Session 3: Planning and Financing Climate Change Actions for Sustainable Cities

De-risking: An Enabler for Unlocking Climate Finance

2019 Forum of Standing Committee on Finance

"Climate Finance and Sustainable Cities"

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DREI - Derisking Renewable Energy Investment

Methodology and importance – global view
Results from the DREI Lebanon work

- DREI – Derisking Renewable Energy Investment – is at the heart of economic development

  ⟶capacity building towards policies in favor of clean technologies

  ⟶enabling cost-effective selection of public measures

  ⟶improving the climate finance readiness of governments, including local authorities

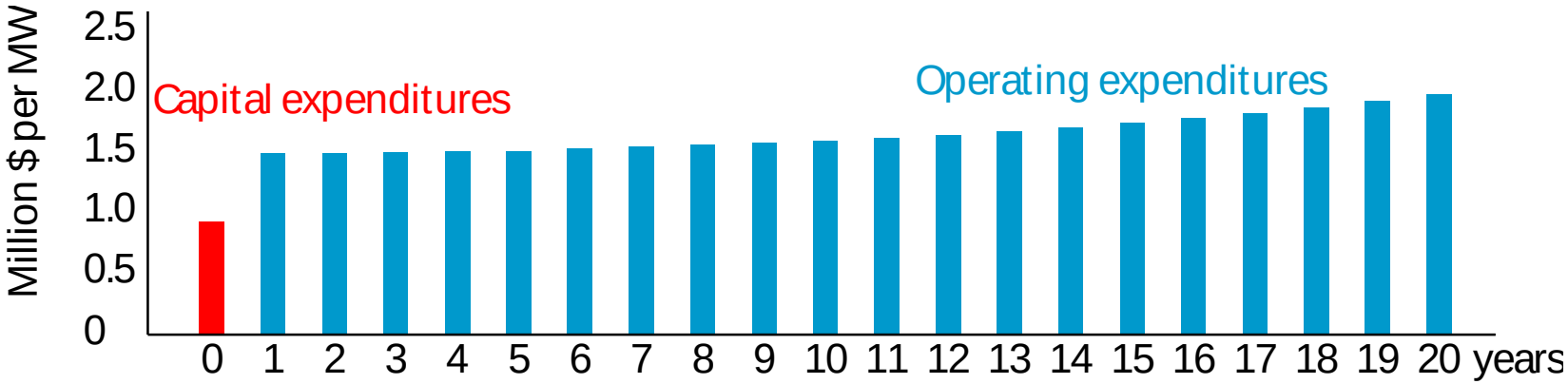
  ⟶leveraging public funds through private sector engagement

  ⟶more reliable, affordable and clean power for citizens

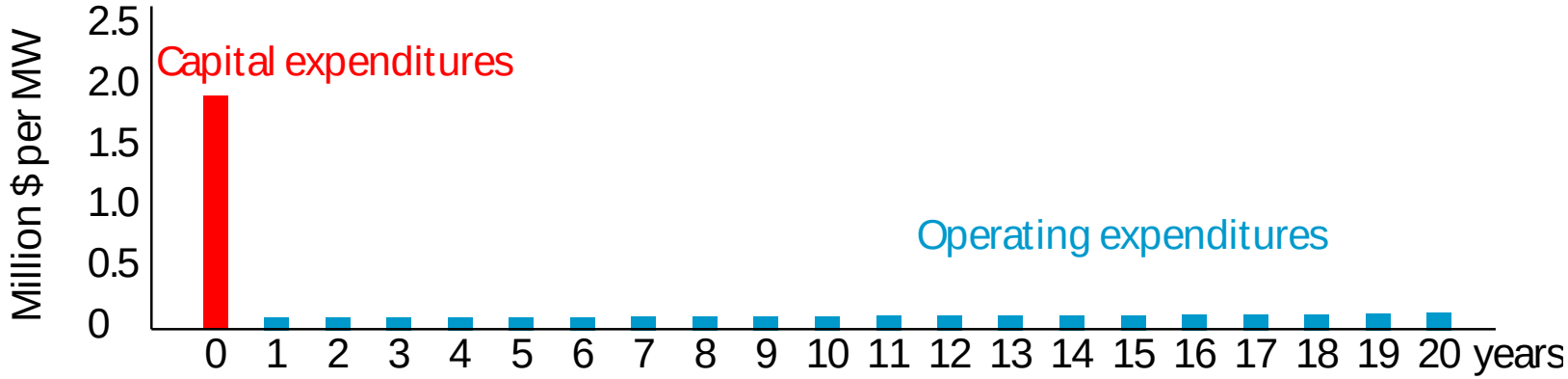
Derisking Renewable Energy Investment

The issue with RE investments

Example:
Costs Diesel Power
(undiscounted)



Example:
Costs Wind Power
(undiscounted)

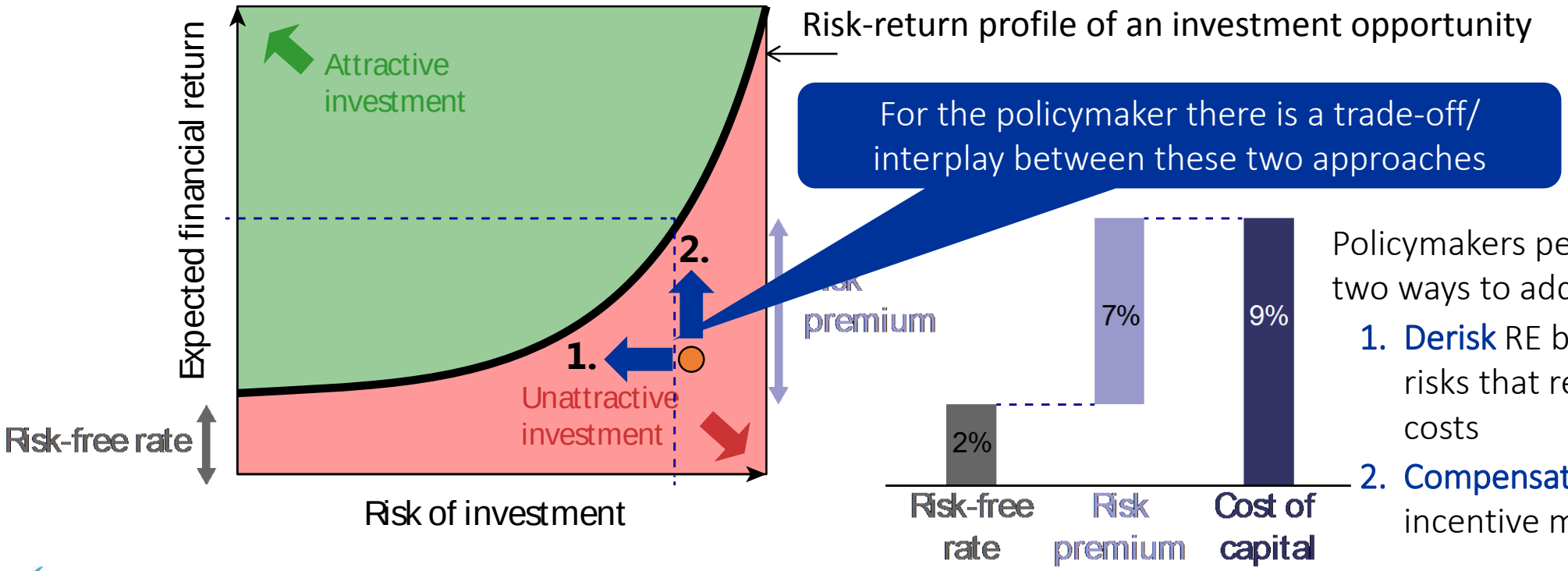


→ For RE investments: **More up-front finance** is needed (less cash-flow finance)

→ **Risks** and the associated **costs of finance** matter much more

Derisking Renewable Energy Investment
The issue with RE investments (cont.)

- The objective: to make RE investment cost competitive with the business-as-usual investment, typically fossil-fuel based energy
  - The challenge: the high financing cost (cost of capital) in developing countries
  - A project's specific risks drive the cost of capital:



Policymakers perspective: there are two ways to address this challenge:

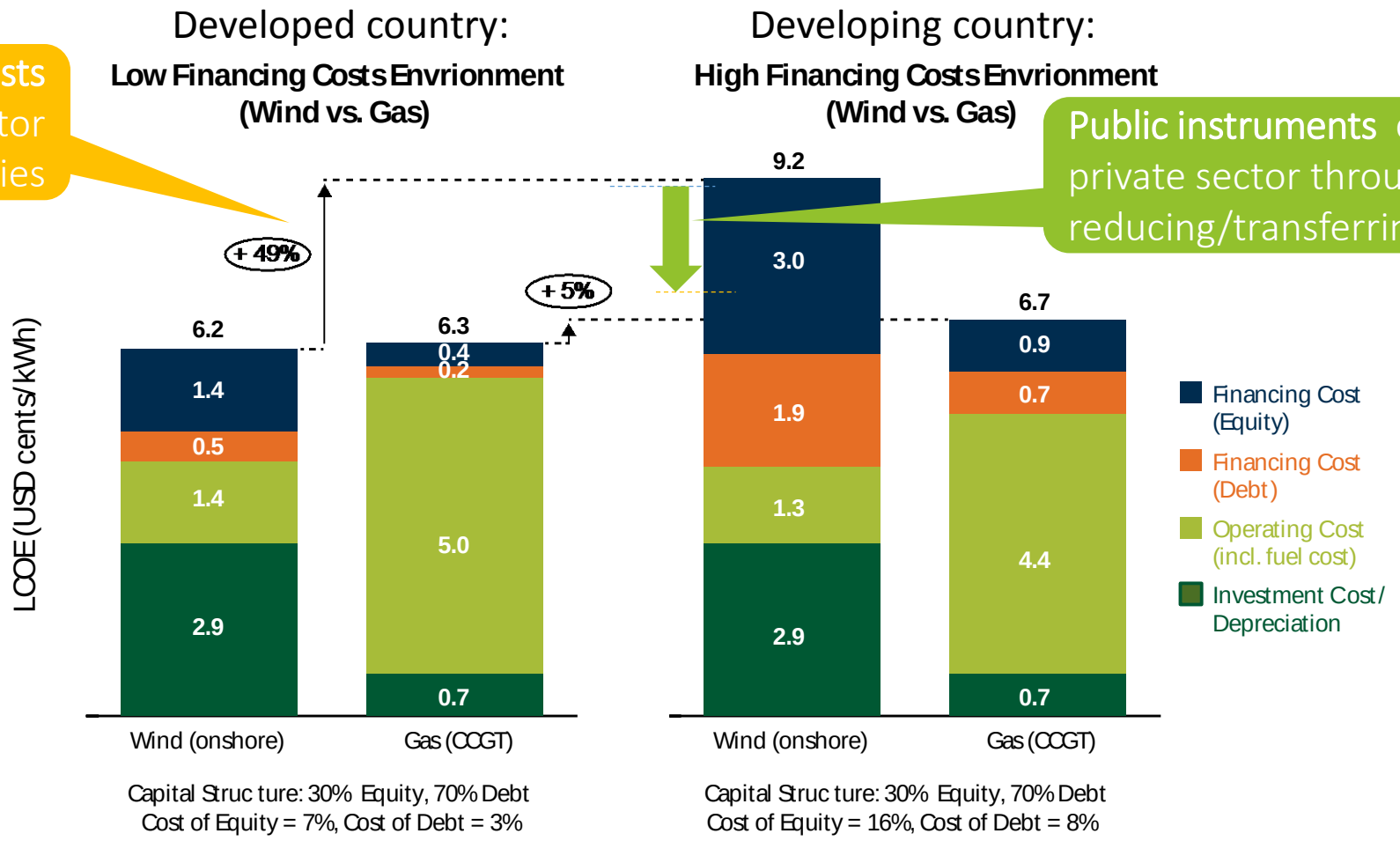
1. Derisk RE by targeting investor risks that result in high financing costs
2. Compensate for risks via incentive mechanisms

DREI's Theory of Change: policymakers to derisk as much as possible, before paying for the remaining incremental costs via incentive mechanisms

Derisking Renewable Energy Investment
The issue with RE investments (cont.)

High financing costs reflecting a range of investor risks in developing countries

Public instruments can assist the private sector through reducing/transferring investor risk



Source: Source: Derisking Renewable Energy Investment (UNDP, 2013), subsequently updated as of 2017.
All assumptions (technology costs, capital structure etc.) except for financing costs are kept constant between the developed and developing country.

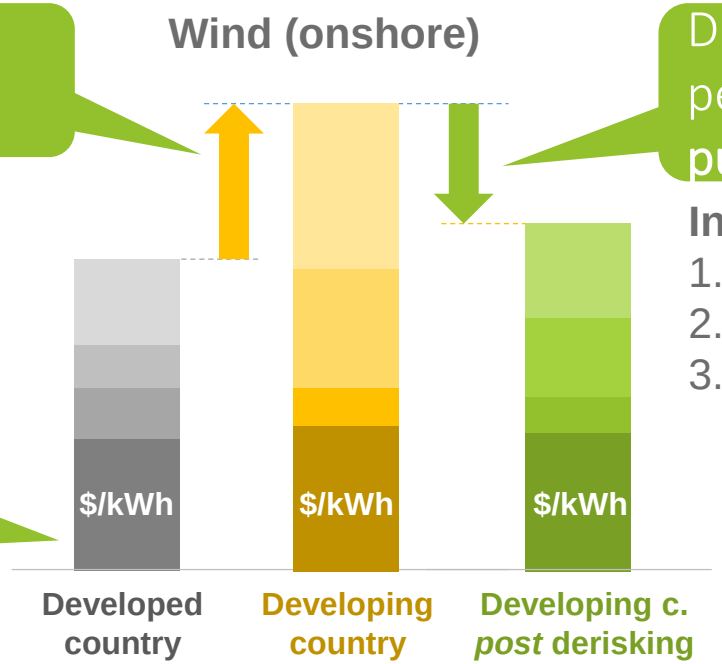
The question: What is the most effective public instrument package?

DREI measures: the perceived **probability and impact of risks**

Risks such as:

1. Power market risks
2. Permits risks
3. Social acceptance risks… etc.

DREI is quantitative: **LCOE modeling**



DREI measures: the perceived **effectiveness of public instruments**

Instruments such as:

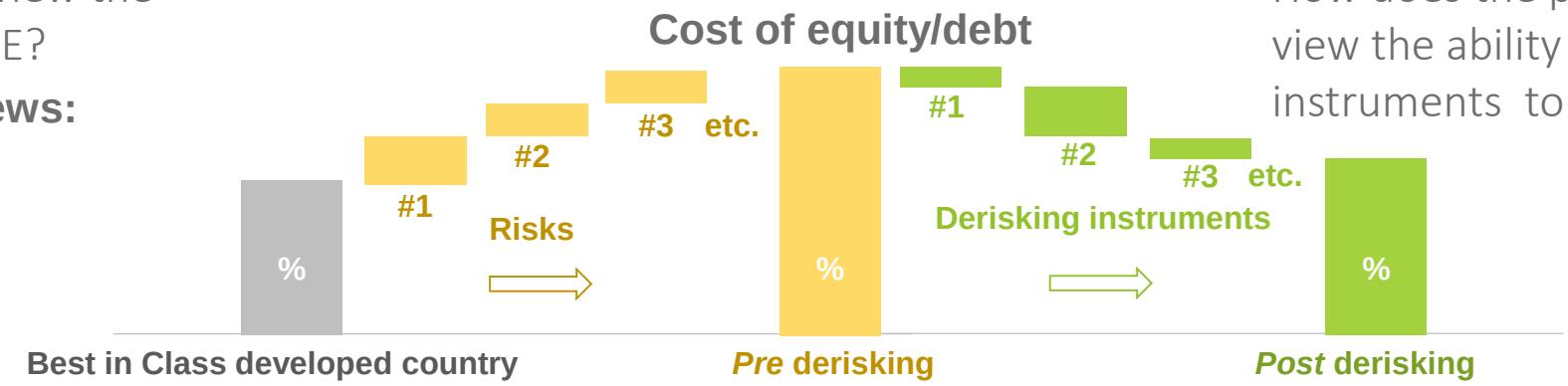
1. Well-defined regulation
2. Streamlined permitting
3. Public loans… etc.

DREI evaluates the public instruments w.r.t. **performance metrics**

How does the private sector view the investment risks underlying RE?

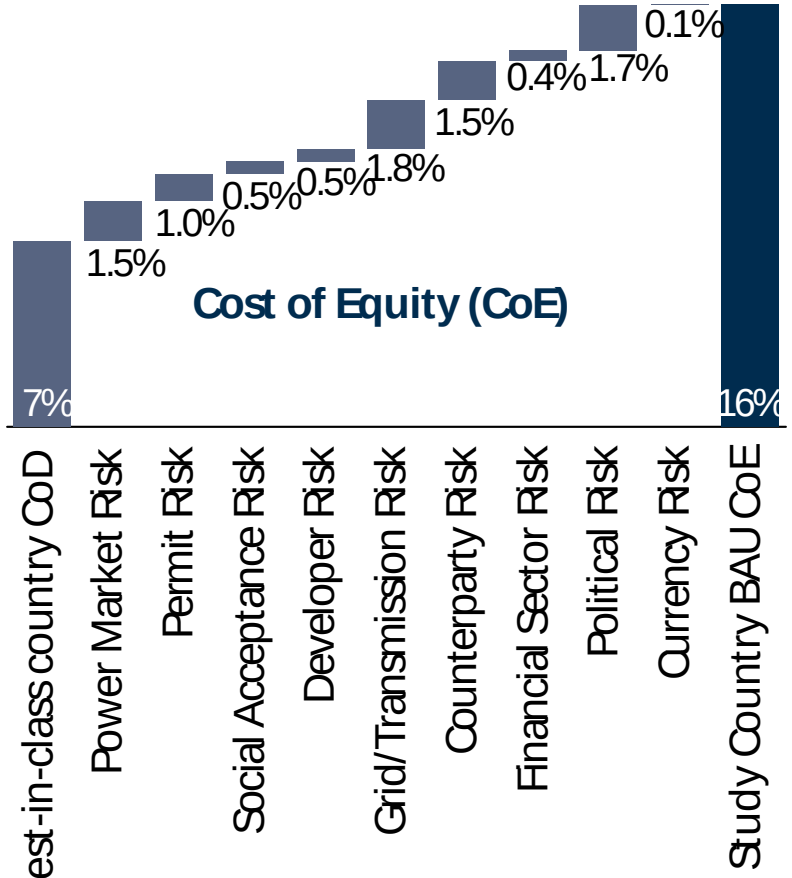
→ **Stakeholder interviews:**

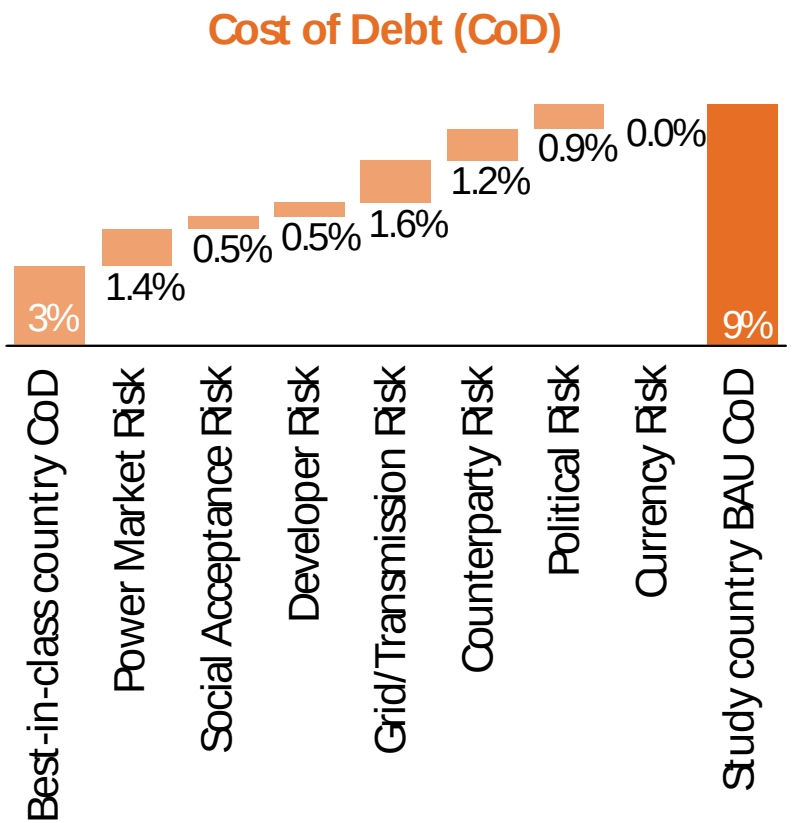
How does the private sector view the ability of public instruments to mitigate risks?



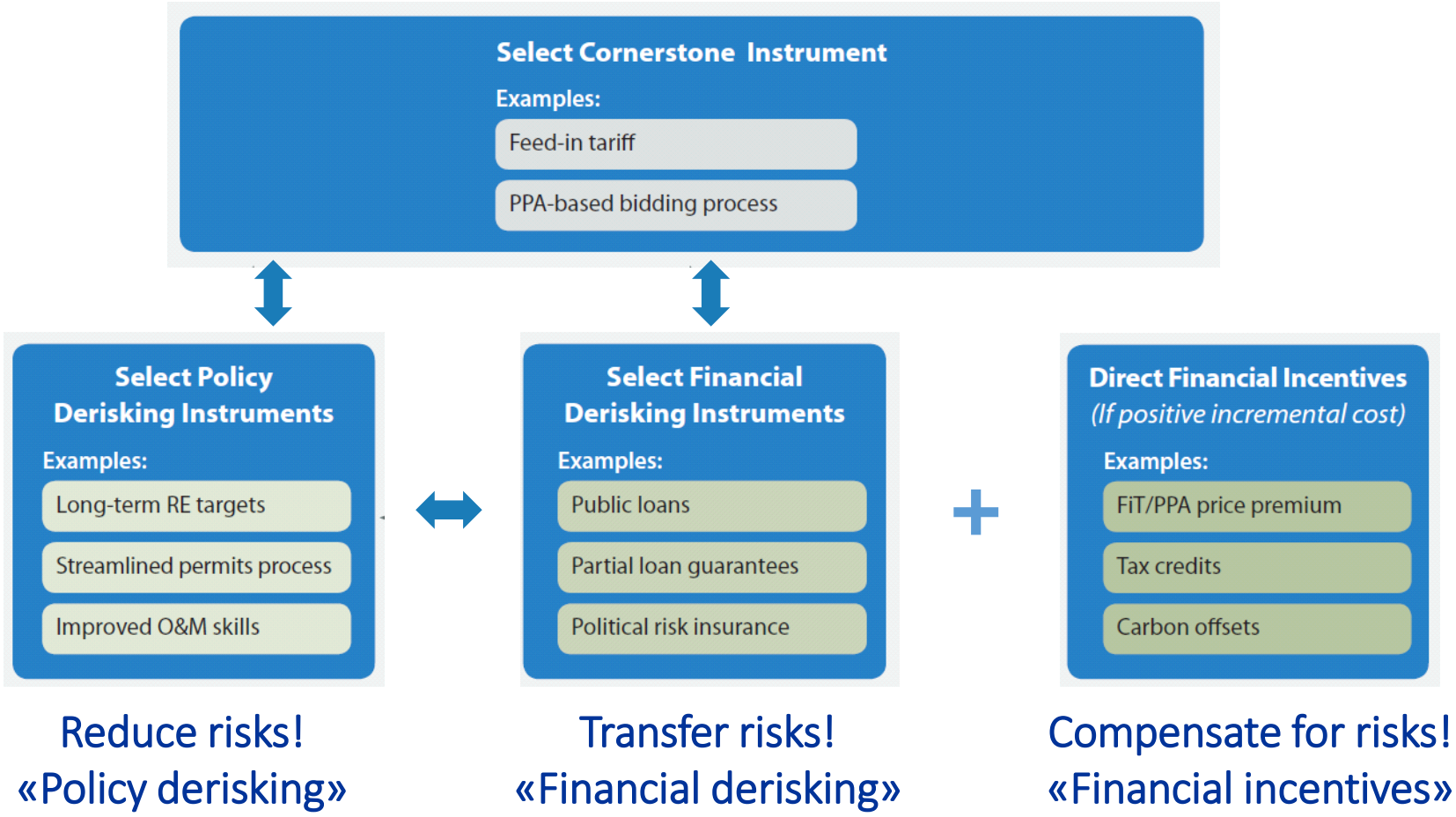
Derisking Renewable Energy Investment
DREI's approach: 1) Quantify the risk environment

- Reach out to investors active in the target country and perform structured interviews
- Aggregate perceived risk environment into Financing Cost Waterfalls





Derisking Renewable Energy Investment
DREI's approach: 2.1) Select public instrument package



Reduce risks!
«Policy derisking»

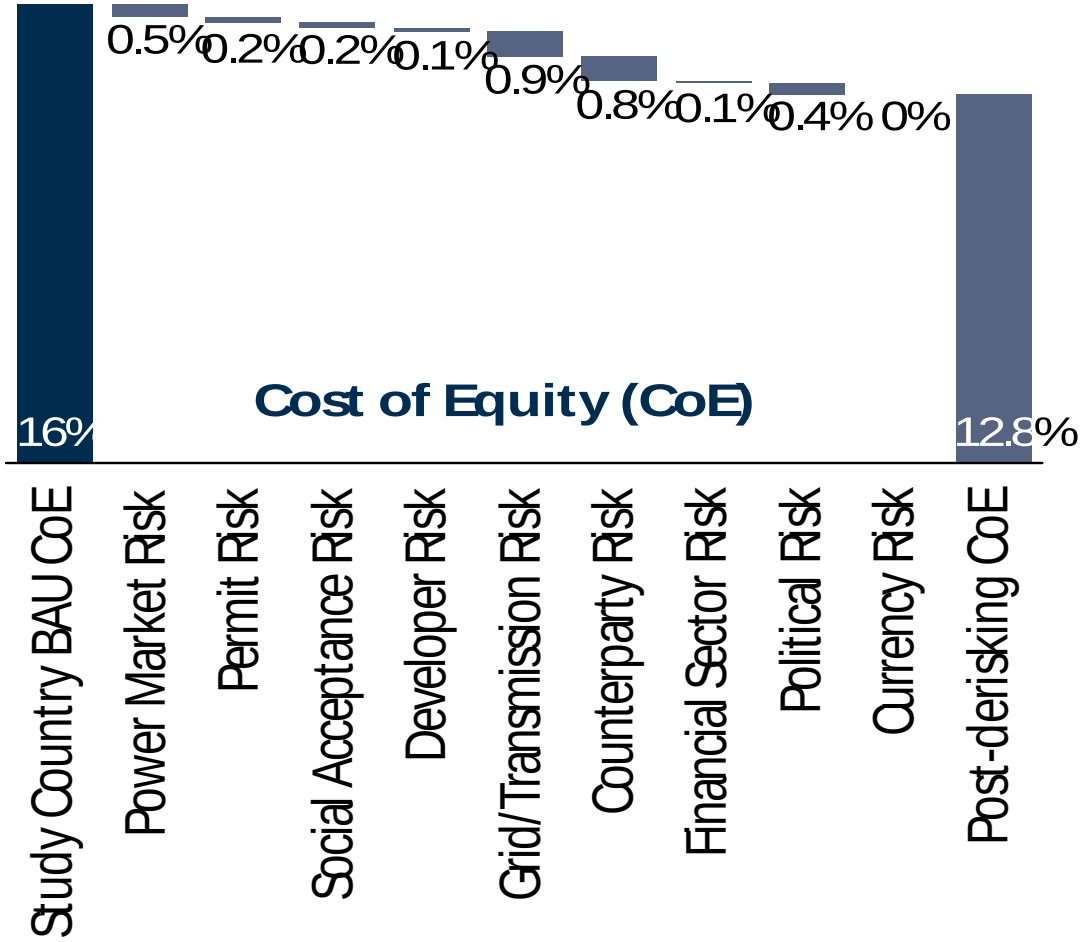
Transfer risks!
«Financial derisking»

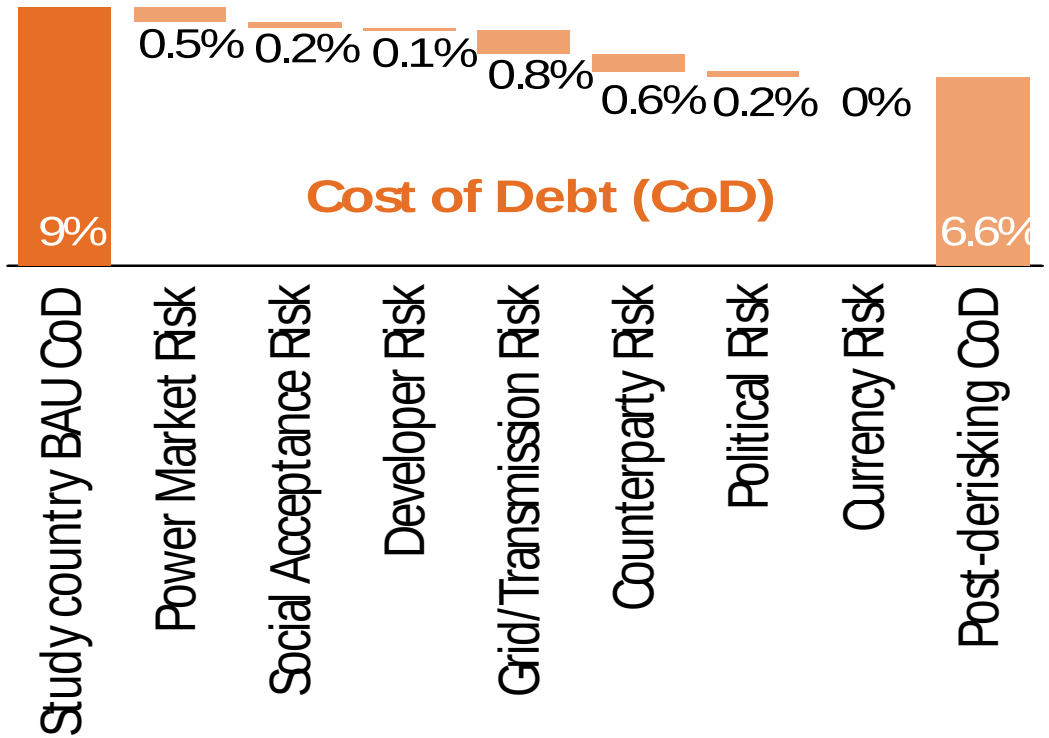
Compensate for risks!
«Financial incentives»

Source: UNDP, *Derisking Renewable Energy Investment (2013).*

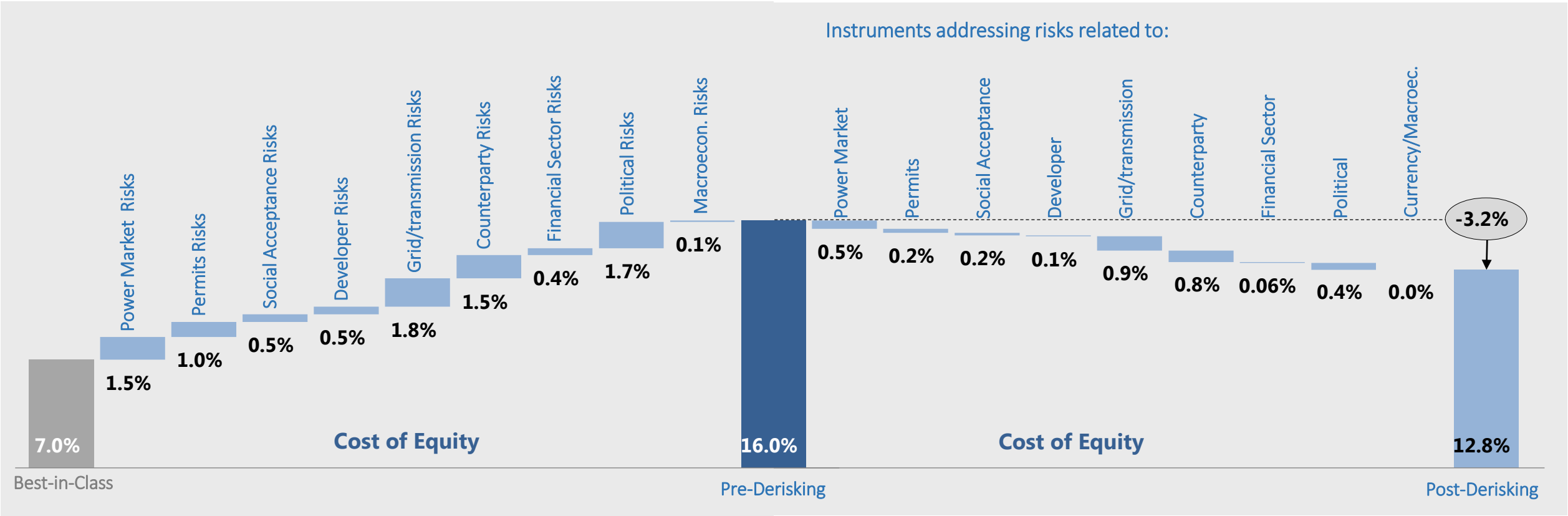
Derisking Renewable Energy Investment
DREI's approach: 2.2) Quantify instruments' effectiveness

- (Reach out to investors active in the target country and perform structured interviews)
- Aggregate perceived effectiveness of public instrument package into Post-Derisking Waterfalls

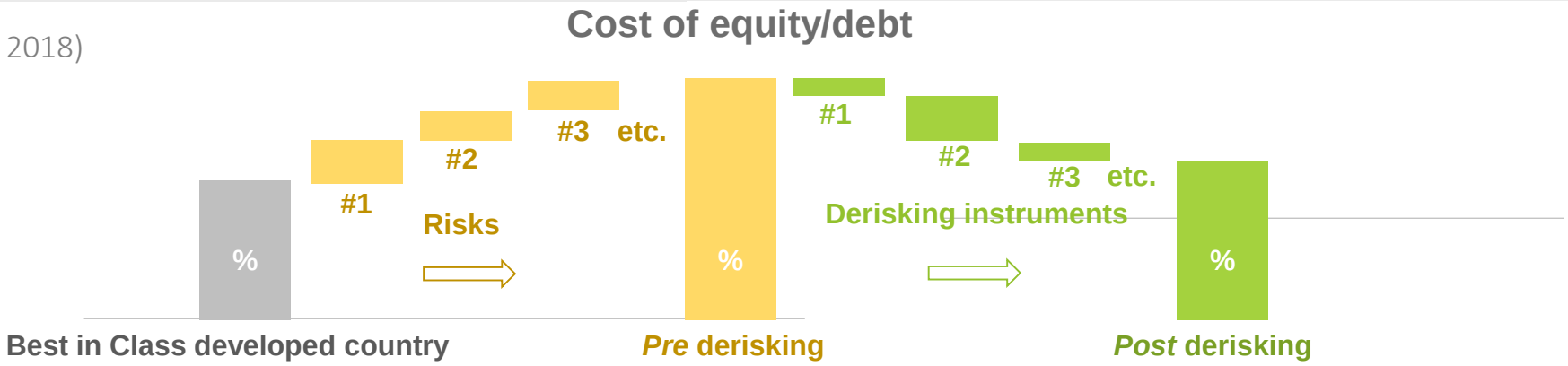




Financing cost waterfalls

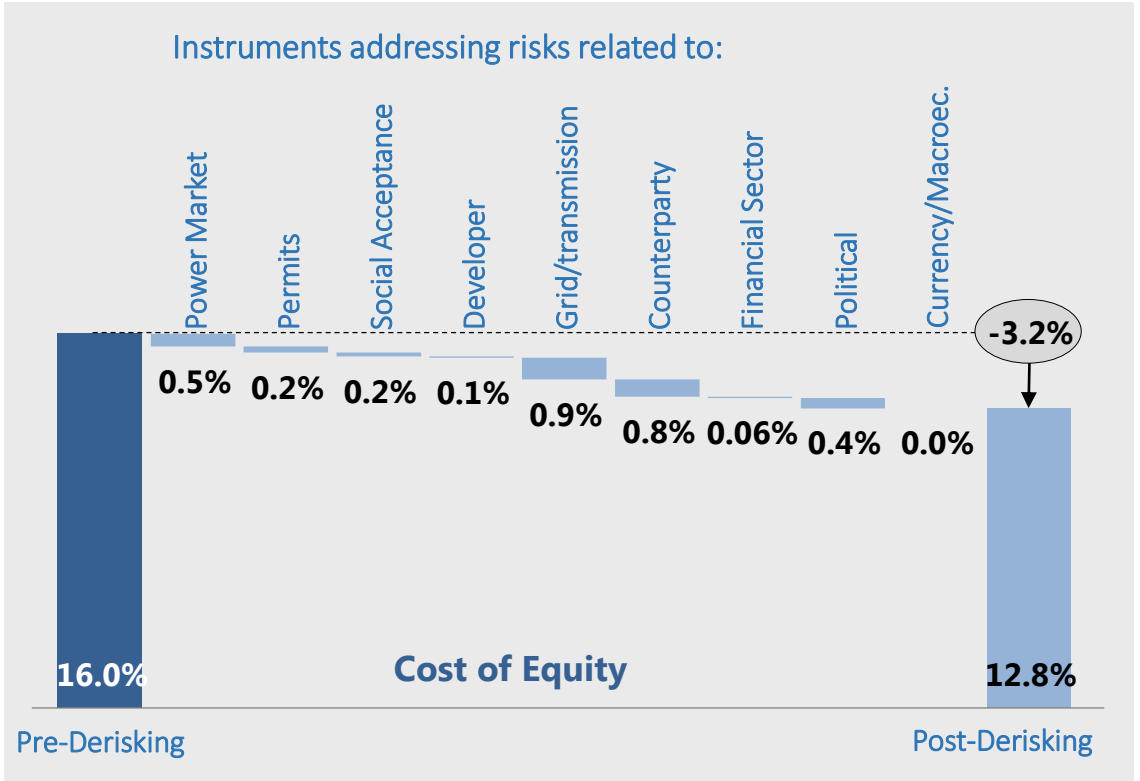


Data from DREI Lebanon (DREI 2018)



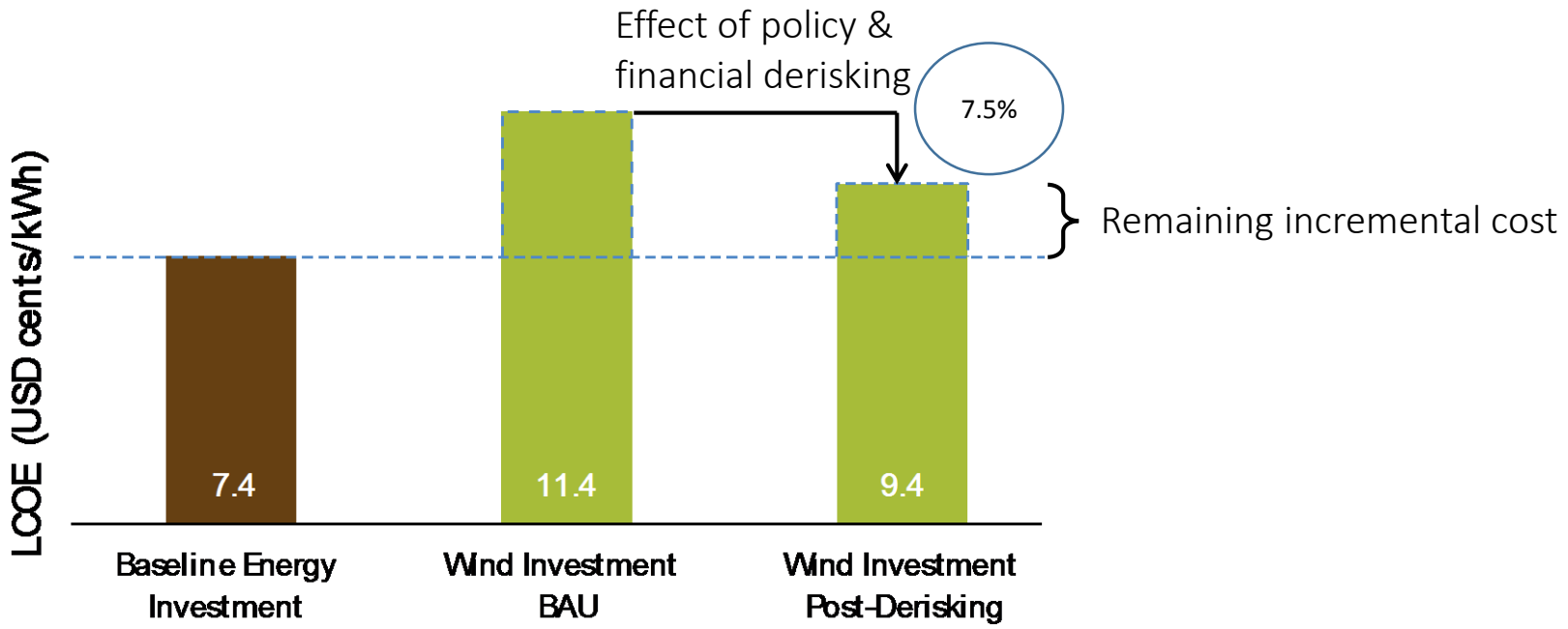
Public Instruments

Risk Category	Policy Derisking Instruments	Financial Derisking Instruments
Power Market Risk	• Long-term, legally-binding RE targets • Enabling regulatory framework • FIT/PPA tender (standardized PPA) • Independent regulator for power sector	NA
Permits Risk	• Streamlined process for RE permits • Contract enforcement, recourse mechanisms	NA
Social Accep-tance Risk	• Awareness-raising campaigns • Stakeholder outreach	NA
Developer Risk	• Capacity building for resource assessment Technology and O&M assistance	NA
Grid/Trans-mission Risk	• Strengthen EDL's grid management capacity • Transparent, up-to-date grid code • Policy support for grid infrastructure development	• Take-or-pay clause in PPA
Counterparty Risk	• Strengthen EDL's management and operational performance	• Government guarantee for PPA payments • Concessional public loans to IPPs
Financial Sector Risk	• Fostering financial sector reform towards green infrastructure investment • Strengthening financial sector's familiarity with renewable energy and project finance	• Concessional public loans to IPPs
Political Risk	NA	• Political risk insurance for equity investments
Currency/Macro-economic Risk	NA	NA



Derisking Renewable Energy Investment
DREI's approach: 3) Levelised cost

- Perform LCOE modelling under transparent set of assumptions, incl. about RE target, operating parameters, country specifications, etc.



Public Instruments and LCOE Modeling

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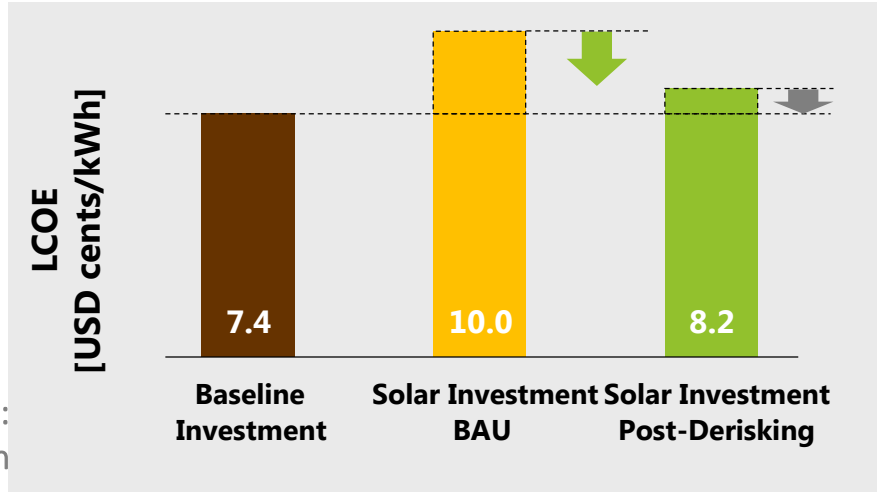
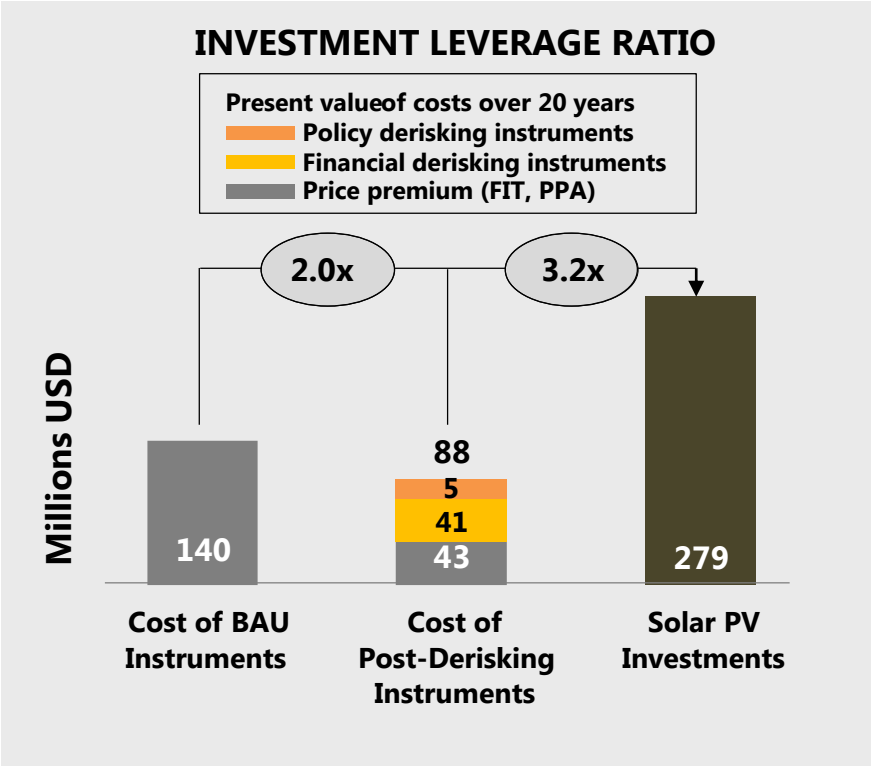
Source: DREI Lebanon



Theory of change: Policymakers to derisk as much as possible, before paying for the **remaining incremental costs.**

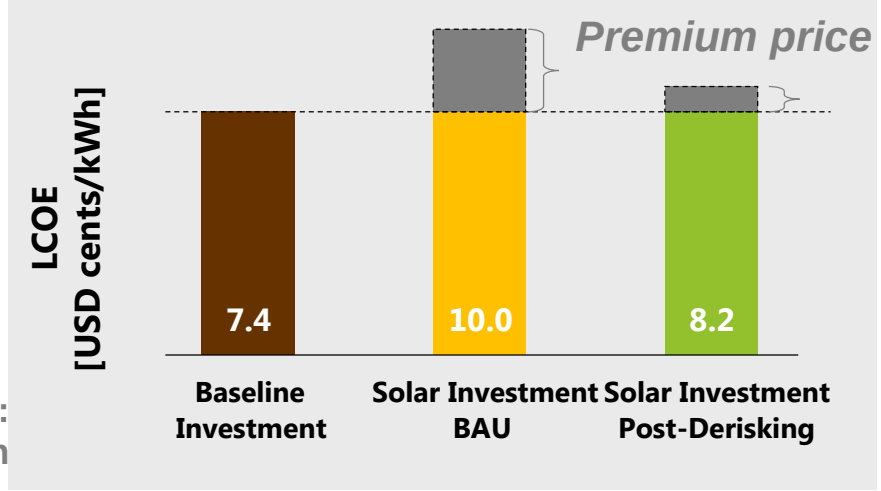
The question: What is the most efficient public instrument package?

Key performance metrics



Source: DREI Lebanon

Levelized cost of electricity



Source: DREI Lebanon

Theory of change: Policymakers to **derisk** as much as possible, before paying for the **remaining incremental costs.**

The question: What is the most efficient public instrument package?

Derisking Renewable Energy Investment
DREI's approach: 4) Evaluation

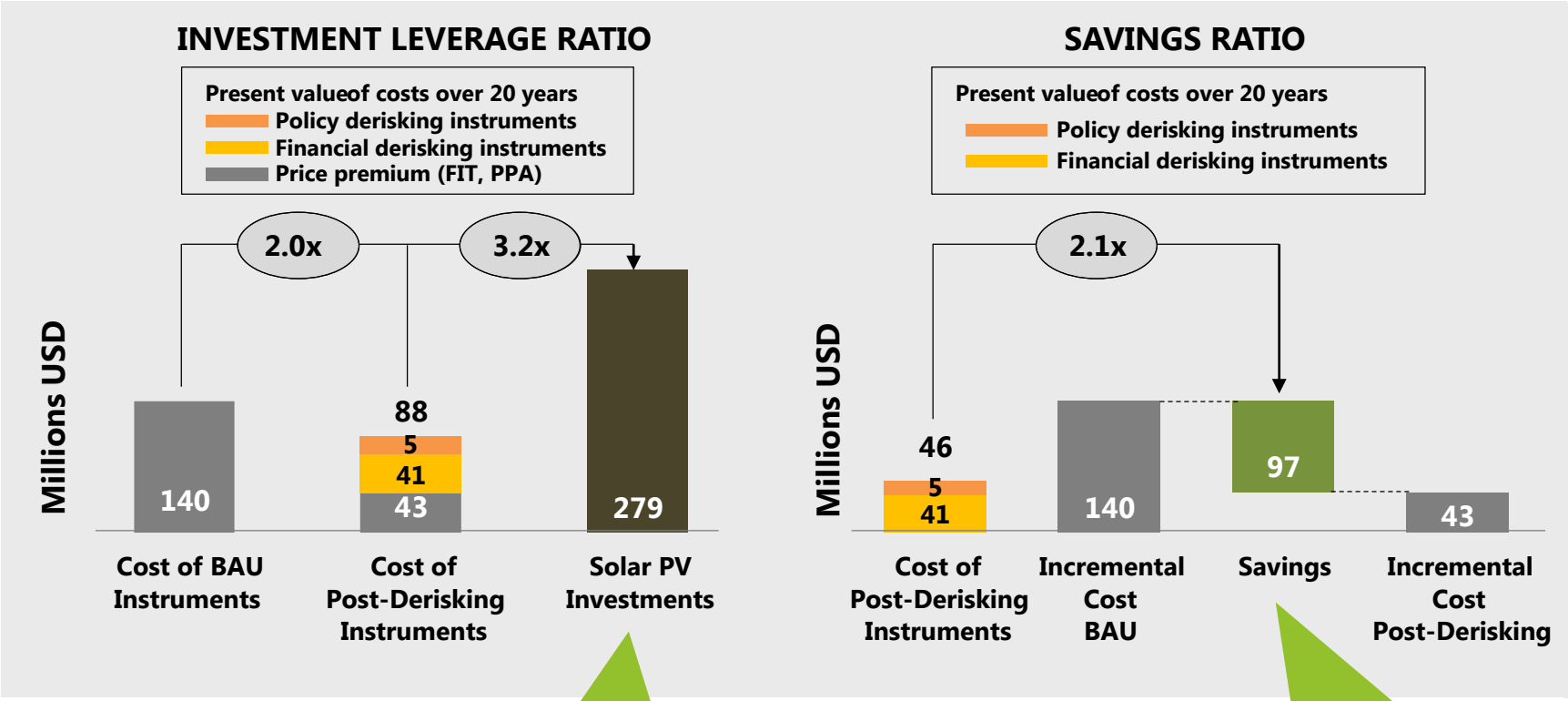
Use DREI's financial modelling tools to evaluate four key performance metrics

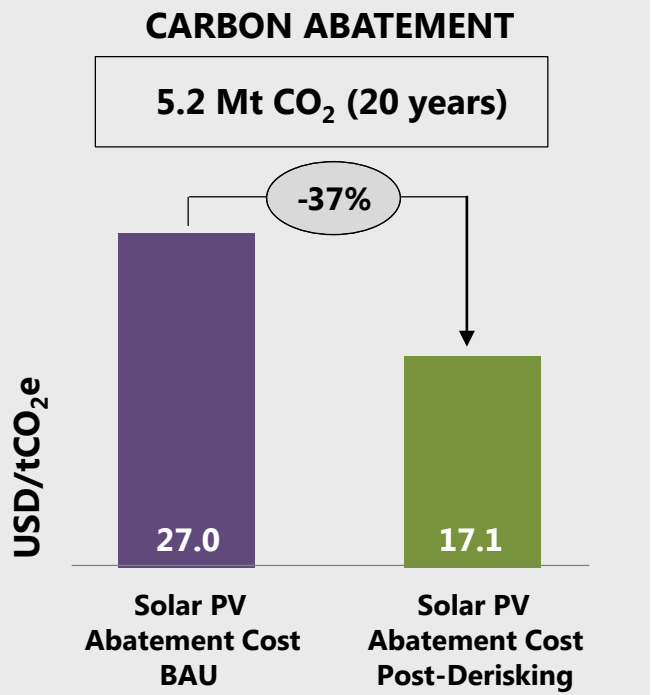
How does the deployment of the selected public instrument package

1. … catalyse private sector investment ?
2. … generate economy-wide savings?
3. … increase the affordability of RE for end-users?
4. … benefit the environment?

- On top: Perform sensitivity analyses on key inputs and assumptions
  - to explore robustness of the modelling exercise
  - to explore scenarios, e.g. alternative sets of public instruments

Key performance metrics





Data from DREI Lebanon

derisking is more effective in catalyzing **private sector funding**

explore how different instrument packages affect economy wide saving and other metrics

compare carbon prices and use e.g. for NDC design

DREI Lebanon study
Foreshadowing some results

	Wind	PV	Total
2030 Targets (MW)	450	300	750
Cost of Public Instruments (USD)	98 million	46 million	144 million
Private sector investment (USD)	635 million	279 million	914 million
Economy-wide savings (USD 20 yrs)	- 221 million	- 97 million	- 318 million
Affordability (LCOE) US¢/kWh	From 11.4 to 9.4	From 10 to 8.2	
CO_2 (million t 20 yrs)	- 10	- 5.2	-15.2

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www.undp.org/DREI

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Nationally Determined Contribution

Sustainable use of resources

Bus Rapid Transit

Capital Expenditure

Sustainable agriculture

Political Risk

Clean industrialization

Paris Agreement

Waste strategy

Sustainable cities

Public transport

Solar power

Combatting climate change

Job creation

Greenhouse gas emission reduction

Wind power

Climate Finance

Sustainable mobility

Derisking

Decoupled economic growth

1.5 degree goal

Climate leadership

Reforestation and afforestation

Fuel-efficient fleet

Counterparty risk

Energy efficiency

Private sector

Local authorities

Integrated Solid Waste Management