



Green  
Investment  
Group

# Progress Report

A year of growth,  
expansion and becoming  
a project developer

October 2018







About this report

The purpose of this report is to provide an overview of GIG activity covering the period since the privatisation of the UK Green Investment Bank Limited and the creation of the Green Investment Group, in August 2017. The report covers activity up to the end of August 2018, unless otherwise stated.

GIG provides real-time progress updates via their website and social media channels.

greeninvestmentgroup.com

in Green Investment Group

@GreenInvGroup

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# Performance highlights

## Last year<sup>1</sup> at a glance



**Over £1.6bn**  
arranged or invested



**10** new green  
transactions supported



**Going global**  
From the UK to Europe,  
North America and Asia



Arranged one of the  
world's largest and  
longest **green power**  
**purchase agreements**



Extended scope into  
**development**  
stage investing



Launch of new  
**Energy Solutions and**  
**advisory services**

## Our green impact

**Additional lifetime green impact from investments made in 2017/18<sup>2</sup>**

**85,000** GWh  
Renewable energy generated



Equivalent to the energy  
consumption of

**864,000**  
homes<sup>3</sup>

**17,000** kt CO<sub>2</sub>e  
GHG emissions avoided



Equivalent to  
removing

**300,000**  
cars from the road<sup>3</sup>

**16,000** kt  
Waste to landfill avoided



Equivalent to the  
domestic waste produced by

**640,000**  
homes<sup>3</sup>

1. 17 August 2017 to 31 August 2018

2. 1 April 2017 to 31 March 2018

3. For 25 years, calculation based on UK benchmark numbers

## GIG at a glance



**200+** including GIG and Macquarie staff operating under the GIG brand



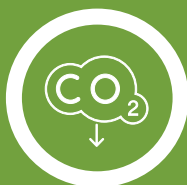
**£15bn+** invested or arranged in green projects<sup>4</sup>



**8 GW** of operational renewable energy capacity supported<sup>4</sup>



**7 GW** of renewable energy capacity in development or construction<sup>5</sup>



Projects in development have potential to avoid up to **8.3 Mt CO<sub>2</sub>e annually**



Working across established and **emerging technologies**

## Lifetime green impact from cumulative investments to date<sup>6</sup>

**461,000** GWh  
Renewable energy generated



Equivalent to the energy consumption of

**4.65m**  
homes<sup>3</sup>

**174,000** kt CO<sub>2</sub>e  
GHG emissions avoided



Equivalent to removing

**3.02m**  
cars from the road<sup>3</sup>

**101,000** kt  
Waste to landfill avoided



Equivalent to the domestic waste produced by

**4.17m**  
homes<sup>3</sup>

4. Combining historic activity by UK Green Investment Bank, GIG and Macquarie Capital

5. GIG and Macquarie Capital only

6. UK GIB and GIG projects to 31 March 2018. These figures relate to investments that may no longer be held by GIG. Assets are spread globally, not necessarily in the location listed.

# Who we are

Green Investment Group Limited (GIG) is a leading global green investor specialising in green infrastructure principal investment, project delivery and the management of portfolio assets, and related services. GIG is dedicated to supporting the growth of the global green economy.

In 2012 the UK Green Investment Bank plc (GIB) was launched by the UK Government – the first institution of its type in the world. GIB was acquired by Macquarie Group Limited (Macquarie) in 2017 and now operates under the name Green Investment Group (GIG). GIG brings together the GIB business with Macquarie Capital's renewable team to create one of the world's largest teams of specialist green investors.

Macquarie is a diversified financial group, providing clients with asset management and finance, banking, advisory, risk and capital solutions across debt, equity and commodities. Founded in 1969, it employs more than 14,400 people across 25 countries.

Macquarie, together with its managed funds, is also one of the world's largest investors in green energy, having invested or arranged more than \$A20 billion of investment into green energy projects since 2010.

## Our focus

GIG targets investments in green infrastructure projects across:

- Established technologies including offshore and onshore wind, solar, hydro, inter-connectors, and waste and bioenergy.
- Emerging technologies including tidal, biofuels, energy efficiency, storage, low-carbon transport, smart grids and district heating.
- All stages of the project lifecycle: development, construction and operations.
- The entire capital structure, from equity to debt.

## What we offer

In addition to our main focus of principal investment, we offer related advisory services:

### Project delivery and portfolio services

- Providing third parties with technical, project delivery and operations management services for green infrastructure projects. The team is already managing assets on behalf of investors across a broad range of green energy technologies.

### Green impact reporting services

- Providing third parties with green impact reporting services including Green Impact Reporting for specific projects, green bonds or portfolios of assets.

### Green bank advisory

- Drawing on our experience in setting up the world's first green bank, we offer consultancy services and advice to government and multilateral institutions on how to set up effective green finance institutions.

### M&A and debt advisory

- Working closely with colleagues in Macquarie's regulated M&A and Corporate Finance business we offer a specialist M&A service to businesses operating in the low carbon economy.

# Our strategy

Over the past year, GIG's mission and purpose has remained firmly in line with that held under public ownership; with a mission to accelerate the global energy transition and a purpose of making new green energy investments. Nonetheless, our investment approach has evolved significantly to meet the rapid and fundamental changes underway in the marketplace. These changes to our investment approach are summarised under six key themes:

## 01

### Development capital

With maturing technologies, a growing number of investors show an appetite for low-carbon assets and a greater willingness to invest at the construction stage. GIG is responding to this demand by moving earlier into the project lifecycle, investing globally in development projects, platforms and businesses. Building in-house development capability and working for our partners, GIG is delivering a sustainable pipeline of high-quality investment opportunities for later-stage investors.

## 02

### Investing beyond subsidy

As costs of renewables fall, many governments are aiming to maintain growth without employing traditional subsidies. With a growing track record of investment in projects with limited dependence on subsidy revenue, GIG is building the financing experience needed to attract long-term capital into this expanding market segment and is investing in the capability to source and structure the power purchase agreements that provide the commercial underpinning for these assets.

## 03

### Partnership platforms

With the aim of amplifying their impact, GIG continues to seek ways to complement its existing expertise and access to capital with the capabilities of leading partners. Increasingly, GIG is working closely with leading international original equipment manufacturers and expert developers, leveraging our respective strengths and global reach. With a flexible approach to partnership, we are opening up new opportunities, delivering competitive and efficient investment in emerging and established markets.

## 04

### Geographical expansion

Bringing GIG's expert focus on green infrastructure together with Macquarie's global footprint was central to the rationale for the formation of GIG. While the business will continue to be led from the UK and remain highly active in this market, expansion into Asia and North America, and through increased investments in Europe, GIG has taken the first steps in realising the global opportunity.

## 05

### Market transformation

GIG's Green Ratings and Sustainable Finance advisory businesses build on the pioneering capability in assessing, monitoring and reporting green impact and offer a unique institutional experience to a growing international market. GIG is also bringing early stage capital into initiatives, projects and technologies with potential for significant strategic impact.

## 06

### New technologies

A dynamic energy market, increasingly dominated by renewables, has become a driving force for technological innovation. With the disruption of established value chains comes the scope for new business models that support the deployment of this new technology. GIG is investing in its global capability to invest in this new generation of energy infrastructure and in the businesses at the cutting-edge of this changing landscape.

# Business review and outlook



## Dan Wong

Chair of Green Investment Group  
and Global Co-Head of  
Infrastructure & Energy

### A strong start

Just over a year ago, on 17 August 2017, the UK Green Investment Bank became part of Macquarie Group, and we renamed the business Green Investment Group to support its growth.

The logic of bringing the two businesses together was simple: together, the world's largest infrastructure investor and world's first green bank could achieve more than the sum of their parts. One year on, our ambitions are being realised.

The business has made a strong start: we have made or arranged over £1.6 billion of new investment in green energy infrastructure; we have extended GIG's reach into new technologies; we have reinforced our commitment to the UK and launched GIG in new geographies, with our first investments in mainland Europe, North America and Asia. We have built on our pioneering approaches to fund management and have continued to play a leading role in the global green energy community.

Each of our investments has been certifiably green, meeting the same environmental objectives in private ownership that GIB did when publicly

owned. And we have developed a strong and open relationship with the independent trustees of the Green Purpose Company Limited.

Across Macquarie, green infrastructure is an increasingly prominent part of our business. From the launch of a £500 million green loan facility, the first to adopt internationally-recognised Green Loan Principles, as published by the Asia Pacific Loan Market Association in March 2018, to the application of GIG's green ratings methodology to track the impact of all qualifying green balance sheet investments, GIG is a catalyst that is shaping the way the wider Macquarie Group does business.

We are proud of what we have achieved so far. By combining the businesses, we have created a more powerful global green investor, responsive to the demands of a dynamic marketplace. This report sets out our progress. I want to thank the Macquarie and GIG staff for their efforts over the past year, as well as our partners and our stakeholders. I look forward to working with you to make our second year even more successful than the first.

### Our developing role

As we reflect on a busy first year as a combined business, there are a number of important developments that will define our approach to the global green energy market opportunity.

We are increasingly engaging earlier in the project lifecycle and committing development capital. This fulfils what we believe to be our role in the market – to make new green energy projects happen. We are expanding our reach, building on the relationships and expertise we have established in the UK and Europe, to build a truly global business. We are responding to the reality of falling subsidies in many international markets, by establishing power purchase agreements as a viable source of revenues to anchor the financing of new projects.

We are also increasingly investing in the creation of partnership platforms to help bring forward a new pipeline of projects. We are investing time developing funding models for disruptive technologies and novel approaches, such as energy storage and repowering. And we are investing in new services that will help mobilise investment into the growing market for green infrastructure, building our offering in project and portfolio management and green impact ratings.

By developing these aspects of our business, we aim to maintain a distinct and valuable role as private investors respond to the challenge of transforming energy systems across the globe. I hope you will see these themes emerging through this Progress Report and becoming a growing feature of our business in the years to come.



## Mark Dooley

Global Head of Green  
Investment Group



# Business review and outlook



## Building on our strengths

As UK and mainland European markets respond to falling technology costs, our business has evolved to focus on realising new green energy infrastructure and meeting investors' sustained appetite for these assets.

Nothing reflects our dynamic response better than our investment in the Markbygden ETT and Överturingen wind farms in Sweden, together totalling 885 MW of new renewable power generation. We entered both investments in the development phase, secured ground-breaking long-term power purchase agreements with a high quality corporate offtake partner, and raised finance for both assets, successfully mobilising over €1 billion of capital.

In September 2017, we opened our account as the Green Investment Group with a debt facility for the UK's largest waste-to-energy facility, followed by a commitment to a development platform for further plants across Great Britain and Ireland.

As we continue to grow the business, the enduring focus on our home market will be further maintained through a portfolio of development opportunities and new funding products to help commercial energy users realise the benefits of energy efficiency, battery storage and renewable generation, reinforcing the growing national effort to achieve a productive, low-carbon economy.

## Edward Northam

Head of GIG, UK & Europe



## New beginnings in North America

The Green Investment Group launched in North America in June 2018, building on Macquarie Capital's two decades of expertise in the North American energy and infrastructure market. The GIG launch underlines our long-term, strategic commitment to the renewable energy sector across the region.

In conjunction with the launch, we announced two key strategic green energy transactions. Firstly, our exclusive partnership with Candela Renewables, a sector-leading solar development team which has the proven ability and industry relationships to develop new large-scale solar projects. The arrangement, targeting the creation of more than 1 GW in new solar projects, enables us to deploy capital to utility-scale solar developments in the US, leveraging our balance sheet, global scale and capability.

Secondly, GIG successfully developed, commercialised and financed Canadian Breaks, a 200 MW onshore wind farm in Texas. The asset, featuring Siemens Gamesa wind turbines, connects into the Electric Reliability Council of Texas (ERCOT) electric grid. The project demonstrates our ability to manage complex processes and work collaboratively with top-tier counterparties and construction partners.

We believe that the renewables sector in North America is poised for a prolonged period of growth as falling technology costs, combined with growing demand from corporates and utilities, drive increasing deployment.

## Chris Archer

Head of Green Energy, Americas



## First moves in Asia

The transition from nuclear and coal to clean energy sources across developed Asia, and an increased demand for power in developing Asia, are creating a real need and opportunities for the GIG across the region.

The ongoing development of 3.9 GW of generation capacity across North Asia by Macquarie is now being supported by GIG, creating a more powerful platform for renewables development in Asia. Over the past year, alongside partners Swancor Renewable and Orsted, we have successfully reached financial close on the first project finance debt facility for offshore wind in Taiwan. The consortium is jointly developing the 128 MW Formosa 1 project, Taiwan's first utility-scale offshore wind farm. We also acquired a significant solar business,

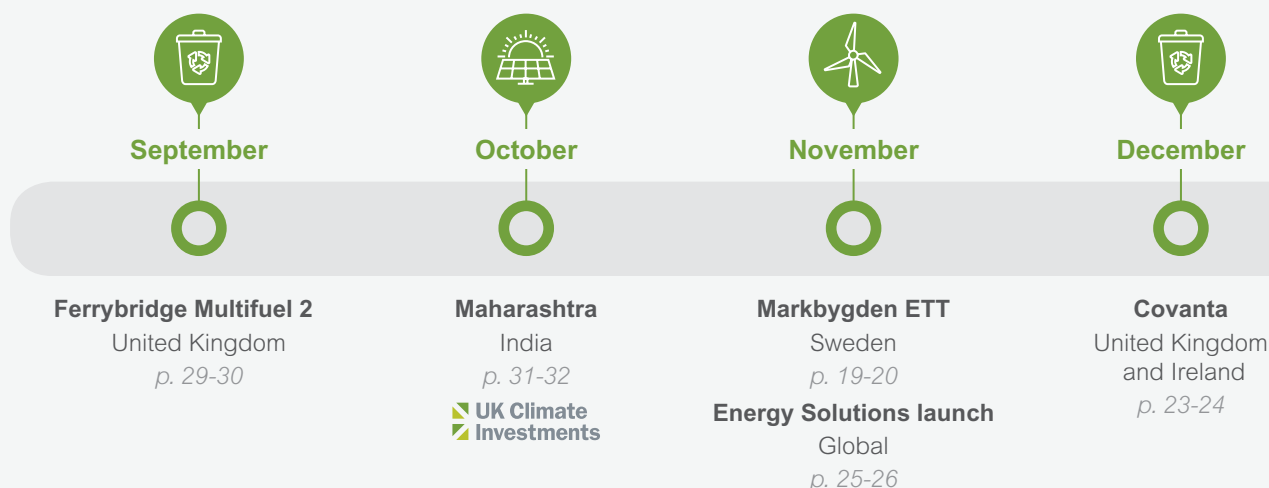
Conergy Asia & ME including a pipeline of solar development assets in the Asia Pacific region, commercial, technical and energy storage capabilities, and an asset monitoring centre.

Looking ahead, we will continue to focus on green energy across Asia, whether that's through mature technologies such as solar and wind, or pioneering new technologies, such as environmental services.

## Neil Arora

Head of Macquarie Capital, Asia

# Our investment milestones



**The Green Investment Group was established on 17 August 2017, following the acquisition of the UK Green Investment Bank by a Macquarie-led consortium. Just three weeks later, we announced the arrangement of a £38 million financing for Wheelabrator Technologies for the construction of Ferrybridge Multifuel 2, a new, large-scale waste-to-energy facility on the site of the former Ferrybridge C coal-fired power station.**

Edward Northam, GIG's UK and European Head, said the transaction "built upon [GIB's] well-established investment strategy", with GIG's Global Head, Mark Dooley, adding that it marked the "first step" in realising GIG's target of leading £3 billion of investment in green energy projects over the next three years.

The following month saw UK Climate Investments (UKCI), a joint venture between GIG and the UK Government's Department for Business, Energy and Industrial Strategy, make its first investment to fund the development, acquisition and ownership of utility-scale solar generation assets in India, in partnership with Lightsource BP.

The seed asset for the partnership was the UK-based developer's 60 MWp project in the Indian state of Maharashtra. UKCI committed 49% of the equity for the construction of that project and earmarked up to £30 million in aggregate for that and for the development and construction of around 300 MW of solar photovoltaic projects.

In November, GIG announced a partnership with GE Energy Financial Services (GEEFS) to jointly acquire the Markbygden ETT onshore wind farm in northern Sweden from developer Svevind. Once complete, the 650 MW project will be Europe's largest single-site onshore wind farm, increasing Sweden's installed wind capacity by 12.5%.

The sponsors agreed a 19-year fixed volume power purchase agreement (PPA) with a subsidiary of Norsk Hydro, one of the world's largest producers of aluminium. The agreement was thought to be one of the biggest corporate wind energy PPAs in the world.

November also saw GIG launch Energy Solutions, a new service to help medium and large energy users reduce costs and cut carbon emissions while minimising their capital outlay. Energy Solutions enables businesses to access the development expertise and funding required to install technologies that will improve their energy efficiency and productivity.

This was followed by the announcement in December of a new partnership, focusing on the development and construction of waste-to-energy infrastructure in the UK and Ireland, alongside leading developer Covanta. GIG underscored its commitment to the partnership by acquiring 50% of Covanta's Dublin Waste-to-Energy facility.



March

**Westermost Rough**  
United Kingdom



June

**Candela Renewables**  
North America  
*p. 27-28*

**Canadian Breaks**  
North America  
*p. 27-28*

**Indian solar YieldCo**  
*p. 31-32*



July

**Project Överturingen**  
Sweden  
*p. 19-20*



August

**Conergy**  
Asia  
*p. 21-22*

As well as forming partnerships and closing transactions, GIG has supported investment in renewables across the wider Macquarie Group. The Green Investment Ratings team carried out a green impact assessment of the Walney Extension offshore wind farm, prior to Macquarie Infrastructure and Debt Solutions providing part of a long-term debt facility to fund the acquisition of a 50% interest in the project.

In addition, the team assesses the eligibility of green projects supported by the new green loan facility raised by Macquarie Group in June, the first to be launched by a financial institution globally under Asia Pacific Loan Market Association's Green Loan Principles.

In March, GIG announced an acquisition of a 25% interest in the Westermost Rough offshore wind farm from Marubeni Corporation.

This was followed by UKCI's second investment – the acquisition of a 40% ownership interest in a 185 MW portfolio of operating solar assets in India and the creation of the country's first unlisted renewables 'yieldco' vehicle – and the completion of the

Maharashtra solar project. The project was described by UK Minister of State for Energy and Clean Growth Claire Perry as "a perfect example of the public and private sectors working together to deliver our respective climate, development and growth objectives that will benefit the entire planet".

In July, building on the success of the Markbygden wind farm project, GIG announced financial close on a new 235 MW onshore wind development project in central Sweden. Marking the announcement, Global Head of GIG Mark Dooley said: "This project is the latest to utilise a new investment model – developing new projects by working with companies who want to buy renewable energy directly. This model provides the secure revenues needed to finance renewable energy assets with less and less reliance on public subsidy."

GIG closed its first year under Macquarie ownership by expanding its brand into two new continents: Asia and the Americas.

In June, GIG launched in North America with the announcement of two transactions: a new onshore wind

farm in Texas and the acquisition of a solar development platform and team for North America.

In August, shortly before the first anniversary of the creation of GIG, the first acquisition in Asia was announced – a new solar development platform and team from Conergy Asia & ME. Neil Arora, Head of GIG in Asia, said "We are pleased to enhance our solar energy capabilities from development through to design, engineering, procurement and delivery management, to build on our solar energy track record across Asia Pacific. Today's acquisition will also further strengthen our battery storage expertise and allow us to pursue other investment opportunities in a rapidly-growing region for the renewables sector."

#### Find out more

Further details of these announcements can be found throughout this report and on the GIG website.





# Our approach to assessing, monitoring and reporting green impact

Assessing, monitoring and reporting green impact has always been an organisational priority for GIG. This commitment is underpinned by a set of objectives, policies and procedures which apply to all activity carried out under the GIG name. The approach to this activity continues to evolve and develop in line with good practice and is summarised in the GIG Green Investment Handbook.<sup>1</sup>

## Green Investment Policy

Integral to our green governance framework are the requirements of the GIG Green Investment Policy,<sup>2</sup> applicable to all transactions and mandates globally where GIG's brand is used. The policy has been in place since 2013 and remains unchanged since privatisation.

## Green Purposes

The policy includes detailed requirements covering the seven GIG Green Investment Principles,<sup>2</sup> and the need for each transaction or mandate to contribute to one or more of GIG's five Green Purposes:

1. Reduction of greenhouse gas emissions;
2. Advancement of efficiency in the use of natural resources;
3. Protection or enhancement of the natural environment;
4. Protection or enhancement of biodiversity; and
5. Promotion of environmental sustainability.

## The Green Purposes Company

The Green Purposes Company Limited (GPC) holds a special share in the UK Green Investment Bank Ltd, the purpose of which is to ensure that it cannot make changes to its green mission unless the GPC has provided its consent. For more information, see Governance over our green mission, page 33.

## GIG Green Investment Ratings team

The GIG Green Investment Ratings (GIR) team evaluates all applicable green transactions against the requirements of the Green Investment Policy. This involves assessing a transaction's expected green impact and risk, and providing a green opinion on its alignment with the policy requirements. A green impact assessment is carried out on every GIG-branded transaction globally.

The GIR team also provides green ratings for prospective transactions. Green covenants can be applied within the agreed legal documentation.

Once the transaction has been approved for investment, the GIR team will monitor performance of the investment and ensure that appropriate green data is supplied at least annually for validation and assurance.

## Environmental and social risks

In addition to the specific provisions included in the Green Investment Policy, environmental and social risks are managed through the Macquarie Environmental and Social Risk (ESR) Policy<sup>3</sup>. The ESR Policy ensures such risks are identified and managed responsibly and is based on international guidelines, including the IFC Performance Standards.

## Principles for Responsible Investment

We have been a signatory to the Principles for Responsible Investment (PRI) since 2013, and GIG continues to be active as a standalone entity. In 2017, GIG achieved a score of A+ for all three of our PRI Assessment Report categories; this puts our performance in the top 20% of PRI signatories.

## Equator Principles

We adopted the Equator Principles in 2013 and GIG remains as an independent adoptee. The table in the Appendix section (p. 44) of this report summarises applicable transactions which closed in the 2017-18 reporting period<sup>4</sup>. The Equator Principles do not apply to equity investments.

## Green impact for development projects

In this year's green impact statements (p. 37-43) we report green impact in the same way as the UK Green Investment Bank did: the forecast and actual green performance of projects in our portfolio which are either under construction or already operational. As we move our focus towards bringing forward more green projects by investing in early stage development, we will look to account for the green impact of these projects differently. In the future, we will measure the success of our green mission by reporting on the green impact of all projects that we have catalysed.

1. Available from [www.greeninvestmentgroup.com/green-impact/green-investment-handbook/](http://www.greeninvestmentgroup.com/green-impact/green-investment-handbook/)

2. Available from [www.greeninvestmentgroup.com/green-impact](http://www.greeninvestmentgroup.com/green-impact)

3. Available from [www.macquarie.com/uk/about/company/environmental-social-governance-esg](http://www.macquarie.com/uk/about/company/environmental-social-governance-esg)

4. GIG's Equator Principles reporting is also available on the Equator Principles website at <http://equator-principles.com/members-reporting>

Note: The single project reported – Ferrybridge Multifuel 2 – was classified as project finance and is located in the UK (a 'designated country' under the Equator Principles).

# Our green impact

We continue to report the green impact of projects we have invested in, just as the UK Green Investment Bank has done since 2013. To keep our reporting comparable with previous years, the green impact is reported for the year April 2017 to March 2018. Here we provide a summary of the contribution of our investments to each of our Green Purposes, with more detailed reporting of the green impact of the portfolio of investments in the green impact statements on p. 37-43.

## The reduction of greenhouse gas emissions

The forecast lifetime greenhouse gas emissions from projects in which we invested in 2017/18, and the cumulative total for all GIG and UK GIB investments to date, are summarised below. Projects invested in during the reporting period are expected to contribute to greenhouse gas emissions reduction.

## The advancement of efficiency in the use of natural resources

The contribution to this green purpose is measured by the metrics below on renewable energy generation, energy demand reduction and materials recycled. All of the projects invested in during the reporting period are expected to advance natural resource efficiency.

## The protection or enhancement of the natural environment

Two projects are expected to contribute to the protection of the natural environment – these do so by diverting waste from landfill. The metrics for landfill diversion are summarised below.

## The protection or enhancement of biodiversity

None of the projects invested in during the reporting period are anticipated to make a material positive contribution to this green purpose. We undertake due diligence before each investment by reviewing projects' Environmental Impact Assessments, as applicable, to evaluate the significance of any adverse or beneficial effects on biodiversity and any mitigation and / or monitoring measures required. Three of the projects are developments on brownfield sites with low existing

biodiversity value and have potential to deliver minor local benefits to biodiversity; the remaining projects have been designed (e.g. through wind turbine siting), and / or are applying mitigation (e.g. through timing construction to reduce disturbance to local fauna), to minimise adverse effects on biodiversity. Consequently all projects in the reporting period were assessed as having minor or no significant residual effects on biodiversity.

## The promotion of environmental sustainability

Two projects are anticipated to promote environmental sustainability – these do so by delivering new low-carbon generation capacity with a long technology horizon, and by demonstrating innovative new investment partnerships in green infrastructure that can be replicated by other investors.

## Lifetime green impact metrics

	Additional lifetime green impact from investments made in 2017/18	Lifetime green impact from cumulative investments to date
Greenhouse gas emissions avoided (kt CO <sub>2</sub> e)	17,190 <sup>†</sup>	173,855
Renewable energy generated (GWh)	84,941 <sup>†</sup>	460,629
Energy demand reduced (GWh)	- <sup>†</sup>	3,977
Materials recycled (kt)	3,640 <sup>†</sup>	32,977
Waste to landfill avoided (kt)	15,652 <sup>†</sup>	100,948

## GIG's green impact statements

The green impact statements on pages 37-43 give a quantified indication of the environmental benefits arising from GIG's portfolio of investments. Green impact metrics are reported in terms of the actual green impact delivered by the portfolio during 2017/18, the historical green impact accrued by the portfolio to date, and the forecast green impact for the remaining lifetimes of the projects in the portfolio.

The green impact statements should be read in conjunction with GIG's methodology for calculating green impact, the details of which are set out in GIG's Green Impact Reporting Criteria 2017-18, a copy of which is published on GIG's website.

As with previous years' reporting, selected totals for data in the green impact statements in respect of the financial year 2017-18 have been independently assured by Deloitte in accordance with the Independent Assurance Report set out on p. 45-46.

Note: Data marked <sup>†</sup> on this page are assured disclosures.

# Developing our approach to green impact reporting

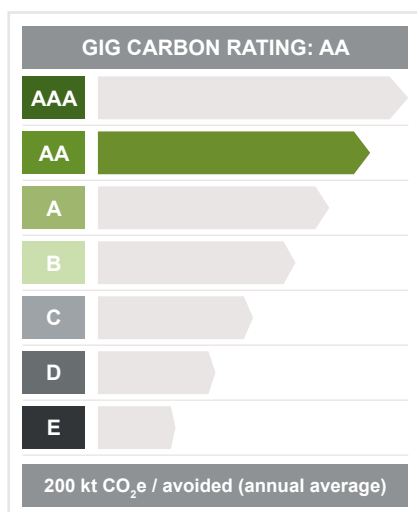
GIG is continually developing its approach to green impact reporting. By contributing to the development of best practice in this field, we can improve our in-house policies and processes and also offer our expertise, as a service, to other investors, developers and government organisations. This is an important contribution to the development of the green economy as commercial and regulatory drivers require an increase in the reporting of green performance data and carbon-related disclosure requirements.

## The GIG Carbon Rating

A recent innovation from the Green Investment Ratings team is the GIG Carbon Rating. While other measures of GHG emissions only consider the emissions produced during a project's operational phase, the GIG Carbon Rating also considers the emissions across the project's entire lifecycle.

Projects or portfolios with the lowest lifecycle emissions relative to the baseline score increase Carbon Ratings from B to AAA. Projects or portfolios with lifecycle emissions greater than the baseline are rated a C, D or E. This globally applicable approach allows GIG and other investors to compare the relative performance of projects in GHG emissions avoided.

The rating below shows the quantified GHG emissions avoided by a hypothetical project (in kilotonnes of carbon dioxide equivalent).



## The GIG Green Impact Report

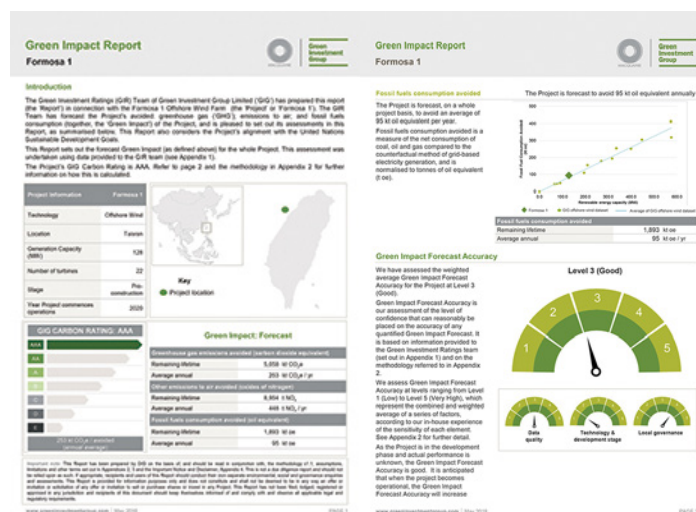
The GIG Green Impact Report, which uses GIG's robust green impact methodology, provides a template for best-practice green impact disclosure. The report has unique features developed using GIG's proprietary methodology, and shows quantified, globally comparable green performance data including:

- GHG emissions avoided, calculated according to the internationally harmonised approach for GHG accounting;
- Metrics for avoided fossil fuel consumption (tonnes of oil equivalent) and air pollutant emissions (nitrous oxides, oxides of sulphur, particulate matter);
- A measure of accuracy of the forecast green impact, derived from project technology type, stage of project development, location of the project/country governance, and input data quality; and
- Alignment of the project (or portfolio) with the applicable UN Sustainable Development Goals.

## Green bank advisory

The UK Green Investment Bank was created by the UK Government to accelerate private sector investment, at scale, into green infrastructure. The success of the institution in aligning its operations with the UK's public policy goals, as well as mobilising significant private investment, means the green investment bank model is gaining traction in other countries as they seek to meet their own climate goals as part of the implementation of the 2015 Paris Agreement.

Drawing on this experience, the Green Investment Group works with partners globally who are seeking to develop their own green investment banks and funds. We provide bespoke advisory support including institutional design, capacity building, knowledge transfer and the development of practical tools tailored to the needs of our partners.





# Our wider contribution to the growth of the green economy

GIG continues to play a full part in efforts to accelerate the growth of investment in the green economy. Working with a diverse network of partners we support a broad suite of initiatives by bringing a focused, market-facing perspective as one of the world's largest infrastructure investors

## Cross-industry collaboration

GIG staff have been elected to the board of industry body Scottish Renewables and chair the finance workstream of the UK's Offshore Wind Programme Board. As co-chair of the Finance Working Group of European wind industry body WindEurope, we have helped ensure that the voice of finance has been heard as the European institutions legislate for the EU's new Clean Energy Package.

Beyond renewables, we have supported work by think-tank Policy Exchange to advance investment in energy efficiency in business and industry. We have also contributed to a cross-industry Heat Network Task Force, convened by the Association for Decentralised Energy to formulate policy recommendations that will drive a wholesale expansion of district heating networks in the UK.

We support a range of networking events for the sector, including our own annual stakeholder event, the City of London's Green Finance Summit, Wind Europe 2018, IIF: Energy & Renewables conference, RE-Source and The Scottish Green Energy Awards 2018.

We have led discussions at high-profile events across the world including: the Westminster Energy, Environment & Transport Forum; the Australian Clean Energy Summit 2018; RE-Scandinavia; the 9th Annual World Infrastructure and Energy Summit; SuperReturn Infrastructure 2018; the 4th Annual UK Wide Infrastructure Investment Showcase and Debates; the Asia Clean Energy Forum; the Global Immersion Programme on Social and Sustainable Entrepreneurship and Leadership; the Wilton Park Conference on Green Finance in

South East Asia; the Energy from Waste conference; the World Waste-to-Energy and Resources Summit; and the Renewable Energy Finance Forum.

## Evolving standards

As a member of the BSI Green and Sustainable Finance Standards Strategic Advisory Group, we are providing advice to BSI on future priorities for green and sustainable finance standardisation.

We have also provided the UK's expert to the International Organization for Standardization's technical working group on the emerging ISO 14030 standard for green bonds, and we continue to contribute technical expertise to the International Financial Institutions (IFI) Working Group on Greenhouse Gas Accounting. Now supported by the UN Framework Convention on Climate Change Secretariat, this working group is developing new approaches for assessing the climate impacts of different types of green asset.

## Promoting green finance

A member of the Corporation of the City of London's Green Finance Initiative, GIG has been actively supporting efforts to expand green finance and leverage the capabilities of the City and the wider UK in a growing international market. Edward Northam, GIG's UK and European head, was a member of the UK's Green Finance Taskforce, bringing the experience of an investor in real assets to the Taskforce's landmark report *Accelerating Green Finance*, published in March 2018. He will continue to build on this work as a member of the Advisory Group to the newly-established Green Finance Institute, announced in June 2018 by

the UK Chancellor of the Exchequer as part of his vision for the future of the UK's world-leading financial services sector.

In advance of the Taskforce report, we contributed to the Aldersgate Group's report *Towards the new normal: increasing investment in the UK's green infrastructure*, amplifying recommendations for the development of robust project pipelines. Reinforcing our international outlook, Dan Wong, GIG's Chair, is a member of the UK Treasury's Belt and Road Initiative Expert Board; our Head of Sustainable Finance, Gavin Templeton, is a member of the Green Belt and Road Investor Alliance; and the head of our international climate finance joint venture with the UK Government, Richard Abel, chairs the Green Finance Working Group of the UK/India Economic Dialogue.

We are active members and supporters of a range of groups promoting the growth of the global green economy, including Energy UK, the Aldersgate Group, the Association for Decentralised Energy, Policy Exchange, the Renewable Energy Association, RenewableUK, Scottish Renewables, the Scottish Council for Development and Industry and WindEurope.

# Macquarie: Green energy and the environment

Macquarie Group is GIG's new parent company. It is, including its managed funds, one of the world's largest investors in green energy, having provided or arranged more than \$A20 billion of funding for green energy projects since 2010.

With more than two decades of renewables experience, Macquarie has a substantial and longstanding commitment to the renewable energy and clean technology sectors; as a fund and project manager, adviser, financier and participant in environmental markets.

Macquarie is the number one global renewables adviser<sup>1</sup> and it also actively invests in these sectors alongside its clients through its own balance sheet.

Macquarie's support for these sectors is part of its broader commitment to infrastructure. As the world's largest infrastructure asset manager, with more than \$A146 billion of infrastructure assets under management globally, Macquarie co-invests alongside the world's leading institutional investors, including public sector pension funds.

## **Recent examples of green activity from across the Macquarie Group include:**

- Macquarie Capital: GIG is now Macquarie Capital's main vehicle for principal green energy investment across Europe, the Middle East, Africa, North America and Asia. In addition to GIG, significant investments were made in Australia with project financing closed for Lal Lal Wind Farms and an equity investment in the Murra Warra Wind Farm, as well as a 100% equity investment in Achim Solar Power Co., a photovoltaic plant in South Korea.
- Macquarie Asset Management (MAM): Recent investments from managed funds include the acquisition of a joint controlling stake in Shanghai Sineng Investment Co. Ltd, a private wind development company in China; the purchase of 47.5% of Energy Development Corporation in the Philippines, the world's largest vertically integrated geothermal company; and a debt structuring on behalf of institutional investors to part-fund the acquisition of a 50% share in the Walney Extension, a 659 MW offshore wind farm in the UK.
- Corporate and Asset Finance (CAF): CAF's green activities include the installation of Anglian Water's 30 MWp onsite power purchase agreement solar PV rollout, and continued funding of smart meters and private wire solar PV systems in the UK.
- Commodities and Global Markets (CGM): Macquarie trades environmental financial products and is a major global carbon trader by volume.

Macquarie has also demonstrated leadership in green finance. In June 2018, it became the first financial institution globally to issue a green loan under the Green Loan Principles published by the Asia Pacific Loan Market Association. The loan facility's green tranches will be used to support renewable energy projects initially, and energy efficiency, waste management, green buildings and clean transportation projects in the future. Macquarie will use GIG's proprietary green impact assessment and reporting for eligible projects.

1. Bloomberg CY17

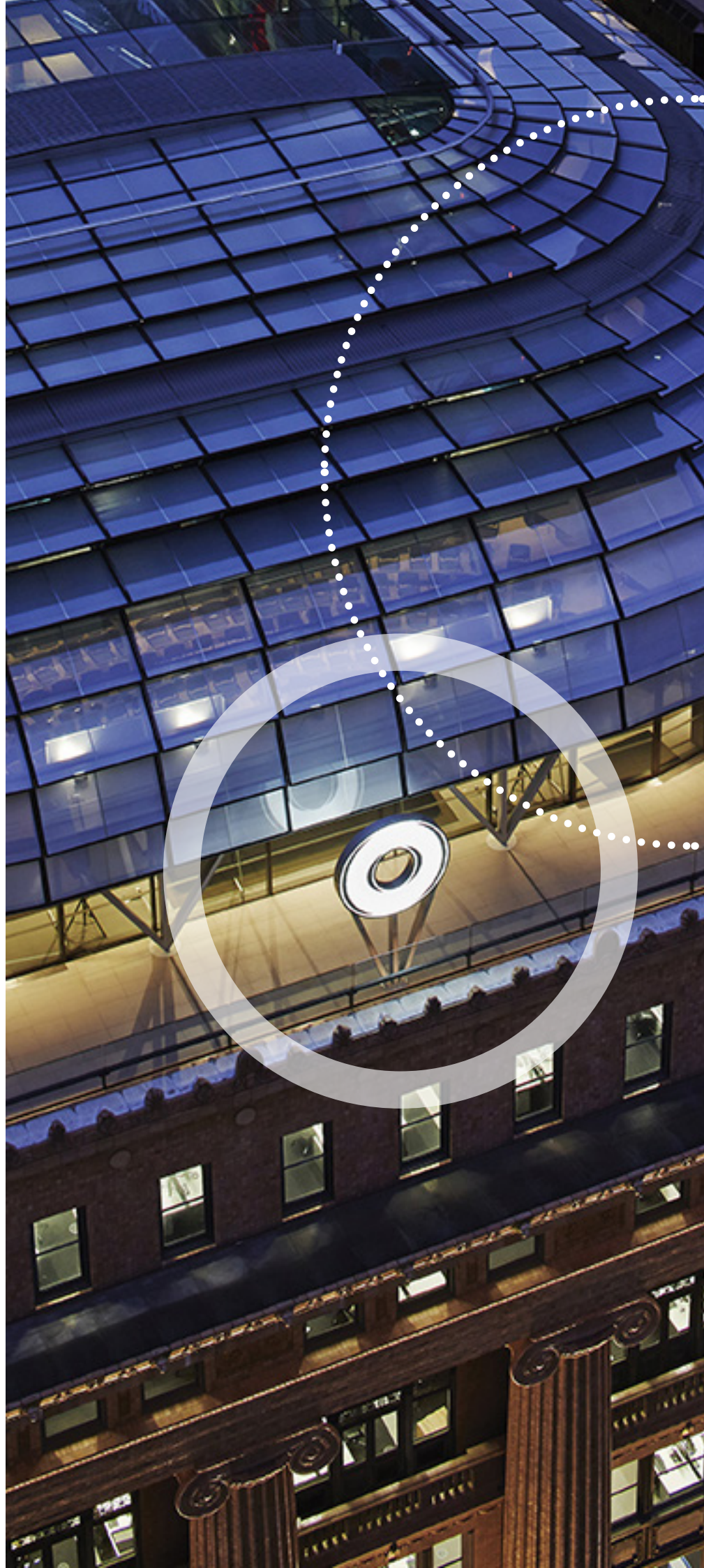
2. <https://www.macquarie.com/uk/about/investors/reports> FY18



Macquarie supports the important work of the Taskforce on Climate-related Financial Disclosures (TCFD). The TCFD provides high-level guidance to assist companies to assess and disclose the risks and opportunities presented by climate change. Macquarie has undertaken to adopt the TCFD recommendations and to conduct scenario analysis in the 2019 financial year to assess resilience to climate-related risks.

In addition to activities undertaken by individual businesses, a group-wide Global Green Committee has been convened to further advance Macquarie's commitment to the global green energy transition. This committee, chaired by GIG chairman Dan Wong, brings together all of the Group's businesses and support functions with an interest in the green economy.

Macquarie manages the environmental footprint of its operations (including travel, office energy use and procurement) through the implementation of its Environmental Management Plan. This is reported within the Environmental and Social Governance Section of Macquarie Group's Annual Report.<sup>2</sup>





## Our investment track record

These maps show selected projects where Macquarie Capital, Green Investment Bank or Green Investment Group have invested or arranged capital:



### UK

#### Energy efficiency

Barking & Dagenham  
Glasgow City Council  
Salford NHS Trust  
Tayside NHS Trust  
Wick District Heating

#### Offshore wind

Galloper  
Gwynt y Môr  
Lincs  
Race Bank  
Rampion  
Westermost Rough

#### Onshore renewables

Banks Renewables  
Blackcraig  
Liatre Burn  
NextEnergy  
River Arkaig  
Sròndoir

#### Tidal

Atlantis Resources  
Swansea Lagoon

#### Waste & bioenergy

Cramlington CHP  
Full Circle Generation  
Kemsley  
MGT Teesside  
Speyside CHP  
Tilbury Green Power  
UK Green Infrastructure Platform

### Americas

#### USA

Advanced Microgrid Solutions  
Canadian Breaks  
Candela Renewables  
Core Solar/Alira Energy  
OCI Alamo 6



Offshore wind



Onshore renewables



Waste and bioenergy



Energy efficiency



Batteries



Tidal



## Europe

### Germany

Baltic 2

### Ireland

Amarengo Solar  
Covanta Dublin WtE

### Sweden

Markbygden ETT  
Överturingen

## Asia

### Australia

Ararat  
Lal Lal  
Macarthur  
Murra Warra

### China

Comtec Solar  
Jinko Solar

### India

Maharashtra Solar

### Japan

Acacia Renewables  
Alpha Solar  
Jabuki  
Joban  
Sanbongi  
Shift Energy  
Shioya

### Singapore

Conergy

### South Korea

Achim Solar Power  
Re-clean

### Taiwan

Formosa 1, 2, 3  
Maxin Solar









**Case  
studies**



## Markbygden: Meeting corporate energy demand

Onshore wind

Utilising innovative corporate power purchase agreements, the Green Investment Group was able to bring two Swedish onshore wind developments to financial close.



## Markbygden

 **€800m**  
Total enterprise value

 **650MW**  
Generating capacity

 **88kt** CO<sub>2</sub>e /year  
Greenhouse gas emissions avoided

### Sponsors

GE | Green Investment Group

**It's a challenge facing a growing number of renewable energy projects: securing long-term buyers for their power as government-backed mandates and subsidies fall away. Large corporate energy users present an important alternative source of demand – but the variability of wind power, in particular, adds an additional barrier to selling clean electricity to individual companies.**

### Innovation in financing

That barrier is not, however, insurmountable. To fund the 650 MW Markbygden ETT project – Europe's largest single-site wind farm – co-sponsors GE and GIG were able to structure what is believed to be one of the world's largest corporate power purchase agreement (PPA).

GE and GIG have been working on the project in northern Sweden since mid-2016, when they secured the project rights from developer Svevind. While the project would be able to deliver power at grid parity in much of Europe, low wholesale power prices in the Nordpool power market, coupled with volatile pricing of EI-certs, Sweden's market-based renewables support regime, made long-term financing impossible to obtain for the project on a merchant basis.

The answer was to reach agreement with Norsk Hydro on a 19-year fixed price PPA, through which the Norwegian aluminium producer contracts to buy 1.65 TWh of power, representing more than 75% of the wind farm's projected output over the period.

### Bringing together all the players

Moreover, the project is contracted to supply that power on a fixed-volume basis. Working with NEAS Energy, a subsidiary of UK energy company Centrica, GE and GIG structured a hedge that will ensure power is supplied to Norsk Hydro during periods of underproduction by the wind farm. On the other side of the trade, NEAS will sell surplus power generated by Markbygden above Norsk Hydro's demand into the wholesale market.

The long-term PPA with Norsk Hydro allowed GE and GIG to raise €500 million in project finance debt in November 2017 in a landmark transaction that brought together commercial German lenders, the European Investment Bank and Hermes, Germany's export credit agency. Construction began on the project in summer 2017 in advance of financial close. Construction is ongoing, with the first turbines to be erected in 2018 and the facility to be fully operational at the end of 2019. GE is supplying the project with 179 of its 3.6 MW turbines.

### Reliable renewables

GIG is applying the techniques developed for the Markbygden project to other investments; in July, financial close was reached on the 235 MW Överturingen wind farm, also in Sweden, and underpinned by another PPA with Norsk Hydro, this one of 29 years duration.

Crucially, the structuring applied to these projects allows renewable energy generated from intermittent sources to not only compete with fossil fuel generation on cost, but also on reliability. It's one way in which commercial PPAs can improve the attractiveness of renewable generation, helping to support efficient investment in new infrastructure as subsidy revenues diminish.



**Having partnered with GIG also in 2017 on the Markbygden wind farm, Europe's largest wind power project, Hydro is happy to announce yet another cooperation with GIG. Using renewable energy in our aluminium production is a core strategy of Hydro.**

**Arvid Moss**, Executive Vice President for Energy, Norsk Hydro  
commenting on Project Överturingen



## GIG in Asia: Building solar development capability in the world's largest marketplace

Solar

The Green Investment Group launched into Asia, announcing an acquisition and the creation of a major new solar and battery storage development platform, with almost 90 staff joining GIG. This new team of commercial and technical experts have experience installing 2 GW of solar projects and bring a significant portfolio of pipeline projects.





## The opportunity in Asia

Over the next 15 years, Asia needs more than \$US20 trillion to realise its infrastructure needs, which includes significant requirements in energy. With more than 400 million people currently living in Asia without power and 650 million people expected to move from rural areas to cities in the next 15 years, this rapid urbanisation and economic growth continues to boost electricity demand. This presents a significant opportunity for renewable energy development, which is already being embraced by the region: Asia accounted for more than 50% of the global growth in renewable energy over the past two years.

In addition to leading the global installation of renewable energy, Asia is also at the forefront of advancing technological innovation in the sector. Economic and social necessity is likely to see China lead the way in renewables investment, whether the electrification of the car fleet, or innovative ways to integrate renewable energy into the power grid. In economies such as Japan, South Korea and Taiwan, clean energy sources are driving the transition from nuclear and coal, especially given their need to import fuel and manage the challenges of a seismically active region. Taiwan has launched its first offshore wind farm as part of a government plan to install more than 1,000 wind turbines by 2023, enough to power around one million homes.

## Building on an established track record

The expansion of GIG into Asia builds on Macquarie Capital's long-standing involvement in renewable energy in the region.

The business is investing in, advising on and developing some of the largest and most innovative green energy projects around the world. This includes in Asia, where GIG is developing projects in the wind, solar, and waste and environmental services sectors across the region. Among its activities in the region, Macquarie Capital has been working alongside local partners to develop 3 GW of offshore wind projects in Taiwan and a solar pipeline of more than 400 MW in Japan.

## Creating a new powerful platform in the region

In August 2018, GIG acquired a significant solar development portfolio from Conergy Asia and Middle East. The portfolio included solar development assets in the Asia Pacific region, commercial, technical and energy storage capabilities and an asset monitoring facility.

As part of the acquisition, Conergy employees in Singapore, Australia, Japan, Germany and the Philippines will join GIG, adding a team of 88 professionals with extensive experience in developing over 500 MW of solar energy projects across Asia Pacific, and a total of 2 GW globally. The acquisition increases GIG's global team to over 300 people and reinforces Asia as a centre of excellence for GIG and Macquarie's global solar platform.

The local GIG team will now comprise the existing Macquarie Capital team, the Conergy team and new recruits.



**Conergy has long been viewed as a leader in the development, construction and operation of solar projects and over time our team has been involved in the installation of 2 GW of capacity globally. We see our team as a natural fit with Macquarie and its GIG platform.**

**Marc Lohoff**, COO of Conergy



## Dublin Waste-to-Energy: The power of partnership

Waste-to-energy

Green Investment Group has partnered with waste-to-energy (WTE) global expert, Covanta, establishing an enduring relationship with future plans for further investments across the UK and Ireland. The first project alone has the capacity to divert 580 kilotonnes of waste from Dublin landfill annually.



**Successful investment in green infrastructure first requires investment into high quality development pipelines. By partnering with and investing alongside leaders in renewable energy, GIG can combine its financing expertise and access to capital with some of the sector's foremost development platforms.**

### Building global partnerships

With Covanta, a New Jersey-based sustainable waste and energy solutions provider, GIG has established a partnership with plans to develop projects capable of processing some 2 million tonnes of waste a year into green energy.

As part of the joint venture arrangements, GIG and Covanta expect to co-develop and invest in a pipeline of WTE projects in the UK and Ireland, with Covanta operating and maintaining the projects after construction.

For Covanta, the joint venture brings equity investment from GIG that allows it to recycle its capital into additional projects. For GIG, there is real value in building an enduring relationship with a trusted partner and world-leading owner and operator of WTE facilities. The two partners bring complementary skills: GIG will focus on the financing, and Covanta on the technical and engineering elements, while the two partners will jointly manage commercial and contracting arrangements and stakeholder management.

## Dublin Waste-to-Energy

 **€272<sub>m</sub>**  
Total investment value

 **69<sub>MW</sub>**  
Generating capacity

 **192<sub>kt</sub>** CO<sub>2</sub>e /year  
Greenhouse gas emissions avoided

 **580<sub>kt</sub>** plus /year  
Waste diverted from landfill

### Sponsors

Covanta | Green Investment Group

### Putting waste to work

Together, the partners bring a wealth of sector expertise. Covanta owns a portfolio of 43 facilities around the world, capable of processing more than 18 million tonnes of waste a year, and with an electricity generating capacity of 1.5 GW. GIG, meanwhile, brings experience garnered financing more than £1 billion of projects in the UK waste and bioenergy markets.

As a first step in the partnership, GIG has invested €136 million in a 50% stake in Covanta's newly operational Dublin Waste-to-Energy facility, in a deal that closed in the first quarter of 2018. That project is capable of processing more than 580 kilotonnes of residual waste annually, generating enough electricity to power 80,000 homes and the potential to heat 50,000 homes through district heating. Macquarie Capital advised on its financing over 2012-14 and its refinancing in 2017.

### Just the beginning

A number of projects are under development by the joint venture. These WTE projects are interesting in the world of green energy in that they will not receive any subsidy for the sale of the power generated, requiring a focus on maximising revenue opportunities from the waste processed as well as ancillary revenue streams such as heat offtakes and capacity market revenue.

The expectation is that these projects are the start, with the joint venture exploring additional opportunities in the UK and Ireland and other attractive WTE markets around the world, demonstrating the power of a partnership to deliver high quality assets as national and local governments increasingly seek to capture the benefits of their waste resource.



**The creation of this partnership and investment by GIG into the Dublin project allows us to fully fund an expanded UK development pipeline and enables successful international development and growth on a consistent and repeatable basis.**

**Steve Jones**, *President and CEO, Covanta*





## Energy Solutions: energy investment that pays for itself

The cheapest megawatt hour of power is one that is either never consumed or produced close to sources of demand. GIG has launched its Energy Solutions service to help companies identify energy opportunities – and source and finance the necessary technology to improve their energy productivity.



**Across the corporate world, opportunities to cut energy use, lower energy costs and reduce greenhouse gas emissions are being overlooked. The reason? Too often, energy efficiency or distributed energy technology projects simply struggle to compete for scarce corporate capital.**

### **An energy savings solution**

One solution to this deadlock is to offer these businesses third-party funding, at no upfront cost, bundled with the technical expertise to identify energy saving opportunities and the appropriate technologies to deliver them. It is this proposition that underpins GIG's Energy Solutions offering, launched at the end of 2017, based on a 'pay-as-you-save' model that transfers delivery risk away from the customer and takes the necessary investment off the balance sheet.

The process involves GIG undertaking a high-level energy audit against which the Energy Solutions team estimates a figure for annual energy savings. If the next phase – which involves an in-depth audit and a detailed investment plan – does not provide a pathway to deliver those savings or more, the customer is under no obligation to proceed and incurs no costs.

Assuming the company wishes to go ahead, GIG will source, fund, install, own and operate the planned equipment, providing clients with

lower overall energy costs. GIG makes its return by generating 'negawatts' – energy savings made by the client below its forecast use, ensuring alignment of interests between GIG and the client.

These assets or equipment can involve a diverse range of technologies, including power generation from solar, heating and cooling, controls and systems, batteries, transport fleets and energy efficient lighting.

### **A new class of energy infrastructure**

Building this business essentially involves GIG moving earlier up the development chain, taking a pioneering role for a financial investor. While it remains the case that energy costs are not yet on the boardroom

agenda for many businesses, there is a growing interest in the service and the cost savings it can bring.

Energy Solutions not only benefits from a strong alignment of interest between the client and GIG, but holds out the prospect of enduring investment into a new class of energy infrastructure, tackling one of the next major decarbonisation and productivity challenges facing the UK economy.



**Rising costs, technological advances and regulatory pressures are changing the way organisations think about their own energy productivity. By utilising the latest distributed energy and energy efficiency technologies, organisations can generate, store, use and actively manage energy more efficiently.**

**Bill Rogers**, *Head of Distributed Energy and Onshore Renewables, GIG*





## GIG in North America: Helping develop a new energy system

Onshore wind and solar

The Green Investment Group launched into North America, announcing a joint venture with solar company Candela to create Candela Renewables and the financial close of 200 MW wind farm Canadian Breaks.





**In investment, timing is everything. As the North American renewable energy market matures, getting the timing right means investing earlier in the project development cycle.**

### Forging new partnerships

Success also depends on finding the right partners. In June, the Green Investment Group inked a partnership agreement with Candela Renewables, creating a new business that will undertake much of GIG's solar development in the United States. Led by a market-leading team, Candela has created over the last decade a pipeline of 4.1 GW of solar projects in operation, under construction or in final development.

GIG will fund the business itself and the initial 1 GW pipeline of solar photovoltaic projects, owning the assets as they move through the development process. The partnership will focus on utility-scale investments, with a nationwide remit.

### Bringing technologies together

The falling cost of solar is making the technology increasingly competitive and attractive to utilities, independent power producers and corporates alike. There is a particular opportunity in projects that combine solar with energy storage technology, helping to counteract the impact of the 'duck curve', the mismatch between solar generation, which peaks during the middle of the day, and power demand, which is at its greatest after sunset. Here, Macquarie Capital and GIG bring expertise earned from owning and developing a 50 MW/300 MWh portfolio of distributed behind-the-meter battery storage systems in California, under contract from the local utility Southern California Edison to support its grid needs.

In addition to the Candela partnership, GIG has also acquired a 50% interest in a 1.8 GW solar development portfolio. It consists of 22 early- and mid-stage projects, across nine US states, which GIG will finance, develop and commercialise as part of its US utility-scale solar strategy.

### Working throughout the development process

While it has one eye on early-stage solar development, the GIG team in North America has also demonstrated its ability to bring renewables projects right through the development process. In June, it reached financial close on the 200 MW Canadian Breaks wind farm, a major project in the Texas Panhandle.

The project – which will deploy 87 2.3 MW Siemens Gamesa turbines – was fully developed by Macquarie Capital and GIG, who provided 100%

## Canadian Breaks

 **\$US250<sub>m</sub>**  
Total enterprise value

 **200<sub>MW</sub>**  
Generating capacity

 **450<sub>kt/year</sub>** CO<sub>2</sub>e  
Greenhouse gas emissions avoided

### Sponsors

Macquarie Capital |  
Green Investment Group

of the sponsor equity, and which also structured a complex power hedge as well as the critical tax equity component. This element proved particularly challenging, given that it was put in place during the passage of last year's sweeping federal tax reform.

Underpinned by robust fundamentals and strong commitment from the key partners, the project was able to progress nonetheless, raising \$US234 million in construction debt from Rabobank, National Australia Bank and Siemens Financial, and adding further depth to the business's development capability.



**We believe that the renewables sector in North America is poised for a prolonged period of growth as falling technology costs, combined with growing demand from corporates and utilities, drive increasing deployment.**

**Chris Archer**, Head of Green Investment Group, North America



## Ferrybridge Multifuel 2: Financial innovation in waste-to-energy

Waste-to-energy

Using innovation and cross-sector expertise, GIG helped to achieve a funding structure more commonly seen in the offshore wind sector for a sponsor of this waste-to-energy plant.



**As their costs fall, renewable energy technologies are increasingly able to compete with fossil generation. But falling costs are encouraging governments to withdraw subsidies, transferring project risk from the taxpayer to owners and investors – and adding complexity to financing structures.**

### Coping with complexity

Such complexity faced Wheelabrator Technologies as it sought to fund its half of the second phase of a waste-to-energy (WTE) facility in Knottingley, West Yorkshire – Ferrybridge Multifuel 2 (FM2).

The project, a joint venture between SSE and Wheelabrator, is being constructed next to the decommissioned Ferrybridge C coal-fired power plant and adjacent to its existing sister plant, Ferrybridge Multifuel 1 (FM1). Once fully operational, FM1 and FM2 will together comprise the largest WTE plant in the UK, capable of processing over 1 million tonnes of waste and generating ~140 MW of power.

### A project built on relationships

Wheelabrator's longstanding relationship with the UK Green Investment Bank led the latter to join a consortium of experienced lenders and to participate in the £207 million of senior debt needed to fund the project. FM2 represented a number of firsts for the UK WTE market: most importantly, because the transaction was financing half of a joint venture, it involved funding the project at the holding company level rather than with direct recourse to the project itself – a structure more commonly seen in the offshore wind sector. Equally challenging, and in marked contrast to the majority of WTE projects financed to date, the FM1 and FM2

facilities have pioneered the merchant WTE business model. Instead of benefitting from the security of direct local authority disposal contracts, the plants procure their feedstock from commercial suppliers in the private sector waste market.

### Reducing reliance on subsidies

Similarly, the electricity generated by the facilities is sold on the open market through commercial power purchase agreements, and without government price support. The only subsidy revenue supplementing the projects is potential income from the UK's Capacity Market, which offers payments to power generators in exchange for supporting the security of the UK power grid by supplying power during periods of high demand.

Getting investors comfortable with the risks involved depended on rigorous structuring of waste supply contracts by SSE and Wheelabrator, and their experience and credibility in managing a world-class WTE facility.



**Working with Wheelabrator Technologies, we have helped finance the construction of major new energy infrastructure in West Yorkshire and facilitated the continued growth of the UK merchant energy-from-waste market.**


**Edward Northam**, Head of the Green Investment Group, UK and Europe



## Ferrybridge Multifuel 2

 **£207<sub>m</sub>**  
Total senior debt

 **~70<sub>MW</sub>**  
Generating capacity

 **126<sub>kt</sub>** CO<sub>2</sub>e /year  
Greenhouse gas emissions avoided

 **536<sub>kt</sub>** plus /year  
Waste diverted from landfill

**Sponsor**  
Wheelabrator Technologies  
joint venture with SSE

### Closing the deal

Despite the additional challenges presented by the timing of the transaction – which reached financial close just as the GIB privatisation process was concluded – the FM2 debt facility closed on schedule, in September 2017, supported by an experienced lending syndicate able to execute to a tight timetable.

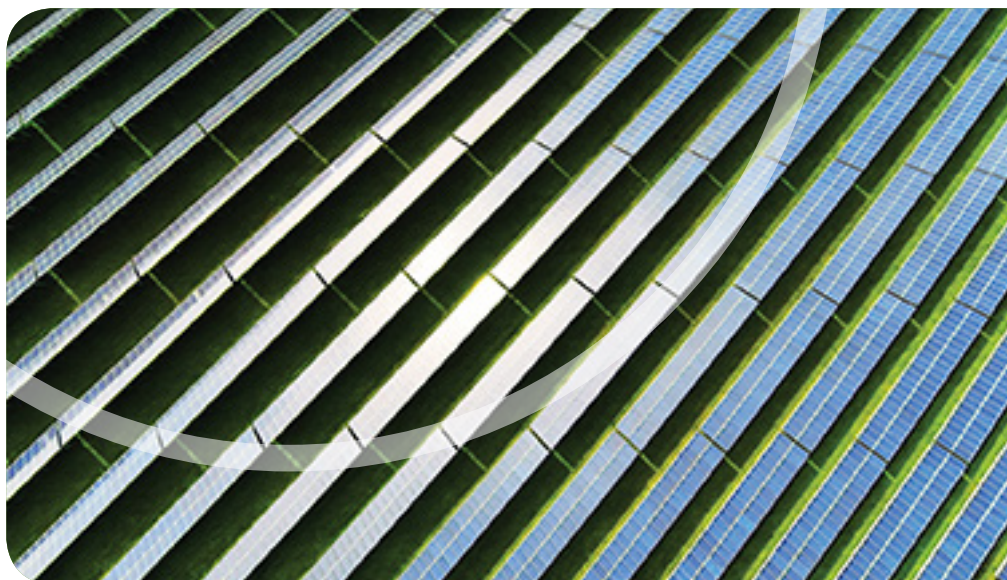
Following closely on the establishment of GIG, FM2 demonstrates GIG's continued focus on the UK waste market even as that market adapts to a very different and demanding commercial environment. This investment demonstrates GIG's continuing innovation on financial structures, business models and technology, helping the UK achieve self-sufficiency in waste management while extracting additional value from its waste streams.



## India: Powering the solar revolution

### Solar

UK Climate Investments (UKCI) is a joint venture between the UK Government and the Green Investment Group. It is targeting transformational green projects in India and sub-Saharan Africa where UKCI capital can mobilise additional private sector investment on a sustainable basis to help developing economies to promote cleaner, greener growth and to adapt to climate change.





Department for  
Business, Energy  
& Industrial Strategy



**The award of the UKCI mandate by the British government signalled the Green Investment Bank's first expansion into emerging markets.**

**That mandate was carried over with the GIG to its new owners, with the first transactions under a pilot £200 million phase now reaching financial close.**

### Supporting potential

In June 2018, leading UK solar developer Lightsource BP commissioned its 50 MWp Maharashtra solar farm, in Wagdari, India, underwritten with £5 million in equity funding from UKCI. The project is Lightsource's first utility-scale solar farm in the country and, by bringing the company's world-class project development and management skills to India, the investment is adding to local capacity in this crucial area while also helping to build Lightsource's credibility as a solar developer in the local market.


UKCI support proved crucial in helping Lightsource's development team win private sector backing for an expansion into India's higher risk – but high potential – solar market.

### Expertise creating opportunity

The project meets UKCI's three mandatory transformational impact criteria for investment: financial sustainability; replicability; and mobilisation of private capital. It supported local jobs in design, construction and now operation.

The project successfully navigated a challenging solar panel supply landscape and uncertainties around foreign exchange regulation, while UKCI's involvement helped secure local currency debt from Rabobank for the project. As a result, private investors are meeting around 85% of the total project cost.

**Fortum**




**185** MW  
Generating capacity



**330** ktCO<sub>2</sub>e /year  
GHG emissions avoided

**Sponsor**  
Fortum

**Lightsource**



**50** MW  
Generating capacity



**81** kt CO<sub>2</sub>e /year  
Greenhouse gas emissions avoided

**Sponsor**  
Lightsource BP

### Pioneering renewable finance

In its second investment, which reached financial close in August 2018, UKCI is helping to seed the first renewable energy 'yieldco' in the Indian market. It has taken a 40% equity stake in a 185 MW portfolio of operating solar assets developed by Finnish energy company Fortum, alongside Elite Alfred Berg (EAB) Group, an investment services company also based in Finland.

By aggregating renewable energy projects, yieldcos generate predictable cash flows that are attractive to institutional investors while allowing developers to recycle their capital and address new renewable energy project development opportunities. The structure has proved popular in the North American market and the City of London has led the way in this as in other green

finance initiatives, but is only now being pioneered in India. The yieldco creates a new avenue for international investors to channel capital to India's burgeoning solar sector and support the country's efforts to bring secure and sustainable energy supplies to its wider economy.



**The UK has a track record of exporting our home-grown expertise to the rest of the world and this partnership is a perfect example of the public and private sectors working together to deliver our respective climate, development and growth objectives that will benefit the entire planet.**

**Claire Perry**, Minister of State for Energy and Clean Growth



# Governance over our green mission

## A consistent mission

On 17 August 2017, the UK Green Investment Bank Limited became part of the group of companies of which Macquarie Group Limited (Macquarie) is the ultimate holding company. Macquarie announced that, “in order to pursue the Green Investment Bank’s vision to invest in green infrastructure internationally and positively contribute to the globalisation of the renewables industry, the Green Investment Bank will now operate under the name Green Investment Group”.

New investments made under the name Green Investment Group in the UK and Europe continue to be made by UK Green Investment Bank Limited entities. Investments made elsewhere may be made by other Macquarie Group entities using the Green Investment Group name and brand for trading and marketing purposes. However, other entities are only permitted to do this in return for a contractual undertaking that any activities will be compliant with the UK Green Investment Bank Limited’s Green Purposes, its Green Investment Principles and its Green Investment Policy.

As such, all activity undertaken as the Green Investment Group name and brand align to the object in the articles of association of the UK Green Investment Bank Limited – its five Green Purposes.

These Green Purposes can only be altered with the consent of the GPC, the holders of a special share in the UK Green Investment Bank Limited, issued on 17 August 2017. No proposal has been made to change the Green Purposes.

## The Green Purposes Company and special share

The GPC is a company limited by guarantee, owned and operated by trustees independent of GIG and Macquarie Group. The primary role of those trustees is to approve or reject any changes proposed to GIG’s Green Purposes.

The Trustees were appointed on 31st October 2016 for an initial term of five years, and are not remunerated. The Trustees are:

The trustees are:

- James Curran, former CEO of the Scottish Environment Protection Agency;
- Trevor Hutchings, previously a senior civil servant at the then Department of Energy and Climate Change and currently Director of Strategy and Communications at Gemserv;
- Tushita Ranchan, an experienced green infrastructure investor and former CEO of a renewable energy company;
- Robin Teverson, Chair of the House of Lords EU Energy and Environment Sub-Committee; and
- Peter Young, environmentalist and former Chair of the Aldersgate Group.

Over the course of 2017-18, we have built a strong and constructive relationship with the GPC trustees, meeting them at least on a quarterly basis and providing them with a wide variety of information on our transactions, their green impact and our wider business strategy.

We have also committed to the trustees that they would be invited to address the annual GIG Stakeholder Day. The trustees presented at our 2017 Stakeholder Day in Edinburgh and London on 1 and 2 November respectively. We have also committed to the trustees that they will have an opportunity to provide a letter for inclusion in our Annual Report, which they did in the 2017 financial year report published in September 2017.



# Letter from the Green Purposes Company

**The GPC was established to safeguard the green mission of the Green Investment Bank (GIB), now trading as the Green Investment Group (a wholly owned subsidiary of the GIB). The GPC took up its role in August 2017 when GIB transferred from UK government ownership to the private sector. The GPC is a not-for-profit company limited by guarantee. There are five directors of the GPC, referred to as Trustees, who were appointed by an independent process as reported to Parliament.**

## The role of the GPC

The GPC performs its role in two main ways:

- The GPC holds a special share in the GIB with powers to approve or veto any proposed amendment to the five green purposes as set out in the GIB's Articles of Association. On such an occasion, the Trustees would always act to ensure that the green mission of the GIB was not weakened; and
- The GPC publishes a letter for inclusion in the GIB's annual report setting out its assessment of how the GIB has performed against the five green purposes. The GPC would hold the GIB directors to account in the event that the GIB acted in a way not in accordance with its green purposes.

The GPC may also attend the annual stakeholder meeting which the GIB has committed to hold, and to attend the annual general meeting, or other shareholder meetings, of the GIB, where the GPC would be permitted to speak on matters in relation to any change to the green purposes.

In performing its role, the GPC takes account of its public accountability and seeks to be transparent and competent, and to contribute positively to the future development of the GIB.

## Scope

The GPC's role extends to the GIB (including the GIG) in the UK and Europe, but does not extend to entities in other jurisdictions which utilise the GIG brand.

The GPC does not have any role in the day-to-day operations and management of the GIB, nor does it approve investments by the GIB or play any part in the GIB's internal investment approval process. However, the GPC tracks the GIB's investments via an agreed information-sharing mechanism which facilitates the GPC in performing its functions.

## Further information

Further details can be found on the GPC website  
**[www.greenpurposescompany.com](http://www.greenpurposescompany.com)**





**Appendix**



## Green performance

The Green Impact Statements below and overleaf indicate the principal environmental benefits arising from the company's portfolio of investments. Green impact metrics are reported in terms of the actual green impact delivered by the portfolio during the reporting period, the historical green impact accrued by the portfolio to date, and the forecast green impact for the remaining lifetimes of the projects in the portfolio.

The green impact statements should be read in conjunction with GIG's methodology for calculating green

impact, the details of which are set out in GIG's Green Impact Reporting Criteria 2017-18, a copy of which is published on GIG's website.

Selected totals for data in the Green Impact Statements in respect of the financial year 2017-18 have been independently assured by Deloitte in accordance with the Independent Assurance Report set out on pages 45-46.

Following appendix tables refer to investments made by GIG in the period April 2017 to March 2018.

In this year's green impact statements we report green impact in the same way as the UK Green Investment Bank did: the forecast and actual green performance of projects in our portfolio which are either under construction or already operational. As we move our focus towards bringing forward more green projects by investing in early stage development, we will look to account for the green impact of these projects differently. In the future, we will measure the success of our green mission by reporting on the green impact of all projects that we have catalysed.

### Green impact of GIG's portfolio in year

	Year ended 31.03.18	Year ended 31.03.17
GHG emissions reduction (t CO <sub>2</sub> e '000)	4,142	7,835
Renewable energy generated (GWh)	8,173	15,606
Energy demand reduced (MWh)	78,445	86,552
Materials recycled (t)	282,156	247,091
Waste to landfill avoided (t)	534,458	402,773

### Future estimated remaining lifetime green impact of GIG's portfolio at year end

	Year ended 31.03.18	Year ended 31.03.17
GHG emissions reduction (t CO <sub>2</sub> e '000)	73,427	134,087
Renewable energy generated (GWh)	214,907	331,402
Energy demand reduced (MWh)	2,149,487	3,788,648
Materials recycled (t)	4,240,269	28,962,650
Waste to landfill avoided (t)	11,871,643	84,675,960

### Future estimated average annual green impact of GIG's portfolio at year end

	Year ended 31.03.18	Year ended 31.03.17
GHG emissions reduction (t CO <sub>2</sub> e '000)	3,624	7,955
Renewable energy generated (GWh)	10,443	21,547
Energy demand reduced (MWh)	164,850	272,396
Materials recycled (t)	188,212	1,155,477
Waste to landfill avoided (t)	477,676	3,212,199

## Reduction of greenhouse gas emissions

### Consolidated statement of GHG emissions reduction of GIG portfolio for the year ended 31 March 2018

	Note 3	Year ended 31.03.18 t CO <sub>2</sub> e '000	Year ended 31.03.17 t CO <sub>2</sub> e '000
Offshore wind – UK Green Investment Bank Limited		632	553
Offshore wind – Offshore Wind Fund		705	384
Waste		354	381
Non-domestic energy efficiency		66	56
Bioenergy		2,367	6,449
Onshore renewables		18	12
<b>Total</b>		<b>4,142</b>	<b>7,835</b>

### Consolidated statement of estimated lifetime GHG emissions reduction of GIG portfolio at 31 March 2018

	Year ended 31.03.18 t CO <sub>2</sub> e '000	Year ended 31.03.17 t CO <sub>2</sub> e '000
Cumulative historical GHG emissions reduction of portfolio		
Total carried forward from last year	20,468	12,633
Net contribution this year	4,142	7,835
<b>Total historical GHG emissions reduction</b>	<b>24,610</b>	<b>20,468</b>

	Year ended 31.03.18 t CO <sub>2</sub> e '000	Year ended 31.03.17 t CO <sub>2</sub> e '000
Estimated remaining lifetime GHG emissions reduction of GIG portfolio, by sector		
Offshore wind – UK Green Investment Bank Limited	39,031	41,205
Offshore wind – Offshore Wind Fund	11,007	11,742
Waste	7,216	33,393
Non-domestic energy efficiency	551	2,264
Bioenergy	13,505	43,740
Onshore renewables	2,117	1,743
Total estimated remaining lifetime GHG emissions reduction	73,427	134,087
<b>Total estimated lifetime GHG emissions reduction</b>	<b>98,037</b>	<b>154,555</b>

### Consolidated statement of estimated remaining lifetime GHG emissions reduction of exited transactions, at time of exit

	Note 2	Year ended 31.03.18 t CO <sub>2</sub> e '000	Year ended 31.03.17 t CO <sub>2</sub> e '000
<b>Total</b>		<b>74,300</b>	<b>1,518</b>

## Generation of renewable energy

### Consolidated statement of renewable energy generated by portfolio for the year ended 31 March 2018

	Note 3	Year ended 31.03.18 GWh	Year ended 31.03.17 GWh
Offshore wind – UK Green Investment Bank Limited		1,459	1,277
Offshore wind – Offshore Wind Fund		1,629	888
Waste		349	311
Non-domestic energy efficiency		38	9
Bioenergy		4,656	13,093
Onshore renewables		42	28
<b>Total</b>		<b>8,173</b>	<b>15,606</b>

### Consolidated statement of estimated lifetime renewable energy generated by portfolio at 31 March 2018

		Year ended 31.03.18 GWh	Year ended 31.03.17 GWh
<b>Cumulative historical lifetime renewable energy generated by GIG portfolio</b>			
Total carried forward from last year		41,301	25,695
Net contribution this year		8,173	15,606
Total historical lifetime renewable energy generated		49,474	41,301

### Estimated remaining lifetime renewable energy generated by GIG portfolio, by sector

Offshore wind – UK Green Investment Bank Limited	90,142	95,163
Offshore wind – Offshore Wind Fund	25,421	27,118
Waste	12,771	49,421
Non-domestic energy efficiency	51	1,375
Bioenergy	42,418	154,299
Onshore renewables	44,104	4,026
Total estimated remaining lifetime renewable electricity generated	214,907	331,402
<b>Total estimated lifetime renewable electricity generated</b>	<b>264,381</b>	<b>372,703</b>

### Consolidated statement of estimated remaining lifetime renewable energy generated by exited transactions, at time of exit

	Note 2	Year ended 31.03.18 GWh	Year ended 31.03.17 GWh
<b>Total</b>		<b>192,743</b>	<b>3,505</b>



## Energy demand reduction

### Consolidated statement of energy demand reduced by portfolio for the year ended 31 March 2018

	Note 3	Year ended 31.03.18 MWh	Year ended 31.03.17 MWh
Electricity		69,651	75,317
Heating fuels		8,794	11,235
<b>Total</b>		<b>78,445</b>	<b>86,552</b>

### Consolidated statement of estimated lifetime energy demand reduced by portfolio at 31 March 2018

		Year ended 31.03.18 MWh	Year ended 31.03.17 MWh
Cumulative historical energy demand reduced by portfolio			
Total carried forward from last year		169,325	82,773
Net contribution this year		78,445	86,552
<b>Total historical energy demand reduced</b>		<b>247,770</b>	<b>169,325</b>

#### Estimated remaining lifetime energy demand reduced, by fuel type

Electricity	122,358	1,655,748
Heating fuels	2,027,129	2,132,900
Total estimated remaining lifetime energy demand reduced	2,149,487	3,788,648
<b>Total estimated lifetime energy demand reduced</b>	<b>2,397,257</b>	<b>3,957,973</b>

### Consolidated statement of estimated remaining lifetime energy demand reduction of exited transactions, at time of exit

	Note 2	Year ended 31.03.18 MWh	Year ended 31.03.17 MWh
<b>Total</b>		<b>1,579,479</b>	<b>0</b>

## Recycling of materials

### Consolidated statement of materials consumption avoided through materials recycling by portfolio for the year ended 31 March 2018

	Note 3	Year ended 31.03.18 tonnes	Year ended 31.03.17 tonnes
Compost		25,373	25,213
Digestate (PAS 110)		145,701	177,315
Compost-like output		33,870	28,406
Plastics – mixed		2,036	(381)
Ferrous metals		7,470	1,500
Non-ferrous metals		1,723	549
Paper/card		328	(4,032)
Glass		281	81
Mineral aggregates		54,452	4,016
Waste electrical and electronic equipment (WEEE)		0	0
Other		10,922	14,424
<b>Total</b>		<b>282,156</b>	<b>247,091</b>

### Consolidated statement of estimated lifetime materials consumption avoided through materials recycling by portfolio at 31 March 2018

	Year ended 31.03.18 tonnes	Year ended 31.03.17 tonnes
<b>Cumulative historical materials consumption avoided by portfolio</b>		
Total carried forward from last year	389,162	142,071
Net contribution this year	282,156	247,091
<b>Total historical materials consumption avoided</b>	<b>671,318</b>	<b>389,162</b>
<b>Estimated remaining lifetime materials consumption avoided by portfolio, by recyclate type</b>		
Compost	0	936,764
Digestate (PAS 110)	1,320,208	6,748,054
Compost-like output	0	1,091,302
Plastics – mixed	151,891	704,432
Ferrous metals	247,920	1,043,821
Non-ferrous metals	114,395	276,070
Paper/card	0	658,330
Glass	0	9,343
Mineral aggregates	2,371,527	11,328,282
Waste electrical and electronic equipment (WEEE)	34,328	34,328
Other	0	6,131,924
Total estimated remaining lifetime materials consumption avoided	4,240,269	28,962,650
<b>Total estimated lifetime materials consumption avoided</b>	<b>4,911,587</b>	<b>29,351,812</b>

## Recycling of materials

### Consolidated statement of estimated remaining lifetime materials consumption avoided of exited transactions, at time of exit

	Note 2	Year ended 31.03.18 tonnes	Year ended 31.03.17 tonnes
<b>Total</b>		<b>28,065,866</b>	<b>0</b>

## Avoidance of waste to landfill

### Consolidated statement of waste to landfill avoided by portfolio for the year ended 31 March 2018

	Note 3	Year ended 31.03.18 tonnes	Year ended 31.03.17 tonnes
Biodegradable waste		416,731	366,031
Non-biodegradable waste		117,727	36,742
<b>Total</b>		<b>534,458</b>	<b>402,773</b>

### Consolidated statement of estimated lifetime waste to landfill avoided by portfolio at 31 March 2018

	Year ended 31.03.18 tonnes	Year ended 31.03.17 tonnes
Cumulative historical waste to landfill avoided by portfolio		
Total carried forward from last year	562,816	160,043
Net contribution this year	534,458	402,773
<b>Total historical waste to landfill avoided</b>	<b>1,097,274</b>	<b>562,816</b>

### Estimated remaining lifetime waste to landfill avoided by portfolio, by waste type

Biodegradable waste	9,063,263	53,879,080
Non-biodegradable waste	2,808,380	30,796,880
Total estimated remaining lifetime waste to landfill avoided	11,871,643	84,675,960
<b>Total estimated lifetime waste to landfill avoided</b>	<b>12,968,917</b>	<b>85,238,776</b>

### Consolidated statement of estimated remaining lifetime materials consumption avoided of exited transactions, at time of exit

	Note 2	Year ended 31.03.18 t CO <sub>2</sub> e '000	Year ended 31.03.17 t CO <sub>2</sub> e '000
<b>Total</b>		<b>87,978,985</b>	<b>0</b>



## Notes to the green impact statements

### 1. Year-on-year changes to portfolio green impact

The table below shows how the remaining lifetime green impact at the end of 2017-18 compares to that at the end of 2016-17, and provides a breakdown of the year-on-year changes. The changes in forecast remaining lifetime green impact were caused by:

- New investments made in the period – GIG invested in five new projects in the reporting period; of these, four are expected to contribute to increased forecast green impact. The remaining investment in the reporting period was the acquisition of an additional 25% interest in the Westernmost Rough offshore wind farm. As GIG already reports the green impact of this project in accordance with the Green Impact Reporting Criteria 2017-18, no additional green impact is reportable as a result of this additional investment into the project.
- Projects exited or cancelled in the period – please see Note 2 below for further details.
- Actual green impact realised by existing projects in the period – 70 of the projects that were in the portfolio at the end of 2016-17 were operational and producing green impact in the reporting period; this green impact is deducted from the end 2016-17 forecast remaining lifetime. Please see Note 3 below for further details.

- Existing projects' variation of performance/reforecasts from last year's forecast – for some of the projects that were in GIG's portfolio at the end of 2016-17, green impact produced in the reporting period differed from the previous year's forecast, leading to reforecasting of the green impact. None of the variances or reforecasts arising from individual projects are material to the overall portfolio remaining lifetime green impact.

### 2. Estimated remaining lifetime green impact of exited transactions

On 20 April 2017, the UK Government announced that it had agreed to sell GIG to a Macquarie-led consortium. The sale completed on 17 August 2017. In line with public statements on 20 April and 18 August 2017, GIG subsequently restructured its interests in a number of investments to facilitate the creation of investment vehicles and platforms – including an offshore wind investment vehicle, a low-carbon lending platform and a green infrastructure investment platform – to enable investors including Macquarie's consortium partner USS, MEIF5 and the UK Government to invest in the underlying interests via these vehicles.

As a result of this restructuring and due to other exited transactions, a number of projects exited GIG's portfolio in the reporting period. As these exited projects are still anticipated to deliver green impact, in accordance with the Green Impact Reporting Criteria 2017-

18, remaining lifetime green impact for exited transactions is reported as a separate item from future estimated portfolio green impact.

### 3. Actual green impact realised by existing projects in the period – estimation methodology for exited transactions

A number of operational projects that were in the portfolio at the end of 2016-17 were exited partway through the reporting period; as such, end-of-year reporting of actual green impact has not been available<sup>1</sup>. For such projects, the actual green impact delivered during that part of the year has been estimated on a *pro rata* basis in accordance with the Green Impact Reporting Criteria 2017-18. The estimation methodology has used the length of time that each project was operational and in the portfolio and applied a *pro rata* estimation of the green impact generated by the project in that period, using the performance forecast previously reported by the project.

Of the actual green impact reported for the period 2017-18, performance estimated in such a way accounts for:

- 65% of GHG emissions reduction
- 61% of renewable energy generation
- 34% of energy demand reduction
- 77% of materials recycled
- 87% of waste to landfill avoided

### Future estimated remaining lifetime green impact of portfolio at year end

Note 1	GHG emissions reduction t CO <sub>2</sub> e '000	Renewable energy generated GWh	Energy demand reduced MWh	Materials recycled t	Waste to landfill avoided t
<b>Year ended 31.03.17</b>	<b>134,087</b>	<b>331,402</b>	<b>3,788,648</b>	<b>28,962,650</b>	<b>84,675,960</b>
New investments made in the period	17,190	84,941	0	3,639,764	15,651,867
Projects exited or cancelled in the period	(74,300)	(192,743)	(1,579,479)	(28,065,866)	(87,978,985)
Actual green impact realised by existing projects in the period (deducted from last year's forecast)	(4,142)	(8,173)	(78,445)	(282,155)	(534,457)
Existing projects' variation of performance/reforecasts from last year's forecast	592	(520)	18,763	(14,124)	57,258
<b>Year ended 31.03.18</b>	<b>73,427</b>	<b>214,907</b>	<b>2,149,487</b>	<b>4,240,269</b>	<b>11,871,643</b>

1. With the exception of the Drax coal to biomass conversion project, for which actual green impact data has been sourced from the Drax Group plc Annual report and accounts 2018.

# Equator Principles Reporting

## Equator Principles reporting on transactions closed in the 2017-18 reporting period<sup>1</sup>

	Cat. A	Cat. B	Cat. C
Waste	0	1	0
Offshore wind	0	0	0
Energy efficiency	0	0	0
Onshore renewables	0	0	0

## Independent review of assessment documentation in accordance with Principle 7

	Cat. A	Cat. B	Cat. C
Yes	-	1	-
No	-	-	-

The project reported – Ferrybridge Multifuel 2 – was classified as project finance and is located in the UK (a ‘designated country’ under the Equator Principles).

1. GIG's Equator Principles reporting is also available on the Equator Principles website at <http://equator-principles.com/members-reporting>

## Independent assurance report

# Independent Assurance Report to the UK Green Investment Bank Limited on portfolio performance-related Green Impact Data and the application of the Equator Principles

We have been engaged by the Directors of the UK Green Investment Bank Limited (GIB) to conduct a limited assurance engagement relating to the Assured Disclosures concerning portfolio performance-related Green Impact Data and the application of the Equator Principles within the GIG Progress Report for the year ended 31 March 2018.

### Our unqualified conclusion

Based on our work as described in this report, nothing has come to our attention that causes us to believe that the Assured Disclosures, which have been prepared in accordance with GIB's Green Impact Reporting Criteria and Equator Principles Reporting Criteria (the "Reporting Criteria"), materially misstate GIB's Green Impact for the year ended 31 March 2018.

The data have been prepared on the basis of the methodology set out in GIB's respective Reporting Criteria which can be seen on the GIG website.

### Responsibilities of the assurance provider

Our responsibility is to express a conclusion on the Assured Disclosures presented overleaf based on our procedures. We conducted our engagement in accordance with International Standard on Assurance Engagements (ISAE 3000 (revised)) *Assurance Engagements Other than Audits or Reviews of Historical Financial Information*, issued by the International Auditing and Assurance Standards Board, in order to state whether anything had come to our attention that causes us to believe that the Assured Data have not been prepared, in all material respects, in accordance with the applicable criteria.

Our engagement provides limited assurance as defined in ISAE 3000 (revised). The evidence gathering procedures for a limited assurance engagement are more limited than for a reasonable assurance engagement, and therefore less assurance is obtained than in a reasonable assurance engagement.

Our procedures consisted primarily of:

- interviewing managers at GIG's offices, including those with operational responsibility for the preparation of the Assured Disclosures and application of the Equator Principles;
- evaluating the processes and controls for managing, measuring, collating and reporting the Assured Disclosures, including the application of the methodology within the Reporting Criteria to underlying assumptions;
- testing a representative sample of Green Impact Data and Equator Principles applicable deals, selected on the basis of their inherent risk and materiality to GIB. The focus of our testing is the work undertaken by GIB to prepare the Assured Disclosures based on information supplied by GIB's clients, projects or fund managers or collected within GIB. We have not carried out any work to verify that information, nor have we conducted site visits.

Our report is made solely to GIB, in accordance with ISAE 3000 (revised). Our work has been undertaken so that we might state to GIB those matters we are required to state in this report and for no other purpose. To the fullest extent permitted by law, we do not accept or assume responsibility to anyone other than GIB for our work, this report, or for the conclusions we have formed.

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### Find out more

[www.greeninvestmentgroup.com/green-impact](http://www.greeninvestmentgroup.com/green-impact)

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Responsibilities of the Directors

The Directors are responsible for preparing the GIG progress report, including the following Assured Disclosures:


<b>Green Impact Data</b>	
(Annual Actual 2017-18, Lifetime and Average Annual forecasts for year ended 31.03.18) – see pages 37-43 (Additional lifetime green impact from investments made in 2017/18 – see data marked with † symbol on page 10)	
Greenhouse gas emissions reduced	(t CO <sub>2</sub> e)
Renewable energy generated	(GWh)
Energy demand reduced	(MWh)
Materials consumption avoided through materials recycling	(t)
Waste-to-landfill avoided	(t)
<b>Equator Principles</b> (see page 44)	
Total number of Project Finance transactions and Project-Related Corporate Loans that reached financial close within the reporting period, to which the Equator Principles apply.	

Inherent Limitations

Since the Lifetime and Average Annual Green Impact Data are based on assumptions about the future which cannot be predicted with certainty, as with any predictions about the future, the actual future Green Impact Data may be more or less than the stated Lifetime and Average Annual Data.

Independence

We performed the engagement in accordance with Deloitte's independence policies, which cover all of the requirements of the International Federation of Accountants' Code of Ethics and in some areas are more restrictive. The firm applies the International Standard on Quality Control 1 and accordingly maintains a comprehensive system of quality control including documented policies and procedures regarding compliance with ethical requirements, professional standards and applicable legal and regulatory requirements.



**Deloitte LLP**  
London  
25 September 2018





### **Tessa Tennant OBE**

This year, green finance pioneer Tessa Tennant passed away. Tessa was appointed a Non Executive Director of the UK Green Investment Bank plc on launch in 2012 and played a central role in developing GIB's green policies and procedures as well as the overall governance of the business. Tessa made an enormous contribution to green finance in the UK and globally, and she'll be missed by all her friends at GIG.

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Find out more

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 Green Investment Group

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