

# Lifestyles in transition: challenges and opportunities of their integration in low- carbon pathways

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While the question of lifestyles, including different perspectives on their possible future evolution, has long been central to ecological thinking, the explicit integration of this dimension within the framework of decarbonisation pathways is a relatively recent development. Narrative components and quantified hypotheses are gradually being introduced in the decarbonisation discussion and becoming the subject of investigation, alongside the more conventional technical and economic discussions (e.g. on the development of renewable energy, electrification, agricultural intensification, etc.).

This renewed focus responds in particular to the gap between the limited progress made on emissions reductions in the past 30 years and the increasingly ambitious climate objectives being set in light of new scientific knowledge regarding likely impacts. The extent of the transformation in all economic systems needed is gradually becoming clearer, as is the need to integrate carbon neutrality objectives into global development pathways.

The carbon neutrality objective presents considerable challenges to traditional approaches to modelling decarbonisation pathways and on modellers responsible for finding emissions reductions pathways. This somehow leads to a shift in approach: rather than identifying the best options, an “all of the above” approach is now required that presents all available and viable options and mobilises all available resources. This includes not only technical solutions, but also strong demand-side measures (efficiency and sufficiency).

Amidst increasing awareness and growing media attention on individual action and lifestyle changes, it is crucial to understand how these societal aspects can be integrated structurally in the analysis of long-term decarbonisation pathways and included as a core component of debates on policies and actions. This *Issue Brief* clarifies the challenges and, based on the analysis of foresight exercises, provides conceptual frameworks that can help navigate the issues and structure political discussions.

## KEY MESSAGES

Three challenges must be tackled in order to better integrate lifestyle changes into low-carbon pathways:

- Acknowledging the political dimensions of an exploration of lifestyles
- Overcoming barriers to multidisciplinary approaches
- Promoting new methodologies for pathway design

Addressing these challenges and better integrating lifestyles into the scenarios would bring four benefits to policy discussions based on foresight studies:

- Overcoming the limits of current techno-economic pathways in understanding and implementing the transition
- Exploring new types of transformative decarbonisation pathways that better combine techno-economic changes and social evolution
- Making these pathways more concrete for citizens
- Better integrating of social sciences and social dimensions (inequalities, SDGs) into climate change expertise, discussions and policies

## 1. A NEW EXPLORATION SPACE FOR MAJOR LOW-CARBON FORESIGHT STUDIES

**What.** There has historically been a disconnect in the academic literature between the exploration of lifestyle and behaviour changes in the transition and the assessment of mitigation pathways. This is explained by the centrality of IAMs (*Integrated Assessment Modelling*), the predominance of techno-economic pathways, and the fact that the expertise was produced mainly by engineers, economists and modelers (Cointe *et al.*, 2019; Rosenbloom, 2017).<sup>1</sup> This is now changing and recent works have opened a new space for analysis, as evidences, for example, by a new suite of scenarios in the IPCC 1.5 Special Report (van Sluisveld *et al.*, 2016; Grubler *et al.*, 2018; Vuuren *et al.*, 2018).<sup>2</sup> A look at the French and European contexts confirms this shift: several recent studies and national roadmaps explore lifestyles and behaviour changes for low-carbon pathways.

**How.** The review of recent works shows that lifestyles and behaviours are considered as additional solutions, rather than fundamental elements of the transition. These levers are mostly used to produce an additional reduction, not in a broader perspective of sustainable development. The analysis of hypotheses included in the recent studies confirms that this integration is still in its early stages: the choice of dimensions taken into account is not always justified and holistic; the indicators are often fragmented or too aggregated; the methods for setting assumptions are not always explained (e.g. whether the analysis is of current changes or is a normative point of view on the future); finally, these changes are most often analysed from a climate perspective, while the SDGs would provide a more holistic and relevant framework (Rogelj *et al.*, 2018).

## 2. WHAT CONTRIBUTION OF THE INTEGRATION OF LIFESTYLES TO POLITICAL DEBATES?

Our analysis of potential contributions builds on the idea that foresight studies are both a knowledge endeavour and a tool for action. In terms of knowledge, it allows for exploration of the range of possibilities and provides a systemic vision that respects the known constraints. For example, it means exploring the feasibility of limiting global warming while preserving the functioning of the global economy. Foresight studies can reveal tensions between different objectives or values, as well as trade-offs between options. On another level, foresight studies make it possible to create common visions and a common language

for different actors working together. In terms of political intervention, an actor can mobilise foresight to create a new vision and try to modify the terms of a debate, its framing and collective representations within a certain community. The prospective method is also a tool for action through coordination and creation of a common language, in the sense that it identifies variables, phenomena, and critical questions that provide a shared focus for discussions.

Better integration of lifestyles and behaviours could make enhance political debates in four key ways, each of which combines knowledge and action.

**a) Highlight the limits of current strategies and emphasise the social nature of the transition.** Current foresight methodologies and modelling tools have entrenched a standard form for representing technological and societal changes. This path dependency results in a narrowed perspective that reduces the range of factors and options considered, thereby reducing the usefulness of the resulting scenarios. In short, there is a tendency in techno-economic scenarios to consider the demand for a service (e.g. energy, food or mobility) as a natural, intangible factor (Shove, 2004), when it is actually the result of an interaction between society and the development of certain technical systems, and is therefore bound to evolve in the future. Further analysis of the question of lifestyles and behaviours therefore makes it possible to not only widen the perspective, but also to show the limits that such simplification of individuals' behaviours impose on current efforts to model decarbonisation pathways (McCollum *et al.*, 2017).

**b) Broaden the scope to include non-technical solutions and explore other pathways.** Demand for both energy and food is a "dimensioning" variable that structures the possible transformations of techno-economic systems. Opening up this space makes it possible to explore transformations that would not otherwise be considered. In their 1.5°C decarbonisation scenario, Grubler *et al.* (2018) note that significant reductions in energy demand through efficiency and rational use can reduce the size of the overall energy system, which "creates the necessary space for a feasible supply-side decarbonisation within a 1.5 °C emission budget without the need for negative emission technologies". Similarly, dietary changes could contribute to a transition to agro-ecology in Europe, even as productive models predict lower yields (Poux & Aubert, 2018). The goal is not to further entrench a dichotomy between technical and societal solutions, but to propose different transition pathways that include a broader set of technological and societal changes and consider the full range enabling conditions, including social, cultural, and institutional aspects. Exploring these novel pathways can ultimately help us to understand the role of lifestyles in the transition and identify options for effecting change.

**c) Build a common language and paint a picture of daily life in a low-carbon world.** Some studies, particularly in the French context, have translated decarbonisation scenarios into household "portraits" - descriptions of daily life in a low-carbon

<sup>1</sup> See also this call for contribution for the future Chapter 5 of the new IPCC report - Environmental Research Reviews <https://iopscience.iop.org/journal/1748-9326/page/Demand-Side-Solutions>

<sup>2</sup> <https://www.ipcc.ch/sr15/>

future. Such descriptions help us imagine the practical realities of life in a low-carbon world, enrich the common language of climate foresight studies, and broaden the scope of discussion and debate. Furthermore, description of diverse scenarios encourages us to consider household profiles that are often overlooked or on groups that may face the biggest challenges in a transitioning society, rather than focussing primarily on a theoretical "average" person or family. This could prove useful in sharing the challenges of the transition with citizens.

**d) Foster increased knowledge of social transformations and discourage "siloeed" thinking.** Exploring the future makes it possible to prepare now for changes, whether technical or social, that take time to implement. The creation of a narrative, a vision that incorporates a discussion on lifestyles and is shared by all the actors involved, would facilitate this coordination and anticipation. The objective is not to agree on the endpoint, but to familiarise society with the notion that transformation is possible and to gradually inform the political debate. This should encourage us to strengthen our knowledge of societal changes and to build a new common language on this subject. For example, the French "National low-carbon strategy" explores new fields, which revealed gaps in knowledge that experts must now try to fill. Finally, narratives that include lifestyles may better connect with the Sustainable Development Goals, in particular the challenges of inequality, poverty and sustainable consumption.

### 3. UNDER WHAT CONDITIONS? OBSTACLES TO EXPLORING FUTURE LIFESTYLES

#### Obstacle 1: Acknowledging the political dimension

Experts on foresight studies and modellers observe that lifestyle changes are more politically sensitive than other elements of the transition, such as energy efficiency. An exploration of lifestyles is likely to confront policymakers with a range of pre-existing social issues (inequality, economic growth, etc.). At the same time, hypotheses for lifestyle change are inherently complex, so it can be hard to make a strong case for their credibility, to describe the public policies that would allow them to be implemented, and to discuss their ambition (i.e. under what conditions is a certain lifestyle feasible?).

These elements raise questions about the science-decision interface. For example, the exploration of lifestyles within the IPCC framework can be considered as constrained by its mandate, which is defined by States (Sanwal *et al.*, 2017) public debate has shifted from concerns about the reliability of model-based climate projections to national legislators considering questions of when, where, and how to modify longer term trends. However, modeling remains the essential scientific tool by which the climate problem is defined assuming that society

and the economy can be transformed, actually re-engineered, with relative ease. Inputs from the IPCC to the new governance process, the global 'stocktake', suggesting solutions will now influence deliberations between stakeholders, national actions and global cooperation. How best to shape a different science architecture and agenda linking science with both policy and society requires, for example, giving as much importance to reports of multilateral bodies and business consultancies as to peer-reviewed literature. This paper lays out some ideas how legitimacy can be maintained even as the IPCC recommends policy options and not just advice that is policy relevant. The IPCC, in its expert work, cannot be policy prescriptive, but must simply synthesise and organise the available scientific knowledge to provide policy-relevant information. However, the very nature of approaches that integrate changes in social practices would make debates about value and interest more explicit, and potentially make the approach less politically neutral (Rosenbloom, 2017).

Historically, the illusion of the neutrality of techno-economic trajectories has propagated this "policy relevant" paradigm and such processes have not developed prescriptive policy recommendations. This dynamic is particularly relevant to the modelling community, which has organised itself around the aim of providing policy-relevant information and has acquired a central place in the IPCC's process (Cointe *et al.*, 2019). In aiming to provide policy-relevant information, this community may have triggered a feedback loop that constrains its analysis: the community identifies the policy it believes is pertinent and aims to deliver scenarios relevant to that policy; but scenarios built around this common vision can in turn frame the political debate, which itself then contributes to determining what is politically relevant.

#### Obstacle 2. The challenges of multidisciplinary approaches

Foresight studies has traditionally been the domain of economists, engineers and modellers, with limited integration of the social sciences. Modellers may therefore face questions as to their legitimacy with regards to societal dimensions, due to their lack of training in these disciplines. Sociologists often deplore the fact that experts with technical profiles take the initiative to formulate hypotheses about behaviours, on the basis of their own personal experience, and with the risk of ignoring the results of social science research. In cases where the multidisciplinary team includes expertise in social sciences, a number of methodological difficulties will arise. There is a fundamental difficulty in projecting lifestyles and behaviours into the future: social sciences are not well equipped methodologically to contribute to modelling and foresight approaches and their conclusions are generally less normative. Economic projections are based on the universal and timeless *homo economicus* model and thus relies on a simplified view of human behaviour that emphasises rationality, regularity and predictability; sociology instead highlights diversity, complexity, and changes in values and practices. These considerations are found in the literature on the integration of

widely used techno-economic approaches with socio-technical and political approaches to mitigation trajectories (Geels *et al.*, 2016; Rosenbloom, 2017).

### Obstacle 3. Developing new pathway design methodologies

Obstacles 1 and 2 identified various methodological challenges associated with the political sensitivity and the multidisciplinary dimension of lifestyles exploration. Other challenges lie in the models themselves: a strong simplification of the drivers of demand and sometimes a direct dependence of demand (for energy, mobility) on GDP; an important aggregation (e.g. national average). Moreover, bridging social sciences and modelling sciences faces epistemic problems: their scientific approach is based on different perspectives and philosophies (Geels *et al.*, 2016). This raises both theoretical and practical issues. On a theoretical point of view, it means that unifying or closely integrating low-carbon pathways modelling and social sciences is probably not feasible. In practice, this means that new prospective methodologies must be developed that are able to facilitate a fruitful dialogue between disciplines and integrate existing concepts (Geels *et al.*, 2016; Waisman *et al.*, 2019).

#### Changing perspective means:

- Denouncing appearances of neutrality of “classical” scenarios: they implicitly make assumptions about our future lifestyles. Technical choices are also societal choices.
- Reversing the burden of proof for credibility and certainty: the conventional wisdom is that technical changes are more easily implemented than lifestyle changes, but the reality may be the opposite (e.g. implementing ambitious retrofitting policies has proven challenging in France, whereas we observe a reduction of meat consumption). Credible scenarios cannot be developed without a balanced analysis.

- Going beyond averages and aggregates to reveal inequalities and diverse living situations, lifestyles and behaviours (e.g. there is no “average diet” given the wide range of individual dietary choices). Historical perspectives can be useful for highlighting how lifestyles can evolve over time. “Average” scenarios cannot reflect the complexity and heterogeneity of human societies.
- Mobilising a more representative range of expertise and strengthening multidisciplinary collaboration to better address the uncertainties associated with lifestyle changes. The growing integration of social science researchers should be supported (e.g. author composition of Chapter 5 of the AR6). Comprehensive scenarios cannot be developed from a limited range of expertise.

#### New valuable approaches could:

- Adopt a pathway design framework that combines storylines and quantitative indicators, places stakeholder dialogue at the heart of the process to formulate narratives and discussion on uncertainties, and provides flexibility in quantification tools (Waisman *et al.*, 2019).
- Develop iterative approaches allowing modellers and social scientists to develop together the framing process and the choice of key hypotheses (Geels *et al.*, 2016; La Branche, 2019).
- Develop carbon footprint methods in order to adopt a consumption perspective that reveals other dimensions of lifestyle changes and explore complementary new foresight tools, such as portrait methods and narratives.

#### REFERENCES

See detailed references in Saujot, M., Waisman, H. (2020). Mieux représenter les modes de vie dans les prospectives énergie-climat. Iddri, *Étude* N°02/20: <https://www.iddri.org/sites/default/files/PDF/Publications/Catalogue%20Iddri/Etude/202002-ST0220-modes%20de%20vie%20prospective.pdf>

Citation: Saujot, M., Waisman, H. (2020). Lifestyles in transition: challenges and opportunities of their integration in low-carbon pathways, IDDRI, *Issue Brief* N°01/20.

This article has received financial support from the French Environment and Energy Management Agency (ADEME) and the French government in the framework of the programme “Investissements d’avenir”, managed by ANR (the French National Research Agency) under the reference ANR-10-LABX-14-01.

The authors would like to thank Glen Wright for his useful reading and comments.

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