UK Green Investment Bank plc

Case Studies

Gavin Templeton, Head of Sustainable Finance
1 Offshore Wind
HARNESSING STRONG NATURAL WIND RESOURCES

✓ Favourable wind dynamics – shallow seas and strong winds contribute to a sizable wind resource and favourable locations for OSW farms

✓ Natural geographic advantage – the UK is one of the world’s largest OSW markets, representing c.40% of Europe’s total wind resource

Integrated energy and site management system, optimising returns

Minimising Downtime

Timely Replacement of Spare Parts Using Remote Monitoring

Managing Seasonality to Maximise Turnover

Installed operational capacity¹:

✓ UK – 3.6GW – 54%
✓ Denmark – 1.3GW – 19%
✓ Belgium – 0.5GW – 7%
✓ China – 0.4GW – 6%
✓ Germany – 0.4GW – 6%
✓ ROW – 0.5GW – 8%

Levers to optimise:

✓ Align with weather
✓ Align with power prices
✓ Extend asset lifetime
✓ Avoid standstill

(¹) UK: 4C Offshore; all other countries: Earth Policy, GWEC, EWEA, 4C Offshore, Komatsu, Navigant
GIB’s approach is to pursue a two part strategy for the development of the UK’s Offshore Wind sector:

- We aim to encourage “capital recycling” at the operational phase to stimulate a liquid market for operational assets
- In recognition of the fact that, to reach long term targets, the industry will need support at the construction phase, GIB is seeking to attract long term institutional capital to co-invest in construction assets

**Development (5+ years)**

- Aid in the realisation of installed capacity
- Mobilising third party funding
- Senior Debt / Bonds / Mezzanine
- Equity

**Construction (~3 years)**

- Co-Investment
- Cornerstone Investments
- Minority Interest Financing
- Senior Debt / Bonds / Mezzanine
- Equity

**Operation (~25 years)**

- Recycling of Capital
- Mobilising third party funding
- Senior Debt / Bonds / Mezzanine
- Equity

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**Developers / Utilities**

- Currently Outside of GIB Strategic Focus

**Investors / Private Markets**

- Co-Investment
- Cornerstone Investments
- Minority Interest Financing
- Senior Debt / Bonds / Mezzanine
- Equity
Total transaction value over £1.9bn with a mobilised green impact of 295kt p.a. of CO$_2$e abated

<table>
<thead>
<tr>
<th>Completed Transactions</th>
<th>Committed Capital</th>
<th>Total Transaction Value</th>
<th>Annual GHG savings (ktpa CO$_2$e)</th>
<th>Mobilised Parties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Westermost Rough</td>
<td>£241m</td>
<td>£888m</td>
<td>138</td>
<td></td>
</tr>
<tr>
<td>Gwynt y Môr</td>
<td>£220m</td>
<td>£220m</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>London Array</td>
<td>£59m</td>
<td>£266m</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Greencoat$^1$</td>
<td>£50m</td>
<td>£260m</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>Rhyl Flats</td>
<td>£57m</td>
<td>£115m</td>
<td>27</td>
<td></td>
</tr>
<tr>
<td>Walney</td>
<td>£46m</td>
<td>£224m</td>
<td>51</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>£673m</td>
<td>£1,923m$^2$</td>
<td>295</td>
<td></td>
</tr>
</tbody>
</table>

Notes
1. Greencoat deal was committed by BIS and comprises a mix of onshore and offshore assets. The transaction was supported by GIB.
2. Greencoat investment in Rhyl Flats appears twice but is not double calculated in the total.
WE ARE INNOVATING…
IN FINANCING NEW TECHNOLOGIES

Westermost Rough is:
1st Commercial deployment of the Siemens’ 6MW Direct Drive turbine
1st GIB’s equity investment in OSW during the construction phase
1st Limited recourse holdco financing in OSW during the construction phase

1 : 2.7
GIB £241m
DONG
Marubeni

Total investment: c. £1bn
This investment in Westermost Rough will mobilise capital into UK offshore wind

- **Project description**
  - Total capacity of 210 MW
  - Located eight kilometres off the coast of Yorkshire
  - 1st commercial deployment of the 6 MW Siemens Direct Drive wind turbine

- **Transaction summary**
  - GIB has invested alongside Japan’s Marubeni Corporation to jointly purchase a 50% stake in the Westermost Rough offshore wind farm, from DONG Energy
  - GIB has committed £241m to the c. £500m transaction
  - GIB has taken construction risk for the first time
  - This transaction demonstrates elements critical in reducing the OSW cost curve
  - This Investment in Westermost Rough serves to create a demonstration effect by supporting DONG in refinancing part of its investment thus ensuring that the industry is able to deliver the next round of new projects.

- **Green impact**
  - Once operational, Westermost Rough is expected to generate over 800GWh of net renewable electricity, enough CO₂-free electricity for powering 200,000 UK households, a city the size of York

“The agreement with Marubeni and the UK Green Investment Bank is a major step for DONG Energy’s partnership model. We have been able to enter into a shared construction risk partnership and at the same time we have locked-in significant value creation from the transaction. Marubeni and UK Green Investment Bank are two well-established and credible strategic investors and their decision to become our joint venture partners in Westermost Rough is a vote of confidence in DONG Energy’s ability to manage and execute offshore wind construction projects and to deploy new technology. We are proud of being recognized internationally as an attractive partner and a market leader in offshore wind. By 2020 we want to triple our installed capacity of offshore wind compared to what we have built today. Today’s agreement enables us to free up capital to continue our investment programme and meet our 2020 target.”

Samuel Leupold, Executive Vice President, DONG Energy Wind Power
WE ARE MOVING OFFSHORE WIND MARKETS

Directly investing in projects
- Establishing a secondary market
- Taking construction risk
- Financing new technology
- Financial innovation

1:3

Refinancing our investments
- Encouraging new direct investors
- Attracting foreign direct investment
- Recycling capital
- Financial innovation

1:4

Raising a Fund
- Creating a platform for new non-direct investors
- Targeting SWFs and Pension Funds
- Financial innovation

1:5

Increasing the supply of capital

Lowering costs
2 Street Lighting
STREETLIGHTING IN THE UK: THE OPPORTUNITY

7.4m

number of streetlights in the UK. Less than 10% are currently low energy LEDs.

100,000

number of hours of light provided by a LED. A standard streetlight only provides 15,000 hours.

30%

of light from a standard streetlight is wasted as it is dispersed upwards.

£200m

annual energy cost saving by switching to LED streetlighting; paying off the investment in 10 years.

30%

of a Local Authority’s energy bill is for streetlighting.

50 to 80%

of energy costs could be saved by switching to low energy streetlighting.

£300m

annual UK spend on energy for streetlighting; rising in line with escalating energy prices.

Saving greenhouse gas emissions (CO₂) equivalent to taking 330,000 cars off the UK’s roads.
LED technology:

- **For over 30 years**, LEDs have been used in industrial systems, car lights, hi-fi equipment and advertising
- LED **gathering pace** over the last five years
- Technology improving rapidly and costs falling quickly; 20-25 year life (manufacturer warranties)

“Spend to save” business cases for LAs:

- Can **cut energy bills** and reduce CO2 emissions
- **50-80% decreases** in annual energy consumption
- Reduced maintenance costs: reduced frequency of lamp renewals, scouting and physical monitoring

Smart lighting:

- Use of **Central Management Systems** to develop “Trimming and Dimming’ strategies
GIB developed the Green Loan for Local Authorities, recognising the need for flexible and simple Energy Efficiency financing product

**Pathfinder**
- 2013: Glasgow City Council agreed to work in partnership with GIB to develop the Green Loan for its pathfinder LED lighting project
- 2013: Green Loan developed as a more flexible alternative to PWLB and to provide certainty for ring-fenced multi year programme funding to achieve long-term benefits

**Market Report & Green Loan Launch**
- Feb 2014: Issued the 'Low energy streetlighting: making the switch' market report to publicise the opportunity for investment in the UK’s streetlighting infrastructure
- Feb 2014: Launched the Green Loan, a direct corporate facility to Local Authorities for streetlighting
- 2014: GCC and GIB work together to test Green Loan affordability and value for money to develop financing documentation

**Standardisation**
- September 2014: Glasgow Phase 1 reached commercial close, signed Green Loan Facility Agreement
- Current: Glasgow and GIB working together in all project areas – technical, legal and financial as project goes into procurement
- Current: Standard documents and process being developed: financing model, term sheet, loan documentation and green monitoring
Funding the LA LED Streetlighting conversion with the GIB Green Loan, putting “spend to save” philosophy into practice:

- **Committed fixed rate facility**, and drawn as required over LED installation phase
- Loan direct to Local Authority (on-balance sheet) to achieve **low interest rate**
- Green Loan funding covers LEDs, CMS, column renewal and other project costs
- No capital repayment and interest roll-up during installation to generate **immediate savings**
- Debt repayments over project period sculpted to forecast energy savings, **so project is revenue positive** or neutral
- Potential to blend with other sources of finance
GIB GREEN LOAN:
KEY FEATURES AND BENEFITS (2)

- GIB due diligence and green monitoring and reporting:
  - Developed in-house understanding of LED technology
  - Green analysis: potential energy & carbon savings
  - Sit alongside Local Authority technical team
  - Review final business case solution

- Certainty of programme funding for the Local Authority

- Standard facility documentation

- Compatible with variations to PFI projects without the need to alter existing funding in the PFI SPV

- Assistance in business case development including up to £0.5m Starter Loan to fund costs
3 Waste
EVERMORE ENERGY PROJECT

Summary

Construction of a 15.8 MWe waste wood biomass to CHP facility in Derry, Northern Ireland, which will be built and operated by BWSC.

GIB provided £20m in equity and mezzanine to the project through the Foresight UKWREI Fund, in which GIB is a cornerstone investor.

Diversion of 110,000 tonnes per annum of waste wood from landfill.

Largest renewable energy project in Northern Ireland, increasing renewable energy production by 10%, creating 200 construction jobs.

Electricity generation equivalent to power 60% of Derry homes. 3.7 million tonnes of CO₂e saved over its lifetime.
THE PROJECT: KEY PARTIES

- EKF
- Foresight Group
- Stobart
- Green Investment Bank
- Evermore Renewable Energy
- BWSC
- GCP
- Investec
- power ni
A project not without its challenges

Making a difference

- Forging compromises
- Leveraging relationships
- Deft brokerage
- Knowledge & Expertise
- Speed of execution
- Innovation

Entrepreneurs
Financing parties
EVERMORE ENERGY PROJECT

Playing a critical role in helping Northern Ireland’s largest renewable energy plant to reach financial close

Total investment: £81m

1 : 3

GIB £20m

GCP, BWSC, Investec, EKF