Escaping the 'climate investment trap' in developing countries'

- Some remarks from a non-finance-expert

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Remarks to Journee de la Chaire MPDD conference,
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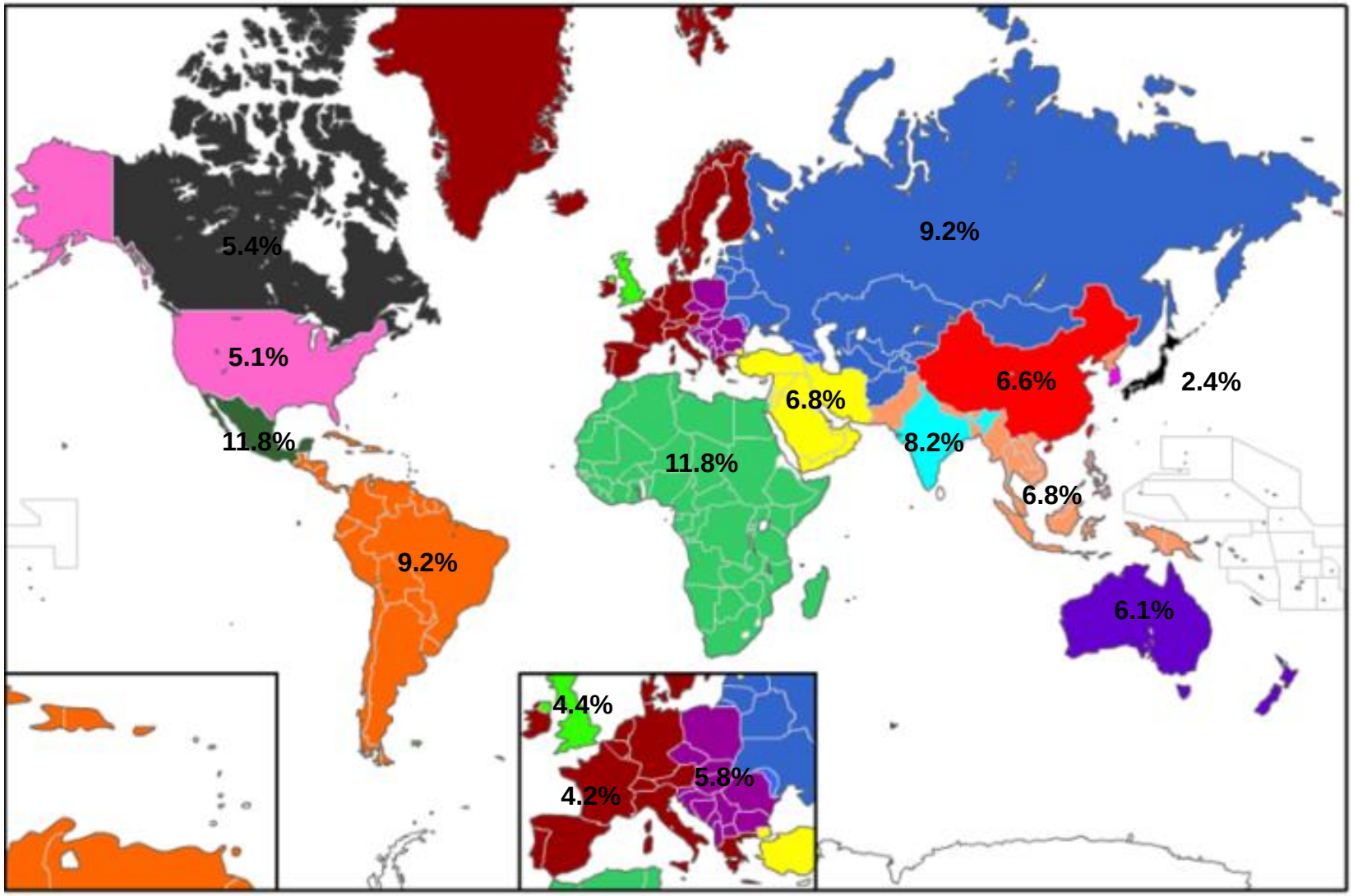
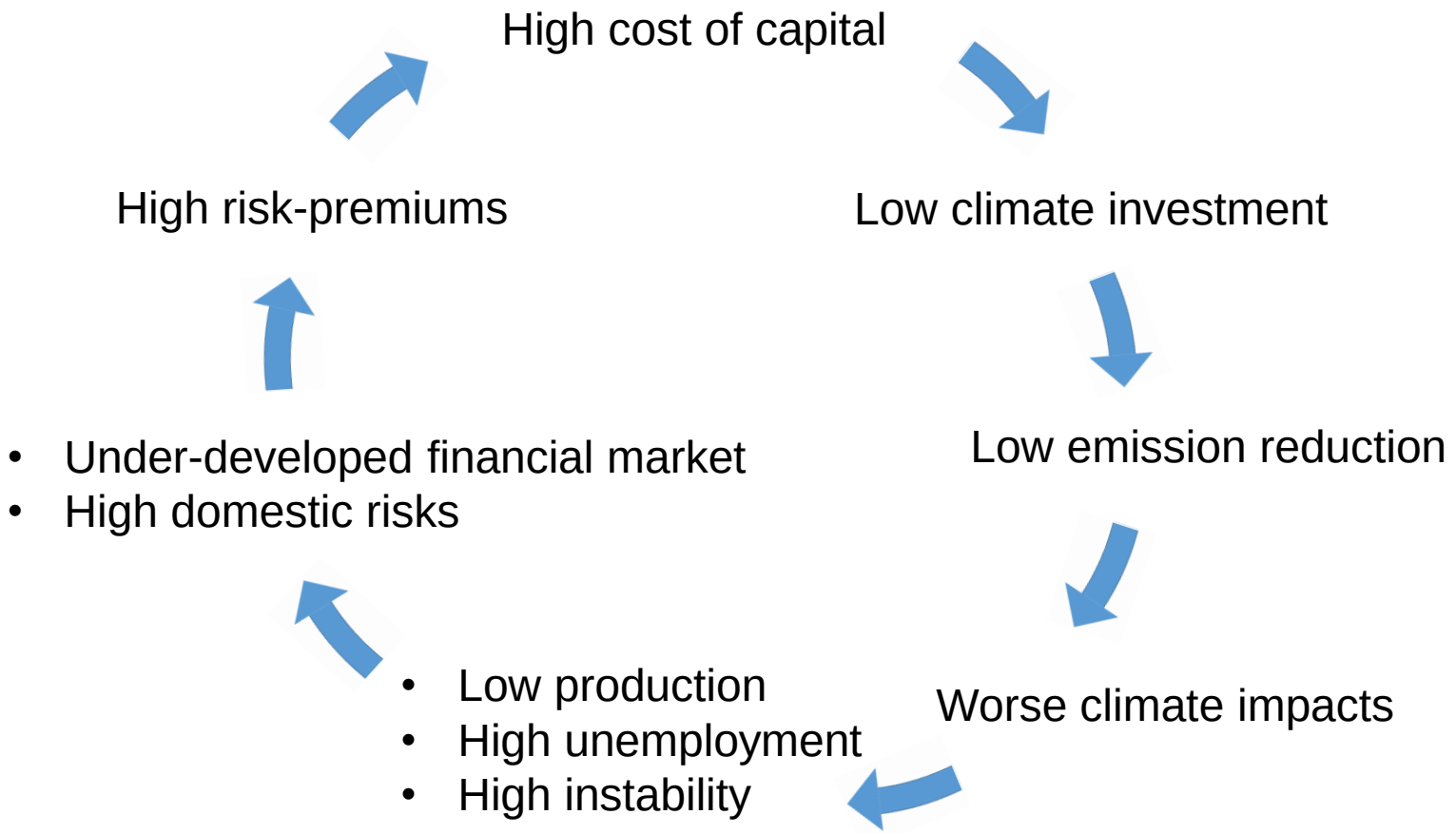
Cost of capital varies greatly between regions

Cost of capital around the world

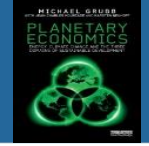


The ‘climate investment trap’

A ‘climate investment trap’ occurs when climate-related investments remain chronically insufficient, due in part to high interest rates exacerbated by a set of self-reinforcing mechanisms

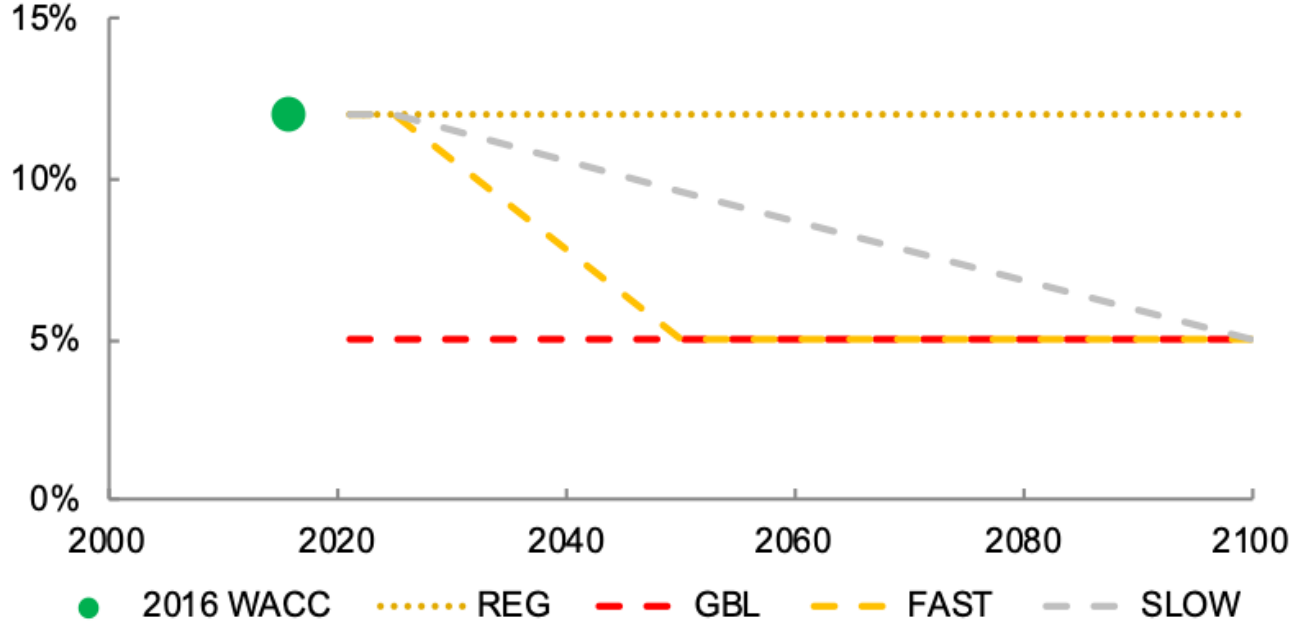


Source : Ameli, N., Dessens, O., Winning, M., Cronin, J., Chenet, H., Drummond, P., Calzadilla, A., Anandarajah, G. and Grubb, M. "Higher cost of finance exacerbates a climate investment trap in developing economies", *Nature Communications*, https://www.nature.com/articles/s41467-021-24305-3



Scenarios implemented in the TIAM-UCL model

Scenarios	Weighted Average Cost of Capital (WACC)
REG	Regional WACC constant over the period
GBL	Uniform WACC, 5.9% and 5.1% (low and high carbon)
FAST	Regional differentiation until 2020 linear reduction to 2050
SLOW	Regional differentiation until 2020 linear reduction to 2100



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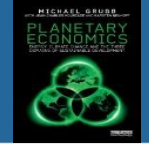
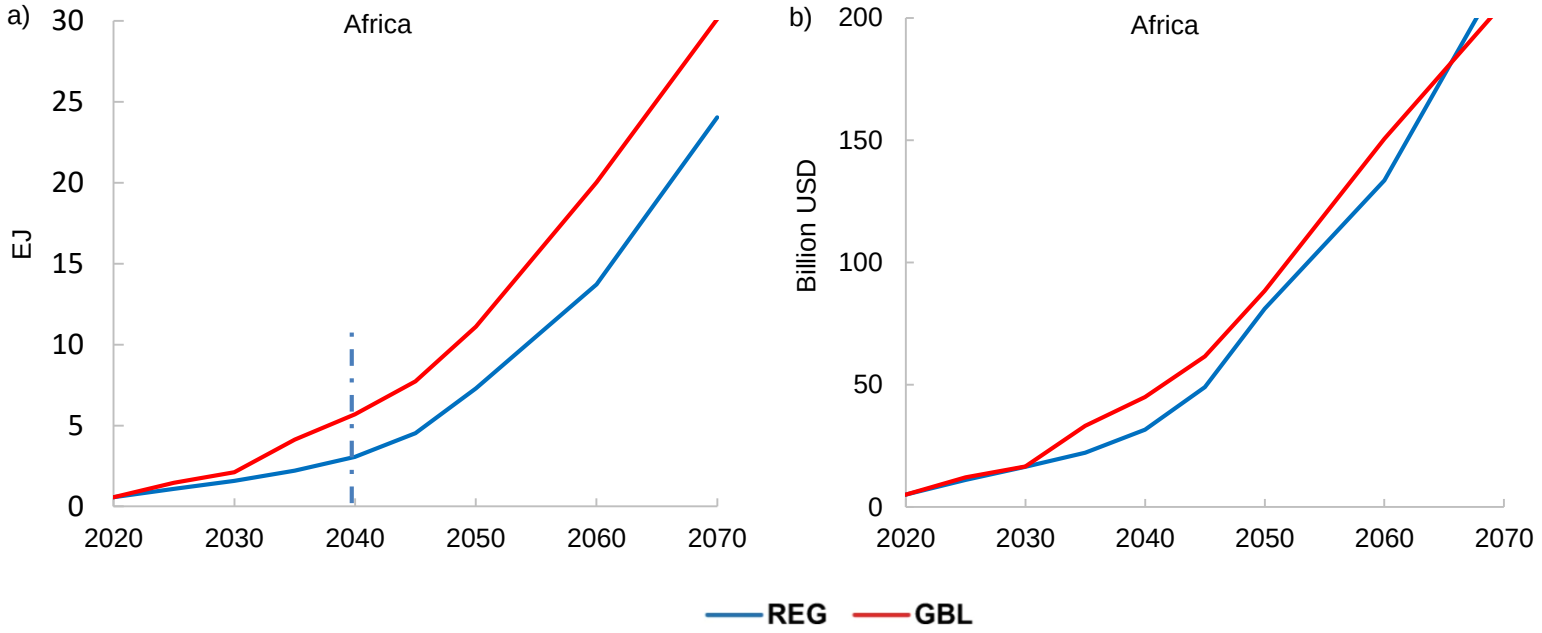


Impact of converging Cost of Capital

Generation *Investment*



- Cost of capital reduced from 11.8% (REG) to 5.9% (GLB)
- More rapid growth of low carbon investment, generation almost doubled in 2040 (GLB)
- 20% lower emissions in 2050 (GLB)
- Investment (cumulative 2020-2070) are $370 and $310 billion in FAST and SLOW (10% and 9% more than REG respectively)

Source: Ameli, N., Dessens, O., Winning, M., Cronin, J., Chenet, H., Drummond, P., Calzadilla, A., Anandarajah, G. and Grubb, M. "Higher cost of finance exacerbates a climate investment trap in developing economies", *Nature Communications*, https://www.nature.com/articles/s41467-021-24305-3

Multilateral Risk Underwriting – some questions

- Why not done? Politics:
  - Many developing countries: more interested in public grants for multiple reasons (sense of equity / 'reparations'; distrust of private investment; 'sovereignty' concerns about international finance, conditions; lack of knowledge);
  - Many developed countries: prefer loans, well-developed architecture, institutions etc, more control, wariness of any new institutional structures *especially* those involving finance; perhaps also, wary of public perception about underwriting private finance risks and multinational corporate investment
- Why not done? Technical and institutional
  - Complexity of multilateral finance-related agreements, let alone risk-underwriting and sharing

    => '*Social value of mitigation actions*'?
  - Uncertainties about how to determine qualifying projects, how to evaluate risks, pressures of international equity vs. perceived risks (eg. CDM experience)
  - Perceived lack of ***evidence*** about effectiveness of underwriting

    => The success of FiTs and auctioned renewable contracts now widely acknowledged, but generally not possible to separate the *subsidy* from the *financial security* dimension

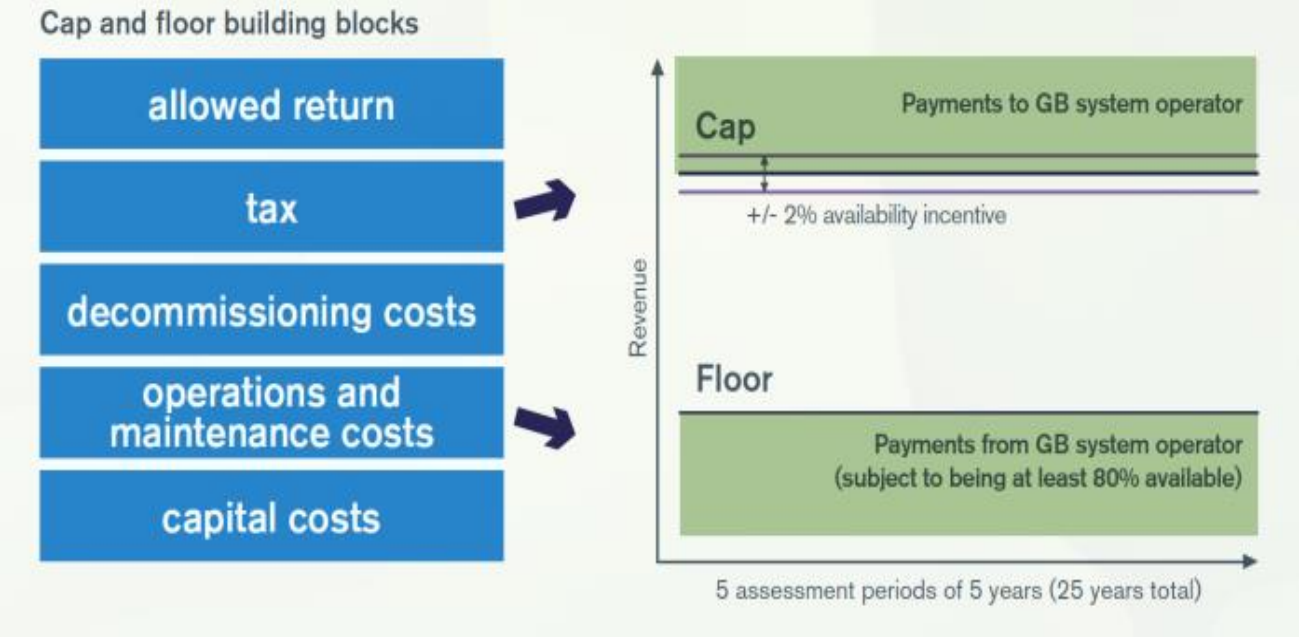
Interconnectors and incentive regimes

- Electricity interconnectors: physical links allowing the transfer of electricity across borders
- multiple potential benefits:
  - Cost benefits to consumers from market coupling
  - Contribution to decarbonization
  - Potential to provide power system flexibility
  - Impact on system operability
  - Contribution to security of supply
  - Job creation and supply chain benefits

Natural monopolies – IC Regulatory Models

- **Regulated asset base (RAB)** - returns are regulated, like most national transmission assets
- **Merchant model** – private investment, case based on forecasts of market revenue streams
- **The CFD floor model** - construction risk is with investors but returns are not regulated
- **The cap and floor model** - construction risk with investors, and returns regulated within a range

Britain introduced Interconnector cap and floor model in 2013



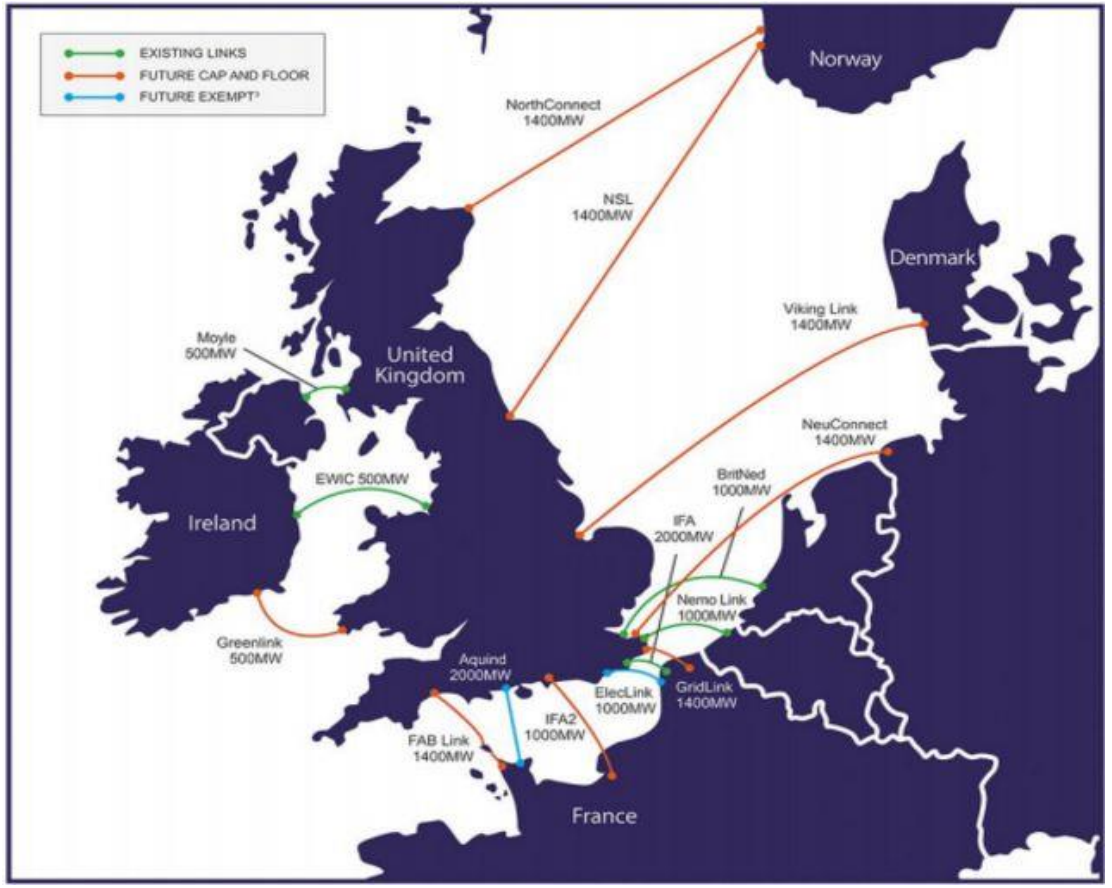
Sources: Riverswan Energy Advisory (2020) UNLOCKING INVESTMENT August 2020 in large-scale, long duration storage; Ofgem (2021) Interconnector policy review: Working Paper 3 – Wider impacts.

The British experience with the cap and floor regime

- Before the cap and floor regime, only **one** interconnector to continent [IFA (2GW) to France], plus **two** to Ireland [total 1.5GW], and one [1GW to the Netherlands] under development
- Cap and floor regulatory regime operational from 2014
- **Nine interconnectors totaling 10.9GW of cross-border capacity awarded in principle**
- An **estimated £11 billion of new capital investment leveraged** as a result

GB interconnector projects

Pre-existing and Since 2014



Sources: Riverswan Energy Advisory (2020) UNLOCKING INVESTMENT August 2020 in large-scale, long duration storage; Ofgem (2021) Interconnector policy review: Working Paper 2 – Socio-economic modelling;

GB Interconnectors – the financing dimensions

Table 4: Cap and floor rates of projects with an FPA decision

Real-RPI rates	Nemo Link[32]	NSL	IFA2	Viking Link
FID date	26/02/15	25/03/15	09/11/16	26/09/18
Cap rate	8.10%	7.98%	8.10%	8.23%
Floor rate	0.92%	0.88%	-0.21%	0.17%

The regulated 'corridor of returns' was very wide ….

Rate of Interest During Construction

Table 5: IDC rates of projects following FID

RPI-real	Nemo Link[33]	NSL	IFA2	Viking Link	Window 2			
FID date	26/02/15	25/03/15	09/11/16	26/09/18	18-19	19-20	20-21	21-22
IDC rate	5.37%	6.37%	6.75%	4.39%	2.84%	3.12%	2.64%	2.69%

Immediately more investment … but it took time for confidence to grow …

Conclusions

- Future of *adequate international* climate finance - needs to draw on private finance at much larger scale
- Despite obvious apparent profitability, this is deterred by risks – real and perceived
- Experience demonstrates the large value of public risk underwriting
- Scale of potential investment in developing countries, *and* basis of international cooperation, could also help to address post-COVID macroeconomic challenges
- Both political and technical challenges to overcome