Impact Report for Bonds and Loans

ADCB Green Portfolio

SUSTAINALYTICS
a Morningstar company
IMPACT REPORTING

Impact Summary

Evaluation Date August 29, 2023

Issuer Location Abu Dhabi, United Arab Emirates

Sustainalytics has calculated the estimated impact achieved by Abu Dhabi Commercial Bank's Eligible Green Loan portfolio ("EGL").[1] AED 6,047 million have been allocated in the categories renewable energy, pollution prevention and control, sustainable water and wastewater management, green buildings and energy efficiency. The projects are located across the United Arab Emirates. For a representative year during the lifetime of the projects, Sustainalytics has calculated 719,509 tonnes of carbon dioxide equivalents in avoided GHG emissions.

6B
Allocated funds, AED

719,509
Annual emissions avoided (tCO_2e)

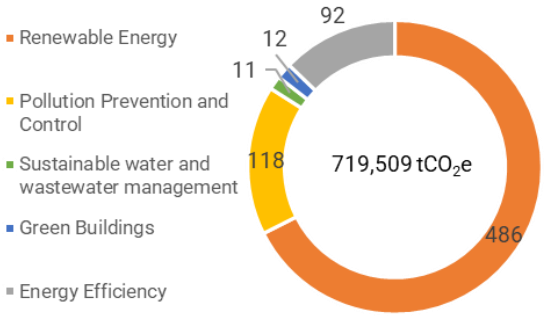
12
Projects

156K
Cars driven for one year

1
Country

47M
Trees, yearly sequestration

Avoided CO_2e emissions by Technology and Number of Projects by Country



12 Projects Total

For inquiries, contact the Sustainalytics Corporate Solutions project team:

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

Simon Vacklen (London)
Project Support
Simon.Vacklen@morningstar.com

Louisa Mandt (Amsterdam)
Project Support
Louisa.Mandt@morningstar.com

Andrew Johnson (Paris)
Client Relations
Andrew.Johnson@morningstar.com

[1] ADCB's "Eligible Green Loan Portfolio", as at June 30, 2023.

Introduction

Abu Dhabi Commercial Bank ("ADCB") is a full-service commercial bank offering a range of products and services such as retail banking, wealth management, as well as private, corporate and commercial banking. In September 2022, ADCB issued its inaugural green bond and allocated the proceeds according to the ADCB Green Bond Framework published in August 2022. ADCB used the proceeds from the bond to finance 30% of the EGL.

ADCB engaged Sustainalytics to quantify the environmental benefits of the 12 projects in ADCB's EGL. This report covers the entire allocation of AED 6,047 million, of which the green bond proceeds finance 30%. Using established methodologies, Sustainalytics has estimated avoided emissions from the 12 projects in ADCB's EGL. This report presents the details of our findings, including a description of the methodology used to calculate the impacts.

Scope of Work and Limitations

ADCB has engaged Sustainalytics to calculate the environmental impacts of 12 projects financed from the EGL. For this work, Sustainalytics relied on the data provided by ADCB on the amount allocated and the technical data on the projects financed.

Sustainalytics' impact reporting is aligned with the ICMA's June 2023 Harmonised Framework for Impact Reporting handbook.[2] The methodology and assumptions made for the impact calculation are outlined in the methodology chapter.

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

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

(2) They have provided Sustainalytics with all 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.

[2] ICMA, Handbook - Harmonised Framework for Impact Reporting, at: https://www.icmagroup.org/sustainable-finance/impact-reporting/green-projects/

Impact Findings

For reporting, Sustainalytics follows the ICMA Harmonised Framework for Impact Reporting,[2] which 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 investors.

Table 1 below provides a summary of the impacts at the portfolio level, which Sustainalytics calculated from the allocation of proceeds from the EGL. Table 2 provides use of proceeds level details for the assessed projects. Appendices 1-5 provide project-level avoided emissions. 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

Allocated amount	Financed emissions avoided[3]	Financed emissions avoided/AED million
AED million	tCO_2e/year	tCO_2e/year
6,047	719,509	119

Table 2: Summary of Impact – Use of Proceeds

Use of proceeds category	Allocated amount	Financed emissions avoided	Financed annual emissions avoided /AED million
	AED million	tCO_2e/year	tCO_2e/year
Renewable Energy	1,548	486,198	314.1
Pollution Prevention and Control	169	118,247	699.7
Sustainable Water and Wastewater Management	622	10,847	17.4
Green Buildings	3,314	12,330	3.7
Energy Efficiency	394	91,888	233.2

[3] Due to rounding, the project level avoidance might not sum up to the total avoidance.

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.[4] Our methodologies are based on guidance provided by the International Financial Institutions[5] on calculation methodology and global emissions. In addition, we rely on the Partnership for Carbon Accounting Financials' Global Accounting Standard[6] for guidance on estimation where data is not readily available and assumptions must be made. Finally, the UN's Clean Development Mechanism[7] provides guidance and information, serving as the foundation for these and other methodologies, including those implemented in this report.

Renewable Energy

It is assumed that energy generated by the projects crowd out a mix of current and upcoming planned generation capacity, and therefore associated emissions. The approach taken to derive the greenhouse gas emissions avoidance uses:

a) The emissions of the renewable energy projects, which is often (but not always) zero; 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.
c) Financed project avoided emissions are calculated by using the share of project financing of the total project emissions avoided from the above calculations.

Data Sources and Assumptions

- For the projects included in this report, the annual energy generation (measured in MWh) was provided by ADCB, except for projects currently under construction, for which the energy capacity (measured in MW) was provided.
- For projects currently under construction, Sustainalytics estimated the annual energy generation leveraging the capacity provided by ADCB and capacity factors based on technology type and location using data provided by IRENA.[8]
- The baseline emission factors for the countries where projects are located were sourced from IFI.[9] To account for emissions from upstream activities, Sustainalytics applies an additional, indirect emissions factor.[10]
- For zero-carbon technologies such as solar and wind, the emissions per unit of generation are assumed to be 0 gCO_2e/kWh.

[4] Greenhouse Gas Protocol, About Us, at: https://ghgprotocol.org/
[5] 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
[6] Partnership for Carbon Accounting Financials, About, at: https://carbonaccountingfinancials.com/
[7] UNFCCC, CDM Methodology Booklet, (2021), at: https://cdm.unfccc.int/methodologies/documentation/index.html
[8] International Renewable Energy Agency, Statistics Time Series, at: https://www.irena.org/Data/View-data-by-topic/Capacity-and-Generation/Statistics-Time-Series
[9] UNFCCC, The IFI Dataset of Default Grid Factors, available at: https://unfccc.int/climate-action/sectoral-engagement/ifis-harmonization-of-standards-for-ghg-accounting/ifi-twg-list-of-methodologies
[10] 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

Pollution Prevention and Control

It is assumed that the waste treated in the Waste to Energy plant would have otherwise ended up in landfill and other treatment methods, where more greenhouse gases would have been generated. It is also assumed that the new energy generated by the waste crowd out a mix of current and upcoming planned electricity generation capacity. For both the crowded-out waste management and the crowded-out electricity generated, there are associated avoided emissions. The approach taken to derive the carbon avoidance is based on the comparison between:

a) The emissions of the waste-to-energy project; and
b) The baseline emissions or emissions occurring in the absence of the project. For the electricity generation, which forms part of the avoided carbon emissions, these emissions are based on the energy mix used to supply electricity to the local grid. Additionally, the emissions originating from waste treatment are based on the local treatment of waste.
c) Financed project avoided emissions are calculated by using the share of project financing of the total project emissions avoided from the above calculations.

This methodology also applies to the carbon avoided by the co-generation wastewater treatment facility, which as part of treating the water uses the waste from the process to generate energy.

Data Sources and Assumptions

- For the projects included in this report, energy generation (measured in MWh) was provided by ADCB.
- The baseline emission factors for the grid in countries where projects are located were sourced from the IFI and to account for emissions from upstream activities, Sustainalytics applies an additional, indirect emissions factor.[10]
- The emissions factor for the Waste-to-energy plant was provided by ADCB.
- The data on the local waste mix and the local waste treatment practices were sourced from the IPCC.[11]
- The model for estimating emissions from waste management was sourced from the EIB.[12]
- For the wastewater treatment facility, the avoided carbon emissions are based on the energy generated by the biogas that is used in the plants own operations and is assumed to displace grid energy. It is also assumed that if the gas had not been captured it would have been emitted into the atmosphere. The quantity of gas is estimated based on the power generated and typical estimates based on calorific value.

[11] IPCC, "2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Chapter 2 Waste Generation, Composition and Management Data" (2019), at: https://www.ipcc-nggip.iges.or.jp/public/2019rf/pdf/5_Volume5/19R_V5_2_Ch02_Waste_Data.pdf
[12] European Investment Bank, EIB Project Carbon Footprint Methodologies, (2022), at: https://www.eib.org/attachments/publications/eib_project_carbon_footprint_methodologies_2022_en.pdf

Green Buildings

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

a) The emissions of the energy efficient 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.
c) Financed project avoided emissions are calculated by using the share of project financing of the total project emissions avoided from the above calculations.

Data Sources and Assumptions

- For the projects included in this report, building data including gross building area, location, emission intensities and relevant building certificates were provided by ADCB and used as inputs for the calculations. Where relevant, Sustainalytics has performed calculations based on the most recently available green building certificates or energy performance certificates for each property.
- Where relevant, Sustainalytics modelled the energy intensity for buildings based on a representative sample of LEED certifications and grades of the respective buildings.
- Based on location and building characteristics such as type and size, the energy intensity of a baseline building is estimated using a combination of country averages and publicly available statistical models.[13]
- The emissions factors for the 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.[9] To account for emissions from upstream activities, Sustainalytics applies an additional, indirect emissions factor.[10]
- Building country average energy consumption (measured in kWh/m^2) was assumed to be similar for office buildings and retail buildings.

[13] IFC's EDGE model is used for statistical modelling of buildings.

Energy Efficiency

It is assumed that the projects in question, in this case district cooling, replace a mix of other existing methods of providing the same amount of cooling to houses. The avoidance of greenhouse gas emissions is calculated using:

a) The emissions of the energy efficient cooling projects is estimated based on the number of clients, the average national energy use, both residential and commercial.
b) The baseline emissions, or emissions occurring in the absence of the projects. This figure is based on the estimated energy intensity of comparable cooling, drawing the energy from the national grid.
c) Financed project avoided emissions are calculated by using the share of project financing of the total project emissions avoided from the above calculations.

Data Sources and Assumptions

- The number of clients served and the make up of these clients where sourced from the project itself. [14]
- The share of residential energy used for cooling[15] and the national average household consumption were used to estimate the energy consumption baseline.
- The improvement was based on the estimated difference in energy efficiency between district cooling and other cooling methods.[16]
- The grid emissions factors for the countries in which the projects are located were sourced from IFI.[9] To account for emissions from upstream activities, Sustainalytics applies an additional, indirect emissions factor.[10]
- Building country average energy consumption (measured in kWh/m^2) was assumed to be similar for office buildings and retail buildings.

[14] Client data
[15] Rakshan et al, "Effectiveness and viability of residential building energy retrofits in Dubai", at: https://www.sciencedirect.com/science/article/abs/pii/S2352710216303370#:~:text=In%20the%20United%20Arab%20Emirates,during%20summer%20peak%20%5B12%5D.
[16] "Energy consumption in the United Arab Emirates", Worlddata.info, at: https://www.worlddata.info/asia/arab-emirates/energy-consumption.php#:~:text=of%20electric%20energy%20per%20year,sufficient%20with%20domestically%20produced%20energy.

Appendix 1: Impacts of Renewable Energy by Project

Project name	Project type	Country	Allocated amount	Share of total project financing	Project generation	Financed generation	Project capacity	Financed capacity	Project avoided emissions	Financed avoided emissions	Financed avoided emissions/ AED million
			AED million	%	MWh	MWh	MW	MW	tCO_2e/year	tCO_2e/year	tCO_2e/year
Project A	Solar CSP	United Arab Emirates	87	7	220,000	15,400	100	7	140,048	9,803	113
Project B	Solar PV	United Arab Emirates	575	23	1,707,980	395,366	800	185	1,087,266	251,682	438
Project C [17]	Solar PV	United Arab Emirates	79	9	1,799,189	161,927	900	81	1,145,328	103,080	1,305
Project D	Solar CSP	United Arab Emirates	807	8	2,339,746	191,072	950	78	1,489,436	121,633	151

Appendix 2: Impacts of Pollution Prevention and Control by Project

Project name	Project type	Country	Allocated amount	Share of total project financing	Project generation	Financed generation	Project capacity	Financed capacity	Project avoided emissions	Financed avoided emissions	Financed avoided emissions/ AED million
			AED million	%	MWh	MWh	MW	MW	tCO_2e/year	tCO_2e/year	tCO_2e/year
Project E	Waste-to-Energy	United Arab Emirates	169	30	220,000	66,000	30	9	394,155	118,247	700

Appendix 3: Impacts of Sustainable Water and Wastewater Management by Project

Project name	Location	Allocated amount	Share of total project financing	Annual wastewater treated	Financed electricity generation	Project avoided emissions	Financed avoided emissions	Financed avoided emissions/AED million
		AED million	%	m^3 million	MWh	tCO_2e/year	tCO_2e/year	tCO_2e/year
Project F	Abu Dhabi	622	100	138.7	5,205	10,847	10,847	17.44

[17] Project currently under construction.

Appendix 4: Impacts of Green Buildings by Project

Project name	Property type	Location	Gross building area	Allocated amount	Share of total project financing	Average energy intensity	Average energy reduction	Financed direct emissions [18]	Financed indirect emissions [19]	Financed emissions avoided	Financed emissions avoided/AED million
			m^2	AED million	%	kWh/m^2	%	MWh	MWh	tCO_2e/year	tCO_2e/year
Project G	Shopping Mall	Abu Dhabi	290,000	234	35	64	69	1,747	780	5,681	24.28
Project H	Sports Stadium	Al Ain	46,452	646	100	76	35	956	427	745	1.15
Project I	Office/ Retail	Dubai	102,193	539	23	58	70	368	164	1,256	2.33
Project J	Residential	Dubai	68,123	574	91	49	53	796	355	1,302	2.27
	Residential	Abu Dhabi	193,038	1,321	86	53	50	2,376	1,061	3,346	2.53

Appendix 5: Impacts of Energy Efficiency by Project

Project name	Project Type	Country	Allocated amount	Share of total project financing	Energy saved	Project Avoided Emissions	Financed Avoided Emissions	Financed avoided emissions/AED million
			AED million	%	%	tCO_2e/year	tCO_2e/year	tCO_2e/year
Project K	District Cooling	United Arab Emirates	234	7%	41%	779,618	54,573	233
Project L[20]	District Cooling	United Arab Emirates	160	100%	41%	37,315	37,315	233

[18] Direct emissions are the emissions from the energy consumed directly on premises.
[19] Indirect emissions are the emissions resulting from the extraction, refining and transportation of primary fuels, including transmission and distribution losses, before their use in the generation of electricity.
[20] Due to lack of data, the avoidance estimation is based on the assumption that cost and technology is the same as Project G.

Appendix 6: Green Bond Financing

Share of net proceeds from the September 2022 bond allocated to the EGL	100%
Share of the EGL funded with proceeds from the September 2022 bond	30%

Disclaimer

About Sustainalytics, a Morningstar Company

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