Öko-Institut

ALL IN FLUX

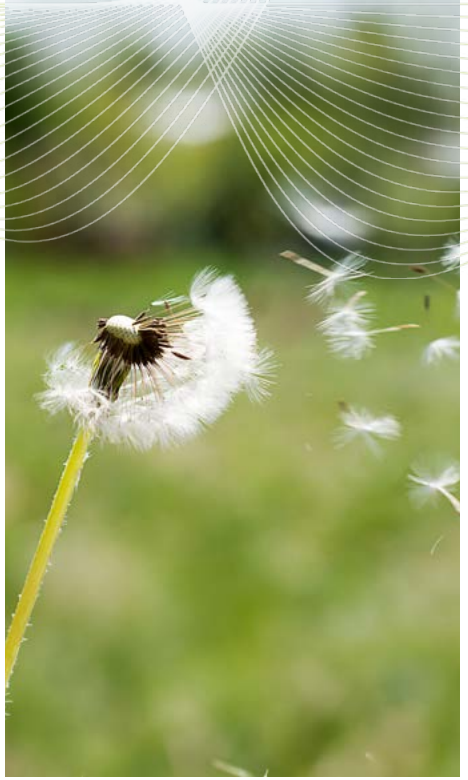
ANNUAL REPORT OEKO-INSTITUT **2025**

CONTENTS

THE SPEED OF SUNLIGHT

Sustainability in flux.

The globe never stands still. The sun shines. Winds blow. Trees grow. We humans are also in constant motion – in body and mind. We mull thoughts over. We drive to work. We handle our daily lives. And we leave traces over and over, just as nature does. Persistent motion characterises the Oeko-Institut, too. We tackle from many different perspectives the question of how our work can foster and advance sustainable transformations and can serve to buoy up the replenishable forces of Planet Earth.



Wind power

A light breeze suffices.

They generated the most electricity in Germany in 2025: The motion of wind turbines produced 132 terawatthours. A light breeze of three to five metres per second suffices to set a wind turbine in motion.

Solar energy

A strong force.

Nothing moves faster in the universe: Sunlight travels at almost 300,000 kilometres per second. We are harnessing its forces increasingly. From 2024 to 2025 solar electricity generation in Germany grew by 21 percent.

Greenhouse gas emissions

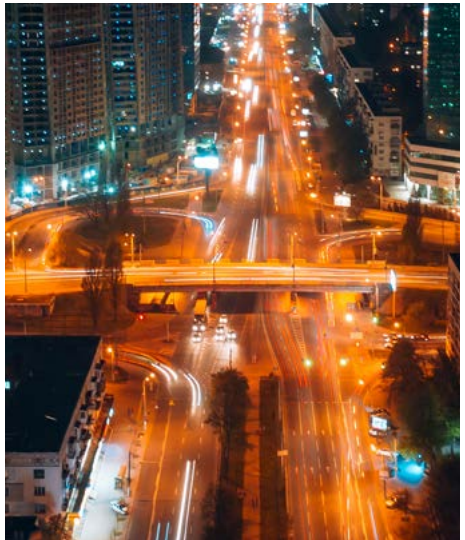
A downward trend.

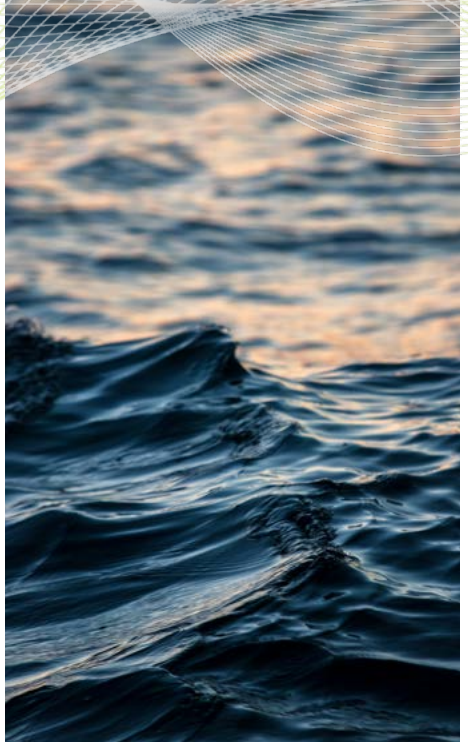
Germany's greenhouse gas emissions have halved since 1990. The trend continued in 2025, with emissions falling by 1.5 percent from the previous year. But the rate of reduction is slowing – so we must not slacken in our climate action.

Electric vehicles

Advancing efficiency.

In December 2025, 22.2 percent of new car registrations in Germany were pure electric vehicles -their proportion was thus 63 percent higher than in December 2024. Their efficiency in terms of the proportion of energy input converted into motive power, it should be noted, is, at 64 percent, much higher than that of petrol-fuelled cars (20 percent).





Water

In flow too slow.

The river Elbe flows past Dresden at an average rate of 5.5 kilometres per hour. Sadly, only 37 percent of waters in Europe are in a good state. If this is to change by 2027 to the extent demanded by the European Water Framework Directive, things will need to speed up.

Heat pumps

Peaking.

Heat pumps have picked up speed: More heat pumps than gas-fired heating systems were sold in Germany for the first time in the first half of 2025. It is worth noting that a heat pump also works when outside temperatures fall – even at sub-zero temperatures they supply heat, just less efficiently.

OUR YEAR IN 2025

Dear reader,

there was a lot going on in 2025. Sadly, things often took a turn for the worse, leading to incisive ruptures in the global order as we knew it. The rule-based global order needed so urgently for global sustainable development is in decline. Many powerful individuals wish to do whatever they choose and whatever makes them (even) richer without any checks and balances. They wish to exploit natural resources without any limitations. The multilateral institutions and the architecture of collective problem-solving structures are under assault. At the same time, global greenhouse gas emissions climbed to a record high last year. Warming by 1.5 degrees Celsius over the preindustrial level has almost been reached globally and has been exceeded regionally in Europe.

How can we respond to such a situation? How to adjust our strategy to this new reality without abandoning our goals for global environmental protection and climate change mitigation? One thing is sure: we will need to build, even more than before, coalitions and alliances that work – and forge new ones for each issue area. With partners who have enough commonalities and willingness to act in unison. In the field of climate action, that still includes the great majority of nations. We will need to weave a network of stakeholders in governments, the private sector and civil society sturdy enough to withstand future challenges. We have already done this with some success in the past. This also calls for a national government that continues to be willing to contribute to solving global environmental problems. This is what we must urge, while continuing to reveal pragmatic solutions at home that not only contribute to environmental quality and climate integrity but also boost our resilience, security and competitiveness. Renewable energy supplies, the closed-loop economy, different agricultural and food policies and greater energy efficiency – to name just a few examples – combine the pursuit of all these goals.

Our researchers at the Oeko-Institut felt keenly over the past year how the brakes were on in climate action. Yet our response is not to adapt to the slower pace. On the contrary, we press ahead with fresh vigour. Because we know very well that the time to act is now. We know that we can only bring about a liveable future for us and future generations if we maintain environmental quality and climate integrity. And that we need to do it now and not wait until it appears more convenient.

Germany urgently needs to develop fresh drive, for instance when it comes to expanding the power grid or upgrading the thermal performance

of buildings. The special high-volume budgetary funds approved by the federal government currently present, at least in theory, a major opportunity to invest in a low-carbon economy and society. Unfortunately, these additional financial resources are partly invested in the opposite direction – witness the increased tax rebates for commuters or the reduction in aviation tax. We at the Oeko-Institut will do all we can to get things going in the right direction again, conceive environmental and climate strategies, implement them in concert with diverse stakeholders, and find answers to the key questions of our times.

Things were not only in flux in scientific terms at the Oeko-Institut in 2025. The past year was marked by organisational restructuring. In 2025 we founded a subsidiary, Oeko-Institut Consult GmbH, which will focus on consultancy work while the non-profit association, Oeko-Institut e. V., will concentrate on research projects. This broadens our organisational base, making us more resilient for the future. Our guiding vision naturally remains unaltered. As you may well imagine, such a process demands much of all involved. I am hugely grateful for the commitment and understanding displayed by all staff, for the additional work done by our administration in taking these steps and the excellent cooperation with our works council.

To come back to the question of resilience: The well-being of all staff is naturally also a major concern at the Oeko-Institut. That is why we do what we can to get our employees going in the truest sense of the word. This includes active breaks, a job cycle programme, support for membership in a fitness platform, health days at the institute at all its sites, engaging an external trainer to promote movement, staff participation in a company run and a table football tournament.

The challenges will not subside in the foreseeable future. Yet we will not be discouraged. For we have many excellent solutions to major issues and many partners at home and worldwide who are resolved to join us in setting developments on track for a sustainable future.

Warmest wishes,
your
ANKE HEROLD
CEO of Oeko-Institut e. V.

ALL IN FLUX AT THE OEKO-INSTITUT

2025 was a year of major structural change at the Oeko-Institut. From January onwards, our consultancy services for policymakers and the business sector in the fields of environmental protection, climate change mitigation and sustainable development are clustered under our newly established subsidiary, Oeko-Institut Consult GmbH.

Oeko-Institut Consult GmbH performs contracts to provide policy advice, conduct application-oriented research and engage in international project activities. The non-profit association, Oeko-Institut e. V., will focus on the research projects in our portfolio.

At the same time, much remains as it was: cutting-edge science, proven management team, experienced scientists, highly committed staff in central services. We jointly ensure that Oeko-Institut e. V. and Oeko-Institut Consult GmbH play their part in sustaining the natural environment.

"Our organisational model is expanding but our mission remains the same. we apply our scientific expertise to safeguard the foundations on which all human life depends, for present and future generations, and initiate and shape the necessary transformations in politics and society, with a focus on solutions."

ANKE HEROLD
CEO of Oeko-Institut e. V.

"Our new limited company will offer public- and private-sector clients our independent, science-based consultancy services in line with our usual high quality standards, applying our broad methodological and transdisciplinary approach."

CHRISTOF TIMPE
Managing Director
of Oeko-Institut Consult GmbH

The following pages provide an overview of the current management structures in the association and in the limited company.

Executive Board

The Executive Board represents the Oeko-Institut e.V. association and the Oeko-Institut Consult GmbH limited company externally and is responsible for strategic development, human resources management and development, and the operative control of the various divisions.

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Executive
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Committee of the Oeko-Institut e.V. association

The Committee of the Oeko-Institut e.V. association has seven external members, who are elected by the Members' Meeting for a term of two years. A further five persons from within the institute also sit on the Committee: a representative of the extended management, the CEO ex officio, and one staff representative from each of the institute's three offices – Freiburg, Darmstadt and Berlin.

EXTERNAL COMMITTEE MEMBERS

DOROTHEA MICHAELSEN-FRIEDLIEB
First Chair of the Committee

ULRIKE SCHELL
Second Chair of the Committee

PROF. DR. LORENZ HILTY
BETTINA LORZ
HELMFRIED MEINEL
WOLFGANG RENNEBERG
PROF. DR. THOMAS SCHOMERUS

INTERNAL COMMITTEE MEMBERS

CARL-OTTO GENSCH
ANKE HEROLD
DR. JOHANNES KLINGE (GEB. BETZ)
MELANIE PIETSCHMANN
DR. MERCEDES KÜFFNER

Oeko-Institut Consult GmbH is a wholly owned subsidiary of Oeko-Institut e. V.

Research divisions

The research divisions are the pillars of the institute's scientific activities. They develop solutions to current sustainability challenges and map viable pathways towards a sustainable and equitable future.

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JULIA REPENNING
Head of the Energy & Climate Division

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Research coordinators

The research coordinators at the Oeko-Institut are responsible for strategic development of key issue areas of national and international importance. They integrate scientific expertise, foster cross-divisional cooperation and ensure timely identification of novel issues and suitable research approaches.

They also combine scientific project management with strategic acquisition, assure the quality of lighthouse activities and represent the institute's topics in expert discourse, at conferences and in discussions with policymakers, clients and cooperation partners. They ensure in this manner that the institute's work is always aligned with and responds to current challenges in society and policymaking.

Two new research coordinators in the area of sustainable digitalisation were appointed in 2024 and took up their posts in 2025:

DR PETER GAILHOFER
Research Coordinator for Digital Ethics and Governance
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JENS GRÖGER
Research Coordinator for Sustainable Digital Infrastructures
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The other research coordinators are:

DR FELIX CHR. MATTHES
Research Coordinator for Energy & Climate Policy
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DR MELANIE MBAH
Research Coordinator for Transdisciplinary Studies
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DR LAMBERT SCHNEIDER
Research Coordinator for International Climate Policy
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Central Services

The staff working for Central Services ensure efficient administrative processes and secure workflows within the Oeko-Institut. They thereby provide the necessary freedom for research to be conducted.

Among the key tasks of Central Services are supporting all projects funded by third parties in terms of calculations, tenders and contracts and planning, managing and controlling the institute's finances and membership administration. Other key tasks include operating and further developing the IT infrastructure, presenting the institute's work externally and internally, supporting staff in personnel issues in all phases of the employment relationship and providing a functioning, modern office infrastructure.

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STABLE TRAJECTORIES ...

... in staff, projects and finances

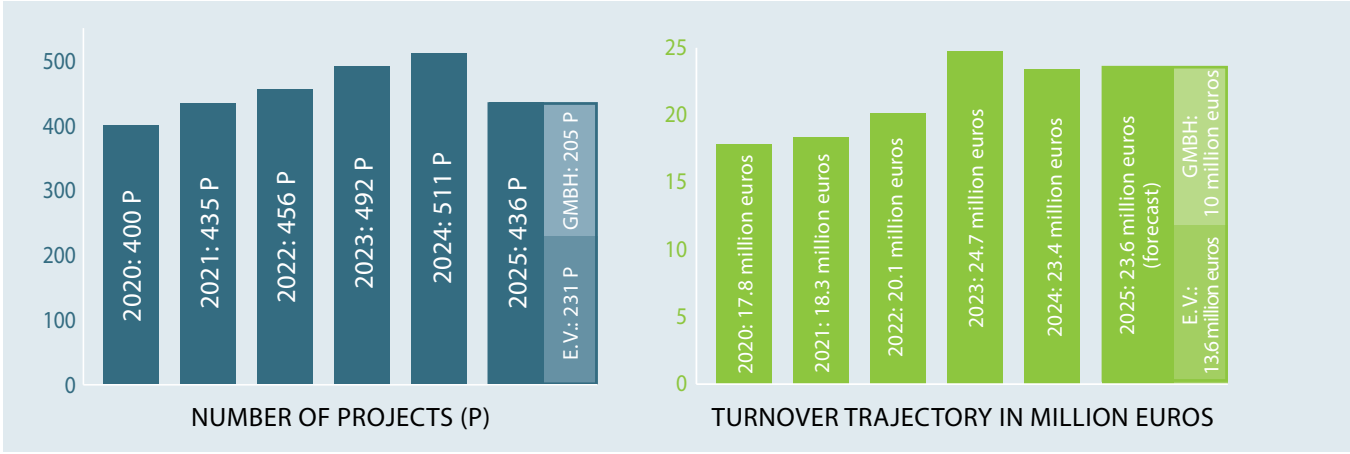
2025 was a year of stability for the Oeko-Institut. In all three metrics – staff numbers, project numbers and turnover – we were largely able to stay on the positive trajectory of previous years and firm up our capabilities.

In 2025, 223 dedicated staff in our Freiburg, Darmstadt and Berlin offices contributed to the Oeko-Institut's success. At year's end, **177 persons were employed by the Oeko-Institut Consult GmbH company** and **124 by the Oeko-Institut e.V. association.** Of these, **78 persons were staff of both** the company and the association. This intermeshing of staff fosters effective cooperation between research, consultancy and cross-cutting tasks.

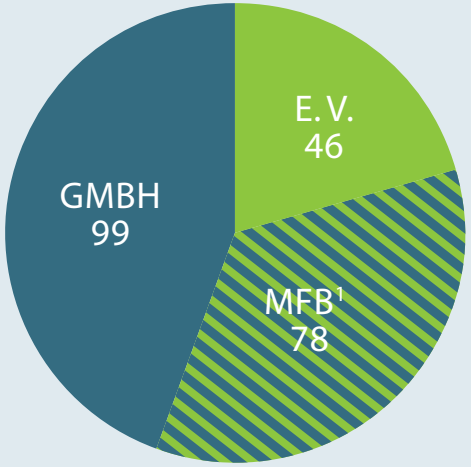
Most staff were engaged in scientific activities, with **149 scientists** delivering research and consultancy services. They were supported by **74 colleagues in Central Services** who ensured that the institute's internal procedures ran smoothly.

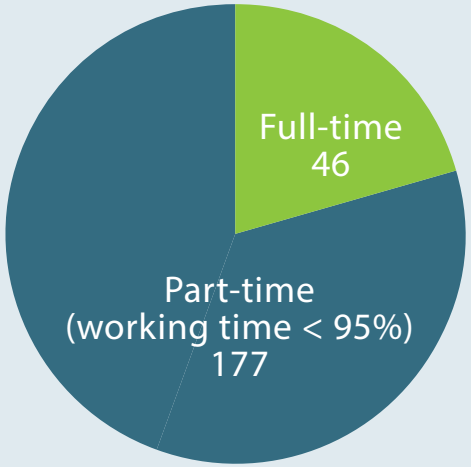
Project numbers also stayed at a high level. The Oeko-Institut delivered **436 projects** over the year, confirming the unbroken demand for independent, scientifically robust policy advice and environmental consultancy.

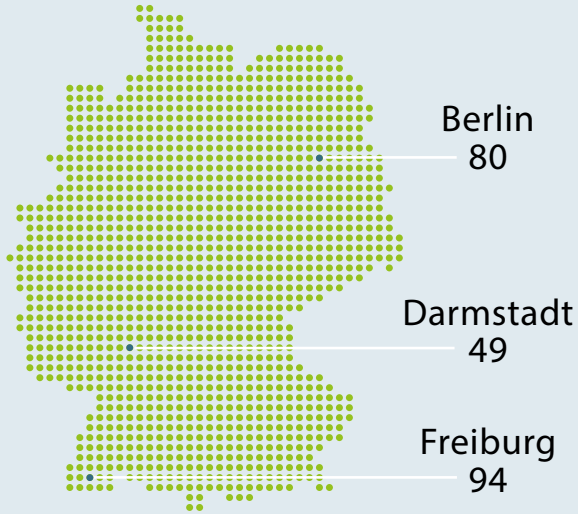
Similarly, the institute's financial planning maintained its stability. Consolidated turnover as forecast figured around **23.6 million euros in 2025** – a figure that underscores the continuing trust of public-sector clients, institutions and partners in our expertise and operations.



Facts and figures in 2025







[1] MFB = Mehrfachbeschäftigung, meaning staff members employed in both the company and the association

NEVER STANDING STILL

Selected projects in 2025

Nothing stands still. All is in motion. In politics. In society. In the environment. It is essential that we continue to evolve. That we are capable of adapting to new circumstances and handling novel challenges. That we recognise fresh opportunities and make use of them. All of this applies equally to the researchers at the Oeko-Institut. They continuously improve their methodologies, broaden their experience, deepen their expertise. They reflect on discourses and external developments and elaborate novel ideas to handle necessary changes. One thing, though, is unshakable: their commitment to the goal of maintaining environmental quality and the integrity of the natural environment, thereby safeguarding the very basis of human life. This is exemplified by the ten selected projects presented on the following pages.

In the Energy and Climate Division, our researchers investigated the **European Union's climate target for 2040 and the readjustment of its Emissions Trading System (EU ETS).** They also looked at ways to increase the **retrofit rate of non-residential buildings.** Development of an online portal allowing organisers **to shape their events sustainably** was a focus of the Resources and Transport Division. The experts there also analysed how a **social leasing programme for electric vehicles** could work in Germany. In the Sustainable Products and Material Flows Division, researchers examined **the energy requirements of artificial intelligence** and answered the question of how data centres could be made more sustainable. A project team involving the Division also created an online tool for **the sustainability assessment of chemicals.**

Meanwhile, in the Environmental Law and Governance Division, our experts revealed why **algorithm-based decision-making systems** call for adjustments to environmental law. They also tackled the question of how corporate due diligence obligations could address **the negative impacts of global supply chains on water resources worldwide.** Last but not least, experts in our Nuclear Engineering and Facility Safety Division took stock of **the nuclear cultural heritage in Germany** and, in a further project, examined **risk assessment techniques for long-lived radionuclides.**

EU CLIMATE ACTION TO 2040

Too much flexibility, too little ambition

Europe is reconfiguring its climate policy. The process was dominated in 2025 by the adoption of a new 2040 climate target. Similarly, the European Union's Emissions Trading System (EU ETS) is to be realigned and supplemented by a system addressing the transport and buildings sectors (EU ETS 2). Researchers at the Oeko-Institut looked at the climate target and emissions trading in several analyses in 2025. Their conclusion is that greater ambition and less flexibilities are needed.

One of these analyses, performed for Carbon Market Watch mid-2025, revealed very clearly the need for an ambitious 2040 climate target, stringent derivation of rules for the EU ETS and reform of that system. Currently, the EU aims to cut its greenhouse gas emissions by 90 per cent by 2040 from the 1990 baseline. The analysis shows that this is less ambitious than it sounds, as this target can be met by using international carbon credits and other flexibilities.

As regards the EU ETS, which is the European Union's key climate instrument, the researchers highlight that the emissions cap should decline more slowly than in the past, as otherwise the supply of allowances will dry up by 2039. Carbon credits should be made subject to challenging requirements, including highest quality standards and fair sharing with partner countries. Temporary CO_2 reductions, such as those resulting from forest projects, should not be used to compensate for emissions from fossil fuels. Moreover, the project team clarifies the need to limit cross-sectoral flexibility in order that all sectors, without exception, take the path towards climate neutrality.

The Oeko-Institut's researchers also take a critical view of the decision to postpone the EU ETS 2 to 2028. At all events, the EU member states now need to make effective use of the time gained by the postponement to curb emissions in the transport and buildings sectors and reduce burdens on vulnerable groups. Action is needed most urgently in the electrification of heat supply and road transport, with rapid roll-out of heat pumps and battery electric vehicles.

PROJECT TITLE The EU ETS and the 2040 Climate Target
CLIENT Carbon Market Watch
FUNDING European Union

TIMESCALE February 2025 – July 2025
FURTHER INFORMATION www.oeko.de/jb2025-eu-klimaziel
Study by Oeko-Institut Consult GmbH

"We must not slacken in climate action. This means curbing emissions within European Union borders to the greatest extent possible rather than abroad. International carbon credits should be used to exceed mitigation targets and achieve climate neutrality sooner than targeted." JAKOB GRAICHEN

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ELECTRIFYINGLY AFFORDABLE

Social leasing in Germany

For many households there is no viable alternative to having one's own car. Electric vehicles, however, are unaffordable for many. This is where social leasing comes in: it makes the switch to electromobility a realistic option for low-income households by establishing reduced leasing rates – and thereby can also make an appreciable contribution to a socially equitable transport transition. The Oeko-Institut sets out in a fresh analysis how such a social leasing programme could be put in place in Germany.

A key point elaborated in the study is that such a programme must be appropriate to the needs of its recipients. Important factors include the income threshold for access to the scheme, regional differences in the availability of charging infrastructure and alternative means of transport, and the types of vehicles supported. For instance, depending upon the composition of households, a small car may not necessarily suffice for low-income households – it follows that mid-range vehicles should be an option.

The project team also explored administrative questions with regard to a social leasing system in Germany and the basic legal aspects. In organisational terms, the analysis found that such a programme should be implemented by the Federal Office for Economic Affairs and Export Control (BAFA). This Office has extensive experience in implementing major grant programmes and in the transport sector.

In addition, the researchers examined the effects of such a programme on the used car market and on jobs in the automotive industry. In general, they found that impacts are likely to be minor in both fields. However, if individual vehicle segments are considered, the effects on the used car market can be significantly greater, e.g. for vehicles in the mini to mid-size class.

PROJECT TITLE Analysis of the implementation of a social leasing scheme in Germany

CLIENT Transport & Environment Deutschland

TIMESCALE November 2024 – May 2025

FURTHER INFORMATION www.oeko.de/jb2025-social-leasing

Study by Oeko-Institut e. V.

"A social leasing scheme could be accompanied to good effect by the promotion of charging infrastructure. Both grants and low-interest loans are conceivable – this would also lower the initial barriers to electromobility." NELLY UNGER

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COMING CLEAN

AI and sustainable data centres

The capabilities of artificial intelligence are growing apace. But its demands are mounting in step – ever more energy, water and materials. The environmental and climate impacts are escalating. In an analysis commissioned by Greenpeace Germany, the Oeko-Institut has shown how AI can reduce its environmental footprint and has elaborated matching policy proposals. In parallel, the researchers have produced a policy brief setting out their stance on Germany's new National Data Centre Strategy designed to boost the country's attractiveness as a site for such facilities.

Forecasts indicate that the global electricity consumption of AI data centres will increase eleven-fold between 2023 and 2030: from 50 billion to some 550 billion kilowatt hours. This comes on top of the consumption of other types of data centres, driving a further increase in the industry's greenhouse gas emissions – despite a rising proportion of green electricity supply. Emissions are expected to rise from 212 million tonnes CO_2-equivalent in 2023 to 355 million tonnes in 2030. Further environmental impacts include the water required for cooling, which will quadruple to 664 billion litres annually by 2030, and the additional electronic waste, which is expected to reach 4.2 million tonnes annually. In view of these figures, the project team recommends introducing an efficiency label and mandating accountability requirements for data centres.

In its submission to the public consultation process on the National Data Centre Strategy conducted by the German Federal Ministry for Digital Affairs and State Modernisation (BMDS), the Oeko-Institut called for clear energy efficiency requirements and renewables-based energy supply for data centres, and public participation in siting and permitting procedures. Planning processes need to be made open and transparent. Moreover, the Oeko-Institut formulated basic sustainability standards for data centres. These include feeding waste heat into local district heat networks, aligning data centres with Germany's Blue Angel ecolabel standards and adapting their electricity consumption to the times of available capacity in the public grid.

PROJECT TITLE Umweltauswirkungen Künstlicher Intelligenz
Policy Brief Nationale Rechenzentrumsstrategie
CLIENT Greenpeace Deutschland (Umweltauswirkungen)

TIMESCALE 01/2025 – 04/2025 (Umweltauswirkungen) | 09/2025 (Policy Brief)
FURTHER INFORMATION
www.oeko.de/jb2025-umweltauswirkungen-ki | **Study by Oeko-Institut Consult GmbH**
www.oeko.de/jb2025-nationale-rz-strategie | **Study by Oeko-Institut e. V.**

“Beside the direct environmental impacts of AI, we must not lose sight of the indirect, systemic ones. For instance, AI tools are being used to accelerate environmentally harmful business practices – be it to tap into new fossil energy sources more effectively or to intensify monocultures.” JENS GRÖGER

JENS GRÖGER

Research Coordinator for sustainable digital infrastructures and
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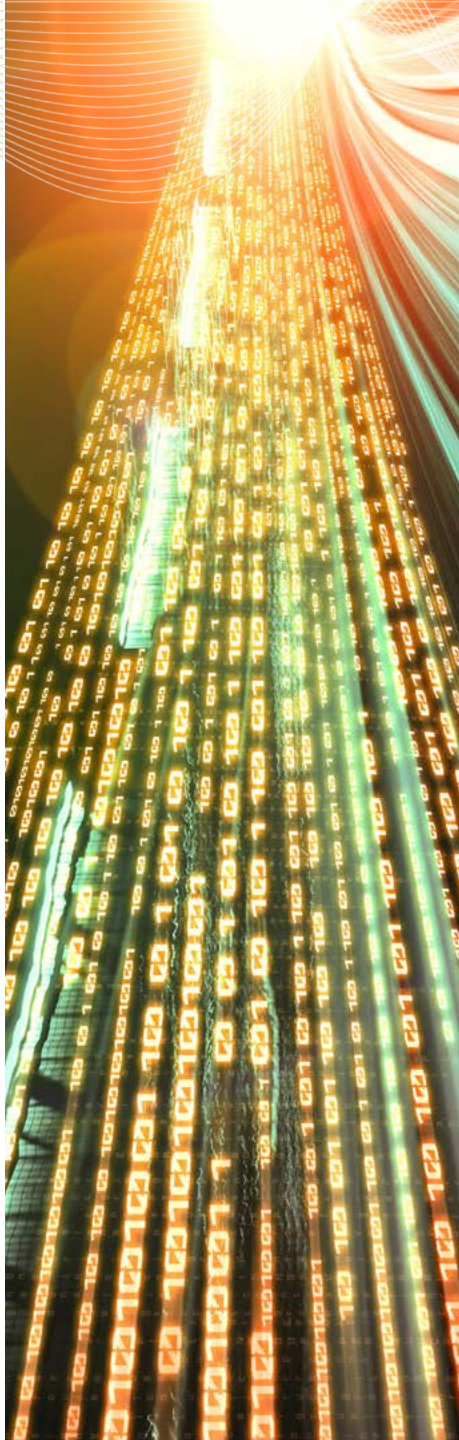

PRESERVING KNOWLEDGE

Nuclear cultural heritage

Decommissioned reactors and radioactive wastes are a part of it. So is societal discourse on nuclear power. It also embraces objects of art engaging with the nuclear age. Many objects and practices, past and present, make up the nuclear cultural heritage. What, then, is the state and configuration of this heritage in Germany? The Oeko-Institut explored this question on behalf of the German Federal Office for the Safety of Nuclear Waste Management (BASE). The study found one thing clearly: we need this heritage to maintain the safety of any future waste repository.

The researchers' first step was to conduct a desk review of the literature in order to define the concept of nuclear cultural heritage (NCH): it is the assemblage and preservation of the artefacts of nuclear technology combined with the processes by which societies interact with them. Within this conceptual framework, they compiled a bibliography containing the scientific literature and additional material of informative value. In addition, the project team mapped 77 sites in Germany where a nuclear cultural heritage already exists or is emerging. The experts thus provided a spatially specific overview of highly diverse places and objects – from visitor centres and museums to research hubs and archives.

Furthermore, the researchers examined three sites more closely: the "Atomic Egg" – a research reactor in Munich's Garching district – as an example of the history of nuclear engineering, the Gorleben site as an example of radioactive waste management and protest culture, and the Wismut site as an example of uranium ore mining. They explored the material objects, key stakeholders and immaterial practices at these sites and revealed the various forms of interplay among the diverse components of NCH over time.

In conclusion, the project team found that the three case studies illustrate different degrees of institutionalisation. Pivotal to this, and thereby to the processes that preserve knowledge, are stakeholder groups and their practices – both those driving discourse in society and those stimulated by it.

PROJECT TITLE Nuclear cultural heritage approaches and methods and their applicability in the context of the site selection procedure (NuCultAge)

FUNDING German Federal Office for the Safety of Nuclear Waste Management (BASE)

PROJECT PARTNER Institute for Technology Assessment and Systems Analysis (ITAS)

TIMESCALE March 2023 – June 2025

FURTHER INFORMATION www.oeko.de/jb2025-nucultage | **Study by Oeko-Institut Consult GmbH**

"Nuclear cultural heritage helps to maintain discourse and knowledge about the risks of nuclear technology. This is essential in order to continue to be able to take informed decisions in the future." ALEXANDRA LAMPKE

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SUSTAINABILITY AT THE FINISHING LINE

The portal for sustainable sports events

A small, local volleyball tournament? Or a huge light athletics event in a major stadium? Whichever sport, whichever site, a new online portal now helps organisers configure their events sustainably in every respect – environmental, economic and social. Working together with the German Olympic Sports Confederation (DOSB) and the German Sport University Cologne (DSHS), the Oeko-Institut has developed a digital platform showcasing more than 600 concrete ideas for sustainable sports events and giving organisers guidance for a positive way forward.

The portal outlines 17 different action areas such as transport and catering, facilities and infrastructure or water and waste management. The action areas also address topics such as accessibility for the disabled, innovation and digitalisation. Organisers can customise the goals they wish to attain in each area – such as reducing water consumption or sourcing sustainable products. On this basis, a catalogue of actions for the planned events can be compiled. Actions may include collecting surplus food remaining after the event and passing it on to non-profit food banks, providing for sufficient bicycle parking, promoting social inclusion in cooperation with civil-society organisations, or offering discounted tickets for the elderly. The portal also provides an approximate appraisal of the cost and effort implied by the actions selected and their potential impact.

In addition, the digital platform contains a planning tool that organisers can use to implement sustainability management in their event. The tool takes account of six areas of governance, ranging from strategy development over financing to communication. An impact calculator and a self-evaluation component help organisers assess their planning. Not least, they can also use the portal to share experience and network with other organisers. Finally, a compilation of examples of good practice gives organisers orientation and inspiration for their own events.

PROJECT TITLE On the path to (large-scale) sustainable sporting events in Germany
CLIENT German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV), Federal Ministry of the Interior and Community (BMI)
PROJECT PARTNERS German Olympic Sports Confederation (DOSB), German Sport University Cologne (DSHS)
TIMESCALE November 2022 – December 2024
FURTHER INFORMATION www.nachhaltige-sportveranstaltungen.de

I Study by Oeko-Institut e. V.

"Transport has a major impact on the sustainability of an event – at large-scale events, up to 90 percent of greenhouse gas emissions come from travel to and from the venue. Organisers can counter this in various ways, for instance by providing free rail tickets for disabled people and for volunteers, or setting up Combi-Ticket schemes combining admission with local public transport." DR HARTMUT STAHL

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GREEN LIGHT FOR MORE SUSTAINABLE CHEMICALS

ChemSelect, an online tool

Toy manufacturers employ chemicals and so do textile producers. Drycleaners and paint and varnish makers need them. But which are good and more sustainable than others, and which should be avoided? Small and medium-sized enterprises now find it easier to take informed decisions thanks to ChemSelect, a publicly accessible online tool developed on behalf of the German Environment Agency. The Ökopol Institute for Environmental Strategies commissioned the Oeko-Institut to contribute its expertise to this sustainability assessment method for chemicals. ChemSelect allows users to appraise the impacts of substances on people and the environment with minimal effort – and to compare substitutes automatically.

Selecting substances with less impact reduces the ecological footprint of products and services. ChemSelect distinguishes between non-critical, critical and highly critical properties. The assessment result is displayed in easily understood traffic-light colours. It is immediately evident at this point whether a substance is, for instance, carcinogenic or has the potential to cause persistent damage to the environment. The sustainability profile is based on nine criteria such as a substance's effect on the climate and ozone layer, its suitability for recycling, the level of responsibility committed to by suppliers, or whether it is mentioned on a list of substances with particularly problematic properties.

ChemSelect is not a full database. But entering just a few, easily accessible items of information leads to important initial appraisals and, potentially, to indications that a substitute should be sought. A particular benefit of ChemSelect is that it simplifies not only assessments of individual substances but also of mixtures. Up to five products can be compared to each other. ChemSelect displays which product rates best on which criterion. The tool is available in ten languages including German, English, Arabian, Latvian, Portuguese and Polish.

PROJECT TITLE Transformation of the chemicals sector through conceptual approaches and life cycle assessments of chemicals (ChemSelect)

CLIENT Ökopol Institute for Environmental Strategies, on behalf of the German Environment Agency (UBA)

TIMESCALE October 2022 – September 2025

FURTHER INFORMATION https://chemselect.uba.de
www.umweltbundesamt.de/publikationen/chemselect-das-bewertungskonzept

Study by Oeko-Institut Consult GmbH

"ChemSelect particularly helps smaller enterprises to assess their chemicals – and to appraise substitutes. This mitigates risks to people and the environment, saves costs and blazes the trail to better products." PROF. DR DIRK BUNKE

PROF. DR DIRK BUNKE

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CONSERVING WATER RESOURCES WORLDWIDE

More stringent corporate due diligence obligations

Worldwide demand for water is projected to outstrip supply by 40 percent in the year 2030. To counter this development, action is urgently required worldwide and in Germany. For 86 percent of Germany's water footprint is generated abroad, where German companies produce for the German market. This entails social and environmental consequences in those other countries, especially in upstream parts of the supply chain such as water-intensive cotton cultivation and chemicals-intensive textile dyeing. With funding from the Stiftung Zukunftserbe foundation, the Oeko-Institut has examined to what extent the negative impacts of global supply chains on water resources could be addressed by corporate due diligence obligations.

One focus of the research project was placed on the operational implementation of water-related due diligence obligations. The researchers found that water resources conservation has played only a minor role up to now in corporate practice and is scarcely established at a strategic level. Companies concentrate above all on their own sites and mostly only concern themselves with water-related risks when there is external pressure to act.

The project team further analysed the regulatory framework. It was found that statutory due diligence obligations such as the German and European supply chain acts are indeed a useful first step, as they create awareness of externalised environmental impacts in the supply chain. However, they are far from enough to ensure effective water resources conservation. What is needed is more reliable, clearer and specifically water-related stipulations applicable to as many companies as possible and to their entire supply chains. In their recommendations for action produced by the project, the researchers underscore that corporations and policy-makers should conceive of water resources conservation as a strategic investment in the resilience of supply chains and should strive for such conservation in supply chains on both a statutory and voluntary basis.

PROJECT TITLE Water responsibility as corporate due diligence
FUNDING Stiftung Zukunftserbe

TIMESCALE October 2024 – March 2025
FURTHER INFORMATION www.oeko.de/jb2025-wasserverantwortung | **Study by Oeko-Institut e. V.**

"Conserving water resources is vital for us all. It is high time that policymakers and corporate stakeholders take notice. Saving water and mitigating its pollution maintains environmental and climate integrity and helps to uphold human rights." MELANIE PIETSCHMANN

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CLOSING REGULATORY GAPS

Algorithm-based decision-making systems and the environment

There is a gap in the present body of environmental law: it fails to cover environmental impacts arising in human-technology interplay through algorithm-based decision-making systems (ADS). Yet such systems, which are increasingly based on AI, are shaping human behaviour and social processes. For instance, ADS decide on how commodity flows are directed, how fields are irrigated and how offers to consumers are placed. This development is making an adjustment of environmental law essential. Working together with several partners, the Oeko-Institut has shown how it can be done.

ADS change our routines, shift incentives and reinforce behavioural patterns. There is also a constitutional dimension: the German Federal Constitutional Court's climate ruling requires risks of climate change to be limited at an early stage and technological potentials to be exploited so as not to unduly restrict the freedom of future generations to attain the necessary decarbonisation.

As an outcome of the project, the Oeko-Institut has developed an assessment grid that compares the objectives and instruments of environmental law with the functioning of algorithmic systems. It contrasts legally required behaviour with realistically expected system behaviour, thus revealing the lacunae of legal instruments and facilitating their adjustment. One approach highlighted by the researchers is data governance. For the environmental outcomes of ADS depend crucially on which data are available, who commands over them and how they are shared. The project team therefore proposes considering data governance rules – such as provided for by the European Union's AI Regulation for other AI applications and risks – for environmental regulation as well. This could help to ensure that environmental risks and the potential for reducing environment impacts are taken into account via training, testing and validation data.

PROJECT TITLE Regulatory concept for algorithmic decision-making systems under environmental law
CLIENT German Environment Agency (UBA)

PROJECT PARTNERS Independent Institute for Environmental Issues (UfU), Society for Institutional Analysis (sofia), and experts at the German Research Center for Artificial Intelligence (DFKI), Jade University and IOW Rostock
TIMESCALE 01/2022 – 10/2025
FURTHER INFORMATION www.oeko.de/jb2025-ki-ads-umwelt | **Study by Oeko-Institut e. V.**

"Legislators need to act early – not only when undesirable developments are almost irreversible. Learning and adaptable instruments of environmental law can help to ensure that artificial intelligence and autonomous systems operate in line with environmental and sustainability goals." DR PETER GAILHOFER

DR PETER GAILHOFER

Research Coordinator for Digital Ethics and Governance and Senior Researcher, Environmental Law and Governance Division

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SAFETY IN SOILS

On the mobility of radionuclides

Not only must a suitable site be identified before a repository for high-level radioactive waste becomes operational in Germany – numerous risks must also be assessed. These include appraising the possible additional annual human exposure to ionising radiation that could result from releases into the environment of radionuclides from stored radioactive wastes. Working in a research consortium together with several scientific partners, the Oeko-Institut is exploring the following topic in depth: how do radionuclides behave in the soil-plant system? Which plants take them up and which mechanisms play the key role in this process? How should these mechanisms be taken into account in a radioecological biosphere model?

The analysis shall serve to improve long-term projections of a repository system for high-level radioactive wastes. It concentrates on the processes that play a role in radionuclide transport via water movement and the soil to crop plants and thus to the food chain for human consumption. For one thing, it is the hydraulic conditions in the soil, meaning how water moves through the pore space in soil, that determine the transport of radionuclides to the root zone. For another, plants modify by means of their root exudates the conditions in the root zone and thereby influence the behaviour of microorganisms, the sorption mechanisms and the uptake of radionuclides.

The project's overarching goal is to gain an integrative understanding of these processes and to take account of them in a radioecological biosphere model for dose estimation over long time periods. The scientists have carried out experiments to elucidate processes of molecular biology and the processes of radionuclide transport in the soil. The findings have been implemented in the Oeko-Institut's radioecological biosphere model. The model calculates radionuclide transfer from soils to crop plants and finally to the human food chain, and permits dose estimations. This lays the groundwork for more reliable risk assessments.

PROJECT TITLE Transfer of long-lived radionuclides from the vadose zone into the rhizosphere and their uptake into plants under consideration of microbiological processes (TRAVARIS)

FUNDING German Federal Ministry of Research, Technology and Space within the FORKA funding programme – Decommissioning and Dismantling Research

PROJECT PARTNERS Friedrich Schiller University Jena, Leibniz University Hannover, Helmholtz-Zentrum Dresden-Rossendorf, University of Bremen

TIMESCALE November 2022 – October 2025

FURTHER INFORMATION www.oeko.de/jb2025-radionuklide | **Study by Oeko-Institut e. V.**

"The project serves risk assessment for a future repository. It is about gaining an improved understanding of the processes of radionuclide transfer in soils and the interplay of plants and soils, and portraying these in a radioecological biosphere model in such a way that more reliable dose estimations can be made." DR VERONIKA USTOHALOVA

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RED ALERT

Boosting the thermal performance of non-residential buildings

The heat transition is not just a matter for residential buildings. Offices, childcare facilities, supermarkets, workshops – they all consume a lot of fossil energy. That is why the EU Energy Performance of Buildings Directive stipulates that 26 percent of the non-residential buildings harbouring the largest savings potential are to undergo an energy performance upgrade by 2033. The city of Hamburg has a stated goal of becoming climate-neutral by 2045. As a contribution to this goal, it now plans a retrofit strategy for private non-residential buildings. The Oeko-Institut has analysed retrofit potentials, options and barriers, and has identified potential actions by which to boost the city's retrofit rate.

There are 45,000 private non-residential buildings in Hamburg. Three out of four are offices, retail facilities and commercial buildings, workshops and halls. Two out of three are still heated by fossil fuels – here, heat pumps and district heat need to be rolled out in particular by 2045. Overall, retrofit requirements are high. The analysis reveals that about half of the floor space of Hamburg's non-residential buildings has an energy demand higher than 150 percent of the average reference value stated in the buildings' energy certificates, and a quarter even has a demand more than 200 percent of the reference value – at the red end of the scale.

Yet often energy performance upgrades are not carried out. The researchers attribute this in part to the tenant-landlord dilemma: while tenants profit from savings, landlords are often unable to pass the retrofit costs through to the rent. Further barriers reside in refinancing difficulties, lack of capital resources and lack of information – for instance with regard to the state of buildings, the potential for savings or the opportunities to access grant schemes. The project team's recommendations include deploying grant resources in a very targeted manner and placing a focus in this on stakeholders lacking financial resources, such as non-profit associations and cultural institutions. There is also a need for much more advice on upgrades. Finally, the researchers have drawn up prototypical fact files of retrofit options for selected building types and owner groups.

PROJECT TITLE	Preparation of an energy performance upgrade strategy for private non-residential buildings in Hamburg
CLIENT	Ministry for the Environment, Climate, Energy and Agriculture (BUKEA) of the City of Hamburg
PROJECT PARTNER	IREES – Institute for Resource Efficiency and Energy Strategies
TIMESCALE	May 2024 – June 2025
FURTHER INFORMATION	www.oeko.de/jb2025-nichtwohngebaeudeHH

Study by Oeko-Institut e. V.

"Very many non-residential buildings offer major potential to save energy costs and curb CO_2 emissions. In such situations, energy performance upgrades can pay back rapidly. However, offices in particular are often rented, which makes decisions more complex. Nonetheless, we see positive examples in Hamburg where tenant companies share the cost of upgrades with their landlords." MALTE BEI DER WIEDEN

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FUNDERS AND CLIENTS IN 2025

1. Politics & government

- Austrian Agency for Health and Food Safety (AGES)
- Austrian Ministry for Climate Action (BMK)
- City of Bonn
- City of Hamburg
- City of Munich
- Deutsche Gesellschaft für Internationale Zusammenarbeit GmbH (GIZ)
- Emsland District Authority
- European Climate, Infrastructure and Environment Executive Agency (CINEA)
- European Commission
- European Education and Culture Executive Agency (EACEA)
- European Union
- Federal Public Service Health, Food Chain Safety and Environment, Belgium
- German authority for infrastructure (Bundesnetzagentur)
- German Environment Agency (UBA)
- German Federal Agency for Nature Conservation (BfN)
- German Federal Company for Radioactive Waste Disposal (BGE)
- German Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR)
- German Federal Ministry for Economic Affairs and Climate Action (BMWK)
- German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV)
- German Federal Ministry of Agriculture, Food and Regional Identity (BMLEH)
- German Federal Ministry of Education and Research (BMBF)
- German Federal Ministry of Research, Technology and Space (BMFTR)
- German Federal Office for Economic Affairs and Export Control (BAFA)
- German Federal Office for Radiation Protection (BfS)
- German Federal Office for the Safety of Nuclear Waste Management (BASE)
- German Federal Railway Authority (EBA)
- Gesellschaft für Anlagen- und Reaktorsicherheit gGmbH (GRS)
- Kreditanstalt für Wiederaufbau (KfW)
- North Rhine Westphalian Ministry of Economic Affairs, Innovation, Digitalisation and Energy
- Statistical Office of the European Union (Eurostat)
- Swiss Federal Office for the Environment (FOEN)
- Zukunft Umwelt Gesellschaft gGmbH (ZUG, Germany's federally owned project management agency)

2. Private sector

- ALBA Management GmbH
- AMG Lithium GmbH
- Andreas Stihl AG & Co. KG
- Apple Inc.
- Aurubis AG
- Deloitte GmbH
- Deutsche Energie-Agentur (dena GmbH)
- EGN Entsorgungsgesellschaft Niederrhein mbH
- Energie & Management Verlagsgesellschaft mbH
- EWS Schönau
- Helios Catering GmbH
- iPoint-systems Gmbh
- Meiko Maschinenbau GmbH & Co. KG
- Nestlé
- r2b energy consulting GmbH
- Ralf Bohle GmbH
- Ricardo Energy & Environment
- SUSTAYNR GmbH
- Verband Druck Medien Österreich
- VfB Stuttgart 1893 AG
- Werner & Mertz GmbH
- Zentek Services GmbH & Co. KG

FUNDERS AND CLIENTS IN 2025

3. Academia, stakeholder groups and civil society

- Agora Think Tanks gGmbH
- Agora Transport Transformation gGmbH
- Association Trinationale de Protection Nucléaire (TRAS)
- Birdlife Europe
- Bündnis 90/Die Grünen Bundestagsfraktion
- Carbon Market Watch (CMW)
- Center for Global Development (CGD)
- Climate Action Network Europe (CAN)
- Climate Alliance Germany
- Climate Neutrality Foundation
- Competence Center for Nutrition (KErn)
- Deutsche Fussball Liga GmbH (DFL)
- Environmental Action Germany (DUH)
- Environmental Defense Fund (EDF)
- European Council for Automotive R&D (EUCAR)
- Flemish Institute for Technological Research (VITO), Belgium
- Foundation Development and Climate Alliance
- Freiburg Archdiocese
- FSV 1926 Cappel e. V.
- German Aerospace Center (DLR)
- German Federal Environment Foundation (DBU)
- German Nature And Biodiversity Conservation Union (NABU)
- Germanwatch e. V.
- GermanZero e. V.
- Greenpeace e. V.
- ifok GmbH
- Internationale Beethovenfeste Bonn gGmbH
- Nürtingen-Geislingen University (NGU)
- Perspectives Climate Group GmbH
- Robert Bosch Foundation
- Smart Energy for Europe Platform (SEEP) gGmbH
- Stiftung Zukunftserbe
- Sustainable Digital Infrastructure Alliance e. V. (SDIA)
- Swiss Federal Laboratories for Materials Science and Technology (Empa)
- Transport and Environment (T&E)
- Umwelthaus gGmbH
- WWF Germany

These are some of our funding providers and clients.
A full list of references is available (in German) on our website at www.oeko.de/referenzen2025

THE OEKO-INSTITUT IN THE MEDIA

From classic press releases and blog articles to social media channels and podcasts: we profile our research findings in a manner tailored carefully to specific target groups while also communicating them to the public at large. We take the greatest care to formulate clearly and understandably.

This makes our communications transparent, promotes the understanding of complex interconnections and foster facts-based debate on essential environmental actions. Disseminating scientific findings to the public is both daily practice for us and a part of our mission statement.

In 2025 the Oeko-Institut:

sent out 34 press releases oeko.de/en/news/press-releases,

published 34 news items and 57 blog articles www.oeko.de/en/news,

recorded 9 podcast episodes oeko.de/podcast,

shared 341 Instagram posts and stories with 5,066 subscribers, reaching 40,638 (individual) profiles instagram.com/oekoinstitut,

published 188 posts via LinkedIn for, currently, 11,977 followers, and reached 5,763 subscribers via the LinkedIn Newsletter, achieving 108,940 impressions linkedin.com/company/oeko-institut-e. V.,

reached 1,955 followers via Bluesky bsky.app/profile/oekoinstitut.bsky.social,

reached 801 followers on Mastodon mastodon.social/@oekoinstitut,

sent out 12 issues of the EcoMail Newsletter oeko.de/en/newsletter,

published 4 issues of our eco@work magazine in online and analog versions on the following topics:
”Artificial, but climate-conscious”,
“Social climate action – All on board?”,
“Mobility – All and everything in motion” and
“The future, renewable”.

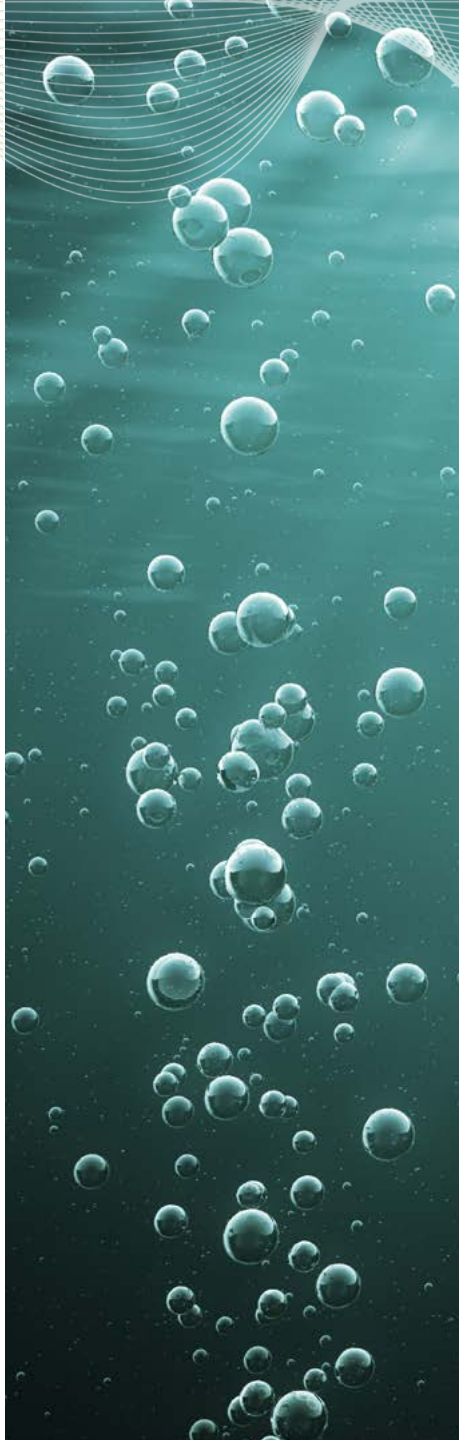
KLIMA-
SCHUTZ
nur sozial

Climate action – only if social!

One major focus of our communications work in 2025 was placed on socially just climate action. Shaping climate policies in a socially equitable manner is fundamental to broad acceptance in society and thus essential to sustainable transformation processes within society. This is something the Oeko-Institut's research projects have concentrated on for many years. Our scientists anlayse the distributional effects of climate instruments and conceptualise fair burden-sharing mechanisms. Those can include, for instance, carefully targeted financial compensation mechanisms for particularly needy households. They are also a matter of structural participation in climate action, such as affordable mobility or low-threshold grant programmes.

In order to bring such aspects further to the fore in public discourse, our focus in our social media channels last year was placed on social climate action. We used a video campaign involving representatives of labour unions, welfare institutions, tenant associations and environmental organisations to present answers to the question of which forms social climate action can take in practice.

In our other types of work we also published repeatedly on this topic. One of the issues of our eco@work magazine in 2025 took "Social climate action – All on board?" as its focal theme. Our blog assembled all contributions of relevance in the "sociallyjust" category. We further underpinned the theme with intensified press relations work. Through all these activities, we made an appreciable contribution to raising the topic's profile in public debate. Socially just configuration of sustainable transformations will continue to be a prime concern of our research.



NEWS FROM THE INSTITUTE

News from the institute

Protecting nature and the environment and preserving the natural base of human life is a vision that motivates all staff at the Oeko-Institut. It persists beyond an individual's time at the institute. To keep these shared values vibrant and foster exchange across generations we launched an alumni network in 2024. Its purpose is to maintain contact with former colleagues and forge new links. Now counting more than 260 members, the platform allows current and former staff to stay connected with the institute and share views on relevant themes.

In 2025 we strengthened the network through regional meetings at our various office sites. Alumni and current staff used these to discuss in a relaxed atmosphere, after brief introductory presentations, various topics of shared interest.

There is now also a private LinkedIn group creating a space for the exchange of experience, tips and exciting themes. Do you or did you work at the Oeko-Institut? Drop us an email and become part of the network!

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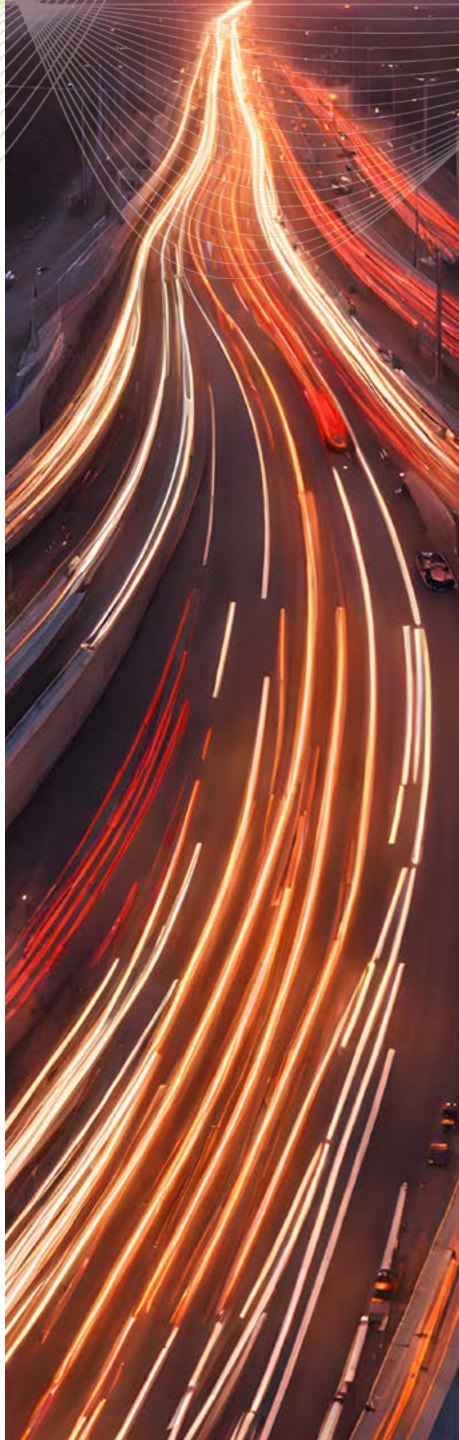

A fresh look for www.energiewende.de

The energy transition is a key component of climate change mitigation and sustainable energy policy in Germany. A dedicated website maintained by the Oeko-Institut provides a comprehensive assemblage of studies, scenarios and background information at www.energiewende.de. With a fresh design the site now continues to provide cutting-edge information about energy infrastructure, sustainable transport, the heat transition and the relevant aspects of forestry and agriculture. It is essential that the energy transition is accompanied by socially just distributional policies. We also address the political, technological and societal aspects vital to a successful transition.

www.energiewende.de

Logos adapted to new structures

Structural changes have called for adaptation of the Oeko-Institut logo. Beside our widely known and slightly updated association logo, we have now created a separate logo for the Oeko-Institut Consult GmbH limited company.

Öko-Institut e.V.

Öko-Institut
Consult GmbH

Öko-Institut

COMMON IMPETUS

Membership and donation-funded projects

The non-profit association of the Oeko-Institut has some 2,000 members, including 20 local authorities. Much of our research work relies on third-party project funding, which we use on a project-specific basis. Every year, however, we also work on research ideas that address key issues of the future but for which no external funding is forthcoming. This non-commissioned research is made possible thanks to our many donors and our members' subscriptions.

Outcomes of the donation-funded project "Building blocks of motivating and socially just climate policy"

How to configure climate actions in such a way that they encounter broad public approval? This was the pivotal question addressed by the now concluded, donation-funded project. Focus groups on electromobility and on the upgrading of the thermal performance of buildings revealed what motivates people to engage in climate-friendly behaviour and what prevents them from doing so. It emerged that sustainability, cost-effectiveness and having a sense of self-efficacy are key factors, and that much demand for information remains. The findings were published in Policy Briefs.

The project further developed an online tool designed to assist stakeholders in shaping and communicating envisaged climate and environmental measures in such a manner that aspects of social acceptance, equity and motivation are taken into account at an early stage. Guided by a set of questions on seven aspects checked, users receive a brief appraisal and concrete recommendations on how to configure measures so that they are more socially just, how to communicate them better and how to carry them out more effectively. Further information is at www.oeko.de/massnahmencheck.

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