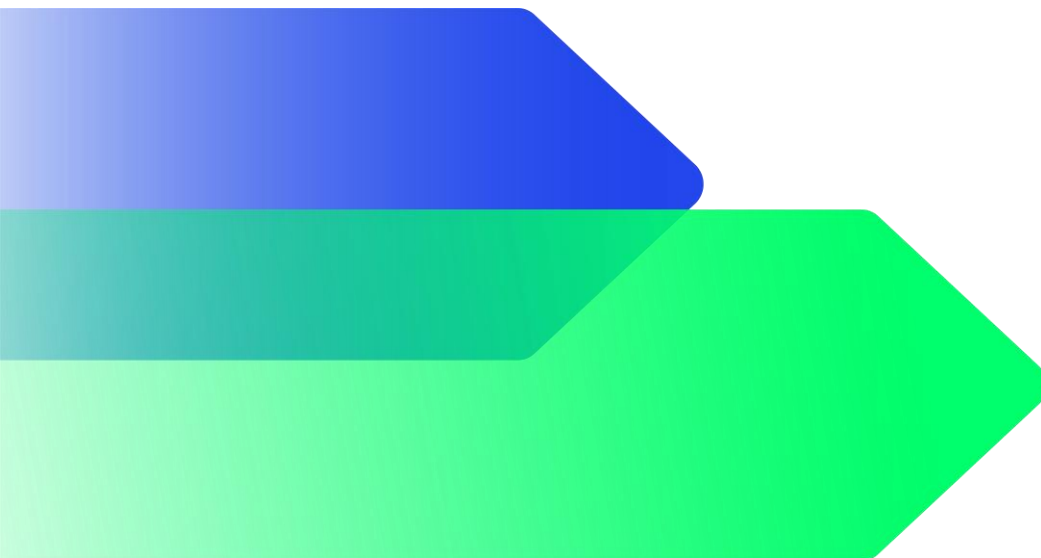


REPORT

AIB Circular Economy & Waste Impact Assessment Methodology

October 2024



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Abbreviations and glossary

Avoided carbon emissions	The avoided carbon emissions of the underlying properties when comparing them against a baseline of the average property (by sector and geography), on an annual basis. The avoided emissions are a result of these properties being more efficient and less carbon intensive than the average property (by sector and geography)
Baseline	The average energy and carbon intensity of properties by sector and geography, informed by the SEAI and EPC datasets
Eligible Green Project Portfolio	Eligible green bond use of proceeds as outlined in the Framework
Framework	AIB's green bond framework outlines its green bond processes and procedures for (1) Use of Proceeds, (2) Process for Project Evaluation and Selection, (3) Management of Proceeds, and (4) Reporting
Circular Economy	A system which seeks to eliminate waste and promote the continual use of resources through recycling, reuse, and sustainable design.
Waste Management	The process of collecting, transporting, processing, and disposing of waste materials in a way that minimizes environmental impact.
Reverse Vending Machine	A device that accepts empty beverage containers for recycling and rewards users with incentives or refunds.
Deposit Return Scheme	System where consumers pay a small deposit on beverage containers which is refunded when the empty beverage containers are returned for recycling.
GHG	Greenhouse gases
PCAF	Partnership for Carbon Accounting Financials
WBCSD	World Business Council for Sustainable Development
ICMA	International Capital Markets Association
PET	Polyethylene Terephthalate

Introduction

Who We Are

Our mission is to accelerate the move to a decarbonised future. We have been climate pioneers for more than 20 years, partnering with leading businesses, governments and financial institutions globally. From strategic planning and target setting to activation and communication - we are your expert guide to turn your climate ambition into impact.

We are one global network of 400 experts with offices in the UK, the Netherlands, South Africa, China, Singapore and Mexico. To date, we have helped set 200+ science-based targets and guided 3,000+ organisations in 70 countries on their route to Net Zero.

AIB Overview

Aligned with its sustainability strategy, Allied Irish Banks (“**AIB**”) intends 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 with the ICMA Green Bond Principles and has received a Second Party Opinion from Sustainalytics.

The ICMA Green Bond Principles are a set of voluntary guidelines that recommend transparency and disclosure and promote integrity in the development of the green bond market by clarifying the approach to issuing a green bond. The Framework, therefore, has four key components:

1. Use of Proceeds
2. Process for Project Evaluation and Selection
3. Management of Proceeds
4. Reporting

For each green bond issued, AIB asserts that it will adopt (1) Use of Proceeds, (2) Process for Project Evaluation and Selection, (3) Management of Proceeds, and (4) Reporting, as set out in the Framework.

AIB, at its discretion but in accordance with the Green Bond Principles, will allocate the net proceeds of the Green Bonds to an eligible loan portfolio of new and existing green loans (“**Eligible Green Project Portfolio**”). The Eligible Green Project Portfolio is to be financed and/or refinanced in whole or in part by an allocation of the bond proceeds.

¹ AIB Green Bond Framework (2024)

Circular Economy & Waste Management assets

Loans to (re)finance the management and/or remediation of non-hazardous waste:

- **Collection & Transport:** Source-segregated collection and transport of (single or comingled) fractions intended for preparation for reuse or recycling operations
- **Material Recovery:** Material recovery resulting in at least 50%, in terms of weight, of the processed separately collected non-hazardous waste into secondary raw materials that are suitable for the substitution of virgin materials in production processes.

Reporting Principles

Reporting of the environmental impacts of green bonds is evolving and is a relatively new concept. However, AIB is committed to reporting on the method used to calculate the avoided GHG emissions for its Green Bond Framework takes into account:

- *PCAF's The Global GHG Accounting and Reporting Standard Part A: Financed Emissions (2022)*²,
- *IFI GHG Accounting for Grid Connected Renewable Energy Projects (April 2022)*³;
- *Green Bond Principles, Voluntary Process Guidelines for Issuing Green Bonds (2021; June 2022 Appendix 1)*⁴;
- *Climate Bonds Standard V3.0*⁵,
- *Green Loan Principles (Feb 2021)*,
- *ICMA Harmonised Framework for Impact Reporting (2023)*⁶, and,
- *WBCSD Guidance on Avoided Emissions*⁷

AIB follows the key recommendations outlined in the Green Bond Principles, with external reviewers present across their reporting process. In addition, AIB is committed to reporting greenhouse gas emissions in accordance with the five principles contained within the Greenhouse Gas Protocol, namely relevance, completeness consistency, transparency, and accuracy.

In accordance with the principles of reporting described above, AIB commits to transparent disclosure of any assumptions and estimations used in the calculation of its reporting framework.

Scope of Calculations and Reporting

AIB intends to report the expected or actual quantitative environmental impact of eligible Circular Economy (CE) and Waste Management (WM) assets it finances or co-finances through its green bond

² PCAF (2022). The Global GHG Accounting and Reporting Standard for the Financial Industry. Second Edition

³ AHSA-001 - IFI Approach to GHG Accounting for Renewable Energy Projects

⁴ ICMA (2021 (with June 2022 Appendix I)), Green Bond Principles, Voluntary Process Guidelines for Issuing Green Bonds

⁵ Climate Bonds Standard V3.0 | Climate Bonds Initiative

⁶ Handbook Harmonised framework for impact reporting (June 2023)

⁷ WBCSD Guidance on Avoided Emissions (Mar 2023)

issuances. For material recovery, the reporting includes the estimated reduction or avoidance of greenhouse gases (“GHGs”) estimated to have occurred from its CE and WM holdings. AIB also evaluates other indicators that are appropriate to report for environmental impact and performance, such as waste that is collected and recycled. At this stage, social and other economic indicators are not within the scope of the green bonds in question. Governance indicators are also not in scope.

AIB undertakes to report the environmental impact of projects it finances or co-finances through its green bonds based, where possible, on the actual environmental performance of the asset. Where this is not possible, expected performance is used. The reporting includes both green indicators and resulting emissions reductions or avoidance, both of which require assumptions and calculations. The reporting is based on the net-benefit resulting from the asset in a given period of operation, rather than the gross emissions change before or after the life of the asset or project.

Calculations include project-by-project impacts, as well as aggregated results across the portfolio of assets financed or co-financed with the proceeds of AIB’s green bonds. Environmental indicators are attributed to AIB on a project-by-project basis, based on the current percentage share financed (where applicable) and disbursed by the bank. The reporting is undertaken on an annual basis, covering the previous 12-month period and considers any dynamic changes in the assets financed or co-financed that occur from one reporting period to another.

In accordance with the principles of reporting described above, AIB has, and continues to commit to transparent disclosure of any assumptions and estimations used in the calculation of its reporting framework.

Scope of Deposit Return Schemes Impact Assessment

AIB are supporting with the implementation of the Deposit Return Scheme Ireland (DRSI) which came into effect on the 1st of February 2024, through the financing of Reverse Vending Machines (RVM), the collection and transportation of the waste collected and the material processing of the waste. The Irish DRS system aims to reduce litter, increase rates of collection for recyclable materials and further contribute towards moving the economy towards a circular economy. A DRS further encourages closed-loop recycling systems and overall, a higher quality recycling.

As the components AIB is financing do not all contain a direct emissions or wider environmental benefits, the Carbon Trust will further carry out a system wide avoided emissions assessment based on the quantity of waste which are being collected, transported and processed through AIBs financing.

Scope of Reverse Vending Machine Collection Impact Assessments

Under the DRSI, AIB are financing RVMs to segregate at source eligible packaging. The scope of the impact assessments for RVMs will focus on the quantity of material collected through RVMs funded by AIB. The scope will further aim to highlight the estimated quantity of waste which would have been landfilled or incinerated.

Scope of Transportation Impact Assessment

For financing towards transportation of collected waste under the DRSI, AIB will similarly look to report on the quantity of material being transported, as well as an estimation of the quantity which would have

been landfilled or incinerated. As the scope of the Transportation contracts go beyond just the RVMs funded by AIB, the metrics will be reported separately.

Scope of Material Processing Impact Assessment

Where AIB are financing the material processing funding under the DRSI, AIB will look to report on the quantity of material being processed as well as the quantity of material produced eligible to replace virgin materials. Beyond material, the assessment will further report on the avoided emissions resulting from the reduction in the number of trucks used for transportation as a result of an efficient baling process. This process involved the compression of collected beverage containers into dense bales, optimising both storage and transport.

Impact Calculation

The following calculations provide an estimate of the environmental benefits of the material recovery of polyethylene terephthalate (PET) bottles and aluminium cans through AIB's financing of the DRSI. By evaluating the amount of avoided waste to landfill and increase in transport efficiency through baling, the overall avoided emissions associated with DRSI will clearly be demonstrated.

Avoided Waste to Landfill Impact Calculation

Avoided Waste to Landfill Calculation

The following formula calculates the estimated quantity of waste which would have been sent to landfill if the DRSI were not in place. The 90% figure is a proxy that represents the expected proportion of waste diverted from landfill through recycling based on Scotland's national DRS.⁸ The Scottish DRS scheme will cover all types of containers between 50ml and 3 litres, similar to the Irish DRS, which applies to non-dairy beverages in cans and PET bottles ranging from 150ml to 3 litres.^{9,10}

$$\begin{aligned} & \textit{Waste to Landfill Avoided (total containers)} \\ &= \sum (\textit{Quantity of beverage containers collected (individual units)} \times .9) \end{aligned}$$

Baling of Waste Impact Calculation

Transportation Avoided Emissions Calculation

This calculation is split by beverage container type, namely PET bottles and cans. Based on quantity of materials provided by AIB, (in terms of individual units) which can be transported in an 18-tonne truck, distinguishing between baled and unbaled material for the two different beverage container types. Baled material refers to PET bottles and cans that have been compressed into dense, compact bundles, maximizing storage and transport efficiency. In contrast, unbaled material consists of loose, uncompressed containers, which take up more space and result in fewer units being transported per truck. These figures outline the capacity for PET bottles and cans, allowing for a comparison in transport efficiency between baled and unbaled transport.

⁸ Zero Waste Scotland | Inspiring change to fight the climate crisis

⁹ [Deposit return scheme 'will go ahead in August' - BBC News](#)

¹⁰ Ireland starts deposit return scheme for drink container recycling | TOMRA

Transport Avoided Emissions for PET bottles (tCO₂e)

$$= \sum ([Distance\ travelled\ for\ uncompressed\ PET \times fuel\ consumption \\ \times\ emission\ factor\ (tCO_2e)] \\ - [Distance\ travelled\ for\ baled\ PET \times fuel\ consumption \\ \times\ emission\ factor\ (tCO_2e)])$$

Transport Avoided Emissions for cans (tCO₂e)

$$= \sum ([Distance\ travelled\ for\ uncompressed\ cans \times fuel\ consumption \\ \times\ emission\ factor\ (tCO_2e)] \\ - [Distance\ travelled\ for\ baled\ cans \times fuel\ consumption \\ \times\ emission\ factor\ (tCO_2e)])$$

Deposit Return Scheme Impact Calculation

Deposit Return Scheme Avoided Emissions Calculation

To highlight that AIBs contribution has wider environmental benefits associated with the DRSI, the following formulas calculate the avoided emissions associated with the entire DRSI based on the quantity of packaging collected through AIBs financing.

The approach uses estimates extrapolated from DEFRA's Impact Assessment for the UK Deposit Return Scheme for both PET bottles and cans.¹¹ The emission factors used in the below formulas are based on Option 3 of DEFRA's assessment, which limits beverage containers to those under 750 mL in size and sold in single format beverage containers. While the DRS in Ireland has broader coverage – applying to all non-dairy beverages in cans and PET bottles between 150 mL and 3 litres¹². The decision to use more conservative figures was made to avoid overestimating the potential environmental impact.

The emission factor below was calculated by taking the total emissions savings (in tCO₂e) for PET bottles and cans, encompassing both traded and non-traded emissions¹³. This total was then divided by the corresponding tonnage of beverage containers, resulting in the tCO₂e saved per tonne of beverage containers.

¹¹ Impact assessment: Introducing a Deposit Return Scheme on beverage containers (defra.gov.uk)

¹² Ireland starts deposit return scheme for drink container recycling | TOMRA

¹³ Traded emissions refer to greenhouse gas emissions that are covered under carbon trading systems, such as the European Union Emissions Trading System (EU ETS). Non-traded emissions are those not covered by carbon trading schemes and typically come from sectors like transportation, waste management, agriculture, and residential heating.

DRS Avoided Emissions for PET bottles (tCO₂e)

$$= \sum (\text{Amount of PET bottles collected (tonnes)}) \\ \times (-2.07 \text{ tCO}_2\text{e saved per tonne})$$

DRS Avoided Emissions for cans (tCO₂e)

$$= \sum (\text{Amount of cans collected (tonnes)} \times (-6.16 \text{ tCO}_2\text{e per tonne}))$$

Attribution

As per the guidance of the Partnership for Carbon Accounting Financials (PCAF), and in line with the ICMA Reporting Metric and Databases Harmonised Framework, it is recommended that AIB also report their attribution. The area of impact assessment related to green bonds and more widely the accounting of financed carbon emissions is developing rapidly. We aim to represent current best practices and where possible move that forward. To this end we have considered current market practice, recognised impact reporting standards including ICMA's Harmonised Framework for Impact Reporting, and from the related area of emissions reporting, the PCAF methodologies, specifically around attribution.

In some cases, AIB does not finance the entire project. As a result, the avoided emissions are adjusted by the share of financing attributable to AIB. This share is calculated by taking the amount outstanding on the deal and dividing by the project value.

$$\text{Attribution Factor} = \frac{\text{AIB Outstanding Amount (EUR)}}{\text{Total Project Value (EUR)}}$$

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