

Environmental data

2026

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LANDWIRTSCHAFT
UND GEOLOGIE

Freistaat
SACHSEN

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Foreword



This environmental data brochure provides information on selected environmental topics such as climate change, nature conservation, air, water, renewable energy and related developments in Saxony.

This year, the focus is on the consequences of climate change. Steadily increasing average temperatures, changing precipitation levels, and an increasing number of extreme events are already having far-reaching environmental, social, and economic consequences.

Positive developments can be observed in many of the areas of environmental protection presented in this brochure using indicator-based data.
For example, the Upper Lusatian Heath and Pond Landscape, the only UNESCO biosphere reserve in Saxony, has been expanded by around 2,300 hectares following a decision by the Saxon Ministry of the Environment.

The results show that further efforts are needed to meet the high standards for nature conservation, environmental protection and climate action.

Current and further information on the environment is available here:
www.umwelt.sachsen.de



Heinz Bernd Bettig
President of the Saxon State Office for the Environment, Agriculture and Geology

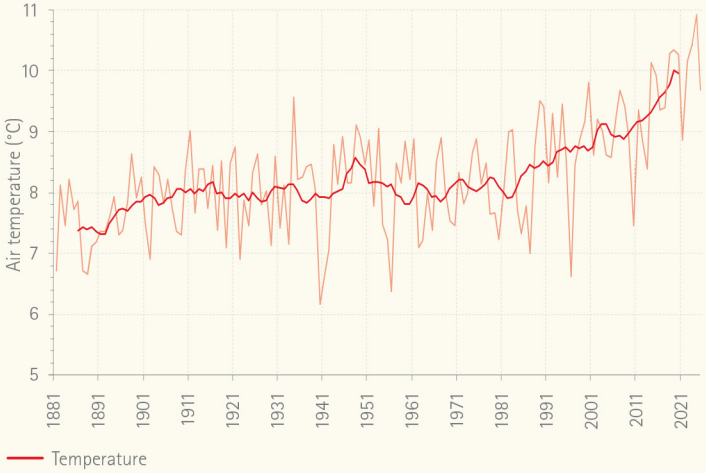
Climatic Developments in Saxony

The charts show annual mean air temperatures and total precipitation during growing season I (April–June) in the Free State of Saxony from 1881 to 2025. The 11-year moving average provides a clearer indication of the long-term trend because the influence of individual years is less pronounced.

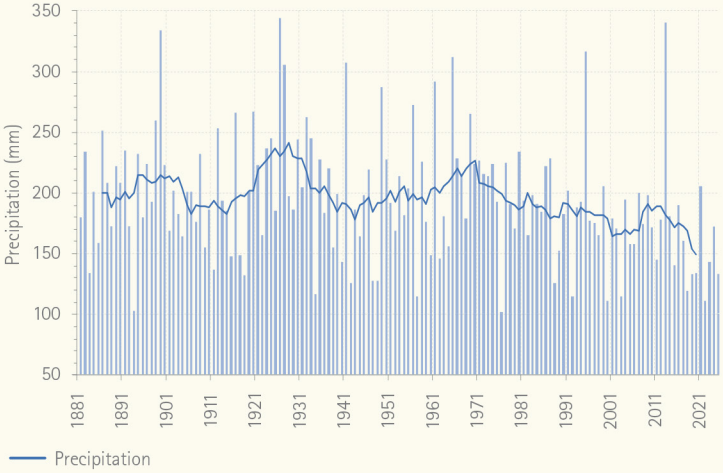
Changes in air temperature over time provide a suitable indication of climate change. Among other effects, higher temperatures lead to longer growing seasons and are accompanied by weather-related extremes (e.g. heat and drought) and the associated risks. Each decade since 1971 has been warmer than the previous one, and the warmest years in Saxony have occurred with increasing frequency since the late 1980s and early 1990s. With an annual mean temperature of 11.0°C, 2024 was the warmest year on record. All nine of the warmest years have occurred since the turn of the millennium.

Precipitation varies much more over time and between regions than temperature. A decrease in precipitation during growing season I slows plant growth and increases the risk of crop failure. Combined with rising temperatures, this is increasingly affecting agriculture in particular. Since 1971, each decade has been drier than the previous one.
However, Saxon farmers have been able to adapt to the changing conditions through improved water management. The measures range from the selection of certain crop varieties and types to adjusting soil cultivation and fertilisation methods, as well as irrigating certain crops and adjusting crop rotations.

Annual mean temperature in Saxony, 1881–2025
(11-year moving average)



Precipitation in growing season I (April to June) in Saxony, 1881–2025 (11-year moving average)

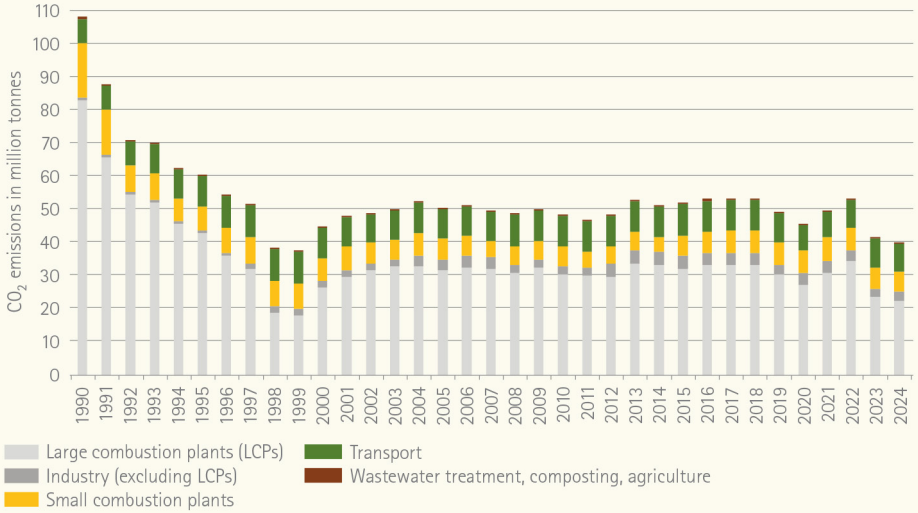


Source: Saxon State Office for the Environment, Agriculture and Geology, German Meteorological Service (DWD), 2026

Greenhouse Gases

Carbon dioxide accounts for over 90% of total greenhouse gas emissions, which accelerate climate change as they accumulate in the atmosphere. Large combustion plants (major industrial facilities for power and heat generation) continue to be the main source of such emissions. The decline observed in the 1990s was brought about by the closure of many plants. However, the commissioning of new power plants in the early 2000s resulted in a renewed increase. Since 2002, CO_2 emissions have stabilised. The lower values in 2023 and 2024 are mainly the result of a substantial decrease in coal-fired power generation at the Boxberg and Lippendorf lignite-fired power plants.

Development of CO_2 emissions in Saxony from 1990 to 2024

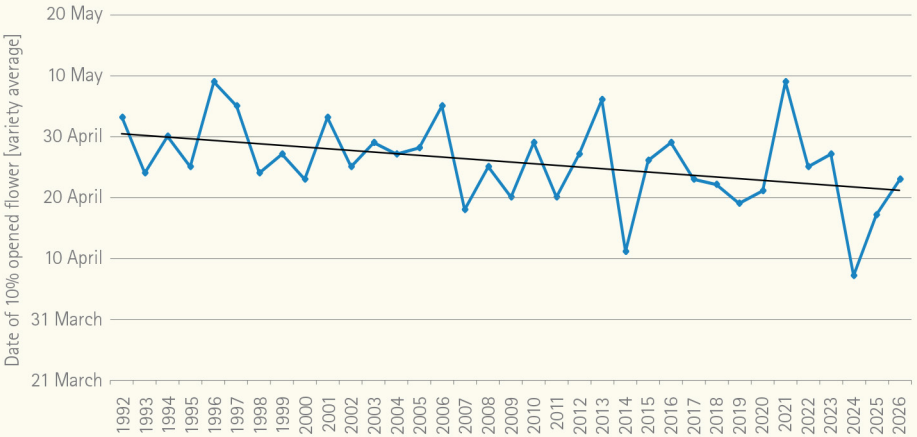


Source: Saxon State Office for the Environment, Agriculture and Geology, Emissions inventory, as of 06/2026

Beginning of the Fruit Tree Blooming Period

The day when about 10% of the flowers are open marks the beginning of the fruit tree blooming period. For the representation chosen here, the average value over all the varieties considered is calculated. The start of flowering also signals the beginning of fruit development and thus the growing season that is critical for fruit cultivation. The start of flowering serves as an indicator of climate change. The LfULG data shown here indicates a slight trend towards earlier flowering and thus a longer growing season. Overall, this improves growing conditions for plants with high heat requirements but also brings a risk of damage from late frosts. In 2024, the earliest start of flowering since records began was recorded at the Dresden-Pillnitz site.

Mean onset of apple flowering in Dresden–Pillnitz, 1992–2026



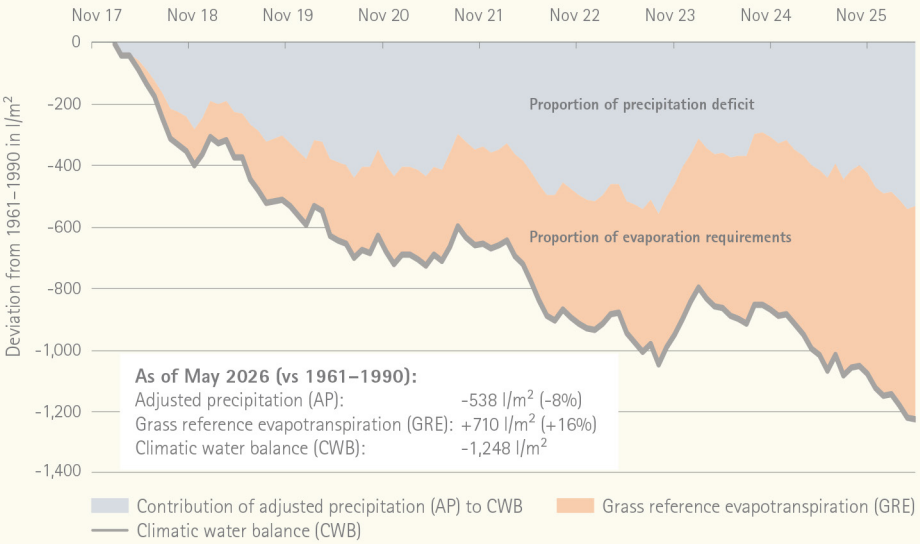
Source: Saxon State Office for the Environment, Agriculture and Geology, German Meteorological Service

Development of the Climatic Water Balance

The climatic water balance directly compares precipitation (gain) with evaporation (loss) and indicates the susceptibility of different environmental systems to drought. Since November 2017, the climatic water balance in the Free State of Saxony has accumulated a deficit of around 1,248 l/m² over eight consecutive years.

The illustration shows the cumulative water deficit caused by below-average rainfall and above-average evaporation at higher temperatures. The direct consequences include below-average groundwater levels and increasing forest damage.

Development of the climatic water balance in the Free State of Saxony



Source: Saxon State Office for the Environment, Agriculture and Geology

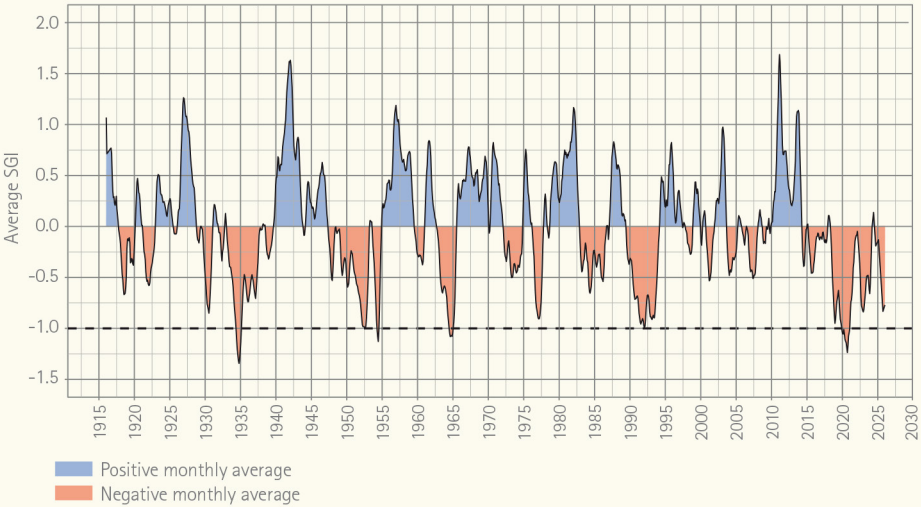
Standardised Groundwater Index (SGI)

The SGI is an index that indicates wet and dry periods in groundwater. The six-month moving average of the SGI from 1916 to 2025 distinguishes between the winter and summer half-years. The Saxon groundwater-level monitoring network provides the basis for the analysis.

Until 1992, groundwater deficits were a regular occurrence. From 1993 to 2017, there were no pronounced groundwater deficits, and groundwater levels were exceptionally high in 2010 and 2013. It is therefore all the more unusual that the SGI has remained negative since 2014, a period of over 12 years that included an intense groundwater deficit from 2018 to 2020.

There are indications that the decades-long increase in evaporation is making it increasingly difficult for groundwater levels in Saxony to return to a balanced state.

Standardised Groundwater Index (SGI) – 6-month moving average

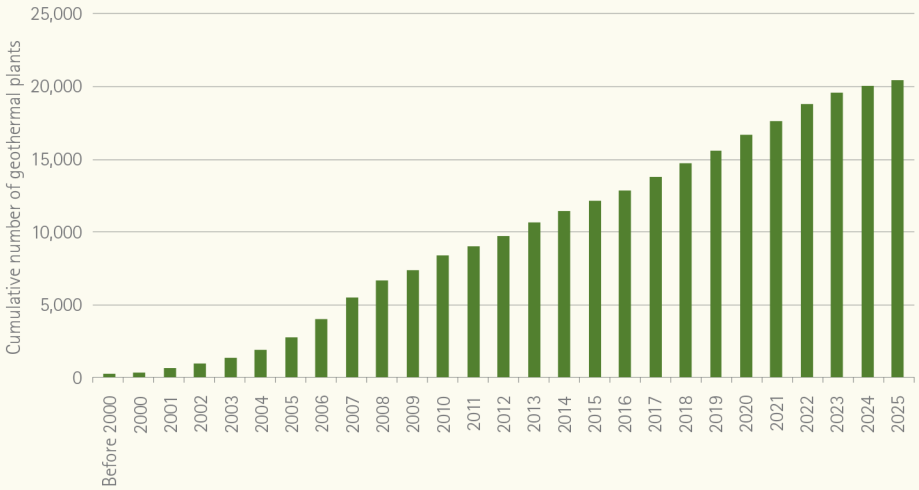


Source: Saxon State Office for the Environment, Agriculture and Geology

Geothermal Energy

Geothermal energy is a renewable energy source that can make a substantial contribution to meeting climate action targets as part of the energy transition. In the Free State of Saxony, shallow geothermal energy is used to heat and cool buildings and provide hot water in single- and multi-family homes, offices, schools and nurseries. Geothermal energy can also be used to supply urban districts with heat. Geothermal energy is therefore becoming increasingly important for municipal heat planning. In 2025, 20,534 geothermal systems with a total thermal capacity of around 257 megawatts were in operation in Saxony. In recent years, the growth rate has been approx. 700 new systems per year. The most common forms of use in Saxony are geothermal probes (about 90%), ground collector systems and well systems.

Development of the total number of geothermal plants

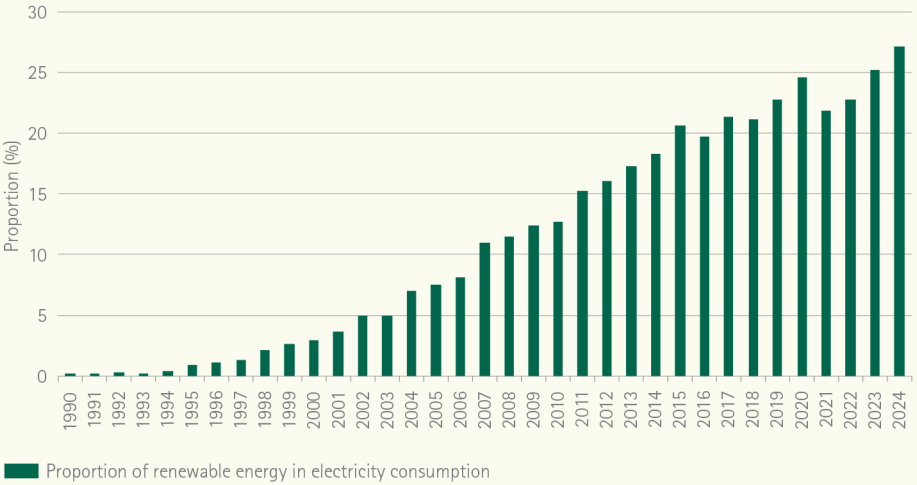


Source: Saxon State Office for the Environment, Agriculture and Geology

Proportion of Renewable Energy in Electricity Consumption

Saxony is increasingly experiencing the effects of climate change, including droughts and severe weather. In developing its energy supply, the Free State of Saxony is pursuing the expansion of renewable energy alongside improvements in energy efficiency and energy savings. The Saxony Energy and Climate Programme (EKP) 2021 sets the framework for the capacity expansion of sustainably produced electricity over the coming years. The proportion of renewable energy in (gross) electricity consumption presented here is composed of net electricity generation, cross-border electricity exchanges, self-consumption by power plants and grid losses. Progress has been made since the mid-1990s.

Proportion of renewable energy in electricity consumption



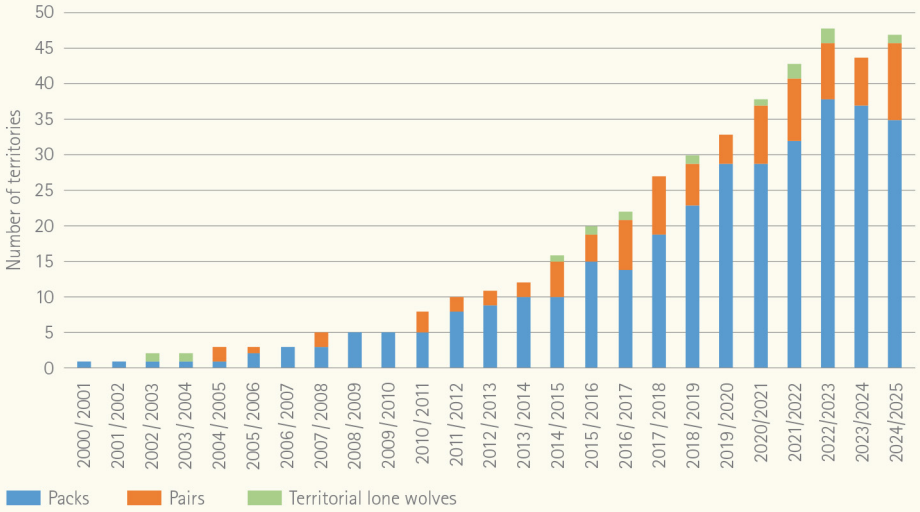
Source: Federal States Working Group (LAK) on Energy Balances

Wolf Populations in Saxony

The first wolf pack was recorded at the Oberlausitz military training area in Saxony in 2000; this was the first evidence of successful reproduction by wild wolves in Germany in 150 years. In the following years, wolves that migrated from the east or were raised in Germany established new territories and formed additional packs. In the 2024/25 monitoring year, 35 packs, eleven pairs, and one territorial individual were recorded in the Free State of Saxony.

The LfULG Wolf Unit is responsible for monitoring wolf populations, assessing livestock damage, advising on herd protection and providing environmental education on wolves. It serves as the main point of contact for citizens, livestock keepers and media representatives in Saxony.

Development of confirmed wolf territories in Saxony since 2000

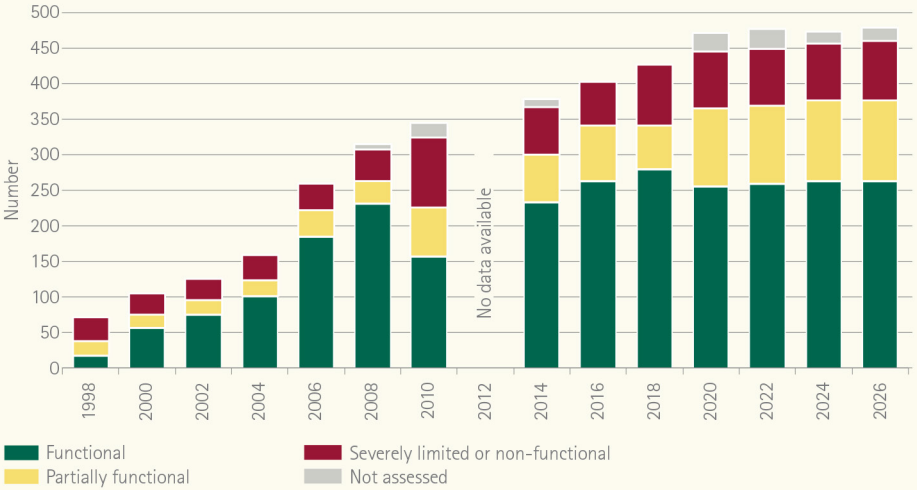


Source: Saxon State Office for the Environment, Agriculture and Geology, Wolf Unit

Fish Passes

Fish passes make an important contribution to restoring ecological continuity in the rivers and streams of Saxony and to implementing the European Water Framework Directive. The construction of transverse structures such as weirs, bed sills and barrages has disrupted natural fish migration routes and restricted connections between ecologically important habitats – especially spawning, feeding and overwintering areas. Fish passes allow fish to navigate these barriers and promote genetic exchange and the stability of aquatic populations. A high proportion of functioning upstream and downstream fish passage facilities strengthens the ecological connectivity of watercourses and helps conserve biodiversity.

Upstream fish passage facilities in Saxony



Source: Saxon State Office for the Environment, Agriculture and Geology, Transverse Structures Database

Protected Areas in Saxony

Protected areas in Saxony include the Saxon Switzerland National Park and the Upper Lusatian Heath and Pond Landscape Biosphere Reserve. The designation of the biosphere reserve was revised in 2026. While nature in the national park is gradually being left to develop without human intervention, the pond landscape of the biosphere reserve is managed in a sustainable and exemplary manner that conserves natural resources. The Green Belt Saxony National Natural Monument, which was designated in 2026, protects both valuable natural areas and sites of remembrance along the former "Iron Curtain" on the Saxony–Bavaria border.

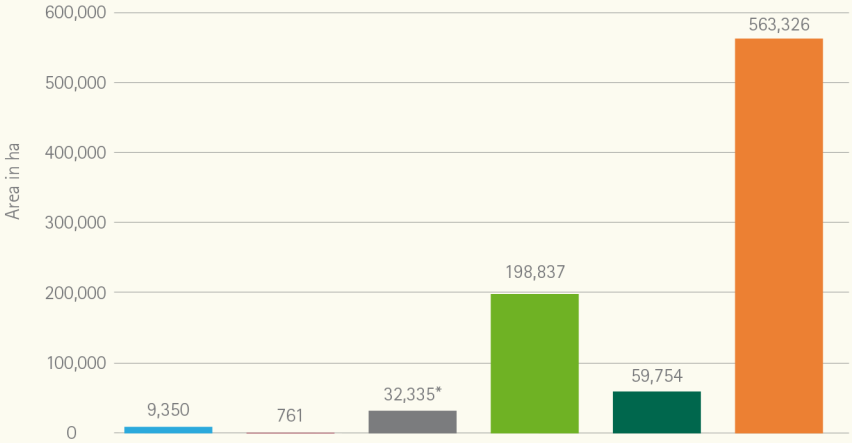
Together with the national park, the National Natural Monument and the other natural monuments, the nature reserves constitute the "natural treasures" of Saxony. The Free State of Saxony protects and develops these areas because of their high level of biodiversity. The Königsbrücker Heide Wilderness Area nature reserve is unique in Germany. It was designated the first wilderness area in the National Natural Landscapes and has also gained international recognition for its development.

Three nature parks – Erzgebirge/Vogtland, Dübener Heide and Zittauer Gebirge – combine recreation and sustainable tourism with nature conservation across large areas.

In addition to providing recreational opportunities, landscape conservation areas can help preserve natural processes and functions, the capacity of natural resources to support human use, and the beauty of the landscape in Saxony.

As the areas covered by the individual categories partly overlap, it does not make sense to add them together. Since 1990, the proportion of Saxony designated as nature reserves has increased from 0.8% to 3.2% but remains below the national average of 4.1%.

Protected areas in Saxony



Number of protected areas:
- 218 nature reserves
- 174 landscape conservation areas
- 3 nature parks

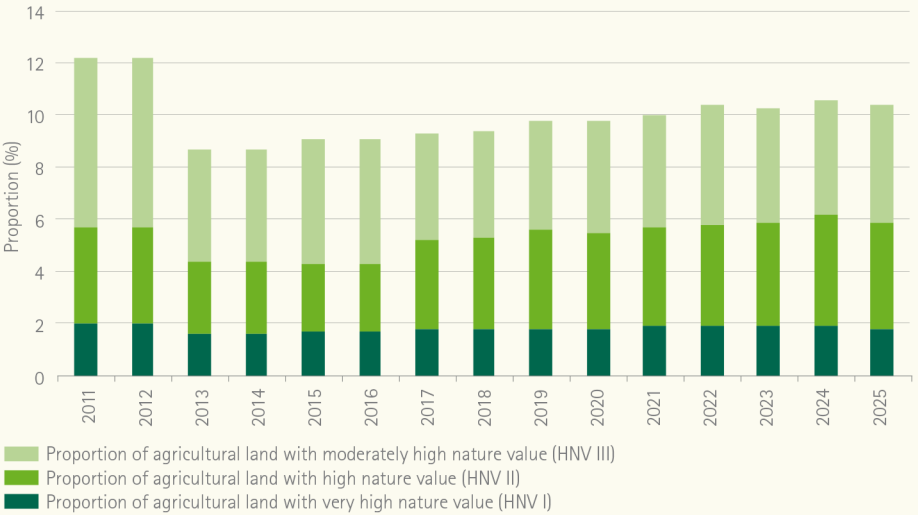
Saxon Switzerland National Park
Green Belt Saxony National Natural Monument
Upper Lusatian Heath and Pond Landscape Biosphere Reserve
* Increase of 2,300 ha in 2026
Nature parks
Designated nature reserves
Designated landscape conservation areas

Source: Saxon State Office for the Environment, Agriculture and Geology

Agricultural Land with High Nature Value

In agricultural landscapes, near-natural landscape elements and extensively managed areas play a key role in maintaining biodiversity. This indicator measures the proportion of agricultural land with High Nature Value (HNV) relative to the total agricultural area. Long-term monitoring allows the effects of fundamental changes in land use and landscape structure (e.g. through intensification) on biodiversity to be assessed. In Saxony, HNV farmland accounted for around 12% in 2011 and was therefore below the target of 19% set for Germany for 2015. From 2012 to 2013, it once again decreased considerably by about 30% to below 9%. Since 2013, there has been a slight upward trend from this low level. The value for 2025 is 10.4%.

Agricultural land with high nature value

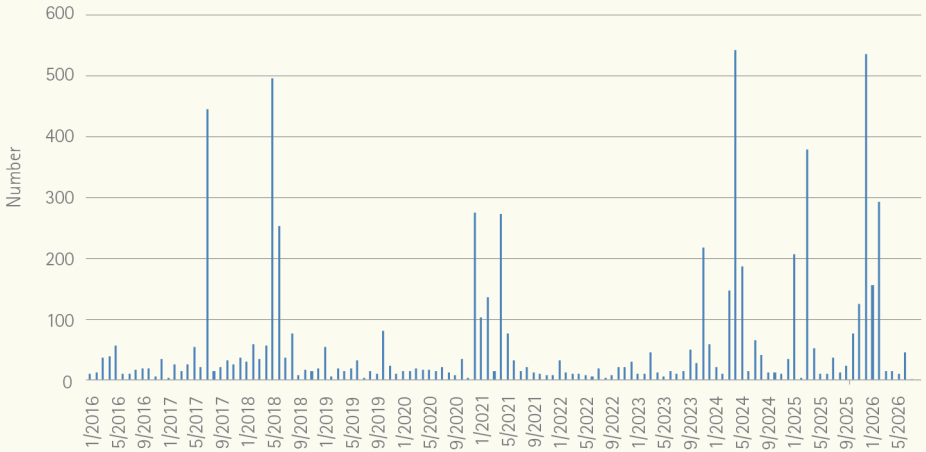


Source: Saxon State Office for the Environment, Agriculture and Geology

Earthquakes in Saxony

Earthquake swarms are a typical phenomenon in Vogtland and they occur when accumulated stress energy is periodically released along geological faults. In 1898, Prof. Hermann Credner was the first to describe these earthquake swarms, which have been studied extensively ever since. Recent studies suggest that fluids and gases rising through the crust trigger these characteristic swarms. Stronger earthquake swarms have occurred in the Vogtland region since the late 19th century. During the 1985/86 winter swarm, a magnitude 4.6 earthquake occurred; this was the strongest event recorded in Vogtland to date. The earthquake swarm region forms part of the seismically active Leipzig–Regensburg Zone. Earthquake swarms currently occur every two to three years along with stronger individual earthquakes.

Earthquakes per month with a local magnitude above 0.0

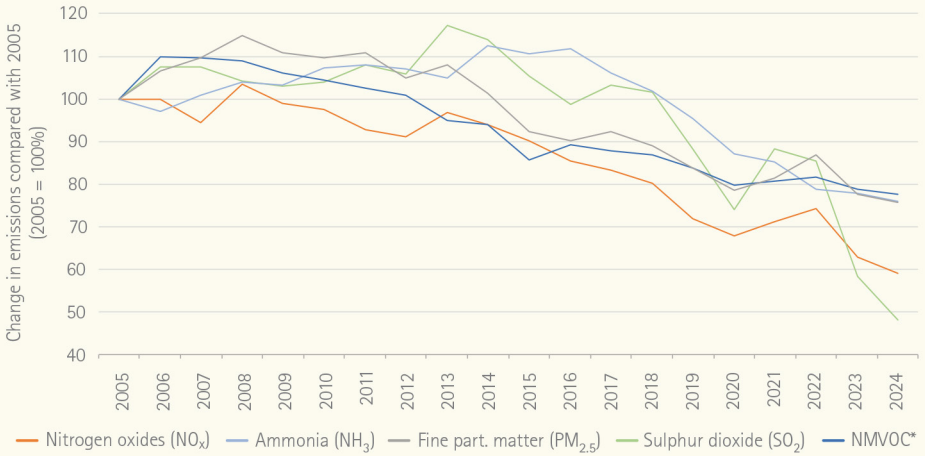


Source: Seismological analyses by the LfULG as part of the Central German Seismological Network

Air Pollutant Emissions

Air pollutants can have numerous adverse effects on humans and the environment. From 1990 to 2000, emissions of air pollutants in Saxony were greatly reduced (not shown). This was due primarily to the economic restructuring of eastern Germany in the 1990s. Reductions since 2000 or since 2005 as the base year of the Ordinance on National Emission Reduction Commitments (43rd German Federal Immission Control Ordinance) have been smaller. Compared with 2005 levels, emissions in 2024 were 22% lower for NMVOCs and 52% lower for SO_2. The decrease in SO_2 and NO_x emissions in 2023 and 2024 was due mainly to the substantial reduction in coal-fired power generation at the Boxberg and Lippendorf lignite-fired power plants.

Emissions of air pollutants in Saxony according to 43rd BImSchV



*NMVOC = non-methane volatile organic compounds
NO_x and NMVOC emissions from agriculture are not included in the accounting framework of the 43rd German Federal Immission Control Ordinance (43rd BImSchV).

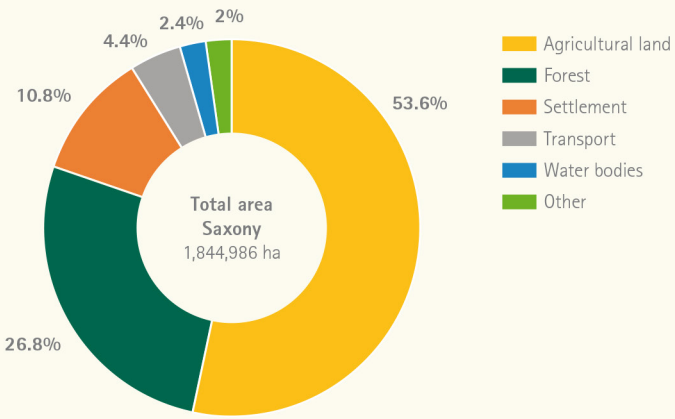
Source: Saxon State Office for the Environment, Agriculture and Geology, Emissions inventory, as of 06/2026

Land Use in Saxony

The chart shows the percentage shares of the main land use types in Saxony's total area in 2024. In Saxony, agricultural land accounts for 53.6% of the total area and woodland for 26.8%. Settlements and transport infrastructure together account for 15.2% of the area. Water bodies account for 2.4%, and a further 2% falls under other land use categories such as wooded areas or unproductive land. The areas of woodland, water, and other land remained stable compared with 2022, but agricultural land decreased and settlement area continued to increase.

Land use for settlements and transport infrastructure as well as the associated soil sealing result in the loss of valuable soils and their functions. On average, 44% of the land used for settlements and transport infrastructure in Saxony is sealed.

Land use in Saxony



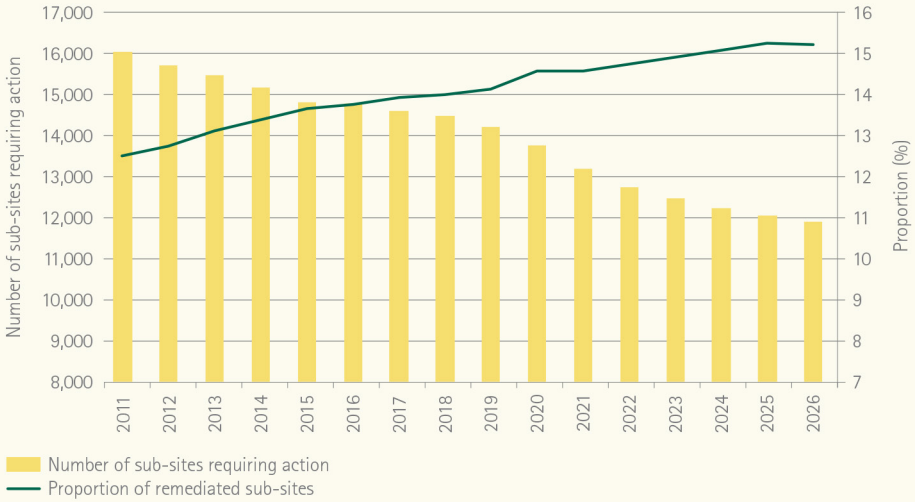
As of 31 December 2024, last updated 18 August 2025

Source: Statistical Office of the Free State of Saxony

Remediated Contaminated Sites

As of May 2026, 26,584 sites with 39,107 sub-sites are registered in the Contaminated Site Cadastre of Saxony (SALKA). The total number of sites and sub-sites has remained almost unchanged in recent years. Ongoing investigations confirm or rule out potential hazards depending on how the land is used. If the investigations confirm this but no action is required under the current land use, the areas remain in the cadastre. The increasing proportion of remediated sub-sites relative to the total number of sub-sites is one indication of successful contaminated site management.

Remediated contaminated sites and recorded contaminated sites or suspected contaminated sites

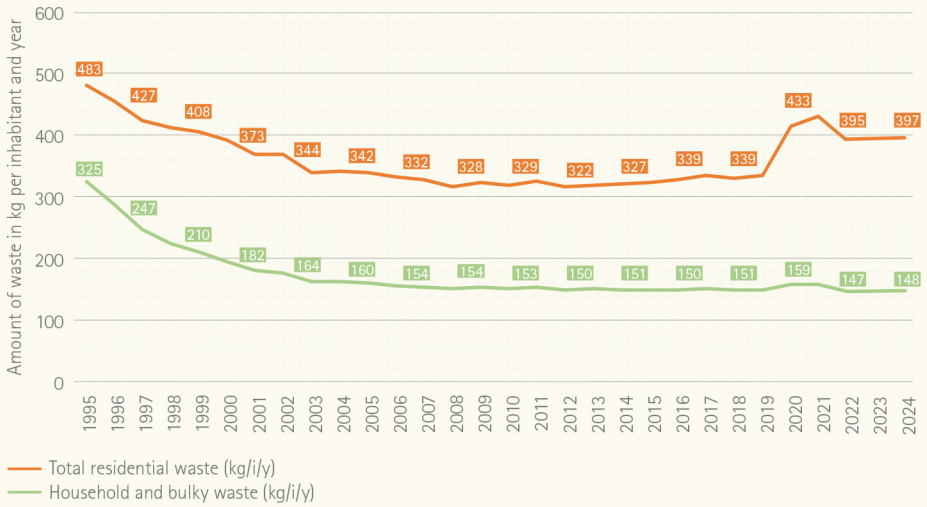


Source: Saxon State Office for the Environment, Agriculture and Geology

Residential Waste

The amount of residential waste generated by households indirectly indicates trends in household waste prevention. The amount of residential, household, and bulky waste decreased until 2012. The amount of household and bulky waste remained relatively constant at 150 kilograms per capita until 2019. The marked increase in residential waste, which peaked at 433 kilograms per capita in 2021, was a result of the COVID-19 pandemic. This was followed by a decline to the current level: in 2024, household and bulky waste amounted to 148 kilograms per capita, two kilograms less than in 2019. This trend is supported by more sustainable consumption that generates less waste, the reuse and repair of used goods, and waste collection and charging systems based on the polluter-pays principle.

Residential waste



Source: Saxon State Office for the Environment, Agriculture and Geology, Department 41 Circular Economy, Residential Waste Balance 2024

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