An opportunity to make a difference: a deep-dive into offshore wind

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A couple of questions to get us started

- Who is investing in infrastructure assets on behalf of themselves or their clients?
- Who is investing in renewables on behalf of themselves or their clients?
Definitions

- **Infrastructure**: facilities or structures required for the effective operation of a business, state or economy
  - For example roads, railways, airports, power generation and transmission, ports, communications, water and waste, together with social infrastructure, such as hospitals, schools

- **Renewable energy assets**: Assets used in the production of renewable energy such as off-shore and on-shore wind or solar panels
Offshore wind offers a return similar to a number of other infrastructure assets.
Insurers have been including renewable assets in their investment portfolios

**Prudential** invests in **Indian wind power**¹

**Solar bond for PIC**³

**Allianz** backs **US solar project**¹

**Phoenix** debuts **renewable energy investment with Walney debt financing**²

**Crédit Agricole** in **JV to buy 500MW of renewables projects**¹

**PIC** debuts **offshore wind investment with Walney debt financing**²

**L&G** makes **first offshore wind farm investment with Walney debt financing**²

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[1] https://www.insuranceassetrisk.com
Renewable energy investment: Risk and return
The usual investment characteristics need to be considered

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<thead>
<tr>
<th>Return/yield</th>
<th>Capital</th>
<th>Matching</th>
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<thead>
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<th>Security</th>
<th>Covenants</th>
<th>Diversification</th>
</tr>
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<tbody>
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Renewable energy assets can be an attractive match for liabilities…

1. **Duration**
   Like many illiquid assets off-shore wind assets are long dated and hence suitable for backing life products

2. **CPI Linked**
   There are very few CPI linked assets available in the market and this asset presents an opportunity to gain CPI exposure

3. **Matching adjustment**
   These assets can provide competitive returns with a low credit haircut relative to corporate bonds with similar yields
…and also have some benefits in terms of security which can lead to efficient capital treatment

Covenants

Government subsidy / support
There are also external reasons for insurers choosing to invest in renewables

- Institutional investors are under increased pressure to invest in environmentally, socially and governmentally (ESG) responsible assets

1. Shareholders
   75 per cent of wealthy millennials consider the social and environmental impact of the companies they invest in to be an important part of investment decision-making.

2. Political
   The signing of the Paris Agreement in December 2015 resulted in a commitment to ensure investments contribute towards low-carbon and climate-resilient development.

3. Regulatory
   In May 2018 the European Commission (EC) proposed the implementation of new legislation to support investment in sustainable finance.

[4] US Trust data from https://www.ft.com/content/59f6562a-786d-11e8-af48-190d103e32a4
Renewable energy assets are subject to some typical risks associated with illiquid assets…

Credit underwriting

Valuation

Managing liquidity

Work-out
..as well as some more unique risks

**Technology risk**
- Equipment may become obsolete as new technologies arrive, e.g.:
  - Development of floating wind turbines, which can deliver extra efficiency further from shore
  - Recent advances in the capabilities of solar cells

**Geophysical risks**
- There is the risk that unpredictable weather patterns will lead to volatility in energy generation and revenue streams
  - However, it may be possible to purchase weather derivatives to hedge this risk

**Political risk**
- There is the risk that falls in energy subsidies will lead to reduced revenue, e.g.:
  - Zero-subsidy contracts
  - Spanish solar subsidies were infamously cut

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17 November 2018
Case study
Walney Extension
Borrower demand for infrastructure debt

- Offshore windfarm
- Insurer

Inflation-linked revenue

Fixed / Inflation-linked cashflows

Loan
Walney Extension – Nov 2017

Worlds largest operational offshore wind farm powering up to 590,000 UK homes

Bespoke financing - two tranches of long dated, delayed draw financing – CPI linked and fixed

AAA Tranche guaranteed by Danish Export Credit Agency EKF

Construction phase with significant risk mitigation

Investors including Macquarie, Legal & General, Pension Insurance Corporation, Phoenix Group
Looking to the future
UK continues to lead the world in offshore wind with over 7 GW installed capacity (33% of global installed capacity) and another 7 GW in construction or with contracts secured.
Expected continued flow of opportunities from offshore wind

- Re-financings
- Continuation of CfD
- Subsidy Free / Zero Subsidy
- Corporate PPA
- Global Opportunities
Expressions of individual views by members of the Institute and Faculty of Actuaries and its staff are encouraged.

The views expressed in this presentation are those of the presenter.
Concluding remarks

• Life insurers continue to find the high risk adjusted yield of infrastructure assets attractive

• Renewable assets offer interesting characteristics for matching life insurance liabilities whilst also offering public benefits and portfolio diversification

• The pipeline for renewable assets looks strong through commitments to new projects and refinancing opportunities for existing structures
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