

Attracting private investment through NAMAs: the role of risk, return and policy design

Part 1: why and how private investment matters

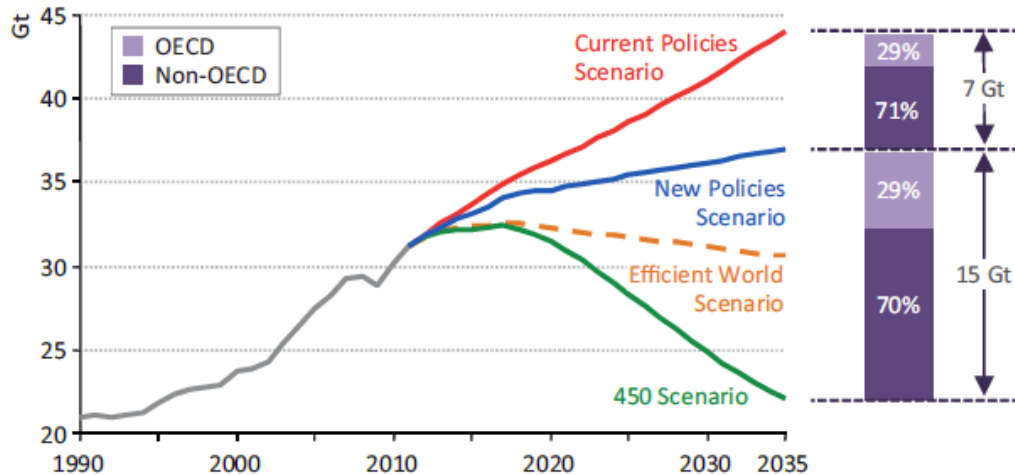
UNFCCC Asia Pacific Regional Workshop on NAMAs

Vientiane/Lao PDR, April 24, 2014
Speaker: Tobias Schmidt, ETH Zurich

Agenda

- 1 The role of finance in low carbon development
- 2 Sources of finance
- 3 Basics of private investor investment decisions
- 4 Policy measures to tap private funds
- 5 Summary

Low carbon development necessitates tapping additional, and redirecting existing, investment flows

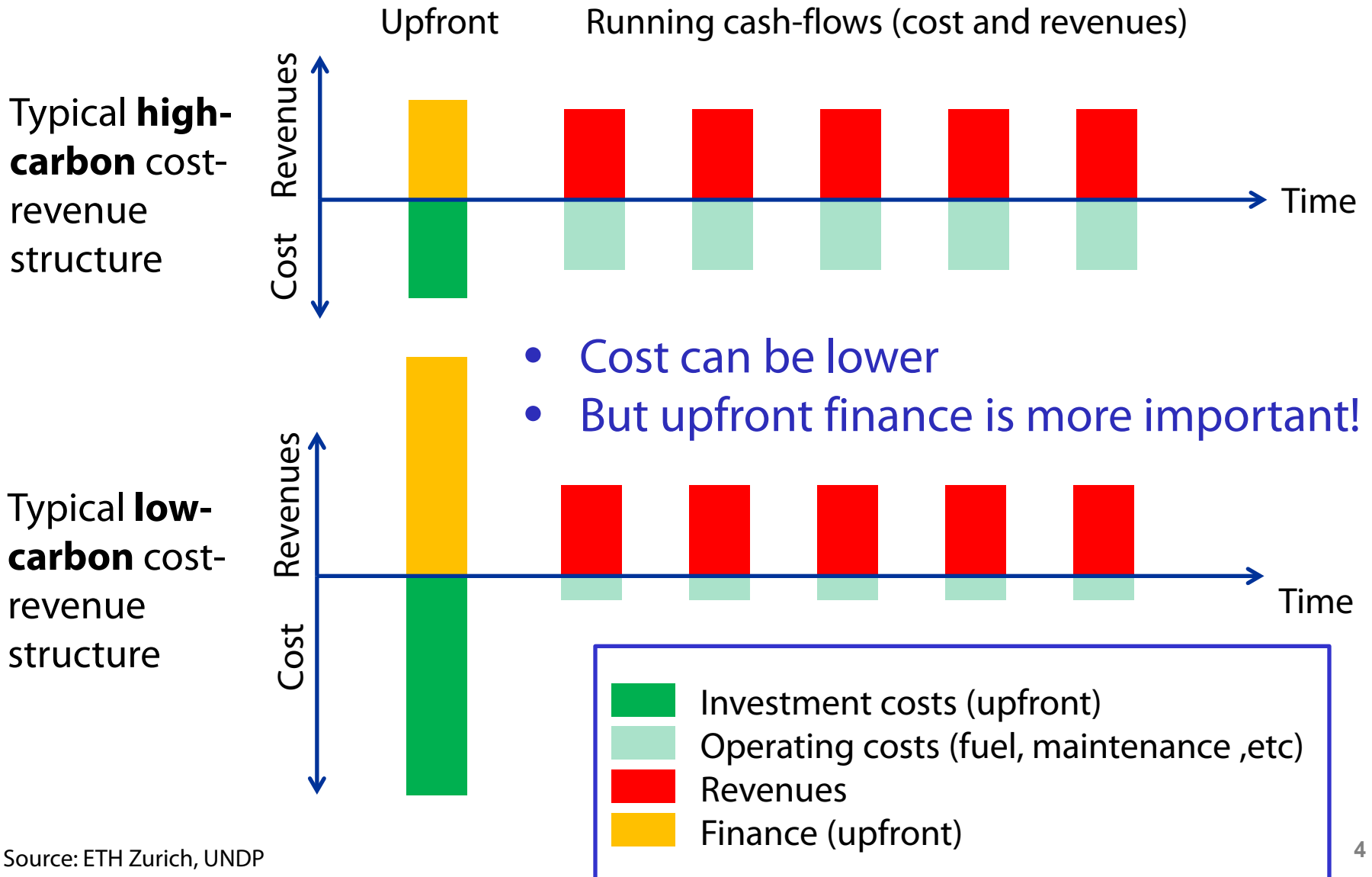


USD37tn by 2035 in energy infrastructure

additional USD17tn to reach 450ppm scenario

- Higher emission reduction potentials compared to baseline are in non-OECD countries
- Most investments in non-OECD countries
- Not only additional finance needed, but **re-direction** of existing and planned capital flows from traditional high-carbon to low-emission, climate-resilient investments
- Additional investment does not mean additional cost! (often these investments can save costs)

Upfront finance is more important in low carbon investments than in high-carbon investments



Agenda

1 The role of finance in low carbon development

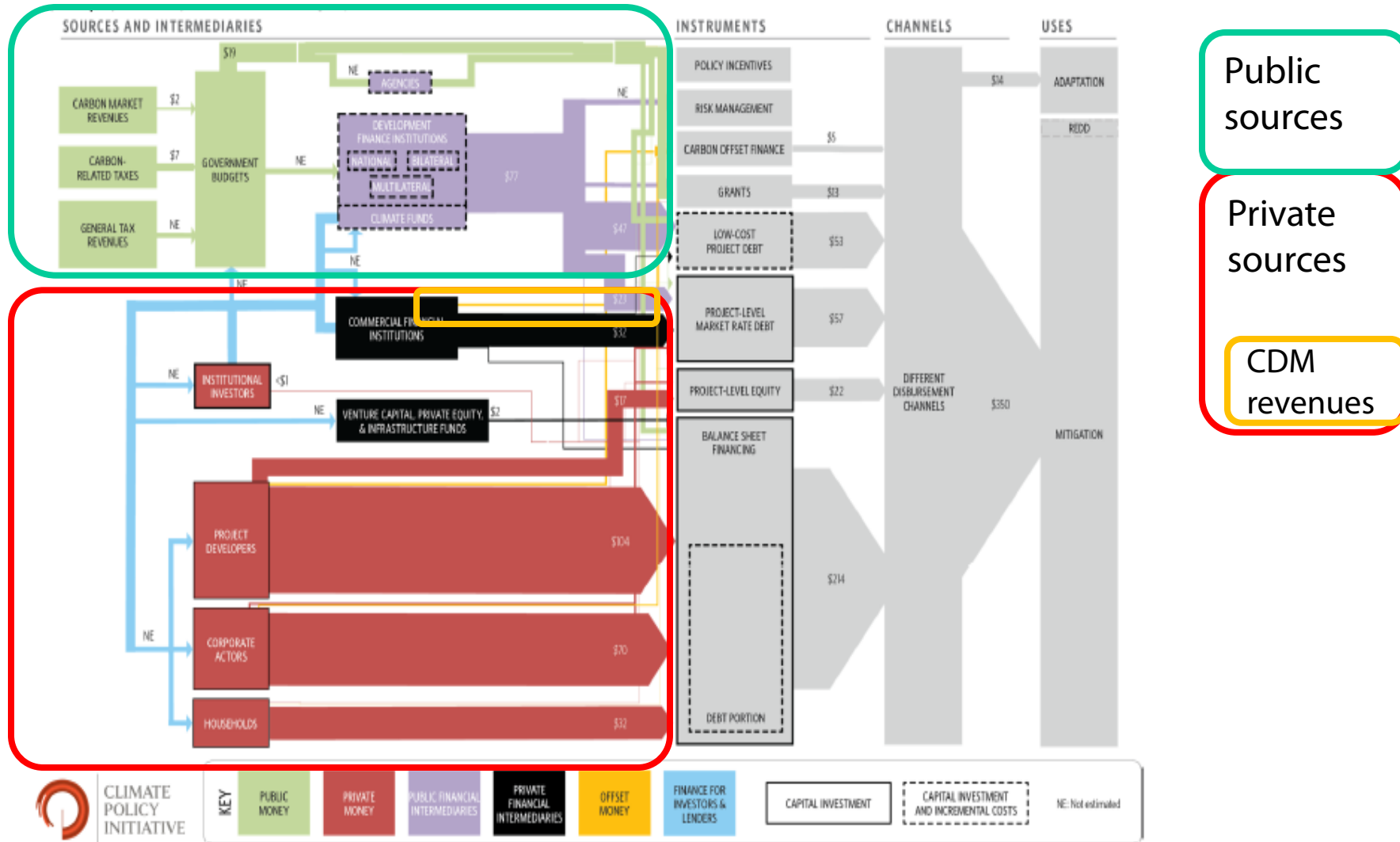
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Already today most climate finance is provided by the private sector



Public sources

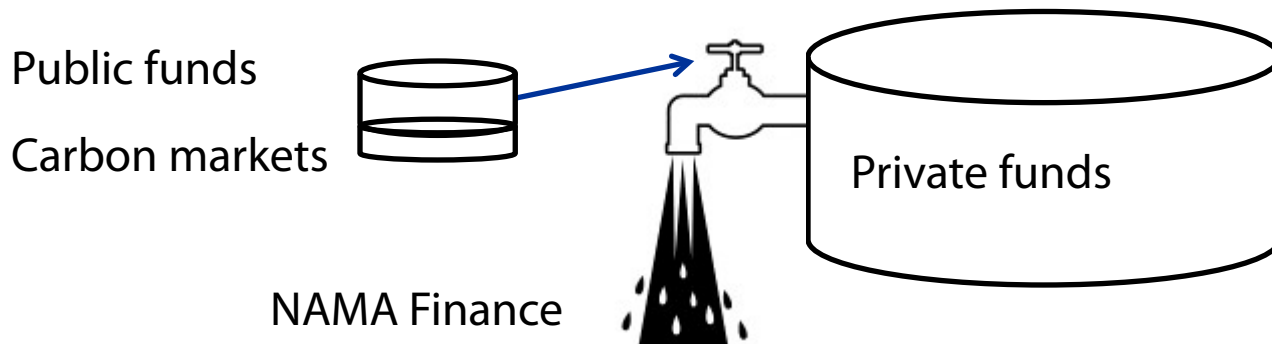
Private sources

CDM revenues

Private funds represent by far the largest source of Climate/NAMA finance

	Domestic	International
Public funds	mostly limited	limited
Carbon markets	limited	limited
Private funds	varying	large

Challenge: How to *leverage* private funds using public funds/carbon markets?



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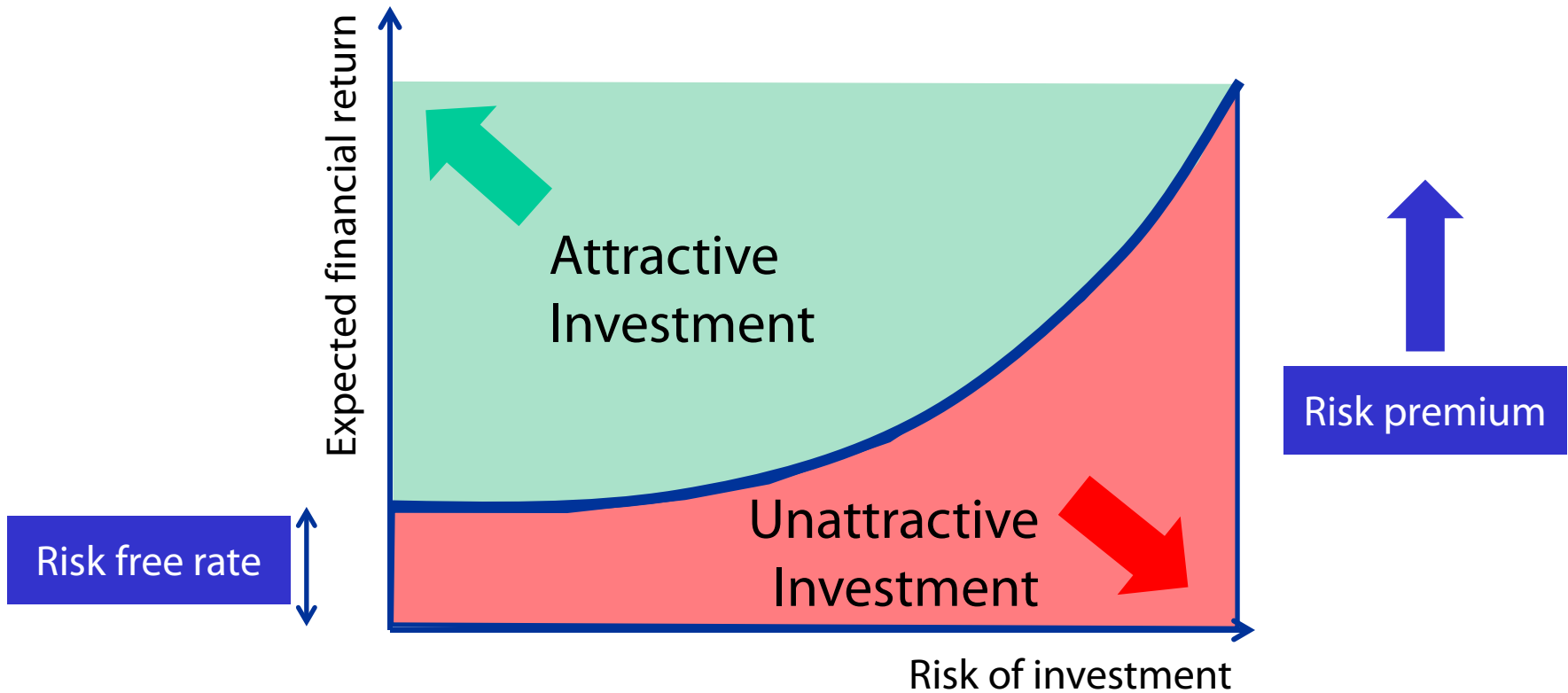
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Private investors' decisions are mainly guided by the risk-return profile of an investment opportunity



⇒ **Investment Risk** is an essential part of private sector's investment considerations

Downside investment risk is defined by the combination of the probability of a negative event and its potential financial impact

Concept of investor risk

Drivers of risk

Existence of **barriers** in investment environment

Components of Investor Risk

Result in increased **probability of negative events** affecting wind farm

Negative events result in **financial impact** for investors

Practical example: licensing risk

Drivers of risk

Barrier: Lack of clear responsibility of different agencies for renewable energy approvals

Components of Investor Risk

Probability of negative event: High probability of delays due to poorly administered licensing

Financial impact: Transaction costs; delayed revenues; under- or no investment

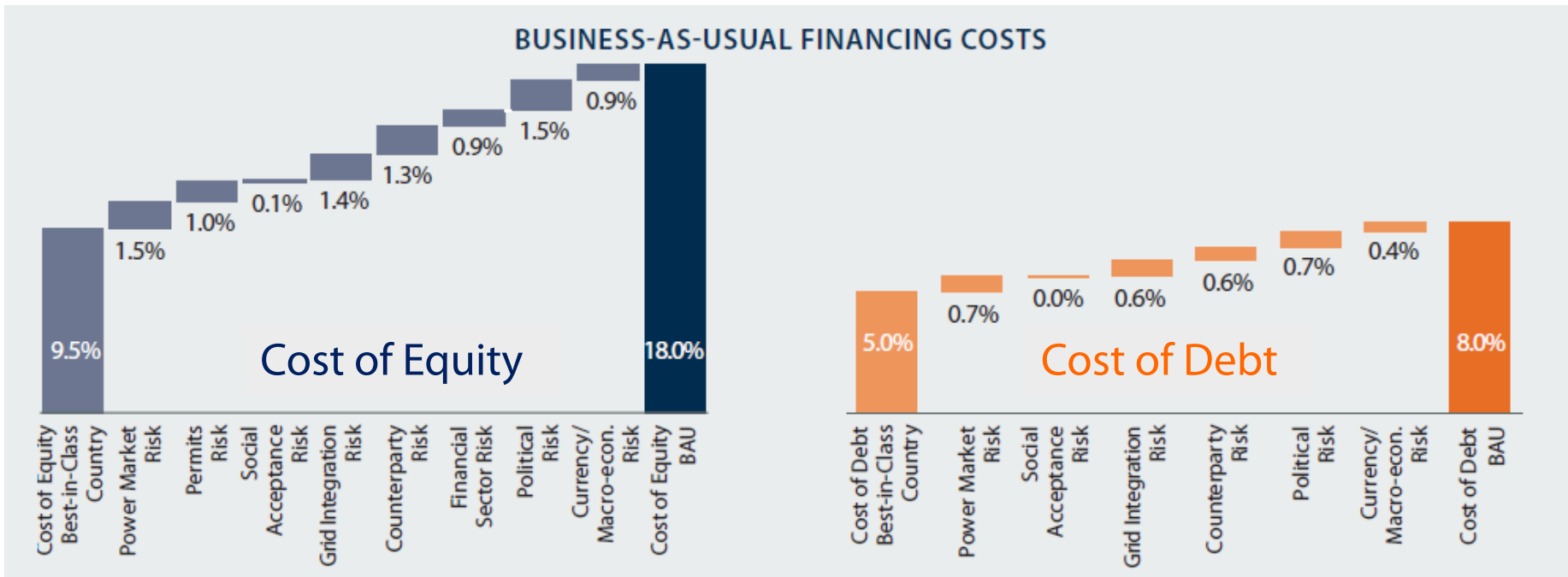
Different risk levels result in different cost of capital

- The cost of capital reflects the risk involved in an investment
- The cost of debt represents a bank loan's interest rate
- The cost of equity represents the hurdle rate for equity investors
- Due to seniority, debt has lower cost than equity

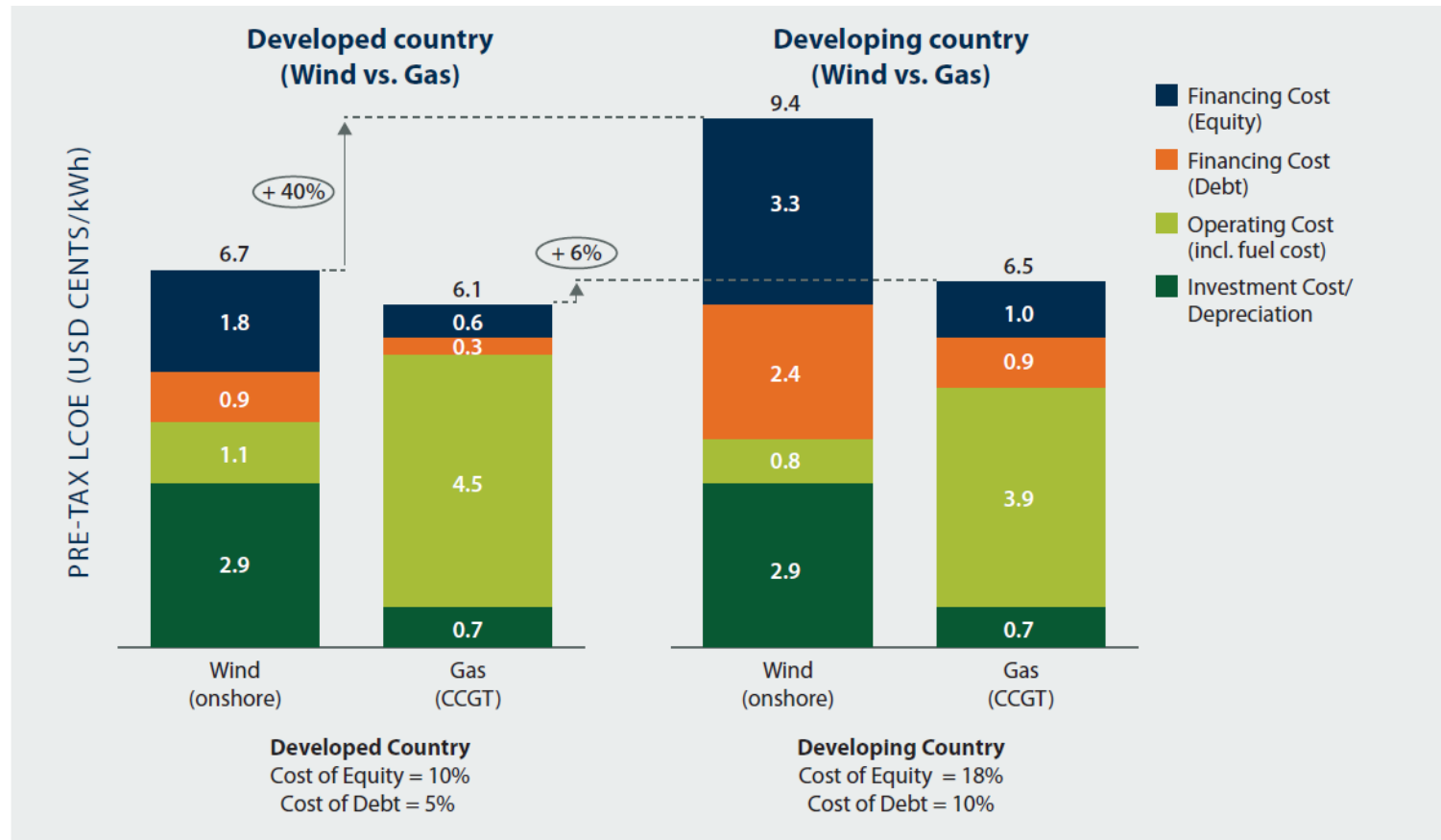
Venture Capital	Private Equity	Infrastructure Funds	Pension Funds	Bank Mezzanine Debt	Bank Senior Debt
Start ups, new technology, prototypes	Pre-IPO* companies, demonstrator technology	Proven technology, Private companies	Proven technology	Demonstrator/ proven technology, new companies	Proven technology, established companies
>50% Internal Rate of Return (IRR)	35% IRR	15% IRR	15% IRR	LIBOR* + 700 bps	LIBOR + 300 bps

As investment risks in developing counties are typically higher financing costs are increased

- More barriers increase the risks perceived by investors
- The financing costs increase with perceived risks
- A project feasible in one country might be infeasible in another due to higher perceived risks



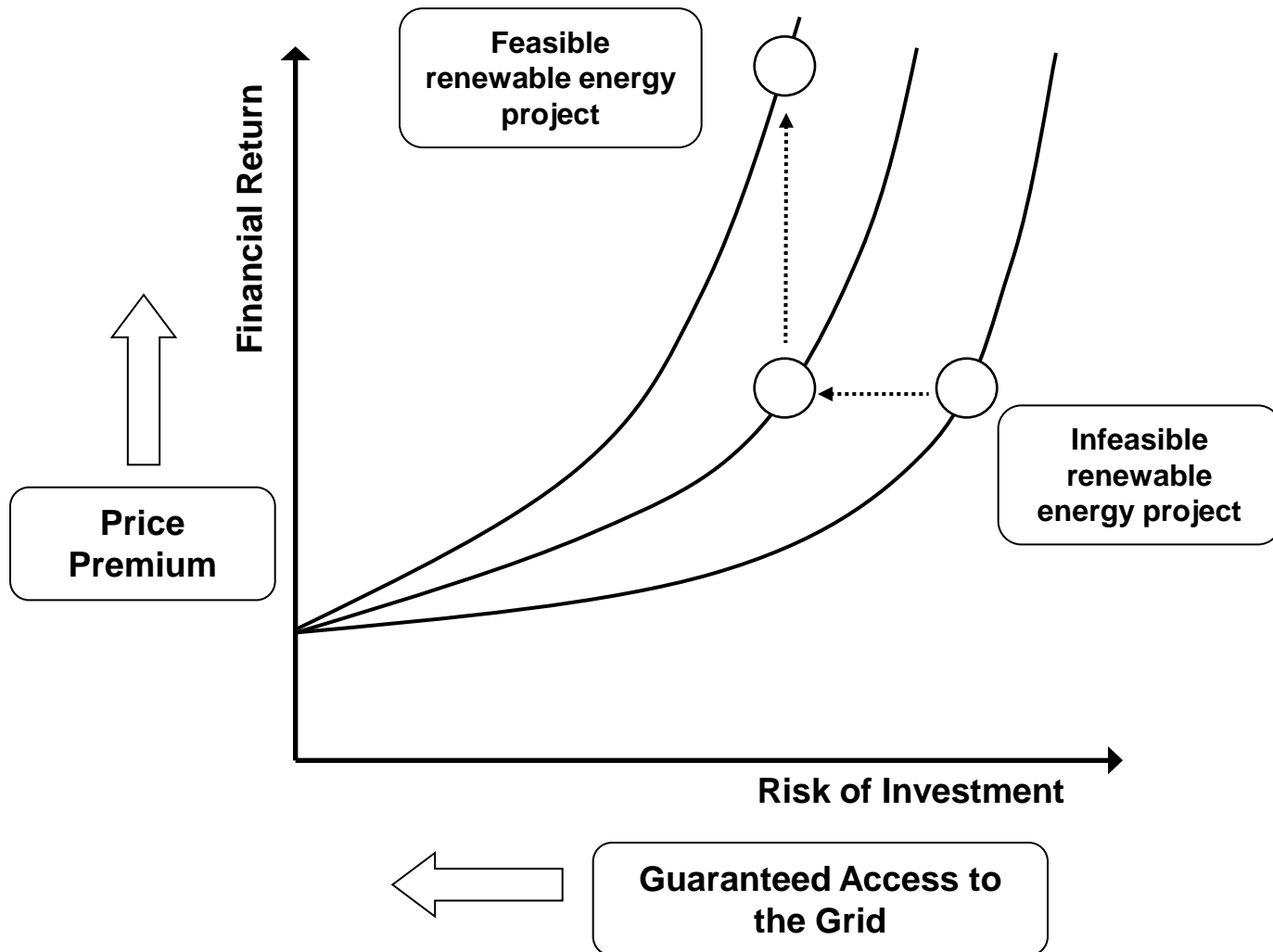
Financing costs heavily affect the competitiveness of renewables (more than of fossil fuel-based technologies)



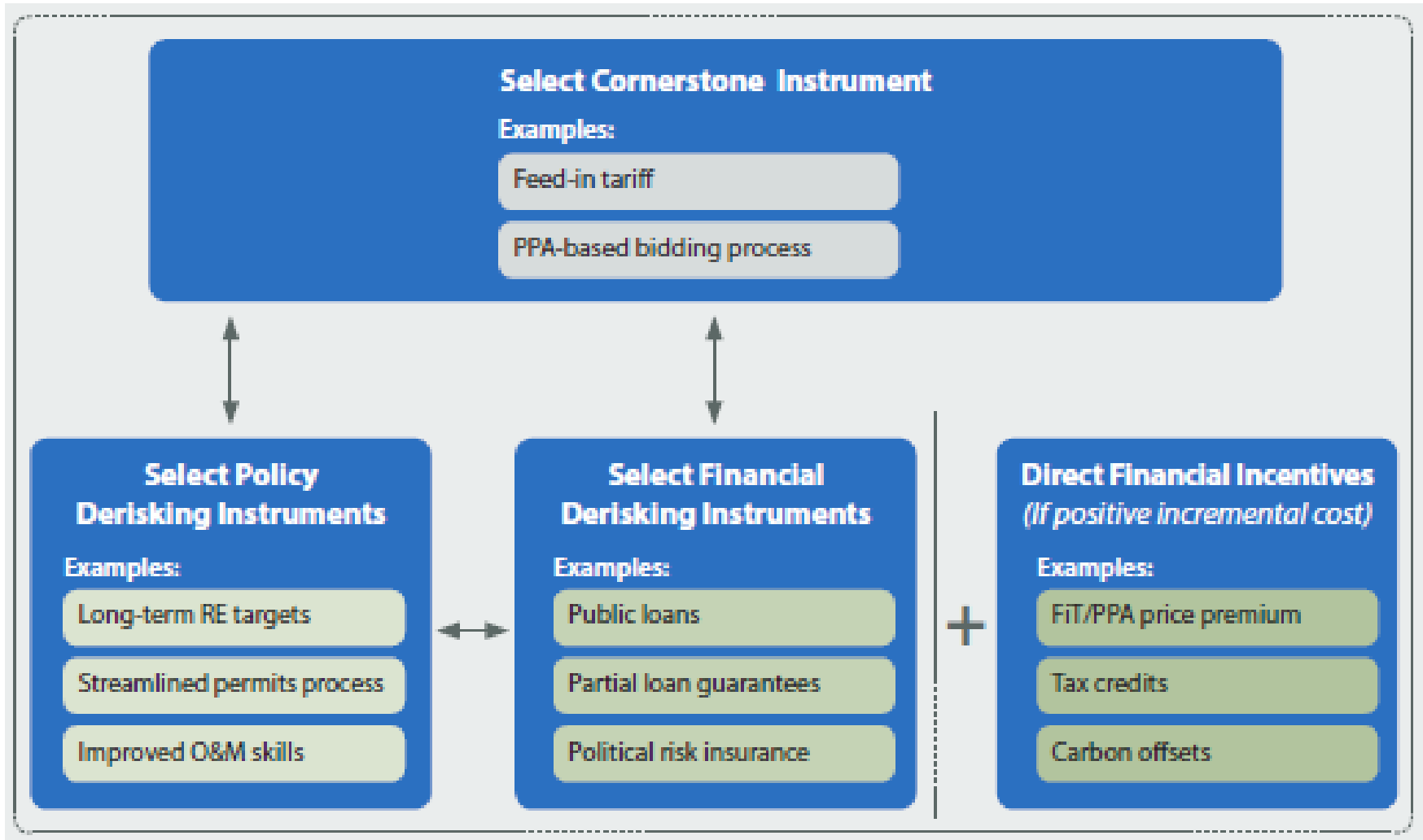
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Policy makers need to create a favorable investment environment to attract low-carbon investors

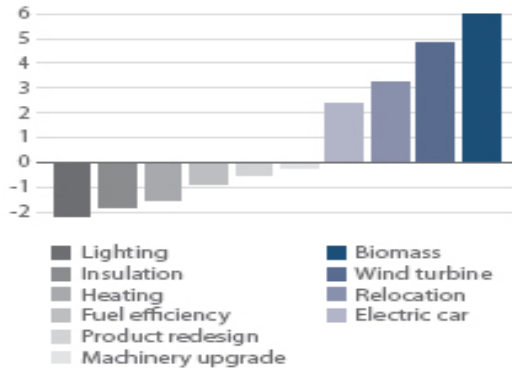


The policy mix should address both the risk and the return aspect



Four-step process for selecting the appropriate combination of policy and financial instruments

Step 1: Identify Priority Mitigation and Adaptation Technology Options



Step 2: Assess Key Barriers to Technology Diffusion

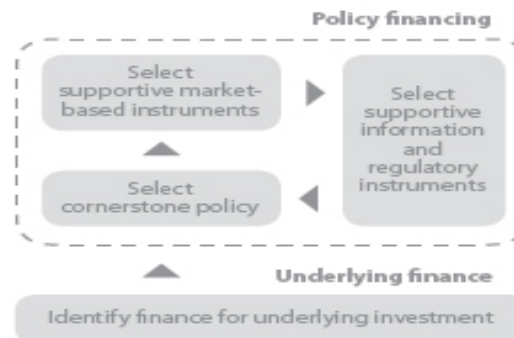
Barriers to technology diffusion	
Behavioural barriers	X
Institutional barriers	
Regulatory barriers	X
Financial barriers	X
Technical barriers	

Step 4: Select Financing Options to Create an Enabling Policy Environment

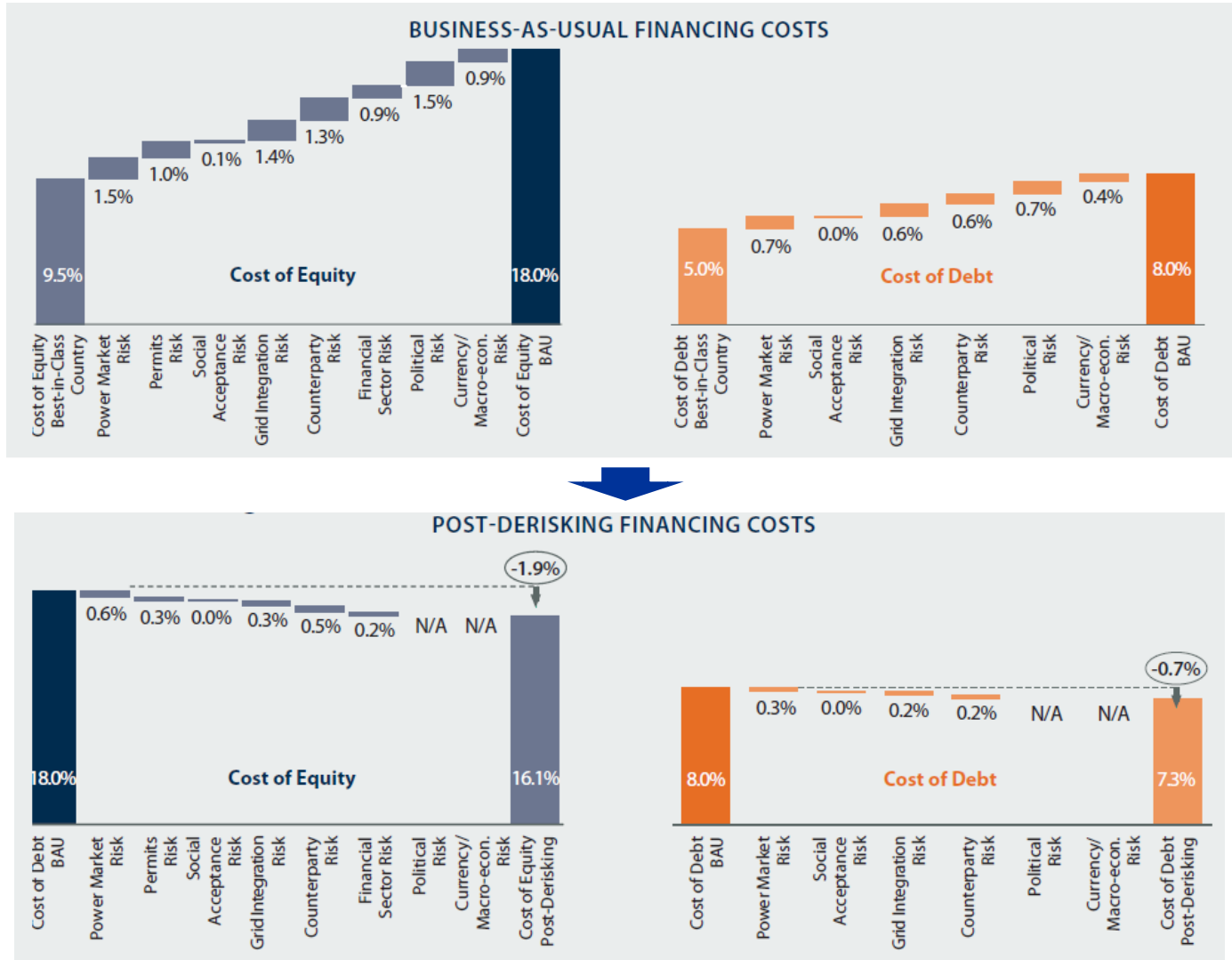
This will result in a blend of different public and private funds.

	International	National and sub-national
Public funds	X	
Environmental market finance		X
Private funds	X	X

Step 3: Determine Appropriate Policy Mix

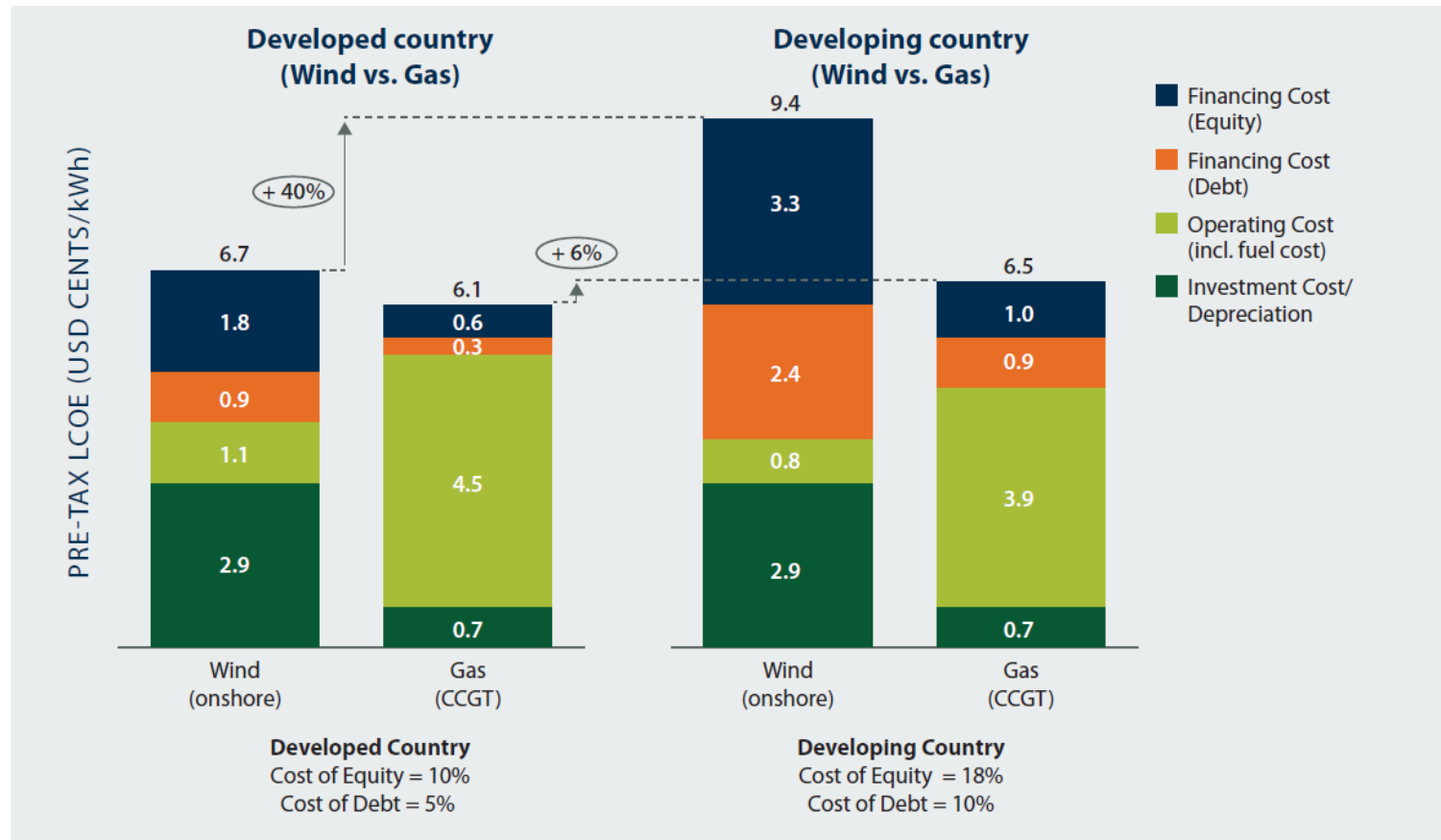


Addressing risks can therefore strongly reduce financing costs

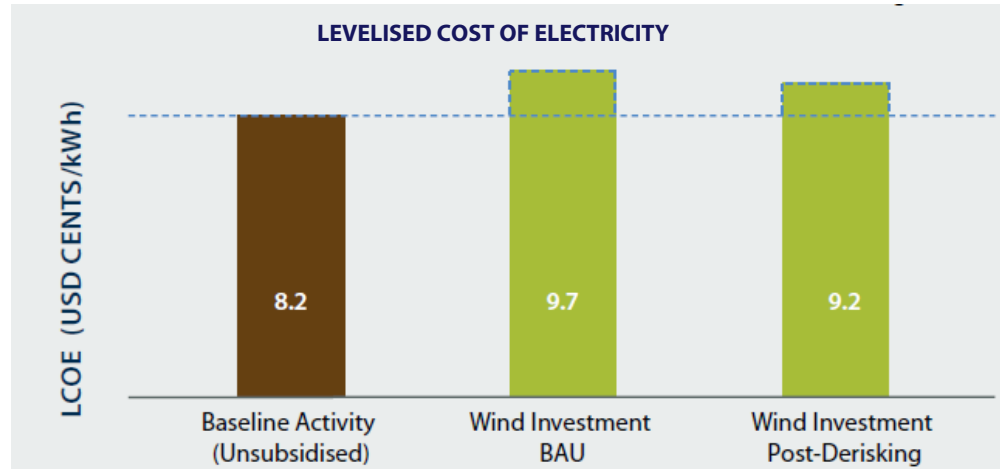


Source: UNDP, *Derisking Renewable Energy Investment* (2013). Data obtained from interviews with wind investors and developers. See Annex A of the report for full assumptions. The post-derisking cost of debt and equity show the average impacts over a 20 year modelling period, assuming linear timing effects.

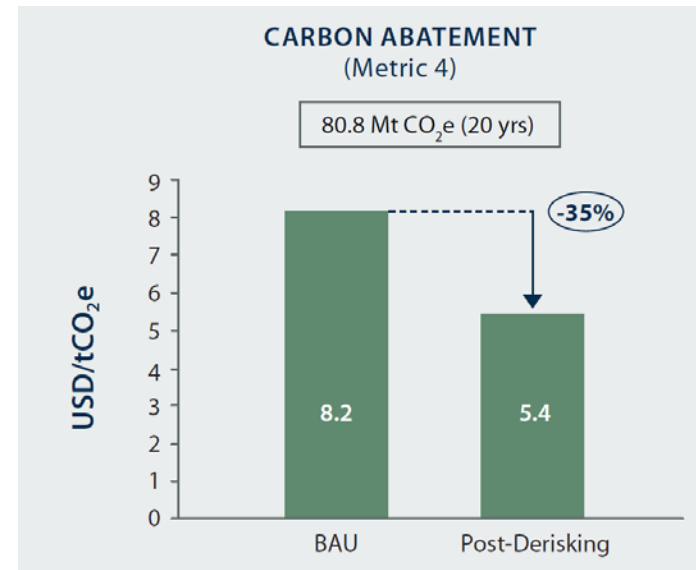
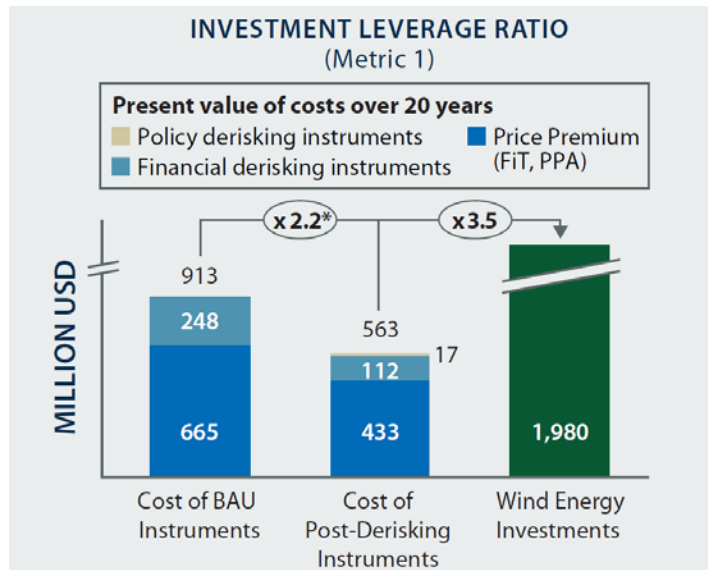
Financing costs heavily affect the competitiveness of renewables (more than of fossil fuel-based technologies)



Reduced capital costs can strongly decrease the costs of electricity generation and thereby the NAMA costs





Compare the NAMA case study



Current practical applications (full DREI)

Utility-scale renewable energy

	Tunisia 	Nigeria 
TARGET SECTOR	Utility-scale solar PV & wind	Utility-scale solar PV and wind
TIMELINE	2015-2019	2015-2019
BUDGET	GEF: \$3.5 m Co-financing: \$63.8m	GEF: \$4.4m Co-financing: \$167m
CORNERSTONE INSTRUMENT	FIT/PPA bidding process	FIT/PPA bidding process
DERISKING AREAS	<ul style="list-style-type: none"> • Power market risk • Permits risk • Resource/technology risk • Grid/transmission risk • Financial sector risk 	<ul style="list-style-type: none"> • Power market risk • Permits risk • Resource/technology risk • Grid/transmission risk • Financial sector risk
FINANICIAL INCENTIVE	TBD	Yes

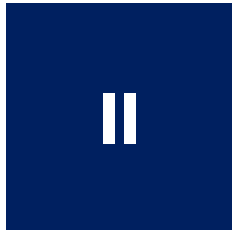
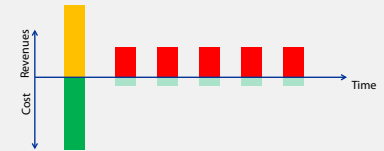
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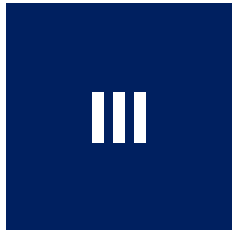
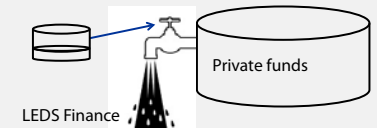
Summarizing the 4 key messages



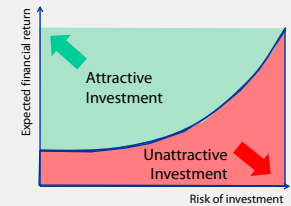
Upfront finance is essential to enable low-emission development



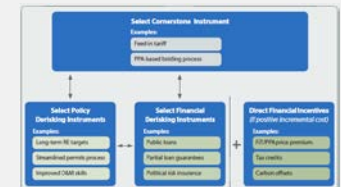
Important to use scarcer public funds in order to leverage private funds



For private investors, the risk-return profile of an investment opportunity needs to be attractive



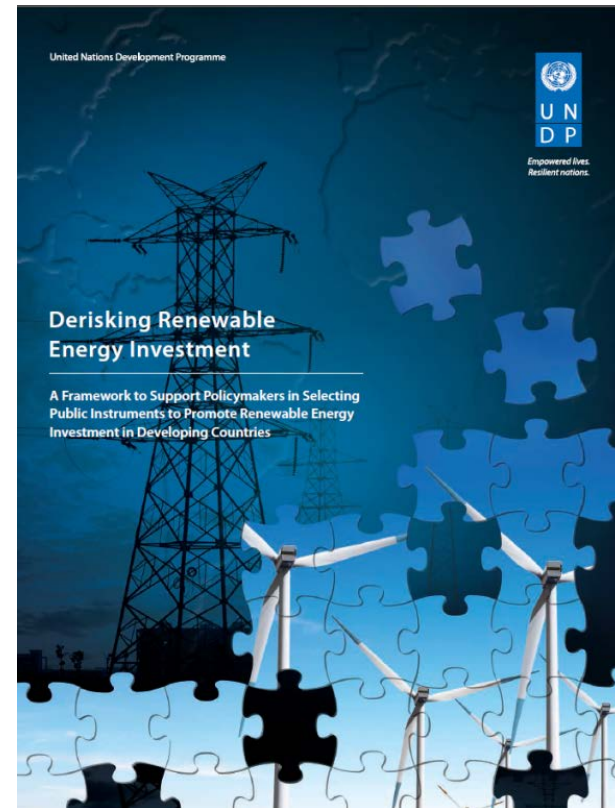
NAMAs & LEDS should provide a policy mix that provides **attractive returns** and **reduces risks**



Two UNDP reports on promoting renewable energy in developing countries



(October 2012)



(March 2013)



www.undp.org/DREI