



# »» Green Bonds – Made by KfW

Inaugural Impact Report:  
Delivering Transparency

**KfW**

»» KfW is one of the largest providers of green financings and among the largest issuers of bonds in international capital markets. We believe sustainability should be more relevant in capital markets. “Green Bonds – Made by KfW” are characterised by a high standard of quality including the publication of annual impact reports such as this one. Transparency is a key element in our green bond approach.



**Dr Frank Czichowski**  
Treasurer of KfW Group

The Center for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW), Germany, evaluates the environmental and social impacts of projects committed under KfW’s “Renewable Energies - Standard” programme and recently published the evaluation results for the years 2013 and 2014. The direct linkage between our green bonds and this loan programme enables us to quantify the climate protection effects of our green bonds.

This report marks our first impact report and relates to our inaugural green bonds issued in 2014. It ensures transparency regarding the positive environmental and social effects of and allocation of proceeds from all KfW green bonds issued in the respective year.

Frankfurt, April 2016

## Key Facts

Impact of **EUR 1 million investment** in “Green Bonds – Made by KfW”:  
**1,271 tons** of GHG emission reductions (CO<sub>2</sub>-equivalents) per annum\*

## Impact of "Green Bonds – Made by KfW" issuances 2014

	€ 1.5bn Green Bond 2014/2019	\$ 1.5bn Green Bond 2014/2019
of GHG emissions reductions (CO <sub>2</sub> -equivalents) per annum*	1,894,484 tons	1,506,807 tons
of savings on energy imports to Germany and fossil fuel costs per annum*	100,075,824 EUR	79,596,892 EUR
jobs created and/or secured (person years)*	37,585 jobs	29,894 jobs
of savings in external costs per annum*	193,140,989 EUR	153,617,746 EUR

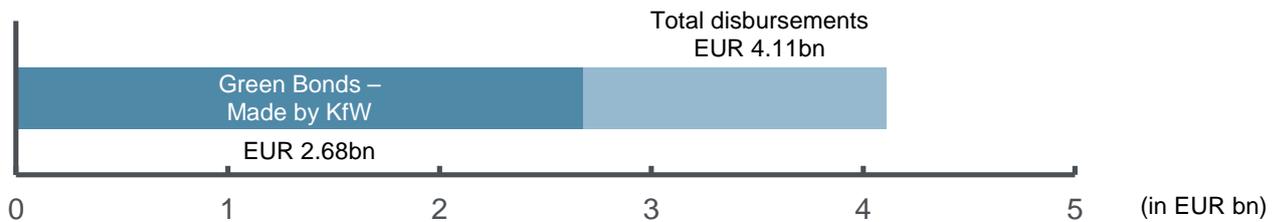
\* Values are based on programme impacts in 2014 in Germany – with numbers evaluated by ZSW – and internal calculations; impact for projects outside Germany might be different.

# Management of Proceeds

Allocation of the net proceeds from KfW's green bond issuances and distribution of the requests for disbursements under the "Renewable Energies – Standard" programme in 2014.

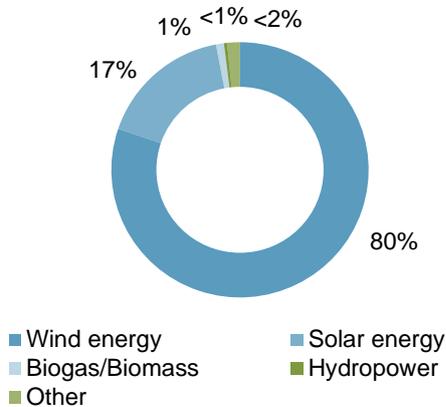
In 2014, KfW received requests for loan disbursements under its "Renewable Energies – Standard" programme in an amount of EUR 4.11 billion. In the same period, KfW received net proceeds totaling EUR 2.68 billion from its green bond issuances. For purposes of this report, the euro equivalent of proceeds in foreign currency is calculated based on the ECB's exchange rate on the pricing date of the respective issuance.

**Requests for Disbursements under KfW's Programme "Renewable Energies – Standard" 01/01/2014 - 31/12/2014**



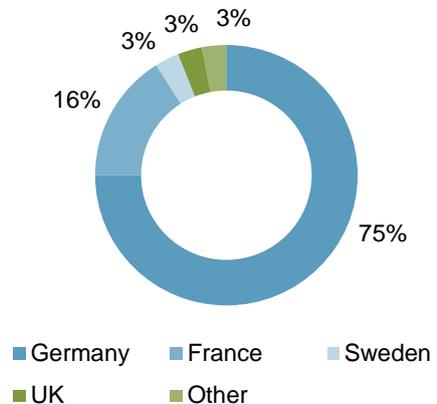
80% of all requests for disbursements were related to projects for the use of wind energy, and 17% were linked to projects using solar energy. The remainder of the requests for disbursements was attributable to bio-gas/biomass systems, hydropower and other projects.

**Requests for Disbursements under KfW's Programme "Renewable Energies – Standard" by Usage 01/01/2014 - 31/12/2014**



While the projects financed were principally located in Germany, 25% of all requests for disbursements were related to projects located outside Germany – mainly in France, Sweden, and the UK.

**Requests for Disbursements under KfW's Programme "Renewable Energies – Standard" by Region 01/01/2014 - 31/12/2014**



## Wind farm Bendorf-Oersdorf: Project example financed under the "Renewable Energies – Standard" programme



Location	Germany, Schleswig-Holstein, district Rendsburg-Eckernförde
Completion	2014
Calculated annual production capacity	approx. 39mn KW/h electricity
Supply area	11,000 households
Estimated GHG reductions	32,379 tons GHG p.a. (CO <sub>2</sub> -equivalents)
Total project costs	EUR 27.9mn (thereof KfW funds: EUR 21.0mn)

# Evaluation of Social and Environmental Impact

## Assessment of the impact of KfW's programme "Renewable Energies – Standard".

The independent non-profit research institute Center for Solar Energy and Hydrogen Research Baden-Württemberg (ZSW) evaluated the social and environmental impact of projects financed under KfW's programme "Renewable Energies – Standard" based on new commitments in 2014.

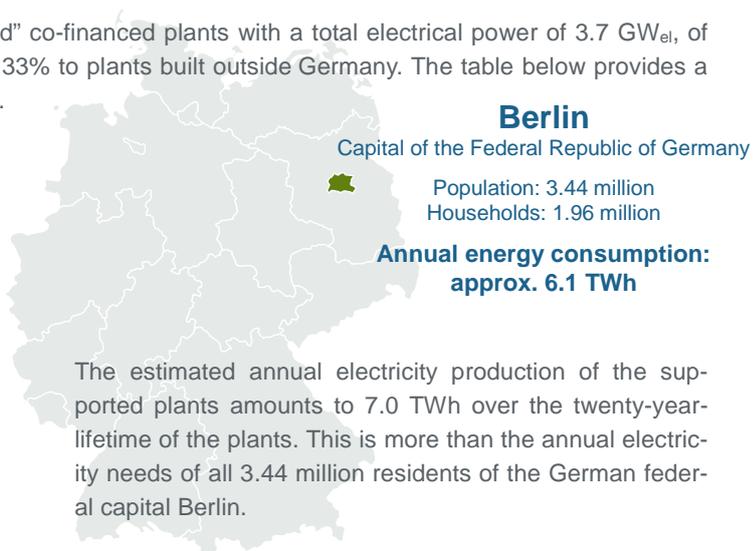
In 2014, the volume of commitments under KfW's loan programme "Renewable Energies – Standard" totalled almost EUR 3.8 billion and triggered investments of approx. EUR 5.9 billion – representing an average share of KfW financing amounting to 64%. Thereof, EUR 1.0 billion and approx. EUR 1.9 billion, respectively, were attributable to renewable energy plants built outside Germany. The average investment per commitment amounted to EUR 1.2 million.

### Commitments under KfW's programme "Renewable Energies – Standard" in 2014

Number of loan commitments	4,805
Volume of loan commitments (EUR mn)	3,786
Thereof outside Germany (EUR mn)	1,001
Investments financed (EUR mn)	5,909
Thereof outside Germany (EUR mn)	1,886
Average loan volume per commitment (EUR)	787,910
Average investment financed per commitment (EUR)	1,229,780
Average share of financing	64%

In 2014, KfW's programme "Renewable Energies – Standard" co-financed plants with a total electrical power of 3.7 GW<sub>el</sub>, of which 67% were attributable to plants built in Germany and 33% to plants built outside Germany. The table below provides a detailed picture of the installed electrical power by plant type.

Installed electrical power supported in 2014	MW <sub>el</sub>
Biogas	5.5
Solid biomass	0.1
Photovoltaic energy	570.3
Hydropower	11.0
Wind energy onshore	3,082.5
<b>Total</b>	<b>3,669.4</b>
Annual electricity production	TWh
	<b>7.0</b>



The projects co-financed under KfW's "Renewable Energies – Standard" programme in 2014 had the following social and environmental impacts:

	Unit	Germany
Annual savings in greenhouse gas emission due to plants supported	million tons CO <sub>2</sub> -equivalents p.a.	3.54
Annual savings in energy imports	EUR million p.a.	187
Employment effects	person years	70,230
Annual savings in external costs	EUR million p.a.	360.9

# Evaluation of Social and Environmental Impact

## Impact of EUR 1 million investment in “Green Bonds – Made by KfW”.

Based on the evaluated impact of the underlying programme “Renewable Energies – Standard”, KfW calculates the impact of its green bonds. The impact is quantified for the supported plants built in Germany and measured considering the total investments financed (in 2014: EUR 4.0 billion).

Based on the evaluated figures by ZSW, an investment of EUR 1 million in KfW’s green bonds issued in 2014 leads to 1,271 tons of GHG emission reductions per annum (CO<sub>2</sub>-equivalents). This is more than the previously estimated annual GHG emission reductions of 800 tons. At the same time, decreased imports of hard coal, natural gas and mineral oil led to annual savings in energy costs

for imported fuel of EUR 67,155 per EUR 1 million invested in 2014. Despite the decline of energy costs, this corresponds quite accurately to the EUR 68,000 per year that had been previously estimated. Savings not only result in decreasing energy imports and fossil fuel costs but also in a decrease of emission-linked damages. These savings in external costs amount to EUR 129,606 per year for every EUR 1 million investment in KfW’s green bonds in 2014.

Moreover, a green bond investment of EUR 1 million in 2014 led to the creation and/or retention of 25 person years over the lifetime of the supported plants – more than twice as much as previously estimated.

## Green Bonds – Made by KfW

	Previously estimated	Actual	
Impact of EUR 1 million investment:	800 tons	1,271 tons	of GHG emission reductions (CO <sub>2</sub> -equivalents) per annum
	68,000 EUR	67,155 EUR	of savings on energy imports to Germany and fossil fuel costs per annum
	9 jobs	25 jobs	created and/or secured (person years)
	not quantified	129,606 EUR	of savings in external costs per annum

Values are based on programme impacts in 2014 in Germany – with numbers evaluated by ZSW – and internal calculations; impact for projects outside Germany might be different.

The impact described in this report is derived from the evaluation made by ZSW. The full evaluation report<sup>1</sup> (in German only) as well as an English abstract<sup>2</sup> are available on KfW’s website. ZSW assessed reductions in emission of greenhouse gases and air pollutants, external costs, fossil fuel consumption and associated fossil fuel imports resulting from plants built in Germany that were co-financed through KfW’s loan programme “Renewable Energies – Standard”. Furthermore, impacts on employment in Germany were quantified. In addition, for plants built outside Germany greenhouse gas emission avoided were estimated. The calculations are based on standardised substitution factors, which are provided by the German Environment Agency (*Umweltbundesamt*). A detailed description (in German) of calculation approaches and results of all national renewable energy promotional activities of KfW can be found in the full evaluation report.

<sup>1</sup> Bickel, P., Kelm, T., Edler, D.: Evaluierung der inländischen KfW-Programme zur Förderung Erneuerbarer Energien in den Jahren 2013 und 2014. Gutachten im Auftrag der KfW Bankengruppe, Stuttgart, Dezember 2015. <https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-alle-Evaluationen/Evaluierung-EE-2013-und-2014.pdf> (only available in German)

<sup>2</sup> Bickel, P., Kelm, T.: Assessment of environmental and social impacts of the “KfW Renewable Energies Programme – Standard” for the year 2014. Evaluation commissioned by KfW Group, Stuttgart, February 2016. [https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-alle-Evaluationen/Evaluation\\_Summary\\_KfW\\_RE-Standard\\_2014.pdf](https://www.kfw.de/PDF/Download-Center/Konzernthemen/Research/PDF-Dokumente-alle-Evaluationen/Evaluation_Summary_KfW_RE-Standard_2014.pdf)

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