Unlocking Rooftop Solar Potential: Business/Organisation Model Solutions

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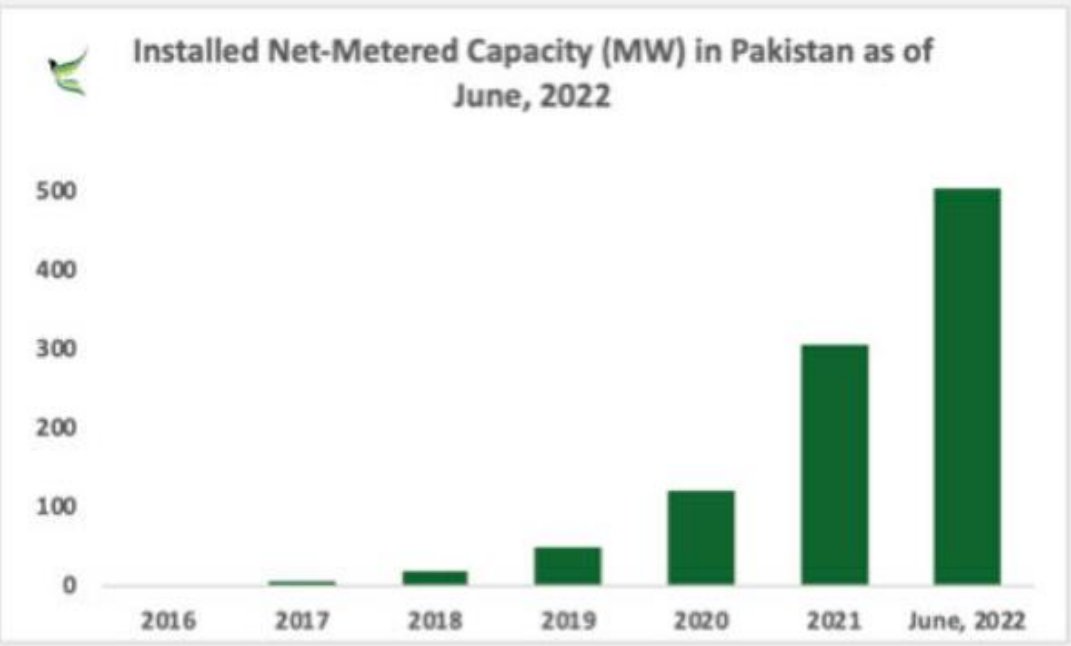
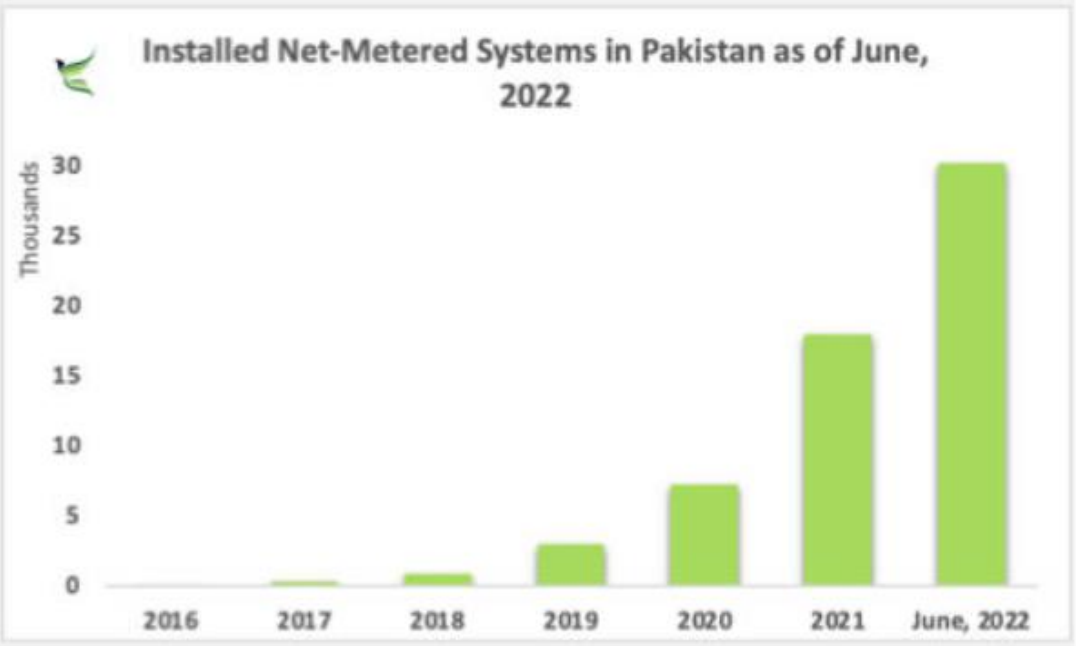
Rooftop solar: Huge potential

Sustainability, security of supply, and affordability can be a win-win-win

- → Climate change means there is no “business as usual” scenario, the baseline “inertia” scenario = increasing problems and costs.
- → Fast tracking progress to SDG 7—with just few years left to meet the target.
- → Shared cost burden: Devolution of capacity payment charges to end-users/investors
- → Energy affordability: Solar grid parity—certainly much better and lower prices
- → Reduction in line losses if more rooftop solar is poised to come online.
- → Excellent pre-conditions—strong demand forces and ideal dwelling landscape (greater use free rooftop space and unlocking this untapped potential)
- → Just transition: Ignore market segments in high-loss configurations
- → Overall, a very logical and compelling business case for rooftop solar —greater co-benefits for the power sector

Net-metered solar PV growth in Pakistan: Quick snapshot

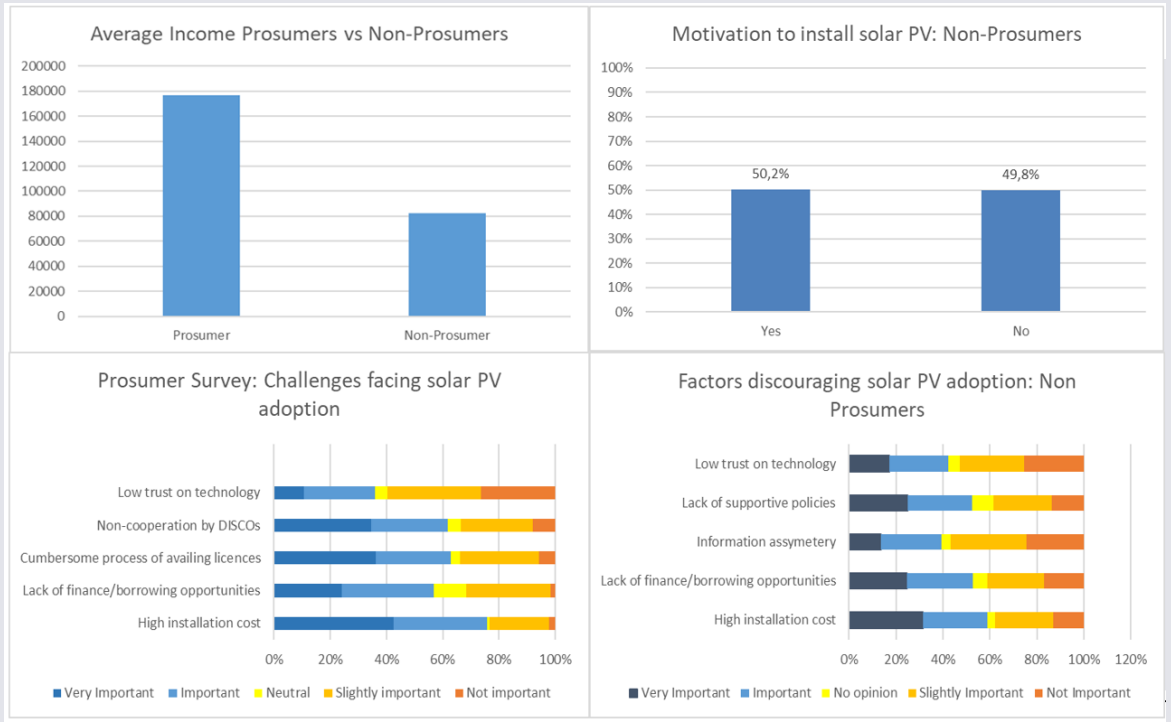




Source: Alternative Energy Development Board

Common barriers: Major Insights

Prosumer and Non-Prosumer Surveys



Source: IPS, 2020; Saleh and Upham, 2021

Variation between prosumers and non-prosumers income is quite distinct

Strong motivation for solar PV system installation among non-prosumers

Installation cost remains a significant obstacle to lower- and middle-income households

Resistance from incumbent actors has blocked capturing new values from rooftop solar.

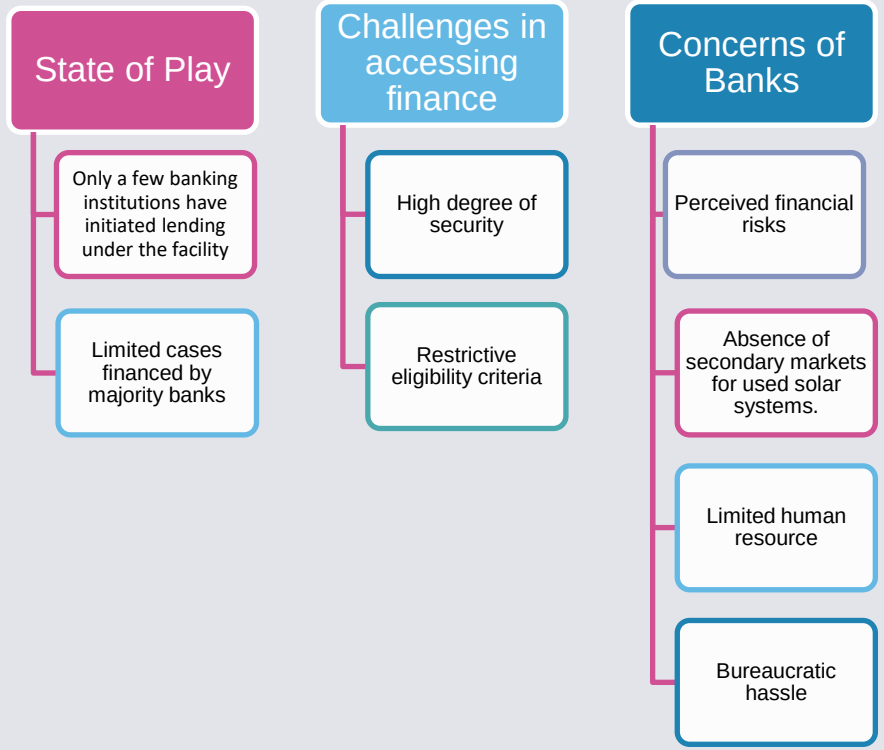
Solar PV financing is still in its infancy

SBP Renewable Energy Re-Finance Scheme : Salient Features

FEATURES	CATEGORY I	CATEGORY II	CATEGORY III
Max Loan	Rs 6 billion (for a single project)	Rs 400 million (for a single borrower)	Rs 2 billion (for a single vendor/supplier/company)
Tenor	12 years (Maximum)	10 years (Maximum)	10 years (Maximum)
Rate (Tot 6%)	SBP service charge: 3% Bank spread: 3%	SBP service charge: 2% Bank spread: 4%	SBP service charge: 3% Bank spread: 3%
Down payment	100% of tot financing for projects up to 20 MW 50% of total financing for projects between 20-50 MW	100% of tot financing	
Repayments	Principal: Quarterly/Half yearly Markup: Quarterly	Principal: Monthly/Quarterly/Half yearly Markup: Monthly/Quarterly	Principal: Monthly/Quarterly/Half yearly Markup: Monthly/Quarterly

Source: State Bank of Pakistan

Challenges in mobilizing finance at the micro-level



Source: PRIED (2021)

Enabling business models are emerging as pivotal catalysts for rooftop solar

Barriers surrounding adoption of renewable technologies

Financial Barriers

Higher installation cost

Challenges in mobilizing finance

Cumbersome/lengthy processes of getting access to external capital for financing

Technical Barriers

Limited know-how on design and development, installation, operation and maintenance of the technology

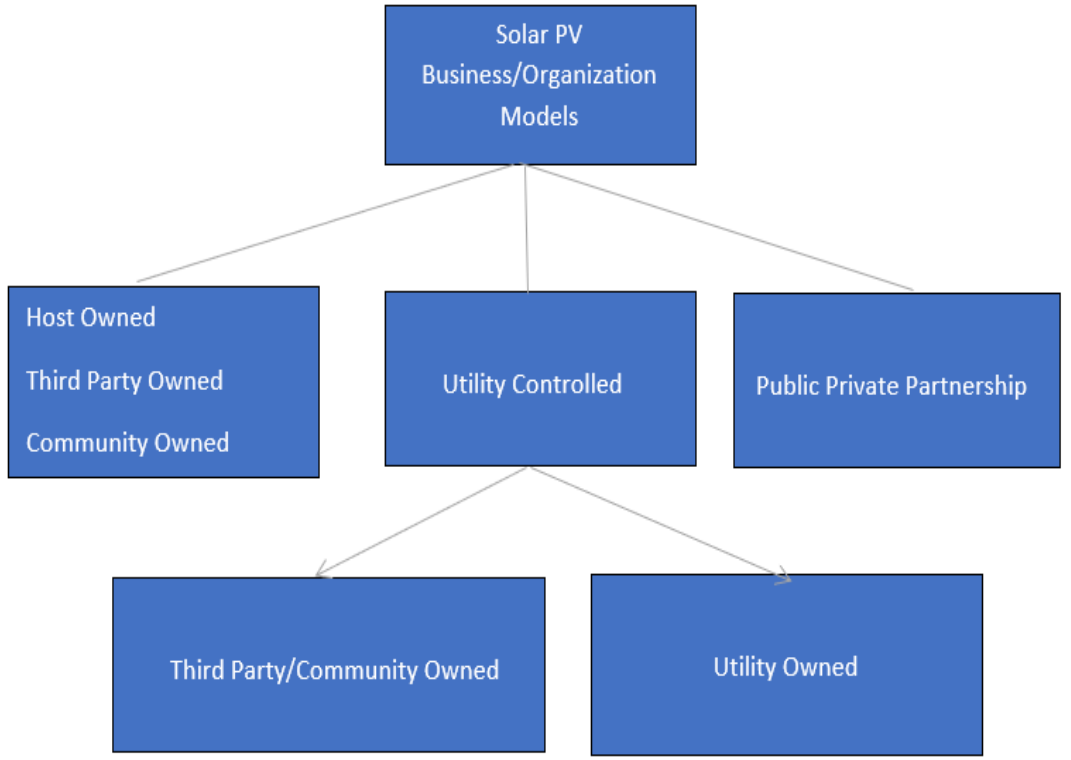
Administrative Barriers

Bureaucratic hassle, cumbersome/ lengthy processes of availing technology licences

Information failure

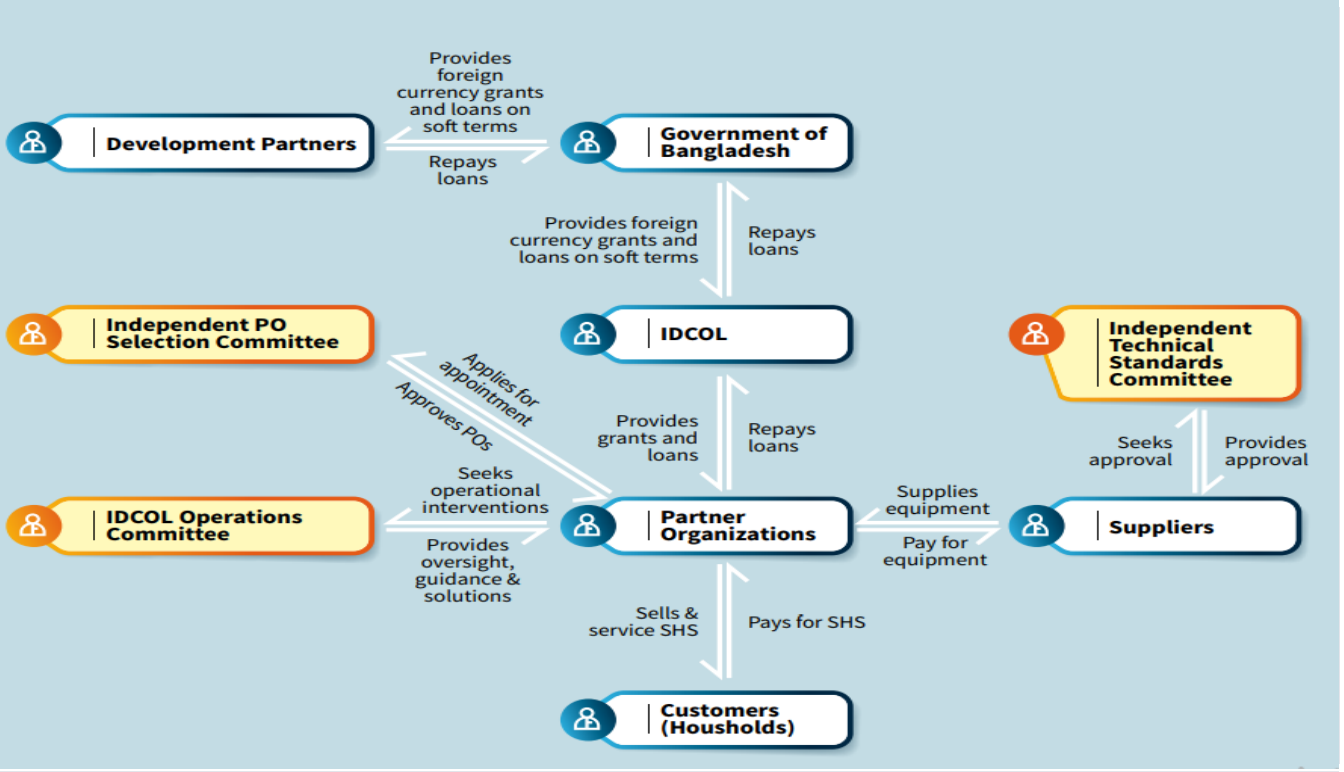
Awareness gap on technology, Limited know-how on financing options available for investment

Types of Business Models based on capital ownership



The Bangladesh Solar Home System Success Story

Organizational Structure of Infrastructure Development Company (IDCOL)



Source: World Bank (2021)

- Over 4.1 million SHS were installed during a 15-year period beginning in 2003.
- About 20 million people obtained electricity services through the SHS Program.
- The CO2 emissions avoided between 2003 and 2021 by kerosene offset by the SHS are estimated at 9.6 million tCO2 .

Takeaways

- For Pakistan, rooftop solar makes a profitable business case as it can help in meeting the demand locally, reduce capacity payment burden as well as transmission and distribution (T&D) losses, and manage day-time peaks.
- Some of the key challenges hindering rooftop solar growth include high upfront cost, challenges in mobilizing finance, regulator gaps, and lack of facilitative organizational, business and finance models.
- Designing of appropriate business models can address the existing challenges in socio-technical system and ensure a viable business case for involved stakeholders.
- This, in turn, requires systematic assessment of the existing challenges, favorable regulatory frameworks and tariff structures, public financial support—also possible lessons derived from the regional experience.

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