

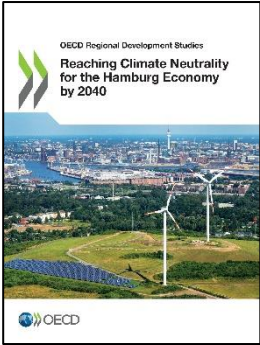
Reaching climate neutrality for the Hamburg economy by 2040

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**Reaching Climate Neutrality for the Hamburg Economy
by 2040**

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Reaching climate neutrality for the Hamburg economy by 2040.

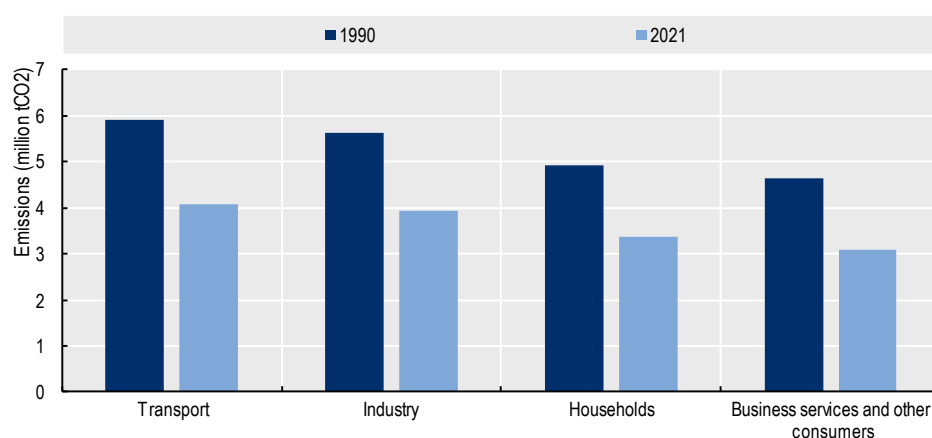
Climate neutrality requires economic transformations of unprecedented scale and speed. Policy action across countries is trailing behind objectives, so it is important businesses also take the initiative. This helps them avoid unnecessary costs. Hamburg's business community has decided to tackle the challenge head-on, with the Hamburg Chamber of Commerce (HCC) setting the ambitious target to reach climate neutrality by 2040. To meet this target, action needs to accelerate to reach net zero GHG emissions, including in industry and business services (Figure 1).

Hamburg's businesses are well-placed to face the challenges and take advantage of opportunities. Shipping and rail transport from and to the port are important and energy-efficient transport modes. They are at the core of the Hamburg economy, spanning industry, trade and other services. The transformations of economic activity to achieve climate neutrality will succeed best, creating well-being and prosperity, if they are prepared taking Hamburg's specific regional economic perspective. Also, businesses need to work together. This is particularly important for SMEs. They will need to share infrastructure and knowledge, for example, to make the best use of low-cost renewable electricity or to decarbonize the transport of goods.



Figure 1. Emissions in Hamburg have fallen but action needs to accelerate to reach net zero

CO2 emissions from energy end-use by sector in 1990 and 2021.



Note: Scope 1 and 2 emissions. The industry sector includes mining, quarrying, and manufacturing of materials and products. It does not include oil refining.

Making climate neutrality operational for businesses

The HCC target to reach climate neutrality by 2040 is more ambitious than that of the region (2045), Germany (2045) and the European Union (2050). Thus, Hamburg businesses will need to lead the transformations.

The climate neutrality objective set by the HCC should include reaching net zero greenhouse gas emissions for all direct (Scope 1) and indirect emissions from the use of electricity and heat (Scope 2 emissions) of Hamburg businesses. They should also take into account indirect emissions that arise throughout their value chains (Scope 3 emissions). This will allow businesses to fully integrate opportunities and challenges in their business models. Scope 3 emissions of Hamburg businesses could reach net zero after 2040, broadly following science-based emission reduction scenarios consistent with the Paris Agreement.

Businesses should prepare targets, action plans and progress reports to prosper in the transition to climate neutrality

A survey conducted among members of the HCC finds that 48% of responding businesses have established a net-zero emissions target. Among those with net-zero targets, 76% have set goals for 2040 or earlier, in line with the HCC's climate neutrality objective. While many businesses did not respond to the survey, the results suggest many local businesses appreciate the urgency of the transformations towards climate neutrality. However, only 45% include Scope 3 emissions. Among the 8 largest companies in Hamburg, seven report Scope 3 emissions, but only four disclose the calculation methodology.

Climate action can generate powerful local wellbeing benefits, such as reduced traffic congestion, accidents and air pollution. Businesses should take an interest in business models that replace individual car use in job commuting with walking and cycling, public transport and shared car rides.

Key actions to make climate neutrality operational

- Businesses should develop climate neutrality targets to reach net zero GHG emissions for Scope 1 and 2 emissions by 2040 and follow science-based emission reduction scenarios consistent with the Paris Agreement for Scope 3 emissions.
- Businesses should set intermediate emission reduction targets, as well as prepare action plans and regular progress reports.
- Businesses with reporting requirements should publish targets, action plans and progress reports as well as assessment methods.
- Businesses should cut their own emissions instead of relying on international offsets and limit the use of CCS to process emissions in industry.
- The HCC can create a public platform to monitor progress on these actions, provide guidance, and facilitate knowledge-sharing and coordination.

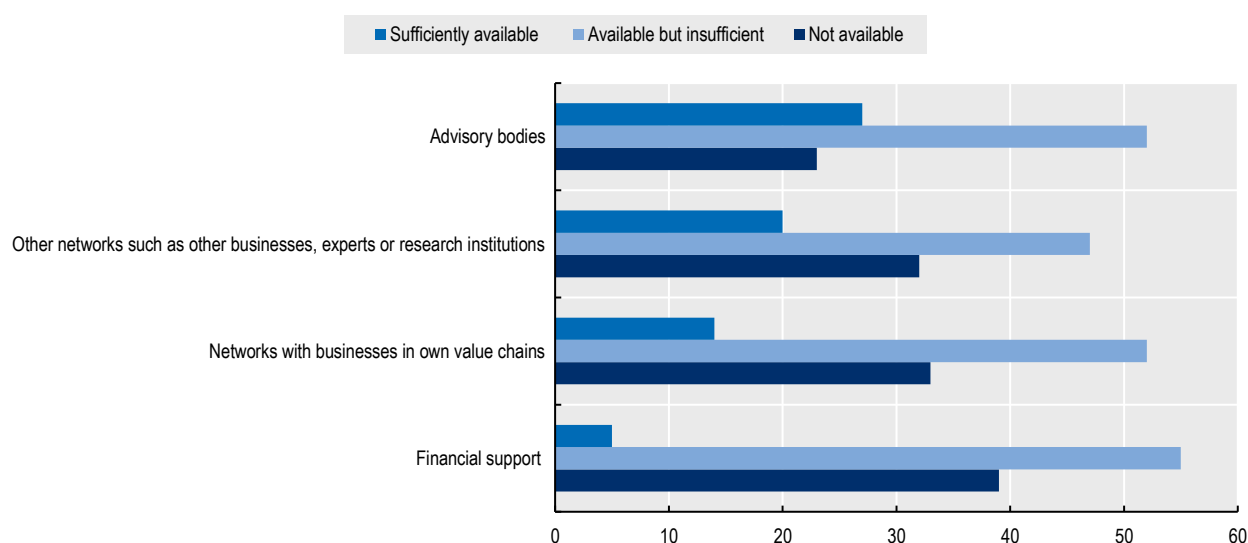


Business networks are key for SMEs to build climate-neutral business models

SMEs contribute almost half of Hamburg's economic activity. Yet they often lack resources to adopt climate-neutral technologies and products. Results from the business survey suggest Hamburg companies need more access to advice, support networks and finance (Figure 2). Business networks serving this purpose enhance SMEs' access to relevant knowledge as well as to private and public funding.

Hamburg's economy can draw valuable insights for its decarbonisation efforts from cities with similar challenges. While Rotterdam and Seattle are striving for climate neutrality by 2050, Stockholm has set an even more ambitious goal for 2040 which is also the HCC's target. Stockholm stands out with the lowest emissions.

A key lesson is the importance of engaging stakeholders, including businesses, experts, and the public, in decision-making processes. For example, Rotterdam has established five climate roundtables to address port and manufacturing, built environment, mobility, clean energy, and consumption.

Figure 2. Businesses feel there is not enough financial support and network support

Source: Survey carried out by Hamburg Chamber of Commerce (2023).

Key action for SMEs

- Businesses should initiate the creation of networks on strategic issues, with the support of HCC, such as on coordinated decarbonisation across value chains, cost savings from better renewable energy use; and infrastructure needs from the electrification of road freight or the circular economy.

Businesses must ramp up investment in decarbonising buildings

Buildings account for a quarter of the final energy use in Hamburg. As oil and gas use needs to be phased out by 2040, spending on new fossil fuel boilers risks being wasted. Heat pumps should become the main source of heat where district heating is not available, keeping in mind that district heating should also ideally rely on zero-emission heating sources. As switching to heat pumps will increase electricity demand, businesses also need to renovate buildings to reduce energy use. All buildings need renovation to this end. A quick ramp-up of new qualifications is needed for jobs in the installation of heat pumps, renewable energies and energy efficiency.

Financial instruments that harness profits from energy efficiency improvements to pay for upfront investment can help. Firms will benefit from reduced heating bills and will be less vulnerable to energy prices or rationing risks. Workers will benefit from more comfortable indoor temperatures and better air quality.

Key actions to support buildings decarbonisation

- Businesses should aim to reach a renovation rate of 2.5% of buildings per year by 2030.
- Businesses should replace heating systems that depend on fossil fuels with renewable energy systems, notably heat pumps.
- HCC could help identify bottlenecks in skills and construction as well as steps to address them.

Businesses can save costs by taking better advantage of solar and wind power

Hamburg businesses can benefit from low-cost electricity generated from variable renewable energies (solar and wind energy, VRE). Solar and wind-generated electricity already boast the lowest production costs. Solar photovoltaic systems installed on their rooftops offer businesses in Hamburg an attractive opportunity to save costs. Investment is often profitable but remains low. One of the main obstacles is the limited access to information about the potential savings.

Hamburg businesses can take many actions to integrate VREs. They can manage their electric vehicles smartly, with digital technologies and advanced batteries. They can participate in flexible demand response programs that reward businesses for demand flexibility. Some can also convert power into heat or hydrogen. Collaboration between businesses in the same neighbourhood can help lower costs.

Key actions to take advantage of low-cost renewables

- Businesses should assess the profitability of on-site electricity production, especially solar PV rooftops, and ramp up investment.
- Businesses need to assess the potential for making their electricity use more flexible.
- The HCC can argue for market-based solutions for more appropriate regulation of electricity markets with increasing renewables shares.



Hamburg should position itself as a hub for climate-neutral transport services

The port of Hamburg has taken a leading role in reaching climate neutrality by 2040. For example, it has electrified energy delivered to vessels in port and aims at making all port operations emissions-free by 2040. In spring 2023, the United Nations' International Maritime Organisation (IMO) committed to reaching net zero CO₂ emissions in international shipping by 2050. To reach this target, more than half of the fuels used in international shipping may need to be zero-emission fuels already in 10 years' time. Hamburg port could play a strategic role as a logistics node in the supply of zero-carbon fuel, supporting Hamburg's key role in overseas trade. It has already taken steps in this direction.

Hamburg stands out for the large share of rail in the transport of freight to and from the port. This gives Hamburg a competitive advantage as most rail transport is already electrified. Climate-neutral freight will require maximising the use of rail. Decarbonising road freight should also start immediately. It requires ramping up investment in electric lorries and charging infrastructure. Doing so will help businesses gain access to low-cost zero emission transport services well beyond Hamburg.

Key actions to make the most of Hamburg's port on the way to climate neutrality

- The Hamburg port could cooperate with other major ports and shipping entities to establish green shipping corridors between major hubs that support zero-emission fuels.
- The HCC could liaise with transport operators and the government to address rail infrastructure bottlenecks as well as advance the digitalization of rail freight.
- Key actors should coordinate action to prepare the delivery of charging infrastructure for the decarbonisation of road freight.



Some manufacturing activities require particularly deep transformations

Manufacturing is the most productive sector in Hamburg. While manufacturing is diverse, oil refining and basic metals production, notably copper, steel and aluminium, dominate Hamburg's direct manufacturing emissions. These sectors employ about 8 000 workers. They are also the foundation of industrial value chains in Europe and elsewhere. Basic metals are vital for building net-zero transition infrastructure. For example steel, aluminium and copper serve to build light-weight electric vehicles. By contrast, the production of transport fuels from oil needs phasing out quickly.

Hydrogen will play an important role to decarbonise these manufacturing activities. Hamburg's manufacturing can benefit from a hydrogen hub in Hamburg. Since production assets are often long-lived, replacement of equipment may need to be net-zero consistent already starting in 2025.

Indirect emissions can be a multiple of direct emissions, mostly on account of energy use in the mines extracting the raw materials. Mining and processing of materials also contribute to ecosystem damage worldwide. **These impacts are particularly strong and growing for steel and copper.** Digitalisation can support circular economy practices, which in turn reduce raw material input. Manufactured goods will also need to be used for longer, reused, and their use be shared more, such as cars for example.

Key actions in manufacturing

- Businesses should replace long-lived assets in consistency with climate neutrality in 2040.
- Key businesses should define circular economy strategies for the decarbonising value chains.
- Key businesses should assess employment and worker skills implications, in particular in oil refining, and identify actions to maintain attractive job prospects for affected workers.



The potential for a green hydrogen hub in Hamburg is large

Green hydrogen is an essential tool for decarbonising copper and steel production in Hamburg. Moreover, hydrogen-based fuels hold potential for maritime shipping. With increasing hydrogen demand, importing green hydrogen and hydrogen-derived fuels into Hamburg will be essential. With its port, Hamburg can make itself into a significant hydrogen hub, serving hydrogen needs also in neighbouring regions. Scaling up action quickly can create first-mover advantages, reduce costs for users thanks to scale economies and accelerate climate action.

Key actions for green hydrogen

- Scale up infrastructure development to connect areas of production, import and demand.
- Key businesses should assess, with support from research, regional and national government as well as HCC, development of technologies to lower costs for shipping hydrogen.

The circular economy can be a driver of climate neutrality

The transition towards a circular economy could reduce global GHG emissions by 39% by 2032 compared to 2019 levels.

The city of Hamburg has undertaken five axes of activities to move towards a circular economy:

- i) Business engagement: through the “Hamburg Eco-Partnership” network, composed of 1 600 companies committed to taking voluntary environmental action, the “Circular Hub North” to foster knowledge sharing and collaboration across SMEs and the “Caught-up Initiative” of Hamburg’s Ministry of Justice and Consumer Protection to tackle food waste;
- ii) Raising awareness and building knowledge: the city became the first German Fab City and has hosted events such as the “1st Hamburg Dialogue against Food Waste” to discuss practical solutions to reduce food waste and “Green Fashion Tours”;
- iii) Adhering to “Circular City – Opportunities for local and regional resilience & value creation” led by Difu (German Institute of Urban Affairs);
- iv) Guidelines on used clothes and food donation and sustainable tourism practices;
- v) Funding to support the transition towards a circular economy.

The business sector plays a key role in the transition from a linear to a circular economy. For example, through resource recovery models some businesses in Hamburg reduce the cost of recycled plastic use compared to virgin plastics and collect used glass, paper, clothing, and deposit bottles for recycling. A number of supermarket chains, restaurants, businesses and start-ups offer reusable cups and packaging for beverages and food through deposit systems. Maintenance, repair, and refurbishment services are also provided at repair cafés.

There are several obstacles to making circular business models big. First, businesses are not sufficiently aware of what a circular economy is and how to take advantage of the opportunities it offers. Second, there

are insufficient incentives to adopt circular business models. Shifting from a linear to a circular economy presents financial risks. Lastly, regulation is not yet conducive to them. A regional strategy for a circular economy contribution to climate neutrality still needs to be developed.

Key actions to promote circular business models

- The HCC could raise awareness of the circular economy and related opportunities to encourage sustainable production and consumption practices and the adoption of circular principles.
- The HCC could offer training programmes to the business community, providing them with deeper knowledge and tools to succeed in their circular projects and discover new business opportunities.



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