Impact Report for Bonds

OCBC Sustainability Bond Framework

SUSTAINALYTICS
a Morningstar company
IMPACT REPORTING

Impact Summary

Evaluation Date August 22, 2022

Issuer Location Singapore

Sustainalytics has calculated the estimated impact achieved from the projects financed by the green bonds issued by OCBC Bank in December 2019 and August 2021. The green bonds outstanding as of 31 December 2021 is AUD 1 billion. OCBC Bank has since allocated AUD 1.2 billion to projects in Australia and Singapore in the categories Renewable Energy and Green Buildings. For a representative year of the bonds' terms to maturity, Sustainalytics has calculated 124 kilotonnes of avoided emissions in CO_2e.

A$1.2B
Allocated to green projects

124
Annual emissions avoided ($ktCO_2e$)

10
Projects

Emissions avoided equivalent to:

31.9K
Cars driven for one year

8.2M
Trees, yearly sequestration

286.7K
Barrels of oil equivalent

Number of Projects by Country

10 Projects Total

For inquiries, contact the Sustainalytics Corporate Solutions project team:

Michael Susan (Amsterdam)
Project Manager
michael.susan@morningstar.com

Flora Mile (Singapore)
Project Support
flora.mile@morningstar.com

Jasmine Hussain (Singapore)
Project Support
jasmine.hussain@morningstar.com

Vanessa Tang (Hong Kong)
Client Relations
susfinance.apac@sustainalytics.com

Introduction

OCBC Bank ("OCBC") is the longest established Singapore bank, formed in 1932 from the merger of three local banks, the oldest of which was founded in 1912. It is now the second largest financial services group in Southeast Asia by assets, with more than 420 branches and representative offices in 19 countries and regions. Sustainalytics provided a Second-Party Opinion on the Sustainability Bond Framework proposed by OCBC, evaluating it as credible, impactful and aligned with the Green Bond Principles 2018 (GBP).[1]

OCBC engaged Sustainalytics to quantify the environmental benefits of the projects financed with the proceeds from OCBC's Sustainability Bond Framework. This report covers proceeds raised from two green bonds of AUD 500 million each issued in December 2019 and August 2021 respectively.[2] Using established methodologies, Sustainalytics has estimated avoided emissions from OCBC's Renewable Energy and Green Buildings projects. This report presents the details of our findings, including a description of the methodology used to calculate the impacts.

Scope of Work and Limitations

OCBC has engaged Sustainalytics to calculate the environmental impacts of the projects financed through the green bonds issued. For this work, Sustainalytics relied on the data provided by OCBC on the amounts allocated and the available technical data on the financed projects. Where necessary, Sustainalytics has supplemented technical data provided by OCBC with data from publicly available databases.

Sustainalytics' impact reporting is aligned with ICMA's Harmonised Framework for Impact Reporting of June 2022.[3] The methodology used and the assumptions made for the impact calculation are outlined in the methodology section below.

As part of this engagement, Sustainalytics exchanged information with various members of OCBC's team to understand the sustainability impact of its projects. Through these exchanges, OCBC's representatives have confirmed that:

(1) They understand it is the sole responsibility of OCBC to ensure that the information provided by them is complete, accurate and up to date;

(2) They have provided Sustainalytics with all materially relevant information;

(3) Any provided material information has been duly disclosed in a timely manner.

Sustainalytics also reviewed relevant public documents and non-public information.

[1] The Green Bond Principles are administered by the International Capital Market Association and are available at https://www.icmagroup.org/sustainable-finance/the-principles-guidelines-and-handbooks/

[2] While the total issuance of the two green bonds amount to AUD 1 billion, the total amount allocated is AUD 1.2 billion to ensure there are sufficient green assets to cover the size of the bonds.

[3] ICMA, Handbook - Harmonised Framework for Impact Reporting (2022), at: https://www.icmagroup.org/assets/documents/Sustainable-finance/2022-updates/Harmonised-Framework-for-Impact-Reporting-Green-Bonds_June-2022-280622.pdf

Impact Findings

For reporting, Sustainalytics follows the ICMA Harmonised Framework for Impact Reporting.[4] This framework synthesizes market expectations and outlines recommendations for impact reporting to create a standardized reporting structure and to enhance the understanding of the impact to all stakeholders including bond investors.

Table 1 below provides a summary of the projects for which Sustainalytics has calculated the impacts at the portfolio level. Table 2 and 3 provide project level details for the projects financed by the proceeds from the bonds issued under the OCBC Sustainability Bond Framework. These metrics correspond to a representative year during the bond's term to maturity, and are based on the share of project financing.

Table 1: Summary of Impact - Portfolio Level[5]

Use of Proceeds	Allocated Amount	Project Lifetime[6]	Financed Annual Emissions Avoided
	AUD (million)	Years	tCO_2e
Renewable Energy	99	3	122,878
Green Buildings	1,092[7]	3	969
Total	1,191	3	123,847

Table 2: Impact of Renewable Energy Projects by Technology

Technology Type	Allocated Amount	Financed Generation	Financed Capacity	Financed Emissions Avoided
	AUD (million)	MWh	MW	tCO_2e
Wind	99	144,700	51	122,878

Table 3: Impact of Green Buildings Projects by Building Type

Building Type	Allocated Amount	Gross Building Area	Financed Energy Reduction		Financed Emissions Avoided
	AUD (million)	m^2	MWh	%[8]	tCO_2e
Office	778	349,053	1,388	24	764
Mixed development	315	112,756	408	36	205

[4] ICMA, Handbook - Harmonised Framework for Impact Reporting, at: https://www.icmagroup.org/assets/documents/Sustainable-finance/2022-updates/Harmonised-Framework-for-Impact-Reporting-Green-Bonds_June-2022-280622.pdf
[5] Tables 1 – 3 summarize projects by Use of Proceeds that have been rounded to the nearest integer and may be subject to rounding errors.
[6] For projects included in this report, the bond term has been used to define the project lifetime.
[7] For buildings based in Singapore, data on allocation was provided in SGD. For consistent reporting, these values were converted to AUD based on the SGD/AUD conversation rate of 31 December 2021.
[8] This represents the percentage reduction of financed energy consumption compared to the baseline energy consumption used for each building type.

Methodology

Sustainalytics developed its own methodologies for quantifying GHG avoidance and other metrics, including leveraging publicly available best-in-class methodologies, protocols and frameworks that are currently industry best practice. Our estimation practices and general principles rely on the GHG Protocol.[9] Our methodologies are based on guidance provided by the International Financial Institutions[10] on calculation methodology and global emissions. In addition, we rely on the Partnership for Carbon Accounting Financials' Global Accounting Standard[11] for guidance on estimation where data is not readily available and assumptions must be made. Finally, the UN's Clean Development Mechanism[12] provides guidance and information, serving as the foundation for these and other methodologies, including those implemented in this report.

Renewable Energy

Energy generated by the projects is assumed to displace energy supplied by the local grid and its associated emissions. The approach taken to derive the emissions avoided is based on the comparison between:

a) The emissions of the renewable energy projects; and
b) The baseline emissions, or emissions occurring in the absence of the project. For electricity generation, these emissions are based on the energy mix used to supply electricity to the local grid.

Data Sources and Assumptions

- For the projects included in this report, data on the energy generation (MWh) and capacity (MW) was provided by OCBC.
- For projects currently under construction, the annual energy generation was based on the best available estimates.
- The emissions for projects generating energy from wind are assumed to be 0 gCO_2e per unit of generation.
- The baseline emission factors for the countries where projects are located were sourced from IFI.[13]

[9] Greenhouse Gas Protocol, About Us, at: https://ghgprotocol.org/
[10] International Financial Institutions, "Members of the International Financial Institutions on Greenhouse Gas Accounting, at: https://unfccc.int/sites/default/files/resource/IFIs membership for UNFCCC %27white pages%27_0.pdf
[11] Partnership for Carbon Accounting Financials, About, at: https://carbonaccountingfinancials.com/
[12] UNFCCC, CDM Methodology Booklet, at: https://cdm.unfccc.int/methodologies/documentation/index.html
[13] UNFCCC, The IFI Dataset of Default Grid Factors, at: https://unfccc.int/sites/default/files/resource/Harmonized_Grid_Emission_factor_data_set.xlsx

Green Buildings

It is assumed that green buildings consume less energy than a mix of existing buildings and new construction. The avoidance of greenhouse gas emissions is then calculated using:

a) The emissions of the green building projects. To the extent available, the reporting is based on metered energy consumption. If such information is not available, estimates for the relevant projects are based on the building certificates, standards or country-level averages.
b) The baseline emissions, or emissions occurring in the absence of the projects. This figure is based on the estimated energy intensity of comparable buildings, or in the case of refurbishments, the prior emissions.

Data Sources and Assumptions

- For the projects included in this report, building data including gross building area, location and green building certificates were provided by OCBC and used as inputs for the calculations.
- Sustainalytics has performed calculations based on the most recent available green building certificates or energy performance certificates for each property.
- In the absence of data on building energy use intensity (EUI), it is assumed that a building has an intensity equal to that of the maximum permissible EUI under the same green building certification scheme and rating.[14]
- Based on location and building characteristics such as type and size, the EUI of a baseline building is estimated using a combination of country averages and publicly available statistical models.[15]
- The emissions factors for the project and baseline properties are based on the average energy mix for buildings in the relevant country. A distinction is made between electricity consumption and other energy consumption.
- The grid emissions factors for the countries in which the projects are located were sourced from IFI.[16] To account for emissions from upstream activities, Sustainalytics applies an additional, indirect emissions factor.[17]

[14] Singapore Building and Construction Authority – Energy Efficiency 2021, at: https://www1.bca.gov.sg/docs/default-source/docs-corp-buildsg/sustainability/20211027_energy_simplified_ver1.pdf
[15] IFC's EDGE model is used for statistical modelling of buildings.
[16] Harmonized Grid Emission factor data set can be accessed at: https://unfccc.int/sites/default/files/resource/Harmonized_Grid_Emission_factor_data_set.xlsx
[17] Government of the UK, Department for Business, Energy & Industrial strategy, "Government conversion factors for company reporting of greenhouse gas emissions", at: https://www.gov.uk/government/collections/government-conversion-factors-for-company-reporting

Appendix: Infographic Equivalences

Financed emissions avoided (tCO_2e)	Number of cars driven for 1 year[18]	Number of trees, annual sequestration[19]	Barrels of oil equivalent[20]
123,847	31,895	8,173,923	286,733

[18] Based on the annual average mileage per car in Singapore. https://datamall.lta.gov.sg/content/datamall/en/static-data.html
[19] Calculated using an average CO_2 uptake of 15.2 kg per mature tree, based on the US EPA estimation for carbon sequestration by trees in an average US forest. https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#pineforests
[20] The combustion of 1 barrel of oil emits approximately 0.43 tCO_2e. https://www.epa.gov/energy/greenhouse-gases-equivalencies-calculator-calculations-and-references#oil

Disclaimer

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Sustainalytics, a Morningstar Company, is a leading ESG research, ratings and data firm that supports investors around the world with the development and implementation of responsible investment strategies. For more than 30 years, the firm has been at the forefront of developing high-quality, innovative solutions to meet the evolving needs of global investors. Today, Sustainalytics works with hundreds of the world's leading asset managers and pension funds who incorporate ESG and corporate governance information and assessments into their investment processes. Sustainalytics also works with hundreds of companies and their financial intermediaries to help them consider sustainability in policies, practices and capital projects. With 17 offices globally, Sustainalytics has more than 1500 staff members, including more than 500 analysts with varied multidisciplinary expertise across more than 40 industry groups.

For more information, visit www.sustainalytics.com

Or contact us contact@sustainalytics.com

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