

DENMARK'S GLOBAL CONSUMPTION-BASED EMISSIONS

SUMMARY



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CONCITO

DENMARK'S GREEN THINK TANK

Executive summary

According to CONCITO's updated assessment of Denmark's global consumption-based emissions, each Dane emits an average of 13 tonnes of CO₂e annually, which is about twice as much as an average world citizen. The largest share of emissions come from the Danish consumption of transportation, food, housing and energy, but there are also significant emissions from consumption in the public sector, through leisure and culture, and the use of clothing, personal care and furniture.

Major changes in Danish consumption patterns and lifestyles are needed if Denmark is truly to be a green pioneer that can credibly inspire other countries to take the necessary climate action as well. If we are to align ourselves with the Paris Agreement and the IPCC's 1.5-degree target, swift and transformative action is needed at both individual and systemic levels, as global greenhouse gas emissions must be roughly halved by 2030 compared to emission levels of 2020.

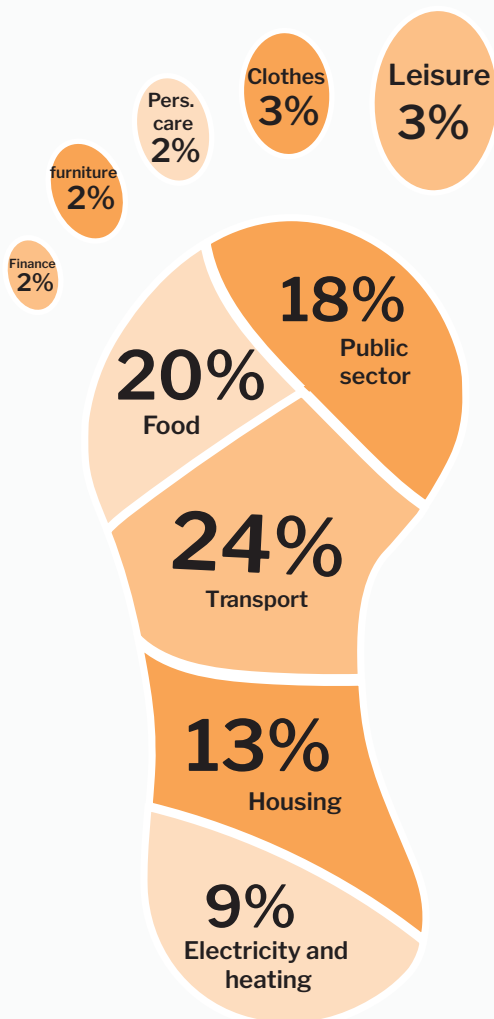
The report calculates Denmark's total global consumption-based emissions to be at 74 million tonnes of CO₂ equivalents (CO₂e). The new result represents a reduction compared to an earlier CONCITO estimate from 2014. This reduction owes more to cleaner energy production than to any significant change in Danish consumption habits.

Reducing Denmark's high consumption-based emissions requires both individual and systemic changes in the form of changes in practices and ideas of what a good life is, through technology improvements and through regulation of particularly high-impact goods and services, so that climate-friendly lifestyles are enabled and made easily available.

Through a series of *consumption profiles*, CONCITO illustrates that climate footprints can vary greatly from the average of 13 tonnes and that the climate footprint is closely linked to income levels. It also emphasizes that there are limits to how much an individual can reduce the climate impact of consumption on their own.

Key results

- Denmark's total global consumption-based emissions are at 74 million tonnes CO₂e.
- This corresponds to 13 tonnes CO₂e per capita.
- This is a reduction of 4 tonnes CO₂e compared to CONCITO's previous assessment of 17 tonnes.
- Real reductions are estimated to be of 3 tonnes CO₂e per person, whereas the remaining 1 tonne is estimated to be due to differences in methodology and data quality.
- The consumption domains responsible for the highest shares of emissions are transportation, food, public services, electricity and heat, and housing. Other product groups and services with the highest total emissions include leisure and culture, clothing and textiles, personal care, furniture and home furnishings, insurance, and finance.

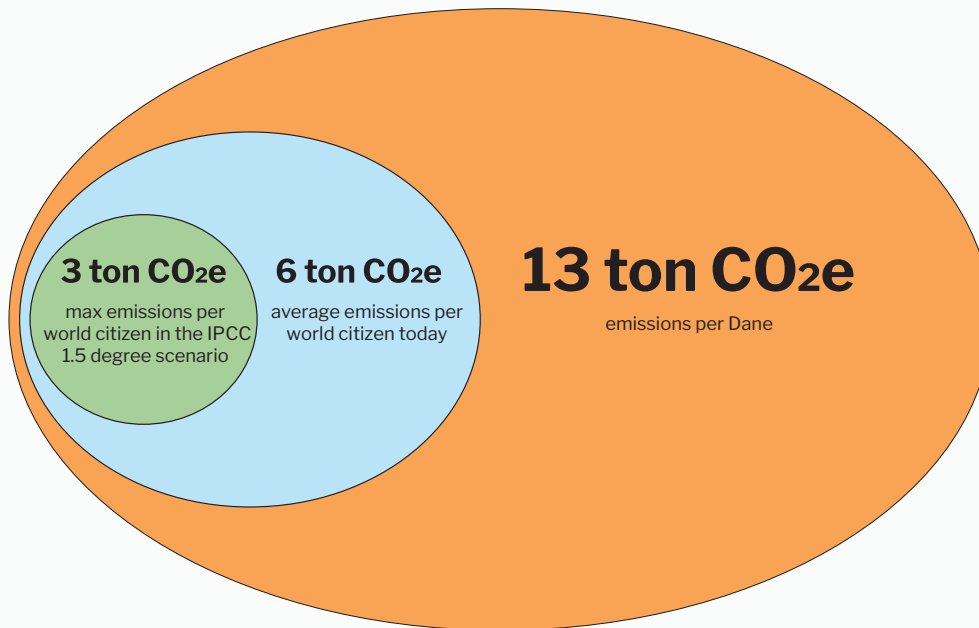


Denmark's global consumption emissions distributed on 10 of the most emitting consumption categories. Public sector includes emissions from social and health care, education and other public services (administration, defense, etc.). The areas are illustrative and not proportional with the numbers.

Denmark's per capita consumption emissions among the highest in the world

Denmark's per capita consumption emissions are still among the highest in the world, with modest evidence of reduction. The 13 tonnes of CO₂e per capita per year, far exceed the sub-3 tonnes per global citizen required by 2030 to meet the Paris Agreement's ambitious 1.5-degree target.

- While there has been a decline since CONCITO's 2014 estimate, this decrease is primarily due to greener energy production rather than genuine shifts in consumption habits.
- Denmark has one of the world's highest consumption emissions, and if each world-citizen emitted as much as we do, global greenhouse gas emissions would be almost twice as high as they are today.
- According to the Danish Energy Agency's Global Reporting 2023, Denmark's territorial emissions have decreased by 39% in the period 1990-2021, while Denmark's global consumption emissions have only decreased by 21% in the same period. Thus, there has been a decrease in Denmark's greenhouse gas emissions despite higher consumption, but about half of the decrease has been achieved by shifting emissions to other countries.
- This is not in line with the guiding principle of the Danish Climate Act that states "the measures to be used to reduce greenhouse gas emissions must result in real domestic reductions, but at the same time it must be ensured that Danish measures do not simply move all greenhouse gas emissions outside Denmark's borders". Essentially, it shows that Denmark has not managed to ensure an absolute decoupling of economic growth and greenhouse gas emissions.



The current consumption emissions per Dane versus the current emissions per world citizen and the maximum emissions per world citizen in 2030 according to the IPCC's scenario for limiting global warming to 1.5 degrees. The areas are illustrative and not proportional with the numbers.

Need for a completely different, ambitious and transformative climate policy

To significantly reduce consumption-based emissions by 2030, as several parties and green organizations have proposed, it requires a huge effort both by us as a society and by the individual. To fulfill our part of the global responsibility, Denmark should strive to at least cut in half the consumption-based emissions in 2030 compared to 2020. This is difficult, but needed to fulfill Denmark's global climate responsibility, and realizing that will require a completely new kind of ambitious and transformative climate policy.

- When it was formed by the end of 2022, the government promised to address global emissions, but initially only by examining the consequences of having a consumption-based emissions target. This approach is completely inadequate.
- The onset of the many climate-related calamities this summer could serve as a wake-up call, mostly likely stirring public sentiment toward embracing greener lifestyles. This presents the government with a golden opportunity to support and enable compelling narratives around sustainable living, emphasizing what is to be gained rather than focusing on losses.

Individual Action: Necessary but Insufficient

The high consumption emissions in Denmark challenge its narrative as a pioneering green nation. Although individual behavioral shifts are part of the solution, they alone can't solve the problem. What's required is a collective effort that encompasses robust government policies, technological innovation, and a societal commitment to sustainable choices.

Through six constructed consumption profiles, the report illustrates that each individual does have a space for action in terms of reducing emissions, however unlikely below 9 tonnes CO₂e, and even that will be a challenge that require a lot from the individual.

The most substantial reductions can be realized through eating plant-based and replacing beef with pork and chicken, flying less, driving electric cars, living in smaller homes, and buy refurbished/secondhand furniture, electronics, and clothing. This will however not be enough to ensure a halving of Denmark's consumption emissions by 2030. Substantial reductions are needed in the public sector through climate-oriented changes in public procurement, as well as systemic societal changes through technological development, regulation, taxes and ambitious visions that enables good, sustainable lifestyles.

Finally, the report and consumption profiles show that Danes with high incomes tend to have a higher climate footprint than others with lower incomes, who will typically consume less. The biggest transition will therefore mostly affect those with high incomes and a relatively high consumption of climate-impacting goods and services.

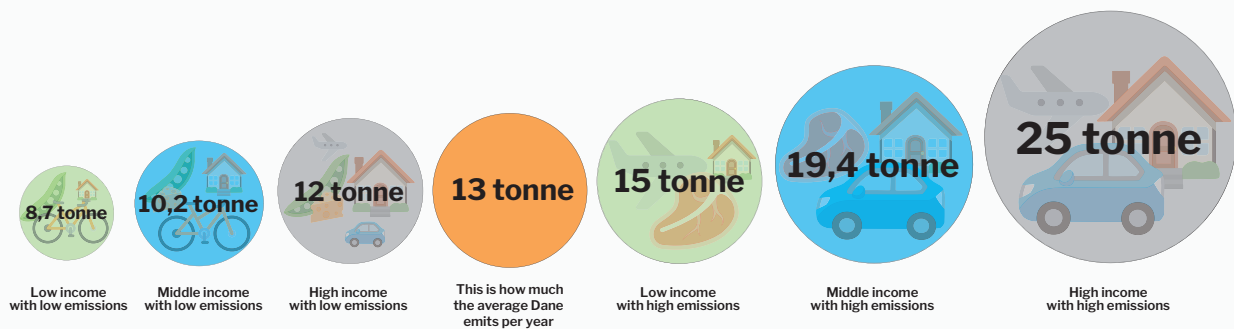


Illustration of the variation in emissions of different consumption profiles in relation to the average 13 tonnes CO₂e. The circles are illustrative and not fully proportional with the numbers.

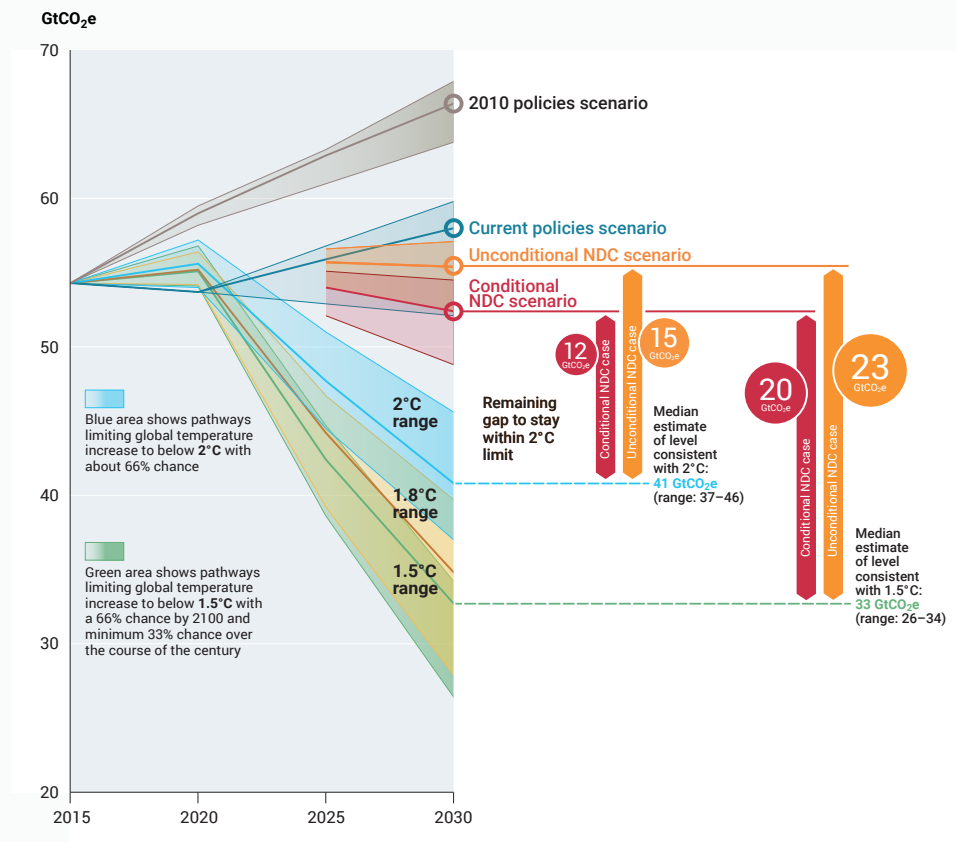
Denmark should aim to halve consumption emissions by 2030

Globally, Denmark ranks 33rd highest when it comes to consumption-based emissions according to Eora (2023), which calculates Denmark's consumption based emissions at 12 tonnes per capita through an attributional LCA).

If each global citizen lived like the average Dane, global emissions would be at around 100 gigatonnes of CO₂e annually rather than the current level of just over 50 gigatonnes of CO₂e annually.

The Paris Agreement's 1.5 degree target requires reducing global emissions to 33 gigatonnes CO₂e by 2030 (according to the IPCC/UNEP Gap Report 2022), so roughly speaking, the entire world should halve CO₂e emissions from 2020 to 2030. According to the IPCC's reduction scenarios, consumption emissions per world citizen should be reduced to below 3 tonnes CO₂e in 2030 and below 1 tonne CO₂e in 2050.

Denmark should therefore at least halve consumption based emissions by 2030 compared to 2020. And even more if we are to ensure a globally fair distribution of the climate budget. A positive climate impact through the export of climate



technology, climate aid, etc. cannot be used to legitimize a lower reduction target in Denmark, compared to the rest of the world.

Emission scenarios up to 2030 for limiting global warming to 1.5 degrees, 1.8 degrees and 2 degrees this century, respectively, and illustration of the gap compared to current emissions and national climate policy action plans (NDCs). Source: UNEP, Emissions Gap Report 2022.

Reducing the climate footprint is a shared responsibility

Consumption-based emissions are closely intertwined with everyday life dynamics and understandings of 'the good life'. The report describe lifestyles and consumption profiles, which show that large variations can occur in individuals climate footprints. Each Dane should of course take responsibility for reducing their own carbon footprint, but the consumption profiles also clearly show that it is difficult for individuals to significantly reduce their carbon footprint and impossible to reduce it sufficiently. There is a correlation between income and carbon footprint (assuming that disposable income will always be spent) - but you can spend your money in more or less climate-friendly ways.

Reductions linked to technological and policy measures in the energy system illustrates the necessity and possibilities of systemic change. The areas represented in the consumption profiles are often neglected politically, and the responsibility for change is often unfairly placed on the individual. The report and results clearly show that systemic changes are needed just as much across housing, food and mobility in order to reduce the climate footprint sufficiently.

Consumption emissions by product groups and services	Tonne CO ₂ e per person (percent)
Total consumption emissions	12,9 (100%)
Transport Purchase of vehicles Operation of personal transportation Transportation services	3,1 (24%)
Food Food Non-alcoholic beverages Alcoholic beverages Tobacco products Restaurants, cafes and canteens etc.	2,5 (20%)
Housing Actual rent Estimated rental value of home Home maintenance and repairs Water supply and other services related to housing Other household goods and services Other accessories and equipment for leisure, gardens and pets	1,6 (13%)
Electricity and heating Electricity, gas and other fuels	1,1 (9%)
Social and healthcare Medical products, devices and medical equipment Outpatient treatment Hospital services Day care centers and social services	1,1 (8%)
Other public services Public administration, defense, etc.	0,8 (7%)
Teaching Early childhood and primary education Secondary education Higher education Non-level education	0,4 (3%)
Culture and leisure Recreational and cultural services Other major durables for recreational and cultural services Newspapers, books and stationery	0,4 (3%)
Clothing and textiles Clothing Footwear Home textiles	0,4 (3%)
Furniture and home furnishings Furniture and home furnishings, carpets and other floor coverings Glassware, tableware and household utensils Tools and equipment for home and garden	0,3 (2%)
Personal care and effects Personal care Other personal effects	0,3 (2%)
Insurance and finance Insurance Financial services	0,2 (2%)
Postal and telecom services Postal services Telecom services	0,2 (2%)
Hotels and travel packages Accommodation facilities Package tours	0,2 (1%)
Electronics and appliances Household appliances and their repair Telephone and telefax equipment Audio-visual, photographic and data equipment	0,2 (1%)

Denmark's global consumption emissions per person by 15 product groups and services in tonnes CO₂e and percent. The underlying categories from Statistics Denmark's consumption statistics are shown under each product group.

About the report

The report "Denmark's global consumption-based emissions" has been prepared by CONCITO and provides an updated and detailed overview of Denmark's consumption-based emissions and the steps needed to fulfill Denmark's global climate responsibility.

The report contains an updated and comprehensive assessment of Denmark's global consumption-based emissions, based on the latest data and updated models for impact assessment. The results are calculated by 2.-0 LCA consultants and based on data and modeling from Aalborg University's "Getting the data right" project and the EXIOBASE update project.

Data basis, calculation methods and modelling assumptions are described in appendix report 1 from 2.-0 LCA consultants (Schmidt J, Merciai 2023). In appendix report 2, Denmark's consumption -based emissions are divided into four different categorizations with 19 consumption categories as the most general and 282 consumption categories as the most detailed. The results are approximate and based on 2016 data, but are considered to be the closest we can get to a detailed description of consumption-based emissions from the current consumption patterns reflected in 2023.

The main report from CONCITO and the appendix reports from 2.-0 LCA consultants can be found at <https://concito.dk/udgivelser/danmarks-globale-forbrugsudledninger>.



CONCITO

DENMARK'S GREEN THINK TANK

CONCITO is an independent think tank that communicates climate knowledge and solutions to politicians, businesses and citizens.

Our purpose is to contribute to lower greenhouse gas emissions and to limit the damaging effects of global warming.

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