

Green Investment Group

# Financed Emissions report

December 2022

# Financed Emissions report

We made a commitment in our 2021 Progress Report to report on our financed emissions. The results are presented below along with explanation of the measurement approach, which was developed following review of good practice and with guidance from Guidehouse<sup>1</sup>.

### Financed emissions framework

Building on the financed greenhouse gas (GHG) emissions reported in the 2021 Progress Report, we have used the Partnership for Carbon Accounting Financials (PCAF) methodology<sup>2</sup> to update our method of reporting financed emissions. In line with the calculation methodology defined in the Project Finance section of the PCAF Standard, we have calculated emissions attributed to GIG's investment using GIG's share of total capital as a proportion of the sum of the project's total equity and debt. This has been applied to the entirety of GIG's balance sheet portfolio held at 31st March 2022 (the 'Portfolio').

# Emissions measurement methodology

To date, our emissions measurement approach has been based on materiality. The material lifecycle emissions from our assets have been measured based on operational data (forecast and actual performance) reported directly from the asset. Where lifecycle emissions were deemed immaterial, specifically in comparison to avoided emissions, then we have used lifecycle emission factors based on physical activity data of the asset's activities, e.g. electricity generation. Project lifecycle phases include:

- one-time upstream (e.g. materials acquisition and plant construction)
- ongoing combustion (where applicable)
- ongoing non-combustion (e.g. operation and maintenance)
- one-time downstream (e.g. plant decommissioning and disposal/recycling)

Lifecycle emission factors have been sourced from the National Renewable Energy Laboratory (NREL)<sup>3</sup>. To inform our analysis of financed emissions we used NREL data on life cycle stages – upstream, operations and downstream – to categorise the emissions data into scope 1+2 and scope 3 and to generate the anticipated time profile of the emissions. The time profile of individual projects' emissions was aggregated to generate the overall profile for the Portfolio as shown in **Figure 5**.

### Data quality

Referring to the 'General description of the data quality score table for project finance' defined by PCAF<sup>2</sup>, the data quality of our waste treatment and biomass projects falls under the category of Score 2 (Option 2a), with their lifecycle emissions calculated using primary physical activity data (such as waste content analysis) while that of our renewable energy projects falls under Score 3 (Option 2b), with their lifecycle emissions estimated using NREL lifecycle emission factors, as described above.

#### Score 1 (Option 1a) = highest data quality; Score 5 (Option 3c) = lowest data quality.

We will seek to improve the data quality over time through:

- a.increasing the percentage of data directly collected from our invested projects in the measurement process, and
- b.introducing robust verification to the emissions data reported by companies, which aligns with the NZAM criteria set out in MAM's commitment.

We expect the successful implementation of these actions to increase data quality scores.

3. https://www.nrel.gov/analysis/life-cycle-assessment.html

The findings from this exercise will inform future disclosures, which will be made through Macquarie's Net Zero and Climate Risk report, anticipated to include emissions from the power sector from 2023 onwards.

<sup>1.</sup> https://guidehouse.com/?lang=en

<sup>2.</sup> https://carbonaccountingfinancials.com/files/downloads/PCAF-Global-GHG-Standard.pdf

# Results - 2021 PCAF disclosure

### **Financed emissions**

GIG's financed emissions in the calendar year 2021 have been estimated at:

- Scope 1&2: 1.5 ktCO2e
- Scope 3: 114.6 ktCO<sub>2</sub>e

The doughnut chart shows the breakdown of the scope emissions of the Portfolio in the reporting year. As the majority of projects in the Portfolio were pre-operational in 2021, more than 98% of this year's financed emissions are scope 3 emissions arising from manufacture, transport and installation. Those that were operational were predominantly wind and solar, which have very low operational, scope 1, emissions.



#### Figure 1: 2021 financed emissions by scope



# Lifecycle emissions of new investments

In the reporting year (April 2021 – March 2022), GIG made new investments in 12 solar and battery storage projects, taking them to Final Investment Decision (FID). PCAF recommends that an initial sponsor or lender assess the total projected lifetime (operational phase) scope 1 and 2 emissions for projects that were financed during the reporting year and scope 3 emissions, where material. Scope 3 emissions are deemed to be insignificant for the operational phases of solar and battery storage projects. The expected lifetime emissions of these new projects have been estimated at:

• Scope 1&2: 92.3 ktCO2e

In addition, GIG has estimated scope 3 emissions (upstream and downstream phases) at:

• Scope 3: 498.7 ktCO<sub>2</sub>e

New investments made in this period include solar projects (Telcontar, India; Pontinia, Italy; PGP2, Malaysia; Nonthaburi, Thailand; Brighouse and Larks Green, UK; Halliburton, Javits Hybrid, South Portland and Lena Winslow, US) and battery storage projects (Hazelwood, Australia; Maldon, UK). These investments together have added 196.7 MW of electricity generation capacity and 190 MW / 200 MWh of electricity storage capacity to GIG's balance sheet portfolio.

### Additional disclosure - emissions intensity & time profile

Here we look at the lifecycle emissions of those assets in the Portfolio that had reached FID as at 31st March 2022. This approach to reporting is consistent with GIG's reported Green Impact Statements.

Most emissions in our waste treatment projects are scope 1 (direct) emissions, whereas the lifecycle emissions from our renewable energy projects (such as wind and solar energy) are predominately scope 3 emissions arising from manufacture, transport and installation. The distribution of our financed lifecycle emissions by sector is illustrated in Figure 2 below.

#### Figure 2: Lifecycle financed emissions by sector



Figure 3, below, shows the emissions intensity for only electricity-generating sectors, with electricity generation (in GWh) used as the denominator.







As waste sector projects provide multiple services concurrently (i.e. waste treatment, electricity generation, heat generation), and there is no standardised approach to attributing emissions between services, the following alternative intensity metrics are provided for waste sector assets in the Portfolio, each with 100% emissions attributed:

Service	Alternative intensity metrics
Waste treatment	0.3 tCO2e / tonne waste treated
Electricity generation	428.1 tCO <sub>2</sub> e / GWh <sub>e</sub>
Heat generation	503.4 tCO <sub>2</sub> e / GWh <sub>th</sub>

Electricity generation is the most significant service delivered by GIG's portfolio, and so we have reported the Portfolio's carbon intensity of this service provision, on a lifecycle basis. The carbon intensity has been calculated by totalling the financed lifecycle emissions of the Portfolio and dividing by the attributed lifecycle electricity generation, using the same attribution approach for each element.

Figure 4, overleaf, shows the breakdown of our financed electricity generation by sector. Given that offshore wind and onshore wind together make up over 60% of the electricity generation of GIG's portfolio, the emissions intensity of the Portfolio is heavily weighted towards that of our wind assets, which are the lowest carbon intensity forms of electricity generation in the Portfolio.

4. In line with the 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, emissions from the combustion of biogenic sources are excluded for the energy sector.



Figure 4: Financed electricity generation by sector

The financed lifecycle emissions intensity of electricity generation provided by our assets at 31st March 2022 is 58.7 tCO<sub>2</sub>e / GWh.

**Figure 5** shows the estimated absolute emissions over time for assets in the Portfolio and post-FID as of 31st March 2022, applying the same financed emissions approach as detailed above. It is important to note that these emissions forecasts do not take into account potential additional decarbonisation measures that could be applied.



For the first years of the profile, the majority of emissions from the Portfolio at 31st March 2022 will come from the construction of solar and wind assets, whereas the emissions from the waste projects will start to dominate the emissions chart once they commence operations.

Waste

Battery storage

Onshore wind

Since the end of the reporting year, we note that the waste projects covered in this chart have been divested.



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Figure 5. Financed lifecycle emissions by sector

# Glossary

Metric	Definition	Unit
Lifetime emissions	In this report, we define lifetime emissions as the GHG emissions associated with a project's operational life. We use these as a form of corporate reporting, but at the project level.	tCO <sub>2</sub> e
Lifecycle emissions	Lifecycle emissions are scope 1, 2 & 3 GHG emissions associated with the project phases, which include <sup>5</sup> :	tCO <sub>2</sub> e
	<ul> <li>one-time upstream (e.g., materials acquisition and plant construction)</li> </ul>	
	<ul> <li>ongoing combustion (where applicable)</li> </ul>	
	<ul> <li>ongoing non-combustion (e.g., operation and maintenance)</li> </ul>	
	<ul> <li>one-time downstream (e.g., plant decommissioning and disposal/recycling)</li> </ul>	
Financed emissions	Absolute emissions that banks and investors finance through their loans and investments ( <u>PCAF Standard</u> ). These are calculated by multiplying an attribution factor by the total emissions of a project in a reporting year.	tCO <sub>2</sub> e
Financed lifecycle emissions	In this report we attribute the financed lifecycle emissions of projects using the same attribution approach as for financed emissions.	tCO <sub>2</sub> e
Financed lifetime electricity generation	In this report we attribute the financed lifetime electricity generation of projects using the same attribution approach as for financed emissions.	GWh
Lifecycle emissions intensity	In this report we are dividing the lifecycle emissions of a project by the project's lifetime electricity generation.	tCO <sub>2</sub> e / GWh
Financed lifecycle emissions intensity of electricity generation	Calculated by dividing the financed lifecycle emissions of the Portfolio by the financed lifetime electricity generation, using the same attribution approach for each element.	tCO <sub>2</sub> e / GWh

# Keeping in touch

We regularly share updates about our activities on our website and social media channels, as well as highlighting the work of other organisations and initiatives that we are involved in.



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