

Cluster Evaluation: Solar Power Operations of EBRD

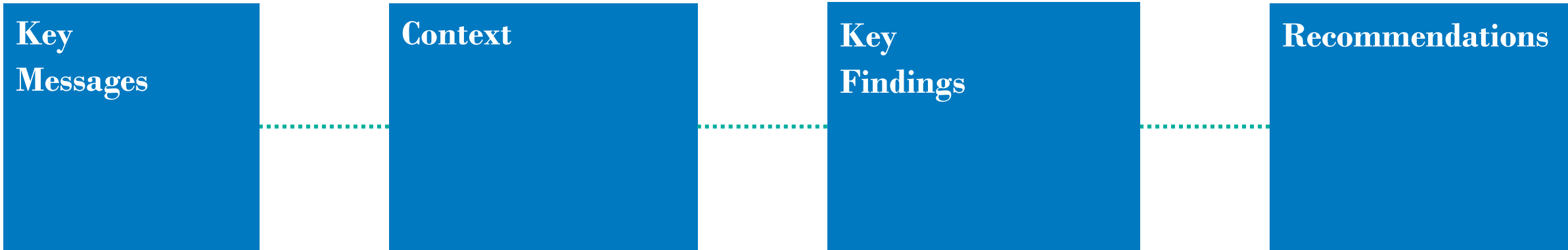
Energy Evaluation Europe 2022 Conference

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The Bank's policy dialogue and financing was pivotal



- **The EBRD's policy dialogue played a key role** in developing bankable PPAs, transitioning to auctions, and providing support to off-takers.
- **The Bank's financing demonstrated clear additionality**, due to limited provision of project finance from commercial banks

Complex and dynamic sector with many stakeholders creates challenges for policy dialogue and financing



- Dynamic sector, with **cost of solar panels falling 85%** between 2010 and 2020 (increase thereafter)
- **Huge interest from other IFIs and donors** – crowded space for policy dialogue
- Led to **difficulties in planning long-term policy dialogue**, due to activities from other stakeholders and policy changes
- Dynamic, evolving sector led to **increased risk** if regulations (particularly on tariffs) did not stay updated with changes in the market

Challenges stemming from solar overcapacity and excess electricity production



- However some countries have experienced a '**solar bubble**' due to very attractive rate of solar tariffs and the challenges in integrating fast-growing solar into their electricity systems (exacerbated by drop in demand due to COVID)
- Thus, in some cases, EBRD contributed to **network imbalances and financial distress** of off-takers

Recommendations to support sustainable growth of the solar sector



- Focus on **integration** of intermittent renewable energy resources (not generation only)
- Support **hybrid auctions** integrating storage capacity
- Apply analysis of **networking balancing capacity** in project due diligence
- Perform comparison of **tariff level with local energy cost** to understand sustainability
- Identify and scale-up **opportunities for co-financing** (hard and soft)

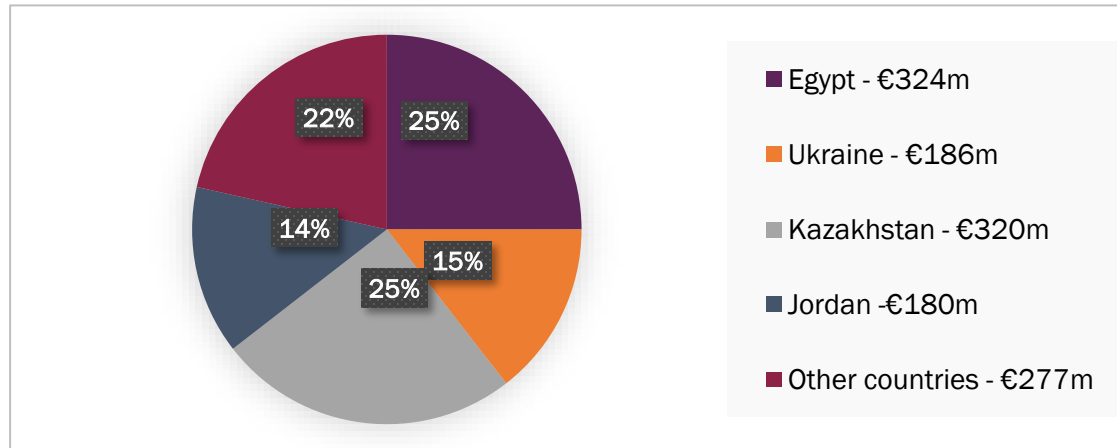
Cluster evaluation of 10 projects across 6 countries

Timespan



Evaluated projects were signed between 2016 and 2020

Geographical range



Two projects in Egypt, Ukraine, Kazakhstan, Jordan, and Cyprus, along with a project in a new solar market (Uzbekistan)

Methodology

Assessment of project performance using OECD-DAC Evaluation Criteria combined with a set of evaluation questions

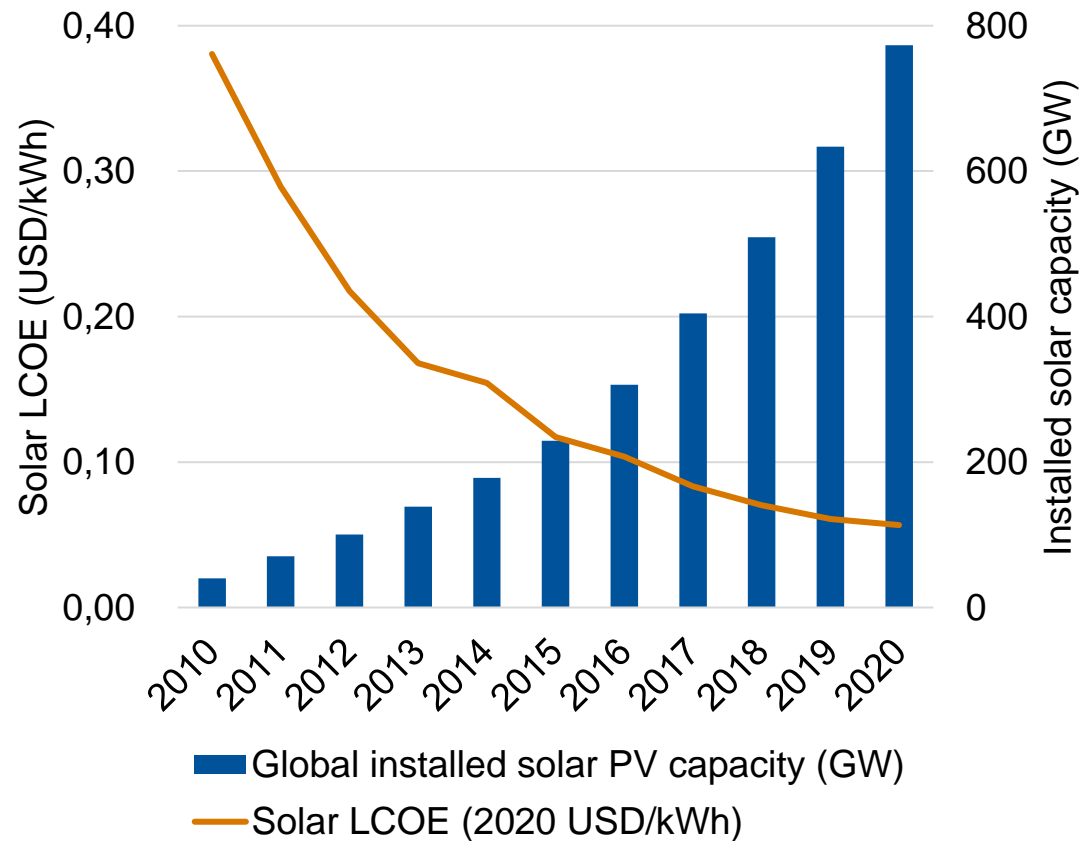
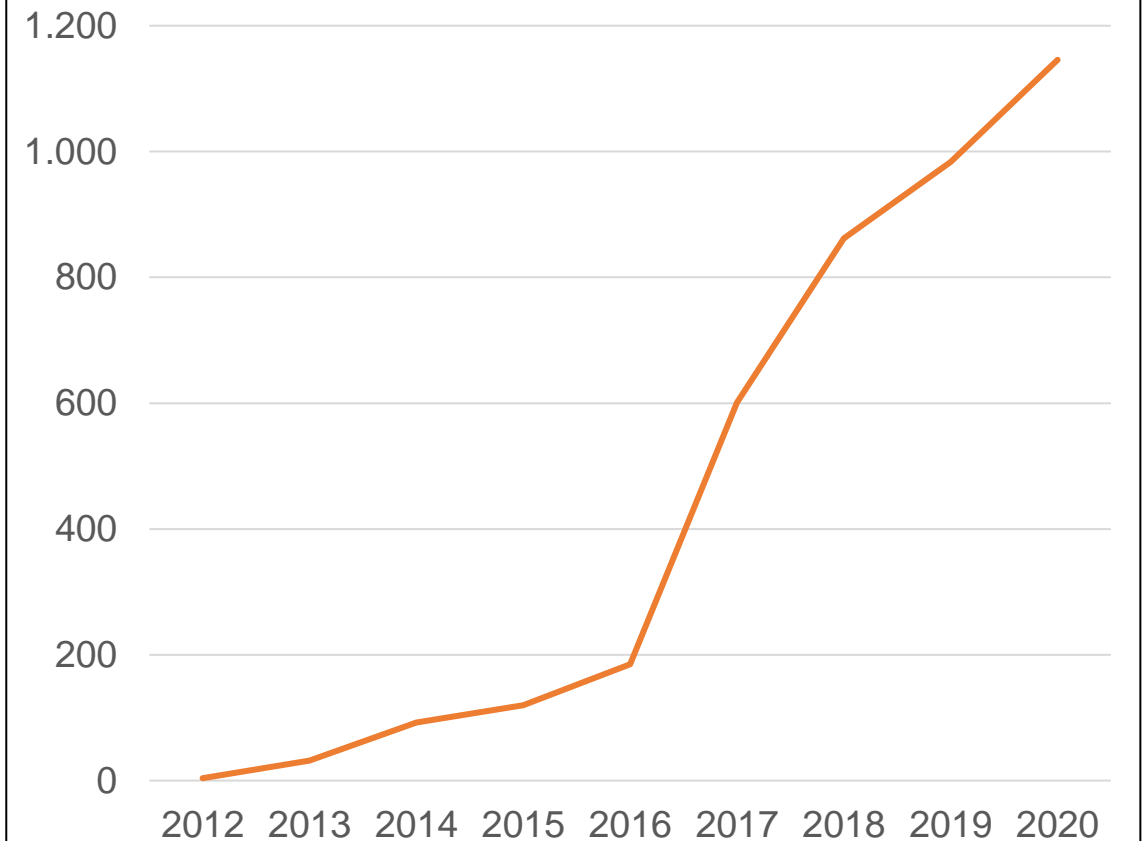


Scope

Encompassing investments, as sociated consultancy (TC), and relevant policy dialogue in the broader energy sector



A rapidly growing sector with a dramatic change in cost

Installed solar capacity has climbed rapidly
as the cost has fallenCumulative EBRD debt financing for solar
projects (EUR mn)

Key findings:

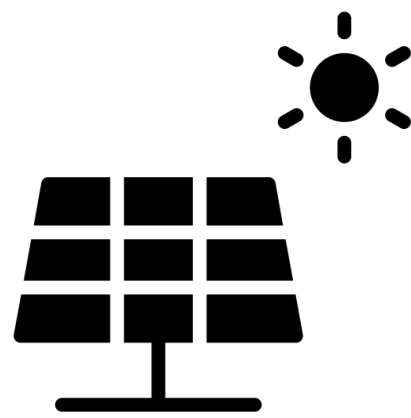
Successful development of the solar sector is built on a holistic approach



Investment in transmission grids and capacity building for operators
EBRD provided strong support



Capacity building and policy guidance for off-takers and regulators
EBRD provided strong support

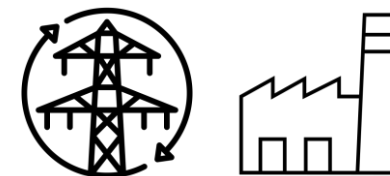


Enabling factors for solar

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Green energy storage options
EBRD support is emerging



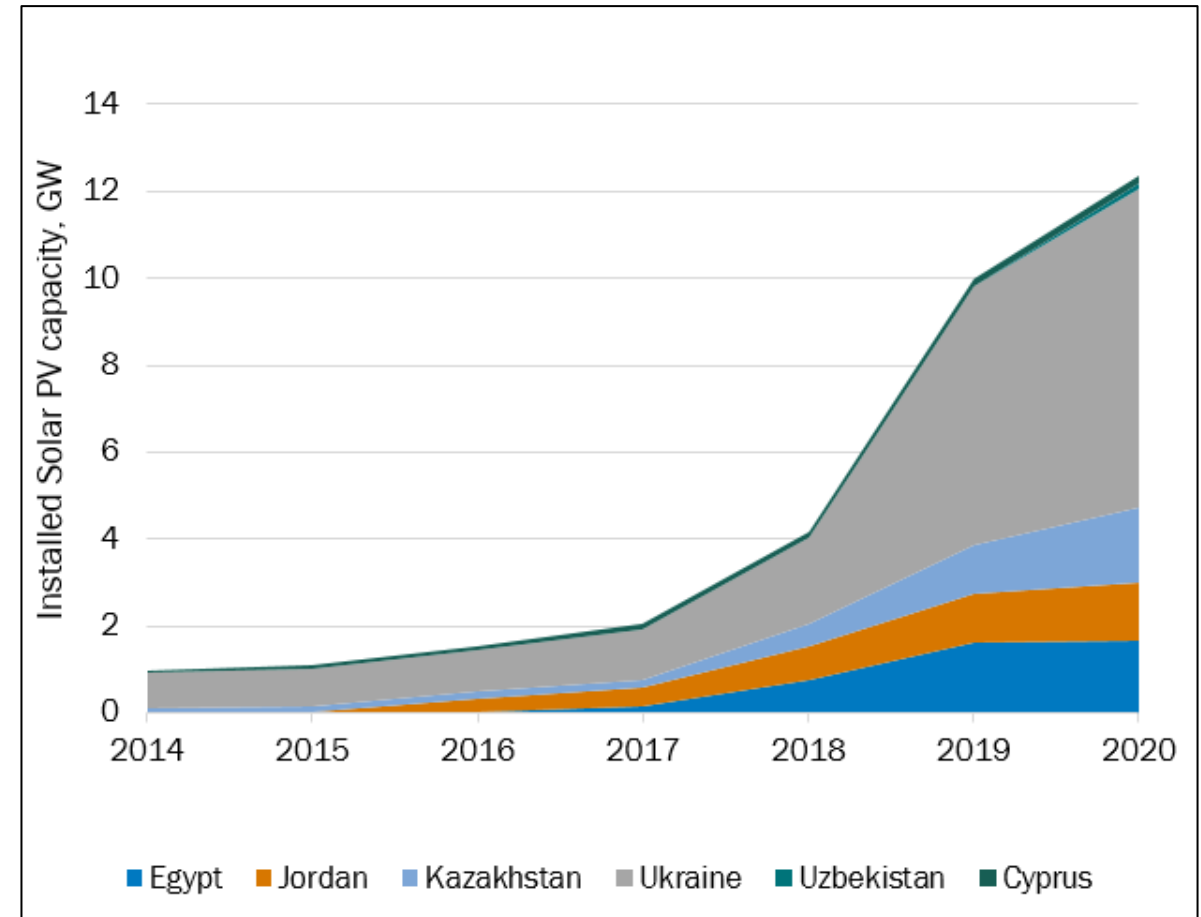
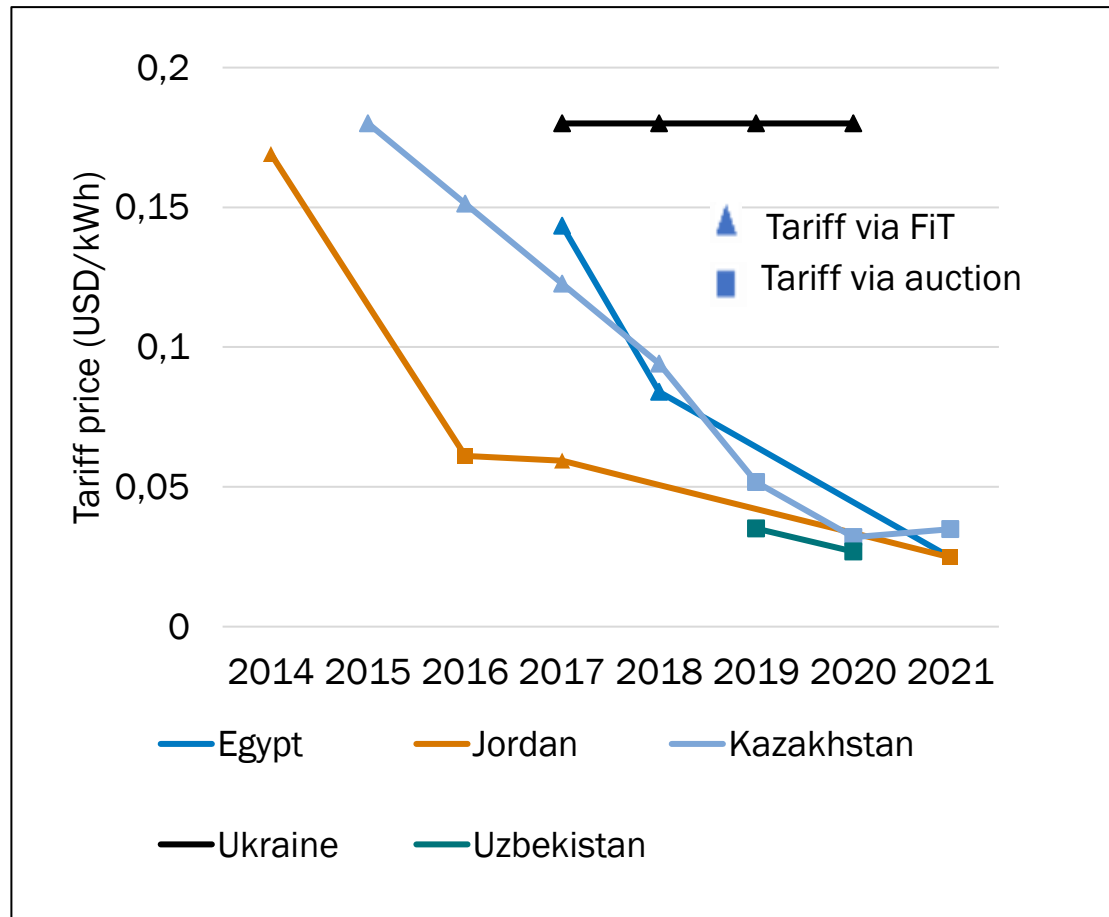
Cross-border transmission, decommissioning of old plants and other energy balancing options
EBRD support evolving in selected regions

Key findings:

In such a **dynamic market, price flexibility** is vital to stop **bubbles forming** and to ensure **system sustainability**



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Tariff inflexibility in Ukraine led to **rapid growth** in the market, but also a damaging **retrospective tariff cut**

Key findings: Relevance



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Solar projects demonstrated **high strategic relevance** and **significant additionality**



Solar projects were very relevant towards the Bank's Country and Sector Strategies and Bank-wide initiatives (e.g. GET Approach), as well as the policy agendas of National Governments

Some clients partnered with the EBRD in expectation that the Bank would provide political risk protection. This provided an avenue for additionality, in addition to extensive policy dialogue.

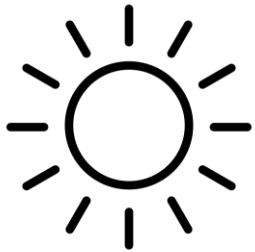


The Bank's Financial Additionality was generally strong. Project financing for solar is often not available from local financial institutions on an affordable basis. The financial additionality of equity bridge loans is less clear, although those projects are still justified if they provide an entry point for the Bank into the sector



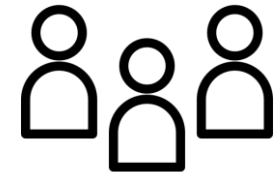
Key findings: Effectiveness and efficiency

Solar projects have tended to **generate electricity** and contribute to **reducing CO_{2e} emissions** in line with or above forecasts. The financial performance of solar projects has been **stable**, with EBIDTA margins of about 80%. The key **risk is off-takers renegeing on payments**



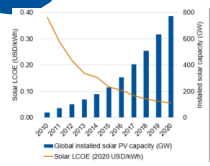
Almost all solar projects were constructed on time and on or under budget, with energy generation and financial performance broadly in line with expectations

Temporary employment effects during construction. Maintenance requires a small team (<20 people). Limited backward linkages to local economies with most equipment imported.



Targets related to catalysing private sector finance were broadly not achieved. Failure of these benchmarks was often due to moratoriums on new solar projects due to capacity constraints or unwillingness of local banks to accept regulatory risk related to RES project financing.

1



A fast-changing sector, and in some countries ad-hoc but focused advice from bankers was more effective than structured, large TCs

2

Use of Low Carbon Pathways to set strategy and enable decommissioning of old thermal power plants.

- Builds political support at macro-level
- Identifies hydrocarbon power generation in alignment with long-term decarbonisation goals

3



Bankable PPAs offering long-term stability were a critical first step towards attracting investment.

4



Setting FiTs within primary legislation

made them difficult to adjust when investment costs decreased dramatically. This led to windfall opportunities for investors, but increased costs for governments/consumers, and created high risk of retrospective tariff cuts

5



Affordability of solar (and RES) in general is best addressed through

the transfer of a FiT-based system to one based on auctions, which has demonstrated the ability of investors to offer tariffs several times lower than the FiT

1. Strengthen support for integration of intermittent renewable energy sources

- Address **bottlenecks** in countries experiencing **rapid growth** of solar power
- Target more vigorously financing for **electricity storage**, decommissioning old thermal power plants, construction of **balancing capacity**, network upgrades, **cross-border interconnections** and demand management

2. Encourage relevant authorities to consider hybrid auctions integrating energy storage

- **Hybrid auctions** could provide the foundation for a more **sustainable development of solar energy**
- Solar-storage **hybrid auctions** have been **successfully launched** in South Africa, Portugal and Germany

3. Incorporate analysis of electricity generation capacity and assessment of the tariff regime's sustainability in country-specific frameworks

- Analysis of **network balancing constraints** should underpin EBRD's investment decisions into solar
- Comparison of **cost of solar** with local energy prices can provide an indicator of the implicit subsidy as well as the tariff regime's **sustainability**

4. Increase efforts to obtain co-financing for solar projects, focusing on commercial financing in mature markets and blended financing in ETCs

- **Policy dialogue** support to facilitate **financing** from **local financial institutions** into **renewable energy**
- Some evidence that **other IFIs are more attractive in Early Transition Countries** due to increased access to **donor resources** and **blended financing**

Thank you.



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