

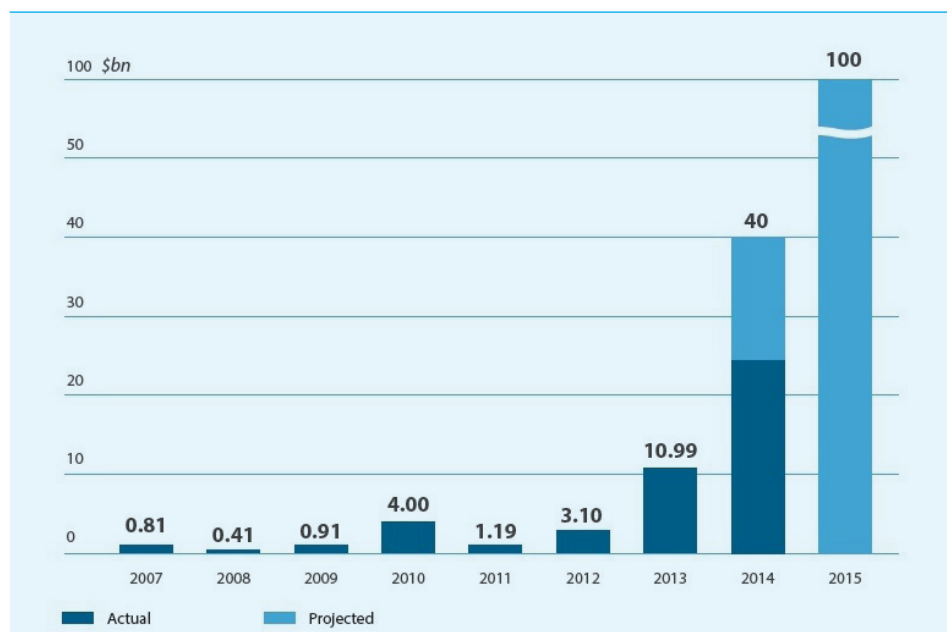
## BRIEFING

# HYDROPOWER AND THE RISE OF GREEN BONDS

So-called 'green' bonds have swiftly moved from a standing start in 2007–08 to being worth in the region of USD 37bn by the end of 2014 and as an asset class appear to be here to stay. As a recent Financial Times article noted, the appetite for these bonds, while still small in comparison to the bond market as a whole, is showing little sign of slowing.

The article identifies two reasons for this: as a smaller class of bonds, liquidity is lower, meaning that the ability to move out of the bond in times of weakness is limited, and secondly, most buyers are long term investors (no doubt aided by pressure on some of these bigger, longer term funds to move out of sectors such as tobacco, oil and coal) means that they are generally willing to accept a longer investment period and ride out volatility.

### The emergence of 'green bonds'



### The growth and evolution of the green bond market

*continued >*

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# HYDROPOWER AND THE RISE OF GREEN BONDS

Hydropower bonds are part of the green bonds emerging success story. (However, there appear to be one or two signs that hydro (at least of the type that is needed as we move into a climate changed world) faces the real possibility of being excluded from allowed categories, particularly as the market firms up guidelines and regulations around the definition of what qualifies as a 'climate change' or green bond.

## The green bond concept

Bonds are, at their most basic, fixed-income loans with a defined period after which the initial capital is generally repaid, and represent an important tool for (local and national) governments and companies to raise large capital amounts for significant projects or investments. Green or climate change varieties are simply an adaptation of the concept that focus on climate mitigation and adaptation projects or investments and other environment-friendly projects, such as renewable energy or energy efficiency programmes.

Climate bonds, as with other classes, will come in a variety of formats ranging from, for example, corporate bonds (issued on the perceived credit-worthiness of the company issuing the bond) and portfolio bonds (issued through special purpose vehicles to finance a group of green assets or equity investments in these assets), to project development bonds, issued for the purpose of developing an identified asset.

The range of climate bonds theoretically covers investments in identified types or sets of projects (or companies holding such projects) through to project-specific bond issues around, for example, an identified large hydropower project.

## Market development

The class was initially developed by the multinational development banks. The first was issued by the European Investment Bank in 2007 (they called it a 'climate awareness' bond), followed by the World Bank with a series of 'green bonds' in 2008.

The fixed-rate return, triple-A credit rating and positive environmental returns provided



## Shoots and leaves

by these first offers proved highly popular. The World Bank, for example, to 2014 raised USD 6.4Bn through 67 transactions in 17 different currencies.

Until 2013, development banks effectively had the market to themselves. In 2013, however, corporates caught on and began to issue their own green bonds with new investors taking notice. The market more than trebled between 2012 and 2013, and then trebled again in 2014.

While central banks have long been the principal purchasers of development bank bonds, this is not the case for green bonds. For example, 70% of the issue of an African Development Bank green bond in October 2013 was taken up by asset managers, insurers and pension funds, indicating a mainstreaming of the class, and so positive signs for future uptake.

Issuers have broadened out too. One of the first issues by a large corporate was by EDF in November 2013 for EUR 1.4bn (USD 1.9bn) to support their wholly-owned subsidiary EDF Energies Nouvelles, which focuses on wind and solar generation but also, to some extent, on small hydro and experimental work on tidal stream development.

This was followed by GDF Suez's issue of a EUR 2.5bn (USD 3.45bn) green bond in May 2014, one of the largest to date. The focus of this bond was wider – renewable energy projects such as wind farms and hydroelectric plants (although see below in this regard), plus energy efficiency projects. Iberdrola has also issued, stating that the proceeds would be used for energy produced from renewable non-fossil sources in the form of hydro, geothermal, wind, solar, or other renewable energy, along with transmission, distribution and smart grid projects.

Completely private sector corporate issuers have included Unilever, but also more specialist renewable energy providers such as California's Alta Wind Holdings and Topaz Solar Farms.

The very rapid growth in this market has been driven by increasing concern about climate change among investors. This has been driven by the work of organisations such as the Carbon Disclosure Project, which encourages companies to disclose their carbon emissions – surveying 500 companies in 2003 (totalling USD 4tn in assets under management), rising to 5,000 in 2013 (USD87tn).

# HYDROPOWER AND THE RISE OF GREEN BONDS



*The largest green bond offerings (to June 2014)*

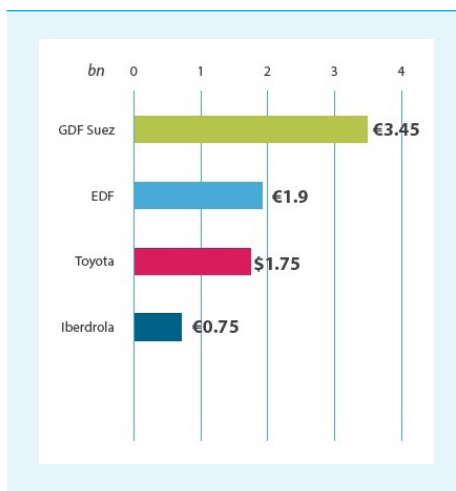
The separate Asset Owners Disclosure Project has started a similar process with the largest retirement funds, insurance companies and sovereign wealth funds (USD 60tn). The current wisdom is that 55% of the average portfolio is exposed to climate risk, and buying green bonds helps to offset these risks. Given the scale of the risk there is very considerable upward potential for green bond development.

Investor groups on climate change in the US, Europe, Australia and Asia now represent some USD 24tn of assets under management; and the two global insurer associations, IIS and ICMIF, have committed to increasing their investments in climate change related assets by tenfold by 2020.

Green bonds are providing an avenue for large investors to enter into the climate change story, where in the past they have been constrained by size (often individual projects or even companies developing them are too small to fit the investment constraints on these investors) or by the volatility of many renewable energy stocks.

## What do they mean by 'green'?

At the moment, no one is really clear, although there are a lot of suggestions and some hard work going on in attempting to nail down parameters. The 'greenness' of the bonds varies significantly among providers at the moment.



*The largest private sector green bond offerings (to June 2014):*

The World Bank suggests the following examples of suitable outcomes from green bond investment:

- Solar and wind installations
- Funding for new technologies that permit significant reductions in greenhouse gas (GHG) emissions
- Greater efficiency in transportation, including fuel switching and mass transport
- Waste management (methane emissions) and construction of energy-efficient buildings
- Carbon reduction through reforestation and avoided deforestation
- Protection against flooding (including reforestation and watershed management)
- Food security improvement and implementing stress-resilient agricultural systems (which slow down deforestation)
- Sustainable forest management and avoided deforestation

EDF and GDF SUEZ set criteria in their issues in association with Vigeo ESC, a rating company, focused on: environmental protection, contribution to local development and the well-being of local communities, fair and ethical relationships

with suppliers and sub-contractors, human resources management, and good corporate governance.

A number of other organisations, such as the Centre for International Climate and Environmental Research in Oslo (CICERO), provide 'second opinions' on the suitability of investments for green bonds.

The Climate Bonds Initiative certifies 'climate bonds' (a difference in name and branding only, but interchangeable with their green cousins); they currently support wind and solar generation, electricity grids, green property and bus rapid transit systems. Criteria for low-carbon transport, agriculture, bioenergy, geothermal, water and hydropower assets are in development.

The 'Green Bond Principles' initiative is also making progress, with voluntary guidance on how to structure and issue a green bond, and is backed by more than 100 investors, issuers, and underwriters (i.e. banks). Interestingly, this group is relying on definitions provided by others – a good indication of how regulations or guidelines will develop and the need to ensure that parameters agreed in these first mover initiatives adequately reference appropriate classes.

Definitions of what is 'green' remain far from clear, as one commentator put it: "What makes a bond green?" At the moment the answer is, "If someone says it is." A single definition is not yet a reality, and while it is reasonable to expect that this will materialise, expect much pushing and shoving for the right to be the market-makers (and so, therefore, to hold the purse-strings). Furthermore, this defining parameter is not necessarily a good thing for hydropower.

## Hey, what about us?

As noted above, all of the top three energy-related bond offerings and the World Bank bonds include hydropower. The EDF, GDF SUEZ and Iberdrola bonds are among the largest and most successful issued to date and all reference hydropower. Furthermore, both the NTE and Fjordland's BKK bonds were purely for hydro.



# HYDROPOWER AND THE RISE OF GREEN BONDS

## But all is not as it seems

A piece from the Climate Bonds Initiative (CBI) on the NTE issuance notes 'We think some more in-depth asset-specific analysis on the environmental benefits of NTE's four hydro plants would have been useful... as the environmental benefits of hydro are not the same... for example, in tropical countries, emissions reductions of hydro projects that are not run-of-the-river can be minimal or even negative due to methane released from the reservoirs.'

And, on the GDF SUEZ issuance 'Our second anxiety was with hydro projects, as the pipeline of investment includes Jirau... large hydro projects in tropical areas can be problematic because of substantial methane leakages from rotting flooded vegetation.' It notes that 'as for future hydro projects (being financed by money raised from the bond issuance) any large reservoir projects that investors might be worried about are effectively ruled out by Vigeo's (the independent reviewer who developed the green criteria for the bond) criteria on biodiversity and other environmental impact assessments.'

hydro (25 MW)', but states: 'Not eligible under this category: large-scale hydroelectric development projects (>25 MW installed capacity)'.

It appears clear that bond issuers are also deliberately crafting bonds to avoid the potential controversies around large hydro, and that those organisations working at providing what will become the industry regulations remain challenged by old paradigms.

This points to three areas for consideration by the sector:

- Firstly, hydro needs to be included within the allowed categories, not as a risky addition, but as of right. This points to increased sector engagement. For example, the CBI has formed a Water Infrastructure Technical Working Group that will define the criteria for water infrastructure investments (this will include hydropower). Despite noting that this group is made up of 'key water and industry experts' there is no representation from the hydro sector (the list of members makes for interesting reading – it is available here). This is not the fault of

industry players. Rather, hydro companies active or likely to be active into the future should be actively seeking to engage with proactive entities such as CBI, and engagement through appropriate associations supported more broadly. This leads directly to the second point.

- The type of hydro being considered is still very much based on the false logic of 'small run-of-river is good, storage is bad'. Proper engagement from the sector and our partners would do much not only to dispel the inaccuracy of some of the science behind this paradigm, but could also point out the logical inconsistency of such an approach in formulating 'climate change' bonds. Put more simply, if hydro is to fully reach its climate services potential, it must play a role beyond simply being a renewable energy in its own right – it needs to be allowed to contribute to even higher levels of mitigation (i.e., using storage to enable or support integration of other, variable renewables) and to play a key role in adaptation through the inclusion of storage capability. This messaging is not going to come from others outside the sector, and for the financial community at large seems still to represent a step too far.

- Finally, if hydropower is going to demand an equal seat at the green bonds table – as it should – there needs to be an understanding and acceptance of the requirement that projects submitted as project development bonds or under portfolio or corporate bonds need to demonstrate not only their contribution to mitigation or adaptation, but their sustainability. There is already willingness to engage with the Hydropower Sustainability Assessment Protocol as a tool to provide this assurance from the likes of the Climate Bonds Initiative. The hydropower industry, in supporting its argument for the inclusion of hydropower in the green bonds framework, should be emphasising its commitment to using such tools to ensure that hydropower that is included can be assumed to be both climate friendly and sustainable.

*The CBI provides the following 'taxonomy' on eligibility for hydropower:*

Hydropower	Run of river and small hydro <15MW (CDM defined)	Small hydro facilities that require small or no reservoirs.
	Existing large hydro >20MW in temperate zones	
	Large hydro system	Existing hydro-electric facilities

*With the following noted under 'more work required':*

Hydropower	Large hydro power facilities >20 MW (CDM defined)	Pending consensus on lifecycle GHG emissions from different types of dams, particularly in tropical regions (due decomposition of organic carbon in the reservoir)
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Other bonds simply exclude hydropower, or apply the standard exclusions related to size or storage. The Barclays MSCI Green Bond Indices in defining its eligible 'use of proceeds' categories includes 'smallscale

CBI: they have readily engaged with IHA and the potential around using the Hydropower Sustainability Assessment Protocol as a measurement tool, and appear willing to engage with hydro

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