

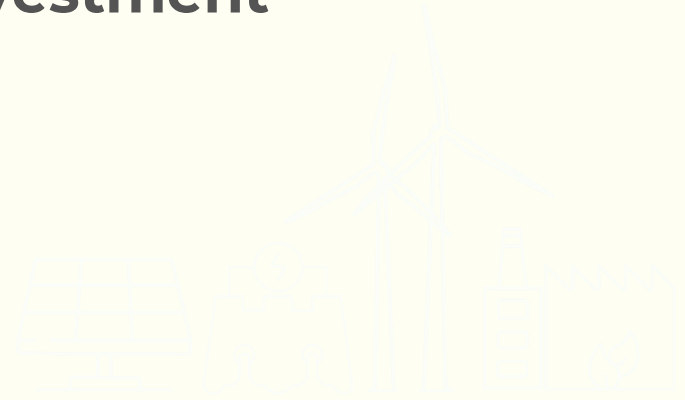


RENEWABLES FIRST

# Derisking Pakistan's Renewable Energy Future

## Leveraging Financial Innovation to Catalyze Renewables Investment

Whitepaper  
December 2024



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**Disclaimer**

All the information and analysis provided in this document are accurate and to the best of our knowledge and understanding, in case you identify any error, please email: [info@renewablesfirst.org](mailto:info@renewablesfirst.org).

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## Key Highlights

<b>The global landscape</b>	<p>Global clean energy investments hit USD 1.8 trillion (T) in 2023 with renewables taking a 35% share, emerging markets (excluding China), however, remain stagnant at USD 260 billion (B) annually. While advanced economies rely primarily on private funding, emerging markets depend heavily on constrained public financing, limited by fiscal challenges and high debt burdens.</p>
<b>Cost of capital predicament</b>	<p>High interest rates and risk premiums in emerging markets double their capital costs compared to advanced economies. The International Energy Agency (IEA) estimates that a 1% reduction in financing costs in these markets could save USD 150 B annually in Net Zero Emissions (NZE) Scenario between 2024 and 2050.</p>
<b>Pakistan's renewables landscape</b>	<p>Over the past 14 years, renewable energy (RE) investments totaled USD 4.6 B, peaking at USD 1.4 B in 2015. Almost 80% of these investments were debt-backed while more than 50% are foreign-sourced. However, subsequent policy shifts toward imported fuel and regulatory uncertainty have stalled or canceled projects worth USD 911 million (M).</p>
<b>Pakistan's cost of capital conundrum</b>	<p>The cost of capital situation has worsened due to sovereign liquidity crisis and record-high interest rates of 22% through most of fiscal year (FY) 2024. Despite monetary easing post June 2024, Pakistan's precarious credit position and high default risk have made lenders wary of utility-scale renewable projects.</p>
<b>The renewables fallout</b>	<p>Previously attractive returns of 12-14% on equity and 4.25% debt premium on renewable projects no longer reflect market risks given recent economic decline. Power sector challenges like circular debt and delayed payments have further deterred foreign financing, with credit margins now exceeding regulatory approved rates. These factors have effectively halted financial closures for new utility-scale renewable projects.</p>
<b>Addressing the problem</b>	<p>To address high capital costs, solutions include tapping capital markets through securitization and using blended finance structures with patient capital to reduce investment risks. Additional measures needed are currency hedging mechanisms, fiscal incentives, and supportive monetary policies to encourage bank lending.</p>

## Key Highlights

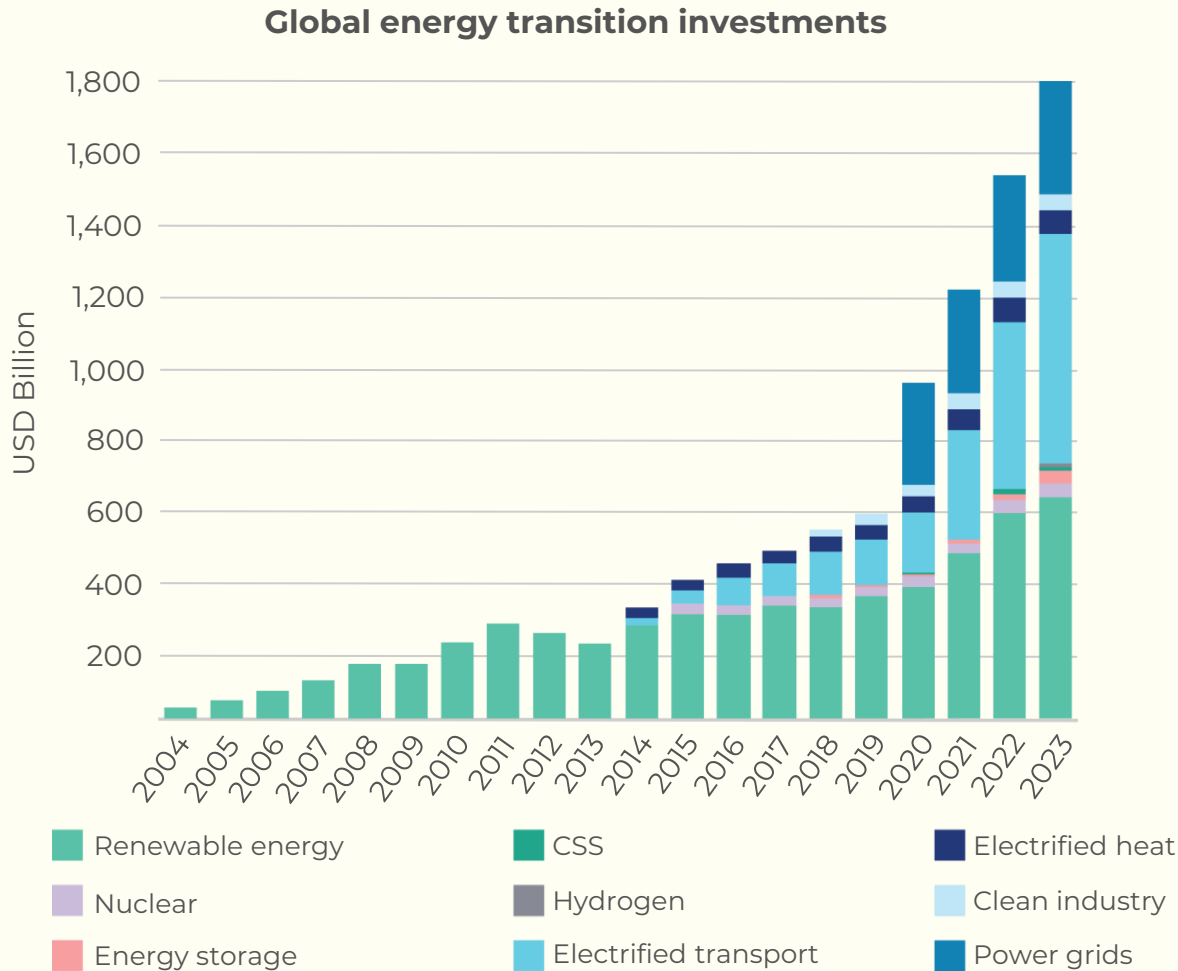
<b>Project securitization</b>	Securitization pools small assets like solar leases and Power Purchase Agreements (PPAs) into larger, tradable bonds, offering companies access to new funding streams while providing investors with standardized products. Pakistan's growing solar adoption and PKR 4 T non-banking finance sector presents an opportunity to reduce capital costs through securitization, potentially attracting institutional investors seeking lower returns than banks.
<b>Blended finance facilities</b>	Blended finance strategically combines public and private capital to overcome high-risk barriers in RE projects, particularly in developing markets like Pakistan. The country's recent success in closing climate funds, leveraging first-loss coverage through Green Climate Fund (GCF) to unlock co-financing, demonstrates how similar structures could accelerate RE investments despite challenging market conditions.
<b>Currency hedging</b>	Currency mismatches between local renewable project revenues and foreign loans pose significant risks in emerging markets like Pakistan, where exchange rate volatility deters foreign investment. Cross-currency swaps offer a solution by allowing RE developers to exchange payment streams in different currencies at pre-agreed rates, effectively hedging against currency fluctuations while potentially securing better borrowing terms.
<b>Fiscal prudence</b>	With the International Monetary Fund (IMF) restricting the State Bank of Pakistan's (SBP) concessional financing role, Pakistan must pivot its power sector subsidies toward strategic alternatives to maintain RE momentum. Key solutions include equity injections into institutions like Credit Guarantors—where a PKR 1 B investment could leverage PKR 10 B in guarantees—and establishing dedicated RE endowment funds.
<b>Monetary incentive</b>	With RE attracting less than 1% of private sector credit, SBP can boost green lending through reduced reserve requirements and preferential rates—following Indonesia's incentive model—while maintaining robust eligibility criteria and verification processes.
<b>Call to action</b>	Establishing a robust policy framework and integrating sustainability principles within the financial sector can serve as a catalyst for advancing climate initiatives, enhancing de-risking mechanisms, shaping green taxonomy standards, and fostering the development of the green bond market, ultimately encouraging growth and diversification in renewables investments. However, initiating systemic change requires a strategic regulatory overhaul, backed by international partners, which will subsequently trigger market-driven innovations.

# Global Investments in Renewables and The Energy Transition Gap

This section includes:

- The share of renewables in global cleantech investments
- Emerging markets' clean energy investment constraints

## Renewables are leading the charge in the global cleantech investments

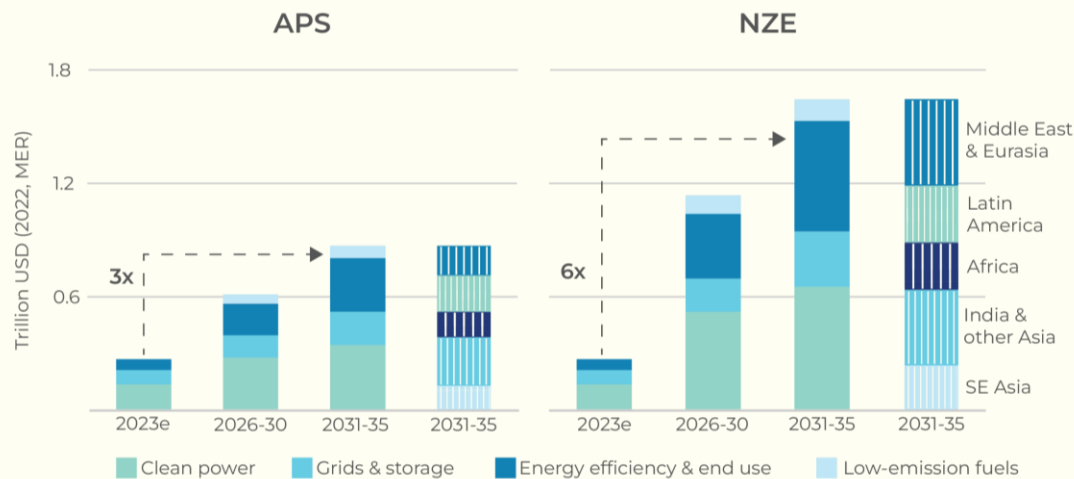


Global energy transition investments surged 17% to USD 1.8 T in 2023, despite economic, political, and logistical hurdles. Of which, RE captured the largest share at 35% of total funding.

Investment in clean energy has accelerated since 2020, and spending on renewable power, grids, and storage is now higher than total spending on oil, gas, and coal.

# Emerging markets have only seen a fraction of energy transition investments

## Clean energy investments in EMDE by sector and region in the Announced Pledges Scenario (APS) and the NZE-scenario



Details about: [APS, NZE Emissions by 2050 Scenario](#)

Despite massive global investments in clean energy, emerging and developing markets attract only a small portion of total funding, even though they have significant financial needs for clean energy expansion. Outside of China, clean energy spending in emerging markets has remained relatively stagnant, averaging around USD 260 B annually in recent years.

\*MER = Market Exchange Rate

Currently, about half of the financing for clean energy projects in Emerging Markets And Developing Economies (EMDEs) comes from public sources, including development finance institutions. This contrasts with advanced economies, where public financing accounts for only about 20%.

While funding from all sources needs to increase, many EMDEs have limited capacity to expand public sector support as the COVID-19 pandemic, rising interest rates, and debt sustainability concerns have weakened fiscal positions in these countries.

Additionally, infrastructure projects like low-emissions power generation, grids, and storage rely heavily on debt financing. While public utilities control transmission and distribution in most emerging markets, their high debt burdens, and weak revenues often limit their ability to secure capital for essential grid expansion needed to integrate RE.

# The Role of Cost of Capital

This section includes:

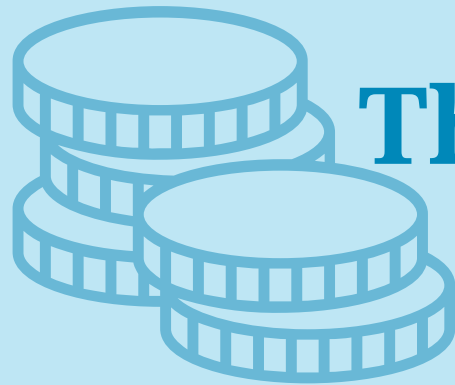
- The definition of cost of capital
  - Drivers of recent surge in cost of capital globally
- Impact of cost of capital on global clean energy investments
  - Lack of market depth further adding to the financing woes



**Cost of Capital = Weighted Average Cost of Equity + Weighted Average Cost of Debt**

**Cost of Equity = Investor's Required Rate of Return**

**Cost of Debt = Post-tax Interest Rate**



# The cost of capital

The cost of capital is the minimum profit an investor expects to make from putting money into a company or project. It is a threshold that helps investors decide if an investment is worth it. This cost acts as a benchmark for judging investment risk and potential returns. It's sometimes called the "hurdle rate" because investments need to "jump over" this rate to be considered worthwhile. The term can also be referred to as the "financing cost." In essence, it's the price of using money for a business venture. If an investment can't beat this cost, investors will likely look elsewhere for better opportunities. Further, different investors would have different return expectations.

The cost of capital is made up of two main parts: **the cost of debt** and **the cost of equity**.

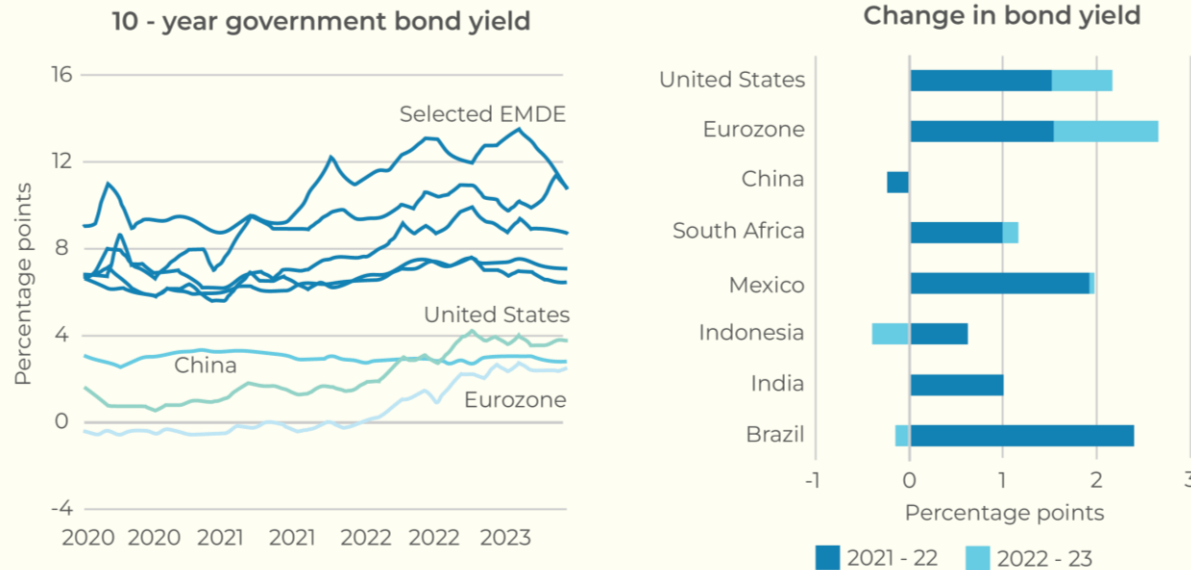
**The cost of debt** is what it costs a company to borrow money, after considering tax benefits. It includes a base rate (like the interest on a government bond) plus an extra amount (risk premium) based on how risky the company or project seems to lenders.

**The cost of equity**, on the other hand, is how much profit shareholders/sponsors expect to get for investing their money in the company or a project. It's also called the expected return on equity.

To get the total cost of capital, you combine these two parts based on how much debt and equity the company is using. This total represents the overall cost of financing for the company or project.

# Rising domestic interest rates have elevated financing challenges

**Indicators of economy-wide cost of debt (10-year government bond yield), 2020- first half 2023**



Bonds yield in emerging market and developing economies are significantly higher than those in advanced economies and china.

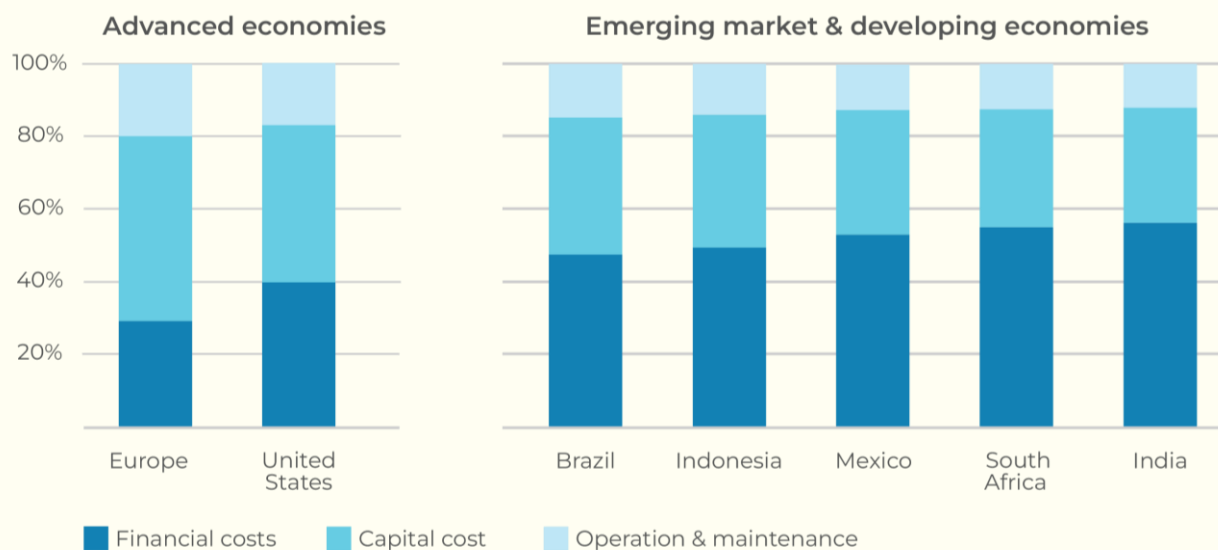
Most EMDEs face high costs of capital largely due to elevated domestic interest rates, which are often a result of high inflation. These high rates set a challenging threshold for investments and make financing difficult to secure.

When borrowing in foreign currencies like US dollars, the cost is typically calculated as the US borrowing rate plus an additional premium based on the perceived risk of the country where the project is located.

In 2022 and 2023, interest rates on long-term government bonds - a key indicator used to estimate borrowing costs - increased significantly in numerous countries including Pakistan where 10-year bond yields rose more than .3 percentage points during these two years.

## Cost of capital continues to be the largest component of the cost of energy

**Composition of levelised cost of electricity for a utility-scale solar PV plant with final investment decision secured in 2022**



**The cost of capital accounts for around half of the total levelised costs in EMDE, significantly more than in advanced economies.**

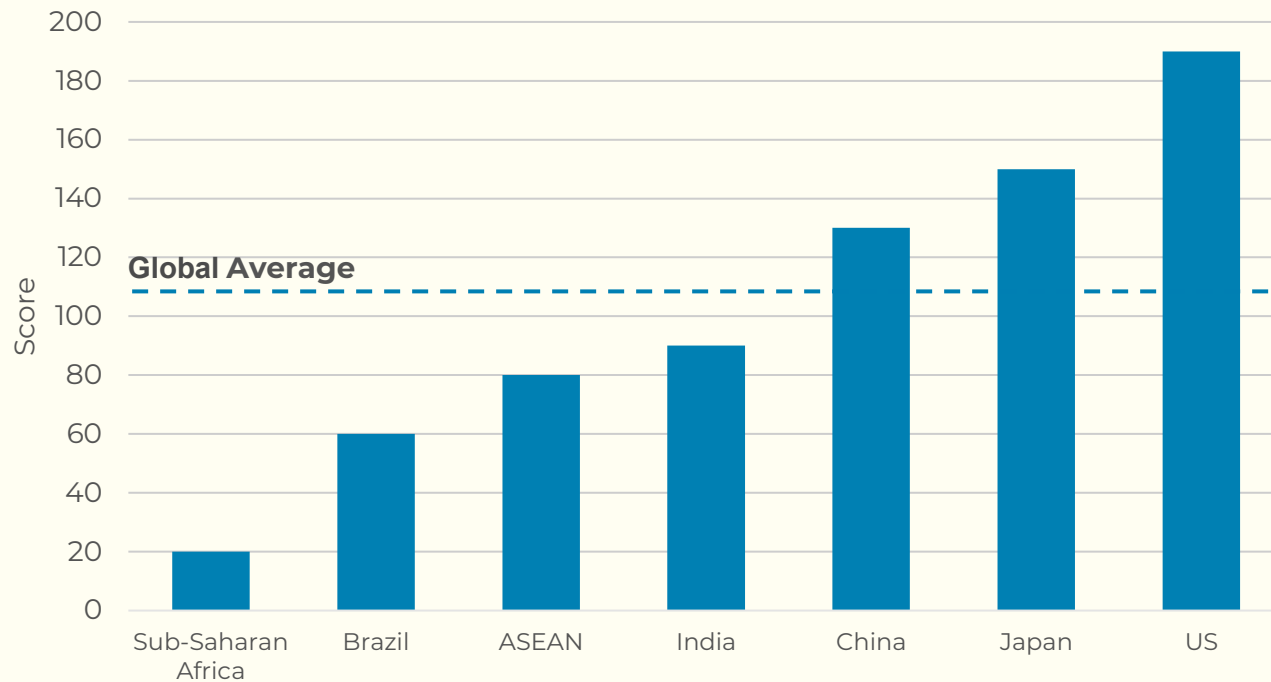
High financing costs pose a major obstacle to clean energy development in EMDEs. These countries face cost of capital that are almost double than those in advanced economies and China. While broader economic conditions and country risks drive these elevated costs, challenges specific to the energy sector also contribute significantly to the expensive financing.

Narrowing the gap between EMDEs and advanced economies through energy-sector-specific interventions could substantially lower the overall cost of implementing RE at scale.

The IEA estimates that even a 1 percentage point (or 100 basis point) reduction in the cost of capital in EMDEs can lead to a reduction of USD 150 B in average annual financing costs in the NZE scenario between 2024 and 2050.

## Lack of financing alternatives has further strained renewables investment

**Financial depth indicator, selected countries and regions**



Domestic financing capacity for energy projects varies widely among EMDEs. Countries like India, Brazil, and ASEAN nations with mature financial markets rely primarily on domestic capital, supported by green bonds and government backing.

However, in regions like sub-Saharan Africa, where financial markets are less developed, institutional investors tend to focus on government securities rather than infrastructure investments, creating distinct financing challenges that require market-specific solutions.

# Pakistan's Renewables Landscape

This section includes:

- Mapping of renewables financing flows in Pakistan

# In Pakistan, Fluctuating Financing Flows Have Kept The Progress Muted For RE

Utility-Scale  
**USD 4.6 B**

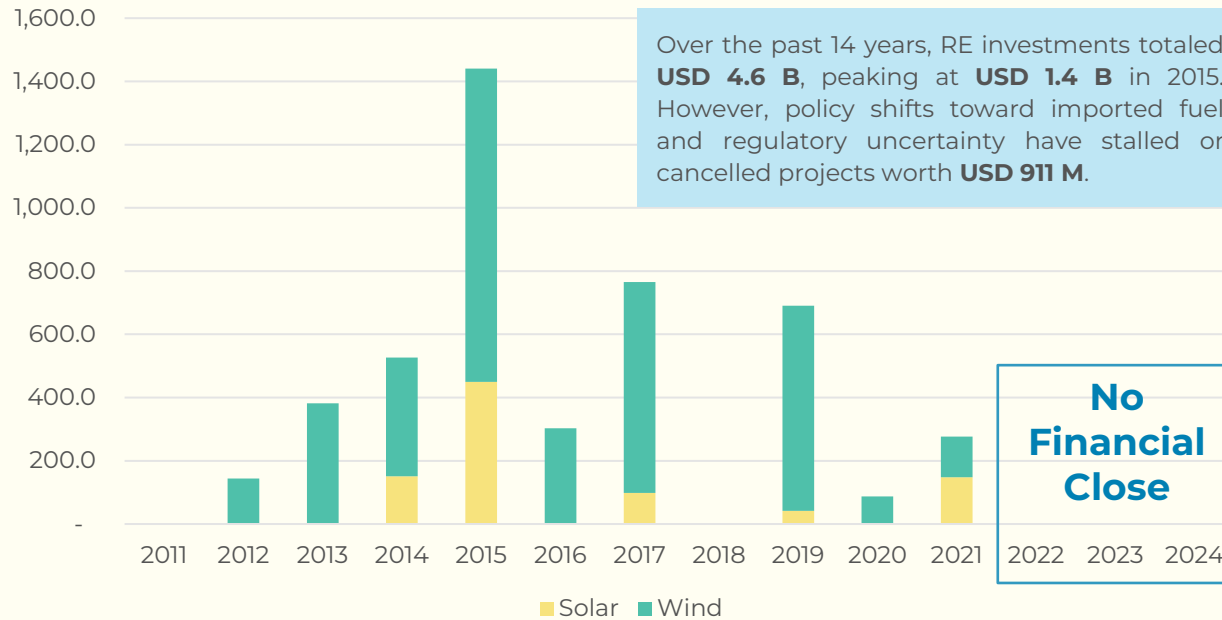
Wind Projects  
**81%**

Solar Projects  
**19%**

Pipeline  
**USD 911 M**

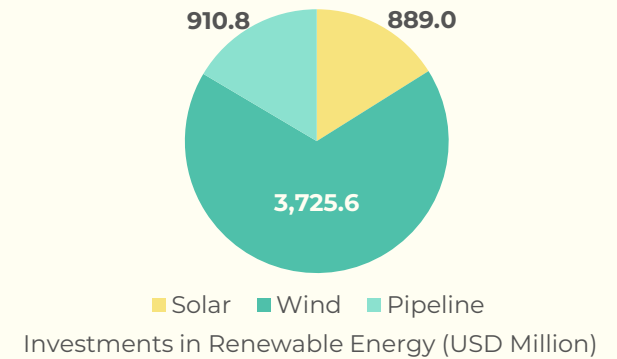
2015  
**USD 1.4 B**

Installed Capacity  
**2,600 MW**

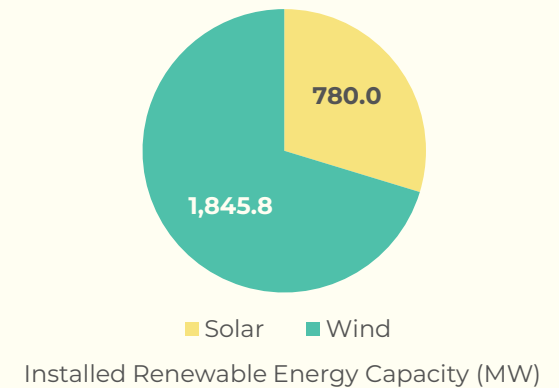


\*Investment Trends in Renewable Energy (USD Million)

\*Values updated until June 2024  
\*Utility Projects

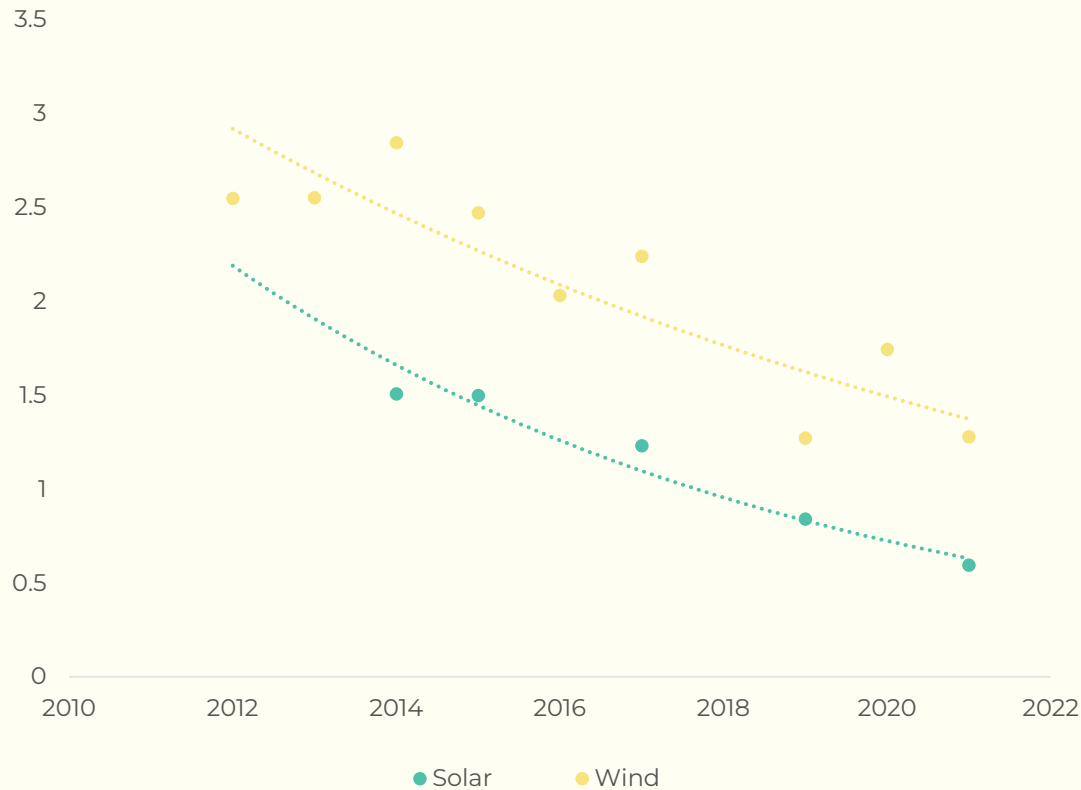


Investments in Renewable Energy (USD Million)

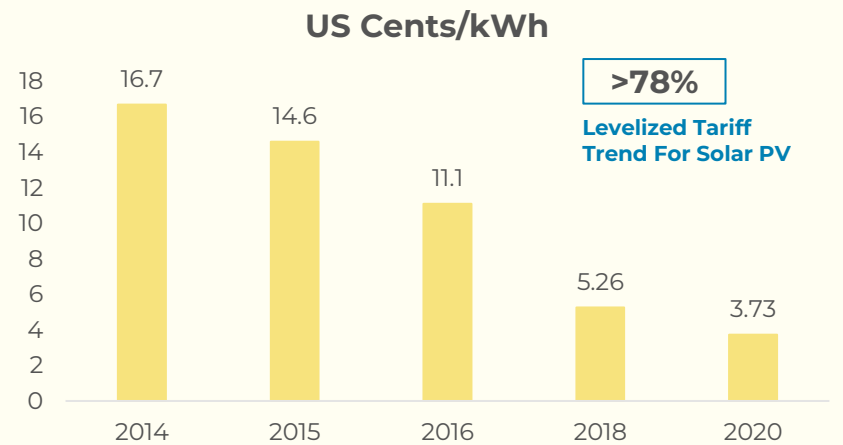
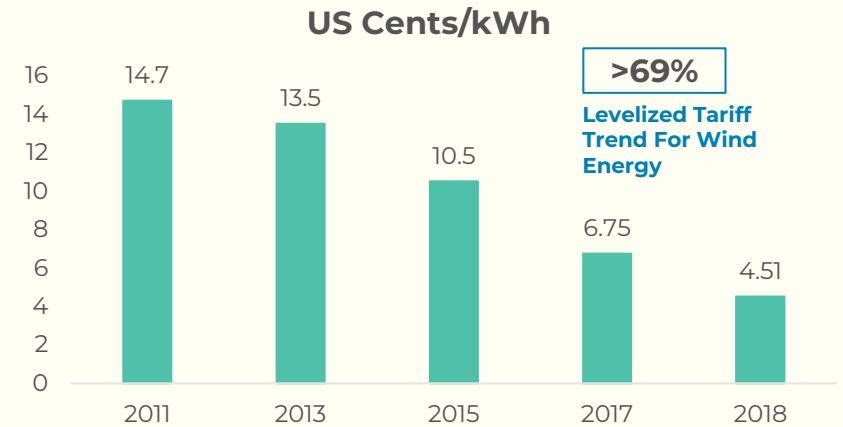


Installed Renewable Energy Capacity (MW)

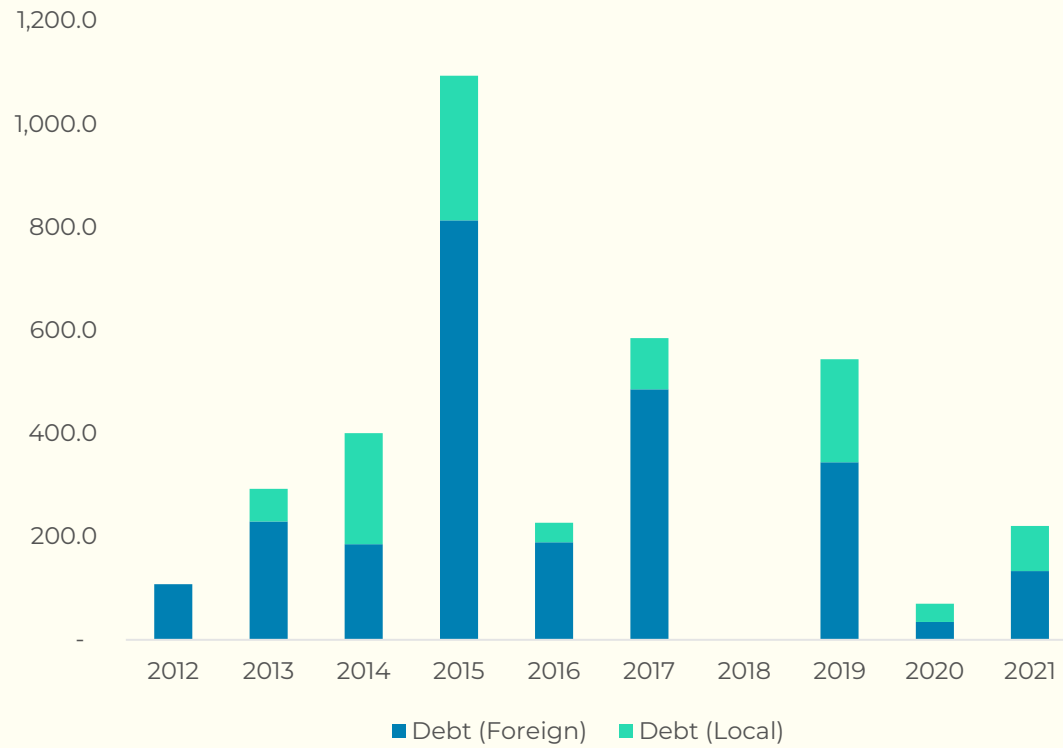
# The cost of renewable technology has come down, reflected in the cost of energy trends



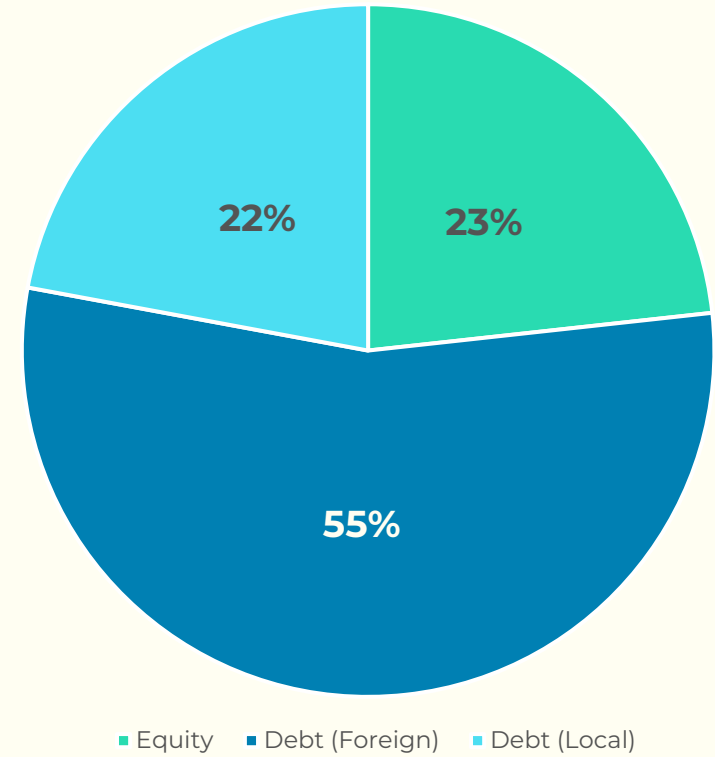
Trends In Average Build Cost Of Renewable Energy (USD Million)



## Foreign debt key for enabling utility-scale renewables projects in Pakistan



Trends Of Debt Composition Of Renewable Energy Projects



Investments In Renewable Energy



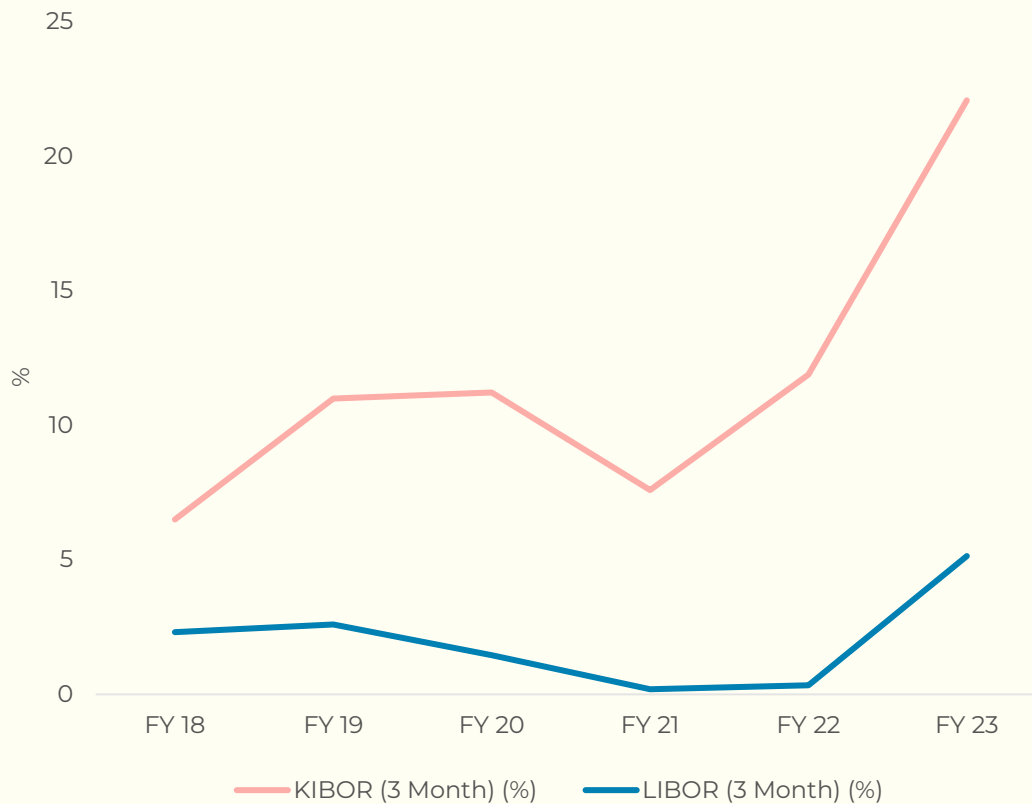
# Cost of Capital & Key Risks

This section includes:

- Drivers of cost of capital in Pakistan
- A simulation on how cost of capital can impact cost of renewable energy
  - Possible remedies for these challenges

## Inflation and interest rates have been a local pain point

**Karachi Interbank Offer Rate (KIBOR) & London Interbank Offer Rate (LIBOR) yearly trend, 2018-2023**



Global inflation rates have increased significantly since 2021, prompting central banks worldwide to aggressively tighten monetary policy by rapidly raising interest rates.

The cost of capital situation in Pakistan has also deteriorated significantly over the past FY, with several factors including sovereign liquidity crisis contributing to a challenging investment environment.

Throughout most of the FY24, Pakistan maintained a record-high interest rate of 22%, with only a modest 1.5% rate cut implemented in June 2024.

This domestic monetary tightening occurred against a backdrop of rising global lending rates, with the Secured Overnight Financing Rate (SOFR) increasing by 25 basis points in FY24.

# Perceived risks have added to the increased cost of capital

Pakistan's precarious credit position, the lowest in almost three decades, has made lenders hesitant to finance utility-scale RE projects.



Previously, investors in utility-scale RE projects demanded a return on equity of around 12-14% and a debt risk premium of 4.25% (foreign debt).



Despite recent improvements in Pakistan's credit ratings, the country remains at high default risk. Given the significant economic decline over the past two years, current risk premiums and returns don't fully reflect the market risk.



Compounding the issues are sector-specific challenges within Pakistan's power sector. Problems such as circular debt, delayed payments, and renegotiating existing Energy Purchase Agreements (EPAs) have further deterred foreign financing.



Securing foreign financing for developers has become difficult, with expected credit margins now exceeding NEPRA's approved rate of 4.25%.



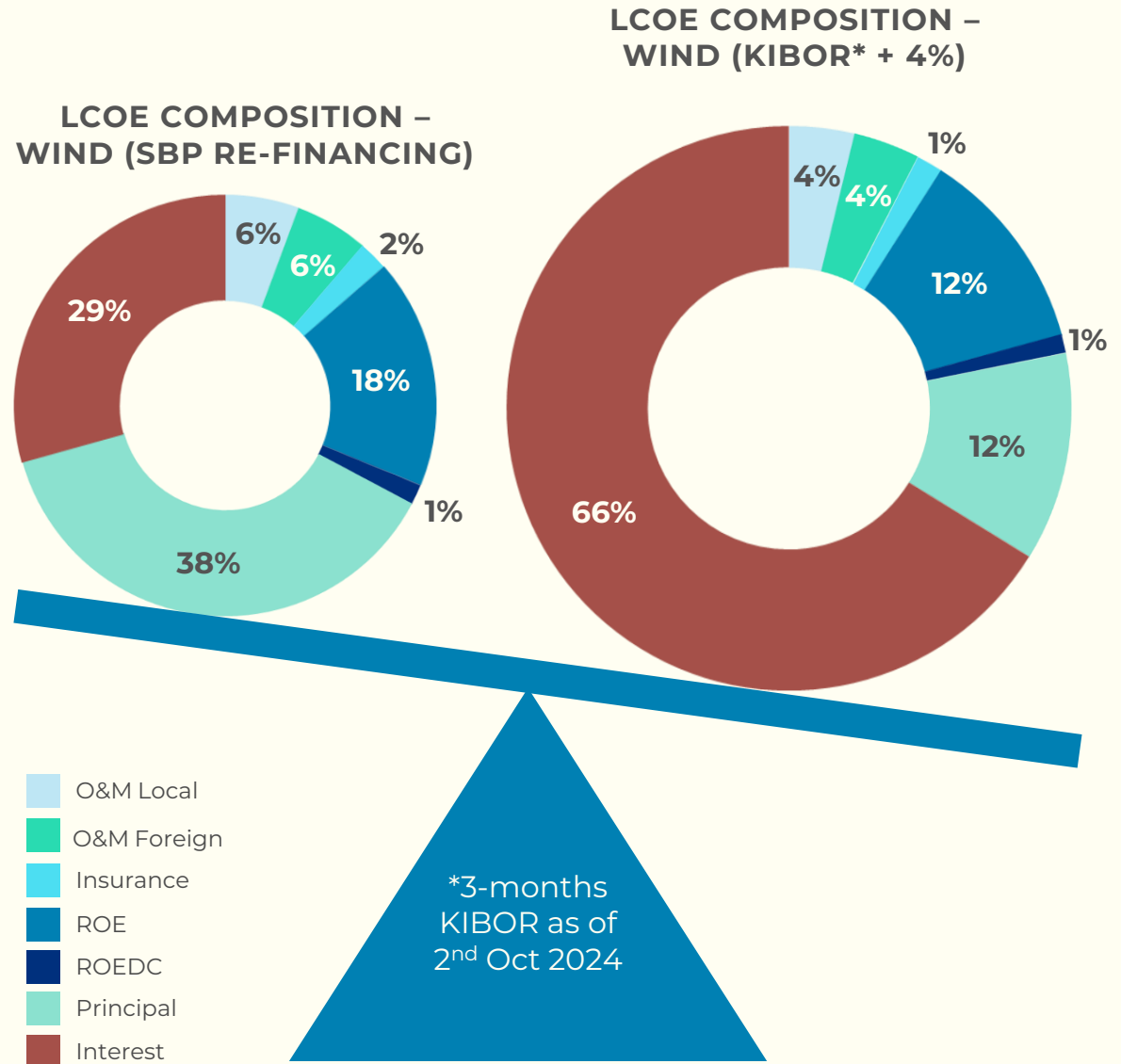
These factors have prevented any utility-scale RE projects from reaching financial closure in the recent past.

## Elevated cost of capital have a significant impact on the feasibility of renewables

If already established utility-scale RE projects were to be deployed at the current cost of financing, especially the cost of debt, the Levelized Cost of Electricity (LCOE) would be higher than that of existing projects. Previously, Pakistan's RE financing scheme, which offered lending at a rate of 6% for these projects, was arguably the most significant component in making them commercially viable. However, due to fiscal constraints, Pakistan has discontinued this concessional financing scheme for renewables.

Our analysis demonstrates the impact of these changes. Incorporating increased rates into the base tariff calculation for a wind project established under the SBP concessional finance scheme would alone result in around a 40% increase in the cost of energy. Moreover, if the elevated risk for equity and debt is factored in, this figure will likely rise even further, making the investment case for RE projects less attractive.

Source: RF Insights



## Quantifying these risks reveals the **scale of the challenge**

To better comprehend what feeds into the overall cost of capital, we have taken inspiration from IEA's methodology on how to quantify the impact of the cost of capital on LCOE.

### We adopted the following steps:



#### 1. Identify risk factors:

Created a comprehensive list of potential risks that don't overlap. These include country-wide economic risks and project-specific risks.



#### 4. Conduct interviews:

Inquired with experts about each risk factor on two scales: A) Likelihood of occurrence (1-5) and B) Potential financial impact (1-5).



#### 2. Compare costs:

Calculated the LCOE for an existing Pakistani RE project and compared it to its revised LCOE calculated by using the cost of capital of a best-in-class example.



#### 5. Analyze results:

Calculated weighted averages of the expert ratings to prioritize risks.



#### 3. Gather expert opinions:

Assembled a diverse group of financial experts familiar with the Pakistani market. These include bankers, investors, and analysts.



#### 6. Break down cost differences:

Used this risk analysis to explain the gap between our project's LCOE and the best-case scenario. This helps identify which risks are driving up energy costs the most.

## Varying level of risks have been at play (1/2)

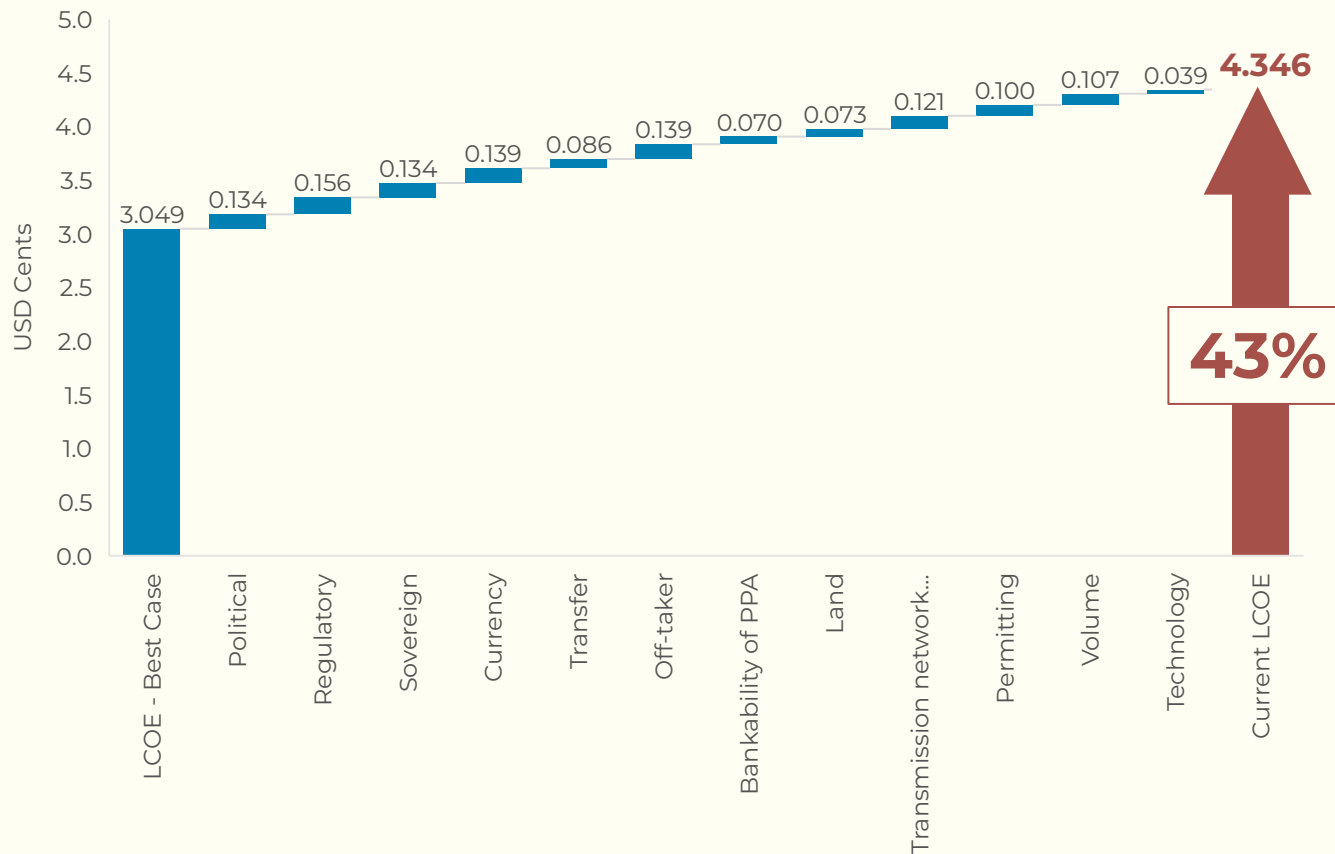
Risk name	Description of risk	Risk examples
<b>Political</b>	<ul style="list-style-type: none"> <li>Changes in expected revenues/return due to political or social instability</li> </ul>	<ul style="list-style-type: none"> <li>Multiple changes in government and regimes led to political turmoil in 2022-2023</li> <li>High country risk driven by political uncertainty has been detrimental to sovereign credit rating</li> </ul>
<b>Regulatory</b>	<ul style="list-style-type: none"> <li>Fear of changes in law/regulation</li> <li>Unclear laws / regulations</li> </ul>	<ul style="list-style-type: none"> <li>Category III wind power projects were promised the first right to auctions under new procurement in 2019. However, the auctions are yet to be executed</li> <li>Auctions regime was introduced in 2019, but no auction was successfully concluded (5 years later)</li> </ul>
<b>Sovereign</b>	<ul style="list-style-type: none"> <li>Risk of public debt becoming unsustainable and the government not being able to pay its debt obligations in time and form</li> </ul>	<ul style="list-style-type: none"> <li>Sovereign guarantees have almost reached the PKR 4 T ceiling agreed with the IMF</li> <li>Power sector circular debt has crossed the PKR 2.6 T mark posing a serious threat to fiscal stability</li> </ul>
<b>Currency</b>	<ul style="list-style-type: none"> <li>Volatility in foreign exchange rates</li> </ul>	<ul style="list-style-type: none"> <li>Over the past three years, PKR has depreciated by 50% augmenting the burden of dollar-indexed payments of power sector projects</li> </ul>
<b>Transfer</b>	<ul style="list-style-type: none"> <li>Inability – or complicated processes – to convert local currency to hard currency, or to repatriate hard currency</li> </ul>	<ul style="list-style-type: none"> <li>Pakistan has had considerable difficulties in honoring profit repatriation demands signified by the backlog of almost USD 2 B of Chinese IPP dividends</li> </ul>

## Varying level of risks have been at play (2/2)

Risk name	Description of risk	Risk examples
<b>Off-taker</b>	<ul style="list-style-type: none"> <li>Delays in the payment of power purchased by off-taker(s)</li> </ul>	<ul style="list-style-type: none"> <li>Frequent delays in release of tariff differential subsidies has led to considerable delays in payments to IPPs</li> </ul>
<b>Land</b>	<ul style="list-style-type: none"> <li>Complications arising from overlapping planning permits, fragmented ownership or unregistered land</li> </ul>	<ul style="list-style-type: none"> <li>Lack of digital land records, particularly in high resources areas like Balochistan or the pushback from landowners in the case of 600 MW Muzaffargarh project</li> </ul>
<b>Permitting</b>	<ul style="list-style-type: none"> <li>Long lead times</li> </ul>	<ul style="list-style-type: none"> <li>Regulatory delays in issuing relevant permits to developers e.g., category III projects</li> </ul>
<b>Transmission network and evacuation</b>	<ul style="list-style-type: none"> <li>Insufficient exchange of electricity and system services across provinces</li> <li>Lack of infrastructure available to evacuate power</li> </ul>	<ul style="list-style-type: none"> <li>Weak grid infrastructure blocks renewable power flow from South to North</li> </ul>
<b>Volume</b>	<ul style="list-style-type: none"> <li>Curtailment of power</li> <li>Low electricity demand</li> <li>Meteorological variations</li> </ul>	<ul style="list-style-type: none"> <li>Faulty planning on the demand-side due to overly optimistic economic projections has led to significant curtailment of energy</li> </ul>
<b>Technology</b>	<ul style="list-style-type: none"> <li>Underperformance of technology</li> <li>Little experience with the technology being used</li> <li>Faulty operation and maintenance, etc</li> </ul>	<ul style="list-style-type: none"> <li>Procurement of substandard equipment has implications for energy yield</li> </ul>

## Scenario I - cost of risks under concessional lending

Illustrative breakdown of risks explaining variations in the levelized cost of electricity for a given RE project



Our risk waterfall shows the difference in LCOE due to the gap in the cost of capital for a utility-scale wind project in Pakistan and the LCOE for the same project if the cost of capital is equivalent to a developed market like in this case Germany.

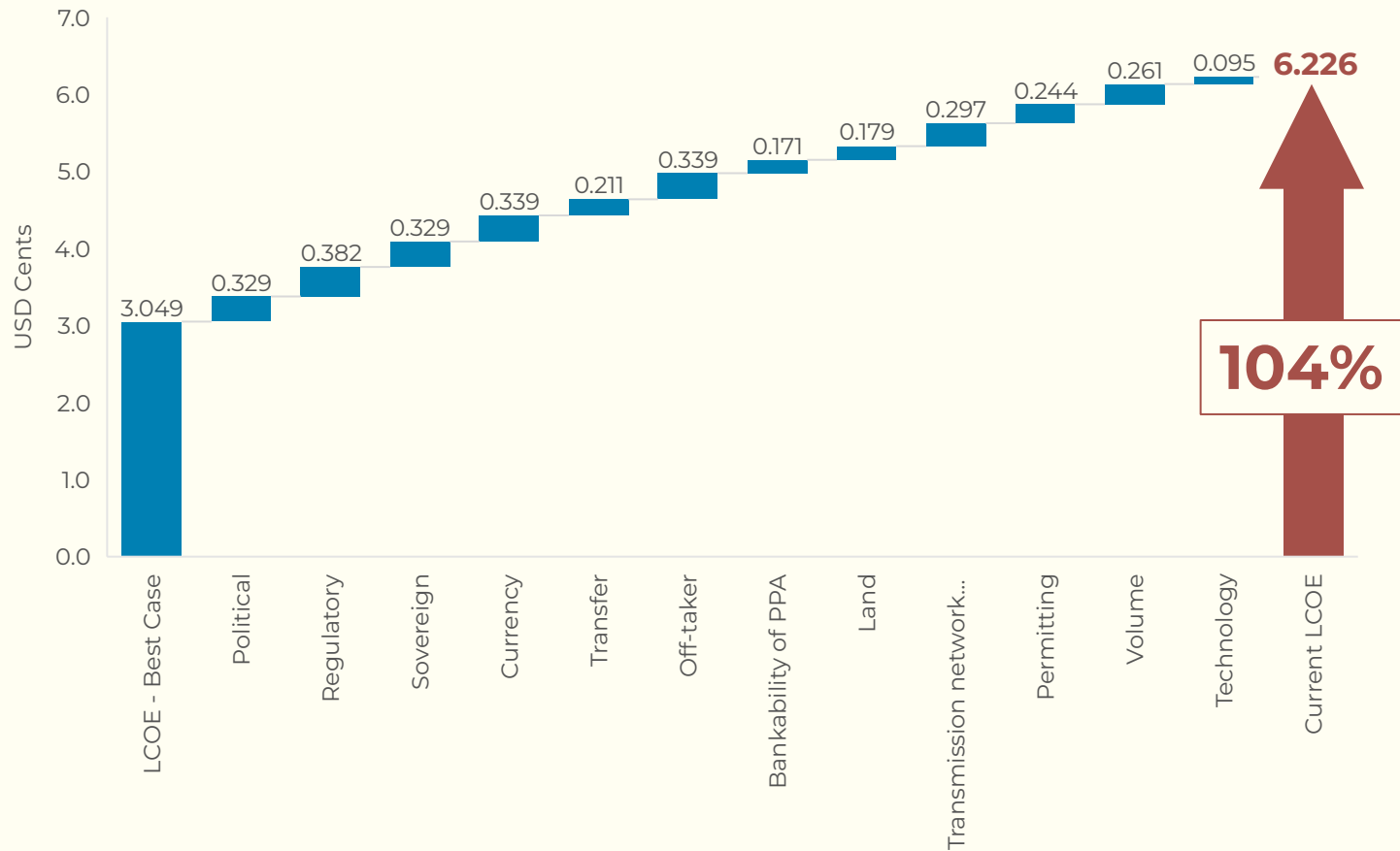
The said project has a debt-to-equity mix of 80:20 with debt financing solely coming from domestic sources under the SBP's discounted RE financing scheme of 6%. The required rate of return by equity investors is 14%.

LCOE best case is calculated under the assumption that the cost of capital is equivalent to what is available in Germany for similar projects. This being the best-case results in the cost of debt being 2.8% and the required rate of return by equity investors is 8.3%.



## Scenario II - cost of risks under commercial lending rates

Illustrative breakdown of risks explaining variations in the levelized cost of electricity for a given RE project



The waterfall in the previous slide shows a difference of 43% in the LCOE due to multiple risks that have elevated the cost of capital.

However, the graph on the left shows a 104% increase in LCOE as we have kept all variables constant except for the cost of debt which is taken at the market rate of KIBOR\* + 4% as the SBP's discounted financing scheme lapsed on the 30th June 2024 with IMF barring the government from reinstating it due to fiscal constraints.

\*3-months KIBOR as of 2<sup>nd</sup> October 2024

# To address the cost of capital challenges, multipronged solutions are required

Soaring capital costs and scarce financing options throttle RE investments, driven by a trifecta of challenges: heightened risk perception, macroeconomic turbulence, and underdeveloped capital markets.

## Mobilizing Private Capital

- Access capital markets for additional funding
- Use patient capital to reduce investment risk
- Tackle perceived risks to lower return expectations

## Priority Solutions for the Pakistani Market

## Regulatory Interventions

- Re-thinking fiscal strategy
- Incentivizing banks through monetary policy

# De-Risking Instruments to Mobilize Private Capital

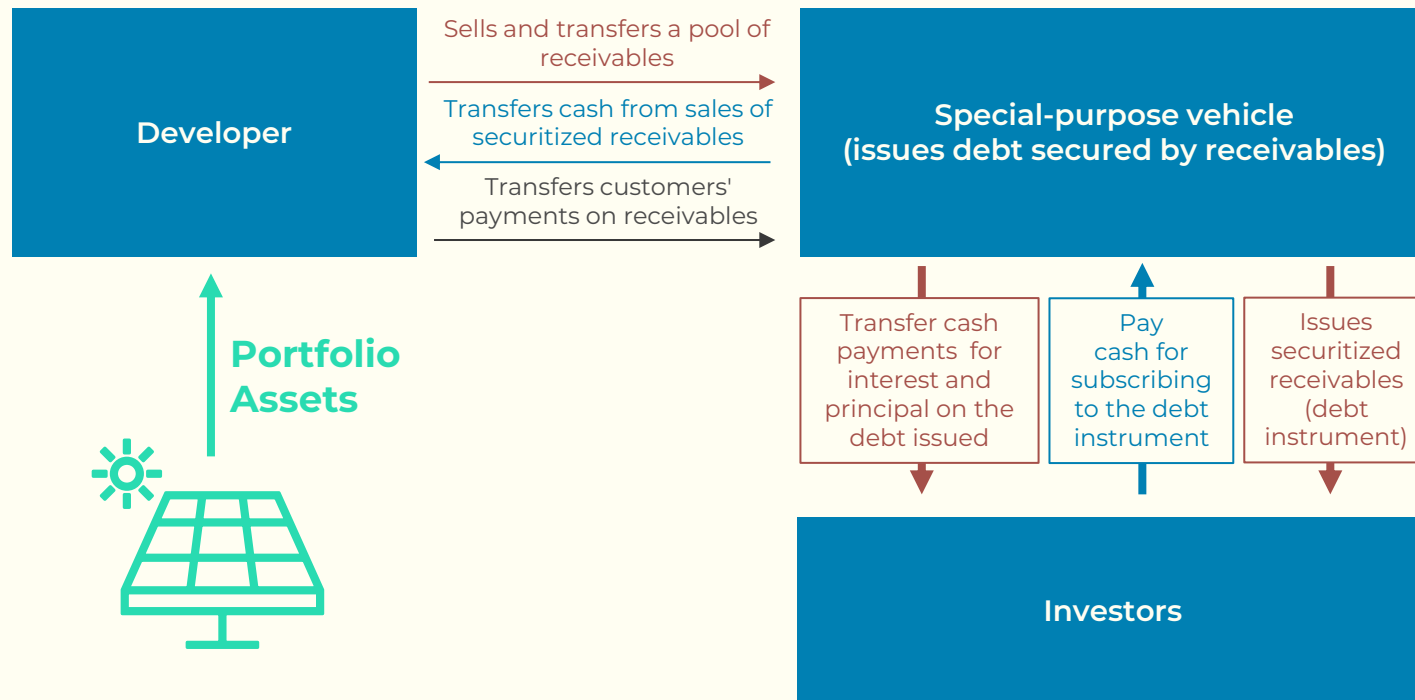
This section includes:

- Aggregation and Securitization as a catalyst for renewables investment
  - Mobilizing concessional capital through blended finance
  - Addressing country specific risks through currency hedging

**Securitization**

# Project securitization can help tap into large pools of capital

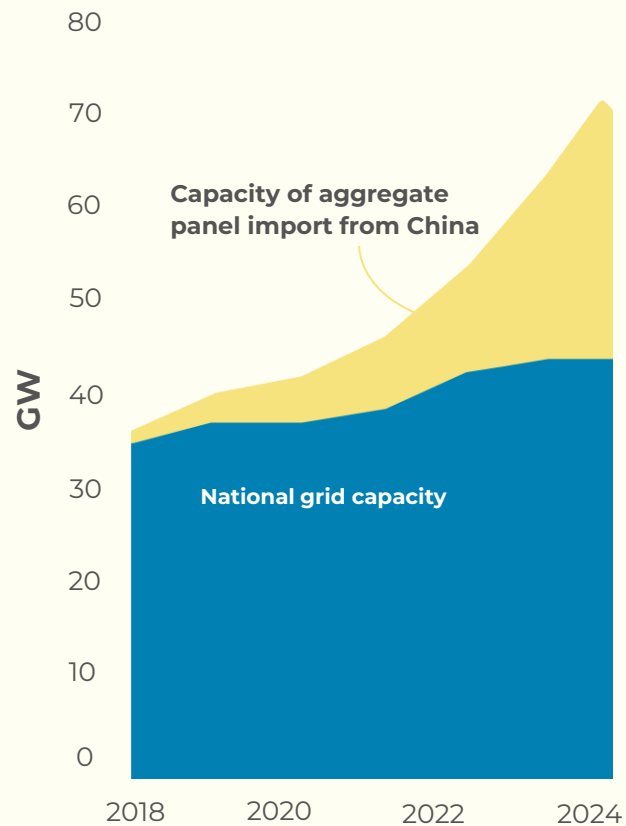
Securitization is a financial instrument that turns small or hard-to-trade assets into larger, easier-to-trade investments. A company collects many small assets, like solar panel leases or power purchase agreements, and groups them into a large pool. This pool is then used to create new, standardized investment products, often in the form of bonds, which are sold to investors. Investors receive payments from the income generated by the original pool of assets. This process allows companies to raise money by selling off future income streams while giving investors access to new types of investments.



The process starts with an entity grouping together similar assets and selling them to a separate entity called a Special Purpose Vehicle (SPV). The SPV then creates new investment products based on these assets, called asset-backed securities. Investors can then buy and sell these securities in financial markets. This process allows companies to turn illiquid assets into liquid investments while offering investors new opportunities. It also protects the original assets from the company's financial risks, as they are now owned by a separate SPV.

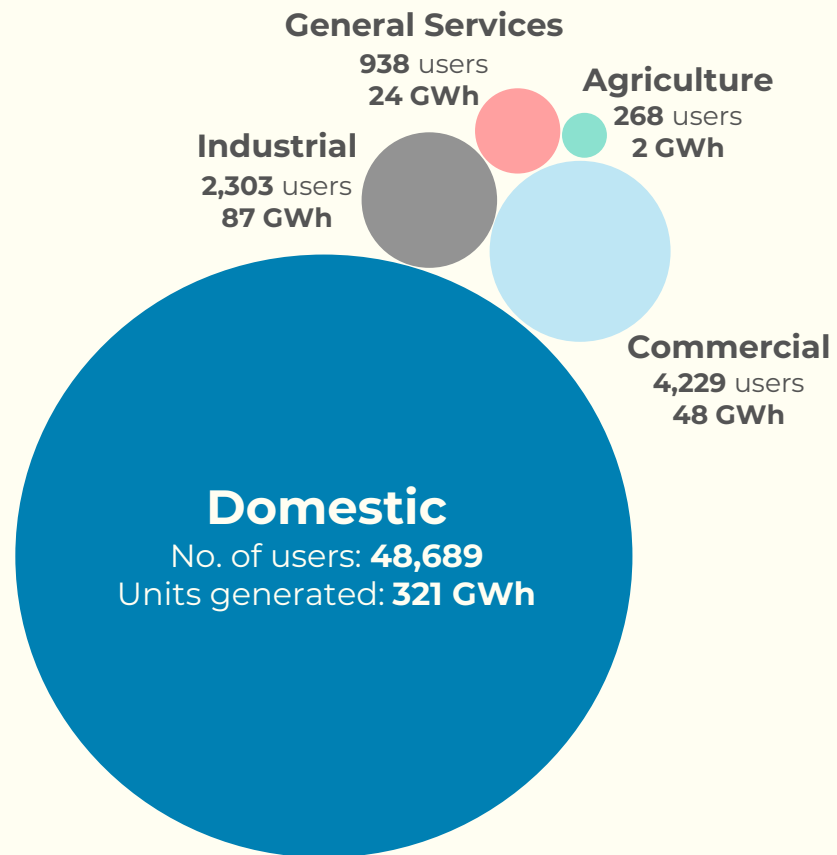
## Positive demand indicators further strengthen the case for securitization

Pakistan's Solar PV imports from China



Source: RMI

Pakistan's net-metering data FY 2022 -23



Source: NEPRA

Pakistan's solar boom and surging net-metering adoption create a compelling case for asset-backed securitization of this emerging renewable portfolio.

## Securitization can help access non-banking funding pools

RE projects can tap into previously inaccessible funding streams through the strategic use of aggregation and securitization, unlocking vital capital for sustainable initiatives.

- ✓ Overall cost of capital can be reduced through aggregation and securitization by mobilizing investors with lower return appetite than banks. Thereby, influencing a key lever that affects the overall viability of a project's economics (such as offtake price).
- ✓ In the current investment climate, there are increasingly large pools of capital controlled by a diverse array of institutional investors, including insurance companies, endowment funds, and mutual funds.
- ✓ Therefore, aggregation and securitization can act as a bridge for driving indirect institutional investment into RE projects as they reduce the risk and increase the investment ticket size.

### PKR 4 T in assets are held by the Non-Banking Finance Sector (Jun-24)

Sector & Sub Sectors	No. of Licenses	Assets (PKR in billion)	Percentage of Total Assets
Mutual Funds and Plans	371	2,708.14	68.10%
Asset Management Companies / Investment Advisors	29	64.52	1.60%
Discretionary & Non-Discretionary Portfolios	-	575.87	14.50%
Pension Funds	45	76.11	1.90%
REIT Management Companies	28	13.92	0.30%
Real Estate Investment Trust	15	161.21	4.10%
Private Fund Managers	13	0.26	0.00%
Private Equity & Venture Capital Funds	7	8.44	0.20%
Investment Banks	36	116.44	2.90%
Non-Bank Microfinance Companies	39	196.47	4.90%
Leasing Companies	5	6.51	0.20%
Modarabas	19	49.57	1.20%
Housing Finance Companies	4	0.76	0.00%
Discounting	1	0.06	0.00%
<b>Total</b>	<b>612</b>	<b>3,978.30</b>	<b>100.00%</b>

Source: SECP

## Pre-requisite for the success of securitization is a structure that is acceptable to the market

### Specimen term sheet\* for solar PPA securitization in Pakistan

Clause	Description
<b>Type</b>	Rated, Secured, Privately Placed, Listed Term Finance Certificates (TFC), and compliant with the Securities Exchange Commission of Pakistan's (SECP) Green Bond guidelines and the International Capital Market Association (ICMA) Green Bond Principles.
<b>Purpose</b>	Proceeds of the bond shall be utilized to finance or refinance rooftop/ground mounted solar projects.
<b>Issue Amount</b>	PKR 1,000 M
<b>Guarantee</b>	Third Party Guarantor (Like USAID/Infrazamin) .
<b>Tenor</b>	5 years
<b>Grace Period</b>	One year
<b>Face Value</b>	Face Value of each TFC will be PKR 100,000.
<b>Profit Rate</b>	3 Months Kibor + 150 bps

### Why Solar PPA Securitization Can Work?

- ✓ Demonstrable high demand for Off-grid solar in the Residential & Commercial & Industrial sector.
- ✓ Stable cashflows from long-term Energy Purchase Agreements (EPA).
- ✓ Highly leveraged existing developers can raise further investments to fund new projects.
- ✓ Institutional capital will come in relatively cheaper as players like Mutual Funds have an inherent tax advantage.
- ✓ Guarantee facilities can further secure the issue at a cost of around 2%.

\*Continued on next page



## A strong precedent supports a securitization transaction

Clause (Continued)	Description (Continued)
<b>Payment Frequency</b>	Payable quarterly in arrears on outstanding principal amount
<b>Security</b>	Credit guarantee facility and lien on solar EPA cashflows
<b>Instrument Rating</b>	AAA for long term and A1+ for short term in line with guarantor rating
<b>Investors profile</b>	Mutual funds, insurance companies, etc.

### A strong precedent already exists

Kash Foundation, a Pakistani microfinance institution, demonstrated the viability of securitization by successfully issuing a AAA-rated listed bond worth PKR 2.5 B, achieved through credit enhancement from Infrazamin. This success is particularly relevant for RE developers, as solar PPAs offer more reliable long-term cash flows and physical assets compared to typical microfinance loans.

In a similar development, Parwaaz Financial Services Ltd. is planning to enter the green financing space with a PKR 1 B Privately Placed Term Finance Certificate, structured as an AA-rated Green Bond with a 3-year tenor to finance sustainable projects, including RE initiatives.

### Key Regulatory Guidelines - SECP

#### Requirements for Securitizable Assets

- ✓ Must have cash-generating ability and an actionable claim
- ✓ Originator must have a valid interest in the assets and cash flows
- ✓ Assets must be protected from claims against the originator
- ✓ Transfer from originator to SPV must be at arm's length/commercial basis

#### SPV Responsibilities

- ✓ Manage assets in the interest of investors in good faith
- ✓ Maintain proper books of accounts and records
- ✓ Prepare and transmit periodic financial statements

#### SPV and Originator Relationship

- ✓ SPV must exercise independence with an independent board of directors
- ✓ If SPV is 100% owned by the originator, additional conditions apply (e.g., arm's length transactions, disclosure of relationship, independent directors)
- ✓ Originator must not influence SPV's decision-making process

#### Credit Enhancement

- ✓ SPV may opt for credit enhancement of the asset pool

#### Credit Rating

- ✓ Mandatory credit rating from a registered credit rating agency
- ✓ All credit ratings must be disclosed in the offer document
- ✓ Rating rationale must include specific factors such as asset pool quality, payment structure, credit enhancements, originator profile, and risks

# Adding tax incentives can further incentivize investors

Examples of tax incentives relevant to green bonds.

## USA

**Bond type:** Muni bonds with proceeds for renewables and energy efficiency

**Degree of Tax Exemption:** Partial

**For whom:** Investors

**Description:** Qualified Energy Conservation Bonds (QECBs) and Clean Renewable Energy Bonds (CREBs) offer special tax incentives offered for muni bonds with proceeds clean energy and energy Conservation

## INDIA

**Bond type:** Muni bonds and selected corporate bonds from public entities

**Degree of Tax Exemption:** Full

**For whom:** Investors

**Description:** Tax free bonds issued by public corporations and municipal government

## BRAZIL

**Bond type:** Bonds with proceeds for infrastructure Including construction and wind energy

**Degree of Tax Exemption:** Full

**For whom:** Investors

**Description:** Tax-free bonds can be issued for large infrastructure investments, construction conglomerates, and wind farm developers

## CHILE

**Bond type:** All Bonds

**Degree of Tax Exemption:** Full

**For whom:** Foreign Institutional Investors

**Description:** Foreign institutional investors are exempt from tax on the bond

## MALAYSIA

**Bond type:** Corporate ABS bonds

**Degree of Tax Exemption:** Partial

**For whom:** Issuer

**Description:** Issuance expenses for asset backed securities (ABS) are tax deductible

# Solar adoption can be accelerated by deploying the transaction proceeds

Illustration – single residential solar site of 10 KWp

Item (Amounts in PKR)	Description	Quantity/site (a)	Price (PKR)/Unit (b)	Total (PKR) (c) (a x b)
<b>Solar Panels</b>	580-Watt Jinko Module	17 Panels	26,100	443,700
<b>Solar Inverters</b>	GoodWe On-grid 10 KWp	1 inverter	450,000	450,000
<b>Structure</b>	MS Painted Elevated Structure	1 structure	244,751	244,751
<b>DC cables</b>	KUKA Tinted CU XLPO, 6 mm	200 meters	250	50,000
<b>Other ancillaries</b>	Earthing, Transportation, DBs, Breakers etc.	NA	NA	220,000
<b>Total</b>				<b>1,408,451</b>



*PKR 1 B could fund approximately 710 such projects, potentially adding 7.1 MWh of RE capacity.*



Breakdown of 7.1 MWp

No. of Sites (d)	Total (PKR) (c x d)
<b>710</b>	315,027,000
<b>710</b>	319,500,000
<b>710</b>	173,773,000
<b>710</b>	35,500,000
<b>710</b>	156,200,000
<b>Total</b>	<b>1,000,000,000</b>

# **Blended Finance**

## Building blended finance facilities are a key to accelerating renewables uptake

Blended finance is a structuring approach that strategically combines public or philanthropic capital with private investment to achieve Sustainable Development Goals (SDGs) and climate objectives in developing countries.

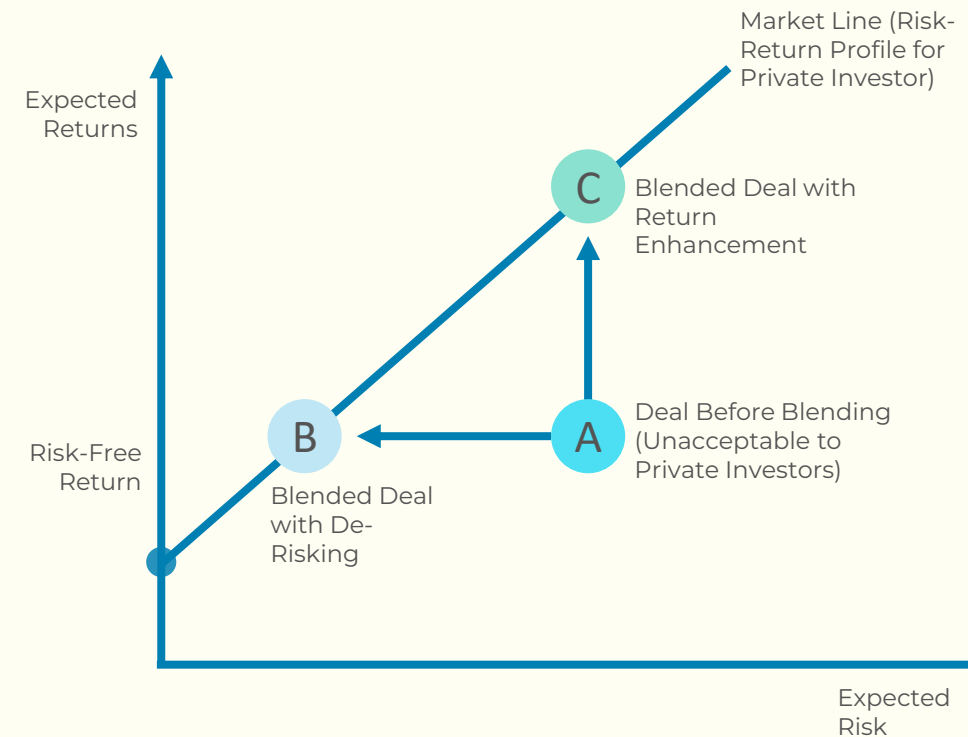
This approach enables diverse organizations to co-invest while pursuing their individual goals, whether financial returns, social/environmental impact, or both.

By addressing key barriers such as high perceived risk and suboptimal risk-adjusted returns, blended finance creates viable investment opportunities in developing markets.

As a structuring approach rather than a specific instrument, blended finance typically employs four main archetypes:

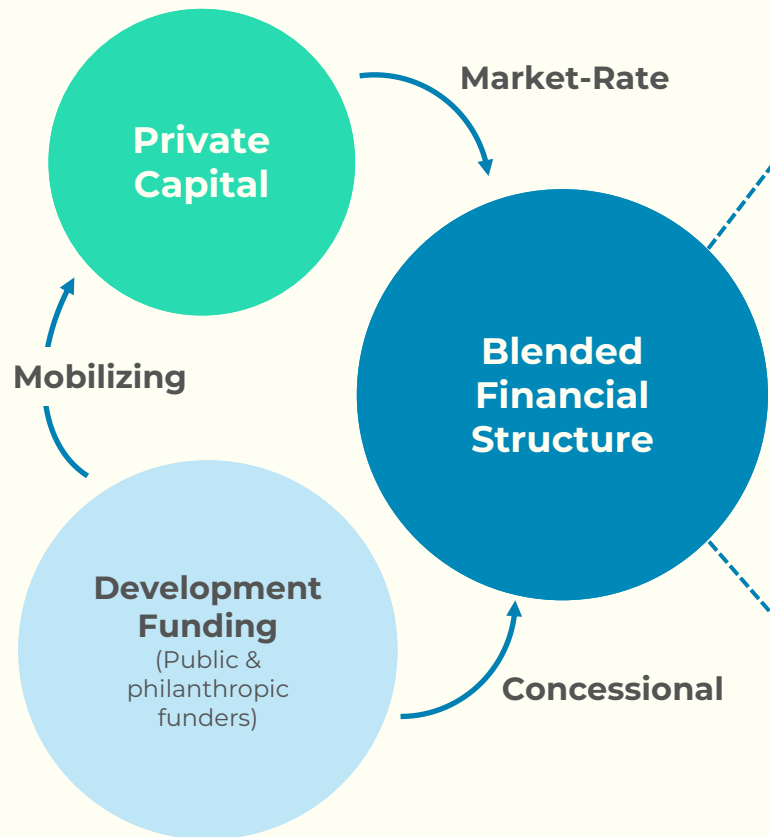
- Provision of below-market terms within the capital structure
- Credit enhancement through guarantees or insurance
- Grant-funded technical assistance facilities
- Grant-funded transaction design or preparation

### Deploying blended finance to achieve a commercially acceptable risk-return profile



# Multiple blended finance structures can enable capital mobilization

## Typical blended finance mechanics and structures



## Example Structures

Private equity or debt funds with concessional public or philanthropic funding attract institutional investment.

### STRUCTURE

Senior Debt or Equity
First-Loss Capital

Bond or note issuances with concessional priced guarantees or insurance from public or philanthropic funders.

### STRUCTURE

Guarantee	Debt
	Equity

Grant funding from public or philanthropic funders to build the capacity of investments to achieve expected financial and social returns.

### STRUCTURE

Debt	TA facility
Equity	

Grant funding from public or philanthropic funders to design or structure projects to attract institutional investment.

### STRUCTURE

Grant	Debt
	Equity



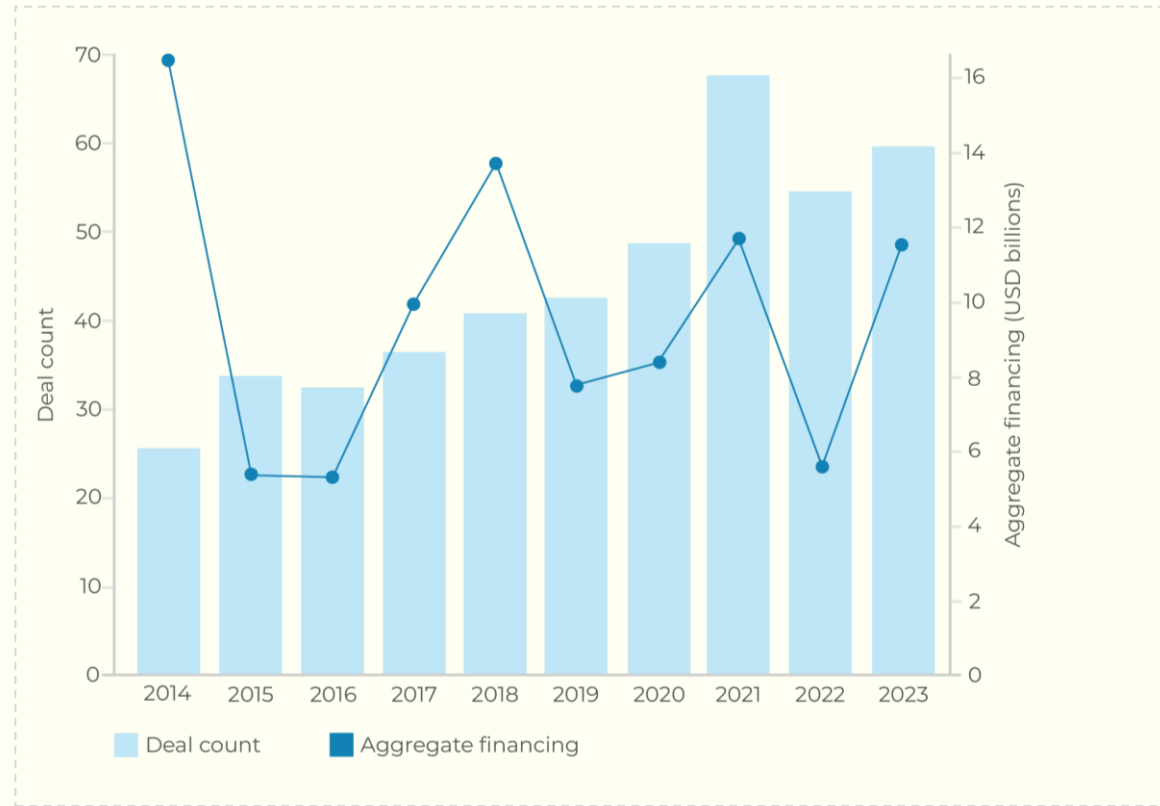
# Global blended finance trends

Source: Convergence

Climate and energy investments have emerged as the powerhouses of the blended finance market. Climate-focused deals now represent approximately half of all blended finance transactions and 57% of total blended financing, in 2023.

The energy sector leads this charge, accounting for nearly one-third of deal activity and a substantial 47% (USD 101 B) of total blended capital flows.

RE dominates this landscape, with an impressive 91% of recent energy-sector transactions targeting renewables. Solar projects alone have attracted nearly USD 10 B in investment.



# In parallel success, Pakistan has a blueprint for deploying blended finance facilities

## Breakdown of Acumen’s Pakistan focused climate fund

Component	Output	Indicative Cost (USD' M)	GCF Financing		Co-Financing	
			Amount (USD' M)	Instrument	Amount (USD' M)	Instrument
Investment Fund	Setting up the Fund	0.8	0.2	Equity	0.6	Equity
	Fund capital disbursed to venture, early-growth, growth-stage agribusinesses	67.1	20.9	Equity	46.2	Equity
	Strengthened business performance of portfolio companies	8.4	2.6	Equity	5.8	Equity
	Monitoring & evaluation of the financial performance & climate impact of investments	3.6	1.1	Equity	2.5	Equity
Technical Assistance Facility (TA)	Strengthened business performance of portfolio companies	1.6	0.5	Grants	1.1	Grants
	TA deployed across strategic themes to maximize portfolio viability and fund impact	1.7	0.5	Grants	1.2	Grants
	Monitoring & evaluation of the financial performance & climate impact of investments	2.4	0.7	Grants	1.6	Grants
	Increase in inclusivity and climate impact of portfolio companies	2.4	0.7	Grants	1.6	Grants
	Establish platforms to catalyze stakeholder engagement, collaboration on and awareness of climate adaptation	1.9	0.6	Grants	1.3	Grants
<b>Total</b>		<b>90</b>	<b>28</b>		<b>62</b>	

Acumen's climate fund for Pakistan offers a pioneering approach to climate financing in the country, leveraging a USD 25 M equity contribution from the Green Climate Fund to potentially unlock USD 55 M in co-financing for small-scale agribusinesses. Its innovative structure, featuring GCF's first-loss cover through junior equity, de-risks investments and attracts commercial impact investors. The fund is likely to achieve its first close in the first half of 2025 with other impact investors like USAID and IFC stepping in.

This model not only addresses critical financing gaps in Pakistan's agricultural sector but also serves as a blueprint for other climate financing initiatives including renewables, demonstrating how blended finance can catalyze private capital even in challenging economic conditions.

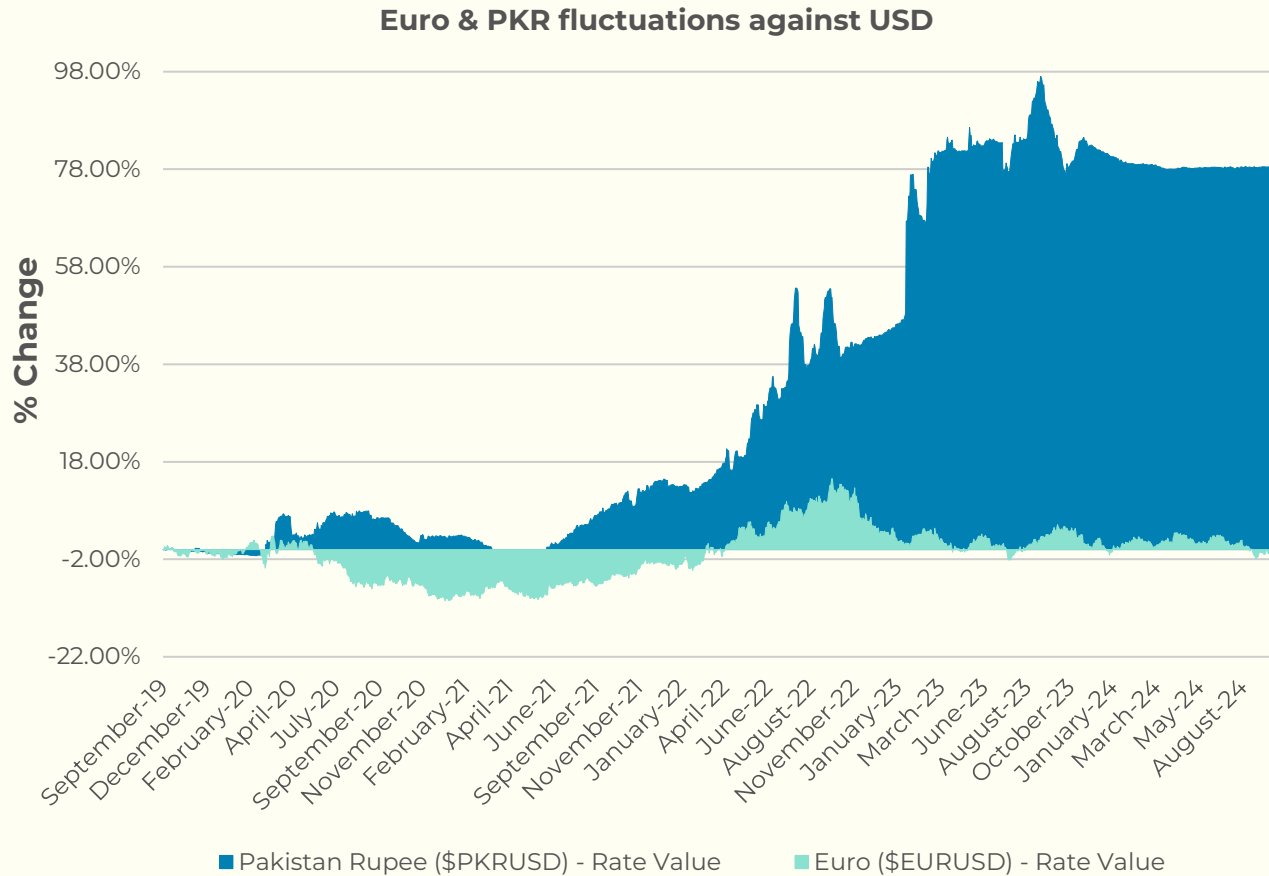
### Catalytic Financiers in Pakistan’s Energy Sector

- Asian Development Bank (ADB)
- International Finance Corporation (IFC)
- Islamic Development Bank
- Dutch Entrepreneurial Development Plan(FMO)
- AFD/ Proparco
- USAID



# Currency Hedging

## Addressing the currency risk remains critical for investment mobilization

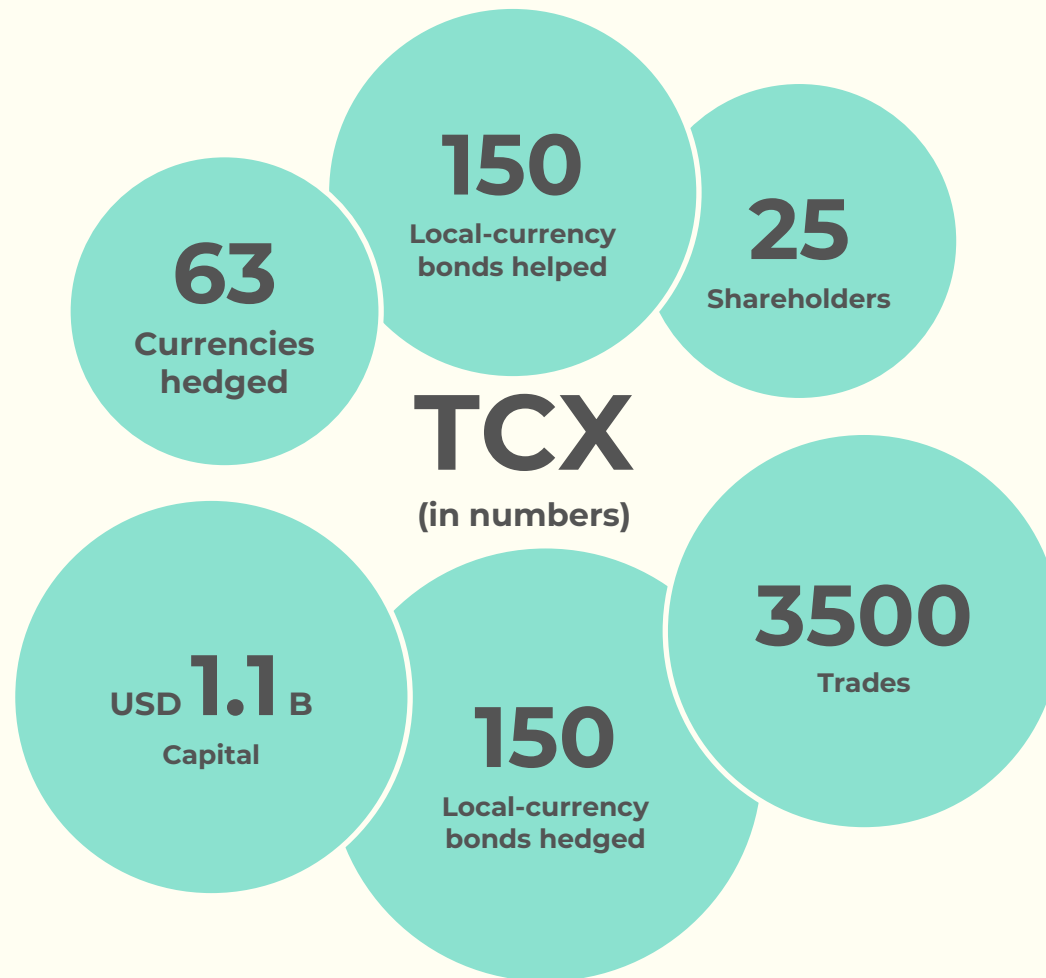


Currency mismatches between local revenue of projects and foreign loans pose financial risks for RE initiatives, especially in emerging markets. Long-term depreciation and short-term volatility are key challenges.

This is particularly problematic in countries like Pakistan with high exchange rate volatility, compared to more stable economies using currencies like Euro.

This exchange rate volatility hinders determining a suitable rate of return, affecting investor confidence and foreign direct investments in many EMDEs, including Pakistan.

## Tapping into facilities like TCX can reignite foreign investor's confidence

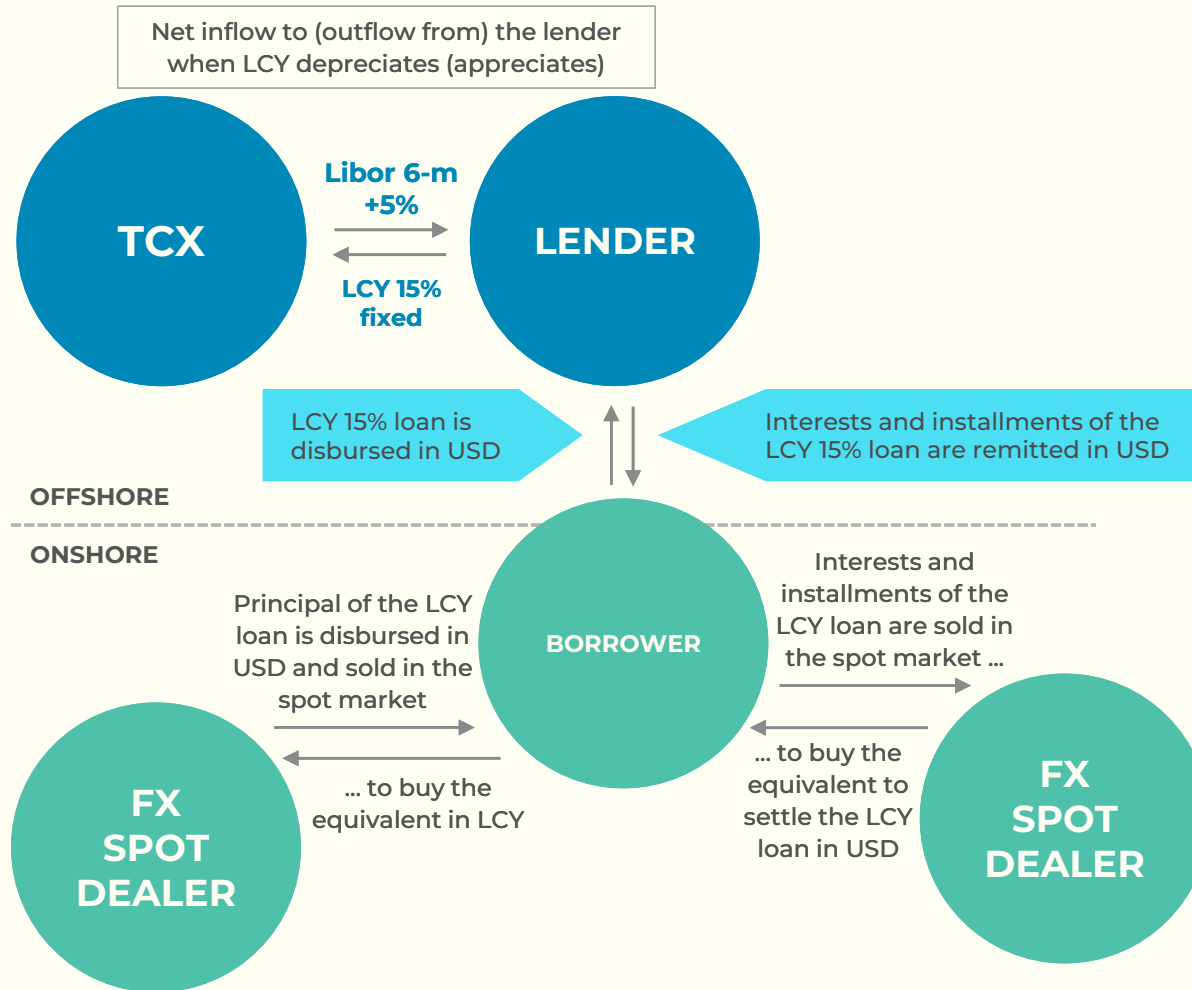


### The Currency Exchange (TCX)

- ✓ Provides currency and interest rate derivatives in emerging and frontier markets where such products are scarce or unavailable.
- ✓ Aims to eliminate currency risk for international lenders financing projects in these markets.
- ✓ Offers cross-currency swaps and FX forwards with no tenor limits, supporting long-term local currency financing.
- ✓ Covers about 100 currencies across 110+ countries (including PKR).
- ✓ Is backed by several European governments and development finance institutions.

# The currency hedge can help alleviate perceived currency risk

## TCX cross currency swap



A cross-currency swap is an agreement where two parties exchange streams of payments in different currencies over a set period. It typically includes:

- Initial principal exchange at current exchange rates
- Periodic interest payments in respective currencies
- Final principal exchange at a pre-agreed rate

### Salient Features:

- Involves both interest and principal exchanges
- Covers currency risk for loan transactions
- Can be viewed as bundled forward contracts

The swap allows parties to:

- Access foreign currency markets
- Hedge against currency fluctuations
- Potentially obtain better rates than direct foreign borrowing

This structure enables effective management of currency risk in international financial operations.

# De-Risking Measures Through Regulatory Interventions

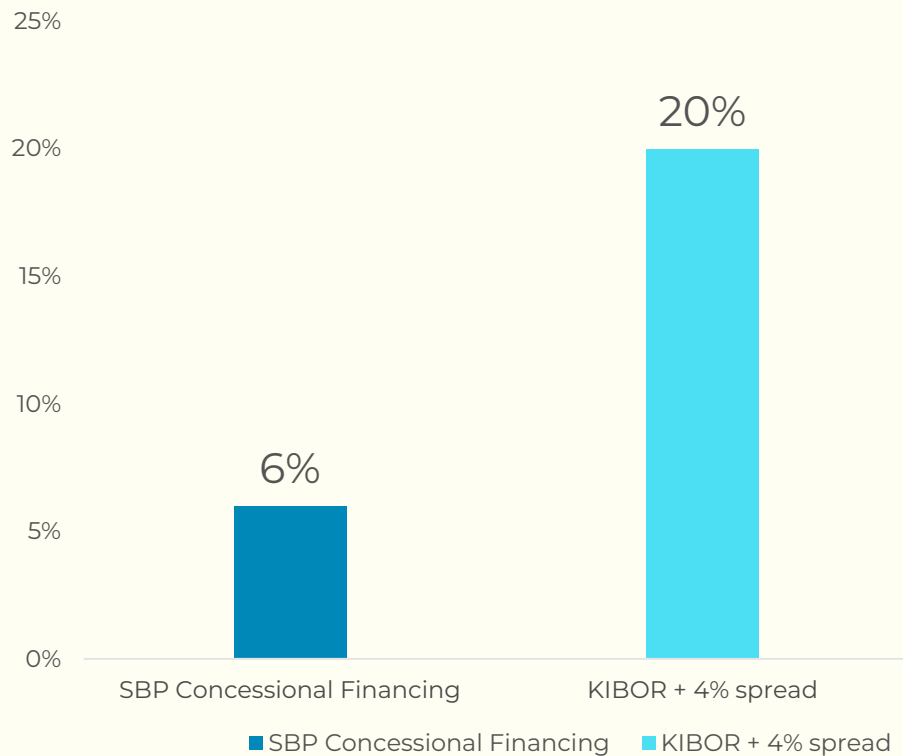
This section includes:

- Fiscal interventions to mobilize renewables investments
- Monetary measures to incentivize renewables financing

# **Fiscal Interventions**

## Proactive fiscal measures like concessional financing remain critical for renewable projects

**A 14% gap between current KIBOR\* based financing rates and SBP's RE finance scheme**



\*3-months KIBOR as of 2<sup>nd</sup> October 2024

Source: State Bank of Pakistan

The SBP's Financing Scheme for RE, launched in 2016, aimed to boost private sector investment in clean energy projects up to 50 MW.

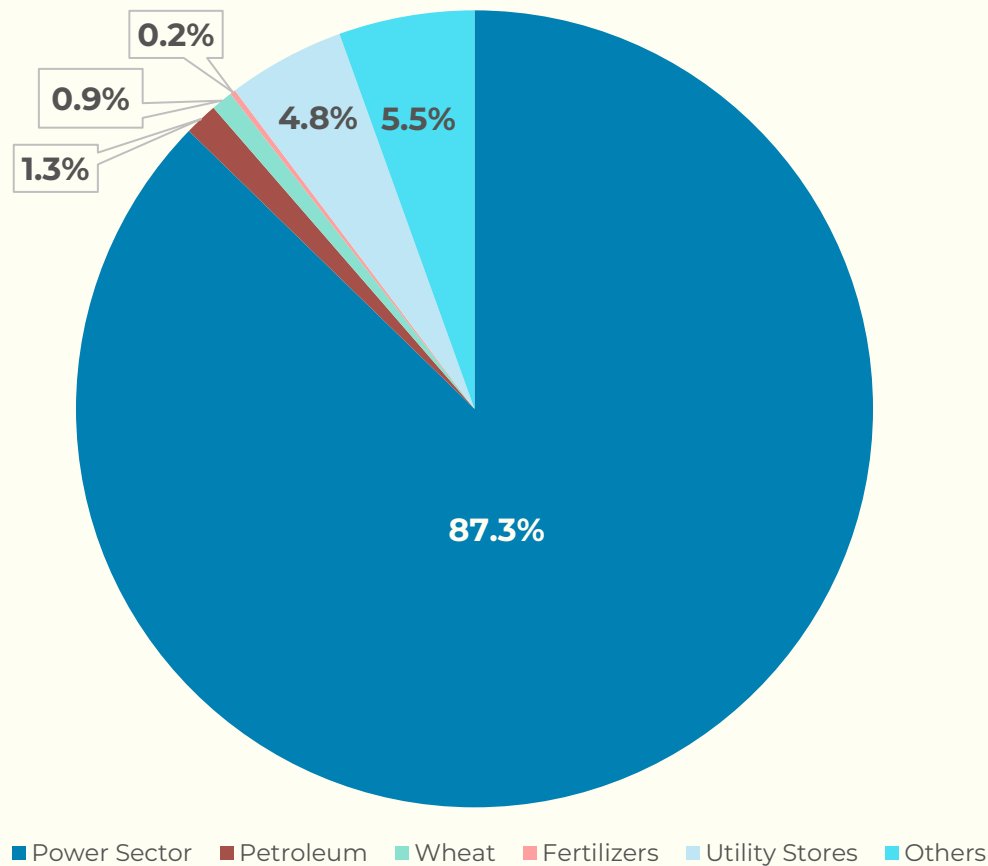
With loans of up to PKR 6 B per project at 6% interest over 12 years, the scheme provided around USD 350 M in financing from 2017-2020.

By June 2023, it had financed over 2,600 projects, adding 1,726 MW of renewable capacity with PKR 92 B in outstanding loans.

The scheme successfully lowered levelized tariffs through reduced financing costs. However, due to Pakistan's economic crisis, it became inaccessible in FY24 and lapsed on June 30, 2024.

## Rationalization of subsidies can help provide the necessary stimulus for the sector

**Subsidies - budget - FY25**



Pakistan's government heavily subsidizes its power sector, significantly impacting the national budget.

Historically, over 80% of recurrent subsidy spending between FY13 and FY22 benefited the power sector

In FY23, power subsidies reached PKR 864 B, accounting for 80% of total subsidy spending. The bulk of this (PKR 690 B) went to Tariff Differential Subsidies (TDS), covering the gap between NEPRA-determined cost-based tariffs and lower government-set consumer tariffs.

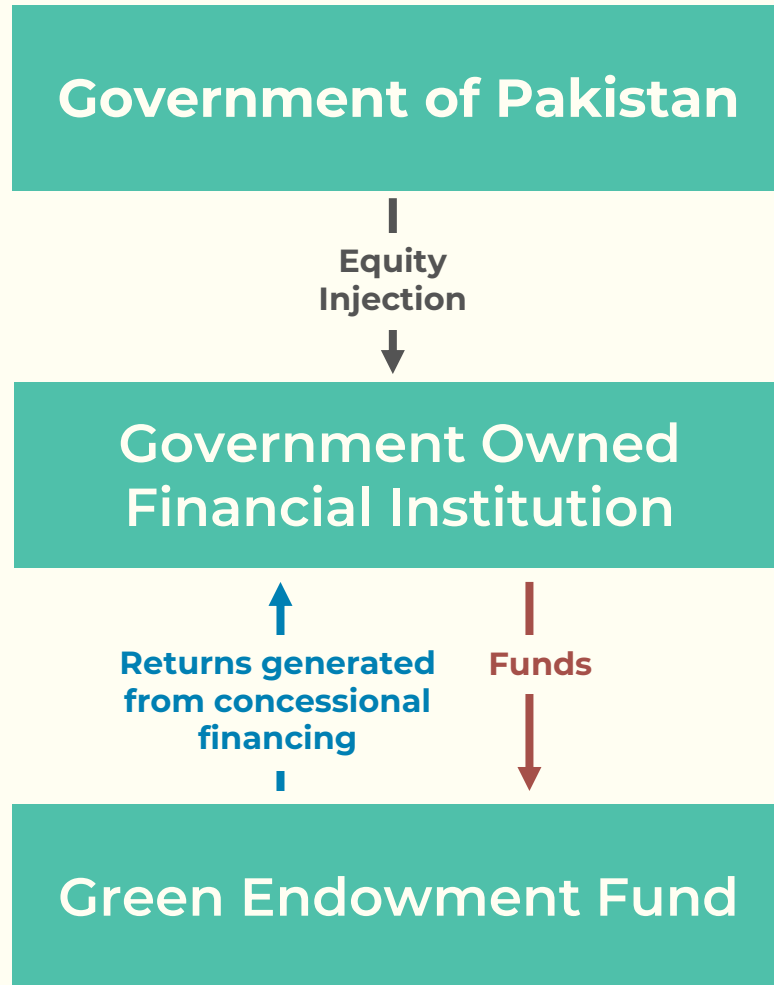
This trend continues, with the FY24 allocation of PKR 894 B (1% of GDP) to energy subsidies (highest in South Asia), predominantly for electricity consumption.

The FY25 budget projects power sector subsidies to rise to 87% of total subsidies (PKR 1.19 T).

This fiscal stimulus can, instead, be redirected to promoting the integration of renewables into the national grid which can improve the viability of the sector in the long run and can help eliminate the need for subsidies to the power sector altogether.



## Redirecting fiscal resources can bridge renewables investments gap



As the IMF has prohibited the SBP from holding concessional finance facilities on its balance sheet, the government must maintain momentum in RE financing schemes. This can be achieved by redirecting a portion of power sector subsidy flows towards two key initiatives:

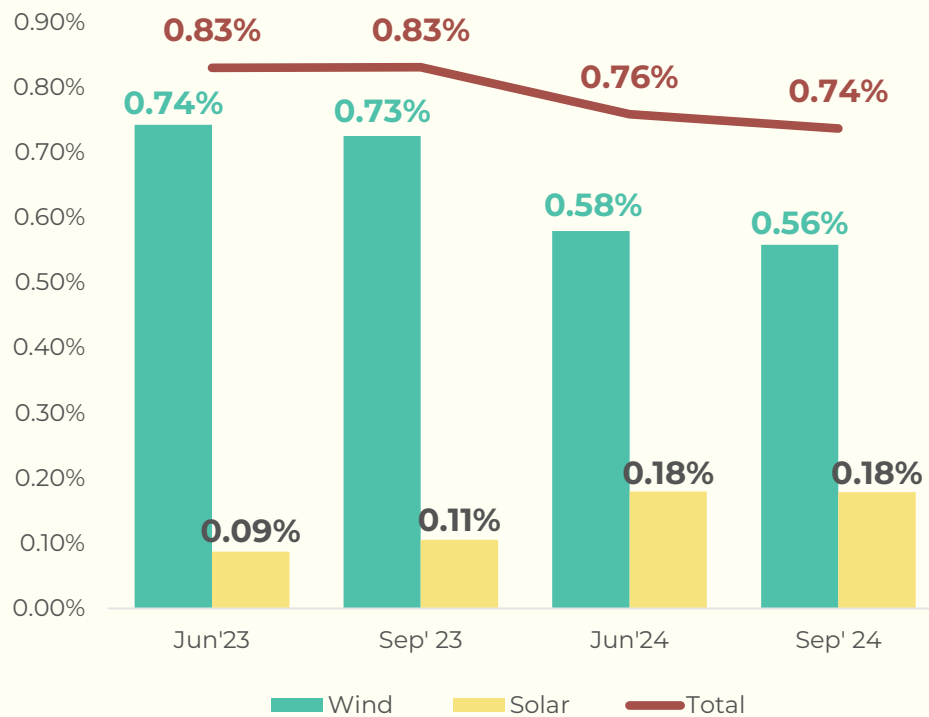
- 1) Equity injections into government-backed institutions, such as the Pakistan Credit Guarantee Company, with the stipulation that the capital be used to mobilize RE investments. This approach can enable more blended finance structures. For instance, a PKR 1 B injection could potentially allow the institution to provide guarantees worth PKR 10 B.
- 2) Establishing a restricted endowment fund dedicated to investing in RE projects, green securities, and other sustainable financial instruments. At a district level, Karachi Metropolitan Corporation (KMC) has already announced the establishment of an endowment fund of PKR 100 M for a solarization drive.

These strategies would help sustain the growth of Pakistan's RE sector while adhering to IMF regulations and potentially reducing long-term subsidy burdens.

# Monetary Measures

## Monetary interventions can help rejuvenate existing funding sources

**Renewables financing as % of private sector credit – Pakistan**



### SBP can incentivize banking sector lending for renewables through various monetary policy tools

#### Reserve Requirements (CRR and SLR)

Minimum amounts of Cash Reserve Requirement (CRR) or liquid assets (Statutory Liquidity Requirement - SLR) that banks must hold against their deposits.

- ✓ Lower requirements for banks with higher RE lending.
- ✓ Include green bonds as approved securities for SLR.
- ✓ Offer preferential reserve remuneration for banks with strong green portfolios.

#### Open Market Operations

Central bank's buying and selling of government securities to regulate money supply and interest rates.

- ✓ Prioritize green bonds in outright purchases.
- ✓ Offer preferential terms for repo transactions involving green securities.
- ✓ Use targeted liquidity injections for banks committed to renewable financing.

#### Repo and Reverse Repo Rates

Interest rates for short-term lending (repo) or borrowing (reverse repo) between the central bank and commercial banks.

- ✓ Provide lower repo rates to banks with higher RE project financing.
- ✓ Implement green lending targets with favorable rates for achievement.

## Following Indonesia's precedent, Pakistan can develop relevant regulations

### Illustrative example of how liquidity can be created for renewables financing through altering reserve requirements

A Bank Ltd Statement of Statutory Liquidity Requirement (SLR) As of close of business on 31-December-20XX		
		PKR In '000'
1	Demand deposits and time deposits of less than one year	
1.1	All current deposits including customers, banks and other financial institutions	4,679,177
1.2	All savings deposits including customers, banks and other financial institutions	26,602,720
1.3	Special notice/call deposits including customers, banks, and other financial institutions	-
1.4	Fixed deposits including customers, banks and other financial institutions with tenor of less than one year	27,314,385
1.5	Overdue fixed deposits including those of customers, banks, other financial institutions	-
1.6	All other deposits payable to public on demand	-
1.7	All loans and borrowings with tenor of less than one year (except money at call & short notice, other interbank borrowings and the loans exempted under section 18 of the microfinance institutions)	2,021,434
1.8	Mark-up/interest accrued on all above accounts	29,178,971
1.9	Other demand liabilities	(25,251,902)
	<b>Total deposits (1.1 to 1.9)</b>	<b>64,544,785</b>
2	Required SLR (10% of total liabilities as per status quo)	6,454,479
3	Required SLR (9% of total liabilities if the bank adheres to RE financing targets)	5,809,031
<b>4</b>	<b>Additional liquidity created for RE financing (2-3)</b>	<b>645,448</b>

In 2023, Indonesia introduced a Macroprudential Liquidity Incentive Policy to support sustainable economic growth and address slow bank credit. This policy offers incentives to banks financing specific sectors, including environmentally sound projects, by reducing their reserve requirements.

The SBP could adopt a similar strategy to boost RE investments. By offering reserve requirement reductions for banks financing RE projects, the SBP would free up capital for green investments. The SBP would need to:

- ✓ Set specific criteria for eligible RE projects (e.g., solar and wind initiatives)
- ✓ Require participating banks to report RE financing activities accurately
- ✓ Regularly verify reported data

This approach would create a strong financial incentive for banks to increase RE portfolios, potentially leading to a significant boost in private-sector funding for RE projects in Pakistan.

# Call to Action

This section includes:

- The challenges in implementing derisking instruments and measures
  - Stakeholder actions that can accelerate progress

# Challenges at hand

While the derisking instruments offer a viable solution to the country's RE investment challenges, several key barriers limit their adoption.



Lack of monetary foresight and resultant abrupt rate hikes have left a mark on the country's capital markets. Therefore, instruments like securitization where underlying assets generate fixed returns are exposed to an asset-liability mismatch situation due to the variable nature of interest payments.



High costs of currency hedging facilities for project sponsors in least developed countries make financing prohibitively expensive, requiring additional support like that from philanthropic organizations to bridge the feasibility gap.



The underdeveloped private equity and venture capital landscape in Pakistan, with only seven licensed funds, makes raising clean energy investments challenging, forcing reliance on impact investors and multilateral for anchor funding.

# Call to action

**A multi-stakeholder effort to implement targeted strategies and instruments can significantly improve the business case for renewables in Pakistan.**



Develop a comprehensive policy framework that includes establishing clear national and provincial climate priorities, creating detailed action plans at all government levels, and setting defined timelines



Implement de-risking mechanisms such as securing multilateral financing, securing domestic financing sources, strengthening institutional partnerships, and recapitalizing existing guarantee companies



Set sustainable lending targets, implement carbon emission reduction goals, create incentive mechanisms for green finance, and mainstream climate risk management in the financial sector



Develop a green taxonomy, create environmental standards to prevent greenwashing, standardize green finance definitions across sectors, and build institutional capacity for sustainable activities to support the green taxonomy



Establish a central climate data repository, digitize climate project information, and create an accessible platform for stakeholders to support robust data infrastructure



Develop a green bond market by building capital market infrastructure, establishing a favorable investment climate, developing local repo markets, creating awareness programs, implementing tax incentives, and setting clear guidelines

Renewables First (RF) is a think tank for energy and environment. Our work addresses critical energy and natural resource issues with the aim to make energy and climate transitions just and inclusive.



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