

A photograph of a tree trunk in a forest. A heart shape is carved into the bark of the tree. The background shows other trees and sunlight filtering through the leaves.

## »»» Green Bonds – Made by KfW

Impact achieved by KfW's green bond issuances  
2019 & 2020

July 2022



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## Basic Information

Green Bond Framework applied: KfW Green Bond Framework 2019

Reporting period: Calendar years 2019 and 2020

Approach: Impact reporting based on aggregated data basis for each calendar year.

“Green Bonds – Made by KfW” issued in one calendar year show the same impact per unit financed which remains unchanged over the bond lifetime.

Reporting Framework: Harmonized Framework for Impact Reporting (ICMA)

# »»» Reinforcing the “green” market environment and attracting sustainability-oriented investors since 2014

Dear investors and interested readers,

Promoting the transformation toward a sustainable economy is a major component of our mission at KfW. Especially in challenging times like these, we see it as our core responsibility to play a pioneering role in the transformation to a carbon-neutral future and to continuously provide new impetus for capital markets.

With the implementation of our new sustainable finance concept, KfW is setting the course for a core business that measurably contributes to the UN Sustainable Development Goals, is compatible with the Paris climate targets and takes regulatory requirements into account. We are also in the process of establishing a group-wide impact management system. Through our capital market-based activities, and specifically through our Green Bonds, we aim to support the transition to a carbon-neutral economy as well as to help shaping this market segment further. Furthermore we are also active as an investor in green bonds.

KfW, member of the Executive Committee of the Green Bond Principles, is one of the largest issuers worldwide. Since 2014, we have been offering investors the opportunity to combine the security and liquidity typical for KfW bonds with promoting environmental protection and climate change mitigation. With our green bond issuance volume, which amounted to an equivalent of EUR 7.8 bn in the first half of the year 2022, we clearly exceeded the EUR 50 billion mark of total green bond issuance volume since 2014, a significant milestone in our funding programme.

Responding to the evergrowing investor demand, we further extended our green bond framework in January 2022. Along with the financing projects in the field of renewable energies and energy efficiency, amounts equalling the green bonds’ net proceeds can now also be allocated for the KfW programmes “Sustainable Mobility for Municipalities” and “Sustainable Mobility for Corporates”. The transport sector has a vital role to play in the transition to a climate-neutral economy and society. If we want to achieve our goals, we need to switch to low-emission forms of mobility as quickly as possible. This requires enormous investments. KfW is meeting its responsibility as a transformative promotional bank and providing suitable financing instruments to this end.

Transparency and state of the art impact reporting are key to “Green Bonds – Made by KfW”. The following report completes the reporting cycle for “Green Bonds – Made by KfW” issued in 2019 and 2020. Referring to nineteen green bonds and five taps with aggregated net proceeds of EUR 16.5 billion, it includes relevant information on the issuances and on the distribution of the

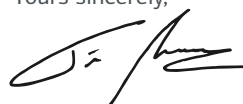


**Tim Armbruster**  
Treasurer of KfW

net proceeds, and provides information on the environmental and social impact achieved in the respective years. The impact is calculated based on the evaluation results of the underlying loan programmes “Renewable Energies – Standard” provided by the independent Center for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW), Germany, and “Energy-efficient Construction” provided by Prognos, a leading economic research centre based in Munich, Germany and the Research Institute for Thermal Insulation Munich, Germany, (FIW).

Enjoy reading!

Yours sincerely,



**Tim Armbruster**  
Treasurer of KfW

# »»» Environmental and social impact

## Green Bonds – Made by KfW

Green Bonds 2019:

**EUR 8,103 million net proceeds**

Green Bonds 2020:

**EUR 8,350 million net proceeds**



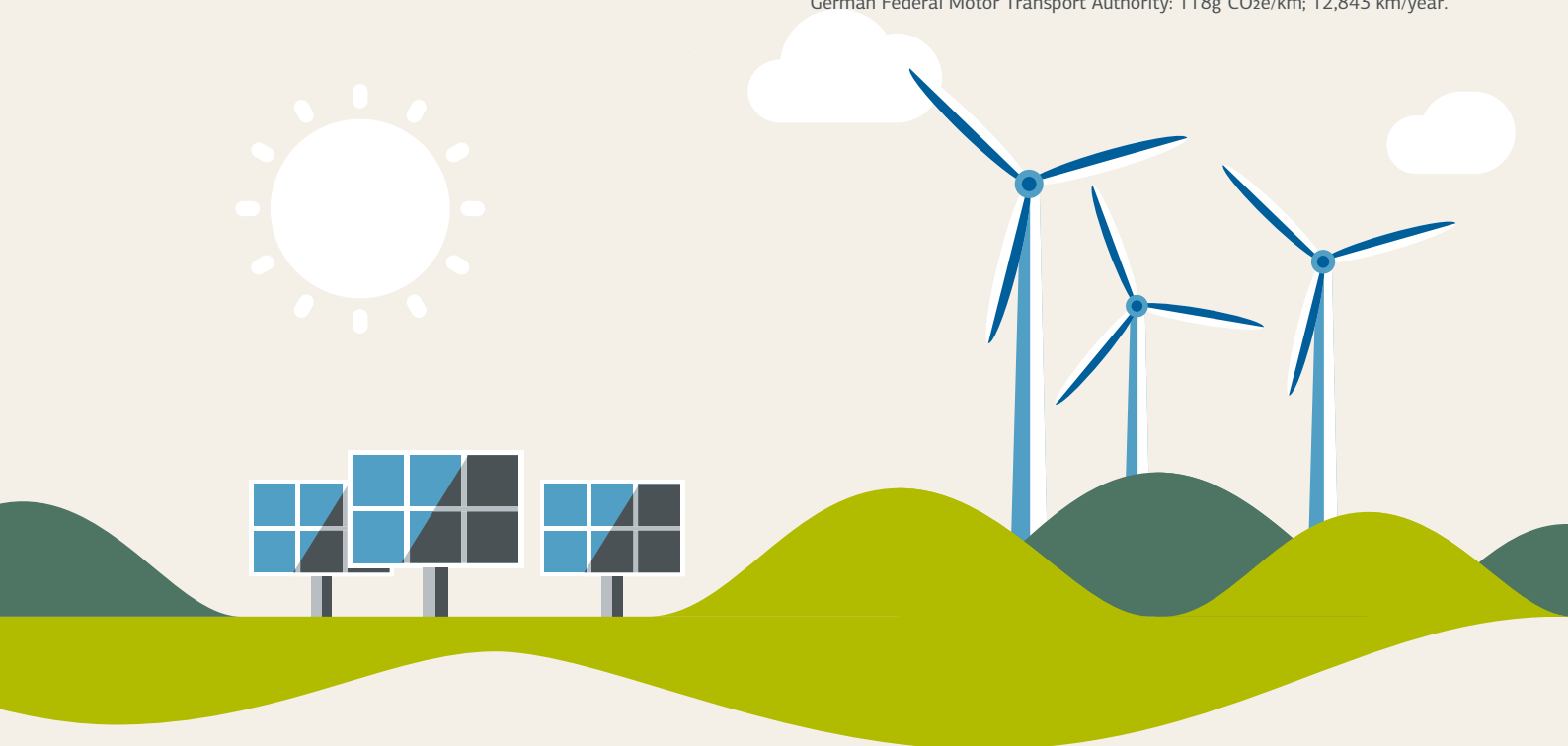
Expected reduction of GHG emissions:






**2.4 m tons of CO<sub>2</sub>-e p.a.**

Equivalent to taking

**approx. 1.6 m passenger cars**  
off the street\*

\* Based on data from the German Federal Ministry of Environment; and the German Federal Motor Transport Authority: 118g CO<sub>2</sub>e/km; 12,843 km/year.



		<b>Absolute impact</b> accounting for KfW's financing share	<b>Impact</b> per EUR 1 million investment
 Greenhouse gas emissions reduced/ avoided (CO <sub>2</sub> -equivalents) per annum	2019	<b>1,092,963 tons</b>	<b>135 tons</b>
	2020	<b>1,314,928 tons</b>	<b>157 tons</b>
 Annual final energy savings	2019	<b>53,908 MWh</b>	<b>6.7 MWh</b>
	2020	<b>65,195 MWh</b>	<b>7.8 MWh</b>
 Annual renewable electricity generation	2019	<b>2,251,130 MWh</b>	<b>278 MWh</b>
	2020	<b>2,416,764 MWh</b>	<b>289 MWh</b>
 Renewable energy capacity added	2019	<b>1,376 MW<sub>el</sub></b>	<b>0.17 MW<sub>el</sub></b>
	2020	<b>1,424 MW<sub>el</sub></b>	<b>0.17 MW<sub>el</sub></b>
 Number of jobs created and/or preserved	2019	<b>96,188 person years</b>	<b>12 person years</b>
	2020	<b>99,358 person years</b>	<b>12 person years</b>

# »»» Green Bonds – Made by KfW

## Continuous development and expansion of KfW's Green Bond Framework

As one of the world's largest financiers of renewable energy, KfW endeavours to make an active contribution to climate protection through its capital market activities by linking its sustainable lending business to the refinancing side. KfW entered the green bond market as an issuer in 2014. With its high ambitions regarding transparency and impact evaluation, KfW believes it has set standards in the market and significantly contributed to the important growth the market has experienced ever since.

Net proceeds from "Green Bonds – Made by KfW" issued in the years 2014 to 2021 were dedicated exclusively to the financing of green projects under KfW's loan programmes "Renewable Energies – Standard" (since 2014) and "Energy-efficient Construction" since 2019.

The loan programme "Renewable Energies – Standard" promotes projects for the use of renewable energy sources such as wind energy, photovoltaic, hydropower and biogas/-mass, and contributes to the environmental objective "climate change mitigation".

The loan programme "Energy-efficient Construction" promotes projects for the construction of new energy-efficient residential buildings in Germany. These newly constructed buildings are required to use at least 25 % less primary energy compared to buildings meeting the requirements of the German energy saving ordinance for new constructions as applicable at the relevant time of construction.

This paper reports on the impact of Green Bonds issued in the years 2019 and 2020 and focuses on the financing of green projects under KfW's loan programmes "Renewable Energies – Standard" as well as "Energy-efficient Construction".



KfW Award winning passive houses in Cologne, Germany

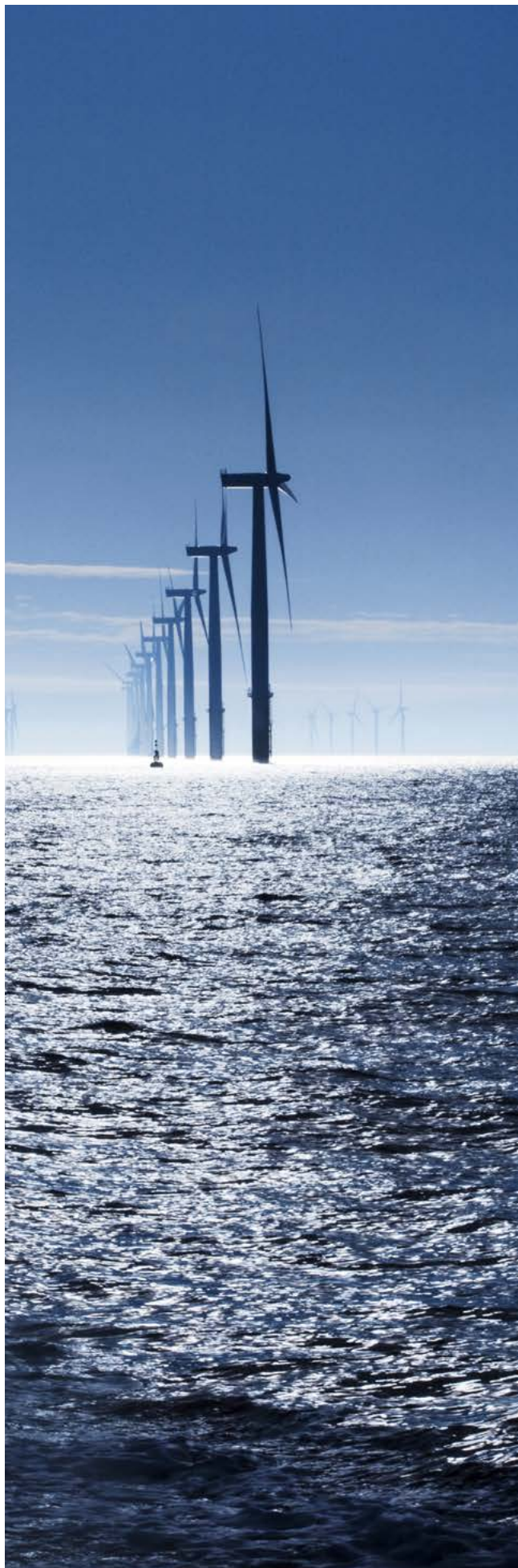
### External evaluation: green eligibility and impact measurement

Following the extension of KfW's Green Bond Framework in 2019, the framework was again reviewed by the research institute CICERO Shades of Green (CICERO), Norway, that had initially evaluated the framework in 2015. The Green Bond Framework 2019 was awarded a Medium Green shading. CICERO confirmed the Green Bond Framework to be in line with the Green Bond Principles and rates the KfW's governance structure and processes as "excellent".

#### CICERO Shades of Green

- **Dark green** is allocated to projects and solutions that correspond to the long-term vision of a low carbon and climate resilient future. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Ideally, exposure to transitional and physical climate risk is considered or mitigated.
- **Medium green** is allocated to projects and solutions that represent steps towards the long-term vision, but are not quite there yet. Fossil-fueled technologies that lock in long-term emissions do not qualify for financing. Physical and transition climate risks might be considered.
- **Light green** is allocated to projects and solutions that are climate friendly but do not represent or contribute to the long-term vision. These represent necessary and potentially significant short-term GHG emission reductions, but need to be managed to avoid extension of equipment lifetime that can lock-in fossil fuel elements. Projects may be exposed to the physical and transitional climate risk without appropriate strategies in place to protect them.

**KfW Green Bond Framework 2019: Medium Green**  
**Governance: Excellent**



### Further extension of KfW's Green Bond Framework

With the revised Green Bond Framework 2022 a third standardised promotional programme which makes a measurable contribution to climate action can benefit from “Green Bonds – Made by KfW”. KfW's third pillar “Clean Transportation” offers low-interest financing for pedestrian and cycling infrastructure, climate-friendly passenger and freight transport vehicles, such as local public transport, rail and waterway transport, and investments in the necessary infrastructure. Digitalisation projects that contribute to reducing greenhouse gas emissions, such as those that network existing mobility services, are also promoted. The requirements for the eligible measures under the new programme are based on the criteria defined in the EU taxonomy. For example, the new programme will support the financing of buses, trams and subways for local public transport, as well as trains and inland vessels, the direct carbon dioxide emissions of which are zero.

In addition, the existing category “Energy-efficient Construction” has been extended and now provides financing not only for the construction of new energy-efficient buildings, but also for the renovation of and individual measures for existing residential, commercial and municipal buildings, which improve energy efficiency.

CICERO evaluated the updated framework:

**KfW Green Bond Framework 2022: Medium Green**

**Governance: Excellent**



# KfW Green Bond Framework 2022

## Updated Green Bond Framework adding Clean Transportation as further project category

### Green Bond Framework 2022<sup>1</sup> 2nd update



#### Renewable Energy

##### Project examples

- Wind energy (onshore and off-shore)
- Photovoltaic panels
- Hydropower or biogas energy
- Electricity and heat generated from solid biomass, biogas or geothermal
- Grids and plants for the storage of heat or power, feed-in by renewable energy

**Project location:** Germany or, if there is a German angle, outside of Germany



#### Energy Efficiency

##### Project examples

- Construction of new commercial and municipal buildings, including passive houses

**Updated 2022:**

- Energy-efficient renovation of existing buildings
- Single measures to save energy and reduce CO<sub>2</sub> emissions of buildings

**Project location:** Germany



#### Clean Transportation

##### Project examples

- Climate-friendly vehicles for passenger transportation and light commercial vehicles
- Climate-friendly vehicles for freight transport
- Devices for active mobility (e.g. e-bikes)
- Infrastructure for climate-friendly transport

**Project location:** Germany

**In place since January 2022**



<sup>1</sup> Relevant KfW loan programmes: “Renewable Energies – Standard” (No. 270), “Federal Funding for Efficient Buildings (BEG)” (No. 261–264), “Sustainable Mobility for Municipalities” (No. 267) and “Sustainable Mobility for Corporates” (No. 268, 269)

Relevant loan programmes in the Green Bond Framework 2019 were: “Renewable Energies – Standard” (No. 270) and “Energy-efficient Construction” (No. 153)

# »»» Reporting aligned with the Green Bond Principles

## Measurable climate protection effects for investors

KfW reports the amount and the distribution of disbursements under the loan programmes “Renewable Energies – Standard” and “Energy-efficient Construction” on a yearly basis until full allocation.

The loan programme “Renewable Energies – Standard” is evaluated by the Center for Solar Energy and Hydrogen Research Baden-Württemberg, Germany (ZSW), and the loan programme “Energy-efficient Construction” is evaluated by the economic research centre Prognos, Germany and the Research Institute for Thermal Insulation Munich, Germany, (FIW). After the institutions have evaluated the actual impact of the funded projects for each year, KfW publishes its respective impact report. The impact analysis for “Green Bonds – Made by KfW” is based on the standards set out by the International Capital Markets Association (ICMA) – the Green Bond Principles – and the related Harmonized Framework for Impact Reporting.

**The Green Bond Principles have four core components:**

- 1. Use of Proceeds (Eligibility criteria)**
- 2. Process for Project Evaluation and Selection (Due diligence procedures)**
- 3. Management of Proceeds (Allocation procedures)**
- 4. Reporting (on the environmentally sustainable impact)**

KfW’s impact reporting is prepared for each calendar year and shows aggregate data (no project-by-project data). All requests for disbursements for Eligible Green Projects KfW made between 1 January and 31 December of a calendar year are linked to the cumulated net proceeds of all “Green Bonds – Made by KfW” issued in the same calendar year. As a result, all “Green Bonds – Made by KfW” issued in one calendar year show the same impact per unit financed which remains unchanged over the bond life-time. Quantitative performance indicators of impact measurement refer to loan commitments (or signed loan amounts) while allocation of proceeds is based on requests for disbursements. Due to full or partial waivers of borrowers, requests for disbursements may be lower than loan commitments. Also, the calendar year in which disbursements are made may differ from that in which commitments are made. This may cause a mismatch. KfW is aware of this potential mismatch which, in KfW’s view, is limited and therefore, will not be taken into account.



ZSW’s and Prognos/FIW’s impact evaluations provide the basis for this report:

ZSW: Bickel, P., Kelm, T.: *Assessment of environmental and social impacts of the KfW loan programme “Renewable Energies – Standard” for the years 2019 and 2020*. Summery Results. Stuttgart, November 2021. Evaluation commissioned by KfW Group.

**ZSW evaluation “Renewable Energies – Standard”**

Prognos AG/FIW München: Dr. Heinrich, S., Langreder, N., Thormeyer, C., Grodeke, A., Hoch, M., Prof. Dr. Holm, A., Kokolsky, C., Empl, B.: *Evaluation der Förderprogramme EBS WG im Förderzeitraum 2019. Evaluation der Förderprogramme „Energieeffizient Bauen und Sanieren“ für Wohngebäude (EBS WG) als Teil des CO<sub>2</sub>-Gebäudesanierungsprogramms des BMWi im Förderzeitraum 2018 bis 2020*. Basel/München, April 2022. Evaluation commissioned by the Federal Ministry for Economic Affairs and Energy (BMWi), (in German language).

Prognos AG/FIW München: Dr. Heinrich, S., Langreder, N., Thormeyer, C., Grodeke, A., Hoch, M., Prof. Dr. Holm, A., Kokolsky, C., Empl, B.: *Evaluation der Förderprogramme EBS WG im Förderzeitraum 2020. Evaluation der Förderprogramme „Energieeffizient Bauen und Sanieren“ für Wohngebäude (EBS WG) als Teil des CO<sub>2</sub>-Gebäudesanierungsprogramms des BMWi im Förderzeitraum 2018 bis 2020*. Basel/München, April 2022. Evaluation commissioned by the Federal Ministry for Economic Affairs and Energy (BMWi), (in German language).

As of the date of this Impact Report, the Prognos AG/FIW München evaluation reports are not publicly available.





As one of the world's largest financiers of renewable energy, KfW endeavours to make an active contribution to climate protection through its capital market activities. >>>

Comprehensive criteria for environmental and social eligibility assessment under the loan programmes “Renewable Energies – Standard” and “Energy-efficient Construction”.

## KfW’s promotional loan programme “Renewable Energies – Standard”

### Eligibility and exclusions

**What for?** The programme provides financings for the construction, expansion and acquisition of plants generating power or heat from renewable energy sources that comply with the requirements defined by the German Renewable Energy Sources Act (Erneuerbare-Energien-Gesetz – EEG 2017). These sources include wind energy, solar energy (photovoltaics), hydropower, biomass, biogas and geothermal energy. Furthermore, grids and plants for the storage of heat are supported.

**For whom?** Funds are available for private individuals and not-for-profit organisations which feed the generated electricity/heat into the grid, at least in part, self-employed professionals and farmers, as well as German and non-German enterprises majority-owned by private individuals or municipalities. Investments outside Germany are eligible for German companies, German citizens and joint ventures with a substantial German stake.

Up to 100 % of the investment costs are eligible for financing with a cap at EUR 50 million.

### Exclusions

The following plants and projects are excluded:

- Hydropower plants with an installed power exceeding 20 MW.
- Plants for the generation of power or heat using fossil fuels as well as plants for heat storage that are directly linked to power or heat generated on the base of fossil fuels.
- Projects using any form of trust structures or self-dealing.
- Equipment for the use of nuclear power.

## KfW’s promotional loan programme “Energy-efficient Construction”

### Eligibility and exclusions

**What for?** The programme provides financings for the construction of new energy-efficient residential buildings in Germany, including passive houses, which use 75 % or less primary energy compared to the requirements of the current German energy saving ordinance for new buildings (EnEV 2016). Such buildings are compliant with the so-called KfW55/KfW40/KfW40plus standards.

For submission of the financing application, the involvement of an energy efficiency expert for KfW’s promotional products is mandatory.

**For whom?** Funds are available for private individuals, homeowners’ associations, housing companies, housing cooperatives, property developers, owners/operators of residential homes, corporations and institutions under public law as well as contracting providers sponsoring investment measures on newly constructed owner-occupied or rented residential buildings and owner-occupied apartments, first-time buyers of newly constructed residential buildings or owner-occupied apartments.

### Exclusions

The following buildings are excluded:

- The construction or initial acquisition of a residential building with an oil-fired heating system.





Workers assembling the rotor blades of a wind turbine

## Process for Project Evaluation and Selection

KfW has established detailed formal eligibility requirements for its two loan programmes “[Renewable Energies – Standard](#)” (German only) and “[Energy-efficient Construction](#)” (German only) which it extends via commercial banks to the ultimate borrower. Borrowers do not apply directly to KfW and may only apply for a KfW loan through a commercial bank. The processing of individual loans within the two KfW loan programmes is characterised by two formally separated loan approvals – first by the intermediary bank and then by KfW – for each borrower. KfW’s loan approval, however, depends solely on a review of the individual loan application in order to assess compliance with the requirements established for the respective loan programmes.

In addition, all Eligible Green Projects are screened according to KfW’s environmental and social risk management framework:

- For project locations in Germany, the comprehensive German environmental protection and social regulations apply and are monitored by the responsible authorities. Accordingly, KfW does not assess further environmental and social impacts of a particular measure.
- For project locations in other European Union (“EU”) countries and generally all other high income OECD countries outside the EU, an extensive set of rules and regulations for environmental and social issues are in place, enforced and applicable. Accordingly, KfW does not assess further environmental and social impacts of a particular measure.
- With regard to investments in all other countries, KfW’s lending department assesses whether the planned measure may have any negative environmental or social impact.
- If a project is deemed to be environmentally or socially relevant, KfW’s Competence Centre for Environment and Sustainability examines the environmental and social effects in more detail. Basically, projects must comply with the national regulations of the investee country, including environmental and social requirements. However, they must be at least equivalent to the internationally recognised environmental and social standards, including those of the EU, the World Bank Group and the International Labour Organisation (ILO).
- In July 2019, KfW introduced a group-wide [exclusion list](#) that applies to all new financing and promotional activities.



## All KfW financing operations contribute to at least one United Nations Sustainable Development Goal (SDG).

### KfW Group is a pioneer in SDG reporting

As one of the world's leading promotional banks, KfW supports the 17 goals for environmentally, economically and socially sustainable development. Since 2020, each new KfW financing operation has contributed to at least one Sustainable Development Goal. Since 2019, KfW has been transparently disclosing its SDG contributions on an annual basis.

**“Green Bonds – Made by KfW”** issued in 2019 and 2020 contributed to the SDGs 7 “Affordable and Clean Energy”, 13 “Climate Action”, and 11 “Sustainable Cities and Communities” and thus contribute to a more sustainable future.



Winner of “KfW Award Construction” in 2020 in the category “new building”



## Project examples

### Example “Energy-efficient Construction”

#### 22 townhouses in Hamburg built in 2019

Architects: Arge Mudlaff+Otte, Studio Witt, MoRe Architekten

Energy advisor: Paul Dudda, DES GmbH

Living space: 5,700 square meters

Plot size: 5,110 square meters

Total project cost: EUR 28 m, thereof KfW funds: EUR 2 m

Energy saving: heatpump, biogas block heat and power plant, waste heat recovery, photovoltaics, certified building materials

### Example “Renewable Energies – Standard”

#### Wind farm Häger / Sandruper See,

#### Nordrhein-Westfalen built in 2020/2021

Total project cost: EUR 10.5 m

Thereof KfW funds: EUR 9.0 m

Total installed capacity: 9.6 MW

Annual electricity generation: 18,000 MWh

Number of wind turbines: 3

Expected reduction of GHG emissions: 12,000 tons of CO<sub>2</sub>e p.a.<sup>1</sup>

The wind farm and its operator iTerra energy GmbH meet the requirements of EMAS environmental management system.



<sup>1</sup> Based on data of the Bundesverband WindEnergie e.V. (BWE)



Wind turbine of the wind farm Häger / Sandruper See

## Issuance summary and use of proceeds

KfW issued nine “Green Bonds – Made by KfW” and one green promissory note loan in 2019, raising net proceeds in the amount of EUR 8.1 billion, which were fully allocated by year-end.

In the same period, KfW received requests for disbursements under the “Renewable Energies Programme – Standard” and the “Energy-efficient Construction” programme in an amount of EUR 10.9 billion. Thus, an amount equal to the net proceeds from all KfW green bonds issued in 2019 was fully allocated as of December 31, 2019.

The majority (79 %) of all requests for disbursement were related to projects in the category of energy efficiency, especially residential buildings, while 21 % were related to projects in the category of renewable energies (15 % wind energy; 6 % solar energy). 90 % of the funds were invested in projects located in Germany with the remainder located in France, Sweden, The Netherlands, Ireland, Japan, Italy, Spain, Denmark and Finland.

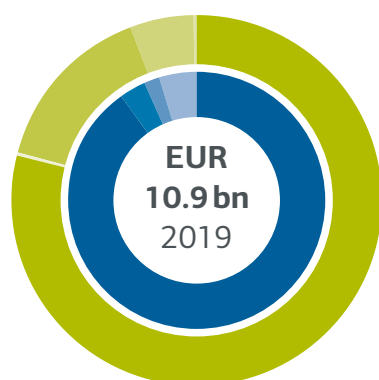
Net proceeds in foreign currencies were converted into EUR at the ECB’s exchange reference rate on the respective pricing date.

**10 Green Bonds**  
in 7 currencies (EUR, USD, GBP, AUD, SEK, NOK, HKD)

**EUR 8.1 billion**  
net proceeds

**10 %**  
of KfW’s total funding  
(EUR 80.6 bn)

**Full Allocation**  
Disbursements in an amount  
of EUR 10.9 bn



### Requests for disbursements under the eligible loan programmes

Residential buildings: 79.1 %	Germany: 90.2 %
Other buildings: 0.2 %	France: 3.4 %
Wind energy: 14.9 %	Sweden: 1.9 %
Solar energy: 5.6 %	Other OECD: 4.5 %
Other renewable energies: 0.2 %	

KfW Green Bond	EUR 2019/2029	EUR 2019/2027	SEK 2019/2022	AUD 2019/2024	GBP 2019/2026	HKD 2019/2021	NOK 2019/2023
ISIN	SSD010000904	XS1999841445	XS2007223709	AU3CB0265239	XS2034715305	XS2036670607	XS2046690827
Volume	EUR 2m	EUR 3bn	SEK 7bn	AUD 450m	GBP 650m	HKD 300m	NOK 4bn
Net proceeds	2,000,000	2,990,250,000	7,025,200,000	449,136,000	648,797,500	300,000,000	3,976,800,000
Net proceeds (in EUR)	2,000,000	2,990,250,000	657,390,165	280,552,189	722,250,362	34,380,408	399,622,429
Applying ECB exchange rate	1.0000	1.0000	10.6865	1.6009	0.8983	8.7259	9.9514
Maturity	31 Jan 2019 – 31 Jan 2029	22 May 2019 – 05 May 2027	04 June 2019 – 03 June 2022	24 July 2019 – 24 July 2024	30 July 2019 – 15 Sep 2026	06 Aug 2019 – 06 Aug 2021	28 Aug 2019 – 28 Aug 2023
Coupon	0.59 %	0.01 %	0.125 %	1.50 %	0.875 %	1.79 %	1.25 %
Format	SSD	Note Programme	Note Programme	Kangaroo	Note Programme	Note Programme	Note Programme



## Impact “Renewable Energies – Standard”

The independent non-profit research institute Center for Solar Energy and Hydrogen Research Baden-Württemberg, Germany, (ZSW) evaluated the environmental and social impact of projects financed under KfW’s programme “Renewable Energies – Standard” based on new commitments in 2019.

In 2019, the volume of commitments under KfW’s loan programme “Renewable Energies – Standard” totalled almost EUR 2.7 billion and triggered investments of approx. EUR 3.9 billion – representing an average share of KfW financing amounting to 70 %. Thereof, EUR 1.1 billion and EUR 1.8 billion, respectively, were attributable to renewable energy plants built outside Germany. The average investment per commitment amounted to EUR 1.0 million.

### Commitments under KfW’s programme “Renewable Energies – Standard” in 2019

Number of loan commitments	3,872
Volume of loan commitments (EUR m)	2,685
Thereof outside Germany (EUR m)	1,058
Investments financed (EUR m)	3,860
Thereof outside Germany (EUR m)	1,804
Average loan volume per commitment (EUR)	693,550
Average investment financed per commitment (EUR)	996,960
Average share of financing	70 %

### Installed electrical power supported in 2019

Plant type	MW <sub>el</sub>
Biogas	1.4
Solid Biomass	0.2
Photovoltaic energy	1,172.6
Hydropower	2.4
Wind energy onshore	1,980.2
<b>Total</b>	<b>3,156.9</b>
<b>Annual electricity production</b>	<b>5.2 TWh</b>

In 2019, KfW’s programme “Renewable Energies – Standard” co-financed plants with a total electrical power of approx. 3.2 GW<sub>el</sub>, of which 52 % were attributable to plants built in Germany and 48 % to plants built outside Germany. The table provides a detailed picture of the installed electrical power by plant type.

The estimated annual electricity production of the supported plants built in Germany amounts to 2.6 TWh per year over the twenty-year-lifetime of the plants. The plants financed outside Germany produce an estimated 2.6 TWh of electricity per year.

USD 2019/2029	NOK 2019/2023 1st tap	EUR 2019/2027 1st tap
US500769JD71	XS2046690827	XS1999841445
USD 2bn	NOK 2bn	EUR 1bn
1,994,500,000	1,975,825,137	1,015,630,000
1,806,612,319	194,729,723	1,015,630,000
1.1040	10.1465	1.0000
17 Sep 2019 – 14 Sep 2029	23 Oct 2019 – 28 Aug 2023	12 Nov 2019 – 05 May 2027
1.75 %	1.25 %	0.01 %
Global/SEC reg.	Note Programme	Note Programme

The projects co-financed under KfW’s “Renewable Energies – Standard” programme in 2019 had the following overall environmental and social impact:

	Germany	Outside Germany
Annual greenhouse gas emissions reduced/avoided due to plants supported	<b>1.93</b> million tons CO <sub>2</sub> -equivalents p.a.	<b>0.31</b> million tons CO <sub>2</sub> -equivalents p.a.
Renewable energy capacity added	<b>1,643.5</b> MW <sub>el</sub>	<b>1,513.4</b> MW <sub>el</sub>
Annual renewable electricity generation	<b>2.6</b> TWh	<b>2.6</b> TWh
Number of jobs created and/or preserved	<b>27,130</b> person years	n.a.

## Impact “Energy-efficient Construction”

Prognos, a leading economic research centre based in Munich, Germany and the Research Institute for Thermal Insulation Munich, Germany, (FIW), evaluated the environmental and social impact of projects financed under KfW’s programme “Energy-efficient Construction” based on new commitments in 2019.

In 2019, the volume of commitments under KfW’s loan programme “Energy-efficient Construction” totalled almost EUR 7.2 billion and triggered investments of approx. EUR 19.5 billion – representing an average share of KfW financing amounting to 37 %. The programme exclusively finances construction projects in Germany. The average investment per commitment amounted to EUR 0.24 million.

The projects co-financed under KfW’s “Energy-efficient Construction” in 2019 had the following overall environmental and social impact:

### Commitments under KfW’s programme “Energy-efficient Construction” in 2019

Number of loan commitments	42,655
Volume of loan commitments (EUR m)	7,171
Investments financed (EUR m)	19,544
Number of promoted housing (in residential units)	82,586
Of which 1–2 units per building	43,327
Of which 3–10 units per building	11,310
Of which >11 units per building	27,949
Average loan volume per commitment (EUR)	87,000
Average investment financed per commitment (EUR)	237,000
Average share of financing	37 %

	Germany
Annual greenhouse gas emissions reduced/avoided due to energy-efficient construction supported	<b>53,005</b> tons CO <sub>2</sub> -equivalents p.a.
Annual final energy savings	<b>164,000</b> MWh
Employment effects: jobs created and/or preserved	<b>216,000</b> person years



The majority of the funded projects were for residential buildings. >>>



## Issuance summary and use of proceeds

KfW issued fourteen “Green Bonds – Made by KfW” in 2020, raising net proceeds in the amount of EUR 8.3 billion, which were fully allocated by year-end.

In the same period, KfW received requests for disbursements under the “Renewable Energies Programme – Standard” and the “Energy-efficient Construction” programme in an amount of EUR 13.6 billion. Thus, an amount equal to the net proceeds from all KfW green bonds issued in 2020 was fully allocated as of December 31, 2020.

The majority (79 %) of all requests for disbursement were related to projects in the category of energy efficiency, especially residential buildings, while 21 % were related to projects in the category of renewable energies (14 % wind energy; 7 % solar energy). 93 % of the funds were invested in projects located in Germany, with the remainder located in France, The Netherlands, Sweden, Spain, Poland, Finland, Italy and the United Kingdom.

Net proceeds in foreign currencies were converted into EUR at the ECB’s exchange reference rate on the respective pricing date.



**14 Green Bonds**  
in 6 currencies (EUR, USD, PLN, NOK, HKD, HUF)



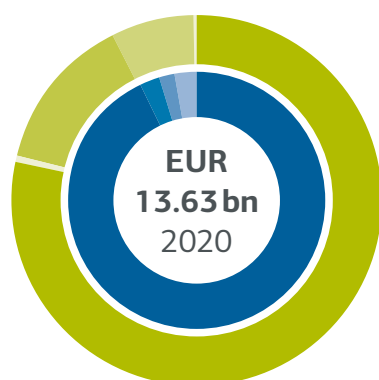
**EUR 8.3 billion**  
net proceeds



**12.6 %**  
of KfW’s total funding  
(EUR 66.4 bn)



**Full Allocation**  
Disbursements in an amount  
of EUR 13.6 bn



### Requests for disbursements under the eligible loan programmes

- Residential buildings: 78.5 %
- Other buildings: 0.5 %
- Wind energy: 13.8 %
- Solar energy: 7.1 %
- Other renewable energies: 0.2 %
- Germany: 93.1 %
- France: 2.4 %
- Netherlands: 1.9 %
- Other OECD: 2.7 %

KfW Green Bond	NOK 2019/2023 2nd tap	PLN 2020/2022	HKD 2020/2021 No. 1	HKD 2020/2021 No. 2	HUF 2020/2022	HKD 2020/2021 No. 3	HKD 2020/2021 No. 4
ISIN	XS2046690827	XS2102388837	XS2115141678	XS2116410882	XS2125044755	XS2134408538	XS2203818542
Volume	NOK 2bn	PLN 500m	HKD 400m	HKD 300m	HUF 2bn	HKD 250m	HKD 100m
Net proceeds	1,976,626,230	500,000,000	400,000,000	300,000,000	2,000,000,000	250,000,000	100,000,000
Net proceeds (in EUR)	200,697,164	117,843,928	46,671,276	35,058,197	5,973,180	28,380,388	11,428,702
Applying ECB exchange rate	9.8488	4.2429	8.5706	8.5572	334.8300	8.8089	8.7499
Maturity	13 Jan 2020 – 28 Aug 2023	17 Jan 2020 – 17 Jan 2022	11 Feb 2020 – 11 Feb 2021	12 Feb 2020 – 12 Feb 2021	26 Feb 2020 – 26 Feb 2022	13 Mar 2020 – 13 Mar 2021	14 July 2020 – 14 July 2021
Coupon	1.25 %	1.70 %	1.695 %	1.69 %	0.90 %	0.65 %	0.38 %
Format	Note Programme	Note Programme	Note Programme	Note Programme	Note Programme	Note Programme	Note Programme

## Impact “Renewable Energies – Standard”

The independent non-profit research institute Center for Solar Energy and Hydrogen Research Baden-Württemberg, Germany, (ZSW) evaluated the social and environmental impact of projects financed under KfW's programme “Renewable Energies – Standard” based on new commitments in 2020.

In 2020, the volume of commitments under KfW's loan programme “Renewable Energies – Standard” totalled almost EUR 3.6 billion and triggered investments of EUR 5.3 billion – leading to an average share of financing of 67 %. Thereof, some EUR 1.4 billion and EUR 2.6 billion, respectively, were attributable to renewable energy plants built outside Germany. The average investment per commitment amounted to EUR 1.1 million.

### Commitments under KfW's programme “Renewable Energies – Standard” in 2020

Number of loan commitments	4,992
Volume of loan commitments (EUR m)	3,568
Thereof outside Germany (EUR m)	1,447
Investments financed (EUR m)	5,332
Thereof outside Germany (EUR m)	2,570
Average loan volume per commitment (EUR)	714,700
Average investment financed per commitment (EUR)	1,068,150
Average share of financing	67 %

### Installed electrical power supported in 2020

Plant type <sup>1</sup>	MW <sub>el</sub>
Biogas	2.0
Solid biomass	–
Photovoltaic energy	2,037.2
Hydropower	3.2
Wind energy onshore	2,156.1
<b>Total</b>	<b>4,198.6</b>
<b>Annual electricity production</b>	<b>7.2 TWh</b>

In 2020, KfW's programme “Renewable Energies – Standard” co-financed plants with a total electrical power of around 4.2 GW<sub>el</sub>, of which 52 % were attributable to plants built in Germany and 48 % to plants built abroad. The table provides a detailed picture of the installed electrical power by plant type.

The estimated annual electricity production of the supported plants built in Germany amounts to 3.9 TWh over the twenty-year-lifetime of the plants. The plants financed outside Germany produce an estimated 3.3 TWh of electricity per year.

The projects co-financed under KfW's “Renewable Energies – Standard” programme in 2020 had the following overall environmental and social impact:

	Germany	Outside Germany
Annual greenhouse gas emissions reduced/avoided due to plants supported	<b>2.89</b> million tons CO <sub>2</sub> -equivalents p.a.	<b>0.72</b> million tons CO <sub>2</sub> -equivalents p.a.
Renewable energy capacity added	<b>2,175.8</b> MW <sub>el</sub>	<b>2,022.8</b> MW <sub>el</sub>
Annual renewable electricity generation	<b>3.9</b> TWh	<b>3.3</b> TWh
Number of jobs created and/or preserved	<b>36,330</b> person years	n.a.

HKD 2020/2021 No. 5	HKD 2020/2021 No. 6	EUR 2020/2028	USD 2020/2030	EUR 2020/2028 1st tap	HKD 2020/2021 No. 7	EUR 2020/2028 2nd tap
XS2205083236	XS2206344850	XS2209794408	US500769JG03	XS2209794408	XS2250016180	XS2209794408
HKD 100m	HKD 100m	EUR 3bn	USD 2bn	EUR 1bn	HKD 100m	EUR 2bn
100,000,000	100,000,000	3,097,710,000	1,986,040,000	1,036,720,000	100,000,000	2,067,260,000
11,432,753	11,376,435	3,097,710,000	1,668,100,118	1,036,720,000	10,886,842	2,067,260,000
8.7468	8.7901	1.0000	1.1906	1.0000	9.1854	1.0000
15 July 2020 – 15 July 2021	16 July 2020 – 16 July 2021	28 May 2020 – 15 Sep 2028	25 Aug 2020 – 30 Sep 2030	06 Oct 2020 – 15 Sep 2028	28 Oct 2020 – 28 Oct 2021	19 Nov 2020 – 15 Sep 2028
0.40 %	0.405 %	0.00 %	0.75 %	0.00 %	0.075 %	0.00 %
Note Programme	Note Programme	Note Programme	Global/SEC reg.	Note Programme	Note Programme	Note Programme

## Impact “Energy-efficient Construction”

Prognos, a leading economic research centre based in Munich, Germany, and the Research Institute for Thermal Insulation Munich, Germany, (FIW), evaluated the environmental and social impact of projects financed under KfW’s programme “Energy-efficient Construction” based on new commitments in 2020.

In 2020, the volume of commitments under KfW’s loan programme “Energy-efficient Construction” totalled almost EUR 21.0 billion and triggered investments of approx. EUR 46.3 billion – representing an average share of KfW financing amounting to 45 %. The programme exclusively finances construction projects in Germany. The average investment per commitment amounted to EUR 0.23 million.

The projects co-financed under KfW’s “Energy-efficient Construction” in 2020 had the following overall environmental and social impact:

### Commitments under KfW’s programme “Energy-efficient Construction” in 2020

Number of loan commitments	92,351
Volume of loan commitments (EUR m)	20,999
Investments financed (EUR m)	46,294
Number of promoted housing (in residential units)	199,813
Of which 1–2 units per building	94,376
Of which 3–10 units per building	33,244
Of which >11 units per building	72,193
Average loan volume per commitment (EUR)	105,000
Average investment financed per commitment (EUR)	232,000
Average share of financing	45 %

	Germany
Annual greenhouse gas emissions reduced/avoided due to energy-efficient construction supported	<b>124,814</b> tons CO <sub>2</sub> -equivalents p.a.
Annual final energy savings	<b>458,000</b> MW <sub>el</sub>
Employment effects: jobs created and/or preserved	<b>512,000</b> person years





KfW is among the largest  
issuers of green bonds in  
the world. >>>

# Methodology and assumptions used for impact calculation of “Green Bonds – Made by KfW”

KfW calculated the impact of its green bonds issued in 2019 and 2020 based on the numbers provided by the external evaluators of the underlying promotional programmes “Renewable Energies – Standard” and “Energy-efficient Construction”. The loan programme “Renewable Energies – Standard” was evaluated by the Center for Solar Energy and Hydrogen Research Baden-Württemberg, Germany (ZSW), and the loan programme “Energy-efficient Construction” was evaluated by the economic research centre Prognos, Germany and the Research Institute for Thermal Insulation Munich, Germany, (FIW).

The impact is quantified for financed renewable energy plants inside and outside Germany as well as the supported energy-efficient construction in Germany. This report covers the following KPIs:

## Impact per EUR 1 million investment, based on KfW’s financing share

KPI	Unit	2019	2020	Applicable programme
Greenhouse gas emissions reduced / avoided (CO <sub>2</sub> -equivalents) per annum	Tons	135	157	Renewable Energies – Standard, Energy-efficient Construction
Annual final energy savings	MWh	6.7	7.8	Energy-efficient Construction
Annual renewable electricity generation	MWh	278	289	Renewable Energies – Standard
Renewable energy electricity added	MWel	0.17	0.17	Renewable Energies – Standard
Number of jobs created and/or preserved	Person years	12	12	Renewable Energies – Standard, Energy-efficient Construction

All KPIs are calculated on the basis of KfW’s average financing share of the total impact as well as the share of allocation of green bond proceeds to each programme. For “Renewable Energies – Standard” the average financing share was 70 % in 2019 and 67 % in 2020. For “Energy-efficient Construction” the average financing share was 37 % in 2019 and 45 % in 2020. In both years, 21 % of the allocated green underlyings were related to projects in the “Renewable Energies – Standard” programme and 79 % were related to projects in the “Energy-efficient Construction” programme.<sup>1</sup>

KPIs of impact measurement refer to loan commitments (or signed loan amounts) while allocation of green bond proceeds is reported on requests for disbursements. Due to full or partial waivers of borrowers, requests for disbursements might be lower than loan commitments. Also, the calendar year in which disbursements are made may differ from that in which commitments are made. This may cause a mismatch. KfW is aware of this potential mismatch which, in KfW’s view, is limited and therefore, will not be taken into account.

The number of jobs created / or preserved in KfW’s “Renewable Energy – Standard” programme for projects outside Germany is not available and, accordingly the respective KPI calculation is based on assumptions described below.

The impact calculation assumes a running time of 20 years for the facilities under both programmes.

The next section gives a brief overview of the methodology used by the external evaluators to estimate the positive impact of “Green Bonds – Made by KfW”.

## “Renewable Energies – Standard”

### **Annual GHG emissions reduced/avoided in tons CO<sub>2</sub>-e**

Savings in greenhouse gas (CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O) emissions due to supported renewable energy installations in Germany are calculated based on emission reduction factors provided by the German Umweltbundesamt (UBA – Federal Environment Agency). These factors reflect the specific fossil fuel mix that the renewable energy source replaces. They describe net emission savings, setting off the volume of emissions caused by the use of renewables (final energy supply) against the volume of gross emissions that are no longer being released thanks to fossil sources having been replaced with renewables.

All upstream process chains involved in the production and supply of the various energy sources and in installation construction and operation (but not dismantling) are also taken into account.

When calculating the savings in greenhouse gas emissions due to supported plants in countries other than Germany, emission reductions are estimated based on greenhouse gas emission factors (given as CO<sub>2</sub>-equivalents per kWhel) of the average electricity mix of the respective countries.

In many countries outside Germany in which installations are co-financed, electricity generation already has a low carbon intensity (e.g. in France due to a high share of nuclear energy or in Sweden due to a high share of renewable and nuclear energy). Therefore, the total savings in greenhouse gas emissions from supported plants outside Germany are comparatively low.

### **Annual renewable electricity generation**

Based on current studies, energy carrier-specific full load hours were determined for reference plants, e.g. onshore wind power plants. The renewable electricity generation estimated in this way was extrapolated taking into account the renewable energy capacity added.

### **Number of jobs created / and or preserved in person years**

The calculated employment effects take into account the production, construction and operation of the financed facilities. The number of jobs created and/or preserved is not available for projects outside Germany. KfW's KPI calculation is based on the assumption that the employment effects achieved inside Germany apply also to renewable energy plants financed outside Germany.

## “Energy-efficient Construction”

### **Annual GHG emissions reduced/avoided in tons CO<sub>2</sub>-e / Annual final energy savings**

Basis for the scientific approach is the building model developed by the Research Institute for Thermal Insulation Munich, Germany, (FIW) together with Institute für Technische Gebäudeausrüstung Dresden Forschungs und Anwendung GmbH, Dresden, Germany, (ITG) which describes the building stock in Germany according to its areas and structural conditions and is based on various data sources.

For the calculation of energy savings and the reduction of GHG emissions, every financed energy-efficient new building is compared with a 'reference building', i. e., a comparable new building in accordance with the German Energy Saving Ordinance (Energieeinsparverordnung, EnEV2016).

The calculation is based on a standardised determination of the expected energy demand for heating and for electricity of buildings financed. The actual consumption in the buildings considered may deviate from this estimation, which can lead to deviations in the savings.

### **Number of jobs created / and or preserved in person years**

The calculated employment effects take into account the production and construction of the financed energy-efficient buildings.



# >>> Appendix

## Impact data “Green Bonds – Made by KfW”

### Issuances including re-openings in 2019

KfW Green Bond	ISIN	Coupon p.a.	Maturity	Volume in millions	Net Proceeds in EUR millions	As of 31.12.2019		Distribution by energy ty
						allocated	to be allocated	
								Energy efficiency
EUR 2019/2029	SSD010000904	0.59 %	31 Jan 2029	EUR 2	2	100 %	0 %	79.3 %
EUR 2019/2027	XS1999841445	0.01 %	05 May 2027	EUR 3,000	2,990	100 %	0 %	
SEK 2019/2022	XS2007223709	0.125 %	03 Jun 2022	SEK 7,000	657	100 %	0 %	
AUD 2019/2024	AU3CB0265239	1.50 %	24 Jul 2024	AUD 450	281	100 %	0 %	
GBP 2019/2026	XS2034715305	0.875 %	15 Sep 2026	GBP 650	722	100 %	0 %	
HKD 2019/2021	XS2036670607	1.79 %	06 Aug 2021	HKD 300	34	100 %	0 %	
NOK 2019/2023	XS2046690827	1.25 %	28 Aug 2023	NOK 4,000	400	100 %	0 %	
USD 2019/2029	US500769JD71*	1.75 %	14 Sep 2029	USD 2,000	1,807	100 %	0 %	
NOK 2019/2023 1st tap	XS2046690827	1.25 %	28 Aug 2023	NOK 2,000	195	100 %	0 %	
EUR 2019/2027 1st tap	XS1999841445	0.01 %	05 May 2027	EUR 1,000	1,016	100 %	0 %	
<b>Total issuances “Green Bonds – Made by KfW” 2019</b>					<b>8,103</b>	<b>100 %</b>	<b>0 %</b>	<b>79.3 %</b>

Net proceeds in foreign currencies were converted into EUR at the ECB's exchange rate on the respective pricing date.

\* SEC registered global bond.

pe	Distribution by region		Estimated environmental and social impact per EUR 1 million (based on pro-rata financing of projects)				
	Germany	Other OECD	Annual GHG emissions reduced /avoided in tons CO <sub>2</sub> e	Annual final energy savings in MWh	Annual renewable electricity generation in MWh	Renewable energy capacity added in MW <sub>el</sub>	Number of jobs created and/or preserved in person years
Renewable energy							
20.7 %	90.2 %	9.8 %	135	6.7	278	0.17	12
20.7 %	90.2 %	9.8 %	135	6.7	278	0.17	12

# >>> Appendix

## Impact data “Green Bonds – Made by KfW”

### Issuances including re-openings in 2020

KfW Green Bond	ISIN	Coupon p.a.	Maturity	Volume in millions	Net Proceeds in EUR millions	As of 31.12.2020		Distribution by energy ty
						allocated	to be allocated	
								Energy efficiency
NOK 2019/2023 2nd tap	XS2046690827	1.25 %	28 Aug 2023	NOK 2,000	201	100 %	0 %	78.9 %
PLN 2020/2022	XS2102388837	1.70 %	17 Jan 2022	PLN 500	118	100 %	0 %	
HKD 2020/2021 No. 1	XS2115141678	1.695 %	11 Feb 2021	HKD 400	47	100 %	0 %	
HKD 2020/2021 No. 2	XS2116410882	1.69 %	12 Feb 2021	HKD 300	35	100 %	0 %	
HUF 2020/2022	XS2125044755	0.90 %	26 Feb 2022	HUF 2,000	6	100 %	0 %	
HKD 2020/2021 No. 3	XS2134408538	0.65 %	13 Mar 2021	HKD 250	28	100 %	0 %	
HKD 2020/2021 No. 4	XS2203818542	0.38 %	14 Jul 2021	HKD 100	11	100 %	0 %	
HKD 2020/2021 No. 5	XS2205083236	0.40 %	15 Jul 2021	HKD 100	11	100 %	0 %	
HKD 2020/2021 No. 6	XS2206344850	0.405 %	16 Jul 2021	HKD 100	11	100 %	0 %	
EUR 2020/2028	XS2209794408	0.00 %	15 Sep 2028	EUR 3,000	3,098	100 %	0 %	
USD 2020/2030	US500769JG03*	0.75 %	30 Sep 2030	USD 2,000	1,668	100 %	0 %	
EUR 2020/2028 1st tap	XS2209794408	0.00 %	15 Sep 2028	EUR 1,000	1,037	100 %	0 %	
HKD 2020/2021 No. 7	XS2250016180	0.075 %	28 Oct 2021	HKD 100	11	100 %	0 %	
EUR 2020/2028 2nd tap	XS2209794408	0.00 %	15 Sep 2028	EUR 2,000	2,067	100 %	0 %	
<b>Total issuances “Green Bonds – Made by KfW” 2020</b>					<b>8,350</b>	<b>100 %</b>	<b>0 %</b>	<b>78.9 %</b>

Net proceeds in foreign currencies were converted into EUR at the ECB's exchange rate on the respective pricing date.

\* SEC registered global bond.



pe	Distribution by region		Estimated environmental and social impact per EUR 1 million (based on pro-rata financing of projects)				
	Germany	Other OECD	Annual GHG emissions reduced /avoided in tons CO <sub>2</sub> e	Annual final energy savings in MWh	Annual renewable electricity generation in MWh	Renewable energy capacity added in MW <sub>el</sub>	Number of jobs created and/or preserved in person years
Renewable energy							
21.1 %	93.1 %	6.9 %	157	7.8	289	0.17	12
21.1 %	93.1 %	6.9 %	157	7.8	289	0.17	12

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Frankfurt, July 2022