

Impact Report for Bonds and Loans MDGH Green Bond


Impact Summary

Evaluation Date October 29, 2024


Issuer Location Abu Dhabi, United Arab Emirates

Sustainalytics has calculated the estimated impact achieved by Mamoura Diversified Global Holding PJSC (“MDGH”) financed by the green bond issued under the Mamoura Diversified Global Holding PJSC Green Finance Framework. Since the 2023 issuance, USD 750 million have been allocated to investments globally in the categories of renewable energy and green buildings. For a representative year, Sustainalytics has calculated 584,878 tonnes of carbon dioxide equivalents in avoided GHG emissions.


 **\$750M**
Allocated funds

 **585**
Annual emissions avoided (ktCO₂e)

 **5**
Investments

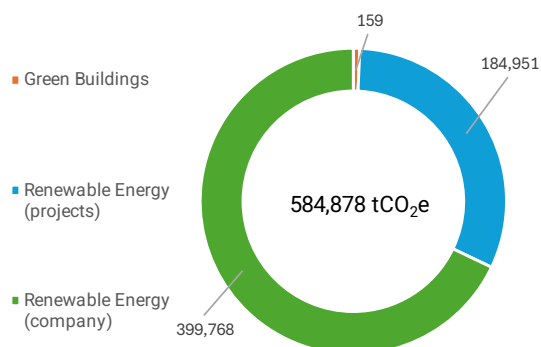
 **127K**
Cars driven for one year

 **22**
Countries

 **39M**
Trees, yearly sequestration



Financed Avoided CO₂e Emissions by Use of Proceeds and Location of Investment by Country



For inquiries, contact the Sustainable Fixed Income project team:

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

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

Diego Gomez (London)
Client Relations
Diego.Gomez@morningstar.com

Introduction

Mamoura Diversified Global Holding PJSC (“MDGH” or the “Company”) is a wholly owned subsidiary of Mubadala Investment Company (“Mubadala”), a sovereign investor managing a global portfolio, aimed at generating sustainable financial returns of which the Government of Abu Dhabi is the sole shareholder. The Company is headquartered in Abu Dhabi and has a presence in more than 50 countries. In 2023, MDGH issued a green bond and allocated the proceeds according to the Mamoura Diversified Global Holding PJSC Green Finance Framework (the “Framework”).¹ In 2023, Sustainalytics provided a Second-Party Opinion on the framework proposed by MDGH, evaluating it as credible, impactful and aligned with the Green Bond Principles 2021 (GBP).^{2,3}

In September 2024, MDGH engaged Sustainalytics to quantify the environmental benefits of the projects financed with the proceeds from the 2023 green bond under the Mamoura Diversified Global Holding PJSC Green Finance Framework. Using established methodologies, Sustainalytics has estimated avoided emissions from MDGH’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

MDGH has engaged Sustainalytics to calculate the environmental impacts of the projects financed through the 2023 green bond issued. For this work, Sustainalytics relied on the data provided by MDGH on the amount allocated and the technical data on the projects financed.

Sustainalytics’ impact reporting is aligned with ICMA’s June 2024 Handbook - Harmonised Framework for Impact Reporting⁴, The methodology and assumptions made for the impact calculation are outlined in the methodology chapter.

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

- (1) They understand it is the sole responsibility of MDGH 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.

¹ Mamoura Diversified Global Holding PJSC, “Mamoura Diversified Global Holding PJSC Green Finance Framework”, 2023, at: <https://www.mubadala.com/en/-/media/project/mubadala/reports/en/2022/mdgh-green-finance-framework.pdf>

² 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/green-bond-principles-gbp/>

³ Sustainalytics, “Second-Party Opinion, Mamoura Diversified Global Holding PJSC Green Finance Framework”, 2023, at: <https://www.mubadala.com/en/-/media/project/mubadala/reports/en/2023//mdgh-green-finance-framework-spo-2023.pdf>

⁴ ICMA, “Handbook - Harmonised Framework for Impact Reporting”, 2024, at [Handbook-Harmonised-Framework-for-Impact-Reporting-June-2024.pdf](https://www.icmagroup.org/handbook-harmonised-framework-for-impact-reporting-june-2024.pdf) ([icmagroup.org](https://www.icmagroup.org))

Impact Findings

For reporting, Sustainalytics follows the ICMA Harmonised Framework for Impact Reporting, 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 bond investors.⁵

Table 1 below provides a summary of the impact at the portfolio level, which Sustainalytics calculated from the allocation of proceeds from MDGH's 2023 green bond. Table 2 provides category-level details for the assessed projects. Appendices 1 to 3 provide impact data at the project level. These metrics correspond to a representative year during the bond term to maturity and are based on the share of project financing.

Table 1: Summary of Impact – Portfolio Level⁶

Allocated Amount	Financed Emissions Avoided	Financed Emissions Avoided/M USD
USD million	tCO ₂ e/year	tCO ₂ e/year/M USD
750,000,000	584,878	780

Table 2: Summary of Impact - Portfolio Level

Use of Proceeds Category	Allocated Amount	Financed Emissions Avoided	Financed Emissions Avoided/M USD
	USD million	tCO ₂ e/year	tCO ₂ e/year/M USD
Renewable Energy (projects)	432	184,951	428.14
Renewable Energy (company) ⁷	173	399,768	2,310.84
Green Buildings	145	159	1.09

⁵ ICMA, "Handbook - Harmonised Framework for Impact Reporting", 2024, at [Handbook-Harmonised-Framework-for-Impact-Reporting-June-2024.pdf \(icmagroup.org\)](https://www.icmagroup.org/Handbook-Harmonised-Framework-for-Impact-Reporting-June-2024.pdf)

⁶ Due to rounding, the summarized amounts may not match the exact amounts in other tables.

⁷ Project 3 is a renewable energy company, including green hydrogen projects, that focuses on supporting the UAE transition to net zero. It comprises of 55 individual projects.

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.⁸ Our methodologies are based on guidance provided by the International Financial Institutions⁹ on calculation methodology and global emissions. In addition, we rely on the Partnership for Carbon Accounting Financials' Global Accounting Standard¹⁰ for guidance on estimation where data is not readily available and assumptions must be made. Finally, the UN's Clean Development Mechanism¹¹ 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 the 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

- The baseline emission factors for the countries where projects are located were sourced from IFI.¹² To account for emissions from upstream activities, Sustainalytics applies an additional, indirect emissions factor.¹³
- For zero-carbon technologies such as solar and wind, the emissions per unit of generation are assumed to be 0 gCO₂e/kWh.
- For the projects included in this report, energy generation (measured in MWh) and capacity (measured in MW) data was provided by the issuer.
- For zero-carbon technologies such as solar and wind, the emissions per unit of generation are assumed to be 0.
- Energy storage technology with undefined generation, has been assumed to be zero carbon.
- Undefined distributed generation is assumed to be solar technology.

⁸ Greenhouse Gas Protocol, "About Us", (2023), at: <https://ghgprotocol.org/>

⁹ International Financial Institutions (IFI), "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](https://unfccc.int/sites/default/files/resource/IFIs%20membership%20for%20UNFCCC%20white%20pages%200.pdf)

¹⁰ Partnership for Carbon Accounting Financials (PCAF), "About", (2024) at: <https://carbonaccountingfinancials.com/>

¹¹ UNFCCC, "CDM Methodologies Booklet – Fourteenth edition", (2022), at: <https://cdm.unfccc.int/methodologies/documentation/index.html>

¹² 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>

¹³ Calculated by Sustainalytics based on: UK Government, 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>, International Energy Agency, "IEA Country Profiles", at: <https://www.iea.org/countries> and UNFCCC, "Harmonized IFI Default Grid Factors", at: <https://unfccc.int/climate-action/sectoral-engagement/ifis-harmonization-of-standards-for-ghg-accounting/ifi-twg-list-of-methodologies>

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 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.
- 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, emissions intensities and relevant building certificates were provided by MDGH and used as inputs for the calculations. Where relevant, Sustainalytics performed calculations based on the most recently available green building certificates or energy performance certificates for each property.
- 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.¹⁴
- 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.¹⁵

¹⁴ IFC's EDGE model is used for statistical modelling of buildings.

¹⁵ Calculated by Sustainalytics based on: UK Government, 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>, International Energy Agency, "IEA World Energy Balances Highlights", at: <https://www.iea.org/data-and-statistics/data-product/world-energy-balances> and UNFCCC, "Harmonized IFI Default Grid Factors", at: <https://unfccc.int/climate-action/sectoral-engagement/ifi-harmonization-of-standards-for-ghg-accounting/ifi-twg-list-of-methodologies>

Appendix 1: Impact of Renewable Energy Projects

Project Name	Country	Technology Type	Allocated Amount	Share of Total Project Financing	Project Generation	Financed Generation	Project Capacity	Financed Capacity	Project Direct Emissions Avoided	Project Indirect Emissions Avoided	Financed Emissions Avoided	Financed Emissions Avoided/ M USD
			USD million	%	MWh	MWh	MW	MW	tCO ₂ e/year	tCO ₂ e/year	tCO ₂ e/year	tCO ₂ e/year/ M USD
Project 1	Germany, Taiwan and France	Offshore wind energy	324	7	1,587,000	105,641	453	30	568,146	153,120	48,012	148.19
Project 2	India	Solar and wind energy	108	2	8,552,000	192,866	4,988	112	4,515,456	1,556,606	136,938	1,267.95

Appendix 2: Impact of Renewable Energy Company Projects

Project Name	Country	Technology Type	Allocated Amount	Financed Generation	Financed Capacity	Financed Emissions Avoided	Financed Emissions Avoided/ M USD
			USD million	MWh	MW	tCO ₂ e/year	tCO ₂ e/year/ M USD
Project 3	Global	Mixed	173	617,929	271	399,768	2,310.84

Appendix 3: Impact of Green Building Projects

Project Name	Building Type	Country	Gross Building Area	Allocated Amount	Share of Total Project Financing	Energy Intensity	Energy Reduction	Financed Direct Emissions	Financed Indirect Emissions	Financed Emissions Avoided	Financed Emissions Avoided/ M USD
			m ²	USD million	%	kWh/m ²	MWh/year	tCO ₂ e/year	tCO ₂ e/year	tCO ₂ e/year	tCO ₂ e/year/ M USD
Project 4	Residential multi-family	Spain	82,779	36	15	70	1,016	156	39	35	0.96
Project 5	Distribution warehouse	UK	296,769	109	16	60	3,119	586	118	124	1.14

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