

UK Green Investment Bank plc

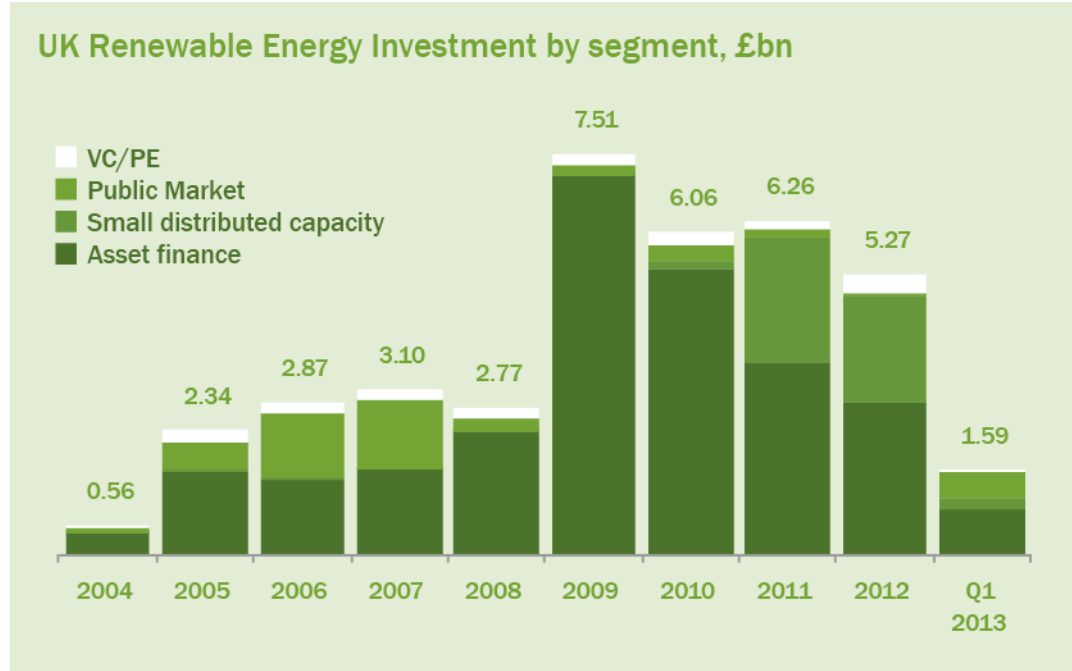
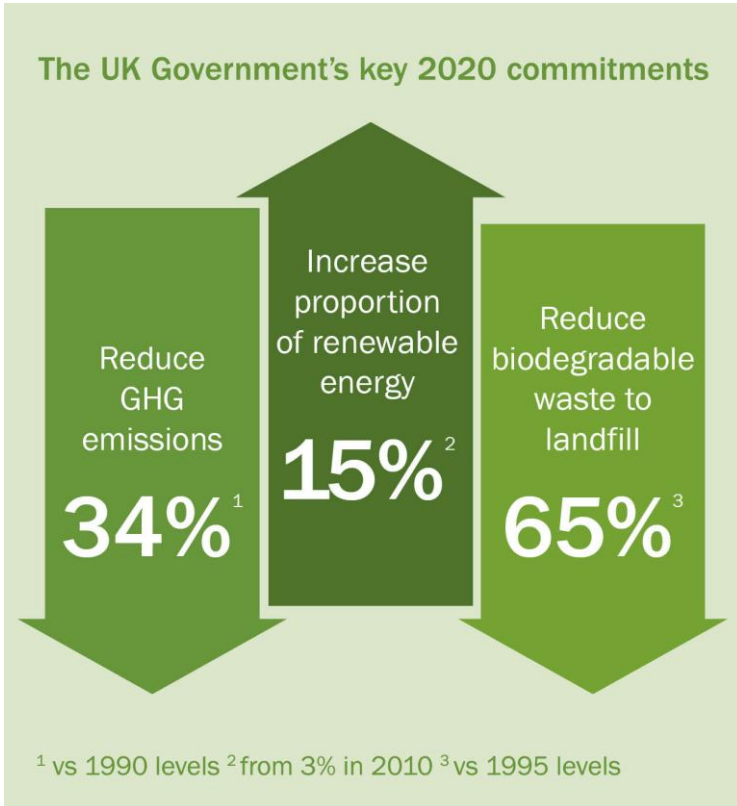
Accelerating the UK's transition to a greener economy

*CIPFA Scottish Treasury Management Forum Conference
28th February 2014*

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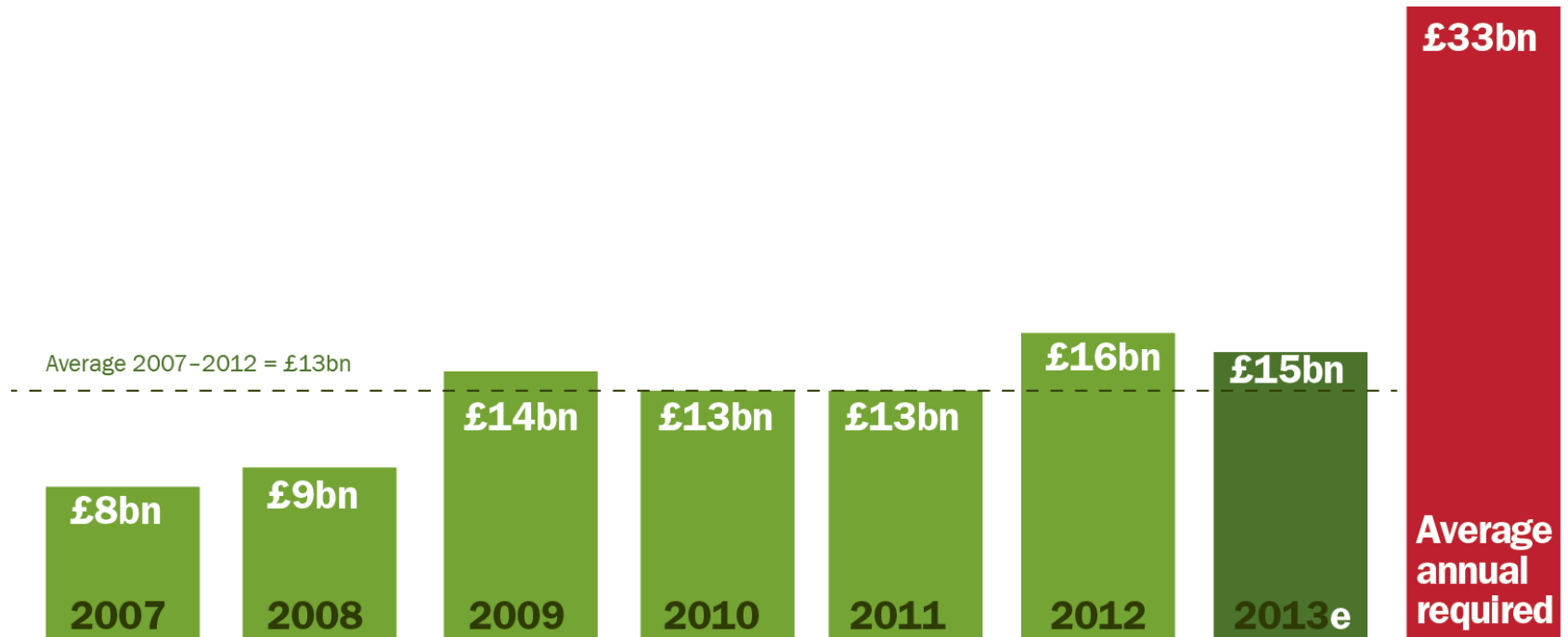
Introduction to GIB

The UK has signed up to demanding environmental targets...



...these targets will require £200bn of new investment. So far, we're seeing investment levels fall well short of what's required.

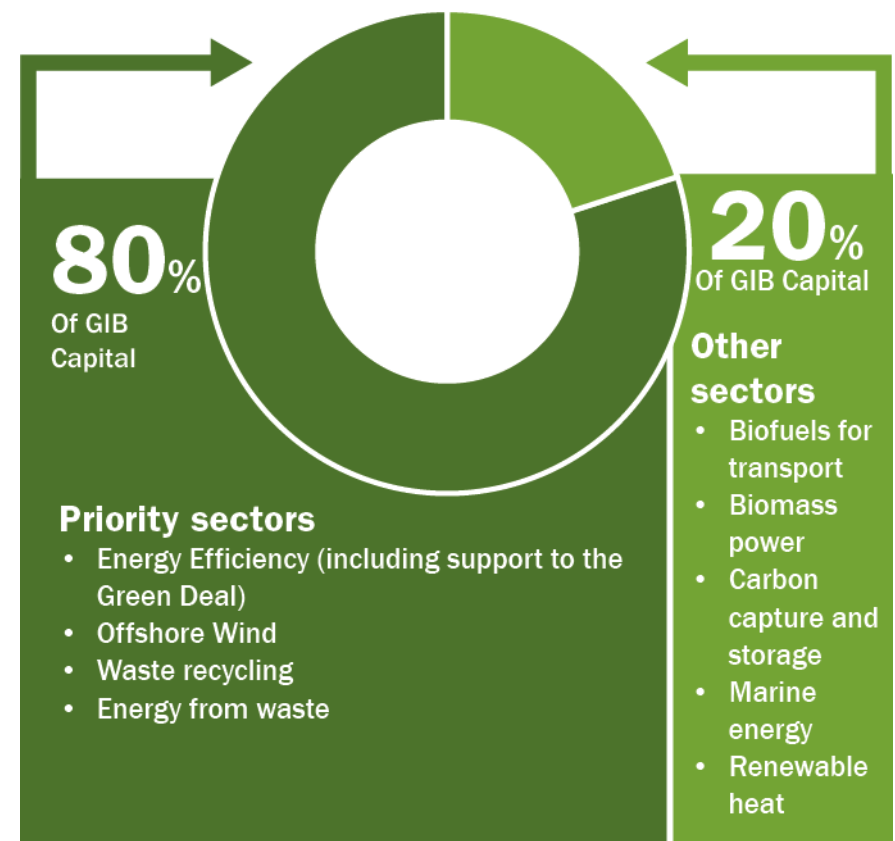
Historic investment run-rate has consistently been half of the required amount



To accelerate the UK's transition to a greener economy and to create an enduring institution independent of Government.

Our proposition

- We have £3.8bn of capital to invest, provided by the UK Government
- We expect to commit this capital by March 2016
- We have the ability to structure products across the capital structure, from senior debt to equity
- We deal on commercial terms; GIB does not provide grants, 'soft capital', regional assistance or development capital
- Investment must be additional. Our involvement must be necessary for the project to go ahead. We aim to crowd-in other private sector capital





May 2012
Lord Smith appointed chairman



October 2012
Shaun Kingsbury appointed CEO



June 2013
Annual Review Edinburgh & London

October 2012
State Aid clearance

March 2013
Close of first year 11 transactions £635m committed

April 2013
Masdar MOU



August 2013
New Headquarters in Edinburgh open

March 2012
Edinburgh wins HQ Bid

UK GREEN INVESTMENTS

GREEN INVESTMENT BANK

2012

2013

2014



Every transaction we support must pass our double bottom line test

Green

We measure our green impact against five measures:

- Reduction of greenhouse gas emissions
- Improved efficiency in the use of natural resources
- Protection or enhancement of the natural environment
- Protection or enhancement of biodiversity
- Promotion of environmental sustainability



Commercial

- We operate on a for-profit basis
- We expect commercial returns
- We operate within State Aid rules
- Our capital must be additional

Sector

Investment Strategy

**Offshore
wind**



- Work with the market to recycle and re-use capital already committed to the sector
- Begin to establish offshore wind (post construction) as a recognised 'asset class' with both institutional debt and equity investors
- Aim to catalyse investment appetite at construction stage

**Waste
recycling
and energy
from waste**



- Allocation of capital to small waste fund managers
- Pursue opportunities for equity investment in smaller-scale projects (<£30m)
- At the larger scale, direct investment; range of products with scope to innovate

**Energy
efficiency**



- Investment in energy efficiency projects
- Focus on seven technology clusters: CHP / District Heating, Outdoor Lighting, Renewable Heat, Building Retrofit, Efficient Transport, Industrial Processes and Smart Grid
- Partner with public sector, commercial & industrial companies, utilities and service providers
- Support smaller-scale projects through partnership with fund managers, finance providers and UK Green Deal

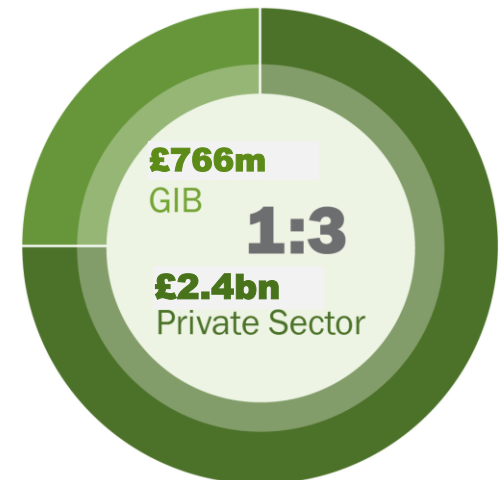
16
transactions



£3.2bn
mobilised



1:3
leverage



3.3Mt CO₂e saving per year once all projects operational

Sector	Deal	Date	GIB commitment (£m)	Total Transaction (GIB + 3 rd Party, £m)	GIB investment to third party funding ratio at financial close	Forecast Average Annual CO ₂ e abated (ktpa CO ₂ e) ²
Waste/ Biomass	Foresight	Jun-12	50	100	1:1 ¹	16 ³
Waste/ Biomass	Greensphere	Jul-12	30	60	1:1 ¹	16 ³
Energy Efficiency	SDCL	Sept-12	50	100	1:1 ¹	N/A
Energy Efficiency	Equitix	Oct-12	50	100	1:1 ¹	N/A
Waste/ Biomass	Drax	Dec-12	100	990	1: 9	2,500
OSW	Walney	Dec-12	46	224	1: 4	51
Waste/ Biomass	Wakefield	Jan-13	30	122	1:3	34
Waste/ Biomass	Gloucester	Feb-13	47	185	1:3	7
Energy Efficiency	Aviva fund	Mar-13	50	100	1:1 ¹	8 ³
OSW	Rhyl Flats	Mar-13	57	115	1:1	27
Energy Efficiency	Green Deal	Mar-13	125	169	1: 0.4	82
Waste/ Biomass	Evermore ⁵	Jul-13	20	74	1:3	185
OSW	London Array	Oct-13	59	266	1:4	51
Waste/ Biomass	Birmingham Biopower	Dec-13	12	35	1:2	107
Waste/ Biomass	West London	Dec-13	20	224	1:10	79
Waste/ Biomass	Merseyside	Dec-13	20	335	1:16	68

GHG Emissions Reduction

Estimated 54Mt of CO₂e abated over the lifetime of portfolio

=

Exceeds Scotland's target 2020 net annual carbon footprint by >30%

Renewable Power Generation

Estimated contribution of 12.6TWh of renewable power to UK's 2020 renewable energy target

=

12% of UK's projected renewable electricity generation in 2020

Waste to Landfill Avoided

Estimated 1.3m tonnes of waste to landfill avoided by portfolio in 2020

=

Annual waste of around 1.3m homes

Notes. Assumes that deals that are yet to be fully completed reach completion on current agreed terms.

1. Funds assume "match-funding", whereby a third party investor will invest at a minimum an equivalent equity ticket to GIB. The ratio would of course increase if third party debt is also introduced.
2. Total CO₂e abated by the entire project (ie not just the amount attributable to GIB's investment)
3. CO₂e abated by a fund is based on the project in which the fund has so far invested as a proxy
4. Weighted average ratio of GIB funding to third party investment
5. This transaction was made by the Foresight fund. GIB increased its investment in the fund by £18.3m to £68.3m to finance this transaction.

Working with private capital



2

**Energy Efficiency-
GIB Perspective**

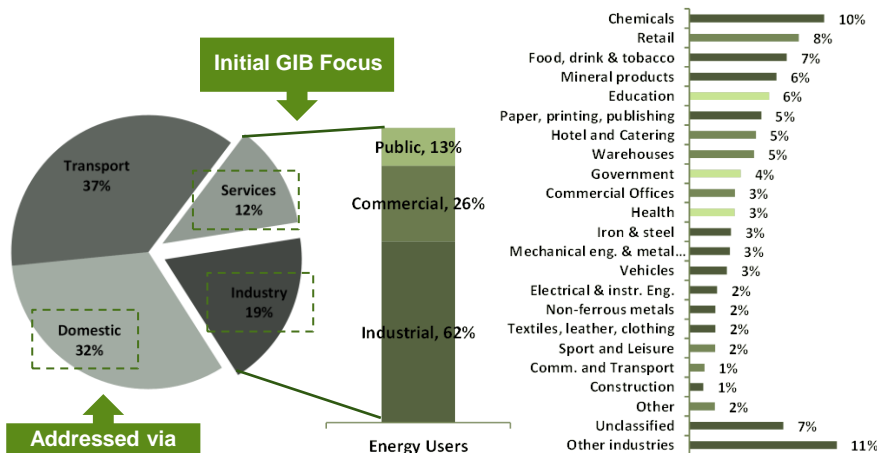
GIB believes the Energy Efficiency opportunity is broad-based and has strong and sustainable drivers

Energy consumption

- UK energy consumption is equally split between Transport, Domestic and Services & Industrials
- GIB identified priority sub-sectors within Services & Industrials based on a segmentation between Public, Commercial and Industrial players

100% = 1,740 TWh

100% = 523 TWh



Drivers

Regulation

UK EE target 20% reduction by 2020

Energy Prices

Increasing energy prices & volatility

Technology Development

Technology improvement leading to significant cost reductions & improved payback profiles

Industrial Competitiveness

Companies can see cost reductions versus competitors due to reduced energy usage

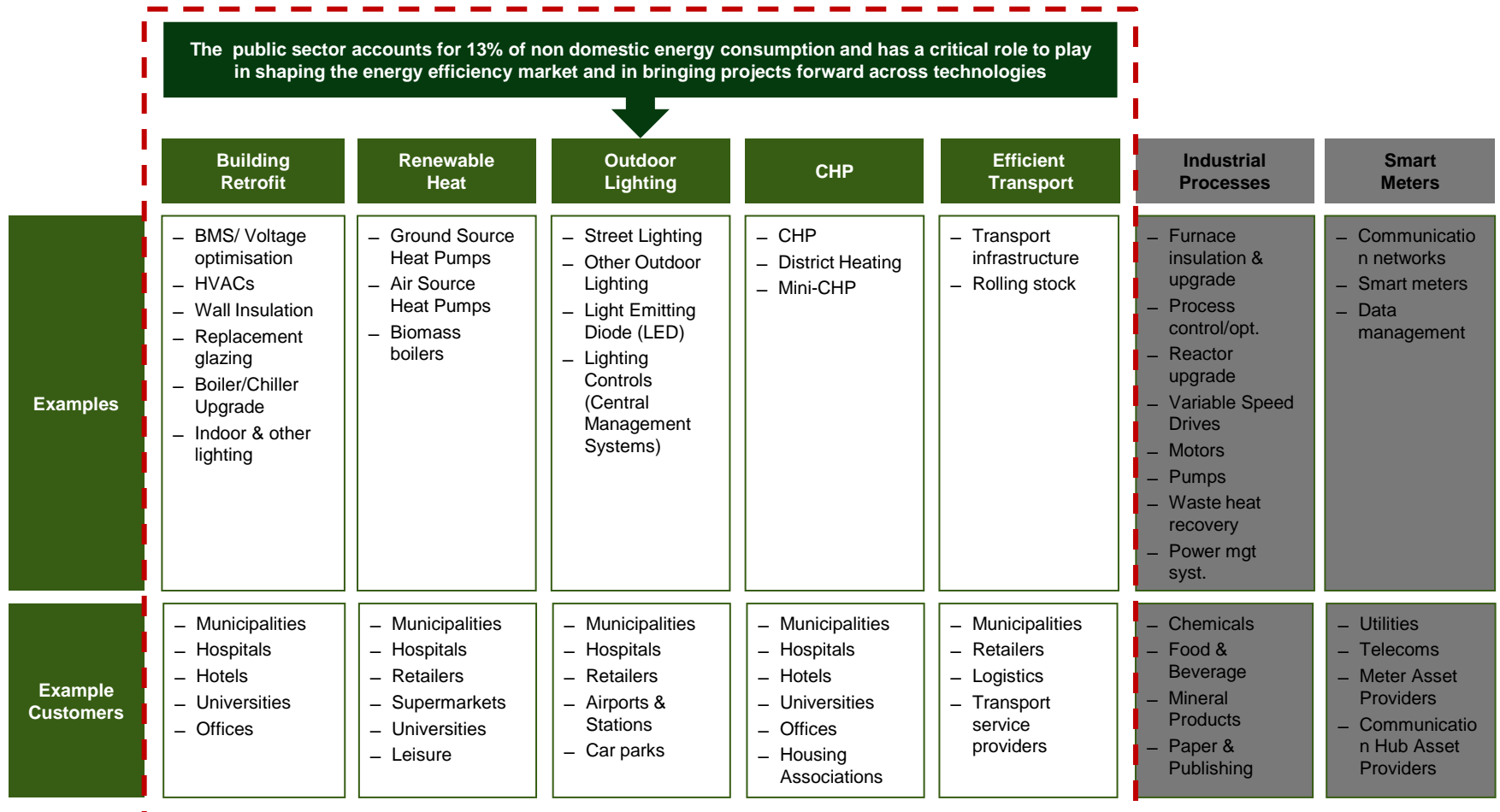
Sustainability

Differentiating brands through focus and proven delivery of sustainability

GIB has identified five key barriers to mass deployment of Energy Efficiency projects and is developing strategies to overcome them

Barriers	Examples	Examples of GIB Approach
Capital	<ul style="list-style-type: none"> – “There are lots of opportunities, but it’s about priority of capex.” – Electricity Intensive User 	<ul style="list-style-type: none"> – Put balance sheet to work and provide the full spectrum of financing across debt and equity – Bring along co-investors to “crowd-in” capital – Provide ability to fund long tenor
Information	<ul style="list-style-type: none"> – “It’s bewildering what’s on offer” – Electricity Intensive User 	<ul style="list-style-type: none"> – Use industry sector knowledge to focus on large impact opportunities in individual sectors, to stimulate interest in technology and services and replicate savings – Work closely with DECC and others to share knowledge
Costs & Risks	<ul style="list-style-type: none"> – “Retrofitting takes 6 months of auditing, followed by a year of disruption” – Utility company 	<ul style="list-style-type: none"> – Structure the projects – Work with best-in-class service and technology providers – Focus on technology improvements with broad potential – Deliver ‘early wins’
Skill Mix	<ul style="list-style-type: none"> – “The EE industry in the UK isn’t sufficiently developed in terms of quality and depth. ESCOs have to bring in people from outside” – Green Finance Provider 	<ul style="list-style-type: none"> – Share deep and broad industry in-house expertise – Use strong links with technology and supplier base – Leverage technical and financial knowledge
Senior Executive Attention	<ul style="list-style-type: none"> – “No board member of a major corporation wakes up & thinks: what am I going to do about Energy Efficiency today.” – Major ESCO 	<ul style="list-style-type: none"> – Raise the importance of energy efficiency through senior management interaction leveraging GIB network and position

GIB focuses on seven energy efficiency technology clusters which align with the market structure.



The public sector accounts for 13% of non domestic energy consumption and has a critical role to play in shaping the energy efficiency market and in bringing projects forward across technologies

**Ambitious Carbon
Reduction Targets**

- Public sector accounts for 13% of non domestic energy consumption. It is therefore the subject of several government initiatives to reduce consumption with ambitious carbon reduction targets set across central, devolved and local governments.

Project Initiation

- The public sector also has a critical role to play in shaping the energy efficiency market and in bringing projects forward across sectors in building retrofit, outdoor lighting, renewable heat, combined heat & power, district heating technologies and energy efficient transport infrastructure.

**Working with Public and
Private Sectors**

- GIB is interested in working directly with public sector organisations to develop funding programmes and create investment opportunities at scale, where there is a strong political commitment to deliver low carbon investment.
- We are also interested in working with private sector organisations looking to partner with public sector, such as energy services companies, developers and other project sponsors and promoters.

Flexible Capital

- GIB's capital can be deployed through various structures, including corporate, asset and project finance, primarily through debt instruments.
- Government programmes can be easily levered to create more impact and ensure more institutions are supported.

3

**Public Sector
Investment Focus**

**Green
Investment
Bank**

UK streetlighting
in numbers

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
an LED. A standard streetlight only
provides **15,000** hours.

30%

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

£300m

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

£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.

Saving greenhouse gas emissions (CO₂)
equivalent to taking

330,000

cars off the UK's roads.

www.greeninvestmentbank.com

Sector

- Light Emitting Diode (LED) streetlighting retrofit: a major technological step change
- Currently <10% deployed and target should be 100% adoption by 2020
- By 2020, saving expected to reach 90% compared to conventional lighting
- Significantly reduce carbon emissions

Benefits

- Invest to save: energy savings of 50-80%, typical payback of 8-16 years, inc. finance
- Long life expectancy: 20-25 years for LED v 3-6 years for conventional lighting
- Controllability: superior control over light colour, intensity and direction
- Demonstrable health and safety benefits

Challenges

- Capital prioritisation, not top of the agenda
- Business case development
- Justification for Control Management System
- Poor column stock condition
- Programme management

Next steps

- Understanding LA ambitions and current development status
- GIB has created *The Green Loan for Local Authorities*, a value for money financing product which can finance all LED, CMS and column capital expenditure
- GIB Streetlighting Market Report

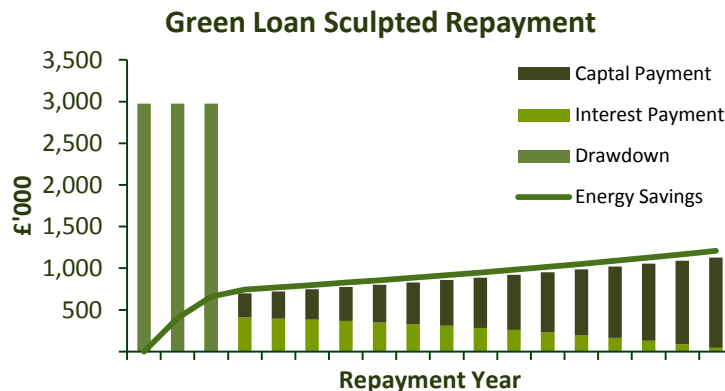
GIB has developed a Green Loan product for Local Authorities to accelerate the implementation of LED streetlighting.

The GIB Green Loan is a competitively priced on-balance-sheet corporate loan which is a more flexible alternative to PWLB. It can show better value for money over the project life due to its structural features:

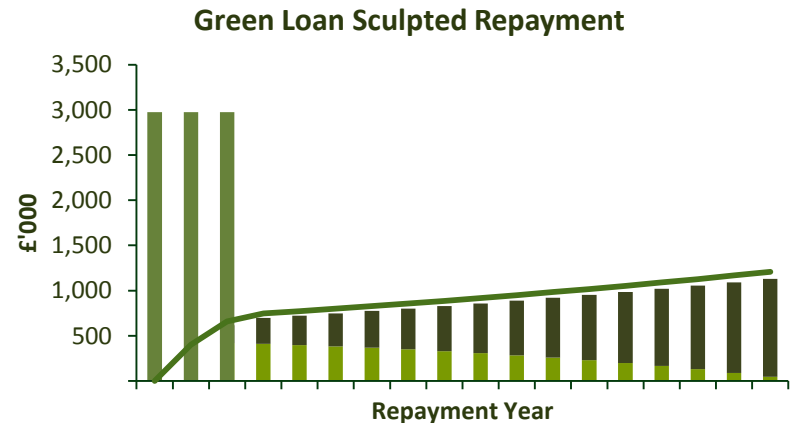
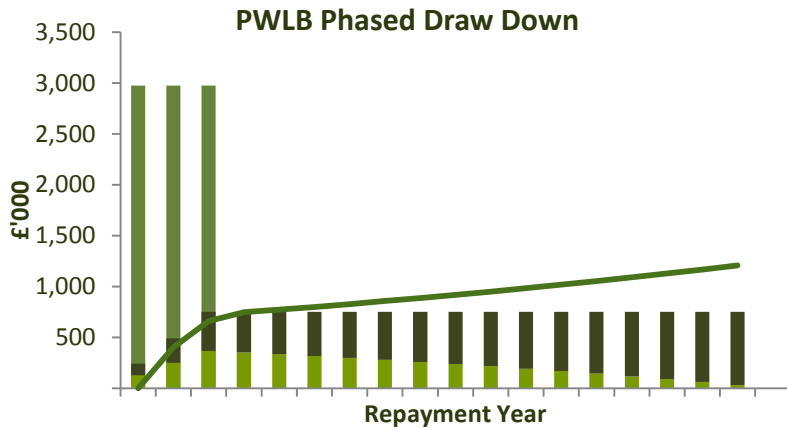
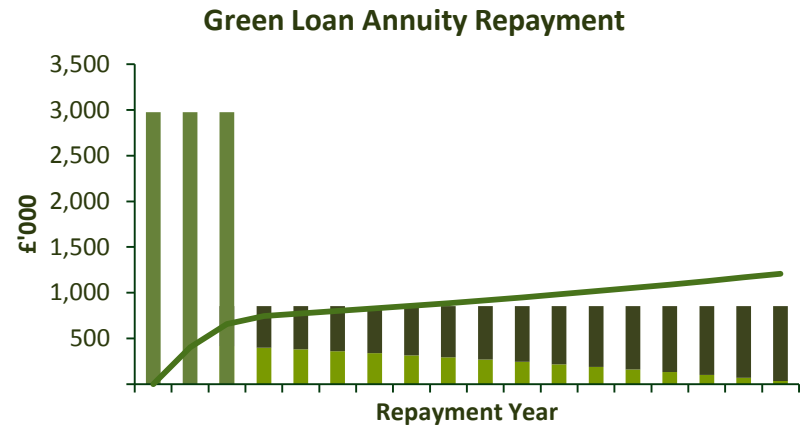
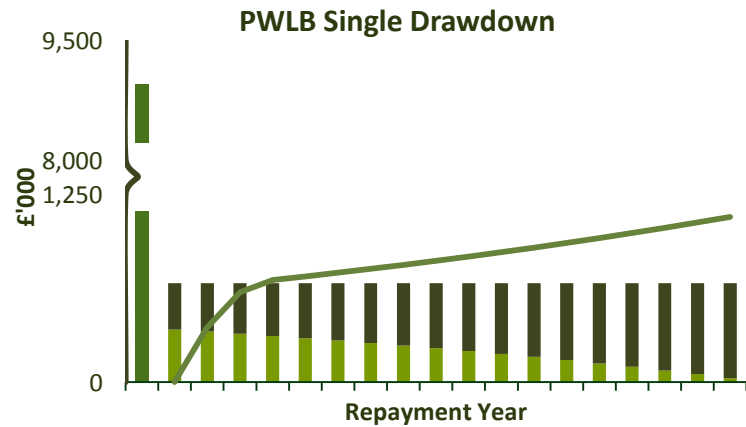
- **Fixed rate loan facility** with interest payable only on portion of loan as it is drawn through the installation period.
- **Loan repayments over the project life which are sculpted to best fit inside the LED project costs savings.** CMS should be able to be incorporated inside the savings curve but columns will depend on the size of the investment required and the project life, which could be up to 25 years.

The GIB Green Loan also includes a number of innovative features designed to assist and accelerate the development of a LA's business case:

- Standardised and tested loan documentation and financial model for funding evaluation.
- GIB due diligence support and business case review. This will look at proposed technologies, carbon savings and cost savings.
- Up to £0.5 million support for set-up costs, including external advisers, which can be rolled into the Green Loan to fund the project.
- GIB green evaluation and long term monitoring.



Indicative funding profiles for a Local Authority energy efficiency project:



Key benefits of GIB Green Loan product for Local Authorities :

- **Assistance in business case development:** GIB Financial Model for VFM funding analysis, GIB Starter Green Loan up to £0.5m (PWLB maturity rates, 18 month max) to pay for adviser costs (can be rolled into Green Loan), and business case review
- **Flexibility for drawdown at a fixed rate** over the entire installation phase: drawdown profile matched to project spend removes negative cash drag if need to drawdown full PWLB loan up front or annually
- **Repayment profile can be sculpted to energy efficiency savings** expected from the project, and whilst the headline fixed interest rate could be higher than the initial PWLB rate, the structural features of the GIB Green Loan should make the overall NPV of the funding costs at least similar to PWLB while offering more flexibility at a project level for the project costs to mirror the savings
- **Potential to blend with other sources of finance** available to Authorities, such as PWLB, Salix or JESSICA funding
- **Certainty of programme funding:** enables Authority to procure multi-year programme and achieve scale benefits
- **Confidence for new EE ‘spend to save’ programme** and the associated cost savings to Authority revenue budgets (e.g. LED street lighting can generate c.50-80% energy savings and reduce long term maintenance costs). There will also be long term monitoring of the Green performance
- **GIB technical, legal and financial due diligence** is intended to provide the Authority with much greater confidence on a project being delivered on time and on budget, with greater contractual robustness through the life of the project eg. 5-10% risk adjustment on capital and/or opex costs and the energy savings / performance framework will significantly enhance the overall Value for Money analysis.

Sector

- Heat generation and distribution
- UK Heat demand > Electricity consumption
- Market projections suggest significant growth (DECC – c.1000% by 2020)
- Enabling technology for decarbonisation of heat

Benefits

- Government drivers – HNDU, Core cities, ECO, RHI
- Greater energy independence
- Addressing fuel poverty and air quality
- Ideal for dense urban environments

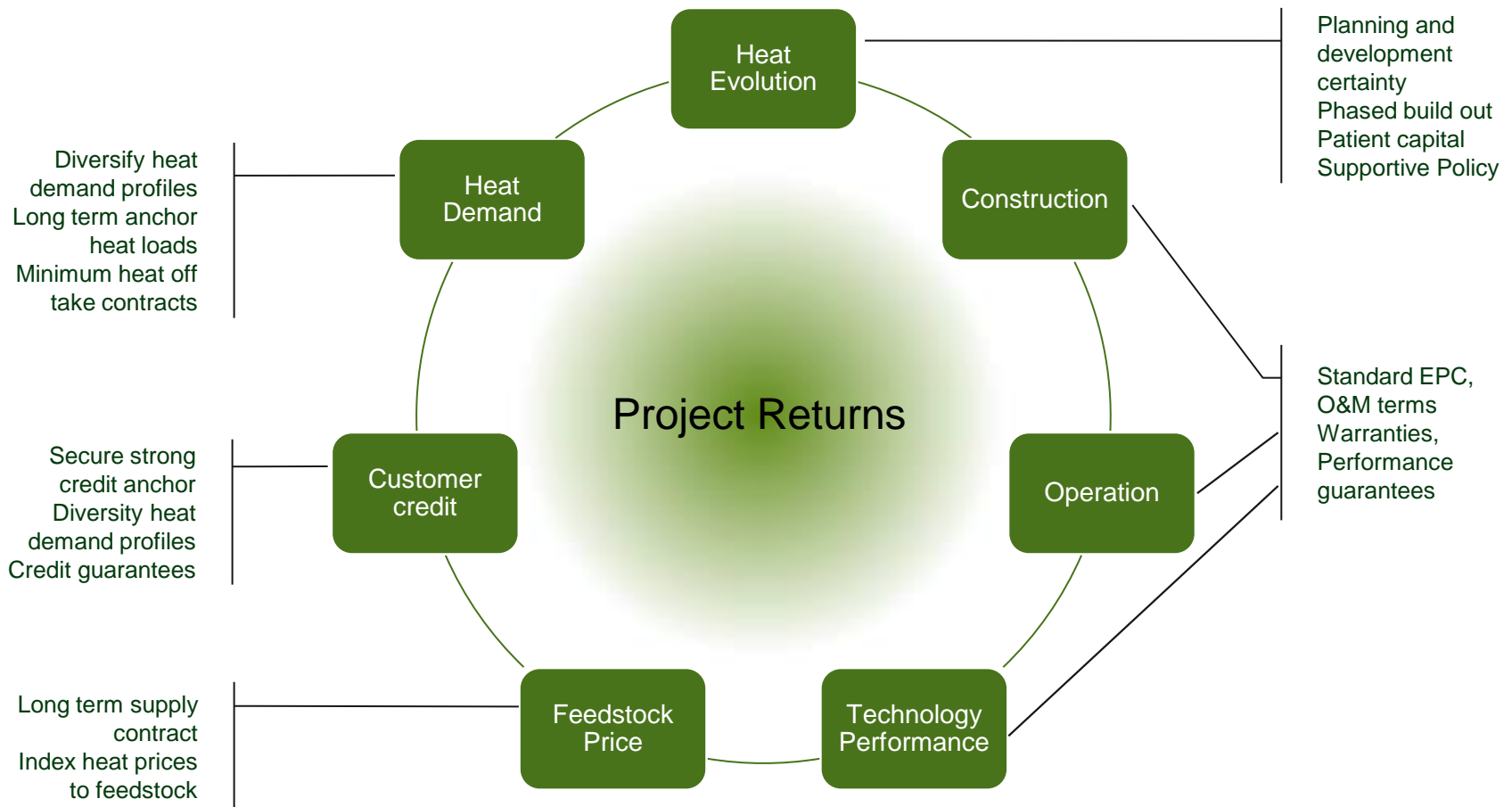
Challenges

- Small scale projects do not attract investor attention
- No standard investment models and risk allocation
- Marginal economics – source of gap funding
- Complex governance

Next steps

- Understanding LA pipeline, including re-financing opportunities
- Understanding LA policy drivers and control/risk appetite
- GIB offer – flexible range of product options to address the market
- Information sharing

The development and design of an investable district heating project must effectively allocate project risk to achieve an efficient cost of finance



Sector

- Cost-effective heat and electricity energy reduction (Energy Conservation Measures)
- Delivered through Energy Services Performance Contracting (ESPC)
- Significantly reduce carbon emissions

Benefits

- Invest to save: energy savings of [20-40]%, typical payback of 7-15 years
- Government drivers – RE:FIT framework,
- Cost savings for public sector in schools, office buildings, social housing, etc...
- Guaranteed savings
- Addressing fuel poverty

Challenges

- Capital prioritisation, not top of the agenda
- Split incentives
- Small scale with little standardisation
- Disproportionate development effort
- Project Management
- Modest returns on whole building deep retrofit

Next steps

- Understanding LA ambitions and current development status
- GIB working with ESCOs and Cities who can aggregate project pipelines
- GIB offer – flexible range of product options to address the market
- Information sharing

4

Working with the GIB

Knowledgeable team

Significant prior and current experience. Dedicated and highly focused. Understand stakeholder needs.

Sizable & flexible capital commitment

£3.8bn to be committed to green projects by March 2016.
Ability to invest across the entire capital structure.

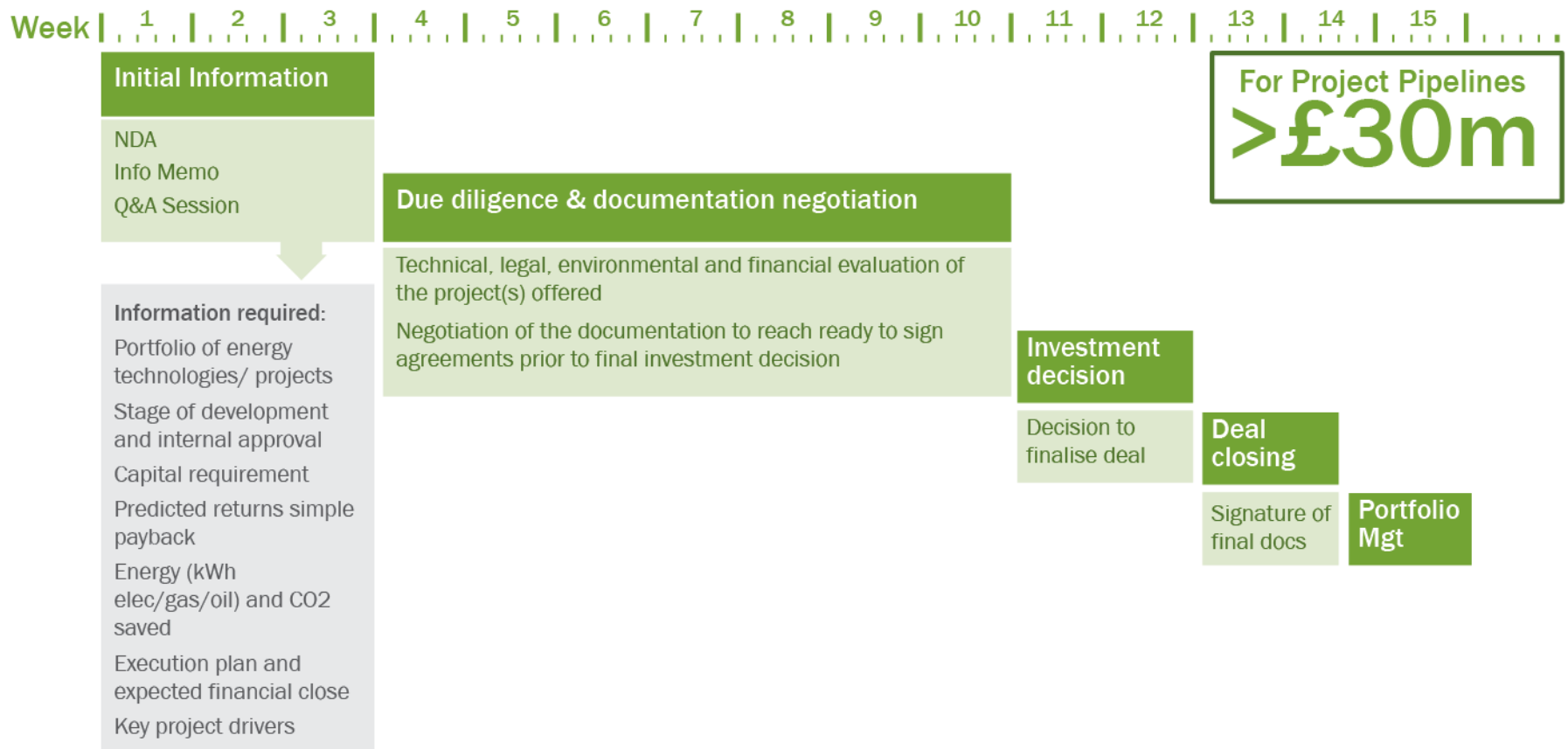
Ability to move quickly

Independent Investment Committee.
Focused mandate allows for efficient investment process.
Supportive senior management.

Unique market position

Funded by UK Government.
Strong finance, industry and political network.
Market leading 'green' approach.




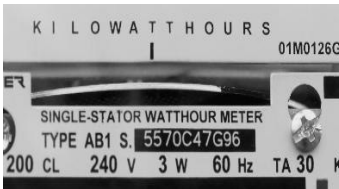

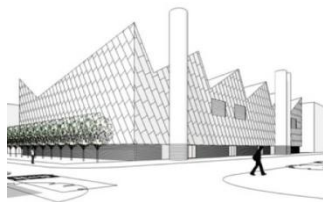
Working with GIB or its partner funds is simple and straightforward. Investment decision and financial close can be achieved within 3-4 months from initial contact

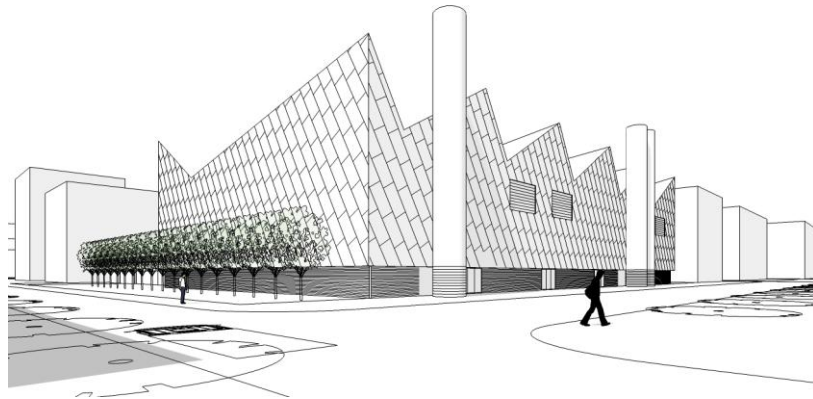


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Case studies

GIB has partnered with three fund managers to finance smaller sized Energy Efficiency portfolios (for aggregate portfolio funding requirements of <£30m)

Fund manager	Fund information	GIB investments	
	<ul style="list-style-type: none"> – Equitix is a UK based specialist infrastructure investor working in partnership with local authorities and corporate pension funds – Equitix aims to make socially responsible, sustainable investments in communities – Energy Savings Investments is a £50m fund focused on energy efficiency projects of £0.5m-£30m capital cost 	<ul style="list-style-type: none"> – GIB is the cornerstone investor in the fund with a commitment of £50m – First investment of £10m (49% from the fund) in Roundwood Energy, which will provide biomass boilers to a number of business types – 49% of £1.2m investment for a biomass boiler at Tomatin Distillery – 49% of £1m investment for a biomass boiler in a school 	
	<ul style="list-style-type: none"> – SDCL is a specialist advisory firm – Established to help governments & private institutions finance environmental and social infrastructure assets and services – The fund, UK Energy Efficiency Investments is a £50m fund focused on energy efficiency projects of £0.5m-£30m capital cost 	<ul style="list-style-type: none"> – GIB committed £50m to the fund as the cornerstone investor and SDCL will raise at least an additional £50m – First investment of £0.8m in the retrofit, designed and delivered by Johnson Controls, of a portfolio of industrial facilities owned by Kingspan Group 	
	<ul style="list-style-type: none"> – Managed by Aviva Investors, Aviva Investors REaLM Energy Centres Fund is specialising in investment in non-domestic UK energy centres – The £50m fund provides long term funding from institutional investors for public sector energy efficiency projects 	<ul style="list-style-type: none"> – GIB committed £50m out of an expected total of £100m – First investment of £36m (49% from GIB) in Cambridge University Hospitals NHS Foundation Trust for CHP, boilers & heat recovery 	



Summary

- GIB committed £50m to the Aviva Investors REaLM Energy Centres Fund, a new fund managed by Aviva Investors which specialises in investments in non-domestic UK energy centres
- The fund made its first investment of £36m (£18m provided by GIB) in Cambridge University Hospitals' NHS Foundation Trust

Green Impact

- Expected CO₂e savings of approximately 8000 tonnes per annum through investment in CHP, boiler and heat recovery systems
- Reduce the Trust's overall energy bills by £20m over the 25 year operation of the project
- Help the Trust achieve its 2020 carbon reduction goals

Finance

- GIB's investment into the Fund has mobilised c£18m of private capital into the project from Aviva Investors REaLM Infrastructure Fund to support its first investment
- GIB's full investment commitment of £50m will eventually mobilise a total of at least £50m private capital into this sector



Summary

- The UK Energy Efficiency Investments Fund 'UKEEI', which is cornerstoned by GIB, has committed to a £0.4m equity investment to fund the retrofit of a Kingspan warehouse in Wales.
- The investment provides 100% of the funding required to retrofit its Holywell insulated panel manufacturing facility factory to reduce energy demand and creates cost savings through lighting, compressed air and extraction fans, metering and motor replacement.

Finance

- It is structured as a fully equity funded energy services agreement, requiring no capital investment from Kingspan
- Revenues are based on a share of measured and verified energy cost savings
- The Pari Passu co-investor
- Mobilisation 1:1



Summary

- The Energy Saving Investment Fund 'ESI', which is cornerstoned by GIB, has made an investment of £0.6m for the financing of the installation of a biomass boiler at Tomatin Distillery near Inverness
- The boiler installation produces heat for the steam utilised in the production of whisky. The boiler replaces a high maintenance, inefficient oil fired boiler. The new boiler will replace 80% of the heat load usually generated by the oil fired boiler.

Finance

- It is fully equity funded, with shares and a subordinated loan note agreement
- Revenues will be generated by the sale of heat, lease payments and the receipt of RHI
- The Pari Passu Co-investor is a parallel Fund raised by Equitix
- Mobilisation 1:1



Finance : GIB Green Loan

- Committed facility, fixed rate, and drawn as required over LED installation phase
- Green due diligence and monitoring
- Debt repayments over project period sculpted to forecast energy savings so no, or little, impact on Authority's revenue budget
- Demonstrable value for money putting a "spend to save" philosophy into practice

Summary

GIB have developed a Green Loan product to finance and accelerate Local Authority LED streetlighting projects. Moving to LED lighting delivers a number of benefits:

- **Significant energy savings:** 50-70% decreases in annual energy consumption when switching from HID (High Intensity Discharge) light bulbs to LEDs
- **Significantly reduce CO2 emissions:** LEDs will make a material contribution (potentially c.30%) to reducing Authorities 2020 emission targets
- **Long 20-25 year LED life expectancy** (can be backed by manufacturer warranties) v 3-6 years for HID. Linear dimming allows extended life, distribute light more uniformly/targeted (health & safety benefit: better visibility of pedestrians to road users), better quality of light, do not degrade in same way as HIDs and therefore do not need to over-illuminate on installation
- **Smart lighting:** Use of Central Management Systems to develop "Trimming and Dimming" strategies. Allows changes to dimming and switching off remotely, and monitoring of bulb performance
- **Potential for reduced maintenance costs:** reduced frequency of lamp renewals, scouting and physical monitoring. Maintenance reductions will also depend on what is done with columns as part of the programme. Scope of reductions will depend on whether current maintenance is in-house or outsourced, size of current maintenance team and other highways work carried out by the team
- **All capex costs can be subsumed in a funding package** repaid from energy savings: Typical payback 8-16 years (including finance costs)

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