builder coordinating their work, is sceptical and sometimes raises rather strange arguments.
According to him, geothermal energy might have been responsible for the micro-earthquakes which occurred a few years ago in eastern France. They don't take these arguments very seriously, especially since the government has just earmarked significant funding for this decarbonised yet not intermittent energy source. They have also decided to install a remote control system for their water heater and large appliances to take advantage of flexible tariffs aimed at encouraging consumers to adjust their consumption to spikes in renewable energy production and shift away from peak periods in order to smooth consumption.

Latest headlines

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The Monitor – 23 February 2026

Municipalities: new elected officials mainstream support for ecological transition across municipalities

The Municipal Gazette – 20 January 2026

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The Sun – 28 October 2026

Pollution peak in Brest: fuel oil–powered ships banned and car traffic restricted

The Brittany – 23 March 2026

For the retrofit, Isabelle and Rémi wish to use as much reused material as possible to obtain bigger grants and a reduction in their property tax. For the moment though the project is at a standstill.

According to Didier, the hemp wool supplier is out of stock for an indefinite period. Somewhat reluctant to handle requests that force him to change his habits, he has also tried to dissuade them from using these more expensive materials which use up more space because they need to be extra thick.

They have been unable to find a retrofit support agent available in the area. However, after seeing an advertisement in the street they went to talk to their bank manager, who proved to be much more competent than the managers they had dealt with some years ago! On his advice, they have meticulously chosen a certified environment-friendly craftsman - a precondition for obtaining grants. They have also identified platforms specialising in the reuse of materials and found a beautiful wrought iron staircase recovered from a demolition site.

Worker hassles

On the hemp insulation too they have hung on. With the knowledge acquired by attending a retrofit workshop, Isabelle has convinced Rémi about the need for efficiency, local and natural products and an emerging sector reliant on markets for growth but also on specific skills. Didier has already warned that he would have trouble finding trained workers. "*It's much easier with traditional materials!*" he grumbles.

He also complains because, despite repeated postponements of the planned LEZ (low emission zone), the ozone pollution incident linked to the heat wave has led the authorities to put in place restrictions that make the lives of the workers difficult. Several of them have already warned that after the LEZ is implemented they may stop coming to work. Despite state grants, the workers still find it too expensive to procure cleaner vehicles, especially since they have enough work outside their area. In fact, Didier prefers new-build projects. "*It's less difficult to find workers and suppliers, even if manpower shortages can be felt right across the board,*" he repeats. But, reluctant as he may be, even he sees that times are changing. Between 'no net land-take' and the number of buildings to be transformed, retrofits are gradually gaining ground over new builds, as shown by his own order book.

BIMBY-savvy neighbours

Isabelle has spotted work in progress at the back of a neighbour's property. One day she comes to see the progress of their own retrofit project and noticing a woman at her doorstep she introduces herself. During their conversation, she learns that the woman and her husband have decided to sell part of their vast plot of land for the construction of a new build as they are now too old to cultivate it. A developer specialising in BIMBY (Build in My Backyard) paid them a visit a few months ago and persuaded them to do so. This type of urban development popular in the United States, which aims to increase the density of already inhabited areas thus avoiding land take while helping to meet the need for housing, is still embryonic in France. But some local urban development plans are nevertheless beginning to lay down detailed rules for projects of this kind. Of course, so long as they have not met the young couple who will soon be occupying the house at the bottom of their garden, the couple are slightly anxious but hope that the cohabitation turns out for the best. In the meantime, the proceeds from the sale will allow them to treat themselves to a tour of Europe by train to celebrate their 50th wedding anniversary.

2027

Isabelle: wind and water

Isabelle crosses swords with people against windfarms

She is relieved. Exhausted by months of heated debates with the developer and the inhabitants, she comes out of the last-ditch consultative meeting on the windfarm project planned for the municipality. She expected opposition to the windfarms from increasing numbers of people in light of the government's declared ambitions, as well as from ever more numerous followers of NIMBY (Not in My Backyard). The latter sometimes support renewable energies, as long as they remain out of sight. By decentralising, however, the turbines will on the contrary be even more visible in the landscape, and Isabelle wonders how to change mindsets and gain acceptance for these transformations. What discourages her to some extent is the hostile attitude of a small group that claims to be eco-friendly, but is primarily anti-windfarm officially out of concern for biodiversity. Be that as it may, the installation of solar or wind farms generates financial benefits for the community. The tensions of recent years on energy markets, price increases and forced restraint have highlighted the role that these energies can play in the transition. This is also the message being hammered by the public authorities.

It is surprising the developer did not come empty-handed tonight. He was accompanied by residents from other municipalities in the region where he has been developing windfarms since several years with citizens contributing financially to the investment. The residents testify that the nuisance, especially noise, they initially feared is not so bad, and in any case much less than the noise of cars in town! The return on investment obtained by shareholders of these projects is also attractive, especially since the investments are risk free, with production being bought by the State for twenty years at a price guaranteed in advance. The developer also guarantees that their wind turbines will be equipped with fully recyclable blades and recalls their obligation to rehabilitate the site at the end of the operating period. The proposal is adopted by a small majority, and the project has enough support to be put to the vote at the next meeting. The wind turbines will be sited in the agricultural plain without further impacting the relatively low biodiversity of the area.

New water governance

Isabelle has not finished with the debates. Next week's meeting with representatives of consumers, farmers and manufacturers on water uses promises to be just as heated. Water is becoming more and more scarce after increasingly numerous and longer droughts. Several measures have been introduced in recent years to manage needs as closely as possible. Water systems have been renovated to limit losses. Several volunteer vegetable growers have been trained and paid to adopt drip systems. A municipal decree allows the reuse of waste and reprocessed water for public green spaces. Rainwater collectors have been installed, and progressive charging offers the first cubic metres almost free and subsequently increases with consumption. All these measures are intended to avoid a proliferation of prefectural decrees banning the watering of gardens, the washing of cars or the filling of swimming pools. Sometimes, Isabelle gets tired of having to play the policewoman,

especially before people who have worked all their lives and now want to retire comfortably in a house with a swimming pool. They are even less willing to make an effort when some industries in the region are not subject to any restrictions, and so sometimes contract directly with the utility provider without the local authority having a say. Arbitration meetings are now regularly held under the aegis of the catchment area committee of the region and the department in the presence of the deputy director of the city's 'water cycle' system. They are going from strength to strength, with some people already anticipating the repetition of such events and altering their production processes accordingly.

Partially funded work

Upon leaving her meeting, Isabelle walks in front of Julie and Matteo's old school. The courtyard already showcases the produce of the consumer-farmer cooperative run by a local producer who also supplies school meals. The choice of organic foods, the introduction of one vegetarian meal day a week and flexible menus adapted to current market supplies and harvest ensure a recurring volume of business throughout the year. The recently vegetated courtyard has recently opened to locals looking for greenery and fresh air in the evening, on weekends or during holidays. The courtyard roof has been repainted white to increase its reflectivity and lower the temperature by a few degrees. Amazed by the result, Isabelle promises to make a list of all the public buildings that could make similar improvements, including in the town where she now plans to live! This renovation has benefited from the Green Fund set up to help cities become more resilient to climate change. However, the project to install blinds and solar panels in the old building housing the town hall has been delayed due to opposition from the former French architectural review board (ABF - architecte des bâtiments de France). Fortunately, legislation was updated and the project will finally come to fruition shortly. Rehabilitation work to street lighting has been a much simpler affair. Just replacing old bulbs with LEDs and using street lights fitted with sensors that only light up when pedestrians or cars pass, has cut the lighting bill by 65%, which accounted for 40% of the municipality's electricity expenditure!

On returning home, Isabelle greets her neighbour Gérard, a new retiree on a low income who potters about in his small vegetable garden. Thanks to a government grant, he can rent an electric car and make regular trips to the supermarket of the neighbouring municipality, which too has opened a social third place he regularly visits, especially for workshops and conferences. Initially, it was mainly to see people and keep busy for a while. Some local supplies have certainly helped to keep inflation at significantly lower levels than was the case a few years ago. However, there is no question of him frequenting the small appliance repair stand that is now there as in almost all supermarkets. A laudable initiative, but he prefers to take his defective appliances to the city's Repair Coffee Shop. It's friendlier, cheaper, and gives him a sense of being back in charge.

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The New Investigator – 7 March 2027

2028

Sonia's neighbourhood tour by bike

Sonia and Sami are seeing their neighbourhood change

Sami just can't understand why his mother, a kindergarten assistant, gets so involved. What is it that motivates her in this role of 'ambassadress' entrusted to her by the water supplier? Several nights a week when parents come to pick up the children she looks after in her own home, rather than taking time for herself following another busy day, she tours the neighbours to teach them how to save water. The supplier has signed a 'water performance contract' with the local authority. In other words, the smaller the volumes he sells, the more he gets paid - so he recruited her as an ambassadress.

His mother likes these discussions. She says that people actually share all kinds of questions about the ecological transition with her that are not at all limited to water. Is it better to go for organic or local produce? Is frozen food environmentally friendly? Is it better to go camping or rent a cottage for the holidays? His mother discusses these issues with him as if he knows any better!

Sami also finds the parents of some of the children his mother keeps 'completely nuts', what with their ideas of the 'great' forest school attended by the older siblings in which children go to class in the forest when the weather allows just to take the air and incidentally learn to identify an oak tree. When his mother was still looking after Matteo and Julie, they weren't allowed to indulge in such eccentricities at their neighbourhood school.

What makes him really worked up is the ever-increasing restrictions on drivers of ageing diesel cars who, after being encouraged to buy them, cannot afford to replace them with low-emission cars and are not lucrative business for garage owners. He should know since he has just lost his job as a mechanic! This will not be resolved with the recent announcement of a French battery that will increase sales of small electric cars.

On the other hand, he acknowledges that the neighbourhood, which is the winner of the ANRU 'resilient neighbourhoods' scheme award, is becoming more pleasant to live in. Accordingly, her mother regularly takes the little ones in her care to the courtyard of her old school, where the temperature is much more pleasant since all the bitumen has been removed. What's more, their apartment has been recently refurbished by the social landlord. Thanks to renovation of the windows and the new insulation on the outside, it is both warmer in winter and cooler in summer. The building itself has undergone a complete retrofit. It has taken time because the occupants could not be housed elsewhere during the works.

A garage mechanic turned bicycle repairer

Another novelty is the appearance of cycle paths. Much to his surprise, Sami has seen little by little people of the neighbourhood borrowing them, with some perched on bicycles bought at low prices during a sale organised a few months ago. He thought it was just for trendy city dwellers, but his cousin told him that he was entitled to a refund by his employer, as in the case of a public transport pass, and would not trade for anything in the world his

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Lui – 24 March 2028

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The Francilien – 25 October 2028

30-minute bike and train ride. Except, perhaps, on rainy days. The efforts made by transport operators in terms of accessibility and the support of the region to facilitate bicycle purchases have played their part. Not to mention the few kilos lost in the process or the re-enrolment in the boxing class he had abandoned a few years ago. All this has led Sami to train as a bicycle repairer at a school specialising in transition trades. Good job too as he has already received an offer of work from a workshop located 3 kilometres from his home which is already recruiting young people from the neighbourhood in preparation for its forthcoming opening.

One of the workshop's women customers spoke to him for the first time about Banlieues Climat (Suburbs Climate) volunteers. He decides to go meet them and judge for himself. While he knows the temperature in France has exceeded 40° C several times over the last few summers, he does not feel very concerned by overconsumption or weekends by plane. However, hearing about thermal sieves, urban heat islands, car pollution, and absence of green spaces or difficult access to healthy food gets him thinking. If he wins the lottery one day, he'll know what to do!

Although he is still undecided for the moment, Sami nevertheless decides to check out this new FabLab that has recently appeared in the neighbourhood to have his smartphone repaired, rather than save money to buy the latest model. It is there that he meets a former classmate whom he has not seen since the end of middle school. The good news is that his friend has undergone back-to-work training in 3D printing. Since some weeks the whole neighbourhood has been flocking to FabLab to make whatever gets the toaster or the radio to work again. Last but not least, it is nice to have the feeling of being useful to others. Banlieues Climat had warned him!

A parking lot transformed into a flooded mini-forest

Among other developments in the rapidly changing neighbourhood, an old parking lot has been transformed into a flooded area as part of a green and blue belt to ensure ecological continuity. An operation costing €50,000 but 80% supported by the Water Agency. Several sites were considered, but those whose subsoil was too contaminated or had too many pipes had to be rejected. The land selected will be used to plant trees that will deliver much welcomed freshness, but also absorb and retain rainwater so as to avoid the repeated flooding suffered by the neighbourhood during each major storm. Water will then be recovered and treated according to its various planned uses, such as cleaning roads, watering green spaces, and replenishing water stocks. But before all this could happen, it was necessary to find parking solutions or alternative mobility for all the inhabitants, especially craftsmen and people with reduced mobility.

2029

Karim's own business

Rémi meets up with his former colleague Karim, founder of a small 'green' business

The conference on decarbonisation finance for industry, organised by a group of businesses particularly committed to such issues, is coming to an end. Karim attends the cocktail on the top floor of a building leading the field in mixed and reversible use of spaces. The auditorium is often used by the companies housed there as well as associations, and sometimes transformed into a cinema. The coffee shop is a canteen during the day, and in the evening turns into a trendy nightclub with unusual chairs and tables they painted, which makes all the difference! The cherry on the cake is the beer served which has been brewed in the basement from hops grown along the green facades and in the garden. The building, of course, is fitted with solar panels! Karim is well aware that the lifestyle being showcased here is ultra-boho, but at the end of the day if it leads to bigger things, where's the harm? Suddenly, Karim thinks he recognises someone. But of course, it's Rémi whom he has not seen since a mutual friend remarried five years ago. Glued to his phone, he looks worried. Having seen Karim, he waves to him after hanging up.

Karim: "*How nice to see you! All's well? You look a bit under the weather. What brings you to a green conference?*"
Rémi: "*Hi Karim, good to see you too! Well, you see I've come for some information. Sorry, I've just finished a difficult discussion with our copper supplier. Between soaring global demand and the difficulty of opening new mines which are too water intensive, he wants to supply only customers who commit to taking back their products at the end of their life and giving them to him to recycle and recover the copper. That means completely reviewing our organisation and working closely with our customers. It's either that or winding up our production sooner or later. All these constraints are making my life very difficult. Our shareholders even require a proportion of bonuses to be pegged to socio-environmental criteria, you understand.*"
Karim: "*Are bonuses the only thing that makes you green?*"
Rémi: "*I don't know about green, but I adapt to the constraints, and to my daughter Julie who is making my life impossible*, he adds with a smile. *Well, it's true that I win too. For example, since introducing a tool to calculate the material footprint of our products, the more recycled material there is in the parts I buy the better it is for my wallet. That is also why I keep a close eye on the methods we use to ship our machines. Unfortunately, it is not always possible to do so by train as it is still too expensive and does not go everywhere. I stand a better chance by boat. Above all, we arrange with other companies to fill trucks to the maximum, avoid empty transport and opt for the most environmentally-friendly engines. Also, the company implements cool initiatives. I gave up my company SUV for a smaller electric city car; in return, the entire family gets a train pass valid for the whole of France and everyone has received an electric bike. But enough talk about me. What are you up to?*"
Karim: "*You remember I was a salesperson in textiles? Unfortunately, the market never really recovered from the Covid crisis. They came up with a redundancy plan. I preferred to take it up because life in the company was becoming increasing unpleasant and I just couldn't see how they were going to get back on track. So I took the opportunity to train in ecodesign before joining the incubator of a large building company where I was able to resume*

my old project: making slabs from recycled plastic for offices and hotels. As well as having a very low carbon footprint because they are fully recycled, they are also fully recyclable."
Rémi: "*How did you find the funds to start up, hire, invest, etc.?*"
Karim: "*I first obtained a grant through a call for projects and received a 'green industry' tax credit. I then managed to negotiate a loan with Bpifrance at an attractive rate indexed to my project's contribution to the ecological transition. I also raised funds through crowdfunding. People can now invest in unlisted companies through their life insurance. On the other hand, it was more difficult to convince some business angels to relinquish high returns. But overall, I was able to raise enough to hire a team and open a first production line.*"
Rémi: "*Great, where?*"
Karim: "*That wasn't easy either. Because of no net land-take (ZAN[1]), it is impossible to obtain a greenfield plot. Fortunately, thanks to an inventory of wastelands for rehabilitation in the region, I was able to move to the site of an old factory. I cohabit with a dozen or so SMEs: a recycler of solar panels, a platform for reusing building materials, a landscape gardener who transforms paved surfaces into urban mini-forests, and another company that recovers rare metals from used electric car batteries. It's nice and very useful to discuss with other business owners and pool certain things. For example, a secure bicycle garage and an electric shuttle that brings employees from the station. Ah, I almost forgot: I also got a state guarantee to contract a CPPA[2]. So I'll be able to supply myself with renewable electricity at a guaranteed price for 20 years. No more stressing about fluctuating wholesale market prices! We also got help to install a closed water system, which protects me from restrictions in times of drought. When we have added a rainwater recovery system, our consumption will fall by 75% versus a standard system.*"
Rémi (dubious): "*Is there really a market for plastic slabs?*"
Karim: "*It's off to a good start. Demand from local authorities is growing sharply, and businesses are jumping on the bandwagon as well. Especially since we are pretty competitive compared to traditional materials. It's a difficult balance to strike because we are dependent on the availability of recyclable plastic. And therefore on its cost, itself linked to that of oil. Our main challenge is to convince professionals, who hang on to their old ways and traditional materials. Then there's the safety and quality standards, which could do with a good overhaul. The obligation on cities to integrate environmental criteria into their call for tenders has helped us a lot. We now hope the performance of our facilities will convince other customers.*"
Rémi: "*With all this, do you manage to take a holiday from time to time? I think the last one was with the children last summer. At 22 and 27, it's a good thing they both came. What's more, as Julie now refuses to fly, it narrows down the destinations quite a bit!*"
Karim: "*I haven't really taken one in two years. In fact, for the past few years we have been spending them mostly in France. We also went to Germany and Italy. We love sleeper trains! Obviously, it takes more time, and for it to be worthwhile you have to be able to stay longer. Moreover, I plan to offer my employees less split and longer leave so that they can plan this type of holiday. I have also decided to give them access to a profit-sharing and incentive scheme, even though I am under no obligation to do so, given the size of my workforce. It helps to build team loyalty, which is no mean feat given the difficulty I have in hiring!*"

1 - Zéro artificialisation nette "not net *land take*".
2 - Corporate power purchase agreement.

Latest headlines

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The Echoes – 18 May 2029

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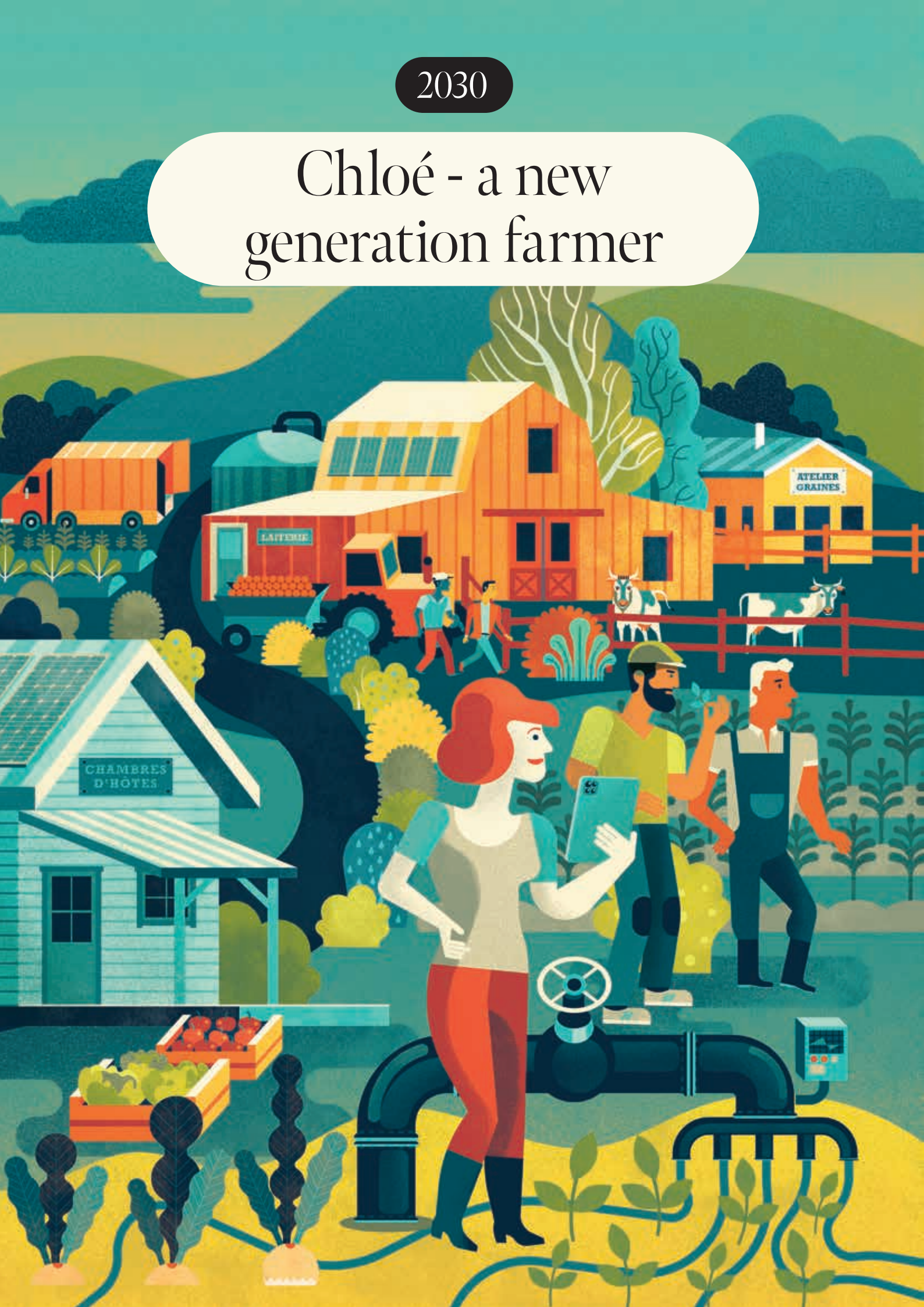
The Ardeche Courier – 4 March 2029

2030

Chloé - a new generation farmer



Chloé is transforming the farm inherited from her parents

She is excited as she awaits a visit from a delegation of farmers interested in the watering system she has set up, which has halved her water consumption while maintaining the same crop yield. The system is based both on rainwater recovery and a robotic device that probes the humidity of each foot of land, enabling her to irrigate as closely as possible to real needs. And this despite the fact that she took over the family farm just a few months ago with a group of other young farmers. That's what they've come to see too, she's certain and therefore a little nervous.

Before retirement, her parents were mixed crop and livestock farmers, with a hundred or so dairy cows and fodder and cereal cultivation, partly for own consumption and partly for sale. A dozen years ago they had already shifted towards agroecology: agroforestry, grass strips, intermediate crops, fertiliser reduction, plant health, biological control. Along with other operators in the region, they too had acquired shares in local renewable energy collective projects (agrivoltaism, anaerobic digestion and windfarm), as they were eager to get involved in the development of the region and above all keen to diversify their income sources, given the unpredictability that accompanied changes required of agricultural models.

Diversifying activities and revenues

The herd has 90 heads today and the young farmers, anticipating the forthcoming limits on animal protein production and taking into account the new CAP, aim to cut it down to 50 (mainly dairy cows) and replace the forage crops with field vegetables and pulses. They will be entitled to the newly established 'environmental services payment' scheme, in particular for hedgerow maintenance on their farm, seed diversity, and natural meadows preservation, which will help them downsize their herd.

Registered with a platform dedicated to the supply of local products, Chloé and her partners have already contracted with grocery stores and a company that supplies vegetables to local public and private canteens which have introduced a weekly vegetarian day offering a wide choice of menus. Their production is sold via short supply chains at markets, at a grocery store two other young farmers have reopened in a small town nearby, even directly at the farm or consumed there for its own needs.

Their initial investment was made with the help of crowdfunding to acquire a workshop for sorting pulse seeds that is shared with other farmer groups. They also plan to switch to organic farming, which wouldn't amount to much of a change from what they already do. As for expansion, they have yet to reach a consensus between critical size and increased dependence on inputs.

Latest headlines

Pulses make a comeback thanks to canteens – and instagrammers!

Bordeaux Match – 10 July 2030

Soaring meat prices benefit plant proteins – and public health

Northern Flash – 25 October 2030

The nearest dairy will soon be converted to produce vegan milk, starting with almond milk. The almond trees planted ten years ago by Chloé's parents have reached full production. New plots will be run under an agroforestry scheme and plans are under way to introduce oats in the crop rotation. Cow's milk produced on the farm will continue to be sold to another neighbouring dairy. The young farmers have had to bargain hard to obtain acceptable prices, which nonetheless remain subject to the vagaries of the market. That's because milk consumption in France has dropped slower than production. Volumes have been imported cheaply to fill the gap, and this defeated their expectations of a price increase.

As well as their agricultural production, Chloé and her partners have developed several ancillary activities in order to diversify their income. Renovation work to convert an outbuilding into guest rooms has been partly financed under the call for 'sustainable tourism' projects. They also rent out, through a dedicated collaborative economy platform, one of their sheds as storage space to small businesses. Pressing demands from manufacturers, particularly in the transport sector, to produce biogas is making them think. It might make good financial sense to use their manure and intermediate crops to feed a methanizer built to the target size of their herd.

Last but not least, they are committed to raising public awareness of climate and biodiversity issues, which have motivated them to take over and transform this farm. Chloé is glad that her cousin Matteo will join their next eco-awareness walk she organises in a nearby forest. She also holds regular open days at the farm for the benefit of schools and colleges so they may know more about their work and the ongoing transformations of agriculture.

Reversible and affordable tiny houses for low-income households

Two couples among Chloé's co-residents did not live in the village before joining her. Until they can afford something else, they have chosen to live in the eco-hamlet that has been built in the village. It's more convenient for the children while parents move around on an electric bicycle. The hamlet innovates by isolating the buildings from the land and experimenting with reversible housing. All inhabitants, lower income households, have been trained to build their own homes. These are tiny wooden-framed reversible houses for under €15,000 that require no foundations. They are designed in partnership with an architectural school. The land belongs to the municipality and made available under a long-term lease for €5,000 a year, shared among ten young couples who live in what is also a third place for ecological transition training and innovation.