



Bundesrepublik Deutschland
Finanzagentur GmbH

Federal Republic of Germany Green Bond Investor Presentation

2020

Executive summary (1/2)

Green Federal securities – key facts

Green twin bond approach

- Each Green Federal security will have a conventional twin, with the same maturity and coupon
- Strong liquidity support is provided by the German Finance Agency
- The inaugural Green Federal security is to be issued in September 2020 in the 10-yr part of the curve, potentially followed by a 5-yr bond in Q4 2020
- Germany aims to establish a Green Federal bond curve within a short period of time, providing an interest rate benchmark for the Euro green finance market

Green Bond Framework

- In line with the Green Bond Principles and elements of the draft EU Green Bond Standard
- Dedicated governance for Eligible Green Expenditures selection and management of proceeds
- Allocation and impact reporting
- Second Party Opinion by ISS ESG

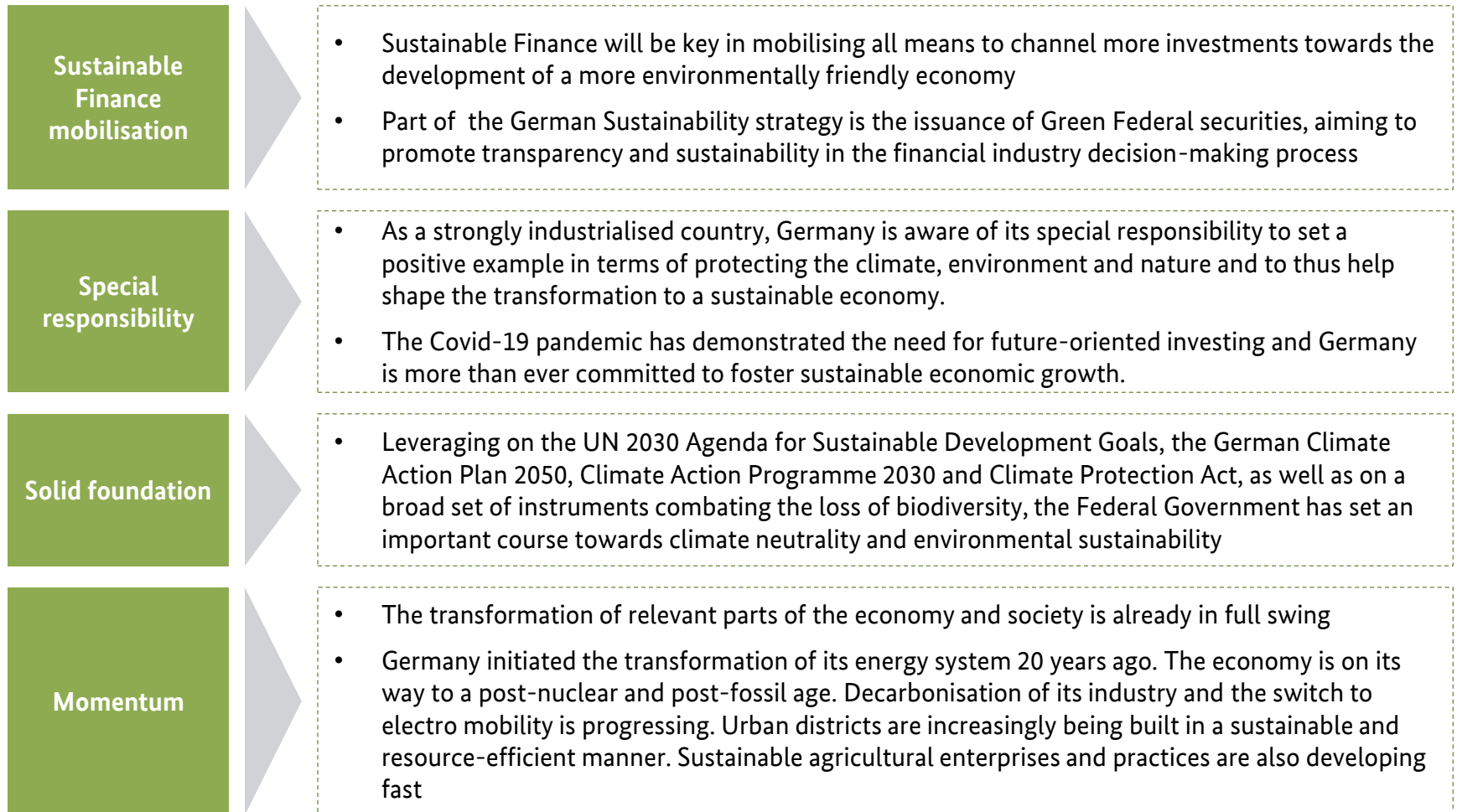


Eligible Green Expenditures

- The Green Bond Framework defines the process for the selection of Eligible Green Expenditures, supporting the German sustainability strategy and EU Environmental Objectives
- Eligible Green expenditures come from five sectors:
 1. Transport
 2. International cooperation
 3. Research, innovation and awareness raising
 4. Energy and industry
 5. Agriculture, forestry, natural landscapes and biodiversity
- EUR 12.7bn of Eligible Green Expenditures have been identified in the 2019 Federal budget

Executive summary (2/2)

Global responsibility and opportunities for a sustainable future



Transaction Overview

Details on the inaugural Green German Federal security

| | |
|--------------------------------|---|
| Date | [] September 2020 |
| Maturity date | 15 August 2030 |
| Reference “twin” bond | 10y Federal bond issued on 17 June 2020 (ISIN DE0001102507) |
| Minimum volume | EUR 4bn |
| Settlement date | T+[] |
| Coupon | 0% |
| Initial spread guidance | To be announced on [] September 2020 |
| Country ratings | Aaa/AAA/AAA |
| Joint Lead Managers | To be defined |
| ISIN | DE0001030708 |

Germany's Green Federal securities

Presentation agenda

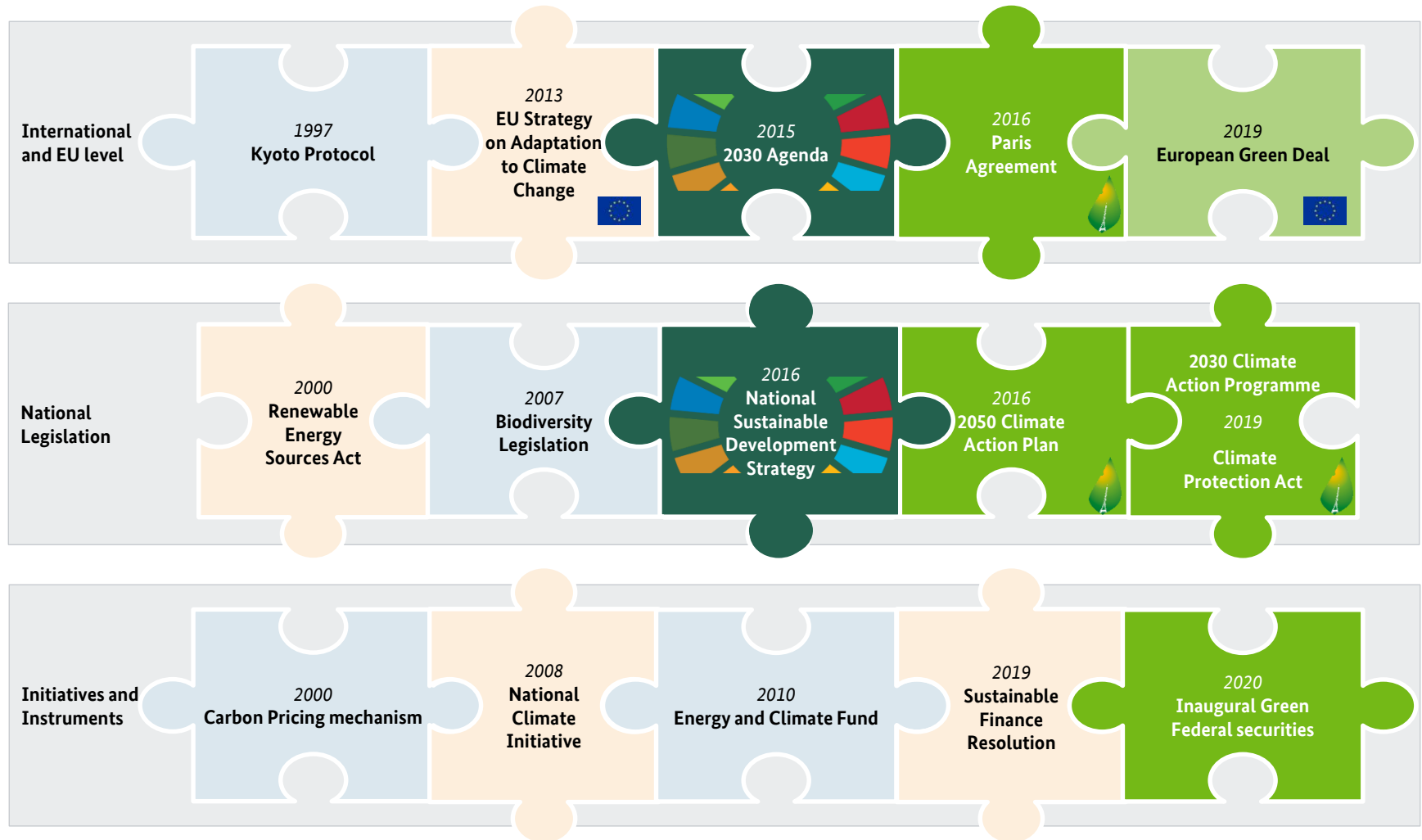
Section

- 1 Sustainable Finance supporting transformation in economy and society**
- 2 Green Bond Framework overview**
- 3 Green Federal securities in practice**
- 4 Green Federal securities execution strategy and the twin bond model**
- 5 Selected case studies of Eligible Green Expenditures**

Section 1.

Sustainable Finance supporting
transformation in economy and society

Selection of key legislation, initiatives and instruments



Sustainable Development Goals – Our roadmap for the future

- Sep 2015: 2030 Global Agenda for sustainable development adopted by world leaders



- Jan 2017: Sustainable Development Strategy approved by the German Federal Government, which aims at economically efficient, socially balanced and environmentally sustainable development



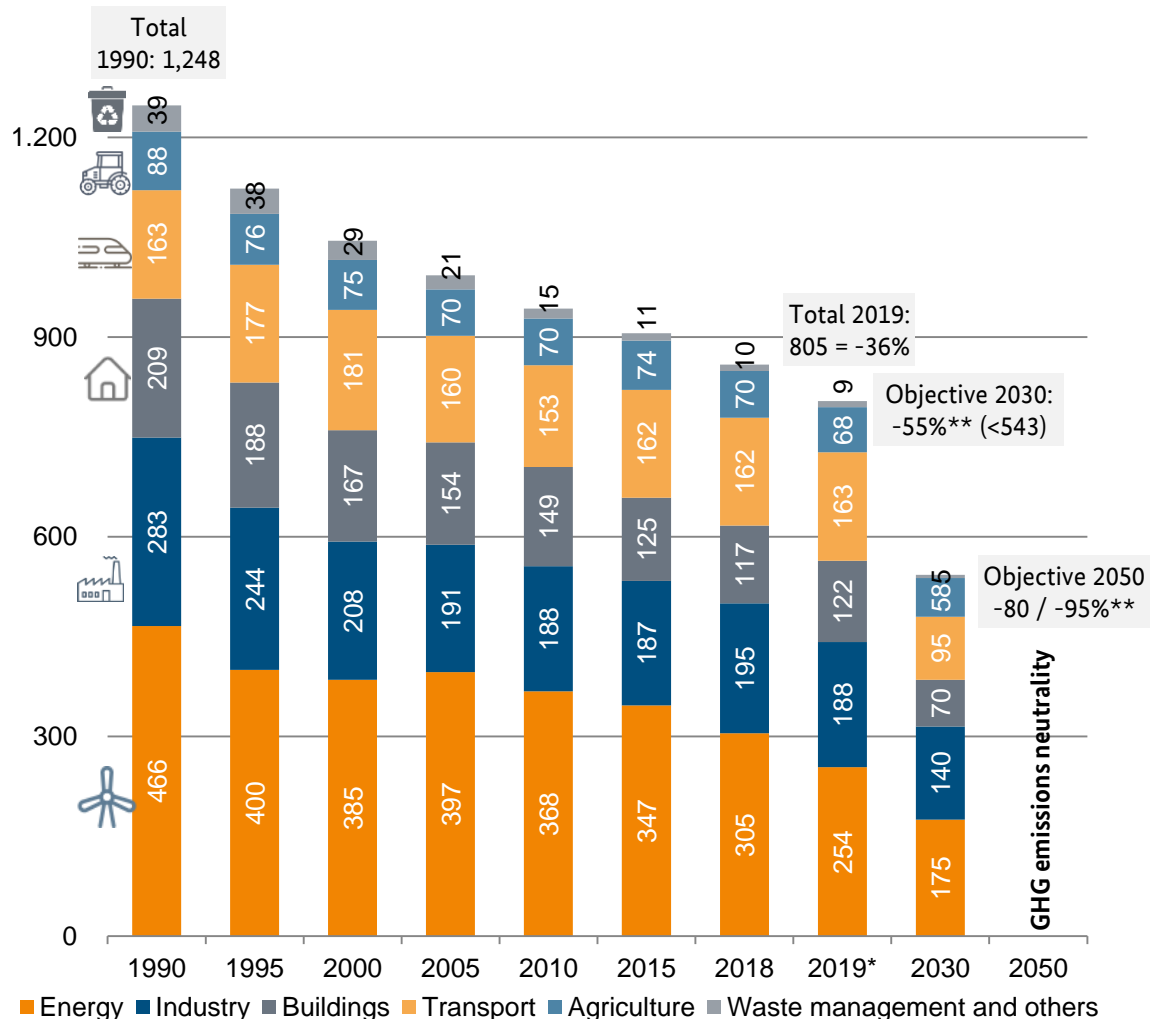
- Thorough monitoring and reporting of the Sustainable Development Strategy:
 - 63 “key indicators” associated with quantified targets
 - Transparent and regular monitoring, including biannual publication of Indicator Report by the Federal Statistical Office
 - Obligation to subject any draft laws and regulations to a sustainability impact assessment, enshrined in the Joint Rules of Procedure of the Federal Ministries



Climate Action Plan 2050: framing the path to decarbonization

- Germany and Europe are highly committed to transition towards a low-carbon, resource efficient and sustainable economy
- Exactly halfway in the 1990 – 2050 period, the goal of transforming towards a largely greenhouse gas neutral economy and society by the middle of the century remains a major, yet achievable challenge
- With the Climate Action Plan 2050 of Nov-2016 and the Climate Action Programme 2030 of Oct-2019, Germany has committed to reduce GHG emissions by at least 55% until 2030 and by at least 80% until 2050** to achieve neutrality by 2050
- GHG emissions neutrality should be interpreted to mean net zero anthropogenic GHG emissions from all sectors covering all greenhouse gas emissions, which means emissions from carbon dioxide as well as other greenhouse gases like methane






GHG emissions development in Germany per sector (in MtCO₂e)



Germany's transition towards carbon neutrality

- The Climate Action Plan 2050 identifies key areas of action in five sectors that form important pillars of the German economy
- It also formulates guiding principles, milestones and measures for all such areas of action
- The Climate Action Programme 2030 and the Climate Protection Act enumerate GHG reduction objectives for each year until 2030

GHG emissions from areas of action in 1990 as well as 2022, 2025 and 2030 targets

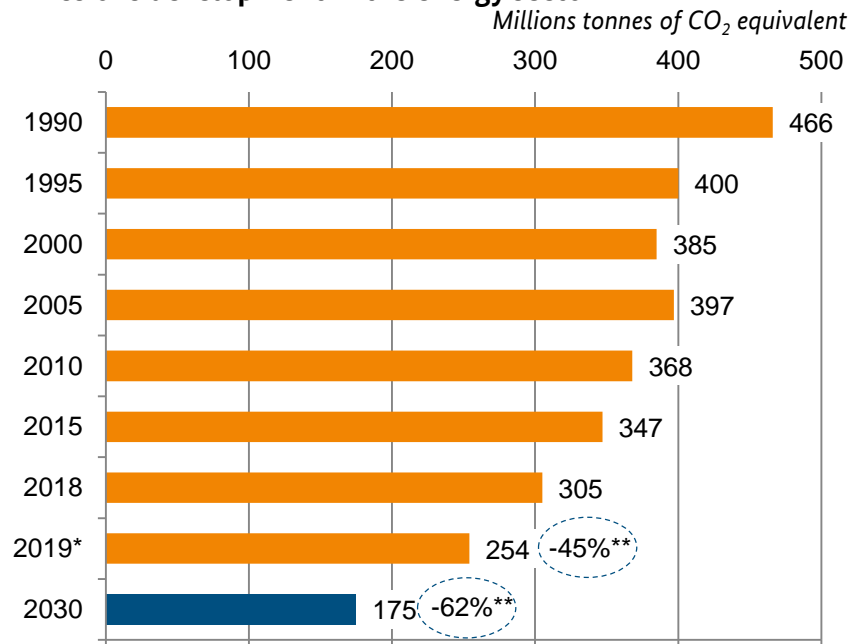
| Area of action | 1990 (in MtCO ₂ e) | 2022 targets (in MtCO ₂ e) | 2025 targets (in MtCO ₂ e) | 2030 targets (in MtCO ₂ e) | 2030 targets (reduction in % compared to 1990) |
|---|----------------------------------|--|--|--|--|
|  Energy | 466 | 257 | ~226 | 175 | 62% |
|  Buildings | 209 | 108 | 94 | 70 | 67% |
|  Transport | 163 | 139 | 123 | 95 | 42% |
|  Industry | 283 | 177 | 163 | 140 | 51% |
|  Agriculture | 88 | 67 | 64 | 58 | 34% |
| Subtotal | 1,209 | 748 | 670 | 538 | 56% |
| Waste mgmt. & Other | 39 | 8 | 7 | 5 | 87% |
| Total | 1,248 | 756 | 677 | 543 | 56% |

Energy sector (1/2)

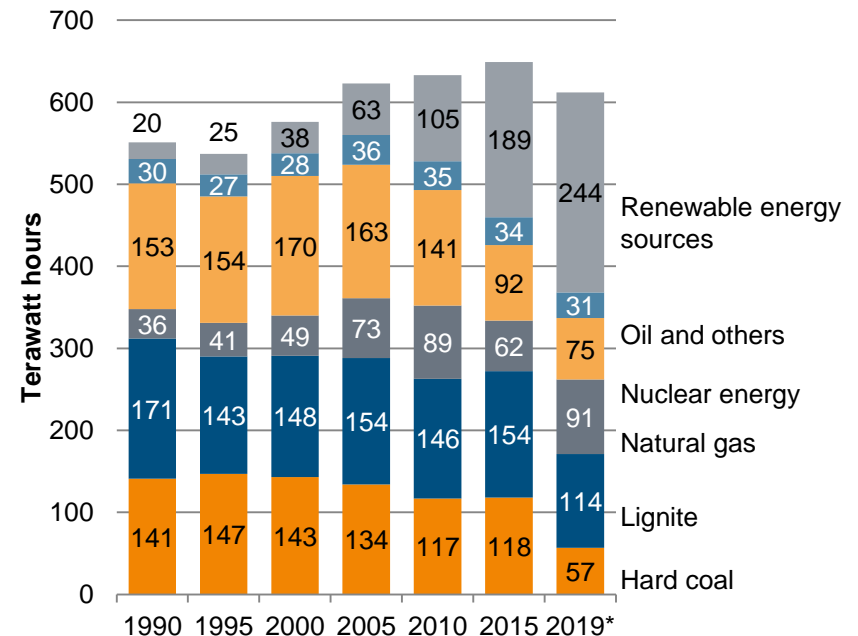


- Fight against climate change and energy policies are inseparably linked
- Despite being a highly industrialised and export-oriented country that relies on affordable energy, Germany is the first industrialised country to phase out power from both nuclear and coal
- Through ambitious targets and regulatory measures, such as the Renewable Energy Sources Act (EEG), the Combined Heat and Power Act (KWKG) as well as the limited number of certificates in European emissions trading, GHG emissions in the energy sector have been reduced by 45% in 2019 compared to the 1990 level
- Energy generation from renewable sources rose to 40% in 2019 from 10% in 2005

Emissions development in the energy sector



Development of gross power by energy source

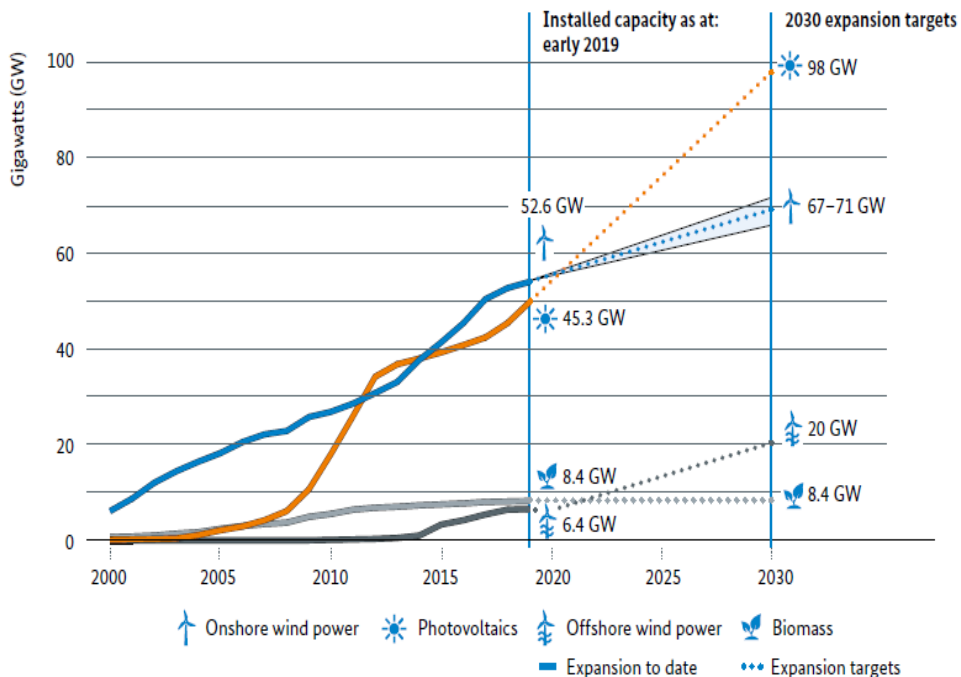


Energy sector (2/2)



- The energy transition has triggered an unprecedented change in the German energy industry: renewable energy has gone from being a niche technology to becoming the most important source of electricity
- Full decarbonisation of Germany's energy supply by 2050 shall be achieved in particular thanks to renewable energy development, coal phase out and energy efficiency

Past and planned expansion of renewable energy in Germany



Climate Action Programme 2030 Selected areas of action and measures



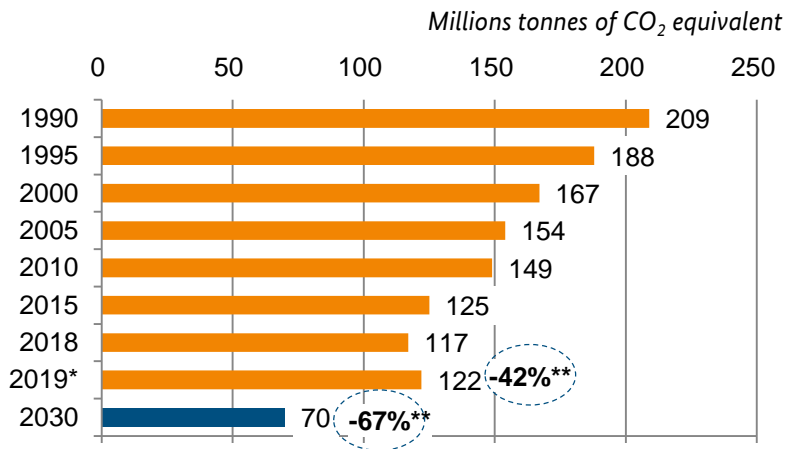
1. Total phase-out of coal by 2038
2. Rising the share of renewable energies to 65% by 2030
3. Sector coupling with renewable energies in transportation and buildings
4. Final consumer status for energy storage systems
5. Development and modernisation of Combined heat and power
6. Restructuring and expanding heating networks
7. Living labs for energy transition

Buildings sector

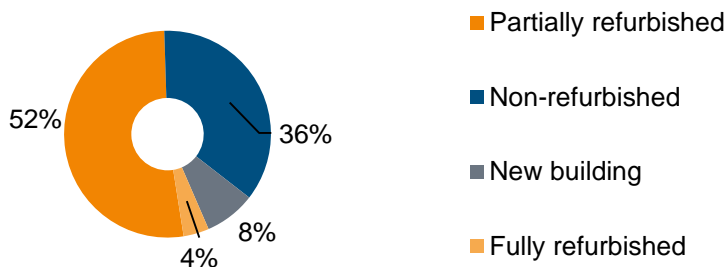


- Pursuing SDG 11: "Making cities and settlements inclusive, safe, resilient and sustainable"
- Germany's construction and housing strategy aims to achieve almost climate-neutral cities and municipalities by 2050 and to further improve the quality of life in the process

Emissions development in the buildings sector



Share of residential buildings by renovation status



Climate Action Programme 2030 Selected areas of action and measures

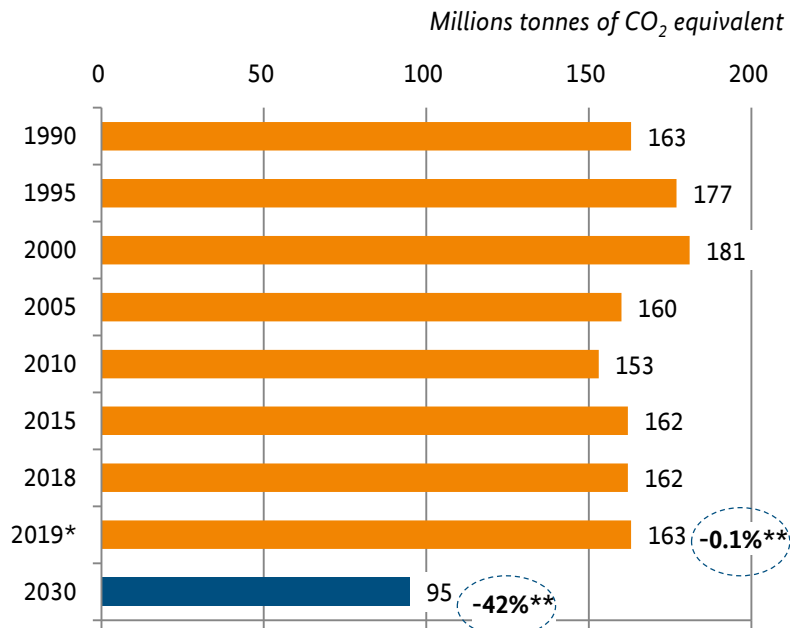
1. Tax incentive for energy upgrades
2. Federal funding for Energy-Efficient Buildings
3. Supporting modular upgrades in buildings
4. Upgrading heating systems
5. Topping up Energy-Efficient Urban Redevelopment
6. Energy auditing services and outreach activities
7. Role model function of federal buildings
8. Further developing energy standards

Transport sector (1/2)

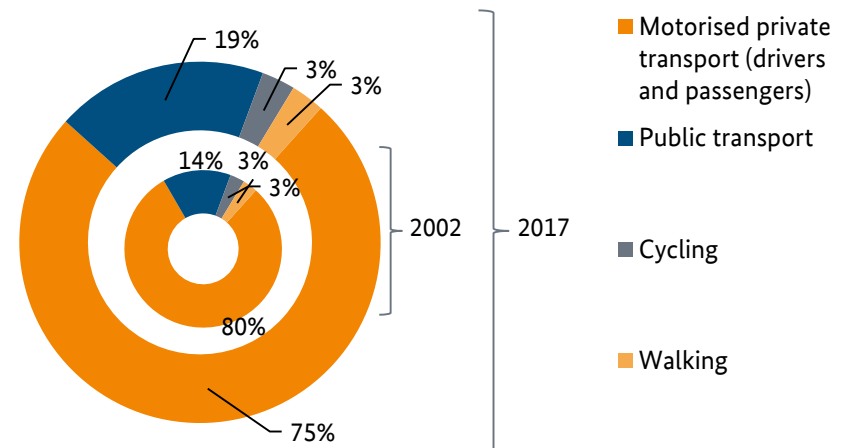


- As part of its Climate Action Programme 2030, Germany decided to enhance its efforts towards a massive and fundamental overhaul of the transport sector
- This includes record-high investments into clean and sustainable transportation such as rail, public and non-motorised transport, as well as electro-mobility and alternative fuels (especially hydrogen)
- The potential for modal shift will be exploited through a demand-oriented infrastructure, fair intermodal competition and intelligent multimodal networking of different modes of passenger and freight transport

Emissions development in the transport sector



Chosen modes of transport compared in passenger transport



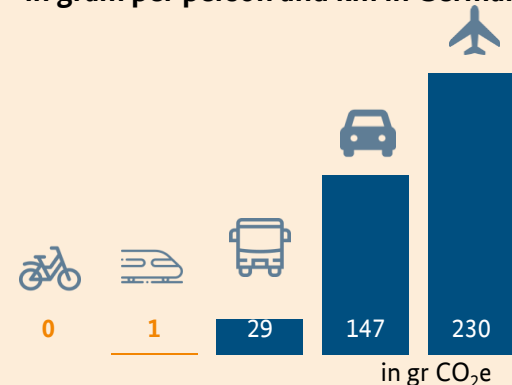


Climate Action Programme 2030 – Selected areas of action and measures



1. Expanding charging point infrastructure for electric vehicles to have one million points available
2. Supporting the switch to electric passenger vehicles to at least 7 million electric vehicles registered in Germany
3. Making local public transport more attractive through an annual EUR 1bn Federal fund
4. Expanding cycle routes
5. Making rail travel more attractive by investing EUR 86bn in Deutsche Bahn to modernise the rail network
6. Strengthening rail freight transport
7. Deutsche Bahn capital increase with an additional EUR 1bn annually
8. Increasing the share of electric or electric-based fuels to a third of all vehicle mileages in heavy freight transport
9. Digitalisation of mobility
10. Stringent CO₂-related reform of motor vehicle tax
11. Making rail cheaper and air travel more expensive through a decrease of the VAT on rail tickets
12. Implementing pilot projects to strengthen local public transportation, for example through the introduction of annual tickets

GHG emissions (CO₂e) in gram per person and km in Germany

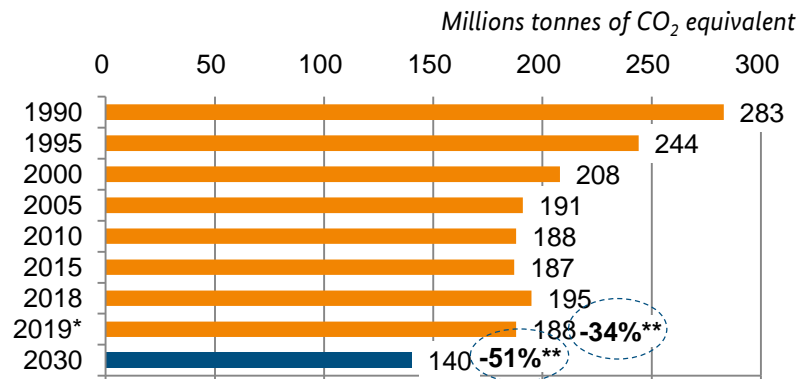


Industry sector

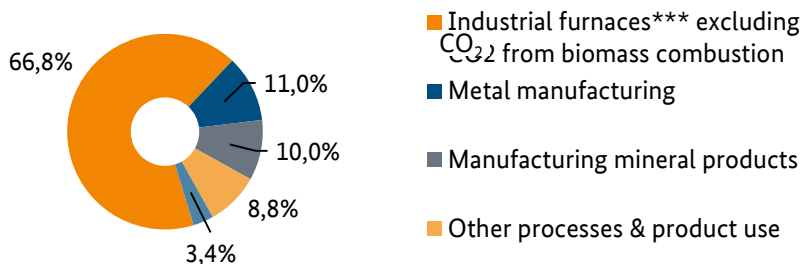


- Industry sector decarbonisation means industrial restructuring and not deindustrialisation.
- Energy turnaround in the sector comes from:
 - a reduction in energy demand
 - the most direct possible use of renewable energies, and
 - the use of electricity from renewable sources

Emissions development in the industry sector



Emission sources in industry (2018)



Climate Action Programme 2030 Selected areas of action and measures



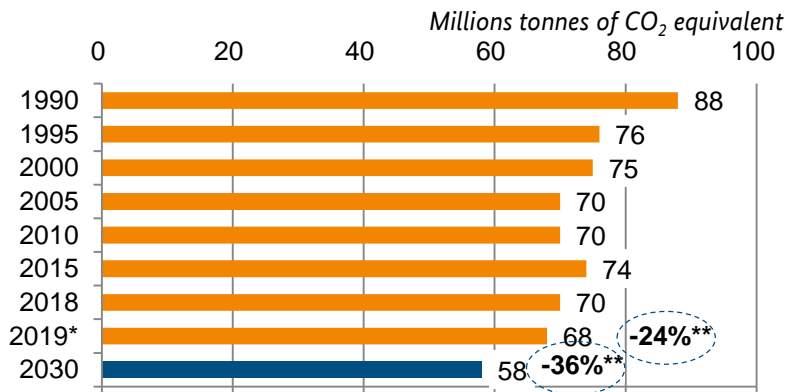
1. Investment programme in energy efficiency and process heat from renewables in industries
2. Support programme of competitive tenders for energy efficiency
3. Reinforcement of the German Resource Efficiency Programme
4. Expanding minimum standards of the EU Ecodesign Directive
5. Support programme in development, demonstration and market introduction
6. Implementation of companies' Energy Management System
7. In the Automotive industry, support for the value chain of electric mobility

Agriculture sector

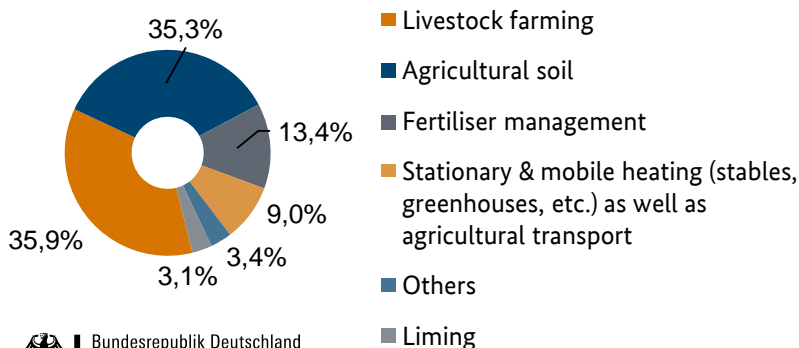


- Agriculture is being adapted to climate change while, at the same time, making an important contribution to climate protection and nutrition through the sustainable production of biogenic raw materials
- More sustainable farming is one of the key priorities, including organic farming and carbon sequestration thanks to sustainable forestry, permanent grassland or high humus content of arable land

Emissions development in the agriculture sector



Emission sources in the agriculture sector without CO₂ from biomass (2018)



Climate Action Programme 2030 Selected areas of action and measures



1. Reducing nitrogen surpluses
2. Energy recovery from farm manure
3. Expanding organic farming
4. Reducing emissions from livestock farming
5. Improving energy efficiency
6. Maintaining and developing the humus content of arable land
7. Conserving permanent grassland
8. Conserving wetlands
9. Conservation and sustainable management of forests
10. Avoiding food waste



Bundesrepublik Deutschland
Finanzagentur GmbH

*Estimate; **Reduction target compared with 1990

Source: [Climate Action in Figures \(BMU, 2020\)](#)

Research and cooperation for sustainability

- The Federal Government believes that the transition towards a carbon neutral world would be possible only through increased cooperation in the **Research Community** and towards **International Development**

Research for Sustainability

- The framework programme “Research for Sustainable Development” (FONA) implements the national sustainability strategy and is part of the Federal Government's Hightech Strategy
- It aims at:
 - Progressing the Energy Transition in Germany
 - Fight against climate change
 - Raising awareness for the importance of sustainability for ecology, economy and society

International Cooperation

- Assistance for developing and emerging economies with regard to financing measures for climate change mitigation and adaptation is an important area of Germany's development cooperation
- At the 2015 Petersburg Climate Dialogue, Chancellor Angela Merkel announced that Germany will double its climate finance from budgetary sources to EUR 4bn in 2020
- In 2018, the German Federal government committed a total of around EUR 3.37bn in official budget funds – including grant equivalents of its development loans – for climate change mitigation and adaptation

Raising and channeling funds for Climate Action

- The Federal Government is committed to invest EUR 54bn by 2023 in the context of the Climate Action Programme 2030
- By 2030, the combined total funding of the Energy and Climate Fund (EKF) and other climate action and energy transition instruments will be in the three-figure billions

Means to raise green funds

Carbon Pricing scheme

- Carbon Pricing is a key part for financing Germany's Climate Action Programme 2030
- As of 2021, a CO₂ emissions price will apply in the transport and heating sectors, as it is already the case for the energy sector and energy-intensive industry within the framework of the EU-ETS
- Fixed price: EUR 25 per tonne of CO₂, increasing to EUR 35 by 2025. As of 2026, the market will set the price, within a fixed band

Green German Federal securities

- Selected green expenditures of Germany's Federal budget will be refinanced through the issuance of Green Federal securities
- Details on the Use of Proceeds are outlined in Germany's Green Bond Framework
- The Federal Government intends to issue the first Green Federal security in September 2020

Tool to channel green funds

Energy and Climate Fund (EKF)

- The measures under the Climate Action Programme 2030 will largely be anchored in the activities of the EKF
- The EKF makes a significant contribution to the implementation of Germany's energy transition
- To accelerate the energy transition, the EKF has been receiving all proceeds from the auctioning of greenhouse gas emission allowances since 2012 (after deducting the costs for the German Emissions Trading Authority). Additionally, grants from the Federal budget have been assigned to the EKF



Support for Sustainable Finance and Green Bonds



- Deutsche Bundesbank and the Federal Financial Supervisory Authority (BaFin), within the scope of their mandates, support the transition towards a greener financial system:
 - They analyse the impact of climate change and climate policy on the financial sector
 - They consider climate-related risks as a source of financial risks, also within the microprudential supervision (see for example the BaFin guidance notice on dealing with sustainability risks)



- Deutsche Bundesbank and BaFin, are founding members of the Network for Greening the Financial System (NGFS) and are represented in the Steering Committee

- The Federal Government intends to maintain Germany in the vanguard of Sustainable Finance
- Germany is already one of the largest markets in terms of Green Bond issuance with leading issuers from all key sectors such as promotional banks, mortgage banks (Green Pfandbriefe), financial institutions, electric utilities and several other industries. Government-owned promotional bank KfW is one of the largest issuers of Green Bonds globally
- With the establishment of a Green Bond yield curve, the Federal Government intends to become the **benchmark issuer for the Euro area** in the Green Bond market

Section 2.

Green Bond Framework overview

Governance of the Green Federal securities

Green German Federal securities (“Green Bunds”)

Operational management of the Green Bunds

Core Green Bond Team (“CGBT“)

Ministry of Finance
[Lead]

German Finance
Agency

Ministry of
Environment, Nature
Conservation and
Nuclear Safety

Management of the Green Bunds

Interministerial Working Group (“IMWG“)

Ministry of
Finance
(BMF)
[Lead]

Ministry of
Interior,
Building and
Community
(BMI)

Ministry of
Economic
Affairs and
Energy
(BMW)

Ministry of
Food and
Agriculture
(BMEL)

Ministry of
Transport and
Digital
Infrastructure
(BMVI)

Ministry of
Environment,
Nature
Conservation
and Nuclear
Safety
(BMU)

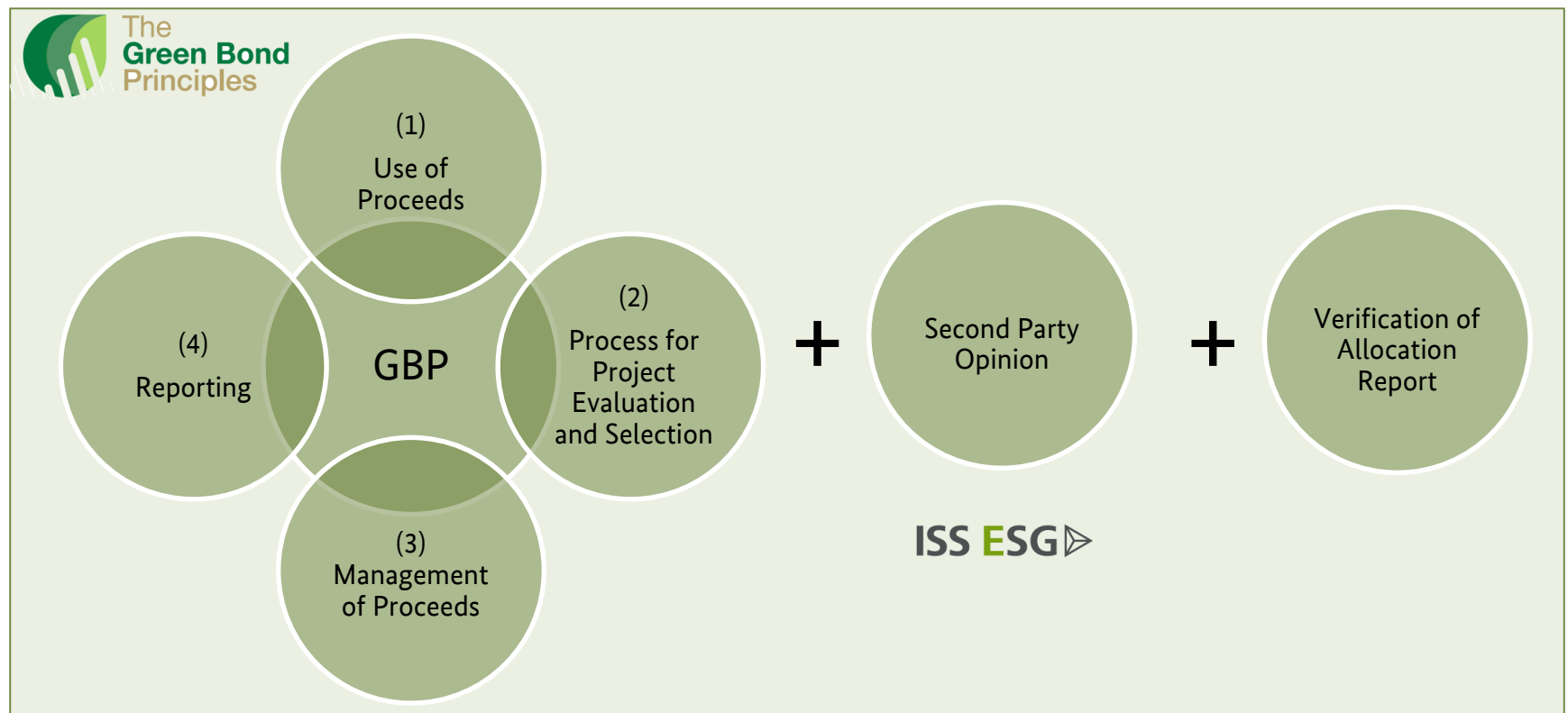
Ministry of
Education and
Research
(BMBF)

Ministry of
Economic
Cooperation
and
Development
(BMZ)



Overview of the Green Bond Framework

- Germany's Green Bond Framework follows the Green Bond Principles ("GBP")
- The Framework is also in line with the key elements of the draft EU Green Bond Standard
- Notably, the six EU environmental objectives and at least 12 out of the 17 UN Sustainable Development Goals are mapped
- A Second Party Opinion as well as a third party verification of the Allocation Report are provided



(1) Use of Proceeds (1/2)

- Green Eligible Expenditures can include any type of Federal expenditure contributing to a transition towards a low-carbon, resource efficient and sustainable economy, including:
 - Expenditures related to real assets such as infrastructure, buildings, as well as landscapes and forests
 - Expenditures related to intangible assets, such as talent and organisations, research and innovation and scientific knowledge
- No double counting: State expenditures which are already earmarked by other public Green Bond issuers (such as KfW) may not be included
- Excluded expenditures: armaments, defence, tobacco, alcohol, gambling, fossil fuels, nuclear power and violation of the EU Charter of Fundamental Rights

Transport

Improve and promote clean and more environmentally friendly transportation systems

- Federal rail infrastructure
- Shift to climate-friendly mode of transportation
- Bicycle infrastructure
- Support for the development of electric mobility



International cooperation

Assist emerging markets and developing countries in their transition towards a more environmentally sustainable economy

- Bilateral technical and financial support of green projects
- Contributions to international funds (incl. Green Climate Fund, Global Environment Facility and Adaptation Fund)
- Bi- and multilateral partnerships



(1) Use of Proceeds (2/2)

Research, innovation and awareness raising

Support and facilitate knowledge and innovation about climate and environmental matters

- Renewable energy and energy storage research
- Research on climate change, biodiversity, nature protection, environment, coasts, oceans and polar areas
- Support for local initiatives and associations active in environmental protection



Energy and industry

Accelerating the transition towards an economy that largely runs on renewable energy and towards a more environmentally efficient use of energy and resources

- Applied research on renewables
- Measures to increase sustainable heating and cooling, energy transition
- Energy efficiency in buildings



Agriculture, forestry, natural landscapes and biodiversity



Promotion of climate-resilient forests and natural landscapes, and development of organic and environmentally-friendly farming practices

- Low-carbon farming and organic farming practices
- Increase land carbon storage capabilities
- Forest protection
- Management of extreme weather events
- Research on climate change adaptation



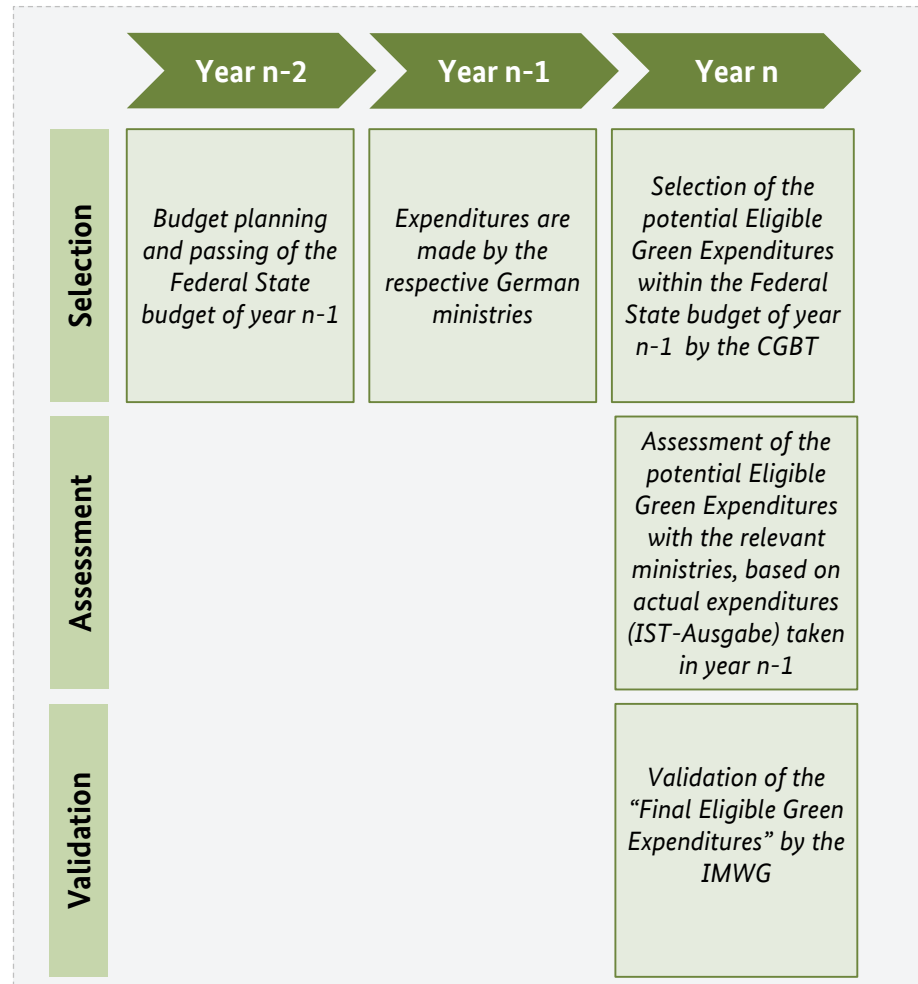
(1) Use of Proceeds: Mapping according to the EU Environmental Objectives

- Eligible Green Expenditures within the identified Green Sectors contribute to the six environmental objectives of the EU Sustainable Finance Taxonomy Regulation as laid down in the high-level mapping below
- Further developments of both the EU Green Bond Standard and the EU Taxonomy will be followed closely

| Green Sectors  EU Governmental Objectives  | Transport | International cooperation | Research, innovation and awareness raising | Energy and industry | Agriculture, forestry, natural landscapes and biodiversity |
|---|------------------|----------------------------------|---|----------------------------|---|
| Climate change mitigation | ✓ | ✓ | ✓ | ✓ | ✓ |
| Climate change adaptation | ✓ | ✓ | ✓ | | ✓ |
| Sustainable protection of water and marine resources | | ✓ | ✓ | | ✓ |
| Transition to a circular economy | | ✓ | ✓ | | |
| Pollution prevention and control | ✓ | ✓ | ✓ | | |
| Protection and restoration of biodiversity and ecosystems | | ✓ | ✓ | | ✓ |

(2) Project evaluation and selection

- The CGBT works with the relevant ministries to assess the eligibility of the selected expenditures from the Federal State budget
- The planning process for the Federal State budget allows for advanced identification of potential eligible expenditures one year ahead of payment
- The amount equal to the proceeds from Green German Federal securities issued in any given year will be fully allocated to Eligible Green Expenditures made in the previous year
- The final composition and exact amount will be prepared by the CGBT and validated by the IMWG in the course of the following year, based on actual expenses



(3) Management of proceeds

- The German Finance Agency will manage the proceeds in line with its treasury policy, as part of the overall funding of the Federal Republic of Germany
- The allocation of an amount equal to the proceeds of the issued Green Federal securities to Eligible Green Expenditures will thereafter be tracked by the CGBT
- For any given year, any Green Federal securities issued (or tapped) in that year will receive a proportional allocation of all the previous year's Final Eligible Green Expenditures

Documentation and communication

The press releases (i.e. announcing a transaction or auction results etc.) on Green German Federal securities shall contain the following wording (note: the German language version is legally binding):

“The Federal Republic of Germany has spent an amount equal to the proceeds derived from the issue of the respective German Federal securities (whereby the amount may be converted into Euro, as the case may be) for expenditures that comply, on the date of the issue of these German Federal securities, with the requirements which the Federal Republic of Germany stipulated in its Green Bond Framework dated [●].”

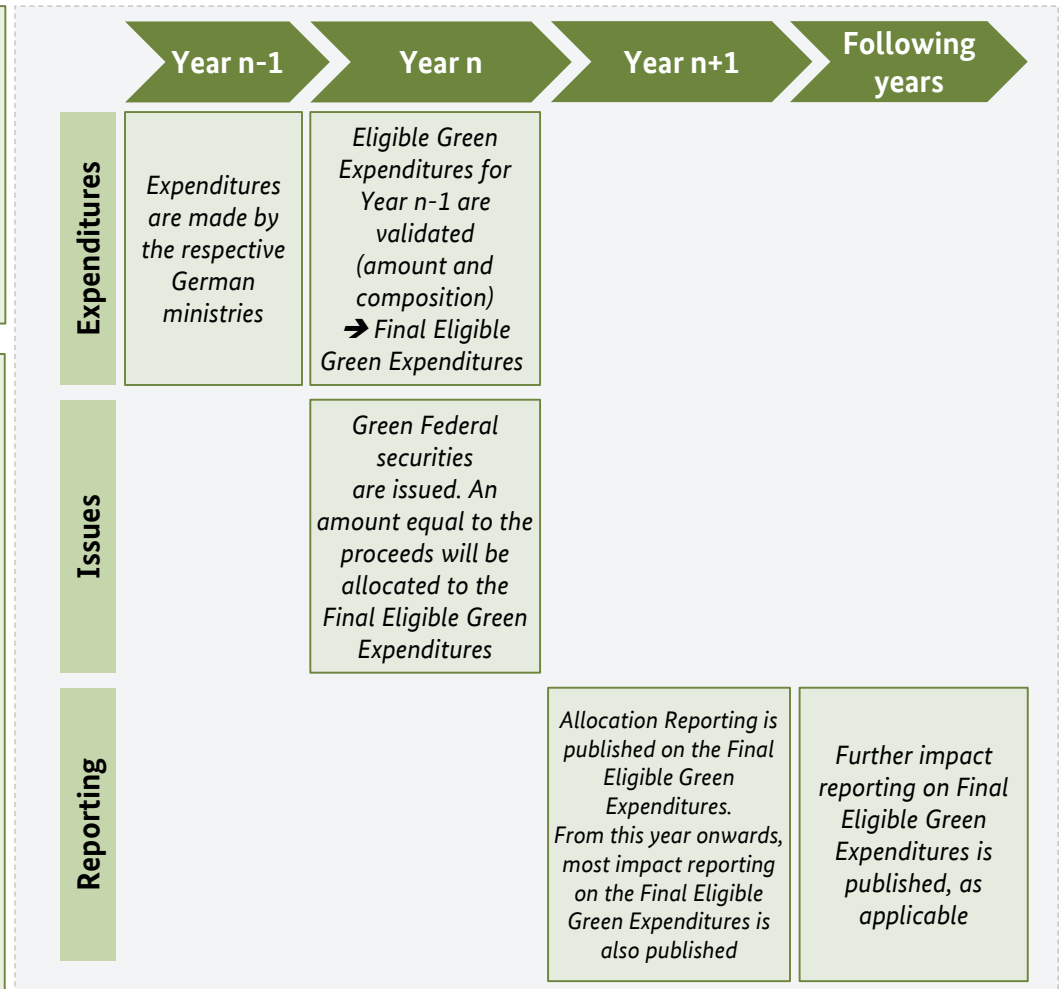
(4) Reporting

Allocation Reporting

- Document to be published annually
- The document will report the amounts and sectorial breakdown of the Final Eligible Green Expenditures for the year preceding the issuance
- First publication date: 2021

Impact Reporting

- Document to be published at least once during the lifetime of the bond for each Green Sector that has been allocated
- First publication date: at the earliest expected from the end of 2021 onwards
- May include, depending on expenditures and sector type:
 - Quantified metrics of environmental impacts or key performance indicators
 - Analytical reports about the environmental impact
 - Listing and description of the individual or exemplary projects



(4) Reporting: Examples of impact reporting approaches

| Sector | Indicative impact report indicators |
|---|--|
| Transport | <ul style="list-style-type: none"> • Greenhouse gas emissions avoided (when possible) • Length of electrified railroad-km • Length of newly built railway-km • Length of newly built bicycle lanes • Final reports about and descriptions of projects |
| International cooperation | <ul style="list-style-type: none"> • Greenhouse gas emissions avoided (when possible) • Adaptation and capacity building indicators • Specific reports about the environmental efficiency of the German international cooperation and the mobilization of private capital • Listing of main initiatives and projects and presentation of key examples, and / or a description of mandates of financed multilateral institutions as well as international organisations and funds |
| Research, innovation and awareness raising | <ul style="list-style-type: none"> • Standard research indicators • Total funding or number of funded projects • Number of researchers, listing of main initiatives or presentation of key examples |
| Energy and industry | <ul style="list-style-type: none"> • Greenhouse gas emissions avoided (when possible), • Specific reports about the climate and environmental efficiency of the subsidies |
| Agriculture, forestry, natural landscapes and biodiversity | <ul style="list-style-type: none"> • Specific reports about the climate and environmental efficiency of the GAK-policy (Joint task of agricultural structure and coastal protection (Gemeinschaftsaufgabe Agrarstruktur & Küstenschutz)) |

External verification – Pre- and post-issuance

Pre-issuance verification

- Germany appointed ISS ESG to provide an independent Second Party Opinion on its Green Bond Framework
- ISS ESG opinion is available at: www.bundesfinanzministerium.de/gruenebundeswertpapiere and <https://www.deutsche-finanzagentur.de/de/institutionelle-investoren/bundeswertpapiere/gruene-bundeswertpapiere/>

Post-issuance verification of allocation

- Germany will engage an independent external body to provide third-party verification on the allocation reports and their conformity with the Green Bond Framework
- This process will be undertaken on an annual basis
- The results will be published alongside the respective reporting



Section 3.

Green Federal securities in practice

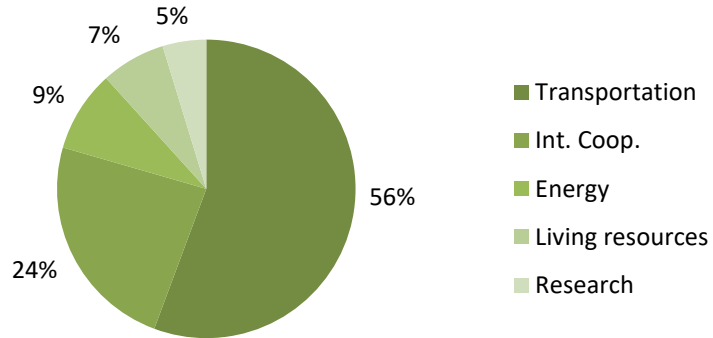
- indicative expenditures and examples

(1) Use of Proceeds: Relevant indicative Final Eligible Green Expenditures for 2019*

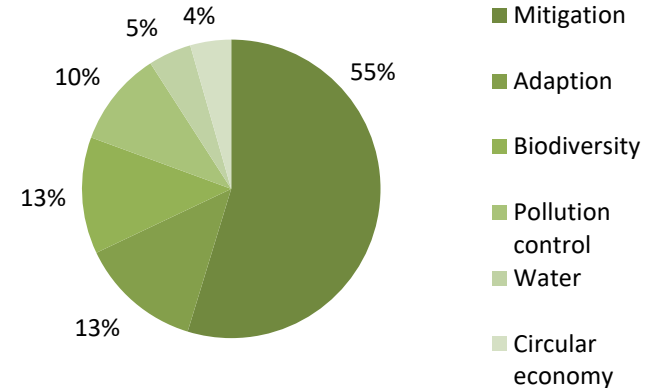
| Green Sector | Example of Eligible Green Expenditures | Amount | Case Study |
|---|--|-------------------|---------------------|
| Transport | <ul style="list-style-type: none"> • Construction subsidies for infrastructure investments in building Federal railways • Construction subsidies for infrastructure investments in maintaining Federal railways • Measures to further develop electric mobility • Bicycle lanes and bicycle mobility | EUR 7.1bn | 1 2 5 |
| International cooperation | <ul style="list-style-type: none"> • Bilateral development work on the sovereign level as well as project-based work on sustainability and climate change related topics carried out by GIZ or the United Nations, amongst others | EUR 3.0bn | 3 6 7 |
| Energy and industry | <ul style="list-style-type: none"> • Market launch program to promote the use of renewable energy • Energy efficiency incentive program • Energy efficiency in industry and commerce • Promotion of urban development measures | EUR 1.1bn | 11 |
| Agriculture, forestry, natural landscapes and biodiversity | <ul style="list-style-type: none"> • Promotion of flood protection facilities • Promotion wastewater treatment plants • Climate and biodiversity conservation measures are to be promoted within the framework of climate partnerships with developing countries • National climate protection initiative • Promotion of market and location-adapted as well as environmentally compatible land management including nature conservation and landscape conservation | EUR 0.9bn | 4 10 12 13 |
| Research, innovation and awareness raising | <ul style="list-style-type: none"> • Research projects on renewable energy and energy alternatives • Research on climate change, biodiversity, nature protection, environment | EUR 0.6bn | 8 9 |
| Total | | EUR 12.7bn | |

1) Use of Proceeds: Indicative breakdown for 2019

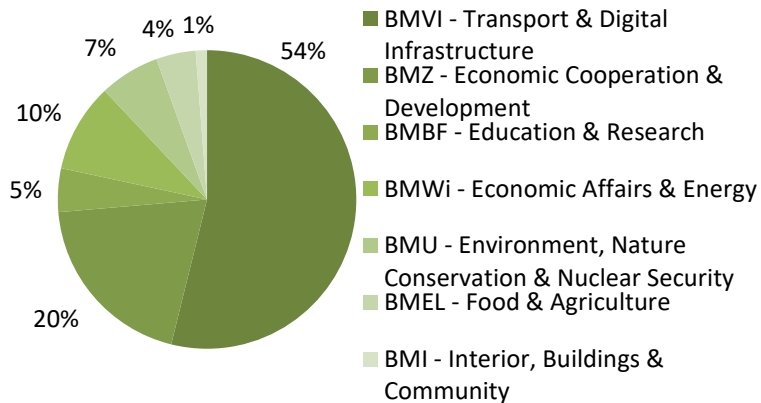
Breakdown by sector



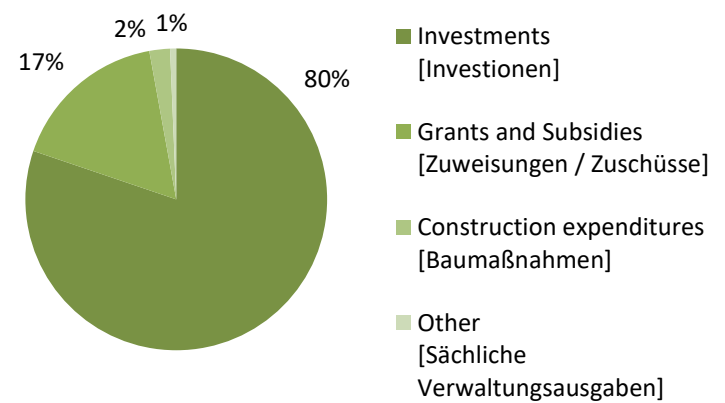
Breakdown by EU Environmental Objective



Breakdown by ministry



Breakdown by type of expenditure





Case Study 1: Upgraded line Ulm –Lindau

Identifier: 1202 891 01

Project

Upgraded line between Ulm and Lindau

Objective

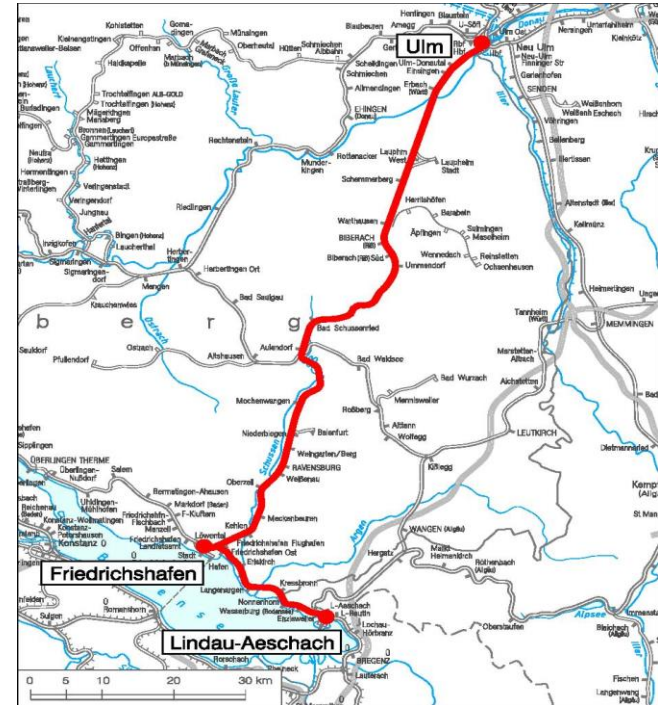
- Increasing rail track speed and capacity for passenger transport

Output and measures

- Ulm–Friedrichshafen railway, also known as Südbahn used to be a non-electrified main line in the state of Baden-Württemberg (built from 1846)
- The route will be upgraded and electrified
- Additionally, there is an extension to Lindau as part of the "Bodenseegürtelbahn"
- The total length of the route is 127.2km
- The total costs amount to approx. **EUR 225.2mn**

Achievements

- Extension to Lindau as part of the "Bodenseegürtelbahn"
- The rail tracks are prepared for train speeds up to 160 km / h
- The project is being carried out since 2015 (preparation), construction has started in March 2018 and it is expected that the process can be completed by December 2021



Source: Deutsche Bahn





Case Study 2: E-Mobility

Identifier: 6092 893 02 & 1210 892 03

Project

Charging and Hydrogen Infrastructure

Objective

- By 2030, **7 to 10 million electric vehicles** are expected to be on German roads. A **nationwide charging infrastructure** is necessary for the market ramp-up. By 2030, **1 million public charging points** should be available.

Output and measures

- The Federal government is providing around EUR 4.1 bn for the hydrogen and charging infrastructure. In addition to the (previously funded) public charging infrastructure, there will also be calls for funding for non-public charging infrastructure (private and commercial)
- Between 2017-2020, **EUR 300mn** was made available for the expansion of public charging infrastructure
- A total of **22,663 charging points** (normal and fast charging) have been approved so far; further grants will follow on the basis of the current funding calls




Source: Markus Spiske





Case Study 3: Renewable energy financing in India

Identifier: 2301 896 11

| | |
|----------------------------|---|
| Project | Renewable Energy in India |
| Objective | <ul style="list-style-type: none"> Provision of a credit line to the Indian Renewable Energy Development Agency Ltd. (“IREDA”) to finance projects for the generation of electricity from renewable energies, with a particular focus on wind and solar power IREDA passes on the funds in the form of concessional loans to investors for the construction of solar and wind power plants |
| Output and measures | <ul style="list-style-type: none"> Total investment: EUR 285mn Federal subsidy 2019: EUR 7.35mn The project is being carried until December 2024 (expected) |
| Achievements | <ul style="list-style-type: none"> Newly installed or rehabilitated energy production capacity maximally achievable under optimal conditions at a given point in time: 250 MW Actual produced energy from renewable sources per year: 475,000 MWh People benefitting from new / improved energy access (derived/inferred): 324,000 Reduction of 417,000 tons CO₂ emissions per year |
| Project Partner | <ul style="list-style-type: none"> The project is implemented by  |






Source: KfW



Case Study 4: Biodiversity

Identifier: 1604 685 01

| | |
|------------------|---|
| Project | Biodiversity |
| Objective | <ul style="list-style-type: none"> Strengthening biodiversity and ecosystem services (such as food, clean water and medicine) by implementing the National Strategy for Biodiversity |
| Projects | <ul style="list-style-type: none"> “Thousands of gardens - thousands of species. Green oases, native animals and plants”* - transforming more and more gardens in Germany into species-rich, near-natural oases “Steep vineyards create diversity - the Moselle project”** - the project encourages winegrowers to cultivate the land sustainably and to actively work to preserve the landscape and its typical biodiversity. The aim is to ensure specific diversity, genetic resources and the beauty of the landscape, as well as important ecosystem services Total funding “thousands of gardens - thousands of species”: EUR 1.98mn Total funding “the Moselle project”: EUR 1.01mn The strategy was adopted in November 2007 |
| Project Partners |    <p>Bauern- und Winzerverband Rheinland-Nassau e.V.</p> <p><small>Deutsche Gartenbau-Gesellschaft 1822 e.V.</small></p> |



Source: Ulrike AufderHeide; Jonathan Farber

Section 4.

Green Federal securities execution strategy
and the twin bond model

Developing sustainable finance markets by applying the twin bond concept

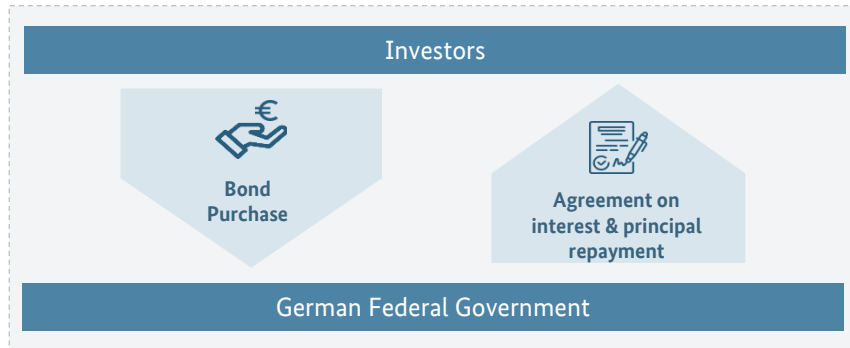
The twin bond concept ...

- 1 ... transfers the Bund's established market approach to the green segment
- 2 ... creates a liquid curve and offers a diversified maturity spectrum for different investor types
- 3 ... provides full price transparency and allows for outperformance of the green twins

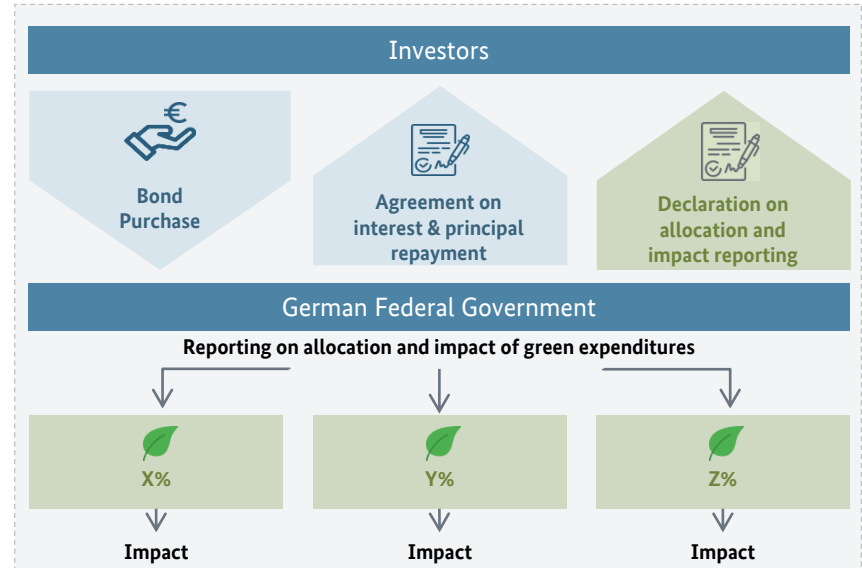
- **will therefore accelerate the development of sustainable finance markets**
- **will serve as a catalyst to channel more investments towards a more environmentally friendly economy**
- **will attract new investors to the Green Bond market**

Twin bond model

Conventional German Federal security “Conventional twin”



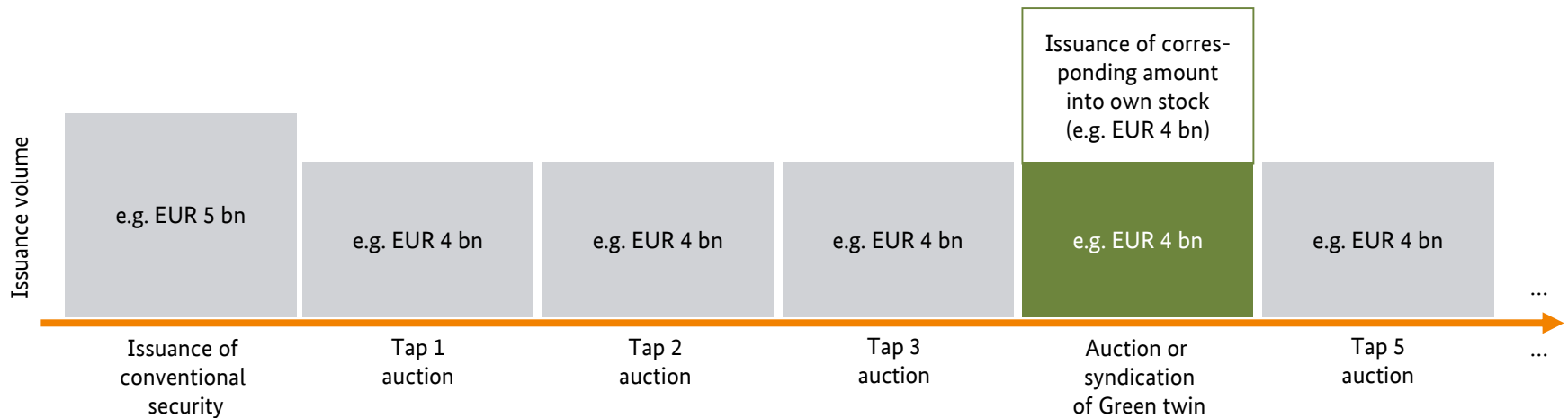
Green German Federal security “Green twin”



Main terms (illustrative example)

| | Conventional twin | Green twin |
|-------------------------|-------------------|--------------------|
| Identical to both twins | Maturity segment | 10y |
| | Coupon | 0.00% |
| | Interest dates | Annually |
| | Maturity | 15 August, 2030 |
| | Future-Contracts | Deliverable |
| Different for each twin | Issuance volume | e.g. EUR 25 bn |
| | Pricing date | 17 June 2020 |
| | ISIN | DE0001102507 |
| | | e.g. EUR 4 bn |
| | | [] September 2020 |
| | | DE0001030708 |

Twin bond concept: twins share the same issuance time-frame and co-exist afterwards in the secondary market



1. Conventional twin will be issued first
2. Conventional twin will be tapped to a sufficient volume
3. Green twin will be issued (via syndicate or auction) once the conventional twin has reached sufficient tradability
4. Conventional twin will be tapped into own books on the same day (fully retained)
5. Conventional volume in own accounts will always exceed the green volume sold to the market

Twin bond concept: secondary market activity by FA ensures liquidity

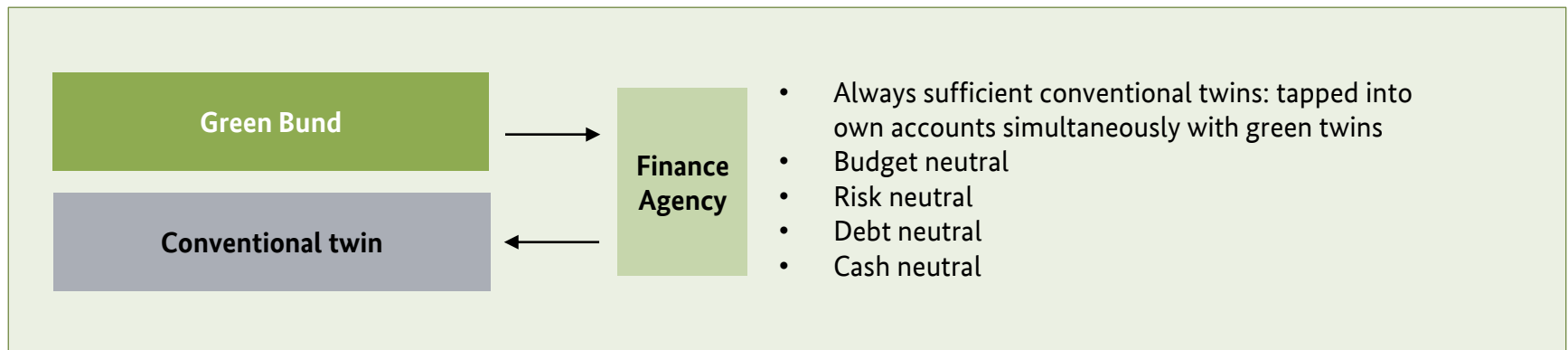
1. Outright (“one-way”) sales and purchases



2. Repurchase agreements and securities lending, using the Federal Government’s own stock of Green Bunds



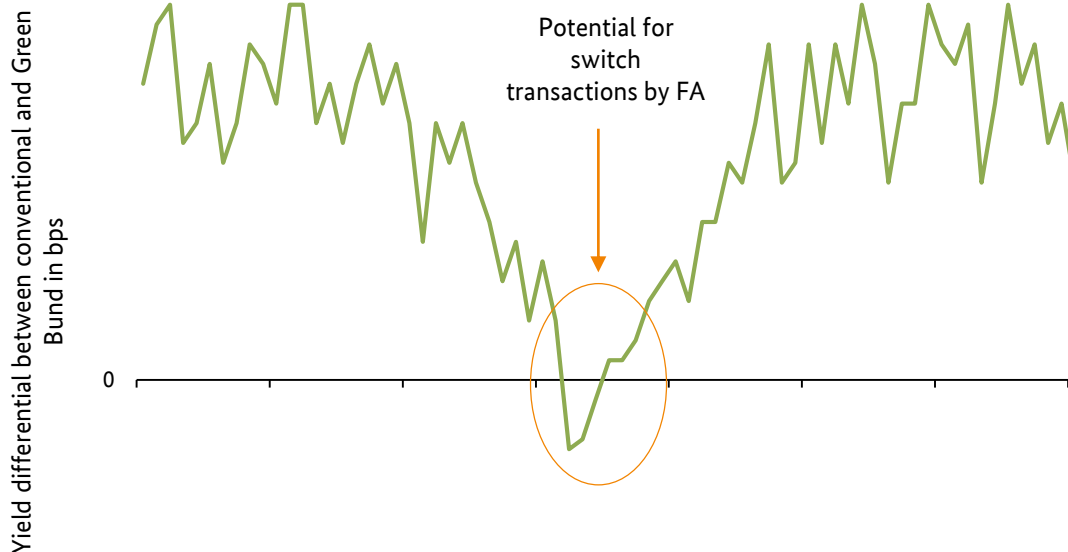
3. Combined and debt-neutral sale-and-purchase (switch) transactions: Most powerful tool



The twin bond concept provides full price transparency and allows for outperformance of the green twins

- Green twins offer enhanced value compared to their conventional twins due to the additional green element
- Differences in volume between the twins are not expected to lead to a liquidity premium
- As a consequence, the conventional twin will act as a reference for the green twin in the primary and secondary market

Purely illustrative example of yield differential



FA intends to carry out secondary market operations guided by above value consideration, if:

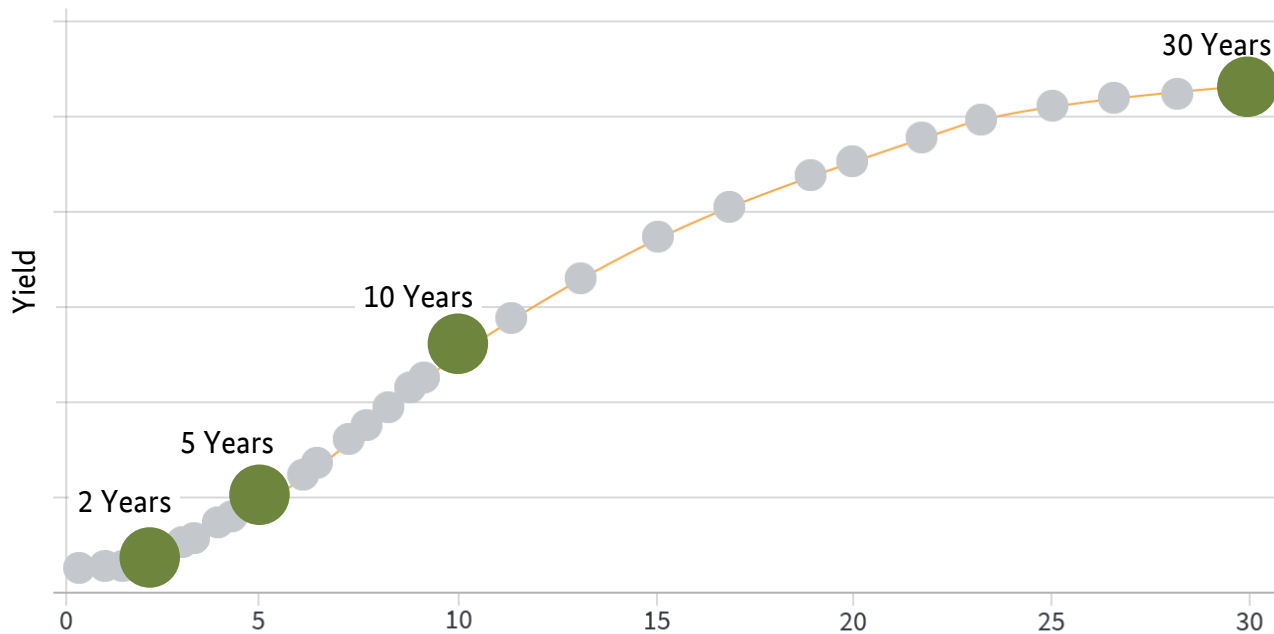
- Market demand favoring conventional twin over the green twin, FA can always meet such demand from retained position in conventional twin via switch transactions at a spread of zero.
- Market demand favoring green twin over the conventional twin, demand expected to be satisfied by the market. FA may or may not provide Green Bunds from retained positions.


Secondary market operations of FA will hence support green twins to benefit from same liquidity as conventional twins when it comes to investor's ability to liquidate their positions for cash.

The twin bond concept transfers the Bund's established market approach to the green segment

| | Conventional Bunds | Green Bunds |
|--|--------------------|-------------|
| Yield reference for all Euro denominated securities (benchmark) | ✓ | ✓ |
| High quality investment (liquidity, tradability, creditworthiness) | ✓ | ✓ |
| Euro cash surrogate | ✓ | ✓ |
| Euro currency reserve | ✓ | ✓ |
| Collateral in the interbank and non-bank market | ✓ | ✓ |
| Instrument for managing interest rate risks in Euro | ✓ | ✓ |
| Underlying of the interest future contract of the Deutsche Börse | ✓ | ✓ |
| Instrument of monetary policy in the Euro area | ✓ | ✓ |

The twin bond concept creates a liquid curve and offers a diversified maturity spectrum for different investor types



 Example green maturities

- A liquid green yield curve will be created within a short period of time as a reference for the euro area.
- This curve serves different investor type needs, e.g.:
 - Duration considerations
 - Liquidity considerations

Green Bunds' issuance outlook

Inaugural Green Bund issuance

- The Federal Government intends to issue the first Green Federal Security in September 2020:
 - with a term of ten years
 - as the twin of the conventional 10-year Federal bond issued on 17 June 2020
 - via syndication
- This new Green Bund will carry the same coupon (0%) and maturity date (15 Aug 2030) as its conventional twin (ISIN DE0001102507) and will be specified with the ISIN DE0001030708

Looking ahead: Next steps

- A second Green Federal security is planned for the fourth quarter, presumably as a 5-year Green Bobl
- Planned total issuance volume for Green Federal securities for 2020: EUR 8 to 12 bn
- Proceeds of Green Bunds issued in 2020 will be allocated to Green Eligible Expenditures in the 2019 Federal Government's budget

Section 5.

Selected case studies of Eligible Green
Expenditures

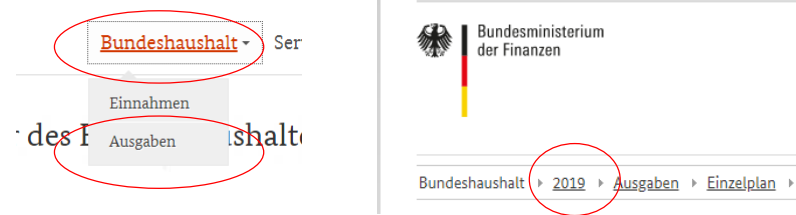
Finding Eligible Green Expenditures within the Federal Budget

Website

Germany's Federal budget is communicated **transparently** on the website **bundshaushalt.de**. Hence, the **identifier (Haushaltsstelle)** of a specific Eligible Green Expenditure allows users to find it within the Federal budget.

2019 Budget

In order to search for specific expenditures, select „Bundeshaushalt“ (federal budget) and choose „Ausgaben“ (expenditures) as well as the relevant year.



2019 Budget

The respective ministry undertaking the expenditure may be selected from a list and a pie chart with that specific ministries' expenditure items pops up. The numerical identifier code allows users to find the Eligible Green Expenditure within the Federal budget. Additionally, background information are provided. **Alternatively**, the total Federal budget of a respective year is provided as a **pdf file on the same website in the download section**.

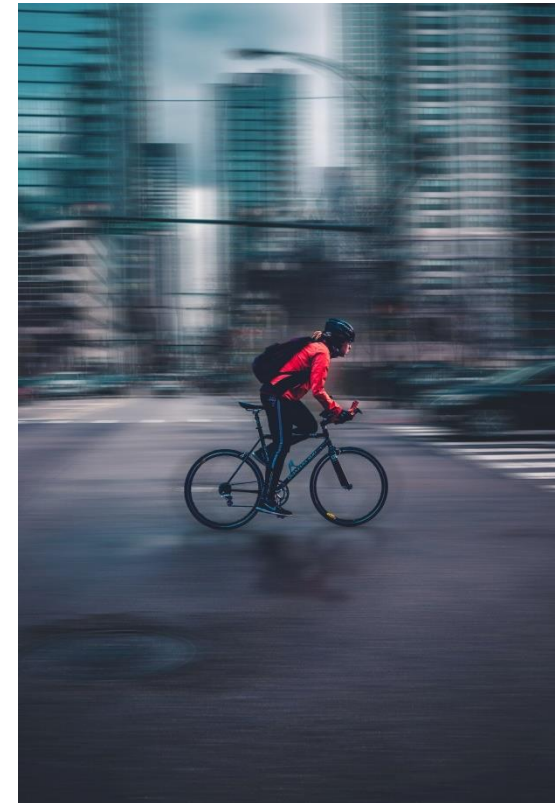




Case Study 5: Bicycle Lanes

Identifier: 1210 632 01, 1210 686 01, 1210 882 02, & 1201 746 22

| | |
|----------------------------|--|
| Project | National Cycling Plan |
| Objective | <ul style="list-style-type: none">Ensuring more, better and safer bicycle traffic by 2030 |
| Output and measures | <ul style="list-style-type: none">Both the number and the length of the routes covered by bicycles should grow by 50% to 180 routes per person and year by 2030 with an average distance of 6 km per routeIn order to achieve this goal, the Federal government is funding fast cycling routes (“Radschnellwege”), initially with EUR 25mn annually |
| Achievements | <ul style="list-style-type: none">In 2019, 159 km of cycle paths were completed, resulting in cycle paths on approx. 14,600 km of federal highways in the federal government's construction loadRadschnellwege are already built for instance between Heidelberg and Mannheim or around Bremen, and also in BerlinGermany's National Cycling plan 3.0 started in 2019 and will be finalised in 2020 with a potential re-launch in 2021 |



Source: Max Bender






Case Study 6: Project endev

Identifier: 2301 896 03



| | |
|------------------------|--|
| Project | Energy Access |
| Objective | <ul style="list-style-type: none">• Energising Development (EnDev) promotes access to energy in Africa, Asia and Latin America |
| Achievements | <ul style="list-style-type: none">• Supported more than 23 million people in gaining access to electricity or improved cooking technologies• Reached 27,400 social institutions and 53,900 small and medium-sized enterprises• Continuously and increasingly saved carbon emissions. Between 2005 and 2019, the overall CO₂e savings of EnDev accumulate to 14.6 million tons. In 2019 alone, 2.33 million t CO₂e were saved as a result of EnDev's activities• Currently, EnDev is funded by Germany, the Netherlands, Norway, Switzerland and the United Kingdom• Federal subsidy 2019: EUR 7.48mn• The project started in 2005 |
| Project Partner | <ul style="list-style-type: none">• EnDev is implemented by GIZ  |



Source: ThisisEngineering RAEng; American Public Power Association



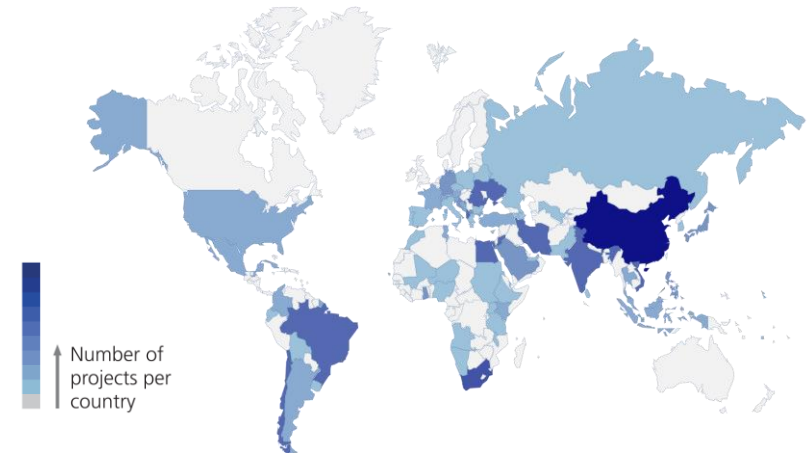
Case Study 7: Exporting Green Technologies” – The Export Initiative of the BMU (EXI)

Identifier: 1601 687 04

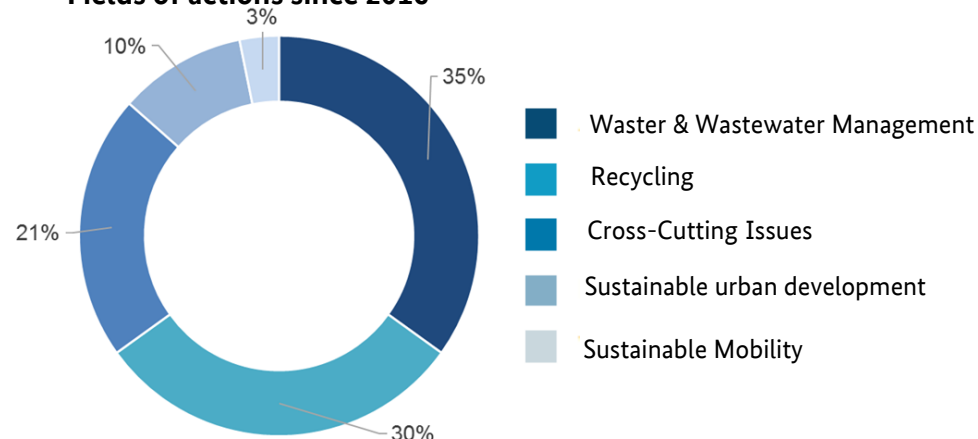
| | |
|----------------------------|---|
| Project | NOW GmbH |
| Objective | <ul style="list-style-type: none"> Climate-friendly H₂ / FC technologies |
| Output and measures | <ul style="list-style-type: none"> Projects on green hydrogen innovations such as fuel cells for climate-friendly cell phone coverage Strategic support and advice from the BMU on relevant topics in the field of hydrogen and fuel cell technology Coordination of activities for the use of climate-friendly hydrogen and fuel cell technologies for off-grid power supply within the EXI <ul style="list-style-type: none"> Monitoring, coordination and expansion of networks Conception and integration of hydrogen and fuel cell technologies in selected target markets The project is being carried out between December 2017 until December 2022 |



Target countries of the Export Initiative since 2016



Fields of actions since 2016

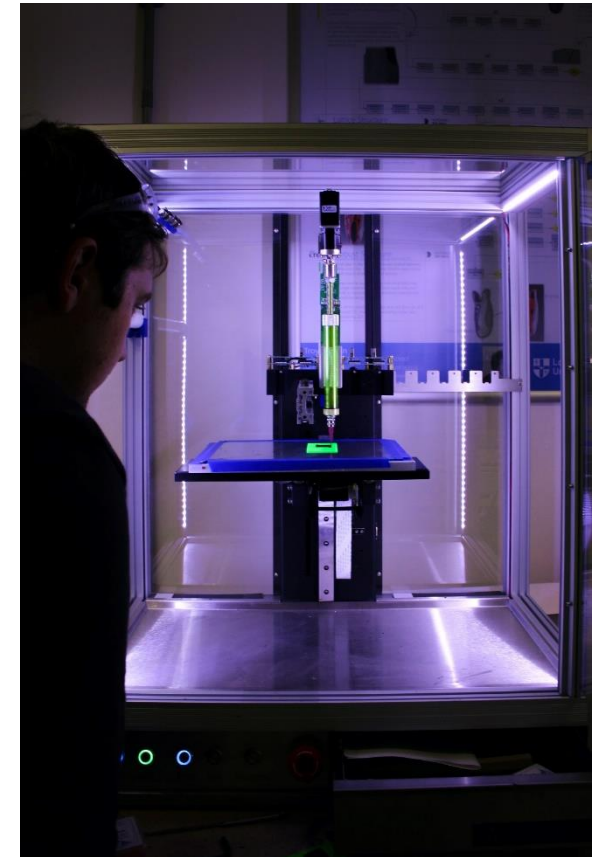




Case Study 8: DigitaldruckMobil

Identifier: 3004 685 40

| | |
|----------------------------------|---|
| Project | DigitaldruckMobil |
| Objective | <ul style="list-style-type: none">• Small and medium-sized enterprises (SMEs) are pioneers in technological progress. The “KMU-innovativ” funding initiative supports cutting-edge research in German SMEs• In this specific project, significant energy savings through the development of a mobile digital printing device which is supposed to replace thermal marking processes are funded• The aim is to achieve energy savings of up to 50 GWh / year in Germany and up to 125 GWh / year in Europe |
| Output and measures | <ul style="list-style-type: none">• As a result, a functional printing system model with software and a mobile hand-held printing device with a printing height of up to 50 mm and a high-resolution print head has been developed, which will be further enhanced in order to allow for series production and market introduction after the research project has been completed• Federal subsidy 2019: EUR 0.3mn• The project is being carried out between July 2017 and June 2020 |
| Selected Project Partners | <ul style="list-style-type: none">• SMEs like Tippl GmbH (mechanics), MREletronik GmbH & Co. KG (electronic control system) and LNT Automation (software development) |



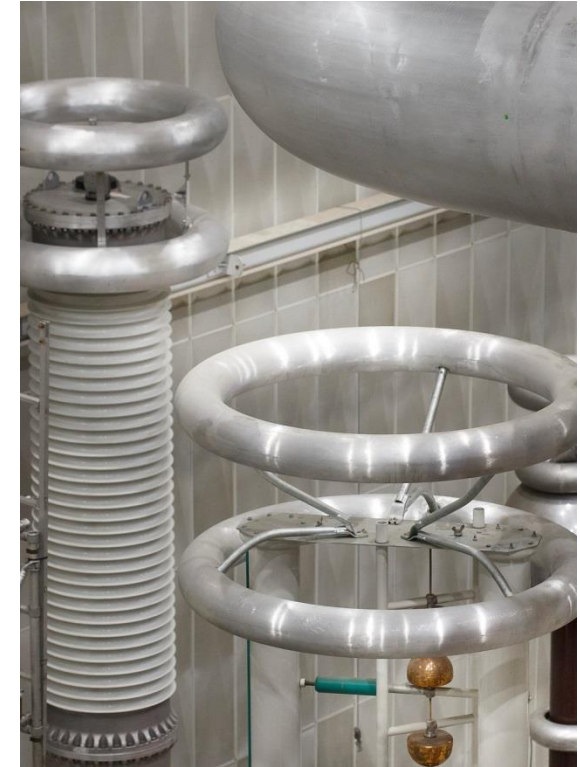
Source: Rob Wingate



Case Study 9: SynErgie

Identifier: 3004 685 41

| | |
|----------------------------------|--|
| Project | Kopernikus Project SynErgie |
| Objective | <ul style="list-style-type: none">• With an increasing share of renewable energies, fluctuations in the power grid increase considerably. This project investigates how industry may help to compensate for these fluctuations by flexibly adapting its demand to the electricity supply• Industry has the potential to significantly offset fluctuations in the power grid. If renewables like wind and sun do not provide enough energy, industry can adjust its electricity demand and reduce electricity consumption until more electricity is available again (demand side management) |
| Output and measures | <ul style="list-style-type: none">• SynErgie determined how much energy the German industry could either use more/ less in the event of grid fluctuations• Germany's largest private electricity consumer is the aluminum manufacturer TRIMET (1.6% Germany's annual electricity demand). Through the project, an approach has been developed for the company to increase or decrease its electricity consumption by 22.5 megawatts for up to two days corresponding to the output of around 25,000 three-person households• Federal subsidy 2019: EUR 11mn |
| Selected Project Partners | <ul style="list-style-type: none">• University of Stuttgart, Fraunhofer Gesellschaft, Linde GmbH, UPM GmbH, TRIMET Aluminium SE, Siemens AG, Software AG, Covestro AG, Naturschutzbund Deutschland |



Source: Research for Power Grids at KIT; Ute Grabowsky/FONA / photothek.net

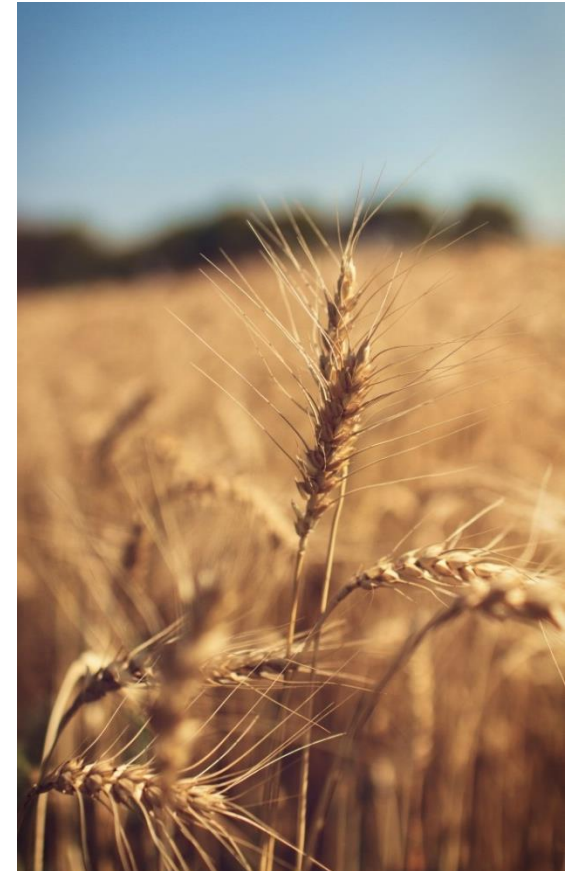


Case Study 10: Project NutriNet

Identifier: 1005 686 02



| | |
|----------------------------------|--|
| Project | NutriNet |
| Objective | <ul style="list-style-type: none">• More efficient nutrient management in organic farming through practical solutions• Further development of methods of on-farm research / encourage farmers to engage in on-farm research• Development of a data management tool |
| Output and measures | <ul style="list-style-type: none">• Ten stakeholders in (organic) agricultural research are involved in the NutriNet project:• Identification of strategies to optimize nutrient management, testing them in practice and refining them (in 6 regional networks, each consisting of 10 farms)• Establishment of a nationwide (on-farm) research network for nutrient management in organic farming: realisation of round tables and platforms to involve other German on-farm research networks and R&D projects• The project is being carried out between March 2019 and February 2024 |
| Selected Project Partners | <ul style="list-style-type: none">• Bioland Consulting [Bioland Beratung GmbH] Chamber of Agriculture North Rhine-Westphalia, Eberswalde University for Sustainable Development, University of Kassel |



Source: Karina Vorozheeva





Case Study 11: Waste heat in Hamburg's HafenCity

Identifier: 6092 686 08

Project

Hamburg HafenCity

- The metal producer Aurubis and energcity want to supply the new eastern HafenCity in Hamburg with CO₂-neutral heat
- This cooperation benefits companies, the city and the climate, and should be expanded significantly

Objective

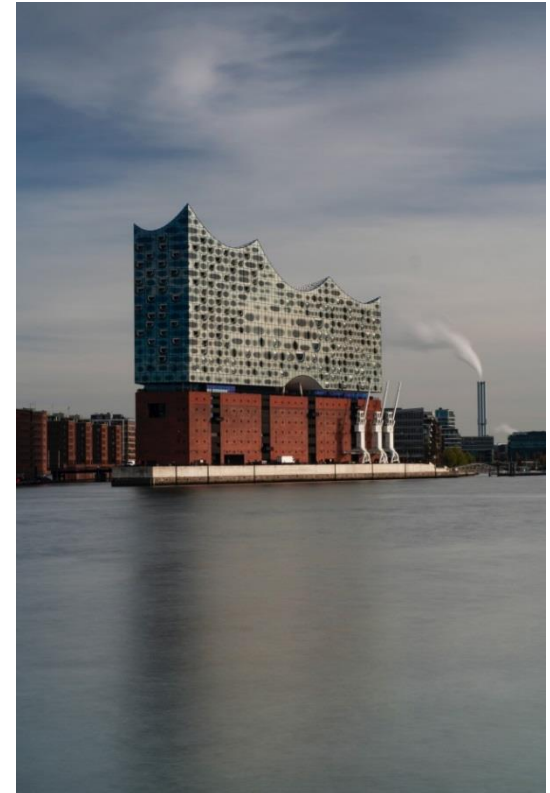
- Leverage on huge waste heat potential which can be tapped new technologies,
- By using waste heat, experts estimate that companies could save around EUR 5bn in energy costs annually and that a total heat supply of 125 TWh could be generated.
- After all, this corresponds to the total district heating of 130 TWh used in Germany in 2016

Achievements

- Approx. 70% of the process steam required in the factory is obtained CO₂-neutral from waste heat
- The use of waste heat in the eastern HafenCity saves 11,000 tonnes of CO₂ annually
- The projects are being carried out between beginning of 2017 and end of 2020 (expected)

Project Partner

KFW



Source: Kuno Schweizer



Case Study 12: Project InsHabNet

Identifier: 1005 686 11

| | |
|----------------------------|--|
| Project | InsHabNet – Insects, Habitat, Network |
| Objective | <ul style="list-style-type: none">Development of protection strategies for endangered insect populations from a fragmentation of their habitat |
| Output and measures | <ul style="list-style-type: none">For this project, forests of different sizes, diverse plant species, hedges, avenues and individual trees have been selected in a central study area (Rostock district, Güstrow and Schlemmin forest offices) in Mecklenburg-Western PomeraniaIn 2019 and 2020, the occurrence of beetles, grouts and large butterflies in the various structural elements will be analysedLinear structures such as pipeline routes and their potential measures for biotope-connecting and insect promotion are to be examinedWell-known scientists and experienced species workers support the project teamThe project is being carried out between January 2019 and December 2021 |



Source: James Wainscoat; Matt Seymour; Sue Thomas


Green sector:
Agriculture,
forestry, natural
landscapes and
biodiversity



Case Study 13: Project MemoryForest

Identifier: 1005 686 06



| | |
|---------------------|---|
| Project | MemoryForest |
| Objective | <ul style="list-style-type: none"> Increase the acceptance of non-active forestry and motivate the local population to actively work for forest on their doorstep |
| Output and measures | <ul style="list-style-type: none"> While forests in Germany are sustainably managed, forests which are dedicated to free development significantly contribute to climate protection and biodiversity. Currently 2.8% of them are permanently secured, however, increase up to 4.0% within the next decade are envisioned As part of the project, environmental education measures in schools, information and dialogue events and further training of multipliers are carried out in five model regions. The events are targeted at citizens, forest owners and political decision-makers |
| Project Partners |  |



Modellregionen - Grafik: kawe-design.de

Thanks for your attention

Bundesrepublik Deutschland – Finanzagentur GmbH
Olof-Palme-Str. 35
60439 Frankfurt am Main

Ansprechpartner
Alexandra Beust
Head of Communications
inst@deutsche-finanzagentur.de
www.deutsche-finanzagentur.de
Tel +49 (0) 69 25 616 1365

Disclaimer

IMPORTANT: By listening and/or attending the presentation (the “Presentation”) you are deemed to have taken notice of the following limitations.

The Federal Republic of Germany represented by the Federal Ministry of Finance which itself is represented by Bundesrepublik Deutschland – Finanzagentur GmbH (“Finanzagentur”) prepared this document solely for use in connection with the Presentation. It is furnished solely for your information. Neither the Presentation nor this document constitutes an offer or a solicitation of an offer to purchase or subscribe to any securities in any jurisdiction. Further, the Presentation and this document do not constitute investment advice. This document may not be printed, downloaded or otherwise copied or distributed. Neither the Presentation nor this document nor anything in it shall form the basis of, or be relied upon in connection with, any contract or commitment whatsoever.

The Presentation and this document contain certain forward-looking statements and forecasts which reflect the current views of Finanzagentur with respect to certain future events. Forward-looking statements are statements that do not relate to historical facts or events or to facts or events as of the date of the Presentation. Such forward-looking information involves risks and uncertainties, as it relates to future events. All forward-looking statements included herein are based on assumptions, uncertainties and other factors, the occurrence or non-occurrence of which is outside Finanzagentur’s control and are made to the best of Finanzagentur’s present knowledge.

Neither Finanzagentur nor any of its directors, officers, employees and advisors nor any other person shall have any liability whatsoever for any direct or indirect losses arising from or are related to any use of the Presentation or this document. While Finanzagentur has taken all reasonable care to ensure that the facts stated in the Presentation and this document are accurate and that the opinions contained in it are, to the best of its knowledge, fair and reasonable, the Presentation and this document are selective in nature. Any opinions expressed in this presentation are subject to change without notice and neither Finanzagentur nor any other person is under any obligation to update or keep current the information contained in this presentation.

The distribution of this document may be unlawful in certain jurisdictions. Consequently, persons into whose possession this document comes are obliged to assess whether they are permitted to possess this document.