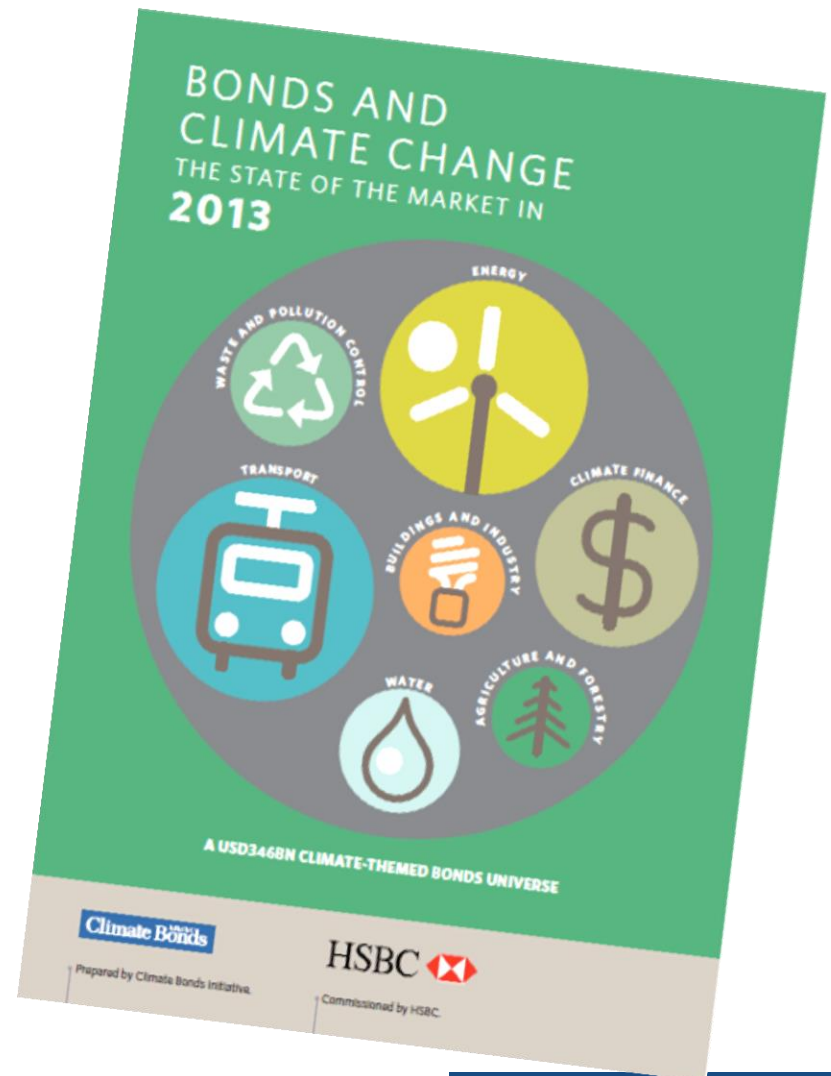


Bonds and Climate Change

The state of the market in 2013



Purpose

- How big is the *current* climate-themed bond market?
 - Sectors? Markets? Ratings profile?
 - Market outlook
- Challenge perception of niche market
 - It's not new; it's already happening
 - It's diverse: ratings, geographies, sectors

Approach: realising a low carbon economy

Bonds for climate *solutions*, not for CO2 reductions

It's about a rapid transition to a low-carbon economy,
with all sectors growing in parallel

Additionality is not relevant

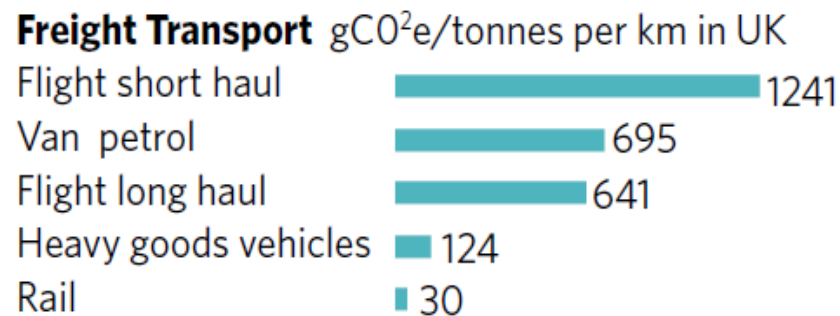
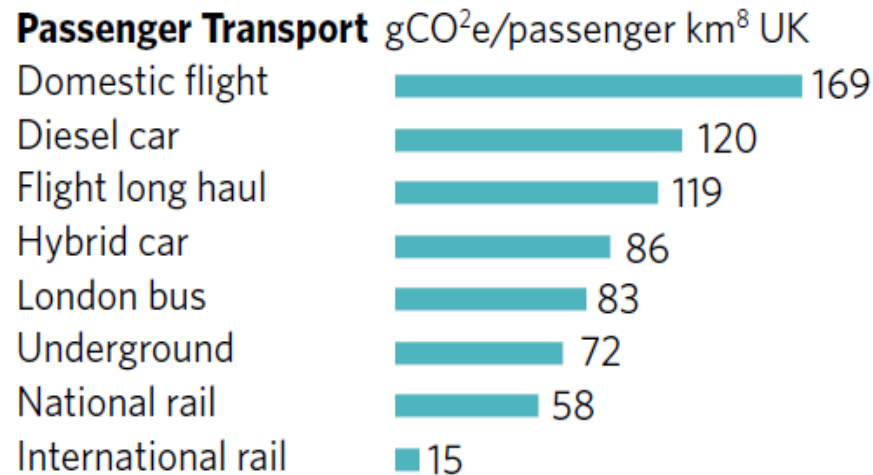
LCE themes viewed in isolation

Corporate carbon footprint ("scope 2") not suitable to consider

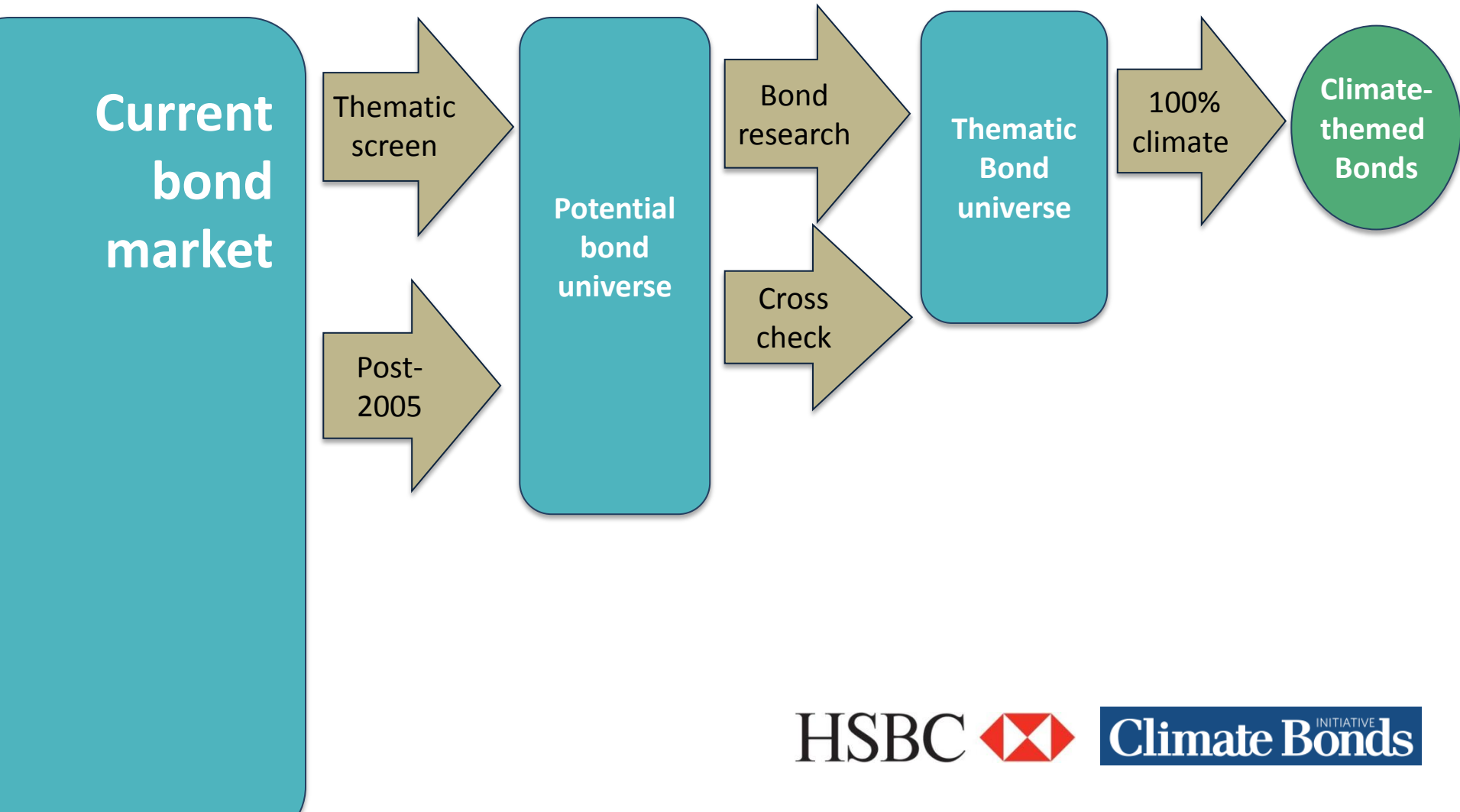
Power: Low carbon generation rather than carbon intensity



Rail: clear modal shift, low-carbon solution



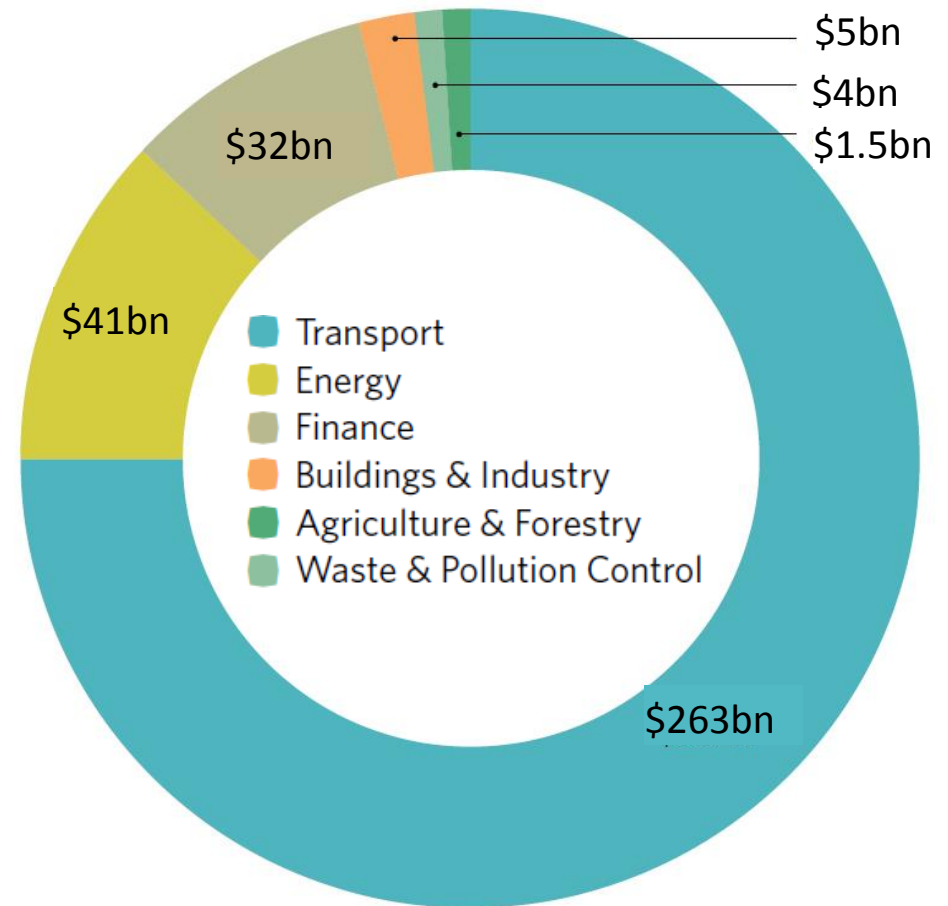
Process



Results

\$346bn currently outstanding

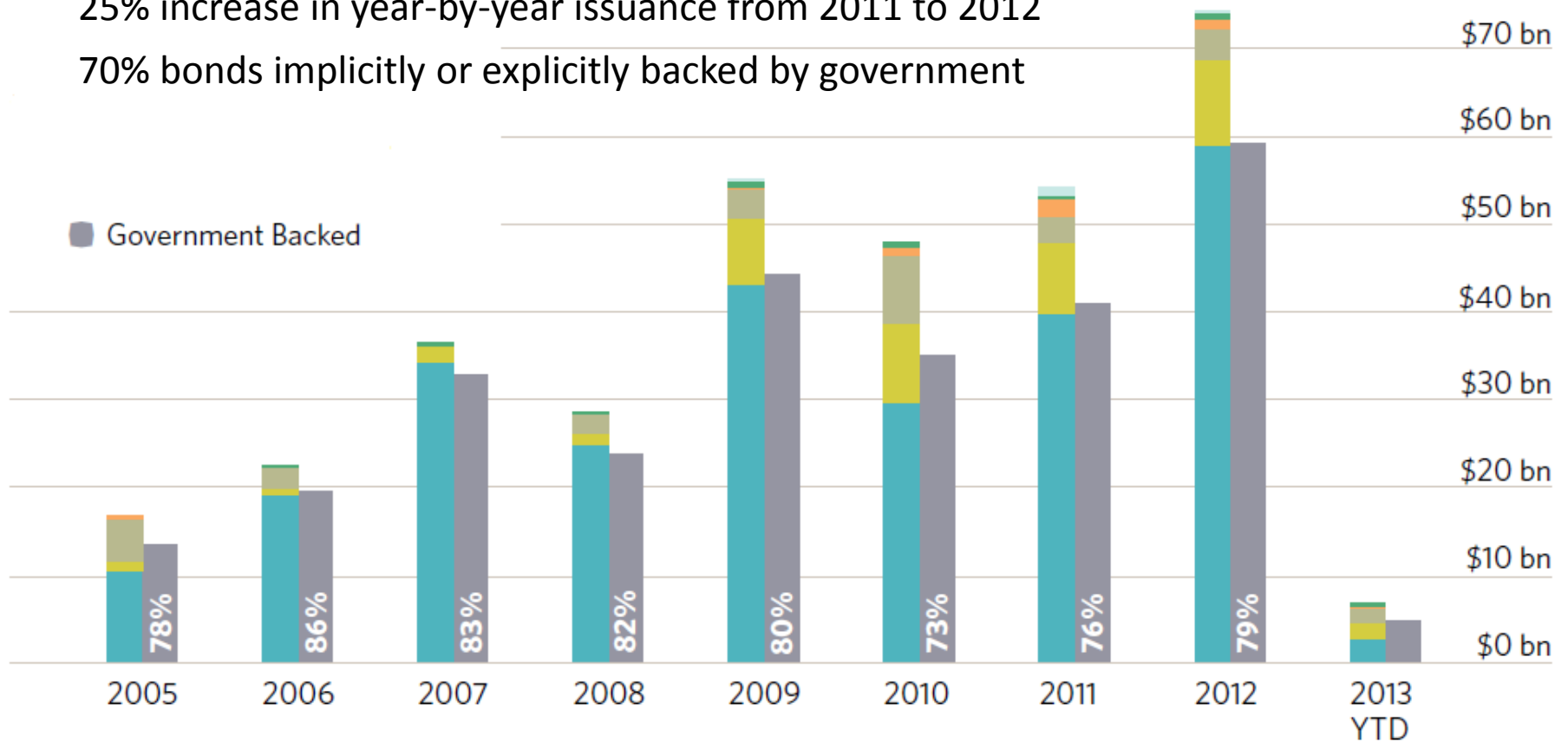
- \$346 outstanding 1 March 2013
- Transport dominates at 76%
- Energy = \$41bn
- Climate Finance = \$32bn



2012 largest issuance year to date

25% increase in year-by-year issuance from 2011 to 2012

70% bonds implicitly or explicitly backed by government



Bonds outstanding 1 March 2013



Transport

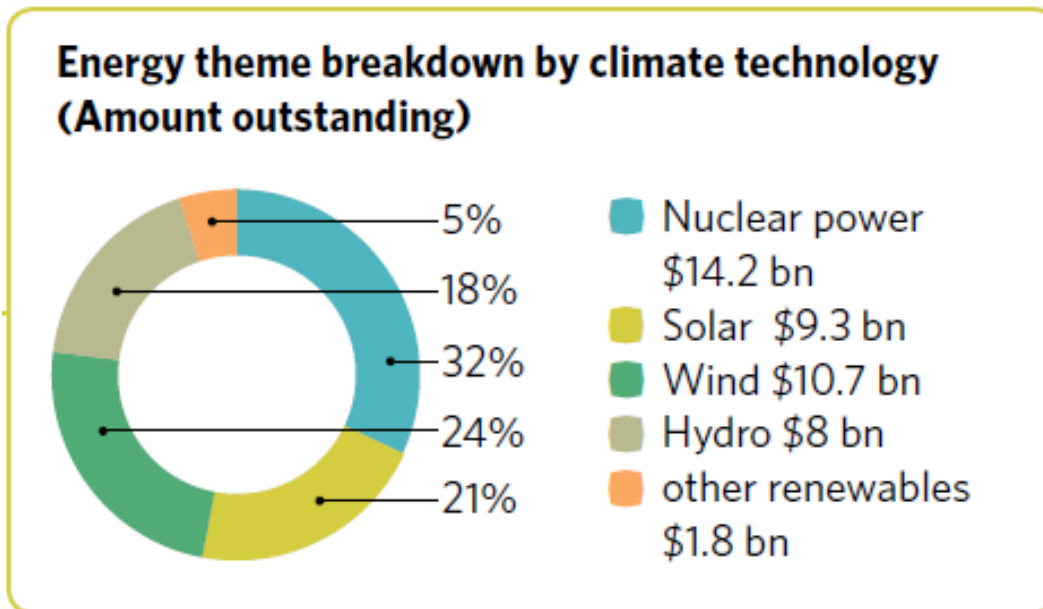


- Rail, bus, 2nd gen biofuels, electric vehicles
Rail exclusively for coal is excluded
- Rail dominates with \$263bn
- High-speed rail and refurb in China large share
- Mature industry, hence volume, but still has to triple by 2050
- Other sectors will grow much faster; shares even out over time

Energy



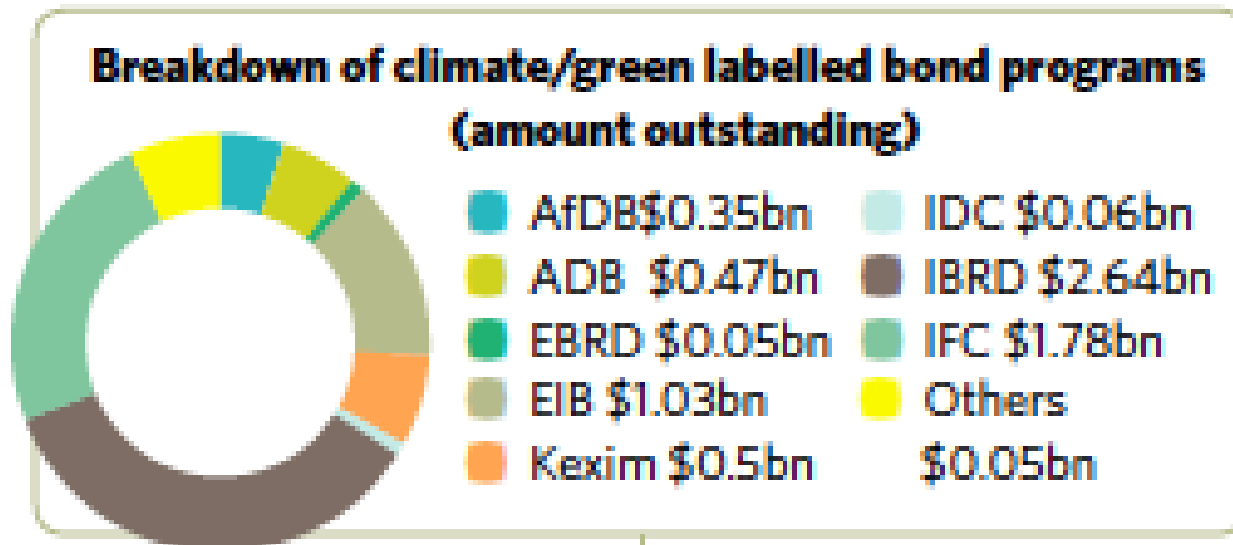
- \$41bn - 32% nuclear, 21% solar, 24% wind
- \$5.5bn in solar & wind project bonds incl. recent Canadian. Mid American takes it to \$6.5bn
- Tropical hydro bonds not included



Finance



- \$32bn from Financial Institutions
- Early 2013 benchmark bonds from IFC (\$1bn) and Kexim (\$0.5bn) oversubscribed
- Total issuance of \$2.5bn 'green' bonds in 2012/13



Buildings & Industry



- \$4.8bn outstanding for EE solutions in buildings & industry
- 13% from LED manufacturers
- LG Electronics
 - Has near 100% EE certified products, far more than others

Agriculture & Forestry



- \$3.8bn identified from corporate issuers
- 88% from forest management and paper manufacturers with sustainability certifications across operations
- Sweden, Portugal and US are main sources
- Climate-resilient agriculture yet to feature

Waste and Water

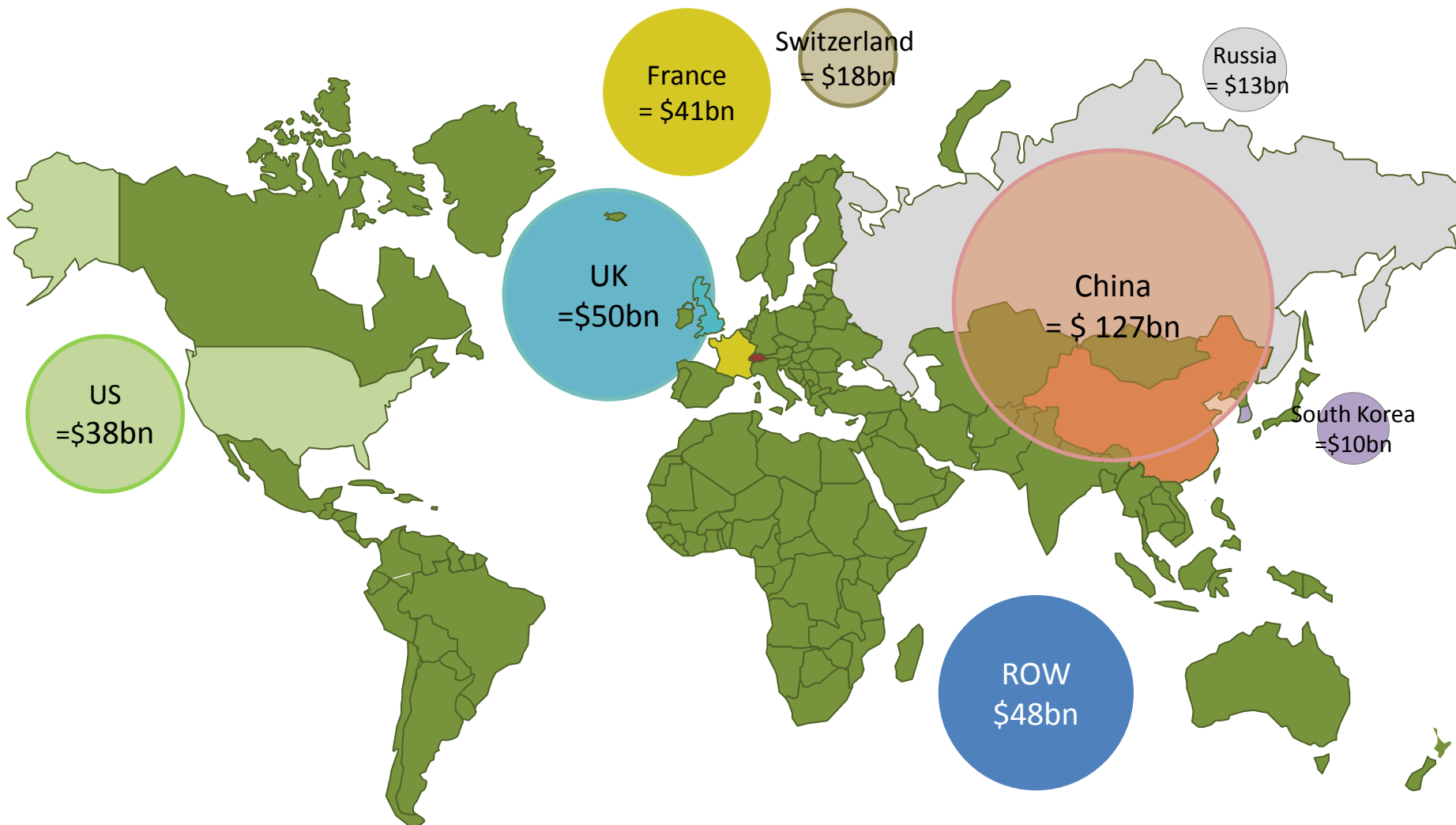


- Bonds financing a climate-resilient water supply remain difficult to identify
- Research indicated greater awareness of adaptation scenarios but not yet up to standard

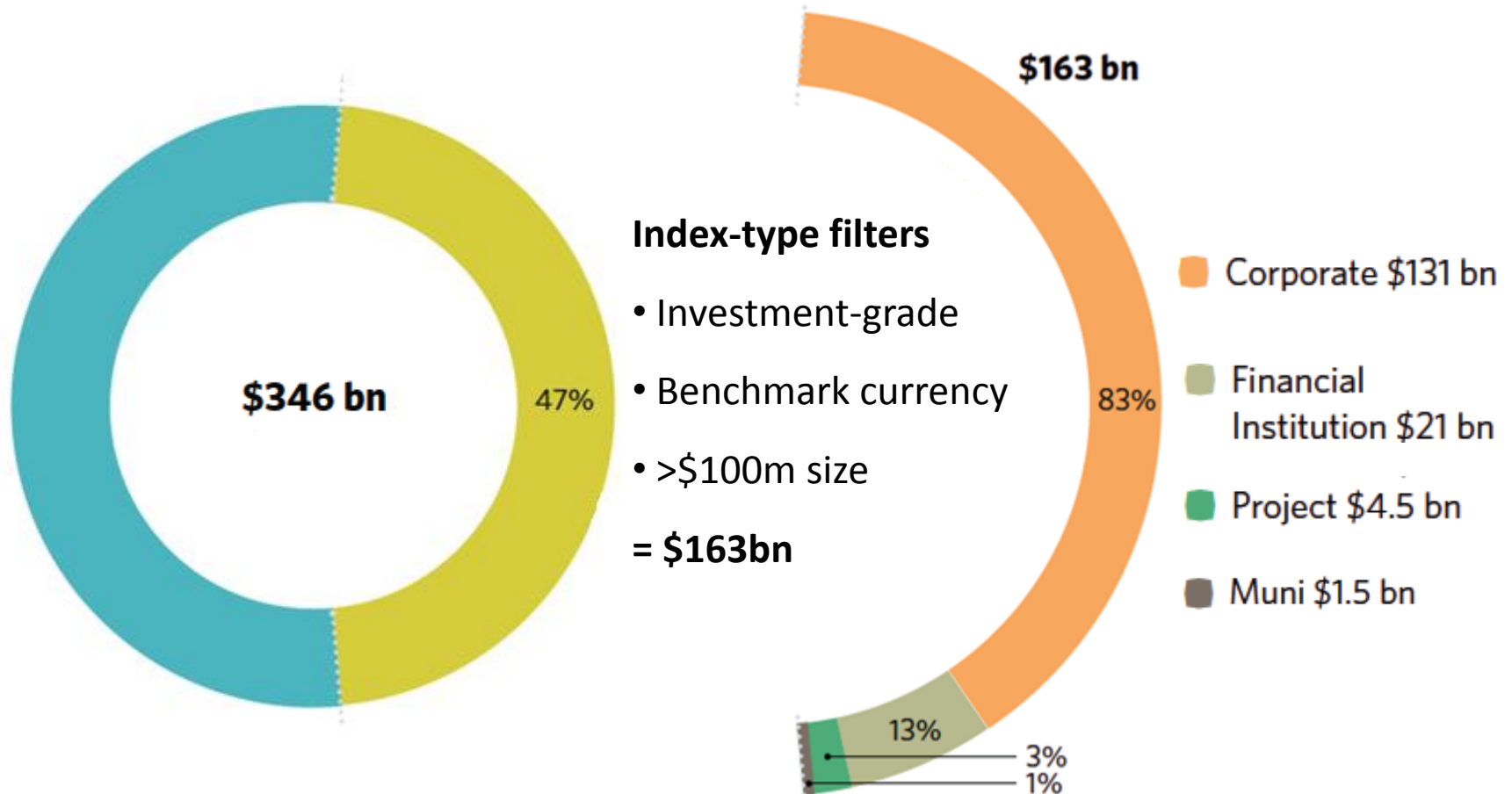


- \$1.4 bn outstanding
- Diversity of large waste management co's means bonds are not included

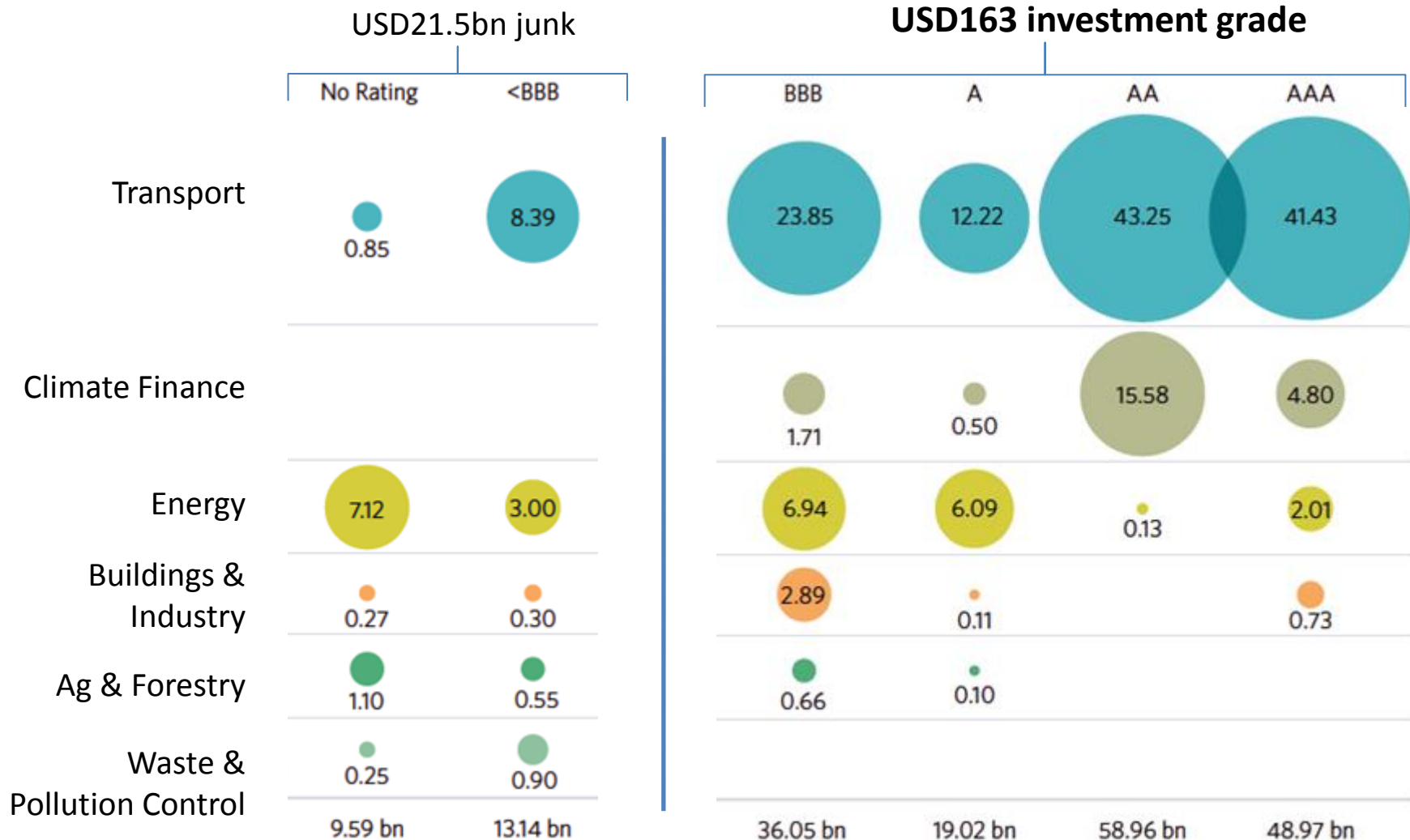
Geographic split



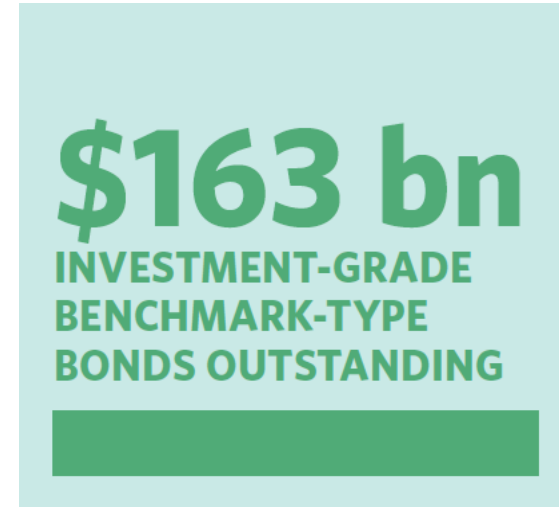
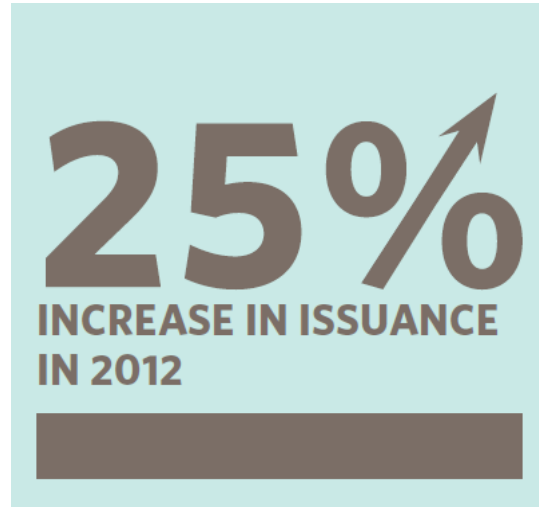
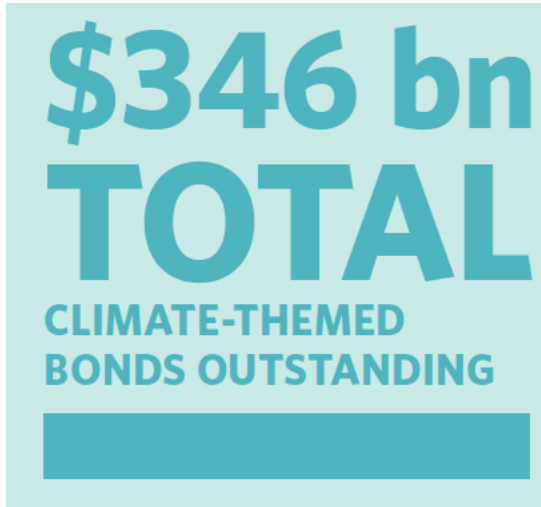
Index-type filters reveal \$163bn universe



A reasonable spread of investment grade



Key takeaways



- 2013 snapshot of current market gives \$346bn, double last year's estimate
- Low carbon transport, notably rail, is 75%, then clean energy & climate finance
- China accounts for \$127bn of total (37%), followed by the UK and France
- 89% of \$346bn is investment grade
- \$163bn is investment grade in benchmark currencies

Questions

Outlook

Likely changes

- Labelled climate/green bonds issuance
- Municipalities and local government
- Utility-scale renewable energy projects
 - e.g. USD98bn potential EU offshore wind bonds
- EE and solar PV in buildings
- Industrial / commercial bank asset-linked bonds



Climate Bonds agenda

1

**Entrench Standards for
what is climate or green.**

2

**Support a Green
Securitization market.**

3

Structure to investment grade.



Aggregation opportunities

Green securitization

Supportive regulation

Standardisation / transferability

Cooperative regional aggregators

e.g. Green Deal

Finance Warehouse

Covered bonds legislation

Dual recourse transparency

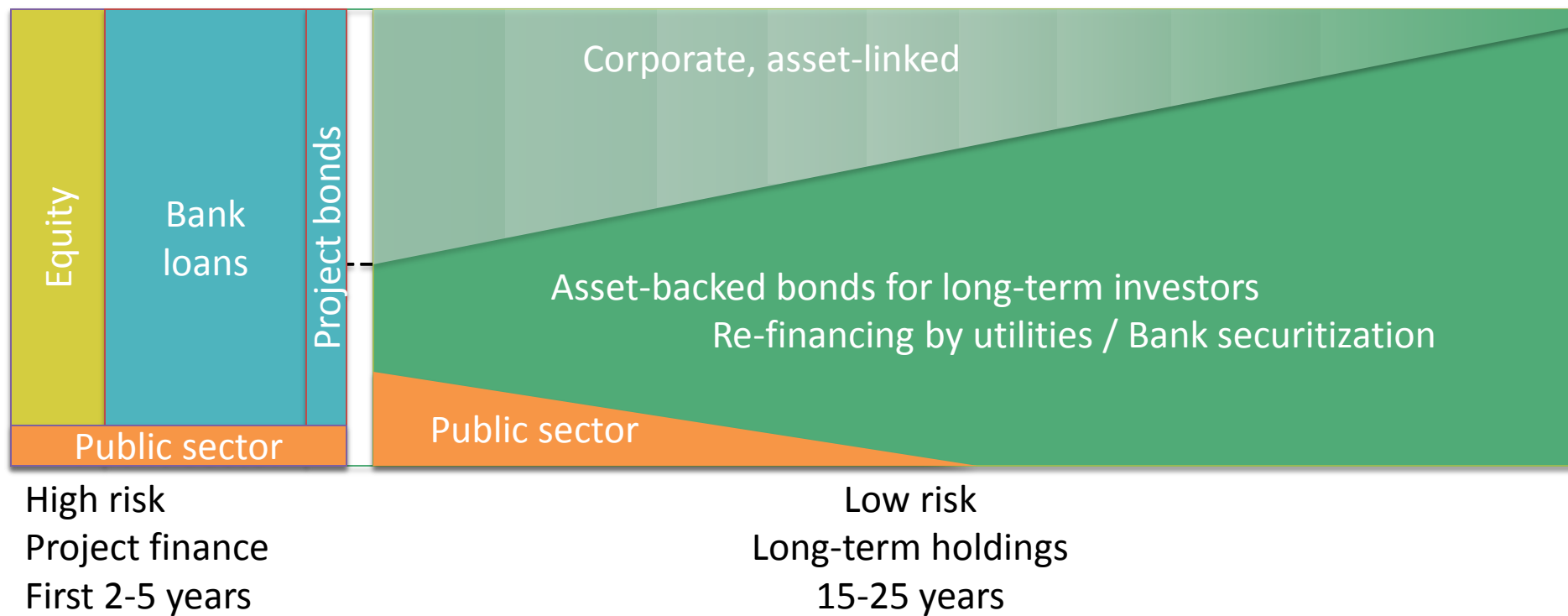
RE / EE / etc

Green mortgages

Risk weighting



Capital pipeline



Climate Bond Standards

Industry Advisory Group



\$11tn Climate Bond Standards Board



Technical Working Groups



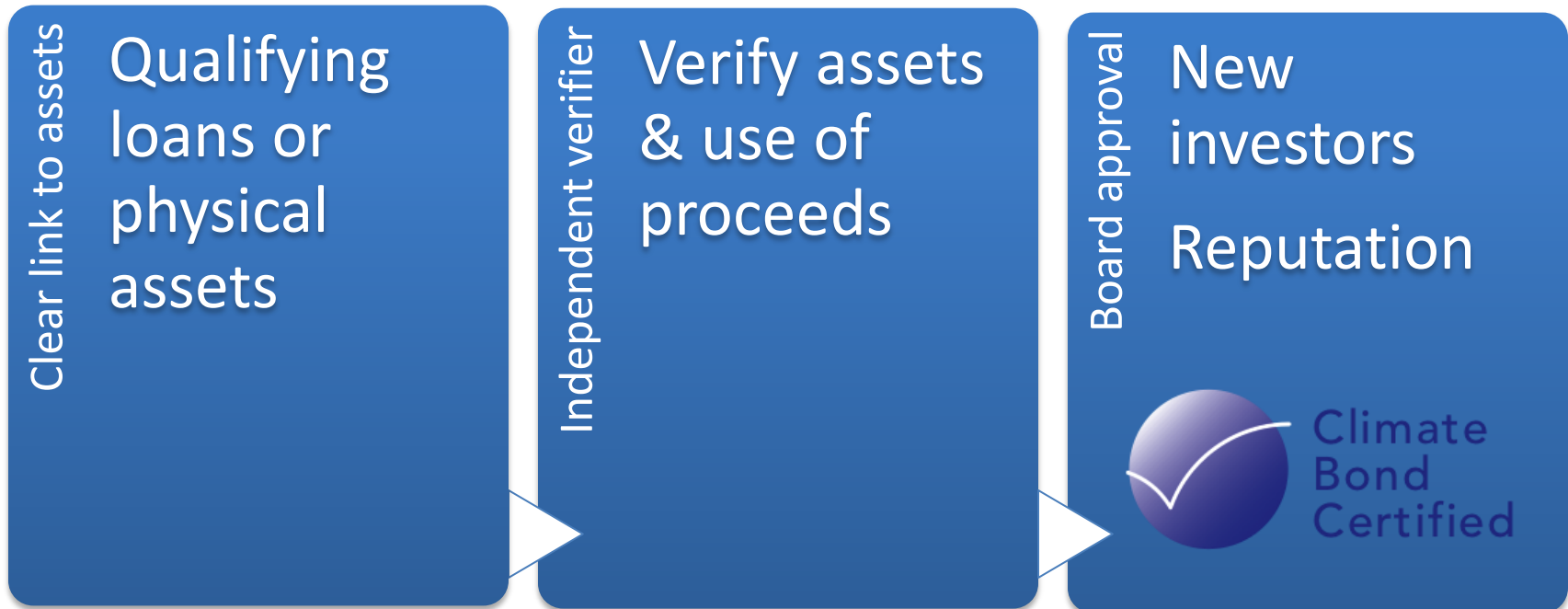
European Bank
for Reconstruction and Development



Investor Network on
CLIMATE RISK



Certification is straightforward



<http://www.climatebonds.net>



Climate Bonds INITIATIVE