



# The role of multilateral development banks as enabler for new power generation technologies

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# Dev. banks seem as natural player to push RE – but do they?

The challenge to disseminate renewables to developing countries

**Path of emerging & developing countries will be deal maker for climate policy success**

- This is where infrastructure is being built up

**RE cost position improved dramatically – but diffusion to developing world not granted**

- Fossil-fuel based power systems still with great importance, despite “objective” advantages of RE

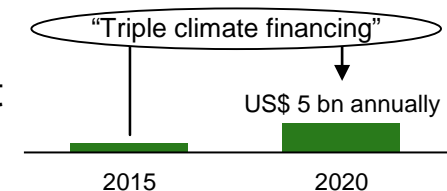
**Cost of finance is an important barrier**

- Multiple reasons, including capex-intensive risk profile

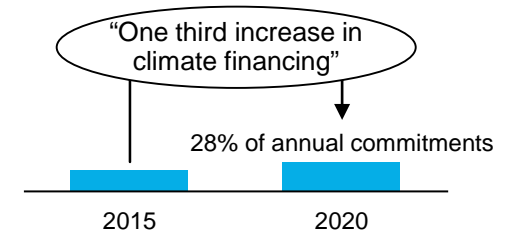
Multilateral development banks (MDB) as natural solution?

**Bold pledges at Paris**

African Development Bank



World Bank Group



**But it's not that easy**

- Other priorities (agriculture & adaptation, health, edu)
- External politics and limited levers (“just a bank”?)
- Internal politics, history and capabilities

# The role of MDB is little understood beyond specific cases

## Previous research assessed role of renewables at specific banks (some time ago)

- In the 90s, institutional factors limited **World Bank** investment in renewables (Martinot 2001)
- During 1997-2005, slight shift to renewables across **WB, AsDB, EBRD, IADB** (Tirpak & Adams (2008))
- In the 2000s, renewables share increased at **AsDB**, although project-level data is tricky (Delina 2011)

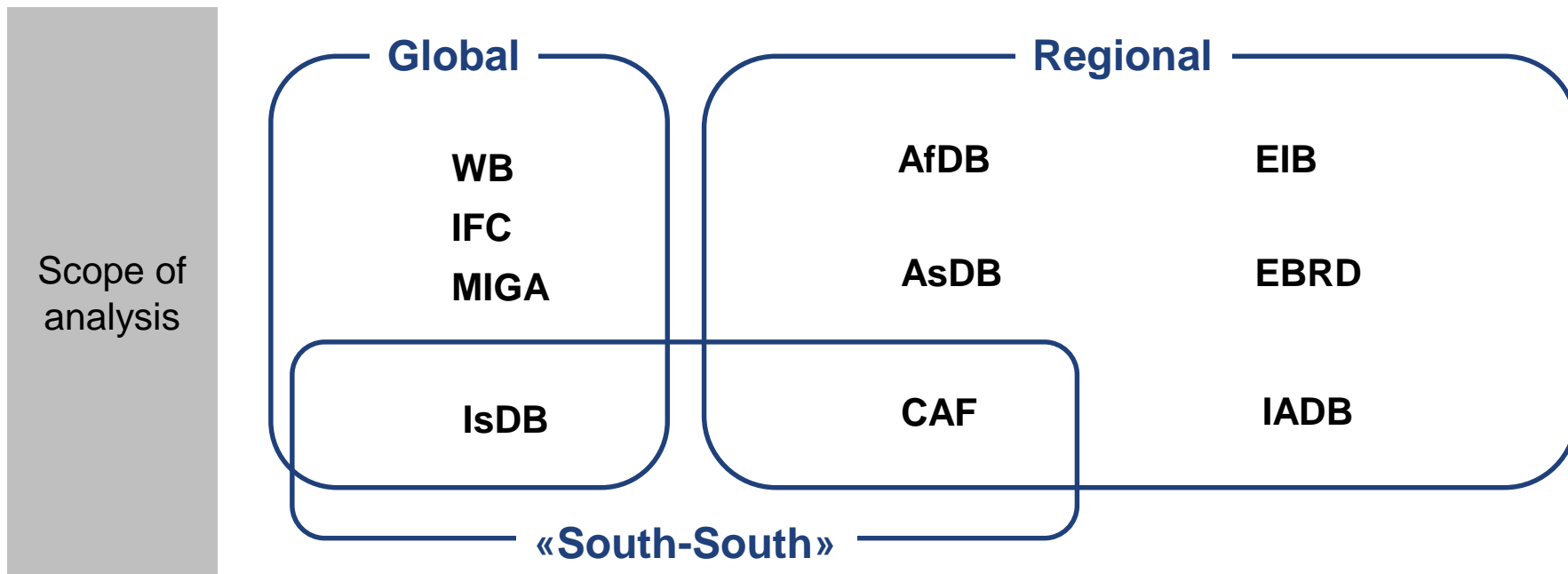
## Grey literature on climate finance relies on aggregated data, limiting level of detail

- In 2014, group of six major MDB with USD 23 bn climate finance, thereof 8 bn for renewables

## MDB's growing importance mandates a clear understanding of what they fund & why

Source: E. Martinot, "Renewable energy investment by the World Bank," *Energy Policy*, vol. 29, no. 9, pp. 689–699, 2001. D. Tirpak and H. Adams, "Bilateral and multilateral financial assistance for the energy sector of developing countries," *Clim. Policy*, vol. 8, no. 2, pp. 135–151, 2008. L. L. Delina, "Asian Development Bank's support for clean energy," *Clim. Policy*, vol. 11, no. August, pp. 1350–1366, 2011. World Bank, "Joint report on Multilateral Development Banks' climate finance," 2014.

## We analyzed the role of various multilateral players



### Research questions

1. To what extent do multilateral development banks finance innovative and low-carbon power technologies?
2. What role do these banks play in the choice of technologies for power generation projects (both directly and indirectly)?

# Mixed-method approach is chosen given exploratory RQ

## Bottom-up analysis of project database

MDB	Supported projects (No.)	Financing amount (M USD) <sup>c</sup>
AfDB	43	6'400
AsDB	111	13'900
CAF	56	5'800
EBRD	100	10'200
EIB <sup>a</sup>	91	15'000
IADB	47	5'700
IsDB	70	6'500
IFC <sup>b</sup>	229	12'200
MIGA <sup>b</sup>	35	5'200
WB <sup>b</sup>	152	21'900

a. Including projects in developing countries (i.e. outside of EU) only

b. Part of the Worldbank group

c. Debt, equity and grant financing only

(exception: guarantees for MIGA; Islamic finance for IsDB)

Note: Preliminary results

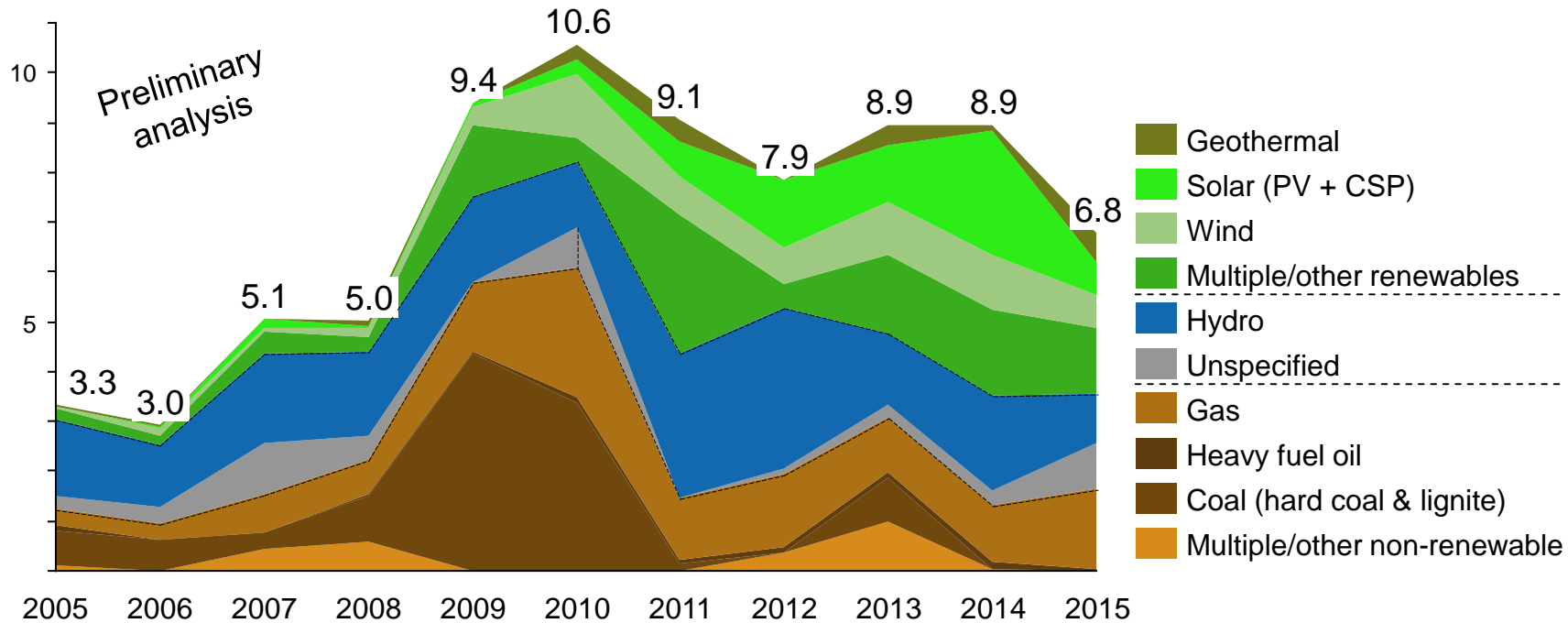
Current status

## Interviews with bank experts & developers

Interviewee	Job title
MDB 1	Investment Officer
MDB 1	Global Head Climate Business Division
MDB 2	Sector Manager Economics Unit
MDB 3	Head of Renewable Energy Division, Projects Dir.
MDB 3	Press officer
MDB 3	Investment Officer, Climate Change & Environm.
MDB 4	Director MENA region
MDB 5	Manager, Energy & ICT Division
MDB 5	Lead Energy Specialist
MDB 5	Senior Energy Specialist
MDB 6	Principal Energy Officer
MDB 6	Specialist
MDB 6	Private sector specialist
Dev 1	Business Development Manager
Dev 2	Chief Executive Officer
Dev 2	Chief Technical Officer

# New RE rose from ~10% to ~50% of all MDB energy invest

Annual total MDB investment (USD bn)



**Share (%)**

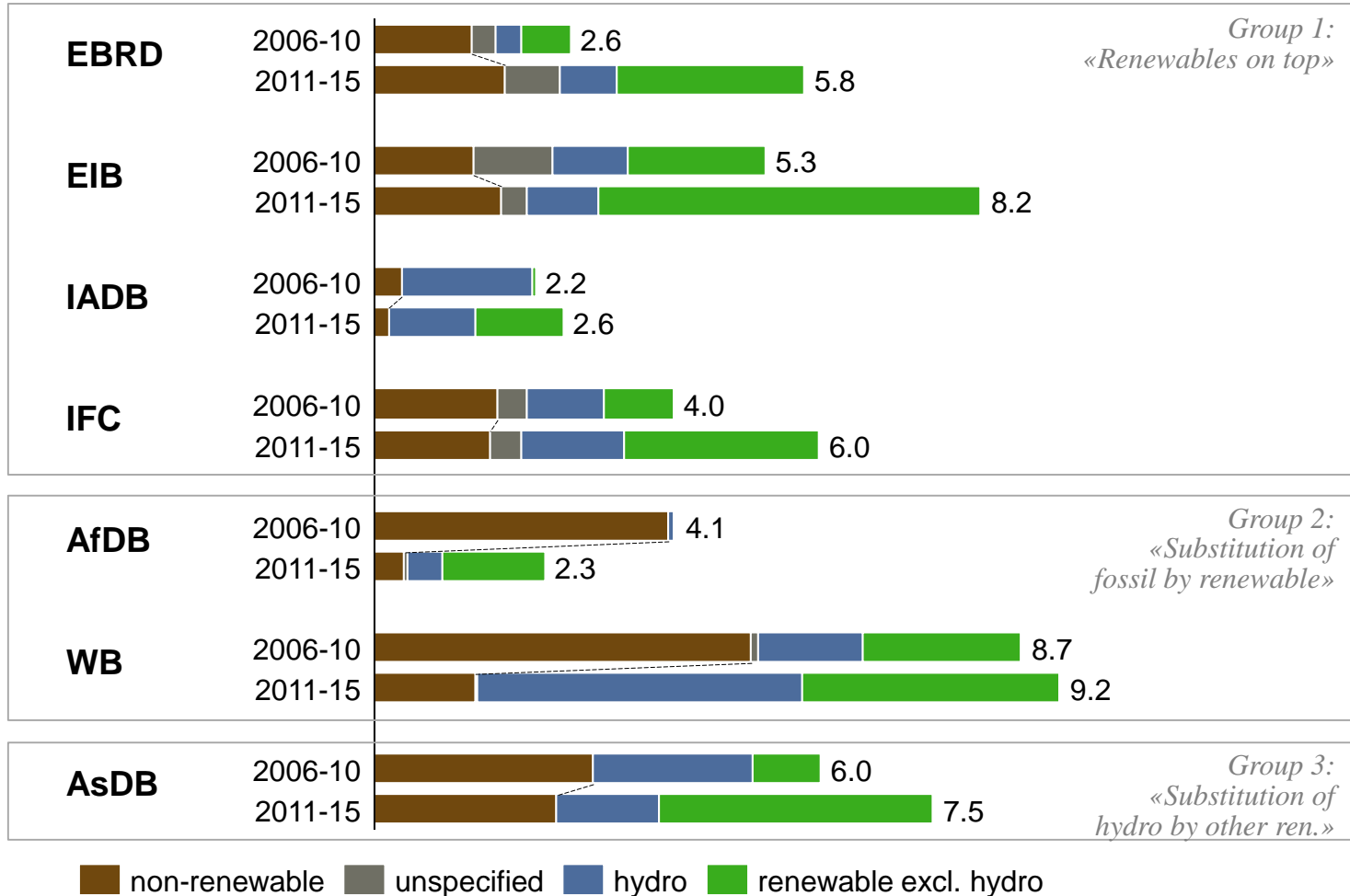
Renewables	54%	56%	50%	46%	38%	33%	84%	74%	63%	82%	62%
Renewables excl. hydro	8%	14%	14%	13%	20%	21%	52%	33%	47%	60%	48%

Note: Based on preliminary database. Compared to the paper, also includes CAF and IsDB. Source: Steffen, B.; Schmidt, T.S. (2017). The role of public investment & development banks in enabling or constraining new power generation technologies, IEEE Conference Proceedings, 14th International Conference on the European Energy Market (EEM), 2017. doi: 10.1109/EEM.2017.7981949

# Different patterns – often RE invest “on top” of conventionals

Total investment (USD billion)

Preliminary analysis



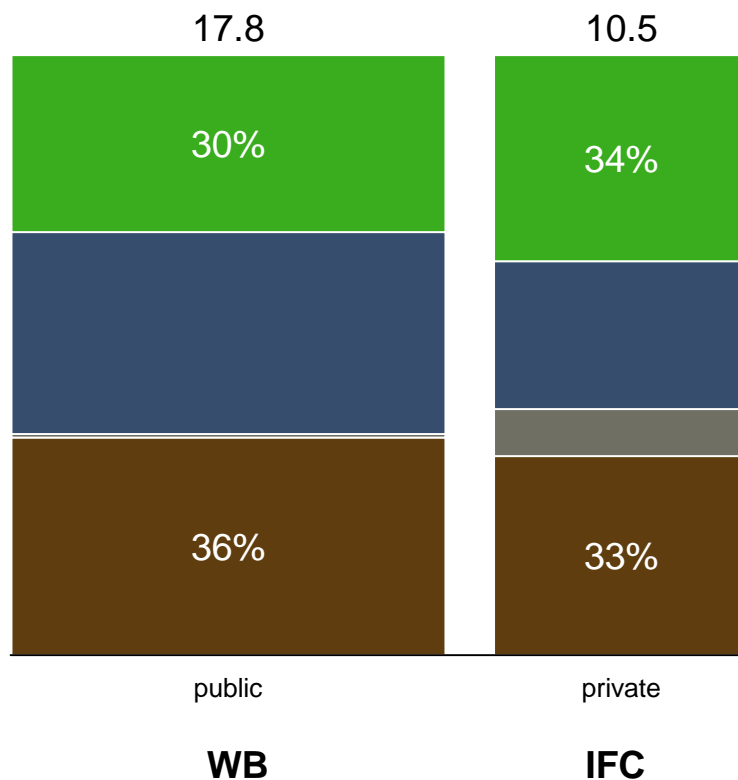
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# Within World Bank group, invest comparable across sectors

Investment into power generation per sector (USD bn 2005-2015)

■ renewable excl. hydro 
 ■ hydro 
 ■ unspecified 
 ■ non-renewable

Preliminary analysis



Source: Steffen, B.; Schmidt, T.S. (2017). The role of public investment & development banks in enabling or constraining new power generation technologies, IEEE Conference Proceedings, 14th International Conference on the European Energy Market (EEM), 2017. doi: 10.1109/EEM.2017.7981949

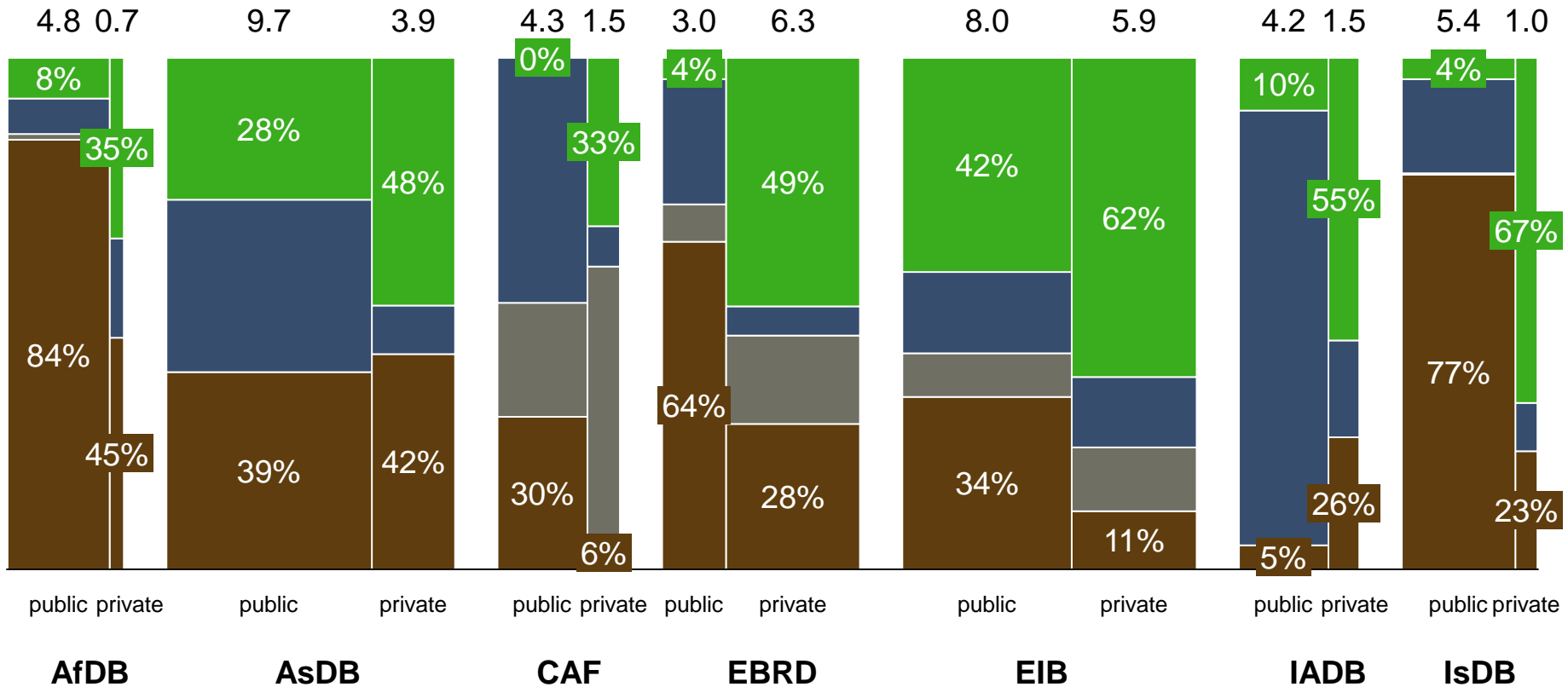


# But stark differences at regional MDB btw. public & private

Investment into power generation per sector (USD bn 2005-2015)

renewable excl. hydro hydro unspecified non-renewable

Preliminary analysis



Source: Steffen, B.; Schmidt, T.S. (2017). The role of public investment & development banks in enabling or constraining new power generation technologies, IEEE Conference Proceedings, 14th International Conference on the European Energy Market (EEM), 2017. doi: 10.1109/EEM.2017.7981949

# MDB increasingly take role to fund RE—with clear limitations

## Both global and regional MDB take role to fund RE in developing countries

- In many cases by building up renewable energy portfolio on top of existing business
- Capabilities & processes, instruments (& their flexibility) largely appropriate to accommodate RE needs

## Hurdles remain especially in public-sector arm of banks

- In principle, MDB strongly involved in technology selection process
- However, need to meet “level of comfort” of local counterparties, and tender process restrictions

## To further increase share of RE, public-sector arms thus requires “special attention”

- Shifting more funds to private-sector arms not a solution for certain countries
- Potentially well-targeted concessional finance with strong lever

## Importance of MDB for power gen. invest in dev. countries calls for further research

For further details:

Steffen, B.; Schmidt, T.S. (2017). The role of public investment & development banks in enabling or constraining new power generation technologies, IEEE Conference Proceedings, 14th International Conference on the European Energy Market (EEM), 2017. doi: 10.1109/EEM.2017.7981949

<http://ieeexplore.ieee.org/document/7981949/>

<http://www.epg.ethz.ch>