NET ZERO+
Building Climate
and Economic Resilience

Unlocking the potential of demand-side climate mitigation strategies

OECD Net Zero+ | Policy Papers No.9

OECD
BETTER POLICIES FOR BETTER LIVES

Disclaimers

This document, as well as any data and map included herein, are without prejudice to the status of or sovereignty over any territory, to the delimitation of international frontiers and boundaries and to the name of any territory, city or area.

For more information on the OECD's Horizontal Project on Climate and Economic Resilience, please visit: https://www.oecd.org/en/about/programmes/net-zero-building-climate-and-economic-resilience.html

Abstract

Demand-side climate mitigation policies aim to influence demand for goods and services by end-users in order to promote low-carbon consumption patterns and lifestyles. Despite their significant mitigation potential, demand-side policies remain relatively underutilised to date. Encouraging behaviour change towards more sustainable choices requires understanding and addressing the drivers of end-users' decision-making in various contexts. This paper draws on recent reports and data to take stock of OECD work on demand-side mitigation strategies. It reviews available evidence on their effectiveness, on enabling factors and barriers, and offers recommendations for effective implementation, with special focus on four sectors key to demand-side mitigation: energy use in buildings, transport, diets, and waste.

Acknowledgements

This paper was prepared by Cian Montague (OECD Environment Directorate). It was developed under the OECD Horizontal Project on Climate and Economic Resilience, under the guidance of Enrico Botta, Team Lead, and the overall oversight of Kumi Kitamori, Deputy Director (Environment Directorate). It received feedback from a number of OECD experts, including Kristina Feikova, Katherine Hassett, Elisa Lanzi, Mariana Mirabile, Kilian Raiser and Anais Rault (Environment Directorate); Mia Drazilova, Francesca Papa, Pradnaya Pathak and Chiara Varazzani (Public Governance Directorate); Brigitte Acoca, Harriet Gray, Nicholas McSpedden-Brown and Jan Tscheke (Directorate for Science, Technology and Innovation); and Céline Giner and Lee Ann Jackson (Trade and Agriculture Directorate); as well as Leonie Staas (International Energy Agency). The paper was edited by Amelia Smith (Environment Directorate).

The paper builds on the work of several OECD committees and associated bodies, including (in alphabetical order): the Committee for Agriculture, Committee on Consumer Policy, Environment Policy Committee, International Energy Agency, and Public Governance Committee.

The Net Zero+ project

The OECD's Horizontal Project "Net Zero+: Building Climate and Economic Resilience" harnesses the multidisciplinary reach of the OECD to support governments in driving the swift transformational change needed to tackle climate change. The project provides analysis and insights for governments to accelerate and scale up climate action: driving a rapid and resilient transition to net-zero while building economic and societal resilience to the impacts of climate change.

Table of contents

FIGURES

Executive Summary

Demand-side climate mitigation strategies aim to influence demand for goods and services by end-users in order to promote low-carbon consumption patterns and lifestyles. They can lead to significant greenhouse gas (GHG) emissions reductions across all sectors. The Intergovernmental Panel on Climate Change (IPCC) estimates that demand-side mitigation strategies could potentially reduce GHG emissions in key end-use sectors – buildings, land transport, and food – by 40-70% globally by 2050.

This paper presents work on demand-side mitigation policies carried out by the OECD and IEA over the 2023-2024 biennium. It provides overarching considerations for policymakers considering demand-side strategies, as well as specific analysis on four sectors key to demand-side mitigation: energy use in buildings, transport, diets, and waste.

Key messages

- Despite their mitigation potential, demand-side policies remain relatively underutilised to date. Encouraging behaviour change towards more sustainable choices is a key component of demand-side strategies**.**
- Policies aimed at low-carbon behaviour change need to take into account the most important factors influencing end-users' decision-making: affordability, availability, and convenience. For example, promoting energy conservation through support for household investments in energy efficiency can drive demand-side change by addressing affordability concerns. Investing in infrastructure can shift transport towards greener options by improving the availability and convenience of low-carbon alternatives.
- Empowering people to make sustainable choices relies on providing them with clear and accurate information on the environmental impacts (e.g. carbon footprint)[1] of goods and services. A variety of approaches is available to policymakers to improve the transparency and accuracy of this information, including regulation, business guidance, certification schemes, and consumer education.
- Policies aimed at extending product lifecycles can help to reduce material consumption and associated emissions. This includes measures to strengthen the right to repair and to tackle planned obsolescence and other barriers to product durability, reusability, and recyclability. Ensuring that products remain safe throughout their lengthened lifecycle is key.
- Behavioural science can enable governments to design and implement more effective interventions. Tools such as green defaults, social influences and choice architecture have been shown to be effective in promoting behaviour change across sectors.
- Demand-side policies should be tailored to specific sectoral requirements and features, for example:
    - **Energy use in buildings:** Effective demand-side approaches to reduce emissions from energy use in buildings require shifts to low-carbon technologies and actions to reduce energy consumption. Policy packages comprising financial incentives, information provision,

regulation, and mandatory standards are needed to overcome barriers to behavioural change in this sector.

- **Transport:** Transformative policies are needed to decrease reliance on cars, such as reallocating road space to make active modes of transport more attractive, along with increasing investment in public transit systems. Improvements to infrastructure (e.g. charging stations), along with subsidies, can be used to incentivise the adoption of electric vehicles.
- **Diets:** To the extent that plant-based proteins are generally associated with lower environmental impacts relative to meat, increasing their affordability relative to meat is likely to be effective in reducing emissions associated with diets. Achieving dietary shifts is complex, however, as food choices carry cultural and personal significance. Affordability, taste, freshness, and nutritional value of food products tend to matter more to consumers than environmental impacts. Communicating the co-benefits of more environmentally sustainable diets, notably related to health and affordability, could encourage wider adoption of sustainable eating habits among consumers.
- **Waste:** Reducing waste generation and diverting more waste to recycling are key demand-side mitigation objectives. Providing recycling collection services and implementing waste charging schemes can contribute to waste reduction. These policies have also been associated with increased demand for sustainable consumption.

1 The mitigation potential of demand-side climate policies

Demand-side climate mitigation policies are those policies that aim to influence demand for goods and services by end-users in order to promote low-carbon consumption patterns and lifestyles. In contrast to supply-side mitigation policies, which focus on reducing emissions in the production of goods and services (e.g. energy generation or vehicle manufacturing), demand-side policies target consumers and users of goods, services, infrastructure, natural resources, and energy.[2] As populations – and in many countries, disposable incomes – continue to grow, global demand for energy and raw materials, as well as their associated environmental footprints, are expected to increase without effective policy intervention (OECD, 2024[1]).

Demand-side strategies can facilitate significant greenhouse gas (GHG) emissions reductions across all sectors. Climate mitigation strategies and policies to date have primarily targeted supply-side action, with demand-side policies underutilised despite their significant potential (Mundaca, Ürge-Vorsatz and Wilson, 2018[2]; Creutzig et al., 2023[3]). The Intergovernmental Panel on Climate Change (IPCC) estimates that demand-side strategies have the potential to reduce GHG emissions in key sectors (buildings, land transport, and food end-use) by 40-70% globally by 2050 (Creutzig et al., 2023[3]). Demand-side policies include price-based measures (e.g. taxes and subsidies), and non-price-based measures (e.g. regulation, mandatory standards and information provision). Importantly, demand-side strategies can offer significant co-benefits Box 1.

The Avoid-Shift-Improve (ASI) framework used by the IPCC provides a useful way to conceptualise demand-side actions. *Avoid* actions focus on reducing consumption and use where possible (e.g. working from home instead of commuting via public transport or personal vehicle). If avoid actions are unavailable, *shift* actions focus on moving to less carbon-intensive technologies or methods of service provision (e.g. cycling or walking instead of travelling by car). If shifting is not possible, *improve* actions focus on decreasing the emissions intensity of existing products or services (e.g. using a battery electric vehicle (BEV) instead of an internal combustion engine vehicle (ICEV)). *Avoid* options are first-best options in that, by decreasing overall demand, they reduce the need for *shift* and *improve* actions. For example, designing more compact cities can reduce overall demand for transport, reducing the passenger-kilometres that need to be shifted to active transport modes or public transport, and reducing ICEV journeys that would need to be improved with BEV journeys or more efficient ICEVs. Similarly, reducing overall energy demand facilitates energy decarbonisation, as it limits the clean energy capacity additions needed to replace fossil fuels (Creutzig et al., 2023[3]; Errendal, Ellis and Jeudy-Hugo, 2023[4]).

The structure and rules of systems make some choices more feasible and attractive than others, exerting a powerful influence on people's behaviour. The most impactful policies to reduce greenhouse gas emissions are those that sustainably transform the systems[3] that drive demand. The success of these measures in promoting behavioural shifts depends on providing consumers with more sustainable alternatives. As such, demand-side policies that focus on transforming systems by targeting infrastructure or technologies hold the greatest potential. For example, the uptake of public transport instead of private car use requires high-quality, widely available and affordable supporting infrastructure.

Policy mixes that include demand-side measures must be carefully designed to ensure coherence and leverage synergies. Non-price interventions, such as green defaults, are often most effective when price signals are also in place (Creutzig et al., 2023[3]). Moreover, demand- and supply-side measures are complementary and interdependent: unlocking synergies between the two and ensuring correct policy sequencing[4] is key to maximising their mitigation potential.

Box 1. Co-benefits of demand-side mitigation strategies

Demand-side strategies to cut GHG emissions can offer important co-benefits including cost savings, reduced pollution and preservation of biodiversity and human health. Such benefits are conducive to overall improvements in well-being, but are not always considered in ex ante policy assessments.

Demand-side strategies can lead to more equitable outcomes and are thus complementary to principles of just transition. In any given country, the highest income groups tend to offer the greatest potential to reduce consumption. Reducing demand for high-carbon consumption items (e.g. larger cars and houses) among the most affluent could have an important impact on climate goals. Similarly, advanced economies offer more potential to reduce demand, e.g. by curbing wasteful energy use and food consumption. Effective and well-designed demand-side strategies can also align with expanding consumption needs in many developing countries.

Measures to improve equity can also support the effectiveness of demand-side mitigation strategies. Widespread changes to lifestyles require societal support. Demand-side measures are more likely to be embraced by the public if they are perceived as fair, transparent, and non-discriminatory. Providing space for the participation of marginalised groups has been shown to increase both social acceptance and the effectiveness of such strategies. Actions to minimise the financial or social cost of demand-side policies (e.g. targeted revenue recycling to avoid a regressive effect from a carbon tax) can also improve people's ability to make sustainable choices.

Source: (Creutzig et al., 2023[3]) (OECD, 2023[5]).

This paper outlines insights related to demand-side mitigation actions that apply across all sectors. It then focuses on three key end-use sectors (as identified by (Creutzig et al., 2023[3])) that offer significant demand-side mitigation potential: energy use in buildings (Section 3), transport (Section 4) and diets (Section 5), followed by the waste sector (Section 6), as decreasing overall waste production can contribute to lower emissions across the board.

2 Overarching approaches to demand-side mitigation across sectors

Household attitudes and behaviour regarding climate change

Household consumption contributes more than 60% of global greenhouse gas emissions, with public, non-governmental and financial sources accounting for the remainder (Liu et al., 2020[6]). This exerts pressure on the environment in terms of natural resource management, land-use change, and pollution (OECD, 2023[5]). Everyday choices provide opportunities for households to adopt climate-friendly behaviours and reduce their carbon footprints. The OECD Survey on Environmental Policies and Individual Behaviour Change (EPIC) provides insights into the drivers of household choices with environmental implications, and how these decisions interact with government policies (Box 2). This section presents cross-sectoral insights from the EPIC Survey, while sectoral results regarding energy use in buildings, transport, diets and waste are discussed in Sections 3 to 6.

Box 2. The OECD Survey on Environmental Policies and Individual Behaviour (EPIC)

The OECD Environmental Policies and Individual Behaviour Change (EPIC) Survey explores the drivers of household behaviour and how environmental policies may affect decisions in key consumption areas. Following two previous rounds of the EPIC survey in 2008 and 2011, the OECD implemented a third round in 2022 to more than 17,000 households across nine countries: Belgium, Canada, Israel, France, the Netherlands, Sweden, Switzerland, the United Kingdom and the United States. The survey collected information on self-reported environmental behaviours related to energy, transport, waste, and food, as well as respondents' attitudes towards various environmental issues and policies. Respondents were asked to report either their actual behaviour or how they would behave in given hypothetical situations.

The EPIC survey also recorded the socioeconomic characteristics of respondents, as well as details about their residences and locations. As such, survey data allow for disaggregation at the household level to understand how behaviours and attitudes vary across populations according to factors such as location, age, income and gender. This can provide useful information on how individual-specific factors can influence environmental behaviours and preferences for different types of environmental policy instruments.

The main descriptive findings of the EPIC Survey are reported in OECD (2023[5]), with more in-depth thematic analysis published in a series of working papers on energy use (Hassett et al., 2024[7]),

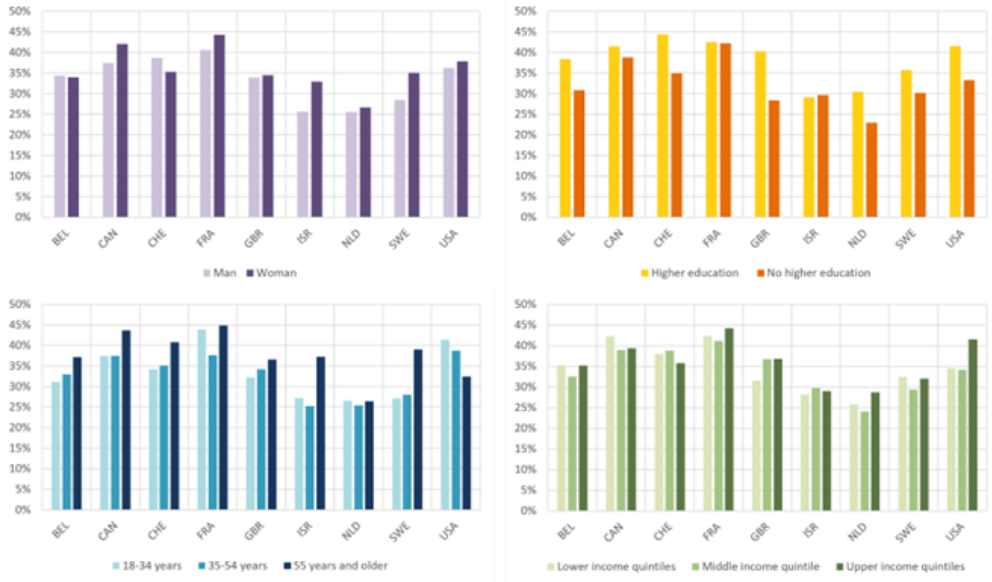
transport (Tikoudis et al., 2024[8]), waste (Brown, 2024[9]) and food consumption (Hassett et al., 2025[10]).

Source: (OECD, 2023[5]).

Climate change is a significant concern for populations, but not the top one. A significant proportion (35%) of EPIC Survey respondents considered climate change or other environmental issues to be a very important issue of concern (personal safety and economic concerns ranked higher, with 42% and 41% respectively). Across many countries, concern for climate change and the environment tends to be expressed to a greater extent by women, respondents with higher education[5], and older segments of the population (Figure 1) (Box 3). While most respondents (65%) expressed willingness to make lifestyle compromises for the benefit of the environment, almost as many (63%) indicated that these compromises should not incur extra costs. These results are broadly confirmed by other OECD research. The OECD Survey on Drivers of Trust in Public Institutions (OECD, 2024[11]) finds that, across 30 OECD countries, only 21% of the population considers climate change or other environmental threats to be among the top three most important policy issues, a much lower share compared to other concerns such as rising prices or inflation (59%) and poverty and social inequality (33%). Another OECD survey of over 35,000 consumers across 18 countries finds that most respondents are concerned about the environment (68%) and willing to make sacrifices to protect it (60%), with more support for these statements in five middle-income Latin American and ASEAN economies and among consumers with high incomes, high levels of education, and, to a lesser extent, women (OECD, 2025, forthcoming[12]).

Figure 1. The importance of environmental issues varies across gender, education, age, and income

Percentage of respondents rating climate change and environmental issues as “very important”



Note: The survey item asked respondents: “How important are each of the following issues to you personally?”. Respondents rated the level of importance on a 5-point scale from “not at all important” to “very important”. The figure shows the percentage of respondents rating climate change and environmental issues as “very important” (exclusively respondents stating 5). Lower-income quintiles refer to income quintiles 1 and 2, middle-income quintile refers to income quintile 3, and upper-income quintiles refer to income quintiles 4 and 5.
Source: (OECD, 2023[5]).

EPIC Survey results indicate that availability, affordability, and convenience are key drivers of household decisions. While policies often focus on the affordability of low-carbon options, ensuring that such options are available in the first place and convenient for consumers to choose is also important if they are to become the most attractive choices for populations (OECD, 2023[5]). This underscores the importance of a systems approach to demand-side policies, i.e. if an existing system makes carbon-intensive options the most widely available, affordable, and convenient, it will be more difficult for new policies to influence household behaviour towards more sustainable alternatives (e.g. from private cars towards soft mobility in cities).

Environmental awareness continues to be important to promote sustainable choices. Household attitudes, including environmental concern and a sense of personal responsibility to reduce one's environmental impact, are associated with more sustainable choices and greater support for environmental policies. This suggests that efforts to increase environmental awareness can also garner support for some types of environmental policies (OECD, 2023[5]).

Policymakers can leverage existing patterns of public support to advance climate policies. EPIC Survey respondents systematically expressed less support for taxes and fees than for measures that make sustainable alternatives more affordable, such as subsidies. Combining taxes and fees with complementary measures that make low-carbon alternatives feasible and affordable could increase the acceptability of climate policy packages. For example, tax revenues could be recycled to fund improvements in public transport, which enjoys high levels of support, increasing the attractiveness of public transport relative to private car use (OECD, 2023[5]).

Box 3. Demand-side mitigation strategies through a gender lens

Women respondents to the EPIC Survey in most countries (seven of nine countries surveyed) were more likely than men to rate climate change and environmental issues as "very important" (Box 1) (OECD, 2023[5]). Overall, 37% of women reported being environmentally motivated compared to 33% of men. More strikingly, 48% of women reported feeling vulnerable to environmental hazards compared to 39% of men (Hassett et al., 2024[7]). This is in line with findings from the IPCC (Creutzig et al., 2023[3]), that women prioritise climate change in their voting, purchasing, community leadership, and work, both professionally and at home, to a greater extent than men (see also (Giner, Hobeika and Fischetti, 2022[13])

Gendered differences in responses to the EPIC Survey can be observed across specific end-use domains. Regarding energy, women reported engaging in conservation behaviours slightly more than men. Results also suggest that environmental motivation and perceived vulnerability impact behaviour among women but not among men. In choosing energy providers, women also appear to have a higher tendency to remain with their current provider rather than switch providers (Hassett et al., 2024[7]).

Regarding transport, women appear to be less likely than men to use motorised vehicles for childcare-related trips and more likely to report walking as their main transport mode for such trips. For short-distance leisure trips, men are more likely than women to report cycling as their main transport mode. Regarding long-distance leisure trips, men report travelling more often than women, in particular by car, plane, and rail. On the other hand, men are much more likely than women to opt for a battery electric vehicle over an internal combustion engine vehicle. This disparity may originate from differing preferences related to technology: in the EPIC Survey, 37% of women agree that environmental issues will be primarily resolved through technological progress, compared to 52% of men. Policy efforts could therefore focus on emphasising the environmental benefits of battery electric vehicles, which could

increase uptake among segments of the population beyond early-adopter tech-optimists (Tikoudis et al., 2024[8]).

Regarding diets, EPIC Survey results indicate that being male is associated with a 15-percentage point greater likelihood of frequently consuming red meat, and that men appear to be more willing than women to try lab-grown meat (Hassett et al., 2025[10]). Given that women are often the main food shoppers in households, targeted policy efforts to encourage sustainable choices among women could be effective (Giner and Brooks, 2019[14]).

Another OECD survey of 35,000 consumers in 18 countries focusing on sustainable consumption attitudes, behaviours and obstacles found comparatively smaller differences by gender. For example, 69% of women stated that they were concerned about the environment compared to 67% of men. A slightly larger share of women (62%) expressed willingness to make sacrifices to protect the environment than men (58%) (OECD, 2025, forthcoming[12]).

Source: OECD.

Using behavioural science to enhance demand-side mitigation policies

Behavioural science[6] can help governments drive behavioural change. Recent OECD work analysed over 100 recent initiatives across 30 OECD and non-OECD countries that apply behavioural science to environmental policies (OECD, 2025[15]).[7] The following sub-sections highlight some emerging trends in how governments are utilising behavioural science and how this can improve the effectiveness of demand-side policymaking.

Informing climate policies at every stage of the policy cycle

Past use of behavioural science has mostly been restricted to the implementation and evaluation phases of the policy cycle (Hallsworth, 2023[16]). Concentrating on these later stages has led to a focus on a narrow set of tools that make marginal adjustments to already existing programme features (Frame, Milfont and More, 2023[17]). Integrating behavioural science from the beginning of the policy cycle offers greater potential to identify the root causes of unsustainable behaviours, drive systemic change and achieve desired outcomes (OECD, 2024[18]; Troussard and van Bavel, 2018[19]). As the practice of behavioural science matures in governments around the world, its tools and methods are increasingly being leveraged earlier in the policy cycle (Box 4).

Box 4. Harnessing behavioural science to promote climate action in Canada

In Canada, the Program of Applied Research on Climate Action (PARCA), led by the Impact and Innovation Unit within the Privy Council Office, aims to support climate and environmental initiatives throughout the policy cycle by producing new evidence on Canadian attitudes and behaviours towards climate change and government initiatives. PARCA employs scoping, longitudinal data collection, rapid online studies, experiments and in-field testing to inform policy throughout the policy cycle. Its research identifies and addresses systemic issues such as climate misinformation and trust in government and individual challenges such as adoption of eco-friendly technologies and reduction of household plastic use.

Key findings from PARCA highlight significant intention-action gaps and barriers related to awareness and affordability of pro-climate actions. PARCA's evidence guides policymakers in developing targeted strategies to overcome these barriers and ensure that policies resonate with public opinion. Ongoing research aims to refine understanding of barriers across demographics and integrate findings into national climate strategies and communication efforts.

Source: (Impact Canada, 2024[20]).

Increasing demand for sustainable goods, services and technologies

Governments can employ green defaults to speed the adoption of low-carbon behaviours.[8] Routines are stable behaviour patterns of that provide individuals with predictability and efficiency in their daily lives. Habits are automatically triggered by situational cues, often bypassing conscious thought (Verplanken and Wood, 2006[21]). This automaticity can make it difficult to change established unsustainable behaviours. It also presents opportunities, however, as routines and habits can be leveraged to establish sustainable options as defaults. For example, measures to make reusable shopping bags the default option for consumers can be a powerful way of embedding new routines and habits that generate less waste (Thøgersen and Crompton, 2009[22]).

Emphasising individuals' personal impact and agency is key. A major challenge in promoting sustainable behaviour is that the consequences of individuals' consumption and behaviours are often not immediately visible. The impacts of climate change are diffuse, sometimes geographically distant, and occur over long periods of time. Added to this are technical challenges associated with accurately measuring the impacts of personal consumption (OECD, 2025[23]; OECD, 2025[24]). These factors can make it difficult for individuals to connect their actions with long-term outcomes. Clear, tangible feedback on the environmental impact of personal consumption and behaviour can help individuals recognise the significance of their role.

Governments can leverage social influences, which often contribute to shaping individual behaviours. Individuals are more likely to engage in pro-environmental behaviours when they perceive that their peers and social groups value and practise them (Goldstein, Cialdini and Griskevicius, 2008[25]). Social proof, where people look to others for cues on how to act, is a powerful driver of behaviour, highlighting the importance of leveraging social networks and community initiatives to promote sustainability. By aligning social norms with desirable sustainable actions, for example through well-designed communication, policymakers can effectively promote widespread adoption of climate-friendly behaviours. Social influences, along with other behavioural mechanisms, can play an important role in triggering positive tipping points (Box 5).

Strategically framing how information is presented to the public can have a significant positive impact on their decision-making processes . Framing is an example of choice architecture, whereby the environment in which people make decisions is designed in a way that promotes certain choices (OECD, 2025[15]). Even when motivated to act, individuals may not change their behaviour if they perceive it as costly in the immediate term, difficult or unfeasible, or beyond their control. Framing sustainable behaviours as the societal norm can be effective in encouraging their adoption. For example, research suggests that framing messages to emphasise the social and environmental benefits of sustainable waste behaviours such as recycling can increase their perceived desirability and appeal to individuals' sense of responsibility (Kormos, Sussman and Rosenberg, 2021[26]).

Building resilience to climate misinformation

Countering climate misinformation is essential to ensuring the effectiveness of demand-side interventions. The cognitive factors that misinformation could affect, such as knowing about, believing in and being concerned about human-induced climate change, or believing in the effectiveness of given individual behavioural changes, are drivers of people's willingness to personally act in climate-friendly ways (Hornsey et al., 2016[27]). To address this, governments are increasingly harnessing behavioural science to build resilience against climate misinformation. Effective behaviourally informed strategies include inoculation to misinformation (or "prebunking"), adding prompts alongside potential misinformation, and communication on media literacy, among others (OECD, 2025[15]).

Box 5. Positive tipping points in support of demand-side mitigation

A tipping point is a critical threshold beyond which a system reorganises, often abruptly and/or irreversibly (Chen, Rojas and Samset, 2021[28]). Natural and social systems are characterised by reinforcing and balancing feedbacks, where the former promote systems change and the latter resist it. Tipping points occur when there is a shift in dominance of these feedbacks (OECD, 2025[29]). Once a tipping point has been crossed, this inversion leads to self-reinforcing change and a rapid transformation of the system from one stable state to another.

Tipping points are most associated with harmful systemic change in the natural world (e.g. ice sheet melt and the destruction of coral reefs), but they can also be positive and exist in human (social) systems. For example, the rapid deployment of renewable energy[9], particularly solar PV and wind, in many markets in recent years has consistently outperformed even the most optimistic projections. This was due to reinforcing feedbacks such as learning-by-doing and economies of scale that resulted in substantial cost reductions in renewable energy technologies, to the point where they can now compete with fossil fuels (Systemiq, (2023)[30]). Given their reinforcing and self-propelling nature, positive tipping points imply that a relatively small amount of well-targeted policy effort can deliver an outsized impact (OECD, 2025, forthcoming[31]).

Applying positive tipping to demand-side action

Understanding a system's structure and feedback loops is fundamental to identifying where to intervene to trigger positive tipping points. For example, the reallocation of road space currently used by cars and motorcycles to more sustainable transport modes could trigger a positive tipping point in transport systems insofar as it weakens the dynamic of induced car demand, and introduces inducing a new dynamic, the induced demand of sustainable modes. This can invert the relative attractiveness of shared and active transport modes compared to car or motorcycle use by making the former safer and more convenient while reducing the attractiveness of the latter (OECD, 2025[29]). This can become a self-reinforcing feedback loop as mental modes shift from car-centric mindsets towards embracing the benefits of sustainable transport.

Behavioural science can provide useful insights for triggering positive tipping points, insofar as it enables policymakers to understand and leverage the behavioural mechanisms that can influence rapid behavioural change. For example, establishing green defaults can embed sustainable behaviours among populations, creating reinforcing feedback loops. Efforts to shape social norms can encourage social contagion effects, triggering the rapid uptake of more sustainable behaviours (Judge et al., 2024[32]). The rapid uptake of face masks during the COVID-19 pandemic is an example of social contagion (BIT, 2023[33]).

Source: OECD.

Overcoming informational challenges faced by consumers

Ensuring that consumers have access to reliable and transparent information is essential to enable sustainable choices. As recognised in the 2024 OECD Ministerial Declaration on Protecting and Empowering Consumers in the Digital and Green Transition, in well-functioning markets the large number of environmentally concerned consumers worldwide have the potential to incentivise businesses to offer more sustainable and safe goods and services (OECD, 2024[34]).

However, consumers often lack access to clear, accurate and easy-to-understand information that would help them assess the climate and environmental impact of their decisions. To meet growing demand, sellers are offering more and more goods with environmental claims. But consumer access to accurate information about products' carbon footprints (and other environmental impacts) is limited due to measurement and communication challenges ((OECD, 2025[35]).

Growing concerns have also been raised about greenwashing. While there is no international consensus on a definition, the term "greenwashing" (in relation to consumer issues) can generally be understood to refer to "a commercial practice involving the making of an environmental claim which is false or misleading, including where there is inadequate evidence to support the claim". The following list provides examples of issues that have been linked to greenwashing (OECD, 2025, forthcoming[36]):

- false claims
- unsubstantiated or inadequately substantiated claims
- broad, unqualified environmental benefit claims using vague language
- claims that emphasise a positive environmental impact while hiding a negative impact
- claims that relate to only part of a good or service, but do not make this clear
- claims that a product is "carbon neutral", "carbon negative" or "net zero"
- green imagery, brand, or name
- fake or inadequate third-party certifications.

Greenwashing appears to be widespread and difficult for consumers to recognise. An international review conducted in 2020 showed that nearly 40% of e-commerce websites reviewed employed tactics that could be perceived as misleading (ICPEN, 2021[37]). One third of respondents in another international survey did not feel able to distinguish between false or unverified claims and true, verified ones (BEUC, 2023[38]). In line with this, most consumers in an OECD survey of 35,000 consumers in 18 OECD countries and non-member economies agreed with the statement that "a lot of the brands that claim to be better for the environment are no better for the environment than brands that do not make such claims" (OECD, 2025, forthcoming[12]).

Additionally, many common claims such as "recycled", "recyclable" or "carbon-neutral" appear to be wrongly or inconsistently understood. Environmentally concerned consumers appeared to be more certain about the meaning of different environmental terms, but in practice showed the same lack of understanding as less concerned consumers. Respondents also often associated at least certain environmental claims with additional, unclaimed benefits (also known as the "halo effect") (OECD, 2025, forthcoming[12]).

Greenwashing can lead to significant consumer harm (OECD, 2025, forthcoming[36]). This includes financial harm, for example, where a consumer has purchased a good or service that they otherwise would not have purchased, paid a premium based on an environmental claim, or incurred financial cost to correct the environmental performance of a product; and non-financial harm, including time loss, psychological detriment (e.g. stress or anger) from the good or service not conforming to their reasonable expectations with respect to environmental impact, and a loss of confidence in green claims from abuse of the consumer's trust and values.

While the extent of non-financial harm is difficult to quantify, erosion of consumer trust in green claims can have tangible societal costs. This could entail reduced consumer willingness to choose environmentally friendly products, especially if they cost more than less sustainable alternatives.

Greenwashing can harm businesses and economies more broadly. For example, it can put businesses genuinely committed to sustainability at a competitive disadvantage.

Governments have been developing policy measures and enforcement actions to combat misleading, deceptive, or unsubstantiated green claims, including:

- legislation and regulation
- business guidance
- consumer education and awareness
- certification schemes
- information disclosure and measurement standards
- self-regulation via industry action.

Labelling schemes can be effective in communicating information to consumers about sustainable options, but reliable third-party certification is needed.[10] Although eco-labels are widespread, a multitude of varying certifications, including private labels, may give rise to complexities for both businesses and consumers, potentially undermining their trustworthiness and effectiveness (OECD, 2025, forthcoming[36]). "Labelling fatigue" can make it challenging for consumers to absorb and understand the information provided, hindering their ability to make informed choices (OECD, 2025[23]). Results from a hypothetical choice experiment involving consumers from 18 OECD countries and partner economies suggest that respondents have difficulty distinguishing between official or third-party-certified eco-labels and fictitious eco-labels (OECD, 2025, forthcoming[12]). Importantly, both types of labels significantly and similarly increased demand for the higher-priced product perceived as "greener", highlighting possible greenwashing risks related to non-reliable labelling schemes. When levels of trust in labelling schemes are high, consumers are more likely to make use of information provided by labels, and stakeholders are more likely to implement labelling initiatives (especially when voluntary). Enablers of trust include political support, data and evidence, and the establishment of inclusive processes (OECD, 2025[23]). Improving the comparability of labelling initiatives and products can help to reduce the challenges caused by fragmentation.

Governments, consumer protection authorities, and businesses face significant measurement challenges. Calculating actual environmental impact and substantiating green claims requires the assessment of complex technical and scientific evidence. Determining the appropriate measurement method is difficult (OECD, 2025, forthcoming[36])**.**[11] For example, assessing the environmental impacts of food products requires measuring product-level impacts at all stages of the life cycle. An important question is whether this measurement should target only greenhouse gas emissions or additional environmental impacts (OECD, 2025[24]).

Extending product lifecycles

Consumer policy can more broadly support consumers' ability to consume more sustainably. This includes supporting their ability to choose more sustainable goods and services, safely and easily repair, reuse, repurpose, share, lease, recycle, and sustainably dispose of products or otherwise reduce their environmental footprint (see also Section 5), as they desire (OECD, 2024[34]). To achieve this objective, a cross-cutting, whole-of-government policy approach is often needed, of which consumer policy may form an important part (OECD, 2024[39]).

Right to repair policies are an example of such supportive consumer policies. The adoption of demand- and supply-side measures that encourage greater uptake of product repair requires consideration of competition, consumer protection, environmental and intellectual property policy issues. Such policies have their origins in addressing consumer protection and anticompetitive practices related to repair markets, such as car manufacturers limiting repairs by independent repairers. Related measures include requiring manufacturers to supply spare parts and technical information to distributors and independent repair professionals; prohibiting conduct intended to prevent repair or reconditioning of a device or software by repairers outside of the manufacturer's approved network; requiring sellers to provide consumers with better information on repairability at the point of sale and at the time repair is needed, and in some cases, financial incentives (OECD, 2025, forthcoming[40]). Mechanisms such as extended producer responsibility (EPR) can help to reduce the price of repair relative to purchase of new products. For example, under France's national EPR scheme, repair credits (in the form of rebates on repair costs) are provided to households through certified repair shops. These credits are paid for by producers through their EPR fees (Brown and Börkey, 2024[41]). Box 6 examines the use of behavioural science in the design of repairability labels.

Policy instruments and initiatives aimed at helping consumers to prolong product use include fighting planned product obsolescence and other barriers to product durability, reusability and recyclability. Planned product obsolescence refers to the deliberate manufacture or design of products with a reduced lifespan or functionality. It can be achieved, for example, by manufacturers designing products with structural weaknesses or inferior materials so that they fail after limited use or cannot be easily repaired. In the digital context, planned product obsolescence can also take the form of not providing updates for smart or connected products, remotely introducing updates that stop or reduce a product's performance, or programming a product to limit or cease its performance in certain conditions (unless justified for legitimate technical reasons, such as to improve security).

Governments are taking action to prohibit practices that involve the deliberate manufacturing or design of products with reduced lifespans or inducing consumers to replace the consumables of goods earlier than necessary. For example, in 2020, Apple settled a case brought by the French consumer protection authority, the *Direction générale de la concurrence, de la consommation et de la répression des fraudes (DGCCRF*), over misleading commercial practices for not informing iPhone owners that operating system updates were likely to slow down their device. Apple agreed to pay a EUR 25 million fine (DDCCRF, 2020[42]). Measures by the private and public sector to address other issues associated with product durability, reusability and recyclability, include improved consumer information and durability labels, take-back schemes, quality and safety standards for refurbished or renewed products, and public-private partnerships to reconsider how products are being used, reused, and recycled in specific sectors (see also Section 5) (OECD, 2025, forthcoming[40]).

As goods become more durable, recyclable and repairable, it is essential to ensure complementarity with safety concerns. Products with long lifespans or requiring regular software updates or maintenance could raise difficult questions about responsibility for safety if passing through the hands of multiple owners, sellers, or repairers. Consumer-to-consumer transactions involving second-hand products are of particular concern, as these are not always captured in consumer protection laws. Several countries have worked with online marketplaces to extend product safety pledge commitments to second-hand products, including when sold directly by consumers. Some also develop, disseminate and review safety standards to support business in the green transition (OECD, 2025, forthcoming[40]). Tackling issues around product safety can be important in enhancing consumer trust and overcoming obstacles to sustainable behavioural change.

E-commerce and digital technologies exemplify how demand-side mitigation strategies may need to balance different policy objectives. On one hand, digital tools, technologies, and business models can play an important role in facilitating consumer engagement in the circular economy. Online

marketplaces for second-hand goods, peer-to-peer sharing platforms and product-as-a-service business models emphasise access over ownership, contributing to a more efficient use of products. Green badges and ratings, filtering options, or carbon footprint calculators, can facilitate consumer access to sustainability-related product information. On the other hand, concerns have emerged about the reliability of sustainability information provided through digital tools and technologies (e.g. biased recommendations based on AI). What is more, the carbon footprint of e-commerce is raising concerns, and circular economy models face rebound effects offsetting some of their benefits (OECD, 2025, forthcoming[43]).

Box 6. Leveraging behavioural science for product repairability labels

As behavioural science helps policymakers to understand the drivers of consumer choices, it can provide useful insights for designing and testing interventions to encourage product repairs. For example, the Behavioural Science Team at France's Interministerial Department for Transformation developed a "repairability" index for electronic products to promote sustainable consumer behaviour. This was to address the problem that 62% of consumers discard broken electronic devices without considering their repair options. This behavioural pattern is often encouraged by industry.

The Behavioural Science Team designed and tested a variety of labels to indicate this repairability score and help consumers to make informed purchasing decision based on how "repairable" their device would be. Once the policy was successfully implemented, the results were evaluated and two main effects were observed. First, consumers were found to opt more often for laptops with higher repairability scores. Second, the market data revealed higher numbers of laptops with a higher reparability score brought to market, indicating that the behavioural intervention affected both the supply and demand side (French Ministry of Ecological Transition and Territorial Cohesion, 2021[44])

An OECD study tested a repairability score in 18 countries. The results indicate that adjusting the score on a repairability label from low to high repairability significantly increased demand for a given product (from 28% to 40%) for consumers who noticed the label (62%). Repairability labels appear to have a greater impact on demand in countries where such labels are mandatory, likely increasing consumer awareness and familiarity (OECD, 2025, forthcoming[12]).

Source: (French Ministry of Ecological Transition and Territorial Cohesion, 2021[44])

Policy considerations

Based on the discussion of overarching approaches to demand-side mitigation in this section, policymakers could consider the following actions:

- Aligning policies to encourage sustainable behaviours with key drivers of end-users' decision-making: availability, affordability, and convenience.
- Implementing measures to improve environmental education and awareness, which are associated with engagement in sustainable behaviours and support for climate mitigation policies.
- Designing demand-side mitigation policy packages to unlock synergies between different measures and obtain public support, e.g. using revenues from a tax on high-emitting vehicles to fund public transport investments.
- Targeting policy instruments to specific groups to improve their effectiveness and efficiency. For example, highlighting the environmental benefits of BEVs may be more effective in increasing uptake among women, while their technological features and advantages may be more attractive

to men. More research on differences in attitudes and behaviours across genders and other socioeconomic characteristics would be valuable.

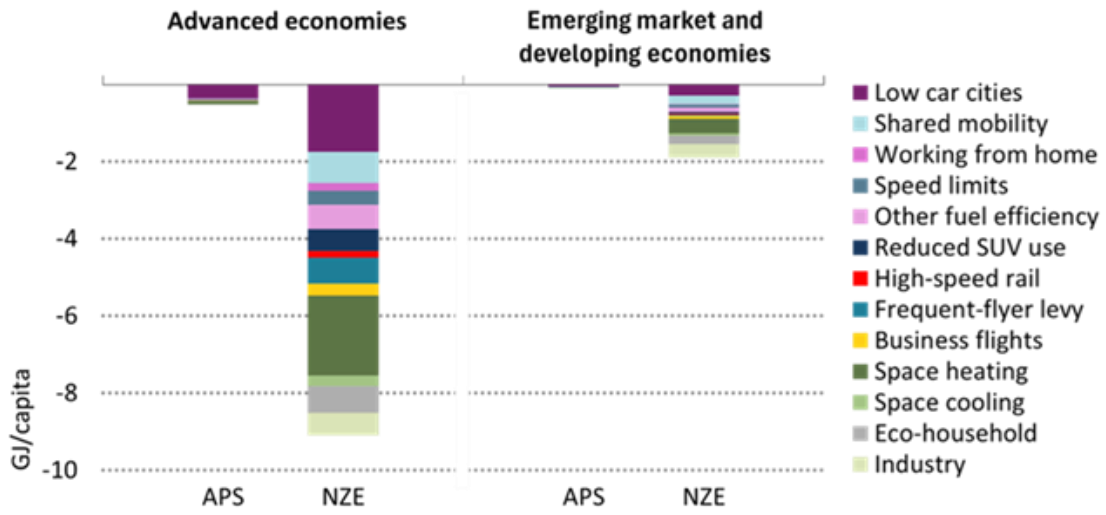
- Incorporating behavioural science throughout the policy cycle to better design, measure impact of and evaluate policies, and developing effective communication strategies for demand-side mitigation. Combining behavioural tools such as green defaults, social influences and choice architecture can increase public engagement and enhance the effectiveness of demand-side policies.
- Tackling informational challenges, including by improving transparency and comparability between labelling initiatives. Guidance for businesses, certification schemes, mandatory standards for measurement and information disclosure, consumer education, and encouraging self-regulation by the private sector can help to this end. International co-operation and exchange of best practices and expertise between governments and different government authorities can also be valuable.
- Leveraging digital tools, technologies, and business models to facilitate consumer engagement in the circular economy, bearing in mind their associated informational challenges.
- Supporting the extension of product lifecycles, through e.g. right to repair policies, measures to tackle planned obsolescence and other barriers to product durability, reusability, and recyclability, and actions to ensure that products remain safe for consumers throughout their extended lifecycles.

3 Demand-side mitigation targeting energy use in buildings

Demand-side mitigation approaches

Effective demand-side approaches to reduce emissions from energy use in buildings require shifts to low-carbon technologies and actions to reduce (i.e. avoid) energy consumption. At the household level, these changes can involve decisions about energy use, choice of energy provider, and investing in low-emissions energy technologies at home. More efficient building design and construction can facilitate household emissions reductions (IEA, 2023[45]; IEA, 2021[46]). Figure 2 illustrates the energy savings per capita achieved by behavioural changes by 2035 under two IEA scenarios – the Announced Pledges Scenario (APS) and Net-Zero Emissions by 2050 (NZE) Scenario – with far greater savings in developed economies than in developing economies in both cases. Energy savings per capita from behavioural changes in the APS are 6% of those in the NZE Scenario.

Figure 2. Energy savings per capita from behavioural changes by measure and IEA scenario, 2035



Note: NZE = Net-Zero Emissions by 2050 Scenario. APS = Announced Pledges Scenario. GJ = gigajoule. Eco-household measures include: line drying clothes instead of using a dryer; reducing laundry temperatures; switching off lights in unoccupied rooms; unplugging appliances when not in use; and reducing water heating temperatures. See (IEA, 2022[47]; IEA, 2021[48]) for details of other measures.
Source: (IEA, 2023[45]).

Households can shift towards low-carbon energy by choosing renewable electricity providers and investing in low-emissions energy generation technologies. Significant growth in renewables in recent years has not managed to match increased worldwide energy demand. As consumers, households can accelerate the pace of the transition by supporting demand for renewable energy (Hassett et al., 2024[7]). Additionally, households can reduce their emissions by investing in low-emissions energy technologies, such as solar panels.

Achieving energy savings in the buildings sector relies on three main levers:

1) Shifting to more efficient fuels, e.g. through electrification, contributes to improvements in energy intensity. Electrification leads to energy services that require much less final energy than fossil fuel-based technologies. For example, heat pumps are three to five times more efficient than conventional fossil fuel boilers, and induction stoves are about twice as efficient as gas stoves. Most of the energy savings in the IEA's NZE Scenario are achieved via accelerated uptake of heat pumps in homes and of BEVs (see also Section 4) (IEA, 2023[49]).
2) Improvements in unit energy consumption result from technology improvements and their diffusion. Policy measures can stimulate innovation and contribute to diffusing technological improvements (e.g. through minimum performance standards and labelling). While performance standards for certain energy technologies are already at or exceed the level required by the IEA's NZE Scenario in several countries, several need to be tightened. For example, technical efficiency measures for air conditioners are crucial, particularly as the stock of air conditioners in emerging market and developing economies is set to double by 2030 (IEA, 2023[50]; IEA, 2023[49]). Adjusting dwellings to household size can avoid emissions through lower overall demand for lighting, heating and cooling, while designing better insulated houses can reduce demand for heating and cooling (Creutzig et al., 2021[51]). Due to relatively long building lifetimes (about 80 years on average in advanced economies), retrofitting is one of the main levers for decarbonising the buildings sector. The impact of retrofits on energy savings in buildings varies: deep retrofits of old buildings can reduce energy demand due to space heating by two-thirds or more (IEA, 2020[52]). In the NZE Scenario, 2.5% of buildings are retrofitted globally each year from 2030 onwards (more than doubling the current rate) and all new buildings in advanced economies are zero-carbon ready (IEA, 2023[49]).
3) Reducing energy demand through behavioural changes. For example, setting thermostats to no higher than 19-20°C in homes, offices and other commercial buildings in winter can reduce cumulative emissions from fossil-fuelled boilers by 10% until 2030 (IEA, 2021[46]; IEA, 2023[49]). Eliminating power consumption through appliances and devices on standby has been estimated to reduce household energy use by 10% (Roy et al., 2012[53]).

Enabling factors and barriers

Households' willingness to pay for renewable electricity supply is small but positive, suggesting they may be willing to shift. At the same time, despite renewably generated electricity becoming more widely available to households in several countries in recent years, demand for renewable electricity appears to continue to be unmet. Evidence suggests that households in nine OECD countries are willing to pay a modest premium of 1-9% for electricity that generates 10% lower GHG emissions (Hassett et al., 2024[7]).

Structural and financial barriers tend to be the greatest obstacles to household investment in low-emissions equipment (Hassett et al., 2024[7]) For example, the high upfront costs of energy-efficient heating solutions may serve to discourage consumers from adopting them (IEA, 2021[46]). Cost and convenience are the primary barriers to accelerating and increasing the depth of home retrofits, posing particular barriers for lower-income households (IEA, 2023[49]). Structural barriers may exist even in the absence of financial barriers (e.g. the feasibility of installing solar PV in multi-unit buildings). Evidence also

finds low adoption of low-emissions energy technologies that are not well understood, highlighting the importance of overcoming informational barriers to encourage low-carbon behaviours (Hassett et al., 2024[7]).

Psychological and perceptual factors can be as important as financial incentives as enablers of or barriers to engagement in conservation behaviour. Households are more likely to practise easily adopted energy-saving actions than those that are more difficult to implement or could reduce comfort. For instance, turning off lights is the most common energy conservation behaviour among EPIC Survey households (OECD, 2023[5]). EPIC Survey results indicate that households that engage in energy conservation tend to be older, more environmentally concerned, and more likely to live in rural areas and in detached houses than non-conserver households (Hassett et al., 2024[7]).

Box 7. Leveraging behavioural science to change consumer energy behaviour in Switzerland

In the winter of 2023-24, Swiss energy provider Primeo Energie ran a campaign to raise public awareness and uptake of energy-saving behaviours. Household and business customers who managed to reduce their energy consumption by 15% compared to the previous winter received financial credits based on the amount of energy saved. The campaign was supported and partly financed by the Swiss Federal Office of Energy (SFOE). The SFOE also commissioned a behavioural study on the effect of participation in the campaign, as well as behavioural interventions provided in the form of feedback provision and energy-saving tips. Data from smart meters and surveys were used to test the effect of the behavioural interventions.

Households that participated in the campaign consumed 6% less energy on average than in the previous year, consuming less than non-participant households regardless of whether they received behavioural interventions, suggesting that the campaign's financial incentives encouraged energy conservation. Participants who received tips and feedback reported implementing more energy-saving behaviours, but no significant differences in energy savings were observed between households that received this information and the control group, suggesting that behavioural interventions did not have a significant effect on actual energy use.

Source: (Observatory of Public Sector Innovation, 2024[54]).

Policy considerations

Based on the discussion of demand-side mitigation targeting energy use in buildings in this section, policymakers could consider the following actions:

- **Introducing targeted financial incentives and disincentives to encourage sustainable behaviours.** Such measures can help to make low-emissions energy options more attractive than emissions-intensive ones. For example, in Germany, a scrapping bonus for old oil heaters adopted in 2020 providing households with up to 45% of the investment costs of new, more efficient equipment has seen wide uptake (IEA, 2021[46]). Subsidies and credit options can help facilitate financing for middle- and low-income households. For households for which affordability is less of a concern, price-based disincentives (e.g. tiered electricity rates) may be more effective in encouraging investment in low-emissions energy technologies (Hassett et al., 2024[7]).
- **Addressing structural barriers and providing financial incentives simultaneously.** This should include improving information available to renters and landlords, as well as efforts to align their incentives (Hassett et al., 2024[7]).

- **Introducing or strengthening regulations and mandatory standards for energy efficiency in buildings.** Stringent energy codes for buildings can help to improve the energy efficiency of building envelopes. For example, the European Union is considering legislation that will require retrofits of the least energy-efficient buildings in member states. Strategies that standardise building renovations, speed up retrofits and lower costs, implemented by some governments, may provide examples of good practice for use elsewhere. Mandatory standards for appliances, buildings, or other private purchases may also be useful to drive them towards low-carbon production over time (IEA, 2023[49]). For example, France's Energy Sobriety Plan, launched in 2022 in response to energy supply pressures in Europe, included measures such as turning off lighting for businesses, offices, and billboards at night, as well as transport-related actions. Electricity savings of 9-22% in 2023 relative to 2022 have been attributed to the plan (IEA, 2023[45]).
- **Making consumers more aware of their personal energy use and the benefits of reducing it.** Providing information about potential energy bill savings can motivate consumers towards sustainable behaviours. Highlighting the savings from energy-efficient appliances has been found to increase their adoption (Sintov, White and Walpole, 2019[55]). Providing more feedback on energy use (including through smart meters and smart appliances), sharing energy-saving information, and sending reminders could increase household awareness and close the gap between intention and action. Leveraging social comparison, for example showing how an individual's energy consumption compares to others', can encourage energy use reductions (Hunt Allcott, 2019[56]).
- **Establishing climate-friendly choices as default options**. This can be effective in countering status quo biases (where consumers stick to existing behaviours despite incentives to change) and nudging consumers towards positive change (IEA, 2021[46]). For example, a requirement in India that air conditioners implement a pre-purchase default temperature of 24°C resulted in an estimated 8% reduction in electricity demand for space cooling (IEA, 2023[45]). Overcoming status quo biases that embed unsustainable behaviours also requires complementary measures to reduce the transaction costs of adopting more sustainable behaviours, e.g. switching energy providers (Hassett et al., 2024[7]).
- **Tailoring approaches to the policy context.** The factors influencing choice vary across different energy behaviours, and there are significant differences across countries in the availability of energy technologies and government support for their installation (Hassett et al., 2024[7]).

4 Demand-side mitigation targeting transport

Demand-side mitigation approaches

Achieving large-scale emissions reductions in transport hinges on changes to transport systems (Box 8). Transport modelling exercises suggest that triggering large-scale behavioural change away from private vehicles towards soft mobility and public transit in urban and suburban areas, and towards low-emissions vehicles in other areas, is needed to meet net-zero goals (Fulton, Mason and Meroux, 2017[57]; Fulton, 2018[58]; ITF, 2021[59]; Barrett et al., 2022[60]). High reliance on private cars in all countries participating in the 2022 EPIC Survey highlights significant potential for decarbonisation. Although 50% of commuters in urban areas walk, cycle or take public transport to work, private motorised vehicles account for the remaining 50% of commuter travel in these areas. Overall, 75% of households report that at least one household member uses a car on a regular basis (OECD, 2023[5]).

Box 8. A systems approach to reducing transport emissions

Complexity science suggests that population behaviours are determined to a significant extent by the system structure in which they are embedded (i.e. the way in which parts are organised or interconnected), and by mental models (i.e. individuals' ingrained beliefs). These factors make some choices more feasible and attractive than others, increasing their uptake.

A conception of behavioural change without a systems approach underestimates the importance of a system's structure on individual behaviour and therefore underestimates the role of governments in shaping behaviour through interventions to develop, e.g. transport infrastructure. As such, the role of governments extends beyond raising awareness to encourage people to make better choices. Government policies have a significant influence on the structure of systems and on prevalent mental models. The policies that offer the greatest mitigation potential are those that can transform these structures in a sustainable direction, thereby leading to large-scale behavioural change.

Large-scale uptake of sustainable options depends on inverting the relative attractiveness of sustainable and unsustainable options. For instance, as long as transport systems are designed such that private cars are consistently the fastest and most convenient mode of transport, raising awareness about the environmental benefits of other modes of transport is unlikely to trigger large-scale behavioural change. Instead, structural policies are needed to enhance the advantages of sustainable modes of transport, while simultaneously making private cars less attractive.

Note: Complexity science studies the characteristics and behaviour of systems composed of many interacting components, i.e. complex systems (OECD, 2025[29]).
Source: (OECD, 2022[61]; OECD, 2025[29]).

Meeting net-zero goals requires an overall reduction (i.e. avoiding) of travel activity. Emissions from commuting and business travel can be avoided by encouraging working from home and using videoconferencing services where possible (IEA, 2022[47]). Improving accessibility and reducing travel distances, particularly in urban settings, can also contribute to reducing overall travel demand.

Making active mobility and public transport more attractive can shift travel from private car use. Shifting to low-car cities is among the most impactful behavioural changes under the IEA's NZE Scenario (Figure 2) (IEA, 2023[45]). In many countries, this requires a transformative change away from private car dependency. Encouraging such a shift relies on inverting the relative attractiveness of active mobility and public transport on one side, and private car usage on the other (as described in Box 8). Reducing overall demand for cars reduces the size of the vehicle fleet needing electrification, and the amount of charging infrastructure requiring construction.

Improvements to the emissions intensity of car usage can also contribute to demand-side mitigation. This can come from replacement of internal combustion engine vehicles (ICEVs) with battery electric vehicles (BEVs), which are increasingly powered by clean energy sources and are two to four times more efficient than ICEVs (IEA, 2023[49]). Importantly, ICEVs are not uniform in their emissions, and discouraging the purchase and use of particularly high-emitting vehicles (such as sport utility vehicles (SUVs) can also be impactful. Sales of SUVs (which are approximately one-quarter less fuel efficient than a standard car) have risen in recent years and today constitute almost half of all cars sold globally. Under the IEA's NZE Scenario, reducing the SUV market share to around 35% by 2030 could save almost 60 Mt CO_2 (IEA, 2022[47]). To double the global average annual rate of efficiency improvements, it is estimated that cars should become 5% more efficient every year, mostly through electrification and switching to smaller vehicles (IEA, 2023[50]). Integrating objectives to reduce vehicle size in electrification strategies can help to reduce a vehicle fleet's requirements for energy, street space, and charging infrastructure, while improving road safety (ITF, 2023[62]).

Enabling factors and barriers

Income has a strong positive effect on travel demand and car ownership and use, **especially at low-income and medium-income levels.** The households in the highest income quintile of EPIC Survey respondents are 15% more likely to have regular access to at least one car than those in the lowest. (Tikoudis et al., 2024[8]). There are also very large variations in aviation demand between countries and income groups. Projected income growth is expected to further increase travel demand and car ownership and use. This growth in travel demand as incomes rise is not inevitable, but should be recognised as a partial consequence of the structure of the transport system. In many countries, increased mobility has become engrained in mental models as a proxy for well-being. This is misleading, however, as increased mobility can also indicate poor accessibility of amenities, representing a barrier to transformative change (OECD, 2021[63]).

How road space is allocated influences transport decisions. Public space affects the appeal of different transportation modes, thereby influencing travel choices. The frequent lack of road space dedicated to sustainable modes of transport can lead to lock-in effects in favour of private car usage. Studies showing the reduction of overall traffic volume (or "traffic evaporation") following road space reallocation underline the importance of this factor for behavioural change (see literature review in (OECD, 2025[29])).

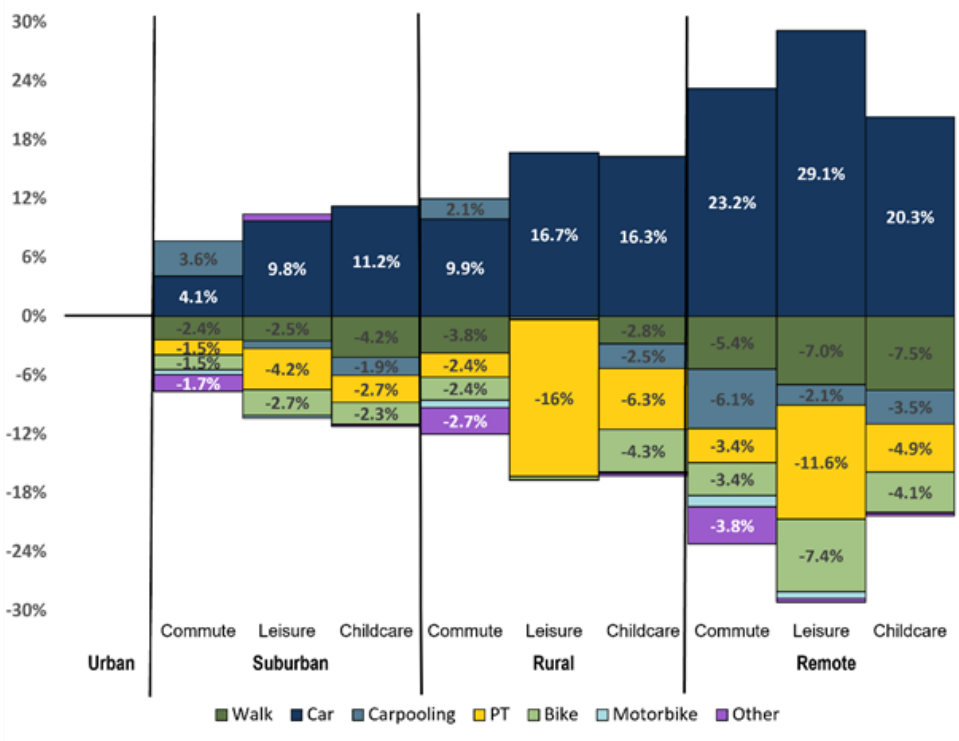
Geography matters greatly for all transport choices. In particular, household transport choices are significantly influenced by their residential location (see Figure 3). EPIC Survey respondents in remote areas reported being 12% more likely to have regular access to a car compared to a respondents located in urban areas. Among households with regular access to a car, rural households are 20-30% more likely

to use it for commuting, childcare or leisure-related trips, compared to urban households (Tikoudis et al., 2024[8]).

A larger share of car ownership and use in rural areas reflects the strong correlation between population density and the provision of public transport services. Low-density areas are difficult to serve by public transport in a cost-efficient manner. The coverage, connectivity and reliability of public transport systems all tend to decline as population density falls. In the absence of high-quality public transport services, longer distances between residences and facilities in rural areas may also serve to reduce the attractiveness of walking or cycling. For these reasons, car travel comprises a significant share of transport modes used in rural areas compared to urban areas (Tikoudis et al., 2024[8]).

Figure 3. The impact of location on the choice of transport mode for various trip purposes

Change in the share of each transport mode, compared to urban areas



Source: (Tikoudis et al., 2024[8]).

Availability of charging infrastructure is one of the most influential drivers of battery electric vehicle uptake. A current lack of charging infrastructure, where 33% of EPIC Survey respondents report that there are no charging stations within three kilometres of their residence, continues to present a significant barrier to the adoption of BEVs (OECD, 2023[5]). More specifically, findings indicate that convenient access to charging infrastructure at home, at the workplace and at the household's "usual" parking spot could double the adoption rate of BEVs (Tikoudis et al., 2024[8]).

Inertia and status-quo effects appear to play a role in transport choices, highlighting the importance of behavioural science. For example, individuals that currently use ICEVs are 30% more likely to report that they will stick to that choice in their next purchase, suggesting that conventional cars may dominate vehicle fleets for some time to come. But this status-quo effect is also strong with respect

to BEVs: households that already use a BEV on a regular basis are almost twice as likely to choose a BEV in a subsequent purchase compared to households that do not. This implies that policy support to encourage the purchase of BEVs could be reduced once BEVs have reached a tipping point (see also Box 5) (Tikoudis et al., 2024[8]).

Policy considerations

Based on the discussion of demand-side mitigation targeting transport in this section, policymakers could consider the following actions:

- **Making sustainable transport modes the most convenient and affordable options available.** This requires overcoming behavioural biases and attitudinal rigidities that reinforce the status quo. Adopting a systems approach can help policymakers to identify and challenge the underlying structures leading to unsustainable transport outcomes rather than assuming growth in transport demand, especially for aviation and cars (OECD, 2025[29]). Policymakers should also consider place-based policies, differentiating the burdens and benefits of policies by residential location, to address the urban-rural divide in transport options and choices (Tikoudis et al., 2024[8]).
- **Strengthening incentives to change long-term behaviour and, in some cases, using mandatory standards and regulations to eliminate environmentally detrimental options.** Bans on short-haul domestic flights, as seen in France, for example, have been shown to be impactful in reducing emissions (IEA, 2023[45]). Implementing reduced speed limits on roads can lead to more fuel-efficient driving (IEA, 2022[47]). Financial incentives for remote working can also encourage avoided mobility.
- **Prioritising compact urban design and transit-oriented development.** This can increase access to amenities and reduce travel distances, thereby reducing overall travel demand (OECD, 2018[64]; OECD, 2025[29]). It also facilitates active transport modes such as walking and cycling.
- **In urban areas, implementing policies that address the root causes of widespread preference for car-centric mobility.** In addition to urban planning for more compact cities, this requires reallocating road space to make walking and cycling safe, healthier and easy, along with policies to reduce air pollution (OECD, 2021[63]). These policies should be accompanied by communication efforts to address car-centric mindsets. Mainstreaming on-demand shared services, such as electric bicycles and e-scooters, could also be impactful in higher density areas by increasing the attractiveness of meaningful alternatives to private car travel (OECD, 2022[65]). Investment in public transport is also important for reducing the number of car journeys. Findings from the EPIC Survey imply that 4-11% of car trips originating from suburban areas could possibly be eliminated if the public transport system delivered a comparable level of service to that in urban areas. Moreover, investment in public transport enjoys high levels of public support (Tikoudis et al., 2024[8]). Planning and developing well-functioning multimodal transport networks can help to increase the convenience of sustainable transport modes (OECD, 2025[29]).
- **Promoting electrification of the vehicle fleet.** With limited adoption of BEVs to date, investment in charging infrastructure could be prioritised, as evidence suggests that this is more impactful than subsidies for electric vehicle purchase or running costs (Tikoudis et al., 2024[8]). Short-term leasing options for BEVs could play a role in increasing uptake, particularly in low-density areas (Tikoudis et al., 2024[8]). Where subsidies are employed for BEVs, policymakers could consider defining their eligibility criteria or varying their amounts to privilege smaller vehicles, taxis and public service vehicles (OECD, 2025[29]). Some jurisdictions, such as the European Union, have introduced and progressively strengthened vehicle emissions performance standards to motivate adoption of BEVs and low-emitting vehicles (European Commission, n.d.[66]).

5 Demand-side mitigation targeting diets

Demand-side mitigation approaches

Demand-side measures to shift food consumption habits could reduce emissions from the sector by up to 44% by 2050. This would yield both significant gains for climate mitigation and other environmental co-benefits (IPCC, 2023[67]). Shifting dietary habits is complex, however, as household food choices carry cultural and personal significance. The carbon and environmental footprint of food systems is similarly complex, depending on a wide range of context-specific factors such as land-use, water, chemicals and energy, as well as seasonality and production location, making it difficult to make general statements about the environmental sustainability of any given food product or characteristic of food products (Hassett et al., 2025[10]).

Increasing the consumption of plant-based proteins relative to meat could contribute to reducing the carbon intensity of diets and bring associated co-benefits. Taken together, animal products contribute 56-58% of global emissions from food while providing only 37% of protein and 18% of calories produced (Poore and Nemecek, 2018[68]). Cattle farming makes up 62% of emissions from livestock production, and pig farming contributes another 14% (FAO, 2023[69]). Analysis has shown that dietary shifts to achieve the World Health Organization's recommended fat consumption targets (primarily through less consumption of meat, dairy and vegetable oils) would reduce emissions and improve outcomes for nutrition and food security (although there would be a trade-off for livelihoods along the food supply chain) (Tallard et al., 2022[70]). Plant-based meat alternatives have lower environmental footprints. Lab-grown meat is currently estimated to have a lower environmental footprint than beef, but higher than pigmeat and poultry (Frezal, Nenert and Gay, 2022[71]).

The OECD has developed a four-track policy approach to promote healthier food choices through demand-side interventions. It consists of: 1) information-based policies (e.g. campaigns or guidelines); 2) public-private collaborations (e.g. labelling initiatives); 3) stricter regulations (e.g. mandates for certain practices); and 4) fiscal measures (e.g. taxes or subsidies) (Giner and Brooks, 2019[14]). Analysis applying the four-track approach identifies three main levers through which changes in consumption patterns could decrease the environmental impact of food systems (Deconinck et al., 2025[72]):

1) Consumers could *shift* consumption from high to lower impact product categories (e.g. by substituting plant-based proteins for meat consumption).
2) Consumers could *shift* to lower-impact producers within the same product category (e.g. by choosing milk with a lower carbon footprint).
3) Changes in consumption patterns could incentivise producers to *improve* their production techniques, (e.g. by purchasing inputs with lower emissions to reduce the overall carbon footprint of their products).

Enabling factors and barriers

The carbon and environmental footprint of food consumption choices varies significantly across and within countries. Variation in the environmental footprint of meat consumption, especially for red meat, is particularly high. Overall, 24% of households included in the EPIC Survey consume red meat several times per week, ranging from 18% in the Netherlands to 34% in the United States (OECD, 2023[5]). Such food choices often carry personal and cultural significance for households, making shifting dietary habits complex.

Socioeconomic factors, particularly income and gender, influence food consumption choices. Income is the primary factor influencing the consumption of meat and seafood, particularly red meat consumption. Being male is associated with a 15-percentage point greater likelihood of frequently consuming red meat. Education and income are also positively associated with purchasing products perceived as sustainable (Hassett et al., 2025[10]).

For EPIC Survey respondents, affordability, taste, freshness, and nutritional value matter more than the environmental impact of food purchases. This holds across different levels of environmental concern and income and suggests that the welfare costs of reducing greenhouse gas emissions through dietary shifts could be high. As an example, perceived health impacts may contribute to explaining why less than half of EPIC Survey respondents indicate that they would be willing to substitute lab-grown meat for conventional meat (Hassett et al., 2025[10]).

Environmental awareness and concern affect some household behaviours but not others. Environmental concern appears to be the most important driver of purchases of food products that are perceived to be environmentally responsible, i.e. local and seasonal products and products with minimum packaging. However, environmentally minded households do not eat meat less frequently than other households. This result may be partly explained by a lack of awareness of the environmental impacts of meat products and of food production systems in general (Hassett et al., 2025[10]).

Box 9. Food product labelling and informational challenges for consumers

Even environmentally conscious and engaged consumers may not easily know how to transition to more sustainable diets. Communicating the environmental impacts of food products to consumers could enable consumers to make more informed choices. But food products often lack transparency with respect to their environmental impacts, and labelling can be difficult to understand. Consumers often state that they want better and less misleading information, and express a certain level of support for carbon footprint labels on food (BEUC, 2023[38]).

A recent trend has seen the development of simplified environmental labelling schemes for food products. Such schemes provide information on aggregate environmental outcomes in the form of an easy-to-understand label (e.g. a grade indicating the product's "performance"). These schemes may be able to facilitate more informed food choices (OECD, 2025[23]). There is limited evidence to date on the effectiveness of such labels, but their indirect influence on the supply side is likely to be greater than their direct impact on consumers' food choices. Research on analogous nutrition labels for food products shows that they may have limited direct impacts on the demand side, but that indirect impacts may be stronger in terms of incentivising production shifts by the food industry (Giner, Rodriguez and Elasri, 2023[73]). These dynamics may be similar for simplified labelling addressing the environmental impacts of food products.

Cross-country analysis of how consumers interact with sustainability claims and labels on food products, based on survey responses of 37,000 consumers in 40 countries, finds several factors that

make it less likely that consumers will purchase products with sustainability claims (Deconinck et al., 2025[72]):

- lack of affordability (most reported barrier by a wide margin)
- confusion (e.g. unclear labelling) and lack of understanding (consumers not sure what sustainability features to look for)
- lack of availability in places where consumers typically shop
- lack of trust in claims
- broader attitudes and beliefs (e.g. lack of interest in sustainable products).

In general, willingness to pay for food products with sustainability claims is higher among survey respondents with higher income and educational attainment, but willingness varies widely across countries. Similarly, consumers' levels of trust in claims varies significantly between countries, suggesting that trust may be driven more by country-specific than label-specific factors.

Source: (OECD, 2025[23]; Deconinck et al., 2025[72]).

Policy considerations

Based on the discussion of demand-side mitigation targeting diets in this section, policymakers could consider the following actions:

- **Given that there is no silver bullet to change food consumption patterns, employing a combination of policy measures.** The importance to consumers of affordability, taste, freshness and nutritional value over the environmental impacts of food products underlines the need for policies to improve the appeal of sustainable food options with respect to these characteristics (Hassett et al., 2025[10]). To this end, communication efforts should emphasise the co-benefits associated with more sustainable diets. The appeal of plant-based proteins relative to meat could be enhanced by highlighting not only their environmental advantages, but also their health-related benefits and affordability, as well as their benefits for animal welfare. For example, public messaging can focus on the large number of cases in which plant-based proteins (e.g. legumes) are currently less expensive than meat (Hassett et al., 2025[10]).
- **Collaborating internationally to foster trust in environmental labelling schemes, harmonise approaches, and support development of a reliable evidence base on the environmental impacts of food products.** Governments can convene stakeholders and/or provide funding to initiatives, thereby helping to overcome measurement difficulties. Supporting studies of how consumers understand and interact with environmental information on food products would also be useful. Governments can encourage transparency and inclusiveness in the development of labelling schemes by accounting for and consulting with a variety of stakeholders, including smaller food production actors, producers in developing countries, and civil society. Guidance should be provided to the private sector to ensure that labels are accurate and not misleading. International collaboration is also essential to harmonise approaches and minimise fragmentation, which can undermine consumer trust and disincentivise private sector action (OECD, 2025[23]).
- **Aligning policy measures and messages with household preferences by showing how sustainable choices reflect their priorities, with the aim of inverting the relative attractiveness of sustainable and unsustainable options.** Price-based instruments could target households for whom affordability is the top concern by increasing the relative affordability of sustainable food products. For frequent meat purchasers, whose demand for meat may be relatively inelastic, price-based measures may be less effective. Focusing on reducing red meat

consumption rather than eliminating it entirely is likely to be better received among these segments of the population. Households that are environmentally minded but still regularly consume red meat may be more receptive to messaging that highlights the environmental impacts of their food purchases than other households (Hassett et al., 2025[10]).

- **Where used, complementing tax instruments with other measures to improve distributional outcomes and make policies more acceptable.** With the exception of taxes, all food-related policy measures addressed in the EPIC Survey were supported by a majority of households across countries. But while taxes may have low public support, they may nevertheless be effective in specific contexts. When considering whether and how to implement such measures, it is important to refer to similar precedents in the food sector (e.g. sugar taxes) for insights regarding their effective design, the implementation of complementary measures and the development of related public messaging (Hassett et al., 2025[10]).

6 Demand-side mitigation targeting waste

Demand-side mitigation approaches

Unlocking emissions reductions from waste relies on more efficient and effective waste management policies. Currently, neither consumers nor producers bear the full benefits and costs of their decisions to discard or recycle materials or to use or manufacture more durable, reparable, or sustainably packaged goods. An effective demand-side strategy targeting waste relies on a combination of reduced material consumption, less waste generated per unit of consumption, and diverting more waste to recycling services.

Multiple approaches are available to governments to change behaviours and reduce waste generation. Cross-country evidence indicates that, while effects vary in magnitude, recycling mandates and increased availability of recycling services tend to reduce household mixed (i.e. unrecovered) waste generation (Brown, 2024[9]). Encouraging the uptake of minimal or recyclable packaging or packaging in reusable containers as part of a deposit return scheme can also contribute to reducing waste. Survey evidence suggests that 76% of households are willing to pay a premium for more sustainable packaging options (Brown, 2024[9]). Deposit return schemes have been successful in some countries; for instance, a scheme launched in Slovakia in January 2022 saw 820 million containers returned during its first year of operation, a return rate of over 70% (TOMRA, 2023[74]). Both non-financial (e.g. mandates) and financial incentives (e.g. taxes on packaging containing non-recyclable plastics) can encourage businesses to improve the sustainability of their packaging.

Unit-based waste charges may also be effective. “Pay-as-you-throw” schemes include charging by weight, volume, or collection frequency. Research has shown that waste charging schemes can be effective at reducing household mixed waste but, like recycling policies, their effectiveness varies by context. Nevertheless, such schemes are associated with increased recycling volumes, greater effectiveness of recycling collection services in reducing mixed waste, and higher engagement in waste prevention behaviours (Brown, 2024[9]).

Consumer policies can contribute to reducing overall material consumption. These include policies seeking to extend product lifecycles of everyday consumer goods by safeguarding a right to repair, prohibiting or limiting planned obsolescence, and mandating product design to ensure that they are durable, repairable, and safe to use for long periods of time.

Specific approaches are available to tackle food loss and waste. A recent OECD study (OECD, 2025[75]) finds that most countries surveyed (35 of 42, as well as the European Commission) have established national food loss and waste reduction targets, and that most (38 countries and the European Commission) either implement or are planning a national strategy for food loss and waste reduction. Policy instruments used generally fall into four categories: 1) awareness-raising and education initiatives (most common); 2) voluntary collaborations; 3) mandatory regulations, and 4) fiscal measures. National strategies include measures such as binding legal targets to reduce food loss and waste, a food donation

system to collect excess food, food safety and quality regulations, and clear date-labelling requirements. Responses to the same OECD survey indicate that countries generally favour soft measures over regulatory enforcement. While compost service provision has also been considered a useful measure for managing food waste, research to date has not been conclusive regarding its impact on food waste generation, particularly in contexts where a charging scheme for mixed waste generation is also in place (Brown, 2024[9]).

Enabling factors and barriers

Provision of recycling collection services appears to be an effective waste reduction measure. EPIC Survey results indicate that recycling collection services are associated with 15% lower mixed waste generation. The availability of recycling collection services is also associated with greater engagement in waste prevention behaviours. This underscores the effectiveness of measures that facilitate climate-friendly behaviours by making them available and convenient for populations to adopt (Brown, 2024[9]).

The presence of waste charging schemes appears able to motivate behavioural change. According to EPIC Survey results, these schemes are associated with increased engagement in waste prevention behaviour, recycling volumes and effectiveness of recycling collection services in reducing mixed waste. This aligns with findings that, on average, households consider stronger financial incentives, kerbside waste or recycling services, and more accessible collection or drop-off services as the most important factors in encouraging them to recycle and compost more. However, in contrast to previous literature, EPIC Survey results do not find that waste charging schemes are associated with lower reported waste generation. This suggests that structural constraints, such as local norms, availability of sustainable products, and the opportunity costs of time, may constitute barriers to households reducing their mixed waste (Brown, 2024[9]).

Sustainable packaging enjoys support among consumers even if it is more expensive. Most households in all countries covered by the EPIC Survey are willing to pay a premium for sustainable packaging, while a minority reported that they would require a price discount to choose it. Evidence indicates an association between a preference for sustainable packaging among households, and the availability of recycling services and presence of waste charging schemes. This underlines the importance of policy complementarity to unlock synergies between different measures (Brown, 2024[9]).

Food waste is widespread and challenging to tackle. Most EPIC Survey households indicated throwing away at least some food on a regular basis. Counterintuitively, results indicate that composting service provision and living in an urban area are associated with households throwing away more types of food, suggesting further research is needed (Brown, 2024[9]). Male respondents and households with higher incomes, children, and/or access to a garden or outdoor space are all associated with composting a greater share of food waste. Households for which affordability is a top priority appear more likely to throw out leftover food and to compost a smaller share of their food waste (Hassett et al., 2025[10]).

Despite the widespread use of awareness and education policy measures, the notion that households will make "the right choice" when provided sufficient information on reducing food loss and waste has not been proven accurate. The manner in which information related to food waste is framed when presented to consumers can be important. For instance, awareness-raising campaigns appear to be most effective when they focus on individual, rather than global, consequences of food waste (OECD, 2025[75]). Box 10 provides an example of a randomised controlled trial examining the effects of nudging on food waste generation.

Box 10. Reducing household food waste through a behavioural science intervention in Sweden

In 2020, the Swedish Food Agency commissioned a study to assess interventions that could help households reduce food waste. Carried out in eight supermarkets, it tested the impacts of four different price displays for perishable food items, namely cucumbers and broccoli, as part of a randomised controlled trial. The four displays were: 1) a quantity discount (two items for 30 kronor) with a message telling customers to only buy as much as they would eat; 2) the same quantity discount with a more visible non-discounted price; 3) a unit price discount of 15 kronor per item; and 4) the same quantity discount as in Displays 1 and 2. Display 4 acted as a control. Over two weeks, the participating supermarkets randomly set up one of the four price displays at a time, but kept the non-discounted prices at 15.95 kronor per item. Sales data was collected, along with data collected via surveys, in order to measure food waste.

Figure 4. Different price discount displays for the same supermarket produce

1. Quantity discount + message
2. Quantity discount + visible unit price
3. Unit price discount
4. Quantity discount (control)

Results showed that all three variations reduced sales on average (10-18% less compared to the control), suggesting that the interventions nudged consumers to more deliberately limit their purchases to the amount they would eat. The unit price discount Display 3 resulted in the biggest reduction in sales, and also significantly reduced self-reported food waste. Consumers who bought more than one product when exposed to the unit price discount were 10% more likely to eat their purchases, compared to those who bought more than one product when the quantity discount (control) was displayed.

These results showed that offering products with a simple unit price discount instead of an equivalent quantity discount can contribute to a reduction of food waste. Customers who stated in the survey that they often buy too much food also ate their purchased food at lower rates during the experimental period. They were also less confident that they would eat their purchased food during this period.

This indicates that most consumers may be aware of their behaviour but still waste food, suggesting that awareness is not enough to change these behaviours. Nonetheless, the Swedish study provides one example of how an intervention can nudge consumers towards less wasteful behaviour.

Source: (Swedish Food Agency, 2021[76]).

Policy considerations

Based on the discussion of demand-side mitigation targeting waste in this section, policymakers could consider the following actions:

- **Improving access to collection services and implementing charging schemes to stimulate waste prevention behaviours and sustainable consumption.** The provision of recycling collection services has been associated with significantly lower mixed waste generation and greater engagement in waste prevention behaviours, indicating that improving the coverage and quality of these services is an impactful demand-side option for waste reduction and management (Brown, 2024[9]). Waste charging schemes are associated with higher recycling volumes, more effective recycling collection services and greater engagement in waste prevention behaviours (Brown, 2024[9]).
- **Strengthening food waste prevention and reduction strategies.** Countries could set delivery dates and quantifiable targets for their food loss and waste strategies to reinforce signals sent to food system stakeholders and households. Given frequent emphasis on soft law measures in such strategies, countries could explore making their targets binding (OECD, 2025[75]).
- **Evaluating policies systematically and improving national-level waste measurement.** Peer-to-peer country exchanges, shared learning, and mechanisms to improve the international comparability of information could help to improve measurement and evaluation practices (OECD, 2025[75]). Further research is needed with respect to the impact of compost service provision on food waste generation, especially in the presence of charging schemes for mixed waste (Brown, 2024[9]).

7 Summary and conclusion

Demand-side climate strategies offer significant untapped mitigation potential. Their implementation could reduce greenhouse gas emissions in key sectors by an estimated 40-70% globally by 2050 (Creutzig et al., 2023[3]). Focus to date has primarily been on supply-side measures, with demand-side policies relatively underutilised (Mundaca, Ürge-Vorsatz and Wilson, 2018[2]; Creutzig et al., 2023[3]). Tackling the climate crisis requires unlocking the potential of demand-side mitigation strategies via *avoid, shift* and *improve* options across all sectors.

Effective demand-side mitigation depends on large-scale behavioural change towards low-carbon lifestyles, supported by infrastructure and technology. Motivating more sustainable use of goods, services, infrastructure, natural resources, and energy will rely on a systems approach to policymaking. Recognising the extent to which individual choices may be constrained, the most transformative policies typically focus on improving infrastructure or technology availability, ensuring access to low-carbon alternatives.

Achieving behaviour change hinges on a well-developed understanding of the enablers of and barriers to sustainable choices, as well as consumers' attitudes and preferences. This involves identifying the drivers of decision-making with respect to various environmentally relevant choices, which may be structural, financial or attitudinal in nature. Designing measures targeting behavioural change to leverage these drivers can improve the appeal and adoption of sustainable behaviours. Systematically incorporating behavioural science into the design and implementation of policies can address the underlying behavioural mechanisms at play, bolstering the effectiveness of such measures. Identifying differences in attitudes and behaviours across socioeconomic characteristics (e.g. income, age, gender, educational attainment, and residential location) can contribute to a better understanding of consumers' profiles and priorities.

Consumer policies can help overcome informational challenges facing populations, and empower and protect them as they attempt to green their consumption. Amidst a proliferation of environmental information and green claims, it is often difficult for consumers to know how to interpret the information presented to them, and to assess its trustworthiness. Efforts to improve transparency, accuracy, and ultimately trust, can empower populations to take decisions to make their demand more sustainable. Consumer policies can also play a role in supporting consumers' ability to safely and easily repair, reuse, repurpose, share, lease, recycle, and sustainably dispose of products, or otherwise reduce their environmental footprint as they desire. This highlights the importance of situating policies for sustainable consumption in a whole-of-government framework.

Energy use in buildings, transport, diets, and waste all contribute significantly to greenhouse gas emissions worldwide. Each offers valuable opportunities for demand-side policies by governments that can embed low-carbon systems and lifestyles. While the proportion of EPIC Survey respondents concerned about climate change or other environmental issues (35%) ranks behind personal safety (42%) and economic concerns (41%) (OECD, 2023[5]), households nonetheless show willingness to change some behaviours in a sustainable manner. For instance, survey evidence suggests that 76% of households are willing to pay a premium for more sustainable packaging options (Brown, 2024[9]), while across the nine OECD countries studied, households are willing to pay a premium of 1-9% for electricity that generates 10% lower greenhouse gas emissions (Hassett et al., 2024[7]). Improving households' access to charging

infrastructure for BEVs at key locations could double their rate of adoption (Tikoudis et al., 2024[8]). Achieving climate goals will require targeted policies to unlock the potential emissions reductions across the key sectors examined in this paper.

Notes

1 See also (OECD, 2025[35]).

2 In addition to being consumers and users, individuals are also citizens, and so their choices and behaviours play an integral role in supporting and driving policy action. This is explored in more depth in (OECD, 2025, forthcoming[84]).

3 The systems approach is described in further detail and applied to transport in Section 4. While this approach is an important guiding principle for demand-side mitigation across sectors, transport has been the focus of OECD systems work to date (OECD, 2022[61]; OECD, 2025[29]).

4 A forthcoming Net Zero+ policy paper on "Packaging and sequencing policies for more effective climate action" explores challenges and opportunities related to policy interactions and how sequencing can improve policy outcomes (OECD, 2025, forthcoming[79]).

5 This finding concurs with other recent OECD work. See for example (OECD, 2023[80]).

6 Behavioural science is an interdisciplinary approach that encompasses the study of human behaviour and the design of strategies to change it. It draws on research and methods from various fields including cognitive science, economics, psychology, sociology, neuroscience, and decision science (OECD, n.d.[78]).

7 Various sources were used for collecting these case studies, namely a dedicated call for projects in April 2024, a collection of projects conducted between 2021 and 2024 via the OECD's Behavioural Science Knowledge Hub, and collections of case studies from the informal OECD Network of Behavioural science Experts in Government, as well as consultations of academic and grey literature and applications from private and public organisations.

8 OECD work urges caution when applying behavioural science to achieve public policy goals, highlighting potential dangers of irresponsible or unethical misuse and manipulation. For governments considering such interventions, the OECD's Good Practice Principles for Ethical Behavioural Science in Public Policy (2022[81]) can provide guidance on responsible use of behavioural science, in order to ensure public safety and well-being.

9 Renewable energy is defined by the IPCC (2022[82]) as any form of energy that is replenished by natural processes at a rate that equals or exceeds its rate of use.

10 For a specific discussion of circular economy labels and information schemes (CELIS), see (Laubinger and Börkey, 2021[83]).

11 A Net Zero+ policy paper on "The carbon footprint of everything" outlines the challenges of measuring the carbon footprint of various products (OECD, 2025[35]).

References

Barrett, J. et al. (2022), "Energy demand reduction options for meeting national zero-emission targets in the United Kingdom", *Nature Energy*, Vol. 7/8, pp. 726-735, https://doi.org/10.1038/s41560-022-01057-y. [60]

BEUC (2023), *The Great Green Maze: Survey Results from 16 Countries*, https://www.beuc.eu/sites/default/files/publications/BEUC-X-2023-149_The_Great_Green_Maze_How_environmental_advertising_confuses_consumers.pdf. [38]

BIT (2023), *How to Build a Net Zero Society*, https://www.bi.team/publications/how-to-build-a-net-zero-society/. [33]

Brown, A. and P. Börkey (2024), "Extended producer responsibility in the garments sector", *OECD Environment Working Papers*, No. 253, OECD Publishing, Paris, https://doi.org/10.1787/8ee5adb2-en. [41]

Brown, Z. (2024), "Household waste practices: New empirical evidence and policy implications for sustainable behaviour", *OECD Environment Working Papers*, No. 249, OECD Publishing, Paris, https://doi.org/10.1787/9e5e512c-en. [9]

Creutzig, F. et al. (2021), "Demand-side solutions to climate change mitigation consistent with high levels of well-being", *Nature Climate Change*, Vol. 12/1, pp. 36-46, https://doi.org/10.1038/s41558-021-01219-y. [51]

Creutzig, F. et al. (2023), "Demand, Services and Social Aspects of Mitigation", in *Climate Change 2022 - Mitigation of Climate Change*, Cambridge University Press, https://doi.org/10.1017/9781009157926.007. [3]

DDCCRF (2020), "Ralentissement du fonctionnement de certains iPhone : une enquête de la DGCCRF conduit au paiement d'une amende transactionnelle de 25 M€ par le groupe Apple", https://www.economie.gouv.fr/files/files/directions_services/dgccrf/presse/communique/2020/CP-Ralentissement-fonctionnement-iPhone200207.pdf (accessed on 2 October 2023). [42]

Deconinck, K. et al. (2025), "How do consumers interact with environmental sustainability claims on food?: Evidence from 40 countries", *OECD Food, Agriculture and Fisheries Papers*, No. 218, OECD Publishing, Paris, https://doi.org/10.1787/0587c663-en. [72]

Errendal, S., J. Ellis and S. Jeudy-Hugo (2023), "The role of carbon pricing in transforming pathways to reach net zero emissions: Insights from current experiences and potential application to food systems", *OECD Environment Working Papers*, No. 220, OECD Publishing, Paris, https://doi.org/10.1787/5cefdf8c-en. [4]

European Commission (n.d.), *CO_2 emission performance standards for cars and vans*, https://climate.ec.europa.eu/eu-action/transport/road-transport-reducing-co2-emissions-vehicles/co2-emission-performance-standards-cars-and-vans_en (accessed on 18 November 2024). [66]

FAO (2023), *Pathways towards lower emissions*, FAO, https://doi.org/10.4060/cc9029en. [69]

Frame, B., T. Milfont and H. More (2023), "Applying behavioural science to wicked problems: systems thinking for environmental policy in Aotearoa New Zealand", *Frontiers in Environmental Science*, Vol. 11, https://doi.org/10.3389/fenvs.2023.1239966. [17]

French Ministry of Ecological Transition and Territorial Cohesion (2021), *Repairability index*, https://www.ecologie.gouv.fr/politiques-publiques/indice-reparabilite. [44]

Frezal, C., C. Nenert and H. Gay (2022), "Meat protein alternatives: Opportunities and challenges for food systems' transformation", *OECD Food, Agriculture and Fisheries Papers*, No. 182, OECD Publishing, Paris, https://doi.org/10.1787/387d30cf-en. [71]

Fulton, L. (2018), "Three Revolutions in Urban Passenger Travel", *Joule*, Vol. 2/4, pp. 575-578, https://doi.org/10.1016/J.JOULE.2018.03.005. [58]

Fulton, L., J. Mason and D. Meroux (2017), "Three Revolutions in Urban Transportation: How To Achieve the Full Potential of Vehicle Electrification, Automation, and Shared Mobility in Urban Transportation Systems Around the World by 2050", *undefined*, https://uc3-s3mrt5001-prd.s3.us-west-2.amazonaws.com/ark%3A/13030/m52c3sbx%7C1%7Cproducer/STEPS-2050.pdf?response-content-type=application%2Fpdf&X-Amz-Security-Token=IQoJb3JpZ2luX2VjEFYaCXVzLXdlc3QtMiJHMEUCIQD5%2B8s3XhNvKgs%2F4e0SkBamUfuI75h8B8Pgs96BMRsx% (accessed on 16 August 2021). [57]

Giner, C. and J. Brooks (2019), *Policies for encouraging healthier food choices*, https://doi.org/10.1787/11a42b51-en. [14]

Giner, C., M. Hobeika and C. Fischetti (2022), "Gender and food systems: Overcoming evidence gaps", *OECD Food, Agriculture and Fisheries Papers*, No. 184, OECD Publishing, Paris, https://doi.org/10.1787/355ba4ee-en. [13]

Giner, C., D. Rodriguez and A. Elasri (2023), *Developing food labels for improved health outcomes: Insights into simplified nutrition labelling policies*, OECD Publishing, https://doi.org/10.1787/c1f4d81d-en. [73]

Goldstein, N., R. Cialdini and V. Griskevicius (2008), "A Room with a Viewpoint: Using Social Norms to Motivate Environmental Conservation in Hotels", *Journal of Consumer Research*, Vol. 35/3, pp. 472-482, https://doi.org/10.1086/586910. [25]

Hallsworth, M. (2023), *A manifesto for applying behavioural science*, Nature Human Behaviour, pp. 310-322. [16]

Hassett, K. et al. (2024), "Household energy choices: New empirical evidence and policy implications for sustainable behaviour", *OECD Environment Working Papers*, No. 247, OECD Publishing, Paris, https://doi.org/10.1787/534a14fe-en. [7]

Hassett, K. et al. (2025), "Household food choices: New empirical evidence and policy implications for sustainable behaviour", *OECD Environment Working Papers*, No. 255, OECD Publishing, Paris, https://doi.org/10.1787/97c4041a-en. [10]

Hornsey, M. et al. (2016), "Meta-analyses of the determinants and outcomes of belief in climate change", *Nature Climate Change*, Vol. 6/6, pp. 622-626, https://doi.org/10.1038/nclimate2943. [27]

Hunt Allcott, J. (2019), "The Welfare Effects of Nudges: A Case Study of Energy Use Social Comparisons", *American Economic Journal*, https://doi.org/10.1257/app.20170328. [56]

ICPEN (2021), "Global sweep finds 40% of firms' green claims could be misleading", https://icpen.org/news/1147 (accessed on 5 March 2024). [37]

IEA (2023), *Energy Efficiency 2023*, https://www.iea.org/reports/energy-efficiency-2023. [50]

IEA (2023), *Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach*, https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach. [49]

IEA (2023), *World Energy Outlook 2023*. [45]

IEA (2022), *World Energy Outlook 2022*, https://www.iea.org/reports/world-energy-outlook-2022. [47]

IEA (2021), *Do we need to change our behaviour to reach net zero by 2050?*, https://www.iea.org/articles/do-we-need-to-change-our-behaviour-to-reach-net-zero-by-2050#. [46]

IEA (2021), *World Energy Outlook 2021*. [48]

IEA (2020), *Sustainable Recovery*, https://www.iea.org/reports/sustainable-recovery. [52]

Impact Canada (2024), *The Program of Applied Research on Climate Action in Canada*, https://impact.canada.ca/en/behavioural-science/parca. [20]

IPCC (ed.) (2023), *Climate Change 2022 - Mitigation of Climate Change*, Cambridge University Press, https://doi.org/10.1017/9781009157926. [67]

ITF (2023), *Shifting the Focus: Smaller Electric Vehicles for Sustainable Cities*, https://www.itf-oecd.org/sites/default/files/docs/shifting-the-focus-smaller-electric-vehicles-sustainable-cities_0.pdf. [62]

ITF (2021), *ITF Transport Outlook 2021*, OECD Publishing, Paris, https://doi.org/10.1787/16826a30-en. [59]

Judge, M. et al. (2024), ""Accelerating social tipping points in sustainable behaviours: Insights from a dynamic model of moralized social change"", *Science Direct*, pp. 759-770, https://www.sciencedirect.com/science/article/pii/S2590332224001477?via%3Dihub. [32]

Kormos, C., R. Sussman and B. Rosenberg (2021), "How Cities Can Apply Behavioral Science to Promote Public Transportation use", *Behavioral Science & Policy*, https://doi.org/10.1177/237946152100700108. [26]

Laubinger, F. and P. Börkey (2021), "Labelling and Information Schemes for the Circular Economy", *OECD Environment Working Papers*, No. 183, OECD Publishing, Paris, https://doi.org/10.1787/abb32a06-en. [83]

Liu, L. et al. (2020), "Household CO2 Emissions: Current Status and Future Perspectives", *International Journal of Environmental Research and Public Health*, Vol. 17/19, p. 7077, https://doi.org/10.3390/ijerph17197077. [6]

Masson-Delmotte, . (ed.) (2021), *"Framing, Context, and Methods"*, Cambridge University Press. [28]

Mundaca, L., D. Ürge-Vorsatz and C. Wilson (2018), "Demand-side approaches for limiting global warming to 1.5 °C", *Energy Efficiency*, Vol. 12/2, pp. 343-362, https://doi.org/10.1007/s12053-018-9722-9. [2]

Observatory of Public Sector Innovation (2024), *"Energy saving campaign"*, https://oecd-opsi.org/bi-projects/energy-saving-campaign/ (accessed on 11 October 2024). [54]

OECD (2025), "Beyond food loss and waste reduction targets: Translating reduction ambitions into policy outcomes", *OECD Food, Agriculture and Fisheries Papers*, No. 214, OECD Publishing, Paris, https://doi.org/10.1787/59cf6c95-en. [75]

OECD (2025), *Enabling Trust in Food Labels for Improved Environmental Outcomes: Insights from OECD analysis*, https://www.oecd.org/en/publications/enabling-trust-in-food-labels-for-improved-environmental-outcomes_007a2bdb-en.html. [23]

OECD (2025), *Measuring Carbon Footprints of Agri-Food Products: Eight Building Blocks*, https://doi.org/10.1787/8eb75706-en. [24]

OECD (2025), "Mind shift, green lift: Six behavioural science trends for environmental policy", *OECD Public Governance Policy Papers*, No. 69, OECD Publishing, Paris, https://doi.org/10.1787/162c5a27-en. [15]

OECD (2025), "The carbon footprint of everything", *OECD Net Zero+ Policy Papers*, No. 6, OECD Publishing, Paris, https://doi.org/10.1787/ae22f8e8-en. [35]

OECD (2025), *Transforming Catalonia's Mobility System for Net Zero*, OECD Publishing, Paris, https://doi.org/10.1787/1cac3681-en. [29]

OECD (2024), "Declaration on Protecting and Empowering Consumers in the Digital and Green Transitions", *OECD/LEGAL/0504*, https://legalinstruments.oecd.org/en/instruments/OECD-LEGAL-0504. [34]

OECD (2024), "Demand-side policy measures for environmental sustainability", *OECD Environment Policy Papers*, No. 42, OECD Publishing, Paris, https://doi.org/10.1787/53e9c791-en. [1]

OECD (2024), *LOGIC: Good Practice Principles for Mainstreaming Behavioural Public Policy*, OECD Publishing, Paris, https://doi.org/10.1787/6cb52de2-en. [18]

OECD (2024), *OECD Survey on Drivers of Trust in Public Institutions – 2024 Results: Building Trust in a Complex Policy Environment*, OECD Publishing, Paris, https://doi.org/10.1787/9a20554b-en. [11]

OECD (2024), "Protecting and empowering consumers in the green transition", *OECD Consumer Policy Ministerial Meeting: Issues note*, https://cdn-assets.inwink.com/bbf51d8a-98be-4045-bbf0-7906c7d6a676/06be548d-d3ec-44a2-80b9-6b1bc90b827e?sv=2018-03-28&sr=b&sig=dZIaB1lEPYO%2B56C2wULHRgkHWKVUJyBx1XOBDQR0RMs%3D&se=9999-12-31T23%3A59%3A59Z&sp=r&rscd=inline%3B%20filename%3D%22protecting-and-. [39]

OECD (2023), *How Green is Household Behaviour?: Sustainable Choices in a Time of Interlocking Crises*, OECD Studies on Environmental Policy and Household Behaviour, OECD Publishing, Paris, https://doi.org/10.1787/2bbbb663-en. [5]

OECD (2023), *OECD Skills Outlook 2023: Skills for a Resilient Green and Digital Transition*, OECD Publishing, Paris, https://doi.org/10.1787/27452f29-en. [80]

OECD (2022), "Good practice principles for ethical behavioural science in public policy", *OECD Public Governance Policy Papers*, No. 20, OECD Publishing, Paris, https://doi.org/10.1787/e19a9be9-en. [81]

OECD (2022), *Redesigning Ireland's Transport for Net Zero: Towards Systems that Work for People and the Planet*, OECD Publishing, Paris, https://doi.org/10.1787/b798a4c1-en. [65]

OECD (2022), *Redesigning Ireland's Transport for Net Zero: Towards Systems that Work for People and the Planet*, OECD Publishing, Paris, https://doi.org/10.1787/b798a4c1-en. [61]

OECD (2021), *Transport Strategies for Net-Zero Systems by Design*, OECD Publishing, Paris, https://doi.org/10.1787/0a20f779-en. [63]

OECD (2018), *Rethinking Urban Sprawl: Moving Towards Sustainable Cities*, OECD Publishing, Paris, https://doi.org/10.1787/9789264189881-en. [64]

OECD (2015), *Final NAEC Synthesis: New Approaches to Economic Challenges*. [77]

OECD (n.d.), *Behavioural science*, https://www.oecd.org/en/topics/sub-issues/behavioural-science.html. [78]

OECD (2025, forthcoming), *Empirical study on sustainable consumption*, OECD Publishing, Paris. [12]

OECD (2025, forthcoming), *Engaging citizens in the race to net zero*. [84]

OECD (2025, forthcoming), "Leveraging digital business models, tools and technologies for reliable environmental", *OECD Digital Economy Papers*. [43]

OECD (2025, forthcoming), *Leveraging positive tipping points in the race to net zero*. [31]

OECD (2025, forthcoming), *Packaging and sequencing policies for more effective climate action*. [79]

OECD (2025, forthcoming), *Protecting and Empowering Consumers in the Green Transition*, OECD Publishing, Paris. [40]

OECD (2025, forthcoming), "Protecting and empowering consumers in the green transition: misleading green claims", *OECD Digital Economy Papers*. [36]

Poore, J. and T. Nemecek (2018), “Reducing food’s environmental impacts through producers and consumers”, *Science*, Vol. 360/6392, pp. 987-992, https://doi.org/10.1126/science.aaq0216. [68]

Shukla, P. et al. (eds.) (2022), *Annex I: Glossary*, Cambridge University Press, https://doi.org/10.1017/9781009157926.020. [82]

Sintov, N., L. White and H. Walpole (2019), “Thermostat wars? The roles of gender and thermal comfort negotiations in household energy use behavior”, *PLoS ONE*, https://doi.org/10.1371/journal.pone.0224198. [55]

Swedish Food Agency (2021), *Can interventions in supermarkets reduce household food waste?*, https://www.livsmedelsverket.se/globalassets/publikationsdatabas/rapporter/2021/e-2021-nr-01-can-interventions-in-supermarkets-reduce-household-food-waste.pdf. [76]

Systemiq ((2023)), *The Breakthrough Effect: How to trigger a cascade of tipping points to accelerate the net zero transition*, https://www.systemiq.earth/wp-content/uploads/2023/01/The-Breakthrough-Effect.pdf. [30]

Tallard, G. et al. (2022), “Potential impact of dietary changes on the triple challenge facing food systems: Three stylised scenarios”*, OECD Food, Agriculture and Fisheries Papers*, No. 173, OECD Publishing, Paris, https://doi.org/10.1787/d7a18023-en. [70]

Team, G. (ed.) (2012), *Lifestyles, Well-Being and Energy*, Cambridge University Press. [53]

Thøgersen, J. and T. Crompton (2009), “Simple and Painless? The Limitations of Spillover in Environmental Campaigning”, *Journal of Consumer Policy*, http://dx.doi.org/10.1007/s10603-009-9101-1. [22]

Tikoudis, I. et al. (2024), “Household transport choices: New empirical evidence and policy implications for sustainable behaviour”*, OECD Environment Working Papers*, No. 246, OECD Publishing, Paris, https://doi.org/10.1787/0e8469ed-en. [8]

TOMRA (2023), *Slovakia exceeds return-rate targets for beverage containers as new deposit return scheme marks first anniversary*, https://www.tomra.com/en/reverse-vending/media-center/feature-articles/slovakia-deposit-return-scheme#:~:text=By%20the%20end%20of%202022,EU's%20Single%2DUse%20Plastics%20Directive. [74]

Troussard, X. and R. van Bavel (2018), “How Can Behavioural Insights Be Used to Improve EU Policy?”, *Intereconomics*, https://doi.org/10.1007/s10272-018-0711-1. [19]

Verplanken, B. and W. Wood (2006), “Interventions to break and create consumer habits”, *Journal of Public Policy and Marketing*. [21]

NET ZERO+
Building Climate and Economic Resilience

Unlocking the potential of demand-side climate mitigation strategies

OECD Net Zero+ | Policy Papers No.9

Demand-side climate mitigation policies aim to influence demand for goods and services by end-users in order to promote low-carbon consumption patterns and lifestyles. Despite their significant mitigation potential, demand-side policies remain relatively underutilised to date. Encouraging behaviour change towards more sustainable choices requires understanding and addressing the drivers of end-users' decision-making in various contexts. This paper draws on recent reports and data to take stock of OECD work on demand-side mitigation strategies. It reviews available evidence on their effectiveness, on enabling factors and barriers, and offers recommendations for effective implementation, with special focus on four sectors key to demand-side mitigation: energy use in buildings, transport, diets, and waste.

OECD
BETTER POLICIES FOR BETTER LIVES

For more information:

https://oe.cd/net-zero

env.contact@oecd.org

OECD Environment

@OECD_ENV

OECD Environment Directorate, March 2025