Providing for the Future

Act Today.
Together for Sustainable Development in North Rhine-Westphalia.

Sustainability Bond #4 State of North Rhine-Westphalia
NRW Sustainability Strategy
Implementing the 2030 Agenda at the regional level

- Sustainable Development is a central guiding principle for the State of NRW.
- Sustainable development means integrated environmental, social and economic development. The concept is closely related to the principles of prevention and inclusion.
- The NRW Sustainability Strategy has been approved by the State Government in 2016. The Strategy is meant to implement the global Sustainable Development Goals (SDGs) at the State level. It also serves as the political reference for the bond.
# 2030 Agenda for Sustainable Development

## Sustainable Development Goals (SDG)

<table>
<thead>
<tr>
<th>No.</th>
<th>Goal</th>
<th>Image</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No Poverty</td>
<td><img src="image" alt="Family" /></td>
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<td>2</td>
<td>Zero Hunger</td>
<td><img src="image" alt="Bowl" /></td>
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<td>3</td>
<td>Good Health and Well-being</td>
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<td>4</td>
<td>Quality Education</td>
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<td>5</td>
<td>Gender Equality</td>
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<td>6</td>
<td>Clean Water and Sanitation</td>
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<td>7</td>
<td>Affordable and Clean Energy</td>
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<td>8</td>
<td>Decent Work and Economic Growth</td>
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</tr>
<tr>
<td>9</td>
<td>Industry, Innovation and Infrastructure</td>
<td><img src="image" alt="Building" /></td>
</tr>
<tr>
<td>10</td>
<td>Reduced Inequalities</td>
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<tr>
<td>11</td>
<td>Sustainable Cities and Communities</td>
<td><img src="image" alt="City" /></td>
</tr>
<tr>
<td>12</td>
<td>Responsible Consumption and Production</td>
<td><img src="image" alt="Infinity" /></td>
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<tr>
<td>13</td>
<td>Climate Action</td>
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<tr>
<td>14</td>
<td>Life Below Water</td>
<td><img src="image" alt="Fish" /></td>
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<tr>
<td>15</td>
<td>Life on Land</td>
<td><img src="image" alt="Tree and Sun" /></td>
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<tr>
<td>16</td>
<td>Peace, Justice and Strong Institutions</td>
<td><img src="image" alt="Peace Dove" /></td>
</tr>
<tr>
<td>17</td>
<td>Partnerships for the Goals</td>
<td><img src="image" alt="Flower" /></td>
</tr>
</tbody>
</table>

Sustainable Development in North Rhine-Westphalia
Fields of Action and Focal Areas

- Climate protection and energy transition
- Sustainable business management
- Protection of natural resources: biodiversity, woodland, water, land/soil, air and environment & health
- Demographic change
- Social cohesion and participation
- Decent work – fair labour
- Integration
- Sustainable fiscal policy
- Sustainable development of urban areas and neighbourhoods
- Sustainable mobility

- Sustainable consumption / Sustainable lifestyles
- Land cultivation
- Health
- One-world policy and European and international dimension
- Gender equality
- Universal accessibility and inclusion
- Sustainability in the municipalities (local agenda)
- Civic commitment/participation
- Education and science
Use of Proceeds of Sustainability Bonds NRW

Project categories relate to 10 out of 17 SDG

A. Education and Sustainability Research
B. Inclusion and Social Coherence
C. Public Transport and Local Mobility
D. Climate Protection and Energy Transition
E. Protection of Natural Resources
F. Sustainable Urban Development
G. Modernisation of Educational and Public Health Facilities
Green Bond and Social Bond Principles
ICMA, June 2, 2017

1. Use of Proceeds
2. Process for Project Evaluation and Selection
3. Management of Proceeds
4. Reporting
Sustainability Quality of the Bond
Verification and Evaluation

Framework
• Use of proceeds categories offering added social or environmental value
• Sustainability criteria for each project category

Second Party Opinion
• Evaluation of sustainability performance of financed projects
• Verification of alignment with Green Bond / Social Bond Principles

Impact Assessment
• Annual reporting, prepared by Wuppertal Institut gGmbH
• Focus on avoided greenhouse gas emissions of selected projects
• Extension of analysis to social and education projects under way

Wuppertal Institut

oekom research
Process for Project Selection and Evaluation
Comprehensive Pre-Issuance Disclosure

- Projects are selected in accordance with the categories and criteria set out in the "Sustainability Bond Framework", based on ICMA Green/Social Bond Principles and Sustainability Bond Guidelines.

- The sustainability performance of all projects has been verified by oekom research. Second Party Opinion (of February 15, 2018) and Sustainability Bond Framework are available at www.sustainability-bond.nrw.de.

- All projects are part of the State's discretionary spending of the fiscal year 2017 and can be traced to the NRW 2017 Budget (Haushaltsplan 2017). Only the State's own expenditures (net of EU grants, federal grants or other revenues earmarked for specific purposes) are taken into account. The State's personnel costs as well as projects prescribed by federal law are excluded.

- Full allocation of net proceeds is disclosed pre-issuance. A detailed list of projects is available at www.sustainability-bond.nrw.de.
Management of Proceeds
Funding the public sector

• An amount equivalent to the net issue proceeds of the State Treasury Notes will be used to cover expenditures of the fiscal year 2017 and will thereby substitute money market positions.

• The fiscal year 2017 closes on or about the end of the first quarter 2018.

Budget

2017

Bond

2018
Impact reporting is published on a regular basis. The focus is on avoided greenhouse gas emissions and on the results of some of the social and educational projects. The second report, prepared by Wuppertal Institut für Klima, Umwelt, Energie gGmbH, will be available in early March 2018.

Progress in the implementation of the State's Sustainability Strategy will be measured against 60 specific indicators which relate to the 19 fields of action and to the 17 SDG. The development of the indicators will be reported every two years. The first Sustainability Indicator Report was published in 2016. Additional results are published on a dedicated website with regular update (www.nachhaltigkeitsindikatoren.nrw.de/sdgs).

The recommendations of the EU Action Plan on sustainable finance due to be published in March 2018 will be taken into consideration for upcoming issuances.
## Sustainability Bond # 4 NRW
### Allocation of proceeds

<table>
<thead>
<tr>
<th>Project Category</th>
<th>Budget Result [EUR m]</th>
<th>Eligible for Bond [EUR m]</th>
<th>Use of Proceeds</th>
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<td></td>
<td></td>
<td></td>
<td>&quot;social&quot;</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&quot;green&quot;</td>
</tr>
<tr>
<td>A. Education and Sustainability Research</td>
<td>856.3</td>
<td>856.3</td>
<td>856.3</td>
</tr>
<tr>
<td>B. Inclusion and Social Coherence</td>
<td>188.3</td>
<td>188.3</td>
<td>188.3</td>
</tr>
<tr>
<td>C. Public Transport and Local Mobility</td>
<td>190.2</td>
<td>190.2</td>
<td>40.0</td>
</tr>
<tr>
<td>D. Climate Protection and Energy Transition</td>
<td>35.7</td>
<td>35.7</td>
<td>35.7</td>
</tr>
<tr>
<td>E. Protection of Natural Resources</td>
<td>90.4</td>
<td>81.4</td>
<td>81.4</td>
</tr>
<tr>
<td>F. Sustainable Urban Development</td>
<td>254.1</td>
<td>254.1</td>
<td>127.1</td>
</tr>
<tr>
<td>G. Modernisation of educational and public health buildings</td>
<td>420.8</td>
<td>420.8</td>
<td>420.8</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>2,035.9</strong></td>
<td><strong>2,026.9</strong></td>
<td><strong>1,211.7</strong></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td><strong>815.2</strong></td>
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</table>

**Proportions**

- 100%
- 60%
- 40%
A. Education and Sustainability Research EUR 856.3m

Category A comprises projects financing the enlargement and improvement of universities and the creation of additional training facilities at public universities, universities of applied science and professional schools. Additionally, consumer protection measures as well as foundational research are funded.

- Enlargement of Universities 769.8m
- Support for Best in Class Universities 23.5m
- Innovation and Sustainable Development 47.7m
- Consumer Protection 15.5m
Growing Demand for Education
Bund-Länder Covenant for the Expansion of Universities

Expansion of Master's Degrees Programmes
B. Inclusion and Social Coherence EUR 188.3m

Activities grouped into Category B support the inclusion of immigrants and people with disabilities. Additionally, projects addressing early childhood development and successful school careers are funded.

- Inclusion, Integration and Qualification 83.3m
- Language Skills in Early Childhood Education, Support and Advice for Families 58.1m
- School Social Work 47.0m
Working towards an Inclusive Society
Prevention of Unemployment and Homelessness

Initiative Life Without Poverty and Exclusion
Projects in Category C include subsidised public transport for pupils, students and low-income citizens. Other projects strive to improve the infrastructure for cyclists and pedestrians, particularly on short-haul routes (local mobility).

- Public Transportation for Low-Income Citizens 40.0m
- Public Transportation for Pupils and Students 130.0m
- Transportation Infrastructure for Cyclists and Pedestrians 20.2m
Local Mobility in North Rhine-Westphalia
Optimal Modal Split

Action Plan Local Mobility
D. Climate Protection and Energy Transition EUR 35.7m

Projects in category D support research and development related to climate protection and energy transition, including funding for the State's Efficiency Agency (EFA), which gives advice to municipalities and companies on how to enhance their resource efficiency and energy efficiency.

- Climate Protection and Renewable Energies 30.5m
- Resource Efficiency 5.2m
From Grey to Blue Skies
Climate Protection in an Industrial State

Action Plan Climate Protection NRW
Projects in category E fund either measures to avoid loss of biodiversity and to increase population of endangered species or provide financial support for flood protection projects and the restoration of the original state of watercourses.

- Protection of Nature, Landscape and Biodiversity: 34.8m
- Flood Protection and River Restoration: 24.6m
- Responsible Agriculture and Rural Development: 21.9m
Protecting Endangered Species
Wildlife in an Industrial State

Biodiversity Strategy NRW
Projects in Category F focus on urban and rural areas with significant structural difficulties such as a shrinking population and a stagnating economy. The State also sponsors the development of a fibre optic-based telecommunications infrastructure.

- Urban Reconstruction in the West 43.4m
- Social City 36.3m
- Geriatric Care and Demographic Change 11.9m
- Broadband Expansion 162.5m
Living with an Industrial Heritage
Urban Development in North Rhine-Westphalia

Urban Reconstruction
## G. Modernisation of Educational and Public Health Facilities EUR 420.8m

Category G encompasses projects to modernise educational and public health facilities. A focus is on the modernisation and extension of university medical clinics. Additional funds are targeted at the modernisation of general university buildings.

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modernisation of University Buildings</td>
<td></td>
<td>67.0m</td>
</tr>
<tr>
<td>Modernisation of University Medical Clinics</td>
<td></td>
<td>353.8m</td>
</tr>
</tbody>
</table>
Caring for Society
Modernisation of University Medical Clinics

Masterplan University Medical Clinic Münster 2025
Overall evaluation of Sustainability Bond #4

- The State of NRW has defined a formal concept for its Sustainability Bond regarding use of proceeds, processes for project evaluation and selection, management of proceeds and reporting. This concept is in line with the Green and Social Bond Principles.

- The overall sustainability quality of the eligible projects in terms of sustainability benefits and risk avoidance and minimisation is good.

- The country, which the issuer forms part of, shows a good sustainability performance.

Further Recommendations

- Quantitative targets or requirements concerning energy efficiency improvements for projects in categories F and G.

- Comprehensive environmental standards for projects in categories C, F and G.
Bund and Länder

Cooperative Federalism

Federal System
Germany is a Federal Republic, with two concurrent levels of government: Federation ("Bund") and States ("Länder").

Responsibilities of the Länder
The Länder have their own legislative, judicial and executive powers. They are independent with regard to their budgets and play an active role in the federal legislative process.

Zero Borrowing Rule ("Debt Brake")
The German Constitution sets out that the Länder must eliminate structural budget deficits by 2020. Since 2016, the Bund must limit structural budget deficits to 0.35% of GDP.

Federal Equalisation System
Federal law provides that tax revenues must be shared between Bund and Länder in an equitable fashion in order to provide equal standards of living throughout the country.

Allegiance to the Federation ("Bundestreue")
Bund and Länder are under an obligation to share the administrative tasks and provide mutual assistance, including financial assistance in cases of extreme budgetary hardship.
Länder budgets reflect their responsibilities for education, law enforcement and infrastructure. The federal budget is dominated by expenditures for social security – health, unemployment and retirement insurance.
One of the Top 20 Economies worldwide
GDP 2016 [EUR bn]

*USA, China, Japan, United Kingdom, India, Italy

Sources: IMF April 2017, Statistical Office NRW
# State of North Rhine-Westphalia

Largest German State in Terms of Population and GDP

<table>
<thead>
<tr>
<th>NRW 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Area</strong></td>
</tr>
<tr>
<td><strong>Population</strong></td>
</tr>
<tr>
<td><strong>Unemployment Rate</strong></td>
</tr>
<tr>
<td><strong>GDP</strong></td>
</tr>
<tr>
<td><strong>GDP per capita</strong></td>
</tr>
<tr>
<td><strong>Real Growth</strong></td>
</tr>
</tbody>
</table>

18 of the largest 50 German companies are headquartered in NRW. The regional economy has a focus on technology and services, media and health care. It features more than 750,000 small and medium-sized companies.
Taxation in Germany is based on federal law. Administration is carried out by the States through their regional tax offices.

Revenues from Value Added Tax, Income Tax and Corporate Tax (together, joint taxes) are split between Bund, Länder and municipalities (e.g. Income Tax: Bund 42.5%, Länder 42.5%, municipalities 15%).

Bund, Länder and municipalities also have exclusive revenue claims in specific areas (e.g. Bund: energy tax, Länder: inheritance tax, municipalities: commercial tax).
As a starting point, tax revenues accrue to the Länder who collect them (local revenue). VAT revenues are distributed on a per capita basis.

Before horizontal equalisation, relative financial capacity of the states ranges from 54.5% to 150.4% of average (2016).

After horizontal equalisation, relative financial capacity ranges from 90.8% to 106.7% of average (in 2016).
Federal Equalisation System
2016 - Equalisation via Value Added Tax [EUR bn]
Federal Equalisation System
2016 - Inter-State Equalisation [EUR bn]
Federal Equalisation System

2016 - Aggregation of horizontal equalisation [EUR bn]
In addition to horizontal equalisation, federal grants provide additional financial support to create a level playing field among all States.

States with a financial capacity of less than 99.5% of average after horizontal equalisation are entitled to supplementary federal grants. Relative financial capacity of all States falls within a range of 97.5% to 106.7% of average afterwards.

Special purpose federal grants are not related to financial capacity and will be phased out by 2020.
Reform of the Federal Equalisation System
Estimated effects on 2020 budgets


Keeping with the constitutional goal of equal standards of living, the system maintains a high level of equalisation, but the technical approach is different.

Under the new rules, horizontal and vertical equalisation (see page 9) will be substituted by a restatement of revenues according to the relative financial strengths of Länder and their respective municipalities on a per capita basis.

Due to additional federal grants of around 10.2bn, all States stand to benefit (see chart). Bremen and Saarland will receive extraordinary financial support of EUR 400m each (included in figures shown).
Strong Budgetary Performance
Results and Medium Term Planning* [EUR bn]

Budget Size 2018   EUR  74.5bn
Capital Markets Debt 31.12.2017  EUR  139.2bn

* without provisions for the restructuring of WestLB / Portigon and related liability risks
Providing for the Future
Pension Fund NRW

With a growing number of retired civil servants, pension expenditures will continue to rise. A pension fund has been set up to mitigate the fiscal impact. As of 31 December 2017, the Fund had a size of around EUR 12.0bn.

Pension expenditures of the State of NRW (forecast IT.NRW, in K€)
Debt Portfolio
Focus on duration

Debt Outstanding 31.12.2017 139.2bn
Weighted Average Maturity 8.1 years
Median Maturity (fixed/floating) 5.3y/2.8y

Funding Programme 2018 16-18bn
Funded (as of January 31, 2018) 1.1bn
**Debt Issuance Programme**

Active in 18 different currencies

DIP issuances (since October 2002)
- 491 trades
- EUR (equivalent) 71.7bn raised

Debt outstanding (as of 31.12.2017)
- EUR (equivalent) 38.0bn with DIP documentation, including all foreign currency transactions (EUR equivalent 14.7bn)
- EUR 101.2bn with stand alone documentation (thereof certificates of indebtedness: EUR 38.0bn)

Others: GBP, CAD, NOK, AUD, TRL, HUF, MXN, SEK, PLN, ZAR, ISK, HKD, BRL, NZD
## Recent Benchmark Issues

**USD**

<table>
<thead>
<tr>
<th>Emittent</th>
<th>Land Nordrhein-Westfalen</th>
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<tbody>
<tr>
<td>Issue Rating</td>
<td>Aa1 by Moody’s, AA- by S&amp;P, AAA by Fitch, all stable outlook</td>
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<tr>
<td>Issue Size</td>
<td>USD 1.5bn (equivalent EUR 1.29bn)</td>
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<td>Status and Format</td>
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<td>Settlement Date</td>
<td>25 July 2017</td>
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<tr>
<td>Coupon</td>
<td>1.625% annually, 30/360</td>
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<tr>
<td>Reoffer Spread</td>
<td>+30 bps vs. US Treasury</td>
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<td>ISIN</td>
<td>XS1650842336</td>
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<tr>
<td>Lead Managers</td>
<td>Daiwa, HSBC, Scotia Bank, Société Générale</td>
</tr>
</tbody>
</table>

### Geographical Distribution

- Asia: 46%
- Americas: 30%
- EMEA: 24%

### Investor Distribution

- Central Banks: 62%
- Banks: 32%
- Official Institutions: 5%
- Asset Managers: 1%
Recent Benchmark Issues

EUR

<table>
<thead>
<tr>
<th>Emittent</th>
<th>Land Nordrhein-Westfalen</th>
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<tbody>
<tr>
<td>Issue Rating</td>
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<tr>
<td>Lead Managers</td>
<td>Barclays, Deka Bank, Deutsche Bank, DZ, Nord LB</td>
</tr>
</tbody>
</table>

Geographical Distribution
- Germany: 45%
- UK: 13%
- Asia: 10%
- Austrias/Suisse: 8%
- Scandics: 8%
- Benelux: 7%
- other Europe: 10%

Investor Distribution
- Banks: 60%
- Asset Manager: 16%
- Insurances: 4%
- Others: 4%
Recent Benchmark Issues
Sustainability Bond #3

<table>
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<tr>
<td>Lead Managers</td>
<td>Bank of America, Citigroup, Crédit Agricole, J.P. Morgan, SEB</td>
</tr>
</tbody>
</table>

Geographical Distribution

- Germany: 37%
- France: 25%
- UK: 60%
- Austria/Suisse: 11%
- BeNeLux: 3%
- Middle East/Asia: 1%

Investor Distribution

- Banks: 25%
- Asset Manager: 25%
- Central Banks: 3%
- Insurances/Funds: 11%
- Corporate: 3%
Stability During the Crisis
Swap Spreads of European Sovereigns vs. German Federal States

Source: iBoxx indices + Commerzbank Research calculation, based on iBoxx data
State of North Rhine-Westphalia

Key Investment Considerations

- Part of a well-positioned and strong economy
- Effective fiscal framework
- In 2016, first budgetary surplus since 1973
- Excellent alternative to Bunds
  - comparable credit risk
  - attractive yield pick-up
  - more flexibility in terms of products
- Strong credit ratings
  - Fitch: AAA (stable)
  - Moody's: Aa1 (stable)
  - S & P: AA- (stable)
- Sustainability rating (vigeo Eiris)
  - In the past 4 years NRW reached the highest score of all German Länder
  - Top score "advanced" in 2016
- 0% risk weighting in most countries
- German Federal States issuances qualify as level 1 assets under the EU Commission's Delegate Regulation on the liquidity coverage ratio (LCR)
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