

**The Actuarial Profession**  
making financial sense of the future

Environmental Change: Opportunities for Actuaries  
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**Green finance**

12 September 2011

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## **Potential opportunities for actuaries**

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1. Parametric insurance
2. Climate change adaptation
3. Traditional non-life insurance
4. Green finance

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## The challenge

The world needs to make a dramatic change to a low-carbon economy

Global investment required to achieve transitions to

- low-carbon transport
- low-carbon energy
- low-carbon buildings

= \$1 trillion a year above BAU (IEA)

That means institutional investors and the wholesale markets

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## The funds are there

Global bond traders managing over \$105 trillion in 2010

72% held by pension funds, mutual funds, insurance funds and sovereign wealth funds

Over \$6 trillion new bonds issuance in 2010

The issue is not creating new capital but shifting a relatively small % of global wealth

## Bonds are ideal for renewables

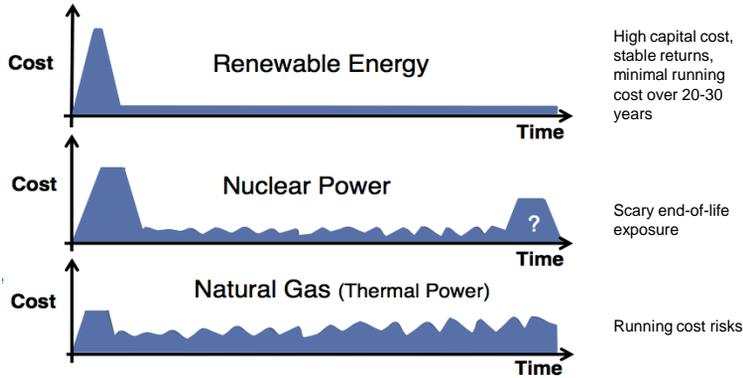


Illustration courtesy Jason Langley AXA IM

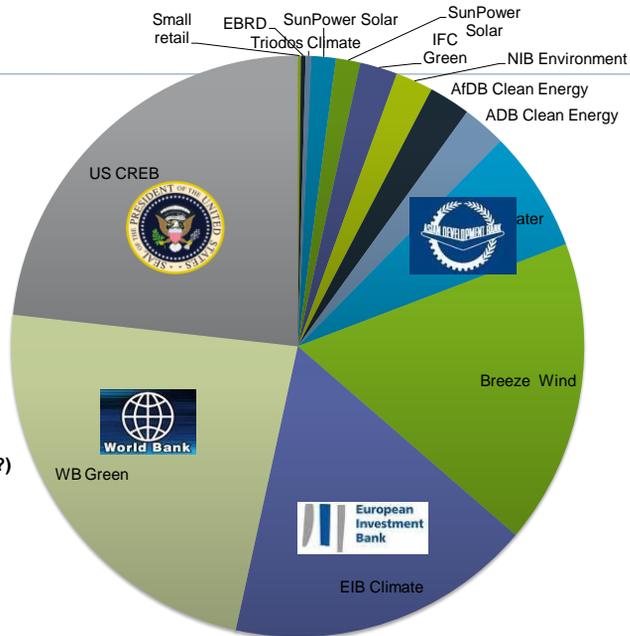
## Issuance to date

**\$12 billion**

+  
PACE

Build America Bonds (\$13bn?)

Only 5% retail, mostly Japan



## International Standards



1. Assure investors (and governments) that investments are for climate change solutions
2. Make it easy for Investors and Governments to *prefer* climate-related debt
3. A large pool = liquidity by mixing energy, transport, water, etc

An *environmental*, not a financial standard.  
Investors still have to do financial due-diligence.

## Getting to investment grade

Regulatory: e.g. de-risking EE investment in UK and Australia

Insurance: e.g. MIGA / political risk in Europe

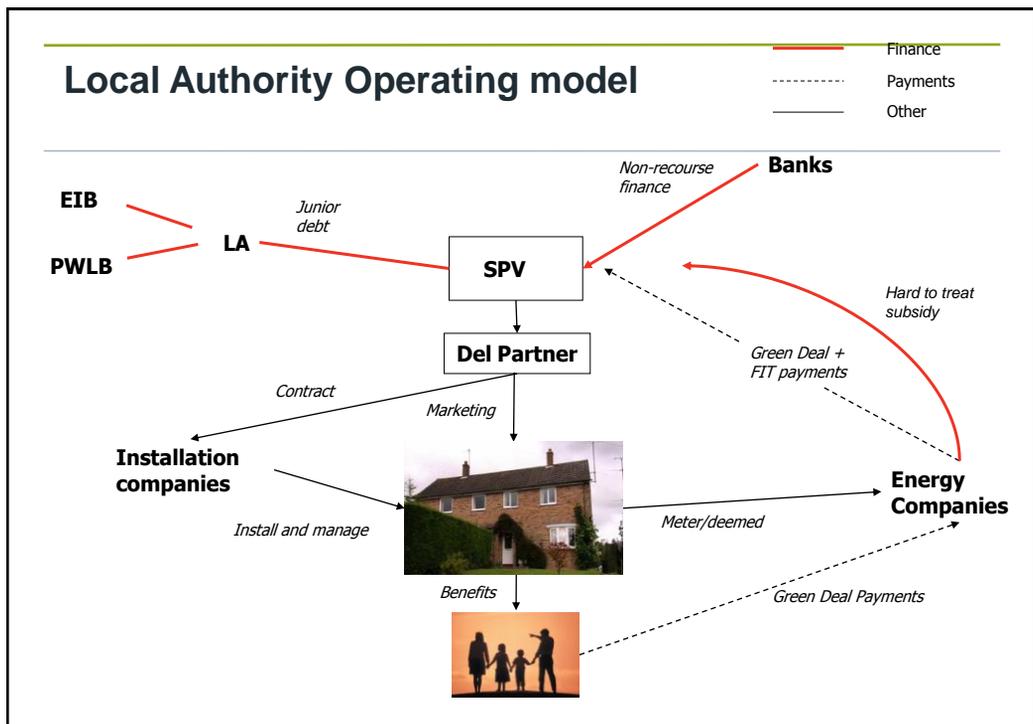
Partial guarantees: e.g. Euro 2020 Project Bonds

Purchasing agreements: e.g. feed-in tariffs, capacity contracts (Brazil 40% saving)

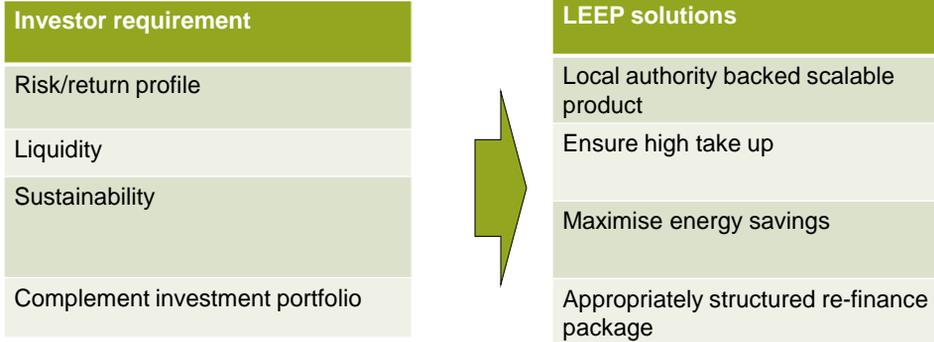
Innovative revenue capture: e.g. Rio Olympics & ecosystem services

## Example: residential energy efficiency

- UK government GHG emissions targets – (34% by 2020 and 80% by 2050)
- Housing stock responsible 25% of carbon emissions (buildings 40% in total)
- Abatement cost curve – easiest wins
- Energy security – reduce need to import fossil fuels
- Pays for itself & improves economic efficiency
- Relatively good risk – established technology
- Creates large scale employment opportunities
- Government support – Green Deal legislation



## How LEEP package fits market requirements



## Rationale vs appetite

### Rationale

- Long dated
- Good for LDI
- Inflation linked
- Attractive yields
- Government policy backed

### Appetite

- Unknown product
- Government policy uncertainty
- Alternatives exist
- Holdings of long dated and inflation linked bonds are low

