

State of Hesse

Green Bond 2021 – Investor presentation



As of June 2021

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Executive Summary

State of Hesse

- GDP 281.4bn €
- S&P rating: A-1+ (short-term), AA+ (long-term), negative outlook*
- ISS ESG rating: B Prime (based on ISS ESG rating of Federal Republic of Germany)

Sustainability strategy

- Kick-off of the sustainability strategy in 2008
- In 2015, the State of Hesse decided to become climate-neutral until 2050
- Adoption of a climate protection plan including 140 measures in March 2017
- Principle of sustainability as a state objective embedded in the constitution in 2018
- Hessen has committed to emit 55% less greenhouse gases by 2030 and 90% less by 2050 than in 1990.

Green Bond Framework

- Focus on the standards of the ICMA Green Bond Principles and sustainability targets of the united nations (UN SDGs); Allocation of the project categories to EU environmental objectives as a first step towards EU taxonomy has already started
- External independent opinion from ISS ESG that the framework meets the ICMA GBPs and contributes significantly to the achievement of the UN SDGs
- Obligation to publish a Green Bond reporting (Allocation- and effectiveness report)

Green Bond emission

- Marketing and issuance planned for June 2021
- Total suitable amount of green investments of the household budget amounted to EUR 655.09m between 2018 and 2020
- Benchmark format (at least EUR 500m)
- Bond volume in an amount of up to EUR 600m, allocation 91.59%



HESSE: KEY DATA AND BUDGET

State of Hesse – Key data



- **Area** 21.115 sq.km.
- **Population** 6.266 million inhabitants
- **Largest city** Frankfurt am Main
- **State capital** Wiesbaden
- **Government** Coalition between CDU and BÜNDNIS 90/DIE GRÜNEN
- **State election** Autumn 2023
- **GDP** 281.4bn Euro*. The economic performance therefore ranks behind Denmark and ahead of Finland
- **GDP/inhabitant** With a GDP of 44,800 Euro per inhabitant, the State of Hesse ranked sixth which is between Sweden and Finland in the EU comparison in 2020
- **Unemployment rate** 5.5 % (as of April 2021)



State of Hesse – Balanced economy

- With more than 200 banks, Frankfurt is one of the leading Financial and Supervisory Centers in Continental Europe. The headquarters of the ECB, the Bundesbank, the Frankfurt Stock Exchange and Eurex are also based in Frankfurt.
- Employment structure:
 - 76% Service
 - 23% Industry
 - 1% Other sectors
- The largest internet hub worldwide DE-CIX is based in Frankfurt.
- Frankfurt has one of the most experienced start-up pools in the world and offers best access to international companies and customers. The state government actively promotes the settlement of startups/fintechs in the Rhein Main region, in particular in the financial center of Frankfurt
- Satellite control centre of the European Space Agency (ESA) in Darmstadt
- Hesse's industry is closely linked to the global economy and internationally well connected. Major foreign trade goods mainly stem from the pharmaceutical industry.
- One of the world's largest production facilities for the SARS-CoV-2 vaccine of BioNTech is located in the city of Marburg (Hesse).



We manage the European data transfer – there is no way around **Hesse**



Wir managen den europäischen
Datentransfer.

An **Hessen** führt kein Weg vorbei.

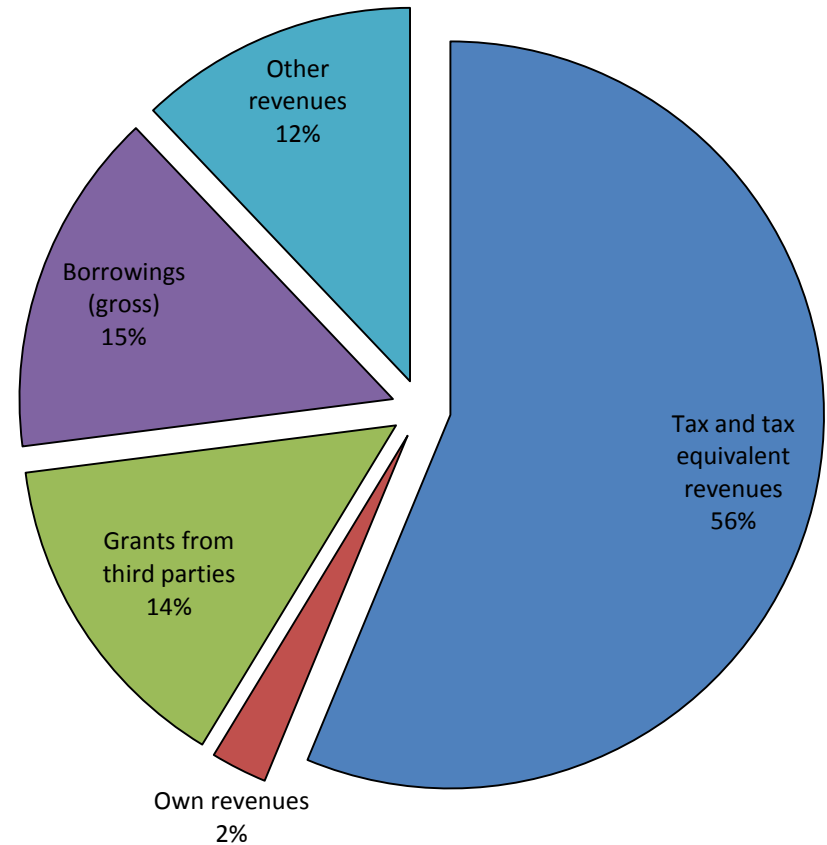
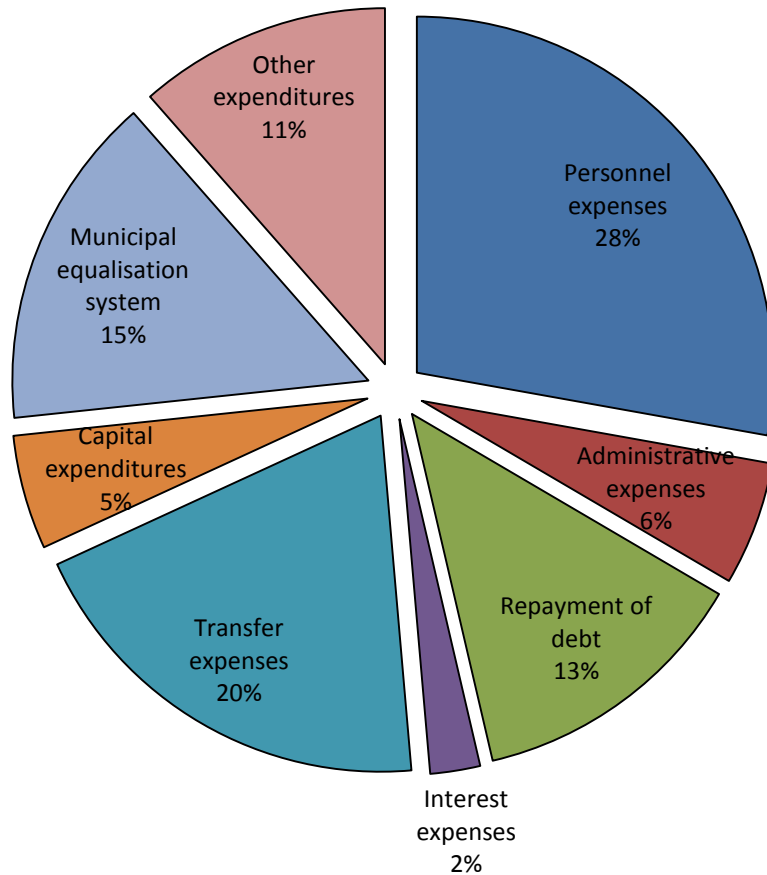
HESSEN



The advertisement features a long-exposure photograph of a highway at night, with light trails from cars in white and red. In the background, a city skyline is visible, including a prominent skyscraper. The text is overlaid on the image, and the Hesse logo is in the bottom right corner.

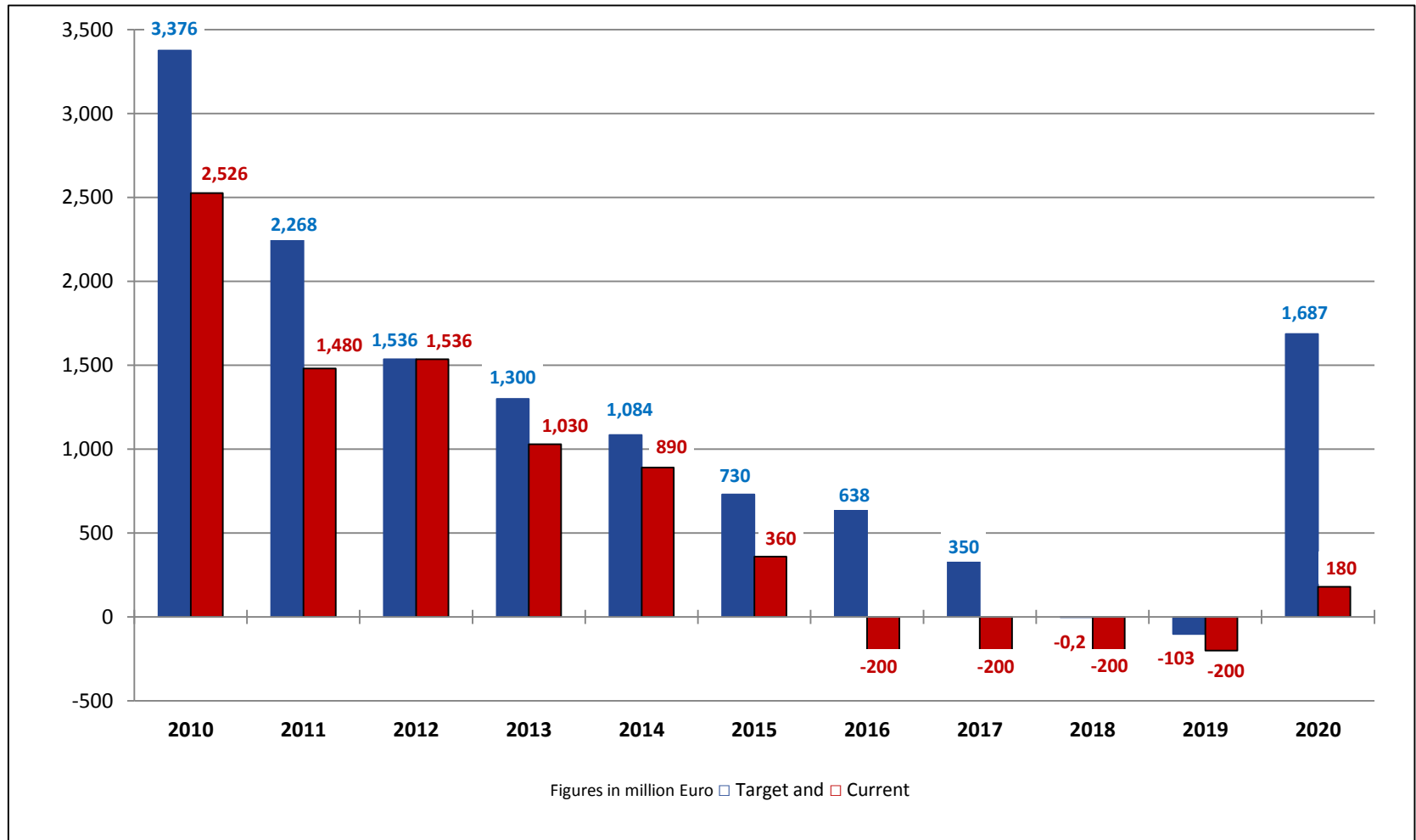
State budget 2021

Expenses and income (as planned): € 40.2bn

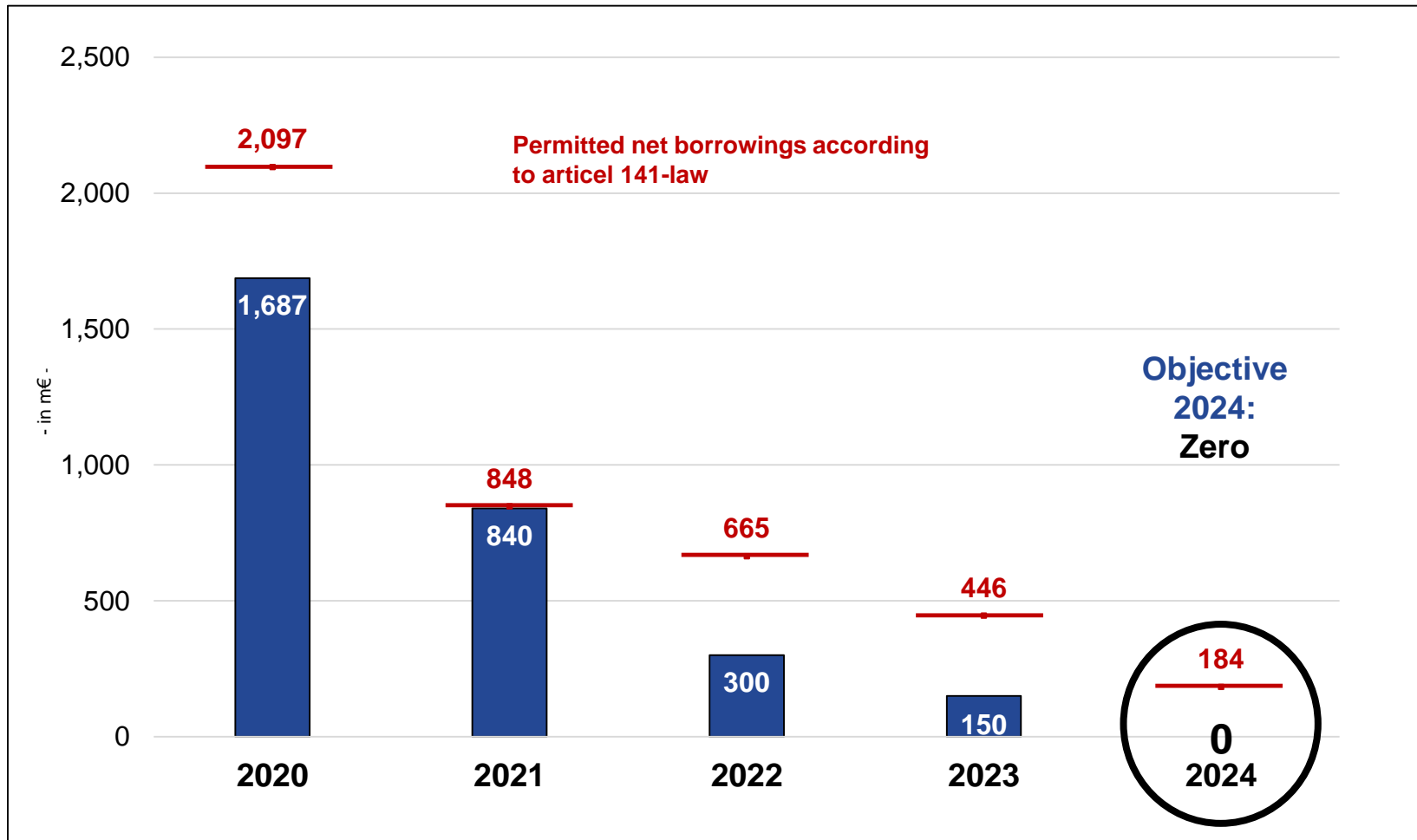


Budget – Plan of the Hessian state government

Development of net borrowing – Plan carefully but also outperform the targets.



Budget – Budget 2021 – Net borrowing has halved – Debt brake fulfilled*



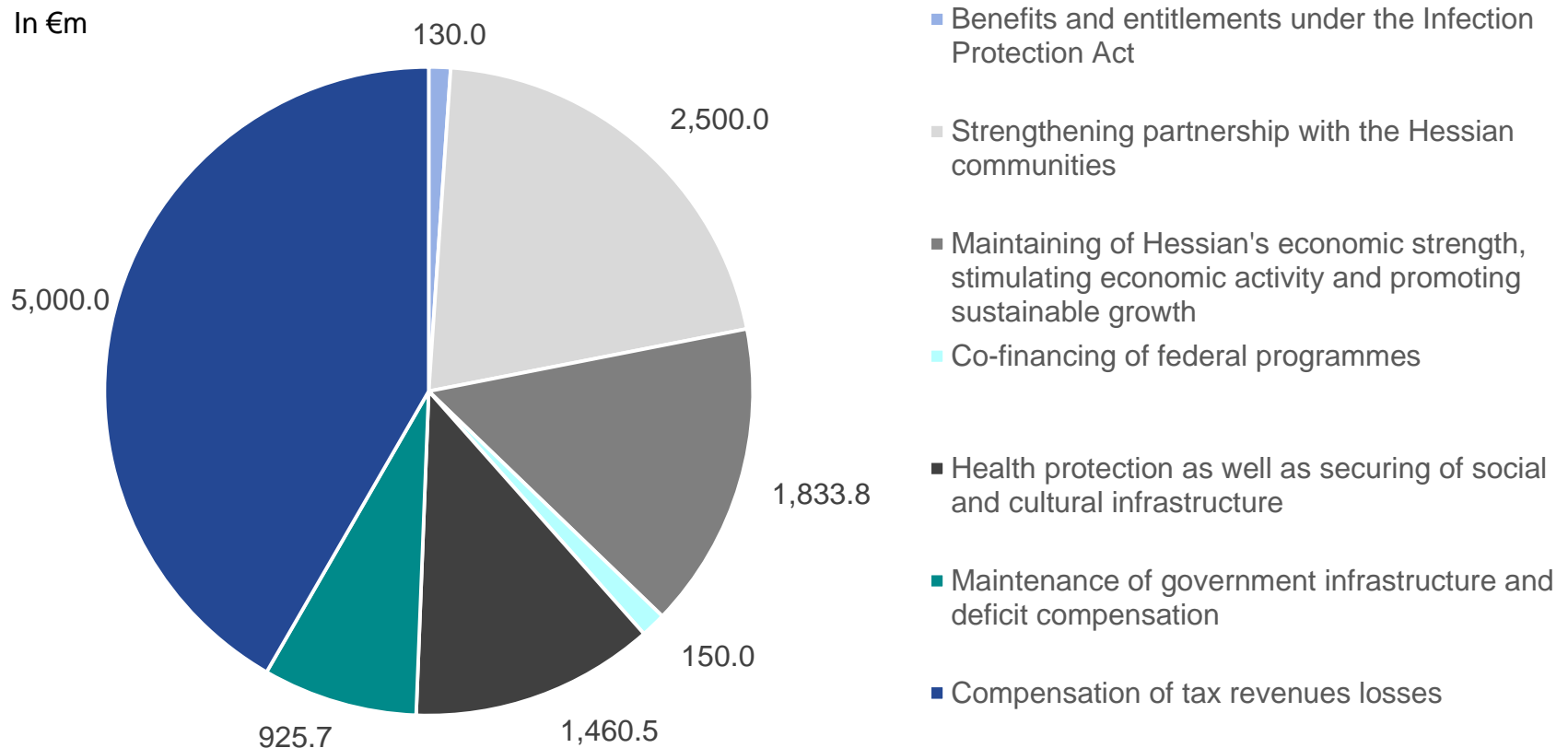
*Budget of the State of Hesse for 2020 until 2024, as of October 2020

Special fund “Ensure a better future for Hesse”

- The Hessian state parliament has established a special fund on 4th July 2020. The fund matures in the end of 2023.
- All Corona-related revenues and expenses shall be pooled and shown transparently in the special fund.
- Previously approved funds to combat the Corona pandemic will be counted retrospectively to the special fund.
- To remedy the pandemic-related emergency, the special fund has its own credit authorization of up to € 12 billion – the credit authorization corresponds to the actual funding requirements, i.e. higher tax revenues and less spending reduces the credit volume accordingly.
- Loans will be repaid until 2050 whereas the repayment is scheduled during the borrowing process in accordance with the repayment structure of the respective bonds. Repayments start from 2021 in the amount of € 200 million p.a. and will gradually increase to € 400 million p.a.
- The special fund of the State of Hesse ensures planning security to implement measures to quickly combat the Corona pandemic and its consequences until 2023.

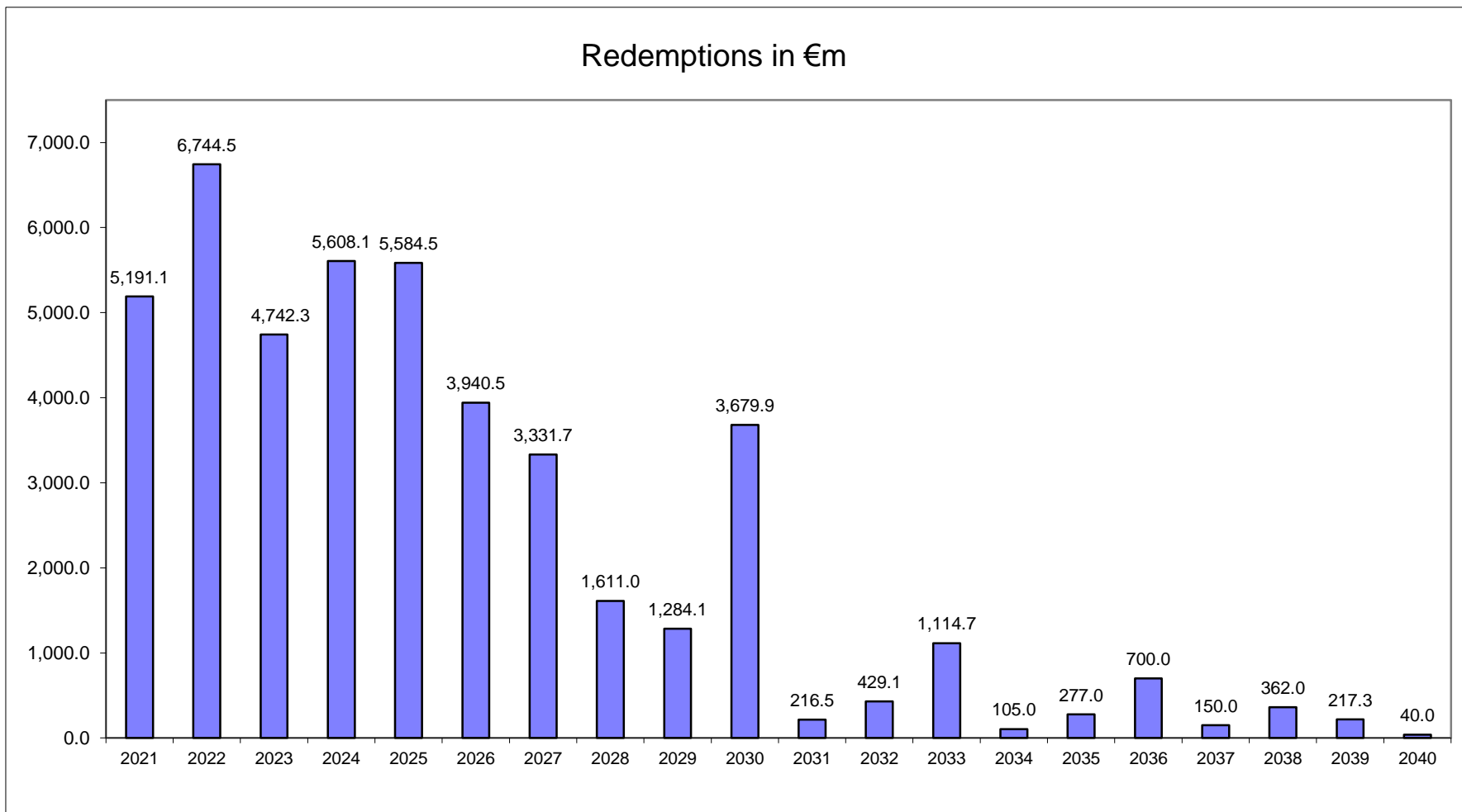
Special fund “Ensure a better future for Hesse”

Up to € 12bn of borrowings for corona-related expenses:



Bonds issued by the State of Hesse – Maturity profile

Core budget including special funds (as of 1st June 2021)



Bonds issued by the State of Hesse – Benefits for investors

Bonds issued by the State of Hesse represent a good opportunity for risk diversification in the segment of European sovereign issuers.

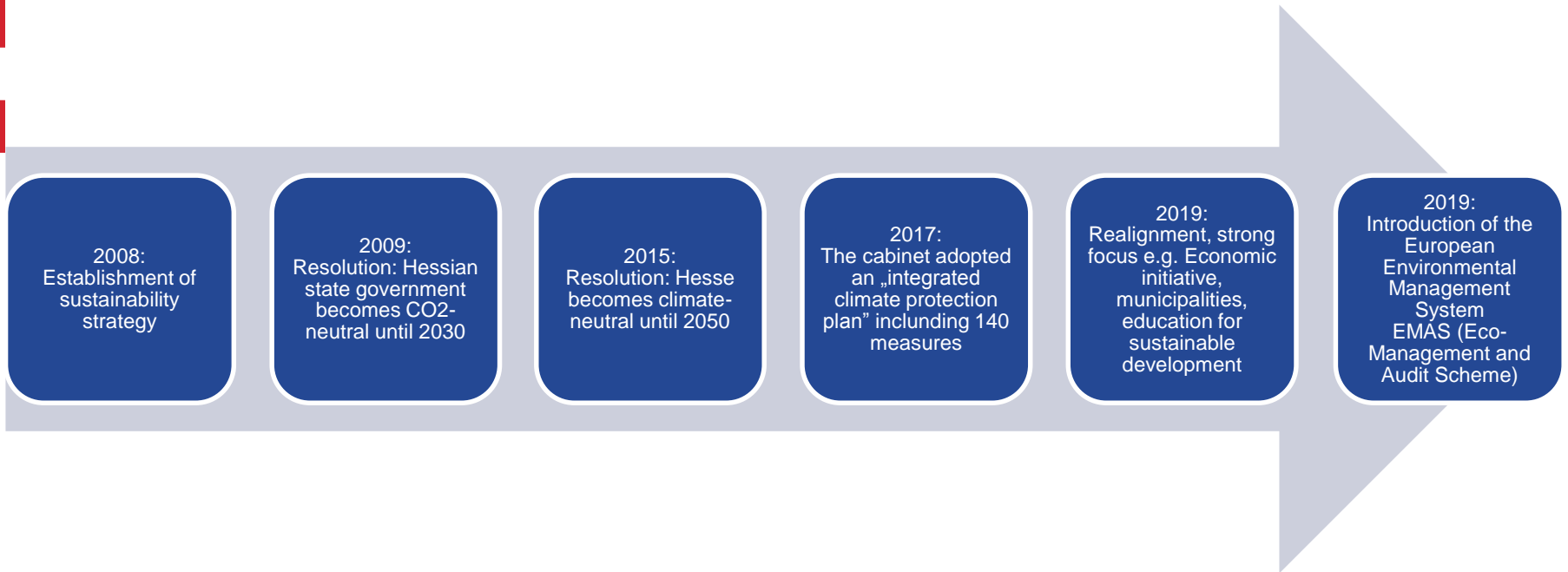
- Attractive yield premium for investors of up to 30bps compared to BUNDS subject to maturity and market conditions
- Certification of high credit quality by Standard & Poor´s
 - Long-term rating: A-1+
 - Long-term rating: AA+, outlook negative, last confirmed as of 26th April 2021
- 0% risk weighting
- ECB repo eligible assets
- Very stable development of asset-swap-spreads
- Funding 2021: EUR 8bn credit authorization - Main refinancing is planned for H2 2021



SUSTAINABILITY STRATEGY OF THE STATE

The sustainability strategy of the State of Hesse

Hesse bears responsibility for future generations and seeks a balance between economic growth and sustainable development. The Hessian sustainability strategy brings together people from politics, business, science, administration and society to find innovative solutions.



In addition to this overarching strategy, the state works together with 295 municipalities in the alliance *"Hessen aktiv: Die Klima-Kommunen"*: Climate protection can only be successful, if it includes all political levels. Especially since the municipalities are the most important partner of the State for local implementation.

The sustainability strategy of the State of Hesse in terms of supply reserve

Hesse also pursues a sustainable investment strategy in the investment of the State's pension reserve (around € 4.7bn total assets).

Since 2012:
As first German Federal State,
Hesse exclusively invests in a
sustainable stock index

2019:
Tightening of investment guidelines
for the stock index ("fossil free") in
particular referring to the CO2
responsibility and its subsequent
proportionate reduction of the
State's CO2 footprint by 75%

2019:
Hesse is the first Federal State to
join the UN Principles for
Responsible Investments (UN
PRI) with regards to the pension
reserve, which includes an annual
reporting

Green and Sustainable Finance Cluster Germany e.V.

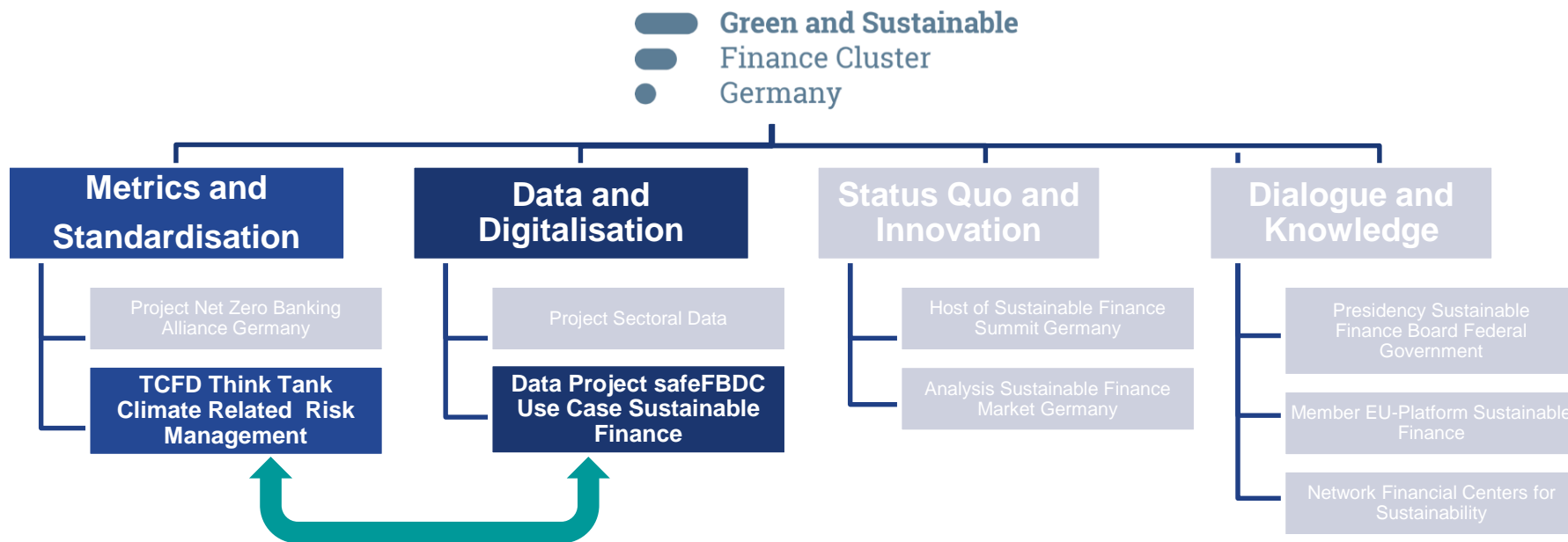
Central Financial Market Initiative

The GSFCEG aims to represent current activities of the German financial market in the area of sustainable financing and identifies possible innovation potentials. The GSFCEG offers an incessant exchange platform for green and sustainable financing issues by consulting all relevant stakeholders – economy, society, politics/regulators and science.

Data represents a central aspect of green and sustainable finance. The Cluster aims to tackle issues and questions such as alternative investment strategies and requirements for digital data. In addition, connections between sustainability and digitalization of the financial sector are analyzed.

The Land Hessen is actively supporting the Cluster to ensure that the key financial market in Europe is developed in line with global standards which are developing rapidly.

„In order to stop climate change – the effects of which have long since been noticeable – enormous investments are needed. This is why we are embracing the idea of private capital also being invested according to the principles of sustainability. The Cluster aims at further promoting this movement.”



Sustainability is anchored in the constitution of the State of Hesse since 2018

New article 26c:

Article 26c

„The Federal State, the municipalities and local communities consider the principle of sustainability in their actions to protect the interests of future generations“

- Present generations should not live at the cost of future generations
- The result of the referendum in 2018 resulted in a very good vote amongst voters:
 - Yes-votes: 89.1 %
 - No-votes: 10.9 %

Objectives and Indicators: Framework for a Sustainable State of Hesse

The 13 target indicators are aligned with the global Sustainable Development Goals adopted by the United Nations and are consistent with the indicators at the federal level. The target indicators refer to the year 2030, unless otherwise stated.



Ecological agriculture
Increase the share of area with ecological agriculture to 25% of the total utilized agricultural area



Nitrate in groundwater
Reduction of the proportion of nitrate content measurements over 50mg/l at groundwater nitrate content measurement stations to 0 %



Final energy consumption of private households
Qualitative objective: "Reduce final energy consumption of private households continuously"



Nitrogen balance
Reduce the nitrogen surplus of the utilized agricultural area (with regards to the area balance) to 40 kg/ha (in relation to the 5-year rolling average)



Renewable energies
Increase the share of renewable energies in gross final energy consumption to 30%



Greenhouse gas emissions
Reduction of greenhouse gas emissions by 50% compared to 1990 levels



Adult obesity
Slow down the average increase of the proportion of the adult population with obesity, that was recorded between 1999 and 2017.



Structural prohibition of new debt
Reduction of net borrowing below the threshold resulting from Article 141 of the Constitution of the State of Hesse



Biodiversity (and landscape quality)
Increase bird species numbers overall and by landscape type to an index of 100 by 2020, update of target index values planned for 2030



Early school- and apprenticeship leavers
Limit the proportion of the 18-25 year old population who do not attend school or higher education, participate in any apprenticeship or further training and who do not have an upper secondary qualification (Sekundarabschluss II) to 10%



Private and public expenditures on research and development
Increase the share of private and public expenditures on research and development in the gross domestic product to at least 3.5%

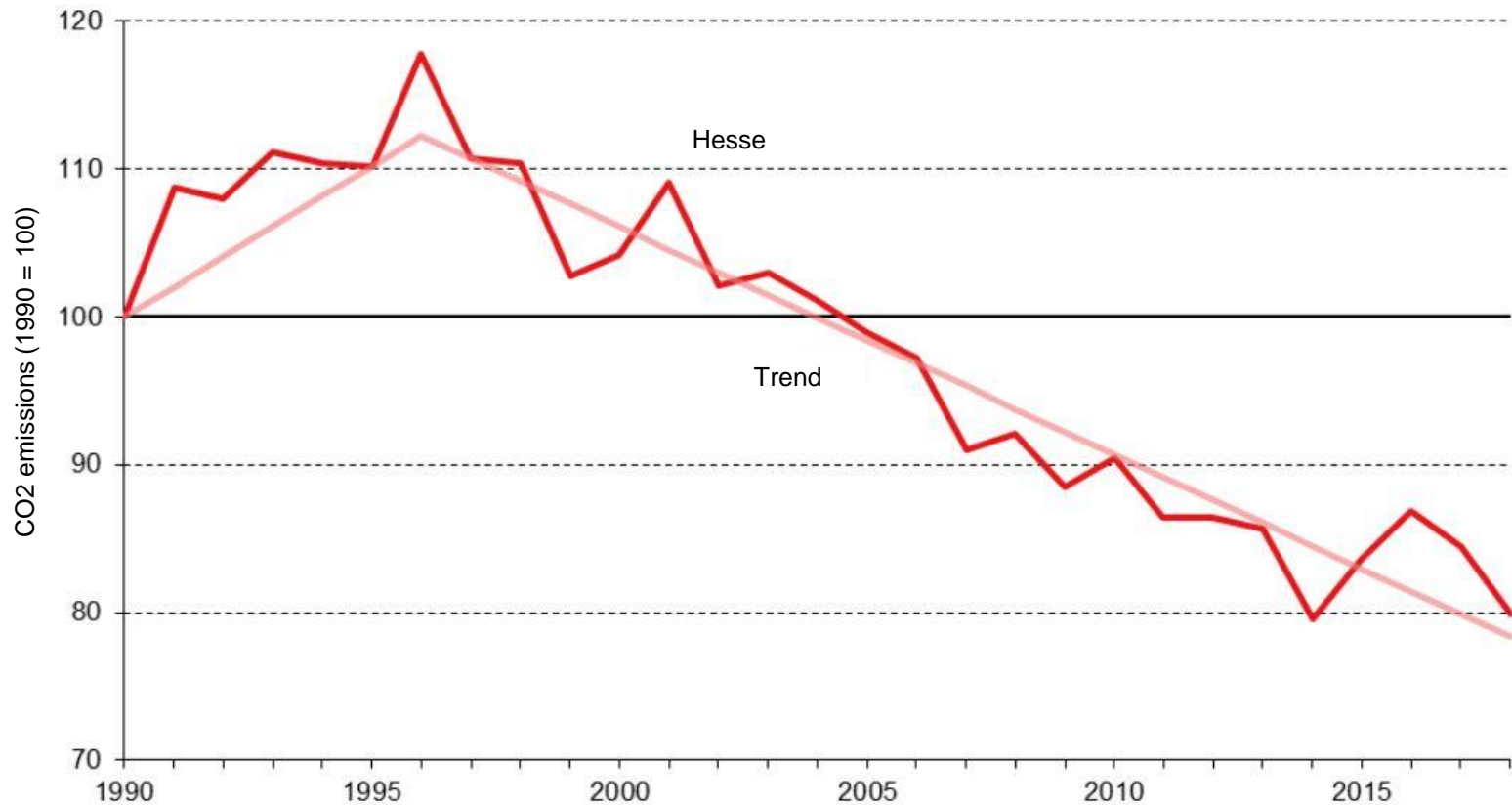


Residential areas and traffic areas
Reduce increase in area coverage or residential and traffic area to less than 2.5 hectares per day (relative to the 4-year annual average)



Broadband coverage
Area-wide expansion of fiber optic connecting networks, i.e. increase the share of households with a fiber optic connection (FTTB/H) to 95% in relation to total households

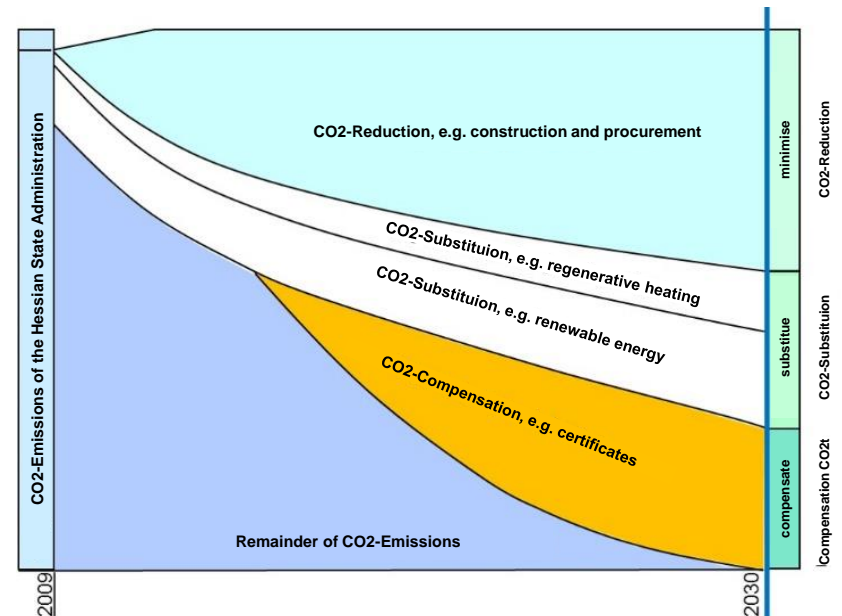
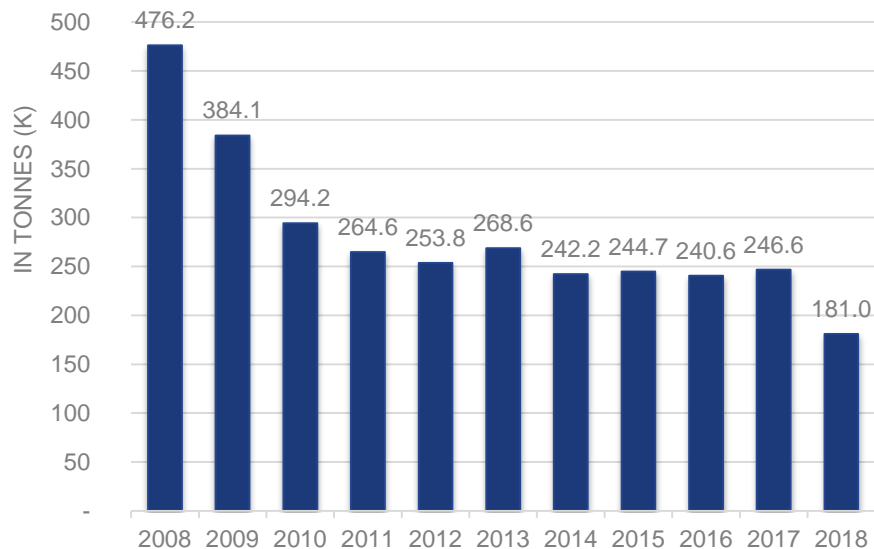
Development of energie-related-CO2-emissions in Hesse from 1990 to 2018



Source: Statistical Office of The Federal State of Hessen; UGRdL; Calculations of the Hessian Statistical Office; preliminary values for 2018

The greenhouse gas balance and CO2-Report of the State of Hesse as of 12/31/2018

- The calculation of the CO2 footprint covers a total of around 2,000 buildings, including state-owned properties, universities and rentals.
- CO2-footprint: 181.000t CO2-equivalent (2018)
- Already achieved: Reduction of CO2-emissions of 1.9m tonnes CO2 (-5.4%) compared to the previous year. The CO2-emission was around 8.9m tonnes or 20.5% below the base year of 1990*
- Objective 2030: Net 0t CO2-equivalent

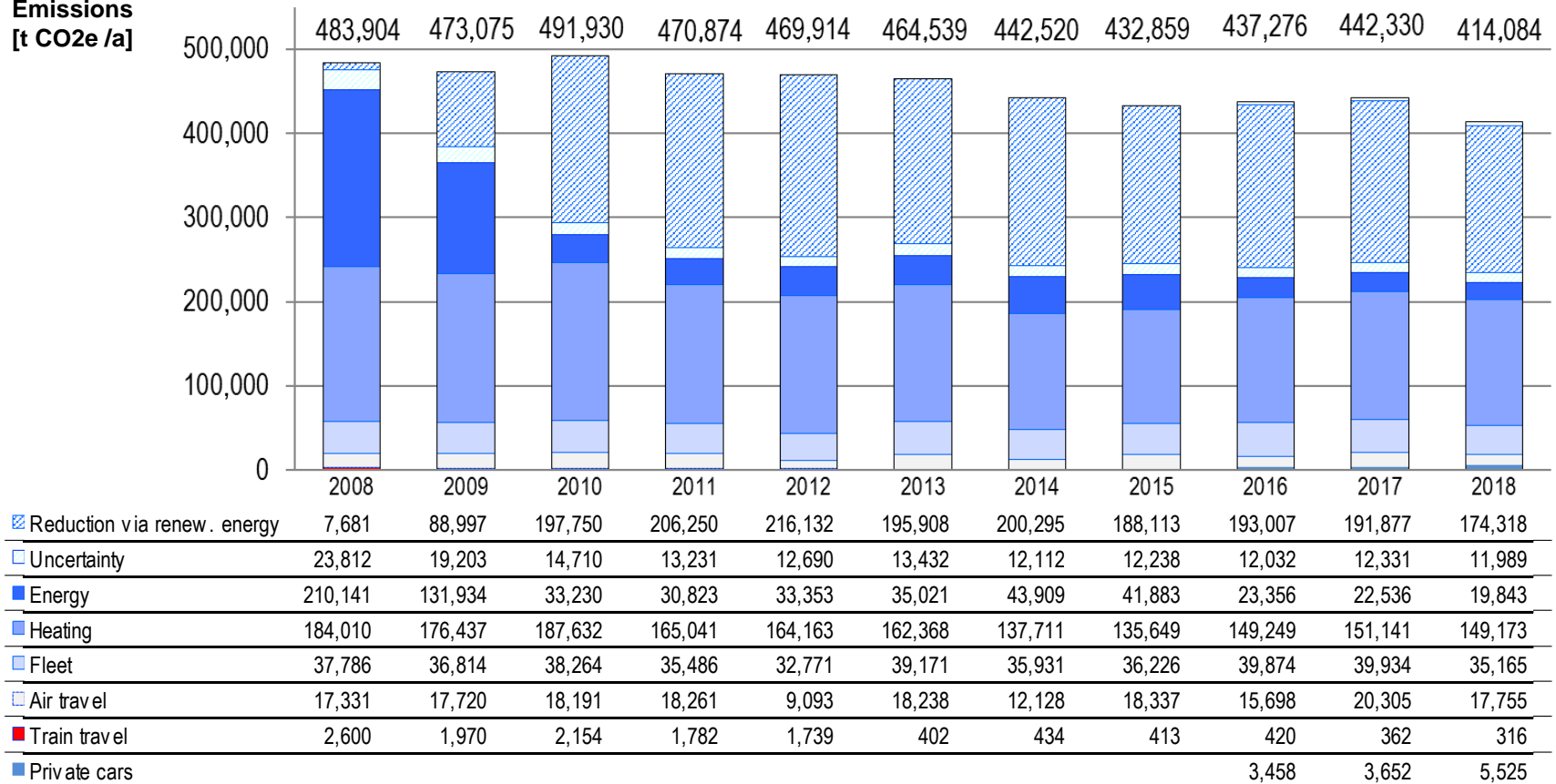


* Hessian greenhouse gas balance, Balance year 2018, Page 8 and 15

Development of CO₂-Emissions of the Hessian state government by sources



Emissions
[t CO₂e /a]





GREEN BOND FRAMEWORK

Green Bond Framework State of Hesse

1. Climate protection targets

- Sustainability strategy
- Green and Sustainable Finance
- Sustainability initiatives since 2012
- Ecologically sustainable funding

2. Presentation of the refinancing concept

- Use of proceeds
- Process of project evaluation and selection
- Management of proceeds
- Reporting
- External review

3. First Green Bond of the State of Hesse

- EUR 500-600m
- Actual eligible green expenditures 2018-2020
- Successfully completed projects with quantified impact metrics

Use of Proceeds

- Eligible green expenditures are expenditures made by the State of Hesse which are considered as ecologically sustainable ("green") for the environment and climate
- Expenditures for armaments, fossil fuel, shale gas / fracking, nuclear energy (e.g. production, transport, storage and power generation) or tobacco were and are excluded from being eligible





















Eco-friendly public transport	<p>Expenditures to promote and improve sustainable and environmentally friendly transport systems</p> <ul style="list-style-type: none">- <i>Expenditures to promote more climate-friendly modes of transport and its usage</i>- <i>Investments for the development of bicycle infrastructure and for the promotion of bicycle traffic (individual transport)</i>	
Measures concerning forests	<p>Expenditures promoting reforestation and restoration of forest damage in order to strengthen the climate resilience of Hessian forests</p> <ul style="list-style-type: none">- <i>Expenditures to finance the 12-point plan for the afforestation of Hessian forests and to restore forest damage</i>- <i>Expenditures for forestry measures and services „Natural forest management, wood conservation facilities, afforestation as well as forestry mergers“</i>	
CO₂-neutral state administration / energy efficiency of public buildings	<p>Expenditures to reduce energy consumption and emissions from public buildings</p> <ul style="list-style-type: none">- <i>Expenditures to increase energy efficiency and to promote the use of renewable energy, as well as to promote energetic renovation of public buildings</i>- <i>Investment program to implement the goals of the Hessian Energy Act (Hessisches Energiegesetz)</i>	

Use of Proceeds

Climate protection plan	<p>Expenditures to finance Hesse's integrated climate protection plan (ICPP) aiming to achieve the climate goals as well as adaptations to the consequences of climate change</p> <ul style="list-style-type: none">- <i>Expenditures to finance the State Energy Agency providing information, initial consultation on the selection and implementation of measures for energy efficiency, renewable energy and climate protection</i>- <i>Participation in the federal program „Energy efficient university campus“</i>
Sustainable (waste) water management	<p>Expenditures for the preservation and restoration of natural waters, improvement of the water quality and the development of flood protection</p> <ul style="list-style-type: none">- <i>Expenditures for the development of flood risk management plans and the construction of appropriate protection systems</i>- <i>Expenditures for the conservation and improvement of water quality</i>
Organic farming and nature conservation	<p>Expenditures to promote organic farming areas</p> <ul style="list-style-type: none">- <i>Expenditures to promote low-carbon farming and climate-friendly and organic practices</i>- <i>Expenditures to finance advisory and information events for low-emission farming and horticultural businesses</i>
Further climate and environmental protection measures	<p>Expenditures to promote energetic renovations and European innovation partnerships, among others</p> <ul style="list-style-type: none">- <i>Expenditures for the promotion of European innovation partnerships</i>- <i>Expenditures for the promotional program „Energy Efficiency in rental housing “</i>



Green Bond Framework aligned with ICMA GBP and UN SDGs

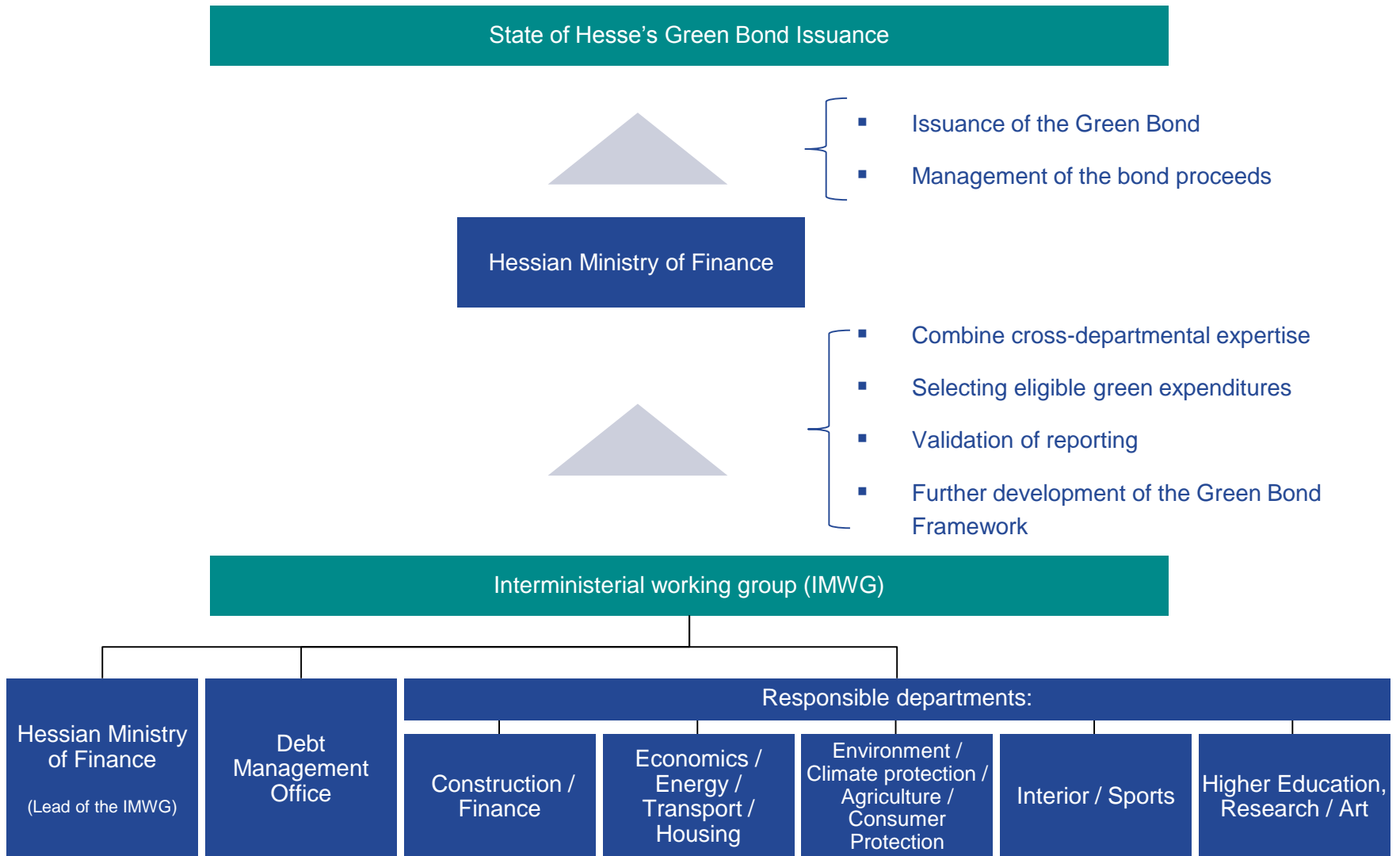
	Strategic priorities of focus areas	ICMA GBP ⁽¹⁾	UN SDGs ⁽²⁾
Green Bond Framework	Eco-friendly public transport	✓ Clean transportation 	✓ 11-Sustainable cities and communities  ✓ 13-Climate action 
	Measures concerning forests	✓ Environmentally sustainable management of living natural resources and land use 	✓ 15-Life on land 
	CO ₂ -neutral state administration / energy efficiency of public buildings	✓ Green buildings  ✓ Energy efficiency  ✓ Renewable energy 	✓ 11-Sustainable cities and communities 
	Climate protection plan	✓ Energy efficiency  ✓ Renewable energy 	✓ 7-Clean energy  ✓ 13-Climate action 
	Sustainable (waste) water management	✓ Sustainable water management  ✓ Climate change adaption 	✓ 13-Climate actions  ✓ 14-Life below water 
	Organic farming and nature conservation	✓ Environmentally sustainable management of living natural resources and land use 	✓ 13-Climate actions  ✓ 15-Life on land 
	Further climate and environmental protection measures	✓ Green buildings 	✓ 11-Sustainable cities and communities 

Note: Hesse will monitor the future development of the Green Bond Principles, the EU Green Bond Standard and the EU taxonomy for sustainable finance closely and will take them into considerations in future developments of the Green Bond Framework. The use of proceeds are already mapped in accordance to the environmental objectives of EU Taxonomy.

(1) International Capital Market Association Green Bond Principles

(2) United Nations' Sustainable Development Goals

Governance for the first Green Bond Issuance



Selection process of projects as well as the refinancing concept of Green Bonds

Interministerial working group (IMWG)

An interministerial working group was established to be responsible for the eligibility assessment and the selection of eligible green expenditures. The interministerial working group consists of representatives from:

- Hessian Ministry of Finance (Lead of the IMWG)
- Debt Management Office
- Department for Construction / Finance
- Department for Economics / Energy / Transport / Housing
- Department for Environment / Climate Protection / Agriculture / Consumer Protection
- Department for Interior / Sports
- Department for Higher Education, Research / Art



Allocation process

- The Debt Management Office records all input received from the respective ministries and pre-screens past expenditures for the eligible green bond portfolio for the IMWG
- The Debt Management Office establish an initial list of eligible green expenditures on this basis
- Only eligible green expenditures contributing towards environmental or climate change mitigation objectives will be selected based on eligibility criteria for use of proceeds



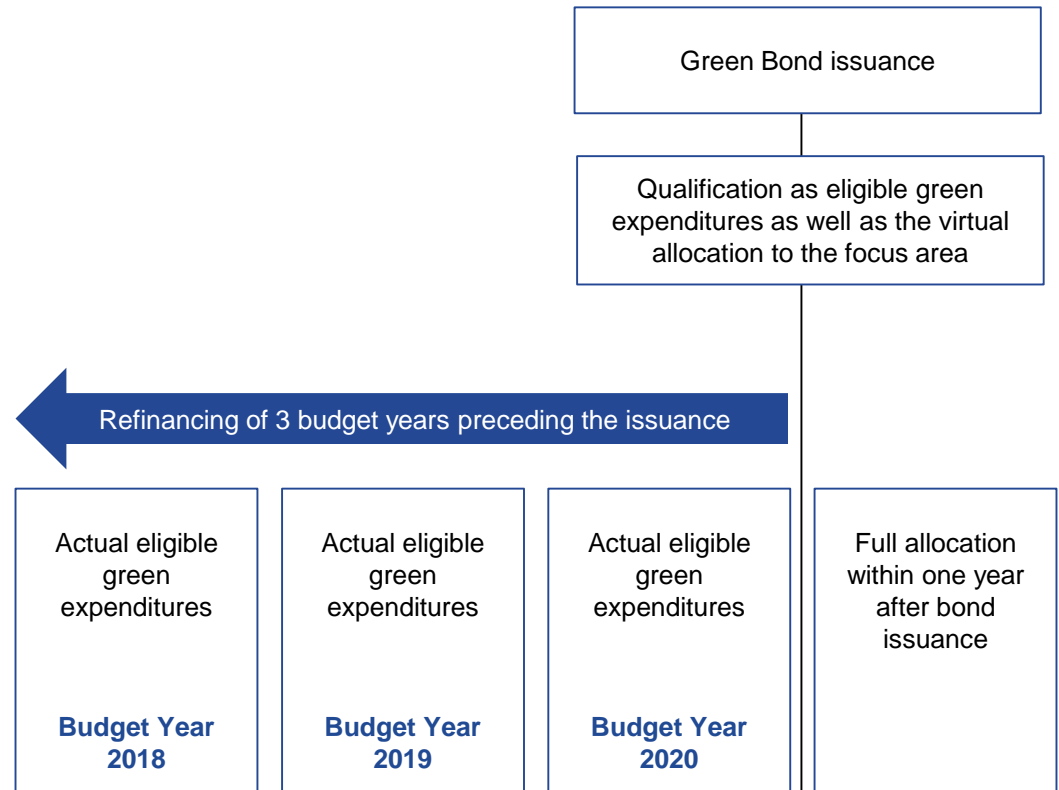
Refinancing concept

- Refinancing of eligible green expenditures made in budget years from 2018 to 2020
- Only funds from the general state budget without taking into account of EU funds, Corona special fund or federal funds



Management of Proceeds

- The management of proceed (including allocation and monitoring) is based on the state budget planning adhering to the principle of non-committed total coverage.
- An equivalent amount of proceeds raised shall be earmarked to eligible green expenditures made in the three budget years prior issuance.
- Hesse intends to fully allocate green bond proceeds within one year after issuance.
- Unallocated proceeds are managed according to the general liquidity guideline until full allocation.
- The virtual earmarking of the Green Bond proceeds to eligible green expenditures is carried out by the IMWG.



Transparent disclosure

Hesse's Green Bond Reporting	Allocation reporting	<ul style="list-style-type: none"> Green Bond Reporting until proceeds raised are fully allocated Allocation report contains details on the allocation of the issue proceeds to eligible green expenditures 													
	Impact reporting	<ul style="list-style-type: none"> The impact report assesses measurable impacts of projects and measures funded by eligible green expenditures The impact report can be valid for several years and updated as needed. It contains the presentation of actual expenditures and key figures on a portfolio basis per expenditure category <p>Indicative impact report</p> <table border="1"> <tr> <td style="background-color: #d9e1f2;">Eco-friendly Public Transport</td> <td> <ul style="list-style-type: none"> Number of (funded) measures Tickets sold CO₂ reduction </td> </tr> <tr> <td style="background-color: #d9e1f2;">Measures concerning forests</td> <td> <ul style="list-style-type: none"> Amount allocated per hectare of area of state-owned forest / national park </td> </tr> <tr> <td style="background-color: #d9e1f2;">CO₂-neutral state administration / energy efficiency of public buildings</td> <td> <ul style="list-style-type: none"> Number of funded measures CO₂ reduction </td> </tr> <tr> <td style="background-color: #d9e1f2;">Climate protection plan</td> <td> <ul style="list-style-type: none"> Number of consultations/measures Number of funded projects </td> </tr> <tr> <td style="background-color: #d9e1f2;">Sustainable (waste) water management</td> <td> <ul style="list-style-type: none"> Number of financed projects Development of natural waters, (river) banks and floodplain </td> </tr> <tr> <td style="background-color: #d9e1f2;">Organic farming and nature conservation</td> <td> <ul style="list-style-type: none"> Number of client engagements Hectares of extensive grassland cultivation Hectares of multiple cropping </td> </tr> <tr> <td style="background-color: #d9e1f2;">Further climate and environmental protection measures</td> <td> <ul style="list-style-type: none"> Number of refurbishments of housing units subsidized </td> </tr> </table>	Eco-friendly Public Transport	<ul style="list-style-type: none"> Number of (funded) measures Tickets sold CO₂ reduction 	Measures concerning forests	<ul style="list-style-type: none"> Amount allocated per hectare of area of state-owned forest / national park 	CO₂-neutral state administration / energy efficiency of public buildings	<ul style="list-style-type: none"> Number of funded measures CO₂ reduction 	Climate protection plan	<ul style="list-style-type: none"> Number of consultations/measures Number of funded projects 	Sustainable (waste) water management	<ul style="list-style-type: none"> Number of financed projects Development of natural waters, (river) banks and floodplain 	Organic farming and nature conservation	<ul style="list-style-type: none"> Number of client engagements Hectares of extensive grassland cultivation Hectares of multiple cropping 	Further climate and environmental protection measures
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Further climate and environmental protection measures	<ul style="list-style-type: none"> Number of refurbishments of housing units subsidized 														

Positive Second Party Opinion received by ISS ESG

The State of Hesse engaged ISS ESG as independent reviewer to provide a Second Party Opinion prior to the issuance of the inaugural Green Bond:

- ISS ESG confirms that Hesse's Green Bond Framework is in line with ICMA Green Bond Principles.
- The framework received a positive rating from ISS ESG for the expected sustainability contribution as well as risk avoidance and minimisation.
- The focus areas defined for the use of proceeds have significant contribution (best rating on ISS ESG's 5-point scale) to the Sustainable Development Goals of the United Nations.
- The use of proceeds categories are consistent with Hesse's sustainability strategy and addresses material ESG topics for sovereign and sub-sovereign issuers.

ISS ESG  

SECOND PARTY OPINION (SPO) **STATE OF HESSE GREEN BOND**

Sustainability Quality of the Issuer and Green Bond Framework

ALIGNMENT WITH ICMA GREEN BOND PRINCIPLES

PRINCIPLES ALIGNMENT	Alignment	Overall Rating
1. Use of Proceeds		POSITIVE
2. Process for Project Evaluation and Selection		
3. Management of Proceeds		
4. Reporting		

ASSET CATEGORIES ALIGNMENT WITH ISS ESG KPIs

ASSET CATEGORIES	Alignment	Overall Rating
<ul style="list-style-type: none"> ▪ Eco-friendly Public Transport ▪ Measures for the forest ▪ Energy-efficiency of public buildings 	<ul style="list-style-type: none"> ▪ Climate protection plan ▪ Sustainable water management ▪ Organic farming ▪ Further climate protection measures 	POSITIVE

SUSTAINABILITY PERFORMANCE ASSESSMENT

In the ISS ESG Country Rating with a rating scale from A+ (excellent) to D-(poor), Germany was awarded a rating of 'B' and classified as 'PRIME'.

As at 07.05.2021, this rating puts Germany in place 11 out of 121 countries rated by ISS ESG. This equates to a high relative performance, with a Decile Rank of 1.

*Status: **PRIME***
*Rating: **B***
*Decile: **1***
*Ranking: **1***

CONTRIBUTION TO THE UN SUSTAINABLE DEVELOPMENT GOALS

Significant Obstruction	Limited Obstruction	No Net Impact	Limited Contribution	Significant Contribution
0	0	0	3	6

CONTRIBUTION

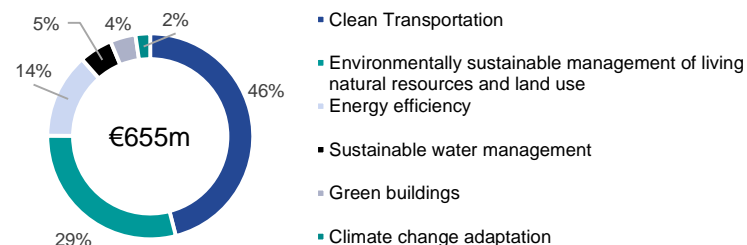


STATE OF HESSE'S INAUGURAL GREEN BOND

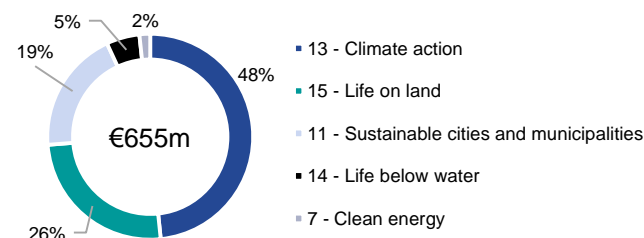
Indicative allocation and breakdown by ICMA GBP, UN SDGs as well as EU Taxonomy Environment Objective

Description	in €m			
	2018	2019	2020	Total
	Past expenditures	Past expenditures	Past expenditures	Past expenditures
Eco-friendly public transport	82.11	87.03	132.17	301.31
Measures concerning forests	39.16	52.54	58.15	149.85
CO2-neutral state administration / energy efficiency of public buildings	37.04	24.47	23.56	85.07
Climate protection plan	3.40	2.90	13.83	20.13
Sustainable (waste) water management	22.77	12.56	14.06	49.39
Organic farming and nature conservation	8.18	16.48	16.19	40.85
Further climate and environmental protection measures	5.00	3.00	0.50	8.50
Eligible green expenditures	197.66	198.98	258.45	655.09
Expected size for inaugural green bond issuance				500-600

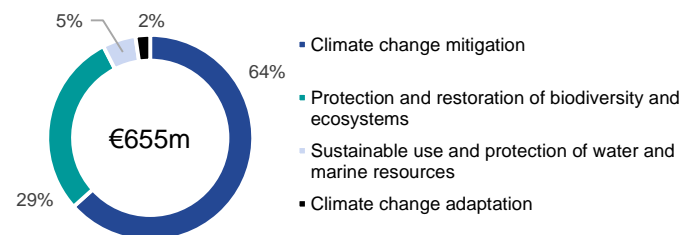
Breakdown by ICMA GBP⁽¹⁾



Breakdown by UN SDGs⁽¹⁾






Breakdown by EU Taxonomy Environmental Objective⁽¹⁾



(1) Mapping based on primary category

Case Study – Eco-friendly public transport: Roll out of the job ticket for all state employees



ICMA GBP Category Clean Transportation 	Clean Transportation	UN SDG	13-Climate action 	EU Taxonomy Environmental Objective	Climate change mitigation 
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Description

- Roll out of a job ticket for public transport in the State of Hessen offered to all employees of the state
- Providing the job ticket as incentive for employees of the state to reduce private transportation and contributing to sustainable environmental and climate protection at no cost
- Enable change of mode to low-emission transportation

Impact

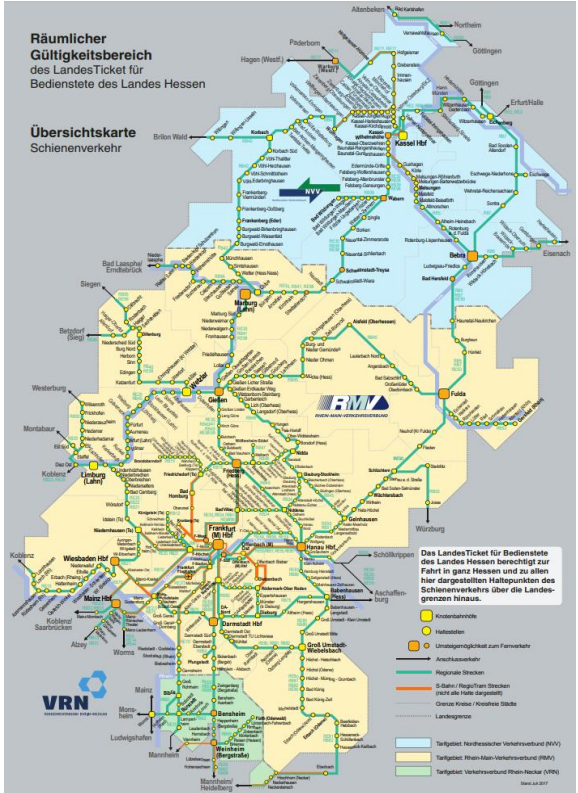
- ~30,000 t CO₂ reduction per year⁽¹⁾

Actual Expenditures 2018-2020

- EUR 162.93m

Reference to the Budget




- 2018-2019: EP 03 Chapter 01 Title 538
- 2020: EP 03 Chapter 01 Title 429



(1) Calculation based on study conducted in 2019, not considering any potential impact resulting from the COVID-19 pandemic.

Case Study – Measures concerning forests: 12-point plan forest („Zukunft Wald“)



ICMA GBP Category	Environmentally sustainable management of living natural resources and land use 	UN SDG	15-Life on land 	EU Taxonomy Environmental Objective	Protection and restoration of biodiversity and ecosystems 
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Description	<ul style="list-style-type: none"> ▪ The 12-point plan promotes the reforestation of Hessian forests and support for the elimination of forest damage caused by storms, drought and forest pests ▪ With the financial aid, 100 million trees will be planted in the next few years to support the development of sustainable forestry
Impact	<ul style="list-style-type: none"> ▪ Amount of EUR 1,001 allocated per hectare of area of state-owned forest
Actual Expenditures 2018-2020	<ul style="list-style-type: none"> ▪ EUR 59.98m
Reference to the Budget	<ul style="list-style-type: none"> ▪ EP 09 Chapter 22 Products 8, 10 ▪ EP 09 Chapter 60 Products 1, 5



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Case Study – CO₂-neutral state administration / energy efficiency of public buildings: CO₂ reduction and energy efficiency programme (COME I)






ICMA GBP Categorie	Green buildings  Energy efficiency 	UN SDG	11-Sustainable cities and communities 	EU Taxonomy Environmental Objective	Climate change mitigation 
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Description	<ul style="list-style-type: none"> First CO₂ reduction and energy efficiency programme (COME I) launched in 2012 with a total volume of EUR 160m to finance energy-efficient refurbishments of buildings of Hesse administration Implementation of refurbishment measures to improve energy efficiency, usage of energy-saving performance contracts and replacement of heat systems. The thresholds for energetic renovation exceeds the statutory requirements
Impact	<ul style="list-style-type: none"> In total, CO₂ reduction of over 240,000 t CO₂ (for a period under considerations of 30 years) Measures financed within the period 2018-2020 contribute to a reduction of 2,591 t CO₂ per year
Actual Expenditures 2018-2020	<ul style="list-style-type: none"> EUR 48.51m
Reference to the Budget	<ul style="list-style-type: none"> EP 06 Chapter 13 Project 1 und Project 2



Case Study – Climate protection plan: Promotion of energy management concepts and participation in the federal programme („energy efficient campus“)



ICMA GBP Category	Energy efficiency 	UN SDG	13-Climate action 	EU Taxonomy Environmental Objective	Climate change mitigation 
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Description	<ul style="list-style-type: none"> Universities and colleges are considered as one of the large energy consumers within building of the public administration The State of Hesse promotes the development of energy management concepts and the participation in the federal programme “energy efficient campus“
Impact	<ul style="list-style-type: none"> 86 funded projects to improve energy efficiency by modernising thermal and electrical energy supply and the integration of subsystems
Actual Expenditures 2018-2020	<ul style="list-style-type: none"> EUR 9.10m
Reference to the Budget	<ul style="list-style-type: none"> EP 15 Chapter 02 Title 685



Case Study – Sustainable (waste) water management:

Renaturation – Implementation of the European Water Policy for the protection of water resources and securing and improvement of water quality






ICMA GBP Category	Sustainable water management 	UN SDG	14-Life below water 	EU Taxonomy Environmental Objective	Sustainable use and protection of water and marine resources 
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Description	<ul style="list-style-type: none"> Measures related to structures of natural waters: Preservation and restoration of natural waters including (river) banks and floodplains (incl. "100 wilde Bäche") Measures target to restore large sections of waters back to natural state, to advance the achievement of good ecological status of flowing waters and to overcome the obstacles faced by municipalities in implementing related measures
Impact	<ul style="list-style-type: none"> Over 110 km natural waters, (river) bank and floodplain treated
Actual Expenditures 2018-2020	<ul style="list-style-type: none"> EUR 34.24m
Reference to the Budget	<ul style="list-style-type: none"> EP 17 Chapter 41 Product 38



Case Study - Organic farming and nature conservation: HALM: Multiple cropping






ICMA GBP Category	Environmentally sustainable management of living natural resources and land use 	UN SDG	15-Life on land 	EU Taxonomy Environmental Objective	Protection and restoration of biodiversity and ecosystems 
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Description	<ul style="list-style-type: none"> Main objective is the cultivation of five or more different types of crops in each year. At least 10 % of the arable land must be cultivated with legumes A diverse crop rotation leads to reduced usage of plant protection products and fertilisers The nitrogen fixation performed by legumes promotes the humification, which subsequently acts as natural carbon sink binding carbon emissions
Impact	<ul style="list-style-type: none"> 145,104 hectares of arable land with multiple cropping (area committed) in the period 2018-2020
Actual Expenditures 2018-2020	<ul style="list-style-type: none"> EUR 16.41m
Reference to the Budget	<ul style="list-style-type: none"> EP 09 Chapter 23 Product 23



Case Study - Further climate and environmental protection measures: Promotional program „Energy Efficiency in rental housing“



ICMA GBP Category	Green buildings 	UN SDG	11-Sustainable cities and municipalities 	EU Taxonomy Environmental Objective	Climate change mitigation 
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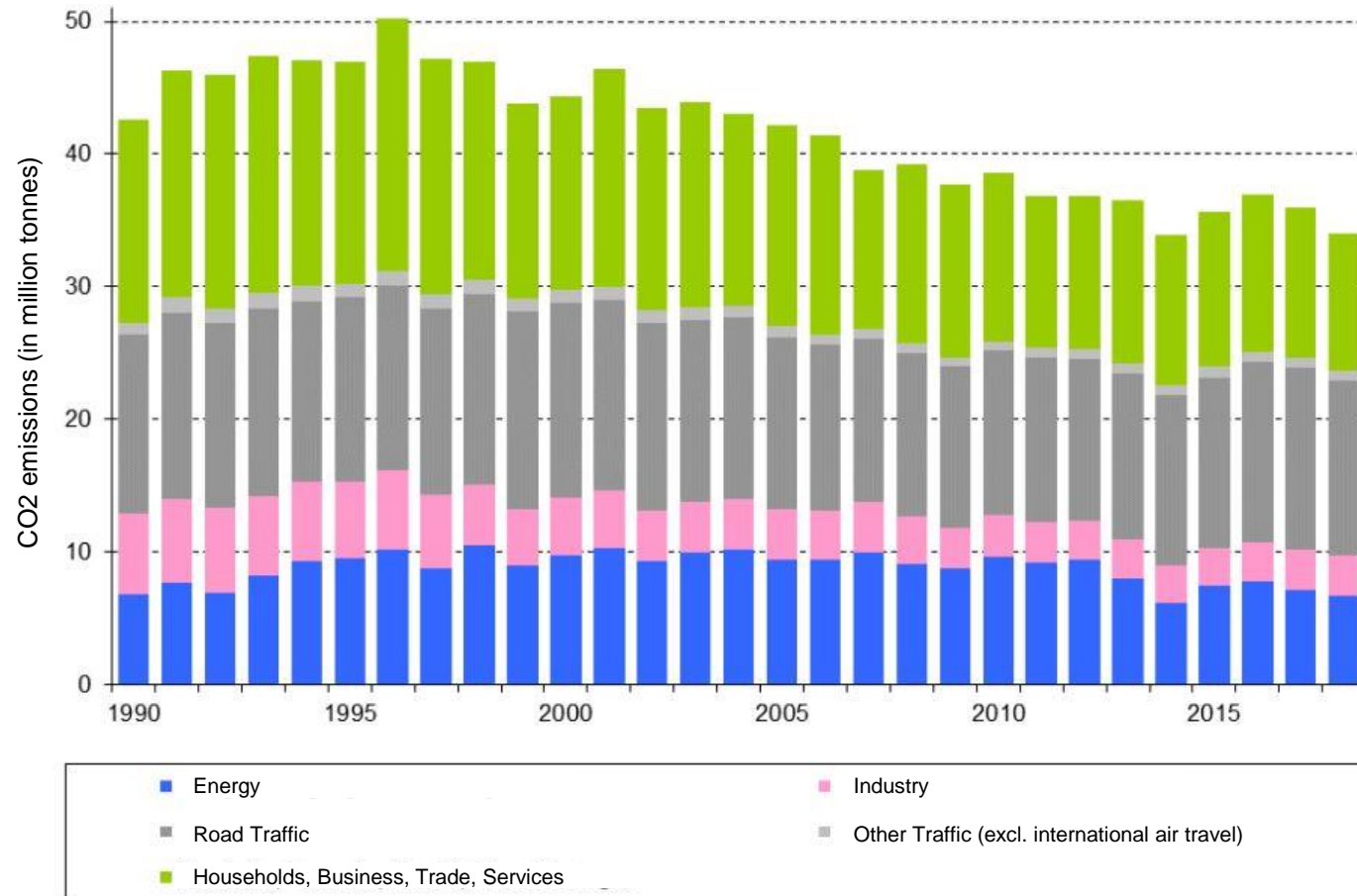
Description	<ul style="list-style-type: none"> ▪ The support programme aims to provide additional incentive to make investments for energy-efficient refurbishment in rental housing. ▪ Promotion of investment projects (energy-efficient modernisation and new construction) for rented housing, using eligibility criteria defined by support programmes offered by KfW (“Energy-efficient Refurbishment” and “Energy-efficient Construction”)
Impact	<ul style="list-style-type: none"> ▪ 3,579 refurbishments of housing units subsidized within the period 2018-2020
Actual Expenditures 2018-2020	<ul style="list-style-type: none"> ▪ EUR 8.50m
Reference to the Budget	<ul style="list-style-type: none"> ▪ EP 07 Chapter 5 Title 25





APPENDIX




Development of energie-related-CO2-emissions by industry group in Hesse from 1990 to 2018



Source: Statistical Office of The Federal State of Hessen; UGRdL; Calculations of the Hessian Statistical Office; preliminary values for 2018

State of Hesse's inaugural Green Bond – Project #1




Eco-friendly public transport

Project	Mapping	Expected Impact
<p>Description Introduction of a job ticket (Hessen-Ticket) for all employees of the state</p>	<p>ICMA GBP Category Clean transportation</p> 	<p>Quantitative Measure Reduction of ~30,000 t CO₂ per year⁽¹⁾</p>
<p>Expenditures in €m 2018: 54.40 2019: 56.23 2020: 52.30</p>	<p>UN SDG Climate action</p> 	
<p>Reference to the budget In 2018-2019: EP 03 Chapter 01 Title 538 In 2020: EP 03 Chapter 01 Title 429</p>	<p>EU Environmental Objective Climate change mitigation</p> 	

(1) Calculation based on study conducted in 2019, not considering any potential impact resulting from the COVID-19 pandemic.




State of Hesse's inaugural Green Bond – Project #2

Eco-friendly public transport

Project	Mapping	Expected Impact
<p>Description Ticket for all students in Hessen to use public transport</p>	<p>ICMA GBP Category Clean transportation</p> 	<p>Quantitative Measure Tickets per year 2018: 400,000 2019: 425,000 2020: 414,000</p>
<p>Expenditures in €m 2018: 20.00 2019: 20.00 2020: 20.00</p>	<p>UN SDG Climate action</p> 	
<p>Reference to the budget EP 07 Chapter 15 Title 69</p>	<p>EU Environmental Objective Climate change mitigation</p> 	





State of Hesse's inaugural Green Bond – Project #3

Measures concerning forests

Project	Mapping	Expected Impact
<p>Description Afforestation and preservation of the Hessian forests</p>	<p>ICMA GBP Category Environmentally sustainable management of living natural resources and land use</p> 	<p>Quantitative Measure Amount allocated in EUR per hectares of the state-owned forest</p> <p>2019: 148.00 2020: 853.00</p>
<p>Expenditures in €m 2019: 23.95 2020: 36.03</p>	<p>UN SDG Life on Land</p> 	
<p>Reference to the budget EP 09 Chapter 22 Products 8, 10 EP 09 Chapter 60 Products 1, 5</p>	<p>EU Environmental Objective Protection and restoration of biodiversity and ecosystems</p> 	




State of Hesse's inaugural Green Bond – Project #4

CO₂-neutral state administration / energy efficiency of public buildings

Project	Mapping	Expected Impact
<p>Description Energetic renovation of buildings of Hesse administration</p>	<p>ICMA GBP Category</p> <ul style="list-style-type: none"> - Green buildings - Energy efficiency  	<p>Quantitative Measure Reduction of CO₂ [t] per year</p> <p>2018: 1,382.42 2019: 696.02 2020: 512.80</p>
<p>Expenditures in €m 2018: 25.88 2019: 13.03 2020: 9.60</p>	<p>UN SDG Sustainable cities and communities</p> 	
<p>Reference to the budget EP 06 Chapter 13 Project 1 and Project 2</p>	<p>EU Environmental Objective Climate change mitigation</p> 	




State of Hesse's inaugural Green Bond – Project #5

Eco-friendly public transport

Project	Mapping	Expected Impact
Description Funding of measures according to the “Mobilitätsfördergesetz“ in the area of public transport	ICMA GBP Category Clean transportation 	Quantitative Measure Number of funded measures per year 2020: 76
Expenditures in €m 2020: 45.25	UN SDG Climate action 	
Reference to the budget EP 07 Chapter 15 Product 68	EU Environmental Objective Climate change mitigation 	




State of Hesse's inaugural Green Bond – Project #6

Measures concerning forests

Project	Mapping	Expected Impact
<p>Description Conservation of biodiversity and development of biotopes, environmental protection and recreational function of state-owned forest</p>	<p>ICMA GBP Category Environmentally sustainable management of living natural resources and land use</p> 	<p>Quantitative Measure Amount allocated in EUR per hectares of the state-owned forest</p> <p>2018: 35.85 2019: 36.54 2020: 43.04</p>
<p>Expenditures in €m 2018: 12.13 2019: 12.37 2020: 14.57</p>	<p>UN SDG Life on land</p> 	
<p>Reference to the budget EP 09 Chapter 60 Product 2</p>	<p>EU Environmental Objective Protection and restoration of biodiversity and ecosystems</p> 	




State of Hesse's inaugural Green Bond – Project #7

Sustainable (waste) water management

Project	Mapping	Expected Impact
<p>Description Measures for the conservation and restoration of natural waters</p>	<p>ICMA GBP Category Sustainable water management</p> 	<p>Quantitative Measure Development of waters, (river) bank and floodplain in km</p> <p>2018: 43.92 2019: 33.08 2020: 35.58</p>
<p>Expenditures in €m 2018: 11.39 2019: 10.30 2020: 12.55</p>	<p>UN SDG Life below water</p> 	
<p>Reference to the budget EP 17 Chapter 41 Product 38</p>	<p>EU Environmental Objective Sustainable use and protection of water and marine resources</p> 	




State of Hesse's inaugural Green Bond – Project #8

Measures concerning forests

Project	Mapping	Expected Impact
<p>Description Forest protection measures that serve to maintain state-owned forest and to avert danger</p>	<p>ICMA GBP Category environmentally sustainable management of living natural resources and land use</p> 	<p>Quantitative Measure Amount allocated in EUR per hectares of the state-owned forest 2018: 61.16 2019: 29.54</p>
<p>Expenditures in €m 2018: 20,70 2019: 10,00</p>	<p>UN SDG Life on Land</p> 	
<p>Reference to the budget EP 09 Chapter 60 Product 01</p>	<p>EU Environmental Objective Protection and restoration of biodiversity and ecosystems</p> 	




State of Hesse's inaugural Green Bond– Project #9

Eco-friendly public transport

Project	Mapping	Expected Impact
<p>Description Infrastructure expansion for pedestrians and cyclists (private transport) („Nahmobilitätsstrategie für Hessen“)</p>	<p>ICMA GBP Category Clean transportation</p> 	<p>Quantitative Measure Number of funded measures per year 2018: 38 2019: 28 2020: 30</p>
<p>Expenditures in €m 2018: 6.89 2019: 6.88 2020: 8.75</p>	<p>UN SDG Sustainable cities and communities</p> 	
<p>Reference to the budget EP 07 Chapter 15 Title 68</p>	<p>EU Environmental Objective Climate change mitigation</p> 	




State of Hesse's inaugural Green Bond – Project #10

CO₂-neutral state administration / energy efficiency of public buildings

Project	Mapping	Expected Impact
<p>Description Increase in energy efficiency and use of renewable energies / energetic renovation of municipal buildings</p>	<p>ICMA GBP Category</p> <ul style="list-style-type: none"> - Renewable energy - Energy efficiency - Green buildings 	<p>Quantitative Measure Number of funded measures per year 2018: 23 2019: 32 2020: 31</p>
<p>Expenditures in €m 2018: 5.66 2019: 5.15 2020: 8.07</p>	<p>UN SDG Sustainable cities and communities</p> 	
<p>Reference to the budget EP 17 Chapter 30 Title 50</p>	<p>EU Environmental Objective Climate change mitigation</p> 	





State of Hesse's inaugural Green Bond – Project #11

Measures concerning forests

Project	Mapping	Expected Impact
<p>Description Nature conservation and landscape management national park Kellerwald-Edersee</p>	<p>ICMA GBP Category Environmentally sustainable management of living natural resources and land use</p> 	<p>Quantitative Measure Amount allocated in EUR per hectares of the national park 2018: 1,103.64 2019: 1,083.21 2020: 1,314.49</p>
<p>Expenditures in €m 2018: 6.33 2019: 6.22 2020: 7.55</p>	<p>UN SDG Life on Land</p> 	
<p>Reference to the budget EP 09 Chapter 60 Product 03</p>	<p>EU Environmental Objective Protection and restoration of biodiversity and ecosystems</p> 	




State of Hesse's inaugural Green Bond – Project #12

CO₂-neutral state administration / energy efficiency of public buildings

Project	Mapping	Expected Impact
<p>Description Energy efficiency building standards for new construction and renovation of state-owned buildings</p>	<p>ICMA GBP Category</p> <ul style="list-style-type: none"> - Green buildings - Energy efficiency  	<p>Quantitative Measure Reduction of CO₂ [t] per year</p> <p>2018: 570.00 2019: 651.59 2020: 610.62</p>
<p>Expenditures in €m 2018: 5.50 2019: 6.28 2020: 5.89</p>	<p>UN SDG Sustainable cities and communities</p> 	
<p>Reference to the budget EP 18 Chapter 01</p>	<p>EU Environmental Objective Climate change mitigation</p> 	




State of Hesse's inaugural Green Bond – Project #13

Organic farming and nature conservation

Project	Mapping	Expected Impact
<p>Description Multiple cropping with diverse cultures, soil and water protection, support of domestic legume cultivation</p>	<p>ICMA GBP Category Environmentally sustainable management of living natural resources and land use</p> 	<p>Quantitative Measure Arable land with multiple cropping in hectares (area committed)</p> <p>2018: 30,457.47 2019: 30,397.37 2020: 84,249.00</p>
<p>Expenditures in €m 2018: 0.27 2019: 8.07 2020: 8.07</p>	<p>UN SDG Life on Land</p> 	
<p>Reference to the budget EP 09 Chapter 23 Product 23</p>	<p>EU Environmental Objective Protection and restoration of biodiversity and ecosystems</p> 	




State of Hesse's inaugural Green Bond – Project #14

Climate protection plan

Project	Mapping	Expected Impact
<p>Description State Energy Agency, advisory, education, public relations related to energy efficiency, renewable energy and climate protection</p>	<p>ICMA GBP Category</p> <ul style="list-style-type: none"> - Renewable energy - Energy efficiency 	<p>Quantitative Measure Number of consultations / measures per year 2020: 1,855</p>
<p>Expenditures in €m 2020: 11.03</p>	<p>UN SDG Affordable and clean energy</p> 	
<p>Reference to the budget EP 07 Chapter 5 Title 5</p>	<p>EU Environmental Objective Climate change mitigation</p> 	




State of Hesse's inaugural Green Bond – Project #15

Sustainable (waste) water management

Project	Mapping	Expected Impact
<p>Description Municipal water and flood prevention and protection of natural resources</p>	<p>ICMA GBP Category Climate change adaptation</p> 	<p>Quantitative Measure Number of approved plans / projects per year 2018: 20 2019: 18 2020: 13</p>
<p>Expenditures in €m 2018: 11.38 2019: 2.26 2020: 1.51</p>	<p>UN SDG Climate Action</p> 	
<p>Reference to the budget EP 17 Chapter 41 Product 38</p>	<p>EU Environmental Objective Climate change adaptation</p> 	




State of Hesse's inaugural Green Bond – Project #16

Organic farming and nature conservation

Project	Mapping	Expected Impact
<p>Description Extensification of grassland, promotion of extensive management of permanent grassland areas</p>	<p>ICMA GBP Category Environmentally sustainable management of living natural resources and land use</p> 	<p>Quantitative Measure Extensive grassland cultivation in hectares 2018: 58,753.63 2019: 60,160.22 2020: 59,770.00</p>
<p>Expenditures in €m 2018: 4.47 2019: 4.54 2020: 4.45</p>	<p>UN SDG Climate Action</p> 	
<p>Reference to the budget EP 09 Chapter 23 Product 23f</p>	<p>EU Environmental Objective Protection and restoration of biodiversity and ecosystems</p> 	




State of Hesse's inaugural Green Bond – Project #17

Organic farming and nature conservation

Project	Mapping	Expected Impact
<p>Description Education, advisory and technical information on agriculture and horticulture related to climate protection</p>	<p>ICMA GBP Category Environmentally sustainable management of living natural resources and land use</p> 	<p>Quantitative Measure Number of client engagements per year 2018: 272,986 2019: 353,363 2020: 143,996</p>
<p>Expenditures in €m 2018: 3.44 2019: 3.87 2020: 3.66</p>	<p>UN SDG Climate action</p> 	
<p>Reference to the budget EP 09 Chapter 31 Products 1-3</p>	<p>EU Environmental Objective Protection and restoration of biodiversity and ecosystems</p> 	




State of Hesse's inaugural Green Bond – Project #18

Eco-friendly public transport

Project	Mapping	Expected Impact
<p>Description Infrastructure expansion for pedestrians and cyclists (private transport) („Nahmobilitätsstrategie für Hessen“)</p>	<p>ICMA GBP Category Clean transportation</p> 	<p>Quantitative Measure Number of funded measures per year 2018: 59 2019: 75 2020: 75</p>
<p>Expenditures in €m 2018: 0.82 2019: 3.92 2020: 5.87</p>	<p>UN SDG Sustainable cities and communities</p> 	
<p>Reference to the budget EP 17 Chapter 30 Title 51</p>	<p>EU Environmental Objective Climate change mitigation</p> 	




State of Hesse's inaugural Green Bond – Project #19

Further climate and environmental protection measures

Project	Mapping	Expected Impact
<p>Description Energy efficiency in rental housing, promotion of energetic refurbishment and new construction of rental housing</p>	<p>ICMA GBP Category Green buildings</p> 	<p>Quantitative Measure Subsidized housing units per year</p> <p>2018: 1,056 2019: 1,434 2020: 1,089</p>
<p>Expenditures in €m 2018: 5.00 2019: 3.00 2020: 0.50</p>	<p>UN SDG Sustainable cities and communities</p> 	
<p>Reference to the budget EP 07 Chapter 5 Title 25</p>	<p>EU Environmental Objective Climate change mitigation</p> 	

State of Hesse's inaugural Green Bond – Project #20

Climate protection plan

Project	Mapping	Expected Impact
<p>Description Promotion of university energy management concepts and participation in the federal program („energy efficient campus“)</p>	<p>ICMA GBP Category Energy efficiency</p> 	<p>Quantitative Measure Number of funded projects per year 2018: 40 2019: 23 2020: 23</p>
<p>Expenditures in €m 2018: 3.40 2019: 2.90 2020: 2.80</p>	<p>UN SDG Climate Action</p> 	
<p>Reference to the budget EP 15 Chapter 02 Title 685</p>	<p>EU Environmental Objective Climate change mitigation</p> 	

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More information are available at <https://www.hessen.de/>, regarding the Green Bond at <https://finanzen.hessen.de/> and in Reuters using RIC HESSEN and in Bloomberg using HESSEN or RESP LAEN.

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