

Key elements of the Climate Action Programme 2030

A. Background

Combatting climate change is a major global challenge. Since the beginning of industrialisation, emissions into the earth's atmosphere, particularly of carbon dioxide (CO₂), have risen steadily. Rapid, decisive action must be taken to sharply limit the increase in the global average temperature. Only if we achieve this can we preserve the biological adaptive capacity of the planet and the foundations of life for millions of people. Also, from an economic perspective, the greater the increase in temperature, the higher the costs for climate-related damage and for adapting to climate change, far exceeding the avoidance costs.

This is why, at the 2015 UN Climate Change Conference in Paris, 197 countries committed to limiting global warming to well below 2°C and, if possible, to below 1.5°C and to achieving global greenhouse gas neutrality in the second half of the 21st century.

Germany and its European partners agreed on a procedure for reducing Europe's emissions of greenhouse gases by 40% by 2030 compared to 1990 levels. Binding European targets and national targets derived from them were agreed and must be reached by 2030. Germany is also actively working with the majority of the member states for the goal of greenhouse gas neutrality in Europe by 2050.

This challenge, with 2030 as an interim target and 2050 as the critical deadline, means transforming our ways of living and working. The federal government sees great opportunities beckoning for Germany as a place of industry, innovation and employment if rigorous joint action is taken based on the right premise. Companies should ready themselves for the challenges in advance so that they can make the most of the potential for innovation and climate-friendly growth. Citizens should also be given opportunities for climate-friendly behaviour.

In 2005, an emissions trading system (ETS) was established in the EU to jointly achieve EU reduction targets for large-scale emitters in the sectors industry, energy and aviation. This will reduce EU-wide emissions in these sectors by 43% by 2030 compared to 2005 levels. The EU is not alone in its efforts. Around the world, a number of emissions trading systems have been established.

Reducing greenhouse gas emissions in other sectors like transport, buildings, small-scale industry, agriculture and waste (non-ETS sectors) is the responsibility of the member states, which have agreed to comply with defined annual allocations of CO₂ emissions under the EU Effort Sharing Regulation. Germany has committed to reducing its emissions in non-ETS sectors by 38% by 2030 compared to 2005 levels. Compliance with reduction targets is binding for each year. If a member state does not meet the targets, it must purchase emissions allowances from other member states to cover the excess.

Germany has already taken comprehensive climate measures. However, to achieve the necessary CO₂ savings, further national efforts are needed. These have already been set out in the federal government's Climate Action Plan 2050 and are now specified in the Climate Action Programme 2030. They will be implemented in legislation before the end of this year.

The federal government has laid out sector targets for the necessary emissions reduction in the Climate Action Plan 2050. This stems from the conviction that reaching the targets is only realistically possible if action is taken in all sectors. Equally, the economic principle holds true that targets can be achieved most cost effectively when they are tackled across sectors. That is why the Climate Action Programme 2030 links sector-specific and cross-sector measures.

Other EU member states are also working hard to achieve their targets. In many member states, packages of measures to reduce greenhouse gases in various sectors have been introduced. Eleven member states have also introduced carbon pricing in non-ETS sectors.

If Germany steps up its efforts in climate action now, it will be in good company internationally and within Europe. With regard to next year's review process under the Paris Agreement, increased efforts are being undertaken worldwide to achieve the NDCs. This is important because global warming can only be tackled jointly.

From an economic standpoint, therefore, the Climate Action Programme 2030 makes sense for Germany in order to prevent higher damage and adaptation costs and avoid the potentially required purchase of emissions allowances from other countries in the event of missed targets. It is also expedient because direct support of research and development and market incentives help Germany build on its role as an innovative leading provider of and market for climate-friendly technologies, thus having a positive impact on growth and prosperity. Carbon-neutral technologies made in Germany are an important contribution to global climate action and will strengthen Germany's export power as a tech pioneer.

In addition to increased energy efficiency, the electrification of fossil-based energy generation is a crucial component in achieving the climate targets in the non-ETS sectors. For this reason, progress on climate-friendly generation of renewable electricity, with which we aim to cover 65% of gross electricity consumption by 2030, is also of great importance, as is the development of electricity prices relative to fossil fuels.

The federal government's guiding principle in this programme is for Germany, as a leading industrialised country and a fair partner in the international community, to meet the climate targets aimed at preserving the natural foundations of life in a way that is economically sustainable, socially equitable and beneficial to our society.

B. Measures to achieve the 2030 climate targets

With the Climate Action Programme 2030, the federal government aims to achieve the specified climate targets with a varied package of measures including innovation, support, legally binding standards and requirements, and carbon pricing. A uniform price on greenhouse gas emissions across sectors is economically the most cost-effective way to meet climate targets. This is why the federal government, in close cooperation with the European Commission, will advocate the introduction of Europe-wide, comprehensive allowance trading for all sectors. In a first step, the existing European emissions trading system (for energy and industry) is to be supplemented with a moderate European minimum price, which would ensure that allowance prices cannot drop arbitrarily, even when demand is low. This creates planning certainty for climate investments in the ETS sectors. In a second step, in alliance with other like-minded member states, we will work to integrate non-ETS sectors into the emissions trading system in future.

However, timely national action is now required for achieving the 2030 climate targets. Various factors are important in making our action a success for the climate and the whole of society.

Investments in our country's infrastructure are a key requirement. For example, good charging infrastructure for electric vehicles is a basic prerequisite for achieving all of the targets related to electrification of transport.

Investments in research and development are a second important area. In many sectors, there are already progressive processes that can be implemented, but further innovations in climate-friendly technology are necessary in order to improve quality of life and cut CO₂ emissions at the same time.

Safeguarding jobs in Germany is another key area in light of the technological transformation. Climate action and digitalisation are the driving forces behind great changes in our economy. Entire industries

will be fundamentally transformed. We will see to it that these changes are not associated with the erosion of social gains and standards. In Germany, many well-paid jobs with conditions negotiated in collective bargaining agreements currently depend on the internal combustion engine, component suppliers and the conventional energy industry. Good jobs in Germany and Europe must remain secure in a world of new technology and industry. We will continue to actively support the regions particularly affected by the structural change.

In addition to the European dimension of climate action described above, cooperation with municipalities and Länder (federal states) is vital for overall success. The Länder ensure administrative enforcement in all areas and, together with municipalities, are an important source of ideas and practical implementation. If the energy and transport transition is successful at local level, it will be successful overall.

The Climate Action Programme 2030 comprises four components for concrete CO₂ emissions mitigation. The first component is support programmes and incentives for cutting CO₂. These measures allow the federal government to ensure that CO₂ reduction is practically achievable, economically viable, socially equitable and financeable. In line with fast-start financing, all of the support programmes will be concluded by 2030 at the latest.

The second component is carbon pricing, which will incentivise economically efficient innovations and prevention of CO₂ emissions. The purpose of pricing is not to collect revenues for the government to use elsewhere. All extra revenues from carbon pricing will be reinvested in measures promoting climate action or, and this is the third component, will be returned to citizens by easing the burden in other areas. The fourth component is regulatory measures that will come into play more strongly by 2030 at the latest.

Overall, the Climate Action Programme 2030 sends a clear signal: every individual will find his or her way in the transformation, including those on a low income. This is why the support programmes will be particularly attractive at the start. Now and over the next few years is the best time to switch to climate-friendly options. For citizens it is about their next vehicle purchase or the next heating upgrade. For businesses it is about the next investment in processes or the next company car or heavy goods vehicles. For municipalities it is about the next decision on public transport or the next district development. For the Länder it is about the next electricity grid and the next wind farm. For the Federation it is about the next transport routes, the next administrative buildings and setting the framework for efficient climate action. The 2020s will become the decade for rigorous implementation of the energy and transport transition. Support will then have to decline in the foreseeable future but in turn, regulation and price incentives will be further strengthened. It is clear that in the long term only climate-friendly options will pay off.

I. Introduction of carbon pricing (§ 1)

From 2021, the federal government will introduce carbon pricing for the transport and heat sectors (non-ETS sectors). The national emissions trading system (nEHS) covers emissions from the combustion of fossil fuels (in particular heating oil, liquefied petroleum gas, natural gas, coal, petrol, diesel). In the heat sector, the system covers emissions from heat generation in the buildings sector and from energy and industrial plants outside of the EU emissions trading system (EU ETS). In the transport sector, the system also covers emissions from the combustion of fossil fuels but not aviation, which falls under the EU ETS.

Initially, a fixed-price system will be introduced in which emissions allowances will be sold at an upstream trading level to businesses that place heating fuels and other fuels on the market. Participants in the nEHS are marketers or suppliers of combustible fuels.

This will create a reliable price trajectory that will enable citizens and industry to adjust to the development. At the same time, a trading platform for auctioning allowances and facilitating trade will be set up.

In 2021, allowances will be sold at a fixed price of €10 per tonne of CO₂.

In 2022, allowances will be sold at a fixed price of €20 per tonne of CO₂.

In 2023, allowances will be sold at a fixed price of €25 per tonne of CO₂.

In 2024, allowances will be sold at a fixed price of €30 per tonne of CO₂.

In 2025, allowances will be sold at a fixed price of €35 per tonne of CO₂.

If more allowances are sold in a year than Germany has in its overall allocation, extras must be purchased from other EU member states.

From 2026, a maximum emissions quantity will be specified that will be reduced each year. This is derived from the emissions budgets laid out in the Climate Action Plan 2050 and the EU provisions for the German non-ETS sectors. Similar to the procedure in the EU ETS, affected businesses must buy enough allowances at auction or at a secondary market, to cover their CO₂ emissions. The allowance price is principally dictated by the market, except when the price maximum or minimum are exceeded.

In 2026, allowances will be auctioned off in a price corridor between a minimum price of €35 per tonne of CO₂ and a maximum price of €60 per tonne of CO₂.

In 2025 it will be determined to what extent minimum and maximum prices will be appropriate and necessary from 2027 on.

All extra revenues from carbon pricing will benefit the climate action support measures above or will be returned to the public in measures that reduce burdens.

II. Burden reduction for citizens and industry

a. Reducing electricity costs (♣2)

When carbon pricing begins, citizens and industry will receive relief on electricity prices through gradual payment of the EEG surcharge and possibly other state-controlled price components (grid fees, surcharges and duties) from carbon pricing revenues. The payment entitlement under the EEG (Renewable Energy Sources Act) will be unaffected by this.

From 2021, the EEG surcharge will be reduced by 0.25 cents per kWh. Following the carbon pricing trajectory, the relief will be 0.5 cents per kWh in 2022 and 0.625 cents per kWh in 2023. The EEG surcharge will ease the burden particularly on families and small and medium-sized enterprises. As revenues from carbon pricing increase, the electricity price will be further decreased along the pricing trajectory. This will also create the right incentive for increasing electrification, thus advancing the cross-sector energy transition. The additional measures from the Climate Action Programme that could lead to increases in electricity price components will be implemented by the federal government gradually in a series of steps that safeguard the price reduction for electricity.

The provisions on electricity cost compensation in the EU ETS are unaffected by this.

b. Increase in tax break for long-distance commuters (♣3)

Commuters who travel a long distance to work, particularly in rural areas, often do not have the option of using an extensive public transport system. Neither are adequate charging infrastructure and vehicles with sufficient range available to an extent that

would allow a switch to electric mobility in the short term. This will change over the coming years. In order to reduce burdens, the commuter tax break will be raised to 35 cents from the 21st kilometre from 2021 for a limited period up to 31 December 2026.

c. Relief for housing benefit recipients and changes to tenancy law (€ 4)

To avoid social hardship due to rising heating costs, we will support housing benefit recipients by increasing housing benefit by 10%. Beyond this, changes in tenancy law will be reviewed that could allow limited apportioning of the costs of carbon pricing. This creates a twofold incentive: encouraging energy-efficient behaviour in tenants and encouraging landlords to invest in climate-friendly heating systems and/or energy upgrades.

d. Transfer payments (€ 5)

Higher energy costs will be taken into account in transfer payments according to procedures already in place.

III. Sector-specific measures

a. Buildings sector

The buildings sector is directly responsible for 14% of the overall CO₂ emissions in Germany, amounting to around 120 million tonnes per year. In 2030, only a maximum of 72 million tonnes of CO₂ per year will be allowed. According to the latest estimate, by only continuing the existing instruments such as the Energy Conservation Ordinance (EnEV) and the KfW support programme as they stand, we can expect to reduce emissions to around 90 million tonnes of CO₂ per year by 2030. We will close the remaining gap to the target, around 18-20 million tonnes of CO₂ per year, with a mix of increased support, information and consultation services and with the help of carbon pricing and regulatory law.

i. Tax incentive for energy upgrades (€ 6)

One key measure is the introduction of an attractive, simple tax incentive, not linked to any specific technology,

for individual energy upgrade measures in buildings. A tax incentive for property used by its owner will be introduced from 2020 to supplement existing programmes as a further pillar of support. Deductions from tax liability will ensure that building owners in all income groups profit equally from the measure.

As an alternative to the use of other support programmes, individual measures considered eligible by the KfW will also be supported. This includes measures such as heating system upgrades, in particular, but also the fitting of new windows and insulation of roofs and external walls.

Property owners who, for example, replace old windows with modern thermal insulation windows can reduce their tax liability by 20% of the cost, distributed over three years.

Those who continue to use the existing support (CO₂ Building Renovation Programme, market incentive programme - new Federal Funding for Energy-Efficient Buildings) will receive 10% higher support for individual measures in future.

ii. Federal Funding for Energy-Efficient Buildings (§ 7)

With the newly drawn up Federal Funding for Energy-Efficient Buildings (Bundesförderung für effiziente Gebäude - BEG), existing investive funding programmes in the buildings sector will be streamlined and optimised in a single, comprehensive, modernised support programme. This will make the support considerably more user-friendly and attractive, steer funding towards more ambitious measures and significantly simplify the application procedure. One application for efficiency measures and renewable energy will now be enough. The programme's allocation of funds will be increased. For comprehensive upgrades, the existing funding rates for achieving various levels of building efficiency in residential buildings will be raised by 10 percentage points. At its next revision, the federal government's building efficiency strategy will be more rigorously oriented to the CO₂ reduction target (climate-neutral building stock by 2050). In the framework of KfW funding, we will ensure that the investments of other stakeholders can be supported with grants (e.g. tax-exempt housing cooperatives; housing businesses with large loss carry-forwards; individuals with no or with low tax liability, for example pensioners, landlords, owners of buildings used for their own businesses).

iii. Supporting modular upgrades in buildings (§ 8)

In connection with new investment and contract models, the federal government will also support industrial prefabrication of façades and roof elements and standardised installation of systems, including supply of self-generated power.

iv. Upgrading heating systems (§ 9)

An upgrade premium, which will cover 40% of a new, more efficient heating system, will be included in the Federal Funding for Energy-Efficient Buildings to increase the rate at which oil heaters are replaced.

The aim of the new support programme is to create an attractive incentive to replace all heating systems run with heating oil and other exclusively fossil-based fuels with renewable heating or, where this is not possible, with efficient hybrid gas heating systems that partially rely on renewables. In future it will pay off to make the switch, for instance, from old oil and gas heaters to more climate-friendly systems or directly to renewable heating. The federal government will also put forward a legal provision that from 2026 bans the installation of oil heaters in buildings where more climate-friendly heat generation is possible. In new buildings and existing stock, hybrid solutions will also be possible in the future. To enable more households to afford modernisation of their heating systems, buildings support will include eligibility criteria that provide for continual low payments over a longer payment period, e.g. by supporting contract offers/leasing.

v. Topping up Energy-Efficient Urban Redevelopment (§ 10)

The Energy-Efficient Urban Redevelopment programme aids planning and investment-based implementation of comprehensive measures for energy efficiency in buildings in entire neighbourhoods (indirect) and utility infrastructure (heat/cooling/water/waste water). The programme provides impetus for more energy efficiency in municipalities.

In addition to the planned continuation of the Energy-Efficient Urban Redevelopment programme, new eligibility criteria will be developed and existing criteria improved in 2020.

In the grant programme, a sharper focus will be placed on the following, in particular: schemes for environmentally friendly mobility, inter-municipal schemes, measures for including heating network planning in schemes and redevelopment management,

and schemes pertaining to mixed neighbourhoods (combinations of new and existing stock). In lending programme 201/202, in a first step, the repayment grant of 5% will be raised to 10% from the last quarter of 2019. Additional substantial programme improvements for municipal utility infrastructure will be developed in 2020.

vi. Energy auditing services and outreach activities (§ 11)

Energy auditing services for residential buildings will be improved. Auditing services will be mandatory in case of specific events (e.g. change of ownership). Costs will be covered by the existing support programmes. In the framework of the Federal Ministry for Economic Affairs and Energy's informational campaign "Germany makes it efficient", the information provided in future will be even more technically specific and more closely tailored to target groups. As part of an individual upgrade plan, building owners will be informed about the added value provided by energy upgrade measures. The federal government will submit a strategy on this.

vii. Role model function of federal buildings (§ 12)

Federation buildings must be role models for the entire building stock in the areas of energy efficiency, climate action and sustainable construction. Federal buildings must demonstrate that climate targets can be implemented without compromising on the cost effectiveness and functionality of building projects. Federal buildings will therefore achieve a standard matching the targets at an early date and integrate innovative technologies. Budget approval will be based on the minimisation principle, utilising the least funds possible.

New Federation buildings are to meet at least the EH 40 standard from 2022; similar targets are to be developed for special uses. In the short term, this target will be established as binding in an instruction from the federal cabinet on climate neutrality for new Federation buildings and additions.

In a second step, the existing Federation building stock will be given binding upgrade targets for 2030 and 2050 in an instruction on energy efficiency. This requires that all new large-scale building upgrade and modernisation plans must be based on at least an EH 55 standard as of a date to be determined. For special structures, similar target provisions are to be developed and exceptional criteria (heritage conservation, etc.) are to be taken into account. The instruction will lay down an annual upgrade rate in order to reach climate targets. The measures intended to achieve climate targets in existing building stock should preferably be planned and implemented in tandem with upcoming upgrade and replacement structure measures planned for other reasons.

viii. Further developing energy standards (§ 13)

The affordability of construction and housing will remain an important factor in future too. The next review of the currently valid energy standards will occur in 2023 in accordance with EU legislative provisions. The energy standards of residential and non-residential buildings will then be further developed, taking into account the principle of economic efficiency and without link to a specific technology.

b. Transport sector

The transport sector must reduce its annual emissions by 40-42% by 2030 compared to 1990 levels, to 95-98 million tonnes of CO₂ per year. The measures already adopted will reduce emissions by about 13 million tonnes, to a reference level of 150 million tonnes of CO₂ in 2030. That leaves a gap of 52-55 million tonnes of CO₂, which will be closed with a

package of measures including support, transport mode shift and incentives in connection with carbon pricing.

i. Expanding charging point infrastructure for electric vehicles (€ 14)

The expansion of publicly accessible charging infrastructure is a basic requirement for acceptance and growth in electric mobility. The federal government's aim is to expand publicly accessible charging infrastructure and to make 1 million charging points available in Germany by 2030. For this reason, the Federation will use relevant programmes to support the expansion of public charging points until 2025.

The expansion of publicly accessible charging points cannot be managed with support programmes alone. For this reason, this year the federal government will present a masterplan on charging infrastructure and will consult with vehicle manufacturers and the energy industry on the topic. Where market forces do not create adequate supply, regulatory law measures will be considered.

In suitable exceptional cases of regional market failure, as provided for in European law, we will make it possible for distribution network operators to create publicly accessible charging infrastructure.

The federal government will use a binding coverage obligation to ensure that all filling stations in Germany offer charging points. It is being reviewed whether the erection of high-power charging points can be treated as a decarbonisation measure taken by the petroleum industry.

Those who cannot offer publicly available charging infrastructure with 24/7 access will have the opportunity to participate in a special call for funding applications with reduced support amounts. This will enable installation of charging points at commercial parking facilities.

Another point of consideration is the fact that most charging takes place at home or the workplace. For this reason, jointly used private and commercial charging infrastructure (e.g. in multi-family housing and employee parking facilities) will also receive support. The tax break for installation costs (Handwerkerbonus) supports the installation of private charging infrastructure.

In addition, tax incentives are in place for charging at the place of employment and the loan of necessary infrastructure for topping up at home, therefore they do not have to be taxed as a component of wages.

In the Condominium Act (WEG) and in tenancy law, the provisions for creating charging infrastructure are being simplified; in particular, the principle of unanimity is being replaced by the principle of majority vote. Landlords will be obligated to allow the installation of charging infrastructure.

Beyond this, additional legal barriers to the expansion of charging infrastructure will be removed (including accelerated grid connection for charging infrastructure in the Network Connection Ordinance, legal certainty in calculating prorated charges, grid controllability/load management of charging infrastructure for grid-friendly charging, user-friendly charging and charging infrastructure in public spaces).

For a coordinated start of public charging infrastructure at different levels (federal, Land-level, municipalities), a national coordination centre for electric mobility will be established.

Once electric mobility is underway, the requirements of the distribution networks will change, in particular if simultaneous charging causes peaks. This is why the federal government is creating good framework conditions so that distribution network operators to invest in grid intelligence and controllability and develop

their grids in a forward-looking way. The distribution network can then provide high quality power supply to the envisaged number of electric vehicles.

ii. Supporting the switch to electric passenger vehicles (♻️ 15)

The aim is to have 7-10 million electric vehicles registered in Germany by 2030. With the Act on Tax Incentives for Electric Mobility, the company and official car provision for the use of battery or plug-in hybrid electric vehicles will be extended until 2030. In addition, company and official car tax will be reduced from 0.5% to 0.25% for all-electric vehicles with a value of up to €40,000. Tax exemption in accordance with Section 3(d) of the Motor Vehicle Tax Act will be extended until 31 December 2025. The ten-year duration of the tax exemption will be limited to 31 December 2030 at the latest.

In a further step, the purchase premium supported by the Federation and manufacturers will be extended for passenger vehicles with electric, hybrid and hydrogen/fuel cell drivetrains and increased for cars with a value under €40,000 from 2021. In the Carriage of Passengers Act, an early revision will be drawn up so that the Länder and municipalities can set emissions requirements for buses, taxis and rental cars.

iii. Fuel mix and development of advanced biofuels (♻️ 16)

The use of biofuels in the fuel mix reduces the share of fossil fuels, thereby also reducing the amount of carbon pricing applied to fuel. The development of liquid and gaseous regenerative fuels from biomass and their industrial production in biofuel and synthesis plants will be supported to enable their use in specific branches of the transport sector in the medium and long term.

First-generation biofuels based on food and feed crops will not receive additional support. Future bioenergy generation will be based more strongly on waste material and by-products. This is why it is important to actually collect all waste materials and by-products. An expansion of agricultural land for biofuels is not expected and cannot be considered due to space restrictions. The sustainability criteria of RED II must also be applied to imports (from the internal market and third countries). Taking all aspects into account, the maximum available biomass for biofuels in Germany is currently around 1,000-1,200 PJ/a (domestic potential).

iv. Making local public transport more attractive (♻️ 17)

The federal government has created a basis for improving the attractiveness of local public transport by increasing federal funds under the Local Authority Transport Infrastructure Financing Act (GVFG) to €1 billion annually from 2021. This enables expansion of the rail-based local transport system. The act's modalities are to be focussed more strongly on helping local public transport meet climate targets.

In order to ensure that additional expansion measures can be in concrete planning in the next few years, the federal government intends to increase the funds to €2 billion annually starting in 2025.

The modernisation and climate-friendly modification of bus fleets will move forward with increases in support for buses with electric and hydrogen-based drivetrains and buses powered by biofuels.

v. Expanding cycle routes (♻️ 18)

The federal government will make cycling more appealing by further improving traffic safety and conditions for cyclists. Expansion of cycle superhighways and

paths along federal roads will be continued. Two special programmes for cities and rural areas will ensure equal opportunities for transport by bicycle, e.g. with secure and modern bicycle parking facilities and the expansion of infrastructure for freight bicycles.

vi. Making rail travel more attractive (♣ 19)

The Federation and Deutsche Bahn will invest €86 billion by 2030 to modernise the rail network. This will further increase the performance capacity of rail infrastructure. The introduction of digital routing and signalling technology on central arteries and the digitalisation of signal boxes will significantly increase capacity. Bottle-neck routes in the rail network and trouble areas will be further developed, and we want to introduce Deutschlandtakt, a logistics plan that will see trains run between major cities every half hour. In addition, the electrified network is to be expanded and built up. Government funding for local and regional passenger rail services will be continually increased in the next few years, which will also serve to strengthen local public transport.

vii. Strengthening rail freight transport (♣ 20)

Modernisation and capacity improvements on the rail network will also be of significant benefit to rail freight transport. Rail freight transport will become faster and therefore more attractive as an option. By strengthening multimodal transport, we will bring more freight to the rail network. A modal shift of freight to the rails will support single wagonload traffic as an alternative to heavy goods vehicles.

viii. Deutsche Bahn capital increase (♣ 21)

From 2020 to 2030, the Federation will increase its equity participation in Deutsche Bahn with an additional €1 billion annually. This will put Deutsche Bahn in the position of being able to invest additional capital in modernising, expanding and electrifying the rail network and train system.

ix. Putting low-emission heavy goods vehicles on the roads (♣ 22)

The federal government will support the acquisition of heavy goods vehicles with alternative, climate-compatible drivetrains including hydrogen technologies and promote the development of an adequate fuelling and charging infrastructure. The goal is for around a third of vehicle mileage in heavy freight transport to be on an electric or electric-based fuel basis by 2030. To promote expansion of charging infrastructure, the federal government will present a masterplan on charging infrastructure this year. In addition, the heavy goods vehicle toll will have an emissions differentiation that benefits climate-compatible drivetrains. The necessary update of the Eurovignette Directive will also be pushed forward. From 2023, the federal government will introduce an effective CO₂ mark-up on the HGV toll by taking advantage of legal flexibility.

x. Modernising inland water transport and use of shore-side electricity in ports (♣ 23)

An increase in the share of freight transport completed via inland water transport will be achieved by implementing climate measures in the masterplan on inland water transport. The support programme for sustainable modernisation of inland water transport will be further developed.

Charges for shore-side electricity will be lowered and low-emission and less polluting fuels will be promoted temporarily so that this branch can switch to

electricity and low-emission and low-pollutant fuels. In the long term, regulatory law will also have to be applied in this area. At maritime ports, an initiative for the EU-wide introduction of a requirement to use shore-side electricity will be launched; a national provision is under review for inland ports.

xi. Development of electricity-based fuels (§ 24)

Fuel cells will also play a major role in the future of mobility, especially for heavy goods vehicles and other heavy-duty vehicles. In the long term, PtX fuels will also be of growing importance. The federal government will create framework conditions for the development and large-volume scaling of electrolysis and refinement processes for the production of electricity-based climate-neutral gases and fuels. This enables the use of climate-friendly precursors and fuels, in particular in industry and chemicals, but also in aviation, heavy goods transport and shipping.

In the medium and long term, hydrogen-based fuel cell technology must also achieve broad use in mobility. The federal government will draw up a National Hydrogen Strategy by the end of the year. An industrial policy initiative from the European Union on expanding a high-performance e-fuel supply will also be set in motion.

xii. Digitalisation of mobility (§ 25)

An adaptation of the Carriage of Passengers Act will lay the foundations for new digital mobility services. The federal government will continue and intensify practice-oriented testing of automation, networking and use of artificial intelligence for sustainable mobility in digital test sites and demonstration projects. The expansion of fast broadband and mobile communications networks will continue to be supported.

xiii. Stringent CO₂-related reform of motor vehicle tax (§ 26)

The federal government will make motor vehicle tax dovetail more closely with CO₂ emissions and will therefore propose an act to reform motor vehicle tax for passenger vehicles aimed at exerting a stronger influence on new vehicle purchases, steering consumers towards low and zero-emission drivetrains. For new registrations of vehicles from 1 January 2021, the tax base will mainly relate to the CO₂ emissions per kilometre and, for vehicles above 95 gCO₂/km, will be increased in two emissions levels.

xiv. Making rail cheaper and air travel more expensive (§ 27)

Flights are often less expensive than rail journeys to the same destination. From a climate perspective, this has a false incentive effect. To solve this, the federal government will draw up an act that will increase the aviation tax from 1 January 2020 by an amount that will allow value-added tax on long-distance rail tickets to be reduced from 19% to 7%. This will make rail travel 10% cheaper. The amendment to the Aviation Tax Act will prevent giveaway pricing of airline tickets by disallowing the sale of tickets at a price below that of the applicable taxes, surcharges, fees and duties.

xv. Pilot projects for annual local public transport tickets (§ 28)

The federal government will support an additional ten pilot projects on strengthening local public transport, for example introduction of annual tickets for €365.

C. Agriculture and forestry sectors

In 2030, the agriculture sector may emit no more than 58-61 million tonnes of CO₂ per year. Using only existing instruments as they stand, we can expect CO₂ emissions to drop to around 67 million tonnes per year by 2030. A mix of different measures will be implemented to meet the remaining shortfall of 6-9 million tonnes of CO₂ per year.

i. Reducing nitrogen surpluses (€ 29)

The federal government has already made good progress on this, with amendments to fertiliser legislation either already implemented or planned. This will achieve a further reduction of nitrogen surpluses, including ammonia and nitrous oxide emissions. The legislative package on fertilisers will be bolstered by the promotion of gastight, low-emission slurry storage tanks and emission abatement techniques in slurry application. The Länder must also meet their responsibility in this area.

ii. Energy recovery from farm manure (€ 30)

The second key measure relates to generating energy from livestock manure and agricultural residues in biogas installations. The increased use of farm manures in biogas installations and the gastight storage of fermentation residues will be supported with existing and new instruments.

iii. Expanding organic farming (€ 31)

Increasing the area of organically farmed land also helps combat climate change. The federal government will revise the legal provisions to benefit environmentally friendly processes such as organic farming and other particularly sustainable land management. Legal and financial support will be optimised.

iv. Reducing emissions from livestock farming (€ 32)

The federal government will tap further emission-saving potential in livestock farming and animal nutrition. Alongside research and breeding, an important focus will be on the future development of livestock population. Support measures will be geared more to animal welfare (see also the federal government proposal for an animal welfare label), taking due account of environmental impacts and emission savings. The livestock industry and land management must be better coordinated.

v. Improving energy efficiency (€ 33)

There is still scope for improving the energy consumption of technology used in agriculture and horticulture. To this end, the federal programme to improve energy efficiency in agriculture and horticulture will be continued and developed, and the use of renewables supported.

vi. Maintaining and developing the humus content of arable land (€ 34)

We need to make greater use of the carbon sequestration potential of soils. Carbon sequestration measures should be taken into consideration, for instance

in the elaboration of the arable farming strategy currently underway. The expansion of organic farming also contributes to soil carbon sequestration. Strips of forest on agricultural land improve soil quality and reduce CO₂ emissions and pollution. That is why the federal government supports planting hedges, banks and avenues, for instance with fruit trees, especially on field margins.

vii. Conserving permanent grassland (€ 35)

Substantial carbon stocks are stored in grassland as well. Conserving permanent grassland is therefore important for combatting climate change and is supported by the Common Agricultural Policy (CAP). We want to maintain the regulations on conserving grasslands and develop a strategy for securing and strengthening grassland use for the long term.

viii. Conserving peatland / curbing peat use in growing media (€ 36)

Drained peatlands are a significant source of greenhouse gas emissions. The conservation of peatlands is therefore relevant for climate action and will receive greater support.

ix. Conservation and sustainable management of forests and use of timber (€ 37)

There is a danger that major carbon sinks such as forests and peatlands will release their CO₂ stocks back into the atmosphere. There is huge climate change mitigation potential in the conservation and sustainable management of forests and the use of timber. It is important that we conserve forests and secure their sustainable management for the long term. This requires suitable measures to reforest degraded areas and measures to better adapt all forests to climate change as part of a climate-resilient forest conversion. That is why the federal government will support the safeguarding of these CO₂ sinks.

The extreme weather events over the past year in particular have demonstrated that forests need help in order to continue fulfilling their climate protection function. We will also promote sustainable and resource-efficient use of timber. This includes the increased use of timber as a climate-friendly construction material.“

x. Avoiding food waste (€ 38)

The federal government is systematically implementing the National Strategy for Reducing Food Waste. An indicator for food waste and food losses in Germany is being prepared for the National Sustainability Strategy. This will make the results of our efforts transparent and documentable. Indirectly, avoiding food waste also impacts on the greenhouse gas emissions arising from food production.

xi. Common Agricultural Policy (€ 39):

The federal government has expanded the support possibilities available under the Common Agricultural Policy (CAP) for climate-friendly measures.

d. Industry

Industry must reduce its emissions by 49-51% compared to 1990, to 140-143 million tonnes of CO₂ in 2030. A substantial reduction was already achieved in 2016, with CO₂

emissions down to 188 million tonnes. Based on this figure, there is a shortfall of 45-48 million tonnes (around 25%). We will close this gap by building on existing support measures in the field of energy and resource efficiency and expanding the use of renewables in industry. Support programmes will place greater focus on companies subject to the EU Effort Sharing Regulation, as these emissions have risen. We are seeking a way to firm up the energy efficiency requirement.

i. Investment programme – energy efficiency and process heat from renewables in industry (€ 40)

This investment programme combines and builds on five existing support programmes. A "one-stop shop" will minimise costs and workload for companies and maximise the effectiveness of support. The main focus of investment is on more complex projects aiming to optimise energy efficiency in production systems and processes.

ii. Support programme: competitive tenders for energy efficiency (€ 41)

This support programme allocates funding in a competitive process. Based on the experience gained in the pilot tenders for electricity efficiency, funding will continue to be awarded in competition and the programme extended to include heating. In contrast to conventional grant support, this programme targets more ambitious and complex projects.

iii. Resource efficiency and substitution (€ 42)

Existing measures contained in the German Resource Efficiency Programme will be reinforced with the goal of improved resource efficiency and substitution. Three key areas are consulting and information, support, and further training and vocational education.

iv. EU Ecodesign Directive – expanding minimum standards (€ 43)

Expanding minimum standards to certain product groups in order to regulate the efficiency of technologies. For industry, this particularly relates to cross-application technologies.

v. National decarbonisation programme (€ 44)

Support programme in the field of development, demonstration and market introduction. To ensure that industry achieves the most comprehensive emission reductions, process-related greenhouse gas emissions that are unavoidable or difficult to avoid using current best available technology must be eliminated or extensively reduced in future. Key projects in the field of emission-intensive industries will be supported to facilitate this. The support programme will particularly focus on projects for maximising GHG reductions in the production of emission-intensive goods, optimising process chains, changing processes to use renewable energies and renewable raw materials, substituting emission-intensive goods and promoting technologies for hydrogen conversion and technologies to harness CO₂.

In future, the NER300 programme will include industry as well, and be renamed Innovation Fund. The support is also intended to incentivise demonstration projects on innovative low-carbon production processes.

vi. Accelerated implementation of measures under the energy audit and energy management systems (EMS) (§ 45)

The law stipulates that non-SMEs are obligated to introduce energy audits by 5 December 2015 and repeat them at least every four years. Companies that had introduced an energy management system (EMS) or an environmental management system are exempt from this requirement. To promote low-investment measures which are not covered by support programmes, it is proposed that the implementation of the measures recommended by the energy audit or the EMS be fast-tracked in the framework of a voluntary commitment by industry. This must be as effective as a mandatory measure. (The criteria for deciding this are a repayment period of up to three years and a quota for energy efficiency investments, to be determined on the basis of annual profits.)

vii. Automotive industry (§ 46)

Support will be given to the establishment of future-proof battery cell factories, so that the entire value chain for electric mobility is represented in Germany and Europe. (see measure 60). Suitable instruments will support suppliers to the automotive industry in making the necessary changes.

e. Energy sector

By 2030, CO₂ emissions in the energy sector must fall to 175-183 million tonnes. The energy sector has already achieved a substantial emissions reduction. To maintain and accelerate this positive trend, the key measures envisaged are expanding renewable energies, reducing the use of electricity from coal-fired power plants and raising energy efficiency. This will yield an overall CO₂ emissions reduction in the energy sector of at least 83 million tonnes.

i. Reduction of coal-fired power generation based on the recommendations of the Commission on Growth, Structural Change and Employment (§ 47)

At the beginning of the year, the Commission on Growth, Structural Change and Employment submitted comprehensive recommendations on how the gradual phase-out of coal-fired power generation can be implemented and financed in a socially sound way in line with the climate targets. Total installed capacity of coal-fired power plants on the market will be cut to 17 GW by 2030 and reduced to zero by 2038. As also highlighted by the Commission on Growth, Structural Change and Employment, this process must continue to guarantee security of power supply and affordable electricity prices. The recommendations of the commission contain a social consensus on how the phase-out of coal can be achieved by 2038. We will implement this consensus in close coordination with the Länder concerned. The federal government has already submitted the Structural Development Act for the coal regions (Strukturstärkungsgesetz). In November the federal cabinet will adopt the legal provisions for the phase-out of coal-fired power generation and the remaining measures set out in the key elements paper of the Commission on Growth, Structural Change and Employment adopted in the Federal Cabinet.

ii. Increasing the share of renewable energies to 65% (§ 48)

A crucial component for achieving climate targets in the energy sector is an ambitious, efficient and grid-compatible expansion of renewable energy that is increasingly market-oriented. The federal government has set the target of a 65% renewables' share in electricity consumption by 2030.

The following provisions aim to increase acceptance for the expansion of renewables. For the local people affected, it must be ensured that these minimum distances are not, under any circumstances, lower than those applicable under the current law:

- **Minimum distance:** In future, no new wind turbines may be erected or repowered below a minimum distance of 1,000 metres. The provision on minimum distance will apply to areas that are purely or generally residential and to village structures with significant residential development, including those that are not so designated.
- **Land-use plans:** The new minimum distance regulations will apply to all existing and future land-use plans. This means that areas designated for wind turbines under existing plans are reduced in size accordingly. All other aspects of the plans will remain valid. The new provisions on minimum distances will not apply to land-use plans that became final between 1 January 2015 and the entry into force of the relevant legislation.
- **Opt out:** Within 18 months after entry into force of the new provision, a Land may prescribe lower minimum distances.
A separate provision, not linked to a time limit, also gives municipalities the option of laying down lower minimum distances. In future municipalities will receive financial benefits from wind power, which can increase if the municipalities make use of their opt-out rights. This is already envisaged in the draft act to reform real property tax, and can be further strengthened with a separate rate.
- **Other measures to boost acceptance** are being reviewed, for instance improving the framework conditions for landlord-to-tenant electricity.
- **A regionalisation bonus** will be agreed to ensure that the expansion of wind farms is better distributed across the different regions.
- **Offshore:** We are raising our target for the expansion of offshore wind power to 20 GW in 2030, provided binding agreements can be reached with the coastal Länder. Relevant agreements are being concluded with the transmission system operators.
- The current ceiling of 52 GW on support for the increased use of photovoltaic installations will be repealed.
- The existing 10H provision governing minimum distance in Bavaria will continue to apply.

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iii. Sector coupling (§ 49)

The use of electricity from renewable energy can help replace fossil fuels in all sectors. The transport sector is pressing ahead with the switch to electric mobility. Alongside the decarbonisation of heating networks, coupling sectors up with renewable electricity will ensure climate-friendly buildings for living and working. Obstacles to sector coupling will be identified and removed wherever this is economically viable.

iv. Final consumer status for energy storage systems (50)

Storage systems, e.g. for water and electricity, have a poor position in the current market environment. They are nevertheless necessary, for instance to balance power supply from renewable sources. For this reason, storage systems will be exempt from existing charges and granted final consumer status. We will implement this in a series of steps that does not jeopardise the goal of lowering electricity prices set out in the Climate Action Programme 2030.

v. Further development and comprehensive modernisation of combined heat and power (CHP) (51)

Combined heat and power generation will be supported for both electricity and heat in a way that is compatible with the expansion of renewable energy. In the long term, modern CHP systems will replace coal-based CHP plants, secure electricity and heat supply and promote the integration of renewables through flexible operating methods that benefit the grid. Support for CHP, including in public supply, will be built on and extended until 2030.

vi. Restructuring and expanding heating networks (52)

Heating networks will be continually improved in terms of efficiency and converted to use renewable energy and unavoidable waste heat. This will deliver further positive effects in the buildings sector.

vii. Living labs for the energy transition (53)

Living labs for the energy transition will be established as a new pillar of research support and receive additional funding. They serve as models for the transformation of the energy system and focus on issues that play a key role in the energy transition (e.g. hydrogen technologies, sector coupling, energy storage systems).

f. Waste management sector

In Germany, a very high proportion of waste is collected separately, reused, recycled or recovered as energy. The landfilling of biodegradable waste was banned in Germany in 2005. The waste landfilled prior to this date is producing methane as it decays. Generally, landfill operators cannot collect all the gas that has formed and some escapes into the atmosphere as fugitive emissions. Due to its high global warming potential, (factor 25 compared to CO₂), methane is an extremely potent greenhouse gas.

Possibilities for reducing greenhouse gas emissions from the waste sector lie in aeration, i.e. aerobic stabilisation of landfills, and in improved collection of landfill gases. The first method can significantly curb methane production, while the second ensures that less gas escapes into the atmosphere. The following three measures are proposed for reducing emissions from landfills:

i. Continued support for small-scale landfill aeration projects (54).

ii. Support for additional large-scale landfill aeration projects (55).

iii. Optimised landfill gas collection (56).

IV. Individual non-sector-related measures

a. Research and innovation (57)

Research and innovation are indispensable for achieving the federal government's ambitious climate targets, generating fresh impetus and tapping new potential for

climate action. For successful climate action, we need to mobilise the entire system of innovation, convince companies to seriously commit to research and development, inject momentum into state research and innovation and fund research. Research and innovation measures include technology development and systemic, social and economic approaches. They dovetail with the sector-specific measures.

b. Green IT (€58)

The high energy consumption of digital technologies is a major factor in the generation of greenhouse gas emissions. Demand for processing power will continue to rise, and we must therefore explore how we can lower the energy consumption of these technologies. We need to make major progress in digital and power electronics.

c. Growing importance of hydrogen (€59)

In the cross-sector context, the federal government sees green hydrogen as pivotal to the restructuring of our economy. Particularly in light of the increasingly complex challenges up to the middle of this century, hydrogen will continue to gain importance. We must recognise this fact now and grasp the opportunities it offers for Germany, Europe and our partners throughout the world by investing in research, innovation and market incentive programmes. To this end, the federal government will present a hydrogen strategy by the end of this year.

d. Strengthening battery cell manufacture in Germany (€60)

Support totalling €1 billion for battery cells will foster high-volume, industrial-scale battery cell production at several sites in Germany. Germany's battery cell cluster, combining industrial production and research projects, will establish itself in the European landscape. It receives support under state aid law, primarily via the IPCEI (Important Projects of Common European Interest). Under the umbrella concept "Forschungsfabrik Batterie" (research factory for batteries) the federal government will support competence and technology building in the battery sector along the entire value chain. This will enable a large proportion of value creation in the automotive industry to remain in Germany in future. Other sectors of German industry also depend on reliable, high-performance batteries. Germany must continue with research and production so that it can remain a leader in international competition.

e. Carbon storage and use (€61)

On the road towards greenhouse gas neutrality by 2050, the storage and use of CO₂ can help reduce otherwise unavoidable emissions from industrial processes. The federal government will support R&D in this technology. To highlight the importance of carbon storage and use in the range of climate technologies and to pave the way for its acceptance, the federal government will initiate a dialogue with stakeholder groups. The development of new technologies and processes will be supported with the goal of directly avoiding emissions from industrial processes. This initiative is aimed at Germany's entire primary industry sector.

f. SMEs – Innovative (§ 62)

SMEs are providing vital momentum for climate action and energy efficiency. They are a central pillar of innovation and employment in our country. Therefore, we will develop a programme especially geared to SMEs that focuses on these two areas.

g. Accelerating planning law (§ 63)

The federal government will introduce significant steps for expediting planning and construction in rail transport. To this end, we want to make approval for rail projects possible through legislation, and to raise general acceptance of them. An interim act will set out the prerequisites, describe the procedure for preparing the legislative acts to facilitate measures and lay down which authorities will be responsible for implementing the procedure.

In addition, integrating spatial planning and planning approval will help speed up lengthy procedures. The option of generally waiving the approval requirement or substantially streamlining the procedure for the construction of new, replacement bridges will be legally reviewed and facilitated. By eliminating personnel shortages, we are creating the conditions needed to further accelerate the procedures. Other measures include establishing task forces for approval procedures and examining whether an exclusion clause could be reintroduced in a way that complies with EU law.

h. Development and implementation of a Sustainable Finance Strategy (§ 64)

The aim of a sustainable finance strategy is to make Germany a leading centre for sustainable finance, support the discussion and implementation process at national, European and global level and contribute to generating a structured and focused stakeholder dialogue. An advisory committee has been established for this purpose.

i. The KfW as a promotional bank for transformation (§ 65)

The KfW will be developed into a sustainable promotional bank to support the transformation of economic sectors and the finance market for a greenhouse gas-neutral future. Proposals for concrete implementation will be made by relevant KfW bodies based on the Sustainable Finance Strategy and the capital adequacy of the KfW. These proposals will be in line with the strategic target system of the KfW and underpinned by specific measures and instruments. In parallel, the federal government will drive forward relevant transformation processes in multilateral development banks through its influence on the competent bodies of these banks. The discussion on EU taxonomy and its results will also be taken into account.

C. Legal implementation of the Climate Action Programme and monitoring

The priority goal of the federal government and the Climate Action Programme is to achieve the climate targets for 2030. To achieve them in a planned and reliable way, the annually defined reduction targets arising from the Climate Action Plan 2050 (sector targets) will be specified in law for all sectors. This process will optimise transparency and performance evaluation.

Every year, the federal government will precisely calculate overall compliance with the 2030 climate targets and the progress made in each sector, and have the results reviewed by an external council of experts. In this way, the federal government will ensure objectivity on climate target achievement.

Under the current status of government decisions, the Climate Cabinet is only a temporary body. The federal government will make the Climate Cabinet permanent and task it with annually reviewing the effectiveness, efficiency and expediency of the measures introduced. If a sector does not meet its legally prescribed targets, the competent government minister must submit an immediate action programme with corrective measures within three months after the council of experts has confirmed the emissions data. On this basis, the Climate Cabinet will decide how the Climate Action Programme 2030 can be adapted, in a coordinated effort, to ensure that the targets are met. The Climate Cabinet will also examine whether the annual sector budgets need to be adjusted. The decision on that will be taken by the federal government. The government's guiding principle for this decision is to meet the climate targets aimed at preserving the natural foundations of life in a way that is economically sustainable and socially equitable.

All legal measures for implementing the programme will be adopted by the federal cabinet before the end of 2019.

D. Financing

The revenues from the Climate Action Programme 2030 are not intended as additional state funds to be used for other purposes. All extra revenues generated by the programme will be reinvested in support measures for climate action or to ease the burden on citizens.

The measures under the Climate Action Programme 2030 will be largely anchored in the 2020 business plan of the Special Energy and Climate Fund (EKF).

This reinforces the EKF as the main funding instrument for the energy transition and climate action in Germany. By 2030, the combined total funding of the EKF and other support instruments earmarked for climate action and the energy transition will be in the three-figure billions. The additional investments in climate-friendly measures that this generates will bolster the economy and make Germany a business location that is fit for the future. EKF spending will focus more on the core task of combatting climate change.

As part of the Sustainable Finance Strategy, the government will in future issue green/sustainability bonds in order to foster the growth of sustainable finance markets. Public utilities will give greater consideration to sustainability aspects in their investment strategies, bearing in mind the financial and budgetary goals of the federal government. When national carbon pricing is launched, these revenues and all other income generated by measures under the Climate Action Programme 2030, will be used to finance further measures under the programme and balance out the loss of tax revenues directly arising from these measures. Spending for the years 2020 to 2023 (medium-term financial planning) will be secured in the EKF business plan and the federal budget. The Climate Cabinet financial overview is a part of the decision adopting these key elements (Annex 1).

This provides the basis for ensuring that revenues and expenditure measures under the Climate Action Programme 2030 are consistent with each other and their financial impacts for the Federation are balanced out. Where this proves not to be the case, appropriate corrective measures will be taken.

Fair burden sharing will be discussed during the process in the Bundesrat on the legislation which affects the budget.

E. Climate action efforts by the whole of society

In the Climate Action Programme 2030, the federal government shoulders its responsibility and sets out the framework for climate action in Germany over the next ten years. To implement this successfully, we need a huge effort from the whole of society. That is why the federal government will initiate an intensive dialogue with the Bundestag, Länder, municipalities, industry, unions and civil society as a whole. The aim is to ensure that all social forces commit to the climate targets for 2030 that fall within their competence and initiate or support the requisite measures.

Members of the public are asking what they personally can do to advance climate action. The federal government will foster this widespread willingness to act with a website ( 66) highlighting the climate action opportunities for citizens and companies.