



Low-carbon futures and sustainable lifestyles: A backcasting scenario approach



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ABSTRACT

This study suggests a backcasting scenario method for understanding the relevance of lifestyle-level changes in low-carbon futures. Even though different scenario approaches to low-carbon futures have emerged in recent years, the main focus has been on macro-level development and the lifestyle-level change has been neglected. Focusing on changing lifestyles and social innovation, the outcome of this study is four scenarios depicting the path towards low-carbon futures. The purpose of the scenario study is to describe links between the significance of emerging lifestyle patterns and infrastructure, policy and technological development. Despite the normative constraint regarding material footprint, the scenarios offer a diverse set of lifestyle patterns. The study answers the following question: what lifestyle-level changes could have potential to drive the transition towards low-carbon futures that are within planetary boundaries. We suggest that lifestyle-level scenarios on low-carbon society could have an impact in empowering relevant early adopter groups to become gatekeepers of low-carbon transition.

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1. Introduction

Over the course of the last decade, only a few phenomena have shaped the way futures are discussed more than greenhouse gas emission reduction targets that many countries and cities have adopted in their official policies [1,2]. Although varying in their formal status (some countries have binding climate laws, others merely indicative guidelines for forthcoming policies), these targets often reach to 2050. Set radical emissions reduction levels (–80 to –95%) have extended the usual time horizon of political debate and introduced future carbon intensity of technical and social systems as relevant planning principles.

Projected changes in infrastructure and production patterns inspire people to think what life would look like when the shift to low-carbon society has taken place in its various forms. “Will life be more complicated,” “Where do I get my income

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from,” “What do we eat, how do we travel from place to place,” and “What does my neighbourhood look like” are all relevant questions when talking about the distant future and a quantitatively radical drop from current emissions figures.

To understand the logic of projected transformation towards low-carbon futures (of energy and transportation systems), different types of future scenarios are often employed. Because the context is defined by a long-term target (emissions level in 2050), the scenarios are usually constructed following the so-called backcasting approach: looking back from future where a desired goal has been met and creating decisive steps and pathways to present day. The most suitable domains for this type of normative approach have been large energy and transportation systems, where long-term investments in infrastructure and economic incentives are the determining factors and thus quantified models depicting possible pathways can be based on these techno-economic drivers.

However, until very recently, systematic scenario studies depicting possible changes in lifestyles and social structures as parts of low-carbon transition have been few [3, p. 881]. Although changes in big industrial systems and infrastructure are the domains with the greatest potential in bringing about a sufficient level of emissions reductions, there are also good reasons why the future of lifestyles is worth exploring in the context of low-carbon futures. Firstly, taken into account how large the envisioned change (–80 to –95% over 40 years) is, it is somewhat likely that transitional changes in technology, economy, laws, and value structures lead into changes in lifestyles as well. Secondly, both the adoption of new technologies and advancements in policies are dependent on social structures and changes in behavioural patterns. Lead-users with experimental lifestyles and living patterns offer a platform through which new technical solutions can find their way to wider audiences and markets [4,5]. For instance, a company offering a service for shared car usage today can serve as an agent for change for the society tomorrow.

In this article, we describe how the use of backcasting scenarios was extended from infrastructural analysis to depicting future lifestyles and changes in social structures. The normative goal used in defining these scenarios is sustainable society, where annual per capita material consumption has reached a level that is estimated to be globally sustainable. By defining our goal through figures on material consumption, our approach on sustainable society and sustainable lifestyles thus expands the scope of low-carbon society to cover a wider range of “planetary boundaries” – such as biodiversity loss, depletion of phosphate stock and acidification of oceans [6].

The paper is structured as follows: Section 2 briefly summarises key research developments as regards the future of sustainable lifestyles, their potential role in a transition towards sustainable society, and backcasting scenarios as a method. In Section 3, a scenario approach implemented in a European Commission funded research project called SPREAD – Sustainable lifestyles 2050 is described and analysed. In Section 4, the four scenarios are deeply introduced through scenario narratives and triggers that bring about change to sustainable lifestyles. Finally, Section 5 discusses the relevance of the backcasting approach as regards research on sustainable lifestyles and mainstreaming of practices (policies, R&D, entrepreneurship, and civic activities) that support the adoption of sustainable lifestyle patterns.

2. Lifestyles approach to sustainable futures

2.1. Making lifestyle-level transitions to sustainable society

The questions “what are sustainable lifestyles” and “what could sustainable lifestyles in look like in the future” have their origins in the wider discussion on sustainable development. In this discourse, sustainable lifestyles constitute a fairly new concept. It was first introduced at the United Nations Commission on Sustainable Development (CSD) conference in 2004 [7].

There are three distinct focal points that have dominated the agenda of sustainable development in the past decades: cleaner production (e.g. end-of-pipe pollution control), the question for local action and participation, and sustainable consumption [3]. Concentrating solely on the production side of sustainable development overlooks the fact that our consumption levels have multiplied six-fold since the 1960s and consequently form a significant part of the current environmental burden [8]. Similarly, it would be unrealistic to limit the analysis of people’s behaviour to consumption as it is well known that behaviour is a result of a complex mix of different values, attitudes, surrounding infrastructures, and other factors [9]. While each angle towards sustainable development provides a fruitful starting point, the need for a comprehensive approach linking the different focal points has become evident.

In recent years, sustainable lifestyle choices have become increasingly relevant and accessible options for European consumers thanks to a rise in localised social innovation experiments, an improved supply of eco-efficient goods and services, and increased coverage of sustainability issues in the media raising awareness in the public debate. In public discourse on lifestyle choices, “sustainable lifestyles” often refers to the patterns of action and consumption used by people to affiliate and differentiate themselves from others [8].

However, the formation of sustainable lifestyles cannot be studied merely as something resulting from choices by individuals and groups. Lifestyles are a combination of choices and habits embedded and shaped by our surroundings and context, be they social, cultural, technological, political, economical, or institutional. Also, the ways everyday human behaviour and lifestyles translate into environmental stress are complex [8]. Hence what is needed is understanding of the interplay between individual choices and larger macro-level changes (in technology, infrastructure, policy, economic structures and culture).

How to approach sustainable lifestyles from the viewpoint of transitions to a low-carbon, sustainable society? How would the future of sustainable lifestyles differ from a future of lifestyles in general? As for society-wide level of greenhouse

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