

A guide to the

Green Investment Handbook

assessing, monitoring
and reporting green impact

Who we are

A pioneer in green investment, the Green Investment Group was established initially by the UK Government and is the first institution of its kind in the world.

Now part of Macquarie Group, our track record, expertise and capability makes us a global leader in green investment, dedicated to accelerating the green transition.

We invest across the capital structure in all stages of the project lifecycle: development, construction and operations.

We invest in established technologies including: energy efficiency, hydro, offshore and onshore wind, solar, and waste and biomass.

We also target investment in emerging technologies: biofuels, low-carbon transport, smart grid, storage and hydrogen.

We take the green performance of our investments seriously. We have developed a market-leading suite of principles, policies and processes to ensure we consistently assess, monitor and report the green performance of each project.

Our aim is to support the transition to a global low-carbon economy. That transition will require an improvement in and greater standardisation of green impact assessment.

We are playing a leading role in driving that process of change and improvement. This guide is part of that.



Foreword from Global Head, Mark Dooley

As a pioneering investor in clean energy infrastructure, Macquarie's Green Investment Group (GIG) is at the vanguard of the global green transition. Our track record, expertise and capabilities make us a global leader in our field.

We began life in 2012 as the UK Green Investment Bank, established by the UK Government and the first institution of our type in the world. Since 2017 we've been owned by Macquarie Group.

GIG is Macquarie's primary vehicle for principal investment in green energy projects, and home to one of the world's largest teams of green energy investment specialists. Along with our operating platforms, we have investments or operations in over 25 markets, a team of more than 450 people and a global development pipeline of over 30 GW.

Since our inception, we have used our proprietary methodology to assess the green impact of potential investment opportunities and then monitor and report on the green performance of those investments. This robust and proven approach to green impact assessment, monitoring and reporting can be applied across different geographies and technologies.

The Green Investment Handbook defines that approach, setting out and explaining the practical tools used each day by GIG to quantify and report on the environmental benefits of all of our investments. This guide to the Handbook provides an overview of our methodology and tools and we welcome the opportunity to discuss how we can help other investors and market participants to implement this.



Mark Dooley
Global Head, GIG



Our Green Investment Principles

Every project we support, and every investment we make, has to satisfy our seven Green Investment Principles. Our Green Investment Handbook applies the principles through a framework of assessing, monitoring and reporting green impact, described in this guide.

		Access	Monitor	Report
01	Positive contribution to a recognised green purpose			
02	Reduction of global greenhouse gas emissions	✓	✓	
03	Enduring green impact	✓	✓	
04	Clear and firm investment criteria	✓		
05	Robust green impact evaluation	✓		
06	Effective covenants, monitoring and engagement		✓	✓
07	Transparent reporting	✓	✓	✓

Our Green Purposes



01

Reduce greenhouse gas emissions



02

Advance natural resource efficiency



03

Protect or enhance the natural environment



04

Protect or enhance biodiversity



05

Promote environmental sustainability

About the Green Investment Handbook

The Green Investment Handbook is a proprietary tool developed by GIG to provide a consistent and robust means of assessing, monitoring and reporting the green performance of investments.

This guide to Assessing, Monitoring and Reporting Green Impact sets out an overview of the practical tools and best practice methodologies to support the large-scale mobilisation of climate finance required from the mainstream investment community to achieve both financial and green returns.

We welcome the opportunity to discuss how we can help other investors and market participants to implement this.

ASSESS

Forecast green impact

How to assess and forecast green performance and risk as part of the investment decision



MONITOR

Actual and forecast green impact

How to monitor progress against forecast following financial close of an investment



REPORT

Actual and forecast green impact

How to disclose and report actual and forecast green performance data



Assess

Describes how to assess the green impact and risks of projects prior to investment, as part of the due diligence process.

The process described below will enable a project's forecast green performance to be assessed against a defined set of investment criteria and the associated risks to be considered. It also shows how to implement suitable legal covenants to enable the appropriate data to be obtained.

Project assessment should be conducted in a manner appropriate to the geography, sector, risk and the size of the proposed investment. Consideration should be given to the investment's material alignment with any environmental, social and governance investment criteria, including specific low carbon criteria within any policy or mandate requirement (here collectively termed Green Investment Policy).

ESTABLISH A GREEN INVESTMENT POLICY WITH SPECIFIC LOW CARBON CRITERIA

The investor should develop and make publicly available a set of policy requirements, investment criteria, and/or stated objectives against which potential projects can be assessed for alignment. The policy could include: statement of investment principles; assessment criteria; covenants; monitoring; disclosure; applicable standards (e.g. IFC Performance Standards¹ and Equator Principles²); commitment from senior management and periodic review.

ASSESS THE PROJECT AND MANAGEMENT TEAM CAPABILITY AGAINST ALIGNMENT TO POLICY REQUIREMENTS

The investment should be considered against the stated objectives and/or policy requirements. The investee management team should be interviewed to consider capability, capacity and commitment to meet stated objectives.

REQUEST PERFORMANCE DATA

Project performance data should be requested from investee management. This includes the project's green metrics such as forecast renewable electricity and/or heat generation or demand reduction, and project life. The forecast carbon savings associated with the project can then be considered. This task can be integrated into the scope of works for a consultant (see below).

SCOPE OF WORKS FOR CONSULTANT

In addition to assessing the potential green impact, where appropriate, environmental and social experts can be appointed to support in the due diligence. For some investors (such as Equator Principles Financial Institutions), engagement of consultants for an expert review of any environmental and social documentation will likely be a requirement regardless of any green impact considerations.

¹ www.ifc.org/performancestandards

² www.equator-principles.com

GREEN RISK

The risk that the project may not deliver the forecast green impact should be considered. The formal risk assessment framework is also a useful method to include risks associated with non-carbon related aspects such as non-compliance with investment criteria and other environmental and social issues associated with a specific project. Taken together, this can be termed 'green risk'. Material green risks identified during this process should be mitigated in an action plan (see below) and/or included in any post-financial close monitoring (see 'Monitor' overleaf).

ACTION PLANS

Where the due diligence process identifies gaps or non-alignment to an investor's policy or other standards, an action plan should be agreed with investee management. This can include costing/budget (Capex or management time) required to meet the objectives of the action plan. A good action plan should be Specific, Measureable, Achievable, Realistic and Time-bound ("SMART").

GREEN COVENANTS

A crucial aspect of being able to monitor and report the green impact is the integration of green covenants into formal financing/loan documentation. These must have equal legal status and include recourse to enforcement measures as with any other financial covenant.

INVESTMENT DECISION

The findings of the due diligence along with forecast green performance and green risk assessment should be considered as part of any investment decision making (e.g. within Investment Committee). After financial commitment is made, projects should be subject to monitoring as described in the next section.



As one of the most active green infrastructure investors in the world, we finance complex and challenging projects, large and small. Between them, these projects will contribute to the global transition to a sustainable low carbon future.”

Monitor

Details how to monitor the green performance of portfolio projects, including issues initially identified through the due diligence process.

Once investment has been provided to a project, the performance of the project is monitored. The process described here shows how to monitor the green impact and green risks, including compliance with agreed covenants and environmental and social project-related risks.

In addition, investees should provide regular operational updates/reports, which will consistently address the progress for the expected green impact, and other environmental and social measures. Specific requirements will depend on the characteristics of the investment, the geography, its sector and size of investment.

ANNUAL GREEN REPORTING

Annually the investee should complete a report which details the forecast and/or actual performance of the project. This report should include all relevant source data and references required for audit purposes. The report can be prepared or verified by an independent consultant.

MATERIAL EVENT REPORTING

Investee projects should also report material environmental and social incidents and accidents to the investor as soon as possible (along with details of any associated mitigation and/or actions taken to address the issue). The investor should consider these ad-hoc events in consultation with investee management, then assess if there is a requirement for remediation or mitigation action at the project.

REQUEST PERFORMANCE DATA

As part of the covenants agreed, investors should retain an independent environmental and social expert to conduct periodic monitoring reviews/ verification of:

1. Green risks;
2. Action plan implementation progress;
3. Forecast and actual green impact performance (CO₂e saved and MWh generated/saved);
4. On-going compliance with wider environmental and social covenants.

Equator Principles Financial Institutions may also have additional environmental and social monitoring requirements not listed here.

AGGREGATION OF MONITORING DATA

Once the data from the projects has been collected and verified by an independent consultant (as appropriate), it can be aggregated for external reporting to stakeholders, as described opposite.

Report

Details how to collect, validate and report data on the performance of portfolio investments for green and responsible investment-related data.

Forecast and actual green impact

It is critical that green impact is periodically reported to stakeholders on a transparent basis. Green impact should be reported as defined metrics such as: tonnes of carbon dioxide equivalent (t CO₂e), tonnes of oil equivalent (toe), tonnes (t) of other air pollutant emissions, renewable energy generated (GWh).

Both forecast green impact performance (as assessed at financial close and revised periodically thereafter), and actual green impact performance delivered should be reported to relevant stakeholders. Wider disclosure to the public can take the form of individual investment non-financial performance reporting, or aggregated reporting (e.g. by sector).

GREEN IMPACT CALCULATION METHODOLOGY

Transparent disclosure

The methodology used to calculate a project green performance should be publically disclosed at the institutional level. This should include disclosure of sector-specific approaches, assumptions and parameters (e.g. greenhouse gas emission factors used for fuels and electricity, and the approaches to calculating jobs created as a result of the investment).

General principles

The process described here builds on global standards and established reporting processes.

The calculation of a project's green impact is produced by comparing relevant information and data derived from that project against relevant baseline (or counterfactual) data for the assumed environmental impacts that would occur if the project did not take place.

GIG's methodology calculates results for likely green impact on an annual and lifetime basis. The green impact reported is 100% of the green impact of the underlying project(s). There is no proportionate allocation of green impact to any particular project investment or to particular investors, all of whom may report the same green impact from the underlying project(s).

SOME REFERENCE GUIDELINES

For grid-connected projects that generate electricity, the baseline (or counterfactual) is assumed to be marginal electricity generated from the relevant country grid. GIG's methodology calculates the net green impact of the project by comparing its likely emissions to those of a marginal grid electricity mix, using the methodology set out in the International Financial Institutions (IFI) approach to GHG accounting for renewable energy projects. For energy efficiency investments, reference should be made to the guidance set out in the International Performance Measurement and Verification Protocol and the IFI approach to GHG accounting for energy efficiency projects.

Further Information

PRODUCTS AND SERVICES

The Green Investment Group is a specialist in green infrastructure principal investment, project delivery and the management of portfolio assets, and related services.

As the first institution of our kind in the world, we have developed innovative green impact products and advisory services. To see how you could benefit from our expertise, and for more information visit greeninvestmentgroup.com/en/what-we-do/green-impact-advisory.html

These products include our simple, clear, quantified Green Impact Reports which deliver:

- Market leading transparency
- Robust, consistent, and globally comparable disclosure
- A statement on contribution to the low carbon transition

Green impact report
Murra Warra II wind farm

1. Introduction
The Green Impact Advisory (GIA) team of Green Investment Group Limited (GIG) has prepared this report (the 'Report') in connection with the Murra Warra II Wind Farm (the 'Project'). The GIA team has forecast the Project's avoided greenhouse gas (GHG) emissions, emissions to air, and fossil fuels consumption (together, the 'Green Impact'), as summarised below. This Report also considers the Project's alignment with the United Nations Sustainable Development Goals.
The Project's GIG carbon score is 404 AAA. Refer to Appendix 1 for further information on how this is calculated.

Project information

Technology	Onshore Wind
Location	Australia
Nameplate capacity (MW)	200
Stage	Development
Anticipated commencement of operations	2022

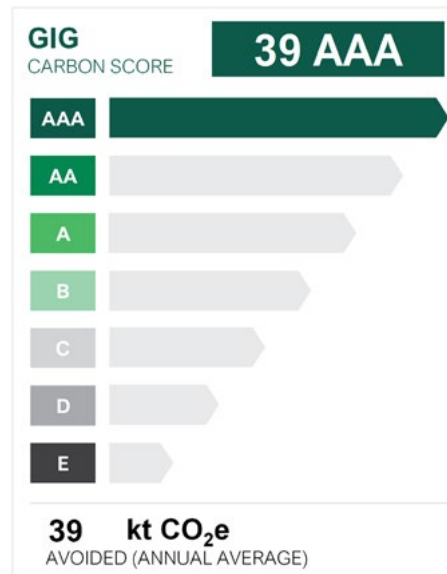
Green impact: forecast performance

GIG emissions avoided (carbon dioxide equivalent)	
Remaining lifetime	44,554 kt CO ₂ e
Average annual	468 kt CO ₂ e/yr
Other emissions to air avoided (excludes of nitrogen)	
Remaining lifetime	26,377 t NO _x
Average annual	899 t NO _x /yr
Fossil fuels consumption avoided (oil equivalent)	
Remaining lifetime	5,869 kt oe
Average annual	198 kt oe/yr

404 kt CO₂e AVOIDED (ANNUAL AVERAGE)

THE GREEN IMPACT REPORTS COVER THE FOLLOWING:

- High-level assessment of a project or portfolio
- Focused on greenhouse gas emissions avoided
- Includes air pollutants avoided and equivalent fossil fuel use avoided
- Assessed both forecast and actual performance
- Attributes a GIG Carbon Rating (AAA to E)
- Designed for public disclosure



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