DANMARKS NATIONALBANK

Kingdom of Denmark Green Bond Framework Booklet

The Danish Debt Management Office September 2023



Content

Denmark's climate strategy

Kingdom of Denmark's Green Bond Framework

ſ	
I	—_

Green bond Issuance strategy



Use of proceeds – Case studies



Denmark aspires to become a green frontrunner in global climate action



Denmark is a global leader in climate action

Climate Change Performance Index

1st place Climate Change Performance Index (<u>link</u>) (2023)

- Denmark is the best-performing EU country – Denmark has high ratings in the GHG Emissions, Renewable Energy, and Climate Policy categories
- Change Performance Index (CCPI) is an independent monitoring tool for tracking the climate protection performance of 63 countries and the EU.



1st place Environmental Performance Index (*link*) (2022)

- Denmark is leading on climate change action ...
- ... due to a high-level focus and carefully conceived government policies on the full spectrum of sustainability challenges with particular effort centred on delivering deep decarbonisation.

EARTH·ORG

2nd place Global Sustainability Index (<u>link</u>) (2021)

- With a score of 85 of 100 Denmark is listed in the absolute top
- Global Sustainability Index combines the most respected global indexes on pollution, climate change, policy, energy, oceans and biodiversity.



3rd place UN SDG Index (<u>link</u>) (2023)

 With a score of 86 of 100 Denmark is at the forefront of sustainable development and has successfully implemented numerous UN Sustainable Development Goals (SDGs).

Denmark has set ambitious goals for its own greenhouse gas emissions



International climate commitments

Paris Agreement

Limiting the global temperature rise to **1.5** °C compared to pre-industrial levels

EU Green Deal

Reduction of greenhouse gas emissions by 55% in 2030 compared to 1990 levels





Greenhouse gas emissions have already been reduced by 41 per cent, compared to 1990 levels



Note: The chart covers all greenhouse gas emissions, measured in CO₂ equivalents. The years 2022-2035 are based on a "frozen policy" simulation. Source: Denmark's Climate Status and Outlook 2023, The Danish Energy Agency.



The best mark Denmark can leave on the climate is to enable other countries to transition

Denmark's emissions are invisible on a global scale, amounting to <0.1 per cent...



...yet Denmark can contribute to global abatement by developing green solutions

Global emissions continue growing due to a lack of:

- Marketable renewable energy sources
- Security of supply from weather-dependent renewable energy sources
- Electrification of air, sea and heavy-duty road transportation

DENMARK HAS DEVELOPED A STRATEGY: POWER-TO-X





Denmark's Power-to-X strategy will develop e-fuels from excess solar and wind energy



Note: The simulation is based on the long-term political climate goals for Denmark. Source: Analytical Assumptions for Energinet 2022, The Danish Energy Agency.



Source: Analytical Assumptions for Energinet 2022, The Danish Energy Agency.

Denmark's Global Climate Action Strategy inspires and enables other countries to transition



Increase global climate ambition

...by showing others that a green transition is possible without hampering economic growth



Reduce global greenhouse gas emissions

...by developing green technologies that overcome the obstacles to the transition Strengthen focus on

trengthen focus or adaptation and sustainable development

...by mitigating climate change through fewer greenhouse gas emissions in Denmark and abroad



Shift financial flows from black to green

...by investing into renewable energy infrastructure



Cooperate with the private sector on green solutions

...by financing publicprivate partnerships that develop bankable business models



The transition is supported by a long pipeline of tangible initiatives by the former and current governments



under land and seabed

Kingdom of Denmark's Green Bond Framework

The Kingdom of Denmark's Green Bond Framework is intended to support the government's overarching climate goals



Motivation

The Green Bond Framework financially **supports climate subgoals** within the energy and transport sector...

... promotes the continued development of the green financial markets...

...and adds critical mass with a high-quality *dark green* **and AAA-rated** green bond.

Follows the highest market standards

To support regulation that **enhances transparency**, which is essential for further growth of the green financial markets.

To establish a **best practice framework** which is at the forefront of regulation and can serve as guidance for other issuers in the market.

- ✓ **Dark green rating** of the framework, which is **largely aligned with EU Taxonomy**
- Assessment of EU Taxonomy technical screening criteria alignment, including
 Do No Significant Harm criteria
- Expenditures have a clear link to the government's Budget Act, overseen by the Inter-Ministerial Working Group that ensures a strong governance structure
- ✓ Yearly allocation and impact reporting



Kingdom of Denmark's Green Bond Framework: A transparent framework aligned with best market practices

01

Alignment with the EU Taxonomy

Recognising the importance of a common definition of sustainable economic activities and **enhanced transparency** in the green bond market, eligible green expenditures are evaluated and selected such that they are **largely aligned with the EU Taxonomy** as adopted by the EU Commission in the first delegated act.

Aligned with the Green Bond Principles

02

The framework is **aligned with the Green Bond Principles** published by ICMA, and follows **the four core components:**

- Use of proceeds
- Process for project evaluation and selection
- Management of proceeds
- Reporting

03

Aligned with key elements of the EU Green Bond Standard

The framework has sought to align with key elements of the proposed regulation on a European Green Bond Standard.

This includes the bond-related, reporting and external verification requirements.

13

A framework of the highest standard. Verified by Cicero in a Second Party Opinion

"It is a strength that **Denmark is seeking to align its framework with the EU Taxonomy**. This provides guidance to investors and includes elements of additional screening for projects financed under this framework."

"Denmark has **ambitious climate and environmental targets** and is focusing investments under this framework on its two highest emitting sectors, energy and heat, as well as transport."

"It is a strength that **Denmark excludes financing of intangible expenditures, such as administrative costs**, which will only be included if they are deemed relevant and necessary for the realisation of tangible real assets, such as transportation infrastructure."



Dark Green

The Kingdom of Denmark's Green Bond Framework is **likely aligned** with the applicable Technical Screening Criteria, the minimum social safeguards and most DNSH criteria in the EU Taxonomy.

The Kingdom of Denmark's Green Bond Framework is assessed to be **aligned** with the Green Bond Principles.



Green Bond Framework overview



igj igj

Use of proceeds

Eligible green expenditures are focused on climate change mitigation and includes:

- Renewable energy
- Clean transportation.

Selection and evaluation criteria

An inter-ministerial working group has been set up to manage the selection and evaluation process of eligible green expenditures.



Management of proceeds

Proceeds are monitored closely and managed according to the regular treasury policy.

Reporting

Allocation reports are updated annually, until full allocation. To the extent relevant and feasible, impact reports will also be updated on an annual basis.



External review

A second party opinion has been provided by Cicero.

A third-party audit of the allocation report will also be made publicly available.



Clear and well-defined eligibility criteria

-

Qualify as environmentally sustainble

- Eligible green expenditures are evaluated to comply with the applicable substantial contribution to climate change mitigation.
- Further, eligible green expenditures should, to a **reasonable extent**, be assessed to comply with the Do No Significant Harm ('DNSH') Criteria.
- Both criteria must be assessed to comply with in the EU Taxonomy and the applicable Technical Screening Criteria ('TSC').
- Finally, it is intended that all eligible green expenditures will **adhere to minimum social safeguards.**

Concrete and direct link to the stated object

- Eligible green expenditures must have a **concrete and direct link** to the stated objective.
- Operational expenditures and other intangible expenditures may be deemed relevant only if they are inseparable to tangible assets or otherwise deemed relevant by their very nature.

No risk of double-counting

- Expenditures are only included when there is **no risk of 'double-counting'**.
- Eligible green expenditures may include expenditures towards government agencies and institutions.
- Expenditures that are financed by **dedicated funding**, including expenditures from Denmark's Recovery and Resilience Plan, are excluded.

Denmark's green expenditures contribute to climate change mitigation and follows the three pillars of the EU-taxonomy





Detailed screening according to the EU Taxonomy Criteria to ensure allignment

Substantial contribution to climate change mitigation

Renewable energy:

 ✓ Electricity generation from solar PV and wind power contributes to climate change mitigation.

Clean transportation:

- ✓ Zero and low-emission vehicles with emissions lower than $50gCO_2$ /km.
- ✓ Agreement for the entire railway infrastructure to be electrified or readied for battery trains by 2030.

DNSH criteria

All expenditures:

- ✓ Covers sustainable use and protection of water and marine resources
- \checkmark Prevents pollution
- ✓ Protects and restores biodiversity and ecosystems

Some expenditures (e.g. **subsidy programmes and tax relief schemes)** are only **partly aligned** with the *transition to* the *circular economy* and *climate change adaptation* criteria.

Gaps for these specific types of expenditures are due to e.g. lack of information and less direct involvement.

Minimum social safeguards

- The Danish government is committed to oversee that Danish business entities respect international human rights in their operations and in their business relationships, both in Denmark and abroad.
- ✓ Railway projects selected for the framework are screened for adherence to minimum social safeguards.
 - Contracts under Banedanmark with a total estimated value of more than kr. 1 million have a **CSR appendix enclosed.**
 - Projects are subject to systematic and risk-based controls.



The use of proceeds is directed towards Denmark's two highest emitting sectors



01 Categories

- i. Renewable energy
- ii. Clean transportation

Eligible green expenditures under this framework are intended to **contribute significantly** to climate change mitigation and are **focused in Denmark's two highest emitting sectors**, energy & heat and transport.



02 Expenditure types

- i. OPEX and CAPEX
- ii. Transfers and subsidies
- iii. Tax exemptions

To the extent possible, intangible expenditures, such as administrative costs, are to be included only if they are **deemed relevant and necessary** for the realisation of tangible real assets.



03 Financing period

- i. Expenditures from the year of issuance
- ii. Expenditures from the year immediately preceding the issue



Exclusions

Expenditures directly related to **fossil fuel energy are excluded**. A non exhaustive list of other exclusions include expenditures related to:

- The defence and weapons sector
- Gambling
- Alcoholic beverages and tobacco



DANMARKS

Issuance of green bonds in period covers expenditures from the year of issuance and the year immediately preceding the issue

	T-2	T-1	T (issuance year)	T+1	T+2
lssuance			Issuance of Green Government Bonds. Proceeds from the issuance covers green expenditures from period T-1 and T.		
Expendi- tures	Budget planning and passing for eligible expenditures in period T-1	Expenditures are held for period T-1			
		Budget planning and passing for eligible expenditures in period T	Expenditures are held for period T		
Reporting				Allocation and impact report on expenditures held in period T-1 are published	Allocation and impact report on expenditures held in period T are published



Clear mapping of proceeds from issuances to expenditures in the Budget Act (link)

Eligible green categories	EU environmental objective	Eligible green expenditures	UN Sustainable Development Goals	Use of proceeds inaugural green bond	Use of proceeds upcoming issuance
Renewable energy	Climate change mitigation	 Subsidies for electricity generation from solar PV. Subsidies for electricity generation from onshore and offshore wind farms. Tax exemption for electricity generation from solar PV for self-consumption. 	7 AFFORDABLE AND CLEAN ENERGY 13 CLIMATE CLIMATE	Kr. 2,408 million (17%)	Kr. 380 million (4%)
Clean transportation	Climate change mitigation	 Maintenance and renovation of the rail infrastructure. Rail infrastructure investment projects, including electrification. Tax exemption for zero and low emission vehicles. 	9 ROUSTRY, INVOVATION ADD INFRASTRUCTURE DEDEDED 11 SUSTAINABLE CITIES 13 CLIMATE DEDEDED	Kr. 12,094 million (83%)	Kr. 9.620 million (96%)

DANMARKS

The distribution between categories are estimates and depends on the actual allocation. The remaining revenue generated in 2023 will finance some of the NATIONALBANK prognosed eligible green expenditures in 2023, while leaving kr. 10 bn of 2023 eligible green expenditures available for at potential bond issuance in 2024. 21

Strong processes for the management of proceeds

Proceeds from the issuance of green bonds form part of the overall funding of the Kingdom of Denmark and are managed by Danmarks Nationalbank in line with the regular treasury policy.



Close monitoring

Proceeds are **continuously monitored** by Danmarks Nationalbank within the existing debt management setup and are **mapped against** the amount of eligible green expenditures defined in the Budget Act.



Danmarks Nationalbank issues green bonds on behalf of the Ministry of Finance and may only issue green bonds corresponding to the amount of identified eligible green expenditures, less a **safety margin, that takes into account the uncertainty** that exists within the current budget year.



Allocation

The proceeds from the issuance of green bonds will be **allocated towards eligible green expenditures** identified in the Budget Act.

Within a given year, the issuances of Danish green government bonds can finance green expenditures from the current year as well as refinance green expenditures from the previous year.

1 = 7
~'

External review

A third-party audit of the allocation report will be provided by an **independent reviewer** and made publicly available on the websites of the Ministry of Finance and Danmarks Nationalbank.

- <u>Allocation report</u> for 2021
- Impact report for 2021
- Green Bond website



Institutional setup supports a strong governance structure





The evaluation and selection process is carried out annually

Review of existing eligible expenditures

- The eligible green expenditures are linked to an appropriation account in the central government annual Budget Act.
- Through these accounts, each sub-category of eligible green expenditures can be tracked and managed consistently over time.
- The members of the IMWG will **review these annually**.

Screening for new eligible expenditures

- Once a year, the members of the IMWG may also suggest additional expenditures for review.
- Ministries that currently do not form part of the IMWG may also be consulted in order to identify new eligible expenditures.

Assessment and selection

- Members of the IMWG associated with the respective potential eligible green expenditures are responsible for performing a **detailed** selection in order to determine if they comply with the eligibility criteria.
- Any new expenditures will be subject to review by an external verifier.

Amount and eligible green expenditures

- Upon the signing of the annual Budget Act, the Ministry of Finance will inform Danmarks Nationalbank of the amount of eligible green expenditures.
- In addition, there may be remaining eligible green expenditures from the previous year in case the proceeds from the green bond issuance were lower than the total amount of eligible green expenditures.

DANMARKS

Annual allocation reporting





Transparent annual impact reporting





Ensuring transparency of the use of proceeds from green government bonds

By clear reporting:

Use of proceeds

Allocation report on the allocated proceeds, including a breakdown by type of expenditure verified by third-party audit.

Impact of green expenditures

Impact report gives an outline of the environmental objectives targeted with the eligible green expenditures (examples):

2022 project examples		Avoided CO2	Result indicators	Impact metrics
→ Renewable energy - Energy related subsidies	-	→ Mt CO2	MW subsidised poduction capacity	GWh production of renewable energy
 → Clean transportation - Electrification of railway infrastructure 	-	→ Mt CO2	Km railway track electrified	Reduced travel time, number of passengers



Green bond issuance strategy

The green bond is issued as a twin bond

Investors may switch the green twin bond to the conventional twin bond one-to-one

CONVENTIONAL TWIN BOND

SIMILARITIES

Identical redemption profile

Identical maturity

Identical coupon rate

DIFFERENCES

Lower issuance volume in the green twin bond



Additional commitments for the green bond

- 1. The government commits to ensuring that the amount of green expenditures at least matches the proceeds from the green bonds.
- 2. Provide investors with transparent reporting on the use of proceeds and on the environmental benefits.





The Twin Bond Concept creates a liquid curve and offers a diversified maturity spectrum

Green bond details

ISIN: 10-year DGB G (ISIN DK0009924615)

Maturity date: 15 November 2033

Coupon rate: 2.25 per cent

Corresponding twin bond: 10-year DGB (ISIN DK0009924532)

Issuance format: Opened via syndication. The bond will later be tapped via auction. Bids can be placed via the Kingdom of Denmark's primary dealers (*link*).

Issuance volume: Up to kr. 10 billion in 2023

Switch facility: Investors have the opportunity to switch the green twin bond to the corresponding conventional nominal twin bond (ISIN DK0009924532) one-to-one.

Twin bond concept provides clear benefits

Enhanced liquidity

- Investors will, at any time, have the opportunity to switch the 10-year green twin bond to the corresponding and more liquid conventional 10-year twin bond one-to-one.
- → Investors will not be able to switch the conventional twin bond to the corresponding green twin bond.

Enhanced price transparency

- The corresponding conventional twin bond acts as a clear reference.
 - The green twin bond provides enhanced value from:
 - Green spending commitment
 - Commitment to provide transparent reporting on the use of proceeds and on the environmental benefits.

Denmark will continue to issue in the new green bond into 2024

Planned issuance under the Green Bond Framework

Total sales target of green bonds amounts to **maximum kr. 10 billion** at market value in 2023.

Benchmark size will be issued at the opening syndication. The remaining issuance volume will be issued via the auction programme.

The 2024 budget proposal includes an estimated **kr. 14 billion additional eligible green expenditures**

This will bring the total outstanding amount under the framework to kr. 25 billion by 2023





Kingdom of Denmark Green Bond Use of proceeds – case studies

Case study 1 Electrification of the Danish state railway network

Electrified railways have clear environmental benefits and contribute to a more stable train service and shorter travel times, making public transport an attractive alternative to private transportation.



Reduction of annual greenhouse gas emissions (CO_2e) from electrification

Kilometres of electrified railway tracks

DANMARKS

Full electrification of the Danish railway network

By 2030, the entire trackside infrastructure will be **either electrified or readied for battery train operation**, with electrified line tracks taking up approximately 80 per cent of the network length, and battery-operated line tracks taking up the remaining 20 per cent.

ightarrow 1,756 kilometres of the state railway network have already been electrified

Benefits from electrification:



Reduced CO₂ emissions and particle pollution



Π

Reduced **travel time**, as electric trains can travel at a higher speeds (160-250 km/h) and accelerate and brake faster

Reduced operation and maintenance costs

Increased stability of the overall train service

Case study 1 Electrification of the Danish state railway network

Electrified railways have clear environmental benefits and contribute to a more stable train service and shorter travel times, making public transport an attractive alternative to private transportation.



03

Output/environmental Indicators

Reduction of annual greenhouse gas emissions (CO₂e) from electrification

Kilometres of electrified railway tracks

Full electrification of the Danish railway network



Source: Banedanmark

DANMARKS

Case study 2 **Replacement of the railway signalling system**

As the first European country, Denmark is replacing the existing signalling systems on the entire railway network. The new signalling system will provide a digital foundation for better centralized traffic control, energy optimization, and on-time passenger information.



Full European interoperability of the Danish railway network

Before 2030, the entire Danish signalling systems on long-distance lines (fjernbane) will be replaced with ERTMS (European Rail Traffic Management System), and Copenhagen's S-Bane network will be equipped with CBTC (Communication Based Train Control).

The ambitious targets of the European Green Deal require a significant increase in rail transport capacity, which cannot be obtained without a large-scale acceleration of the roll-out of the ERTMS throughout the EU.

Benefits from a digital signalling system:



Higher **speeds** and a lot fewer delays



Improved headway (i.e. shorter distance between trains measured in time)

Improved energy optimisation

The creation of a digital European railway area that is better at competing with other modes of transport.



Case study 2 Replacement of the railway signalling system

As the first European country, Denmark is replacing the existing signalling systems on the entire railway network. The new signalling system will provide a digital foundation for better centralized traffic control, energy optimization, and on-time passenger information.



DANMARKS NATIONALBANK

Denmark is the first country in Europe to roll out the entire system throughout the country – expected to be completed by 2030



36

Case study 3 Subsidy for producers of electricity from wind and solar power

Producers of electricity to the electricity grid from wind and solar power are paid a subsidy by the Energy Agency, with the aim of promoting renewable energy production by increasing competitiveness against fossil fuel-based energy.



DANMARKS NATIONALBANK

Promoting the use of renewable energy sources

- → Originally a tariff programme for utility bills. Utility users would pay a tariff, based on power consumption, and the revenue would be **diverted to clean energy producers** in the electricity grid.
- → Now a completely governmentfinanced subsidy. The subsidy is a function of the electricity prices and can therefore vary a lot from year to year.
- According to the Danish Climate
 Council, the subsidy has been a key
 driver of the green transition.



Case study 3 Subsidy for producers of electricity from wind and solar power

Producers of electricity to the electricity grid from wind and solar power are paid a subsidy by the Energy Agency, with the aim of promoting renewable energy production by increasing competitiveness against fossil fuel-based energy.



ATIONALBANK

By 2030, renewable energy production will exceed inland consumption – making Denmark a net exporter of electricity



Source: Denmark's Climate Status and Outlook 2023, The Danish Energy Agency.

Case study 4 Tax exemption for zero and low-emission vehicles

Tax exemptions are in place for zero and low emission vehicles, aimed at promoting the purchase of these types of vehicles. Tax advantages are even greater for zero emission cars.



The transition of the transport sector is essential

The transport sector is one of the largest emitters of greenhouse gases in Denmark. Emissions from the transport sector constitute around **29 per cent** of Denmark's total GHG emissions, and the road transport sector accounts for about **90 per cent** of these.

Re-prioritisation of the registration tax

The Danish government has put forward an ambition to place **1,000,000 zero and low-emission cars on the roads by 2030**. During 2022, 56,000 new zero- and low emission vehicles were sold, accounting for close to 40 per cent of all new car registrations. An important initiative to reach this target is the re-prioritisation of the registration tax:

 \rightarrow Zero emission vehicles:

- i. The registration tax is discounted to 40 per cent of the full tax, after which a flat fee of up to 170.000 DKK in 2021 is subtracted.
- ii. The discount rate and the flat fee are gradually reduced towards 2035.
- \rightarrow Low emission vehicles (Below 50 g CO₂ per km):
- i. The registration tax is discounted to 45 per cent of the full tax, after which a flat fee of up to kr. 50,000 in 2021 is subtracted.
- ii. The discount rate and the flat fee are gradually reduced towards 2035.

DANMARKS

ATIONALBANK

Case study 4 Tax exemption for zero and low-emission vehicles

Tax exemptions are in place for zero and low emission vehicles, aimed at promoting the purchase of these types of vehicles. Tax advantages are even greater for zero emission cars.



The transition of the carpark is in line with the 2030 objective



Source: Green Power Denmark. Note: Monthly new car registrations, including imported cars less than 2 years old.



Contact information

Strategy, Funding and Investor Relations Debt Management Office

Grp_BM_Statsgaeld@nationalbanken.dk www.governmentdebt.dk

Danmarks Nationalbank

Langelinie Allé 47 DK–2100 Copenhagen Ø

Useful links

Green government bonds: Green bonds (nationalbanken.dk)

Danish Ministry of Climate, Energy and Utilities: <u>https://en.kefm.dk/</u>

Agreement for Energy and Industry etc.: https://en.kefm.dk/Media/C/B/faktaarkklimaaftale%20(English%20august%2014).pdf

Climate Status and Outlook: https://ens.dk/en/our-services/projections-and-models/denmarks-energy-andclimate-outlook

Danish Council on Climate Change: https://klimaraadet.dk/en

Ministry of Foreign Affairs: https://um.dk/en/foreign-policy/new-climate-action-strategy

Ministry of Foreign Affairs – Global Climate Action Strategy: <u>https://um.dk/en/-/media/websites/umen/foreign-policy/global-climate-action-strategy/a_green_and_sustainable_world.ashx</u>

