

REPORT

AIB 2022 Impact Assessment

For eligible Green Bond projects for AIB up to December 31, 2022

February 2023



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Introduction

Aligned with its sustainability strategy, Allied Irish Banks ("**AIB**") is intending to issue green bonds to finance and / or refinance loans that meet the requirements as described in the AIB Green Bond Framework ("**Framework**")¹. The objective of the Framework, and subsequent green bonds issued from it, is to fund projects or assets that mitigate climate change, by reducing emissions, protect ecosystems or otherwise have a positive environmental impact. The Framework has been aligned to the ICMA Green Bond Principles and has received a Second Party Opinion from Sustainalytics.

In accordance with the AIB Green Bond Framework dated October 2022, this document provides:

- 1. A description of the Eligible Green Projects;
- 2. The breakdown of the Eligible Green Projects by nature of what is being financed;
- 3. Metrics regarding Eligible Green Projects' environmental impacts.

Description of Eligible Green Projects

AIB, at its discretion but in accordance with the ICMA Green Bond Principles², will allocate the net proceeds of the Green Bonds issued under the Framework, to a loan portfolio of new or existing loans in certain Eligible Green Categories.

Green Buildings

The Eligible Green Project Portfolio includes "Green Commercial Buildings", the criteria for which are set out below¹:

Green Commercial Buildings in Ireland³:

- Green Commercial Buildings in Ireland built up to and including 31st December 2020 existing commercial buildings, belonging to the top 15% low carbon buildings in the local context. This will be demonstrated by a Building Energy Rating (BER) label of "B2" and better.
- New or existing commercial buildings that have been built from the 1st January 2021 onwards and that have a primary energy demand at least 10% lower than what is required by the local Nearly Zero-Energy Building (NZEB) Regulation.
- Refurbished commercial buildings with at least a 30% improvement in energy efficiency: When such an improvement is derived from BER labels, a minimum floor of a "C3" BER label will be implemented.

¹ AIB Green Bond Framework – October 2022

² ICMA Green Bond Principals – June 2021 (June 2022 Appendix 1)

³ AIB has retained the third party specialised consultant KSN to develop a methodology to select top 15% energyefficient buildings in the Republic of Ireland

Green Commercial Buildings in the UK⁴:

- New or existing commercial buildings in the UK, belonging to the top 15% low carbon buildings in the local context (i.e. England & Wales, Scotland and Northern Ireland):
 - a. In England and Wales, this will be demonstrated by an Energy Performance Certificate (EPC) with labels "A" and "B".
 - b. In Scotland, this will be demonstrated by an EPC with labels "A, B and C".
- Refurbished commercial buildings with at least a 30% improvement in energy efficiency: When such an improvement is derived from EPC labels, a minimum floor will be implemented for the considered building. The floor will be one step below the lowest defined threshold to be part of the top 15% in the local context (i.e. a "C" label in England and Wales).

Green Commercial Buildings in Ireland and the UK:

- New, existing or refurbished commercial buildings which received at least one or more of the following classifications:
 - a. BREEAM 'Excellent' or higher
 - b. LEED 'Gold' or higher
 - c. DGNB 'Gold' or higher

Green Residential Buildings:

- Green Residential Buildings in Ireland⁵ built up to and including 31st December 2020⁶- existing residential buildings, belonging to the top 15% low carbon buildings in the local context. This will be demonstrated by a Building Energy Rating (BER) label of B2 and better.
- Green Residential Buildings in Ireland built from 1st January 2021 onwards that have a primary energy demand at least 10% lower than what is required by the local Nearly Zero-Energy building (NZEB) regulation.
- Refurbished residential buildings with at least a 30% improvement in energy efficiency, with such an improvement derived from BER labels, a minimum floor of "C3" BER label will be implemented.

⁴ AIB will derive any such top 15% thresholds from publicly issued governmental statistical data.

⁵ AIB will derive any such top 15% thresholds from publicly issued governmental statistical data.

⁶ Built in this context means construction has completed by the listed date.

Clean Transportation

Zero emissions vehicles and supporting infrastructure:

- Fully electric, hydrogen or otherwise zero emissions vehicles for the transportation of passengers.
- Infrastructure to support zero emissions vehicles including but not limited to EV charging and hydrogen fuelling stations.

Renewable Energy

Renewable Energy assets located in Ireland, the UK, and across the EEA, and the USA:

- Loans to finance or refinance equipment, development, manufacturing, construction, operation, distribution and maintenance of renewable energy generation. Eligible renewable energy sources⁷ include:
 - a. **Solar Energy**: Photovoltaics (PV), concentrated solar power (CSP) and solar thermal facilities.
 - b. **Wind Energy**: Onshore and offshore wind energy generation facilities and other emerging technologies.
 - c. Geothermal Energy: Geothermal power plants with a life cycle emissions lower than $100g \ CO_2e/kWh$.
 - d. **Power Storage Facilities**: Compressed air, flywheels, synchronous condensers, and batteries.
 - e. **Energy transmission infrastructure**: Interconnectors between transmission systems, provided that the systems meet one of the following criteria:
 - The system is the interconnected European system, i.e., the interconnected control areas of Member States, Norway, Switzerland and the United Kingdom, and its subordinated systems.
 - More than 67% of newly enabled generation capacity in the system is below the generation threshold value of 100gCO₂e/kWh measured on a life cycle basis in accordance with electricity generation criteria, over a rolling five-year period.
 - The average system grid emission factor, calculated as the total annual emissions from power generation connected to the system, divided by the total annual net electricity production in that system, is below the threshold value of 100gCO₂e/kWh measured on a life cycle basis in accordance with electricity generation criteria, over a rolling five-year period.

⁷ Solar, Wind and Interconnector Facilities with direct emissions higher than 100g CO₂/kWh are excluded.

AIB's Eligible Green Project Portfolio is composed of financial assets (eligible loans), selected in accordance with the Eligibility Criteria set out in the Framework.

Contribution to environmental objectives

Eligible Projects substantially contribute to the achievement of the **EU Environmental Objective n. 1: Climate Change Mitigation**⁸

- Improving energy efficiency (1b), except for power generation activities using solid fossil fuels, at all stages of the energy chain, in order to reduce primary and final energy consumption, as referred to in Article 19(3);
- Generating, transmitting, storing, distributing or using renewable energy in line with Renewable Energy Directive (EU) 2018/2001, including through using innovative technology with a potential for significant future savings or through necessary reinforcement or extension of the grid (1a);
- Establishing energy infrastructure required for enabling the decarbonisation of energy systems (1g); and
- Increasing clean or climate-neutral mobility (1c).

Alignment with the UN Sustainable Development Goals (UN SDGs):

Green Bonds issued under this Green Bond framework directly advance the following SDGs:

- SDG 7: Affordable and Clean Energy (Target 7.1, 7.2, 7.3)
- SDG 9: Industry, Innovation and Infrastructure (Target 9.4)
- SDG 13: Climate Action (Target 13.1)

⁸ Regulation (EU) 2020/852 of the European Parliament and of the Council of 18 Jun 2020. On the establishment of a framework to facilitation sustainable investment – 'Taxonomy Regulation', see here.

Environmental impact of projects (total asset impact attribution)

The area of impact assessment related to green bonds and more widely the accounting of financed carbon emissions, is developing rapidly. Our aim is to represent current best practice and where possible move that forward. To this end we have considered current market practice, recognised impact reporting standards including ICMA's Harmonized Framework for Impact Reporting⁹, and from the related area of emissions reporting, the PCAF methodologies¹⁰, specifically around attribution.

Market practice in green bond impact assessments, typically presents the total avoided emissions from a given asset allocated to the bond. For example, all the avoided emissions from a battery electric vehicle (BEV) will be attributed to the financing although in practice the financing may not represent the total value of the vehicle. To give as complete a picture as possible we have presented the impact related to AIB's green bond with the headline impact figures (total asset impact attribution) as per market practice, but also included a secondary analysis attributing the impact according to the outstanding loan amount (outstanding loan attribution) to the relevant assets at this point in time. Please note, in the case of renewables because of the nature of the financing it is normal practice to attribute impact according to the proportion of the total financing provided to the project. This approach has been followed below.

The Eligible Green Project Portfolio is assessed regarding the following environmental impacts:

- Green Buildings:
 - Estimated annual energy consumption (in MWh/year) and estimated annual avoided energy consumption (in MWh/year)
 - Estimated annual avoided emissions (in tons CO₂/year)
- Clean Transportation:
 - Annual GHG emission avoided (in kg CO₂/year)
 - Number of battery electric vehicles (BEVs) deployed
- Renewable Energy:
 - Total installed capacity (in MW)
 - Estimated annual avoided emissions (in tons of CO₂/year)

⁹ ICMA Harmonized Framework for Impact Reporting – June 2022

¹⁰ PCAF Financed Emissions - Part A (Dec 2022)

Eligible ICMA Project Category	Number of eligible projects	Eligible portfolio (million €) ¹¹	Share of Total Financing ¹²	ICMA Eligibility (%)	AIB attributed annual avoided emissions (tCO ₂ /year)	AIB attributed project capacity (MWh)	AIB attributed annual energy consumption (MWh/year)	AIB attributed annual avoided energy consumption (MWh/year)
Green Buildings	4,399	1,853,232,286	53%	100%	16,301	-	31,438	63,630
Commercial Real Estate	-	715,294,810	39%	100%	5,256	-	21,474	17,692
Mortgages	-	1,137,937,475	61%	100%	11,045	-	9,964	45,937
Clean Transportation	1,403	33,134,148	1%	100%	493	-	1,459	-
Renewable Energy	56	1,607,783,425	46%	100%	879,958	1,042	-	-
Energy Generation	-	1,607,783,425	100%	100%	879,958	1,042	-	-
Energy Storage	-	-	0%	100%	-	-	-	-
Energy Transmission	-	-	0%	100%	-	-	-	-
Total	5,858	3,494,149,859	100%	100%	896,752	1,042	32,898	63,630

Table 1 Estimated environmental impact from AIB's operational project portfolio, as of December 31, 2022

¹¹ Signed amount represents the amount legally committed by the issuer for the portfolio or portfolio components eligible for Green Bond Financing

¹² This is the share of the total portfolio cost that is financed by the issuer per Eligible Category

Eligible ICMA Project Category	Number of eligible projects	Eligible portfolio (€) ¹³	Share of Total Financing ¹⁴	ICMA Eligibility (%)	AIB attributed annual avoided emissions (tCO ₂ /year)	Total project capacity (MWh)	AIB attributed annual energy consumption (MWh/year)	AIB attributed annual avoided energy consumption (MWh/year)
Green Buildings	182	823,272,580	69%	100%	24,073	-	19,440	69,482
Commercial Real Estate	-	823,272,580	100%	100%	24,073	-	19,440	69,482
Mortgages	-	-	0%	100%	-	-	-	-
Clean Transportation	-	-	0%	100%	-	-	-	-
Renewable Energy	17	369,167,044	31%	100%	215,579	2,082	-	-
Energy Generation	-	292,098,664	79%	100%	212,256	157	-	-
Energy Storage	-	29,970,010	8%	100%	3,073	21	-	-
Energy Transmission	-	47,098,371	13%	100%	250	1,904	-	-
Total	199	1,192,439,625	100%	100%	239,652	2,082	19,440	69,482

Table 2 Estimated environmental impact from AIB's in-development project portfolio, as of December 31, 2022

¹³ Signed amount represents the amount legally committed by the issuer for the portfolio or portfolio components eligible for Green Bond Financing

¹⁴ This is the share of the total portfolio cost that is financed by the issuer per Eligible Category

Eligible ICMA Project Category	Number of eligible projects	Eligible portfolio (€) ¹⁵	Share of Total Financing ¹⁶	ICMA Eligibility (%)	AIB attributed annual avoided emissions (tCO ₂ /year)	Total project capacity (MWh)	AIB attributed annual energy consumption (MWh/year)	AIB attributed annual avoided energy consumption (MWh/year)
Green Buildings	4,581	2,676,504,866	57%	100%	40,375	-	50,879	133,111
Commercial Real Estate	-	1,538,567,391	57%	100%	29,330	-	40,914	87,174
Mortgages	-	1,137,937,475	43%	100%	11,045	-	9,964	45,937
Clean Transportation	1,403	33,134,148	1%	100%	493	-	1,459	-
Renewable Energy	73	1,976,950,469	42%	100%	1,095,536	3,124	-	-
Energy Generation	-	1,899,882,089	96%	100%	1,092,214	1,199	-	-
Energy Storage	-	29,970,010	2%	100%	3,073	21	-	-
Energy Transmission	-	47,098,371	2%	100%	250	1,904	-	-
Total	6,057	4,686,589,484	100%	100%	1,136,405	3,124	52,338	133,111

Table 3 Estimated environmental impact from AIB's entire project portfolio, as of December 31, 2022

¹⁵ Signed amount represents the amount legally committed by the issuer for the portfolio or portfolio components eligible for Green Bond Financing

¹⁶ This is the share of the total portfolio cost that is financed by the issuer per Eligible Category

Environmental impact of projects (outstanding loan attribution)

Impact attribution methodology

The attribution methodology for the renewable energy projects and commercial green buildings were as follows: the outstanding loan value was divided by the project value (or the property value in the case of buildings if the project value was unavailable) to provide the share of avoided emissions that can be attributed to AIB (referred to as the 'attribution factor').

For the clean transportation projects, as the project value was unavailable, we used the retail price of the BEV model as a proxy¹⁷. The outstanding loan amount was divided by the vehicle's retail price to provide an attribution factor. This attribution factor was then multiplied by the estimated total avoided emissions from each BEV.

In addition to the impact metrics reported in tables 1 and 2, which are in line with the ICMA recommendations, the below tables represent the avoided emissions from the same projects if only a portion of the avoided emissions were to be attributed to AIB.

Eligible ICMA Project Category	Est. annual avoided emissions (tCO ₂ /year)	AIB attributed annual avoided emissions (tCO ₂ /year)	Weighted average attribution factor (%) ¹⁸
Green Buildings	36,721	16,301	51%
Commercial Real Estate	24,448	5,256	23%
Mortgages	12,273	11,045	90%
Clean Transportation	942	493	60%
Renewable Energy	12,799,356	879,958	25%
Energy Generation	12,799,356	879,958	25%
Energy Storage	-	-	-
Energy Transmission	-	-	-
Total	12,837,019	896,752	40%

Table 4 Estimated CO₂ emissions avoidance and attribution from AIB's operational project portfolio, as of December 31, 2022

¹⁷ The retail price per BEV was sourced from the <u>SEAI's car comparison tool</u>. As vehicle models have various types, the average price across all types was used for the price of a vehicle model (e.g., price used for Nissan Leaf was the average of the price of the Leaf SV 62 kWh, the Leaf XE 40 kWh, the Leaf SVE Premium 62 kWh etc.). As all the BEVs in the portfolio were eligible for an <u>SEAI BEV grant</u> of €5,000 (because they cost more than €20,000), this grant amount was deducted from each average vehicle model price.

¹⁸ The average is weighted based on the outstanding loan amount of each asset.

Table 5 Estimated CO₂ emissions avoidance and attribution from AIB's in-development project portfolio, as of December 31, 2022

Eligible ICMA Project Category	Est. annual avoided emissions (tCO ₂ /year)	AIB attributed annual avoided emissions (tCO ₂ /year)	Weighted average attribution factor (%) ¹⁹
Green Buildings	568,363	24,073	15%
Commercial Real Estate	568,363	24,073	15%
Mortgages	-	-	-
Clean Transportation	-	-	-
Renewable Energy	14,908,449	215,579	2%
Energy Generation	14,618,922	212,256	1%
Energy Storage	82,901	3,073	5%
Energy Transmission	206,626	250	3%
Total	15,476,812	239,652	6%

Table 6 Estimated CO2 emissions avoidance and attribution from AIB's total project portfolio, as of December 31, 2022

Eligible ICMA Project Category	Est. annual avoided emissions (tCO ₂ /year)	AIB attributed annual avoided emissions (tCO ₂ /year)	Weighted average attribution factor (%) ²⁰
Green Buildings	605,084	40,375	60%
Commercial Real Estate	592,811	29,330	38%
Mortgages	12,273	11,045	90%
Clean Transportation	942	493	60%
Renewable Energy	27,707,804	1,095,536	26%
Energy Generation	27,418,277	1,092,214	26%
Energy Storage	82,901	3,073	5%
Energy Transmission	206,626	250	3%
Total	28,313,831	1,136,405	45%

¹⁹ The average is weighted based on the outstanding loan amount of each asset.

²⁰ The average is weighted based on the outstanding loan amount of each asset.

Category Breakdown

Green Buildings

Green Commercial Real Estate

Table 7 Estimated CO₂ emissions avoidance and attribution from AIB's Green Commercial Real Estate Portfolio, as of December 31, 2022

Property Type	Percentage of eligible projects (%)	Total outstanding loan amount (EUR)	Average Energy Intensity (kWh/m²/year)	AIB attributed primary energy consumption (MWh/year)	AIB attributed avoided primary energy consumption (MWh/year)	AIB Attributed Annual Carbon Emissions (tCO ₂ /year)	AIB attributed avoided emissions (tCO ₂ /year)
Residential	86%	964,074,293	64	30,685	62,982	8,980	21,617
B1 Offices and Workshop businesses (UK)	0%	112,748,469	84	1,505	4,481	288	857
Office (Ireland)	6%	315,090,705	113	3,605	15,477	1,254	5,383
Schools and colleges	2%	49,190,066	79	465	733	162	255
Hospitals and primary health care	3%	26,200,000	261	1,561	633	543	220
Workshops/maintenance depot	0%	23,000,000	196	520	1,346	181	468
Hotel	1%	35,234,996	431	1,583	677	551	236
Nursing residential homes and hostels	1%	13,028,862	220	991	844	345	294
Total	100%	1,538,567,391	79	40,914	87,174	12,302	29,330

Green Mortgages

Table 8 Comparison between AIB's Eligible Green Mortgage Portfolio and the SEAI BER Domestic Database, as of December 31, 2022

Comparison	AIB Green Mortgage Portfolio	SEAI BER Domestic Database
Total number of eligible green mortgages ²¹	4,360	1,093,952.00
Total floor area of eligible green mortgages (m ²)	269,846	N/A
Average BER of eligible green mortgages (kWh/m²/year)	41.31	230.18
Average Carbon Emissions Intensity per eligible green mortgages (kgCO ₂ /m ² /year)	8.05	53.48
Average BER Category of eligible green mortgages	A2	D1
Total AIB attributed carbon emissions of properties of eligible green mortgages (tCO_2 /year)	1,942.86	14,431.37 ²²
Total AIB attributed energy consumption of properties of eligible green mortgages (MWh/year)	9,964.43	62,113.17 ²³

²¹ AIB Group Plc originates green mortgages in Ireland (via AIB Mortgage Bank, EBS and Haven Mortgages) and in the UK. The total quantum of Green Mortgages across the group is materially greater than the quantum included in the Green Bond Portfolio. The extent of the inclusion of eligible mortgages in the Green Portfolio is related to pool management and bond allocation considerations.

²² Comparison with the equivalent number of properties to the AIB pool.

²³ Comparison with the equivalent number of properties to the AIB pool.

Green Transportation

 Table 9 Breakdown of models within AIB's Eligible Green Transportation Portfolio, as of December 31, 2022

Vehicle Make	Number of vehicles	Total outstanding investment (EUR)	Average vehicle energy consumption (kWh/km)	Annual Direct GHG emissions avoided, Scope 1 [tailpipe emissions] (kgCO ₂)	Annual Indirect GHG emissions, Scope 2 [BEV emissions] (kgCO ₂)	AIB attributed avoided emissions (kgCO ₂)	Total avoided emissions per Euro (kgCO ₂ /EUR)
Nissan	850	16,102,099	0.18	1,172,992	617,610	276,280.49	0.017
Tesla	288	8,435,598	0.16	393,407	183,373	114,735.20	0.014
Volkswagen	177	5,670,916	0.17	246,529	124,270	72,709.37	0.013
Audi	21	894,769	0.24	28,882	20,776	3,429.89	0.004
Skoda	16	491,037	0.16	22,131	10,684	6,615.52	0.013
Kia	15	657,834	0.19	21,599	11,576	6,787.01	0.010
Hyundai	30	737,524	0.17	42,007	20,539	10,747.41	0.015
Honda	3	61,779	0.17	3,930	2,118	1,022.02	0.017
Mercedes-Benz	1	39,585	0.22	1,440	885	252.02	0.006
Mini	1	19,383	0.15	1,310	624	389.34	0.020
Mazda	1	23,625	0.18	1,310	735	341.21	0.014
Total	1,403	33,134,148	0.18	1,935,537.50	993,189.41	493,309	0.015

Renewable Energy

Table 10 Breakdown of operational assets within AIB's Renewable Energy portfolio as of December 31, 2022

Project type - operational	Percentage of eligible projects (%)	Total outstanding investment (M EUR)	AIB attributed production of all projects (MWh)	AIB avoided emissions (tCO ₂)	Total avoided emissions per Euro (kgCO ₂ /EUR)	Total avoided emissions per MWh (kgCO ₂ /MWh)
Offshore Wind	16%	313.43	545,904.56	235,652.05	0.75	431.67
Onshore Wind	77%	1,128.80	1,656,890.98	606,103.80	0.54	365.81
Solar PV	5%	116.57	132,322.11	33,272.26	0.29	251.45
Other ²⁴	2%	48.98	133,229.83	4,929.50	0.10	37.00
Total	100%	1,607.78	2,468,347.47	879,957.61	0.55	356.50

²⁴ "Other" consists of geothermal energy generation, power storage facilities and energy transmission projects.

Table 11 Breakdown	of assets under construction	on within AIB's Rene	wable Energy portfol	io as of December 31, 2022

Project type – under construction	Percentage of eligible projects (%)	Total outstanding investment (M EUR)	AIB attributed production of all projects (MWh)	AIB avoided emissions (tCO ₂)	Total avoided emissions per Euro (kgCO ₂ /EUR)	Total avoided emissions per MWh (kgCO ₂ /MWh)
Offshore Wind	35.3%	152.71	264,428.88	100,581.14	0.66	380.37
Onshore Wind	24.5%	114.38	222,305.24	79,467.66	0.69	357.47
Solar PV	17.6%	25.01	77,413.86	32,207.36	1.29	416.04
Other ^{25 26}	23.5%	77.07	154,588.24	3,322.62	0.04	21.49
Total	100%	369.17	718,736.22	215,578.76	0.58	299.94

²⁵ "Other" consists of geothermal energy generation, power storage facilities and energy transmission projects.

²⁶ A transmission figure is not available for energy transmission infrastructures as they facilitate electricity flows from connected locations in both directions, according to price differences in respective markets. Therefore, a final estimated transmission figure is not available. Energy transmission infrastructures are considered eligible Green Projects consistent with EU Climate Change Mitigation objectives, as energy systems will have to be increasingly interconnected to accommodate a higher proportion of EU energy generation from intermittent sources.

Table 12 Breakdown of all renewable energy assets within AIB's Renewable Energy Portfolio as of December 31, 2022

Project type – Total	Percentage of eligible projects (%)	Total outstanding investment (M EUR)	AIB attributed production of all projects (MWh)	AIB avoided emissions (tCO ₂)	Total avoided emissions per Euro (kgCO ₂ /EUR)	Total avoided emissions per MWh (kgCO ₂ /MWh)
Offshore Wind	21%	466.14	810,333.44	336,233.19	0.72	414.93
Onshore Wind	64%	1,243.18	1,879,196.23	685,571.46	0.55	364.82
Solar PV	8%	141.58	209,735.97	65,479.61	0.46	312.20
Other ^{27 28}	7%	126.05	287,818.06	8,252.12	0.07	28.67
Total	100%	1,976.95	3,187,083.69	1,095,536.38	0.55	343.74

²⁷ "Other" consists of geothermal energy generation, power storage facilities and energy transmission projects.

²⁸ A transmission figure is not available for energy transmission infrastructures as they facilitate electricity flows from connected locations in both directions, according to price differences in respective markets. Therefore, a final estimated transmission figure is not available. Energy transmission infrastructures are considered eligible Green Projects consistent with EU Climate Change Mitigation objectives, as energy systems will have to be increasingly interconnected to accommodate a higher proportion of EU energy generation from intermittent sources.

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