

PGREF

Pakistan-German Renewable Energy Forum

Pakistan-German Renewable Energy Forum (PGREF) – Cooperating with confidence

The PGREF is a cooperation initiative between the Governments of the Islamic Republic of Pakistan and the Federal Republic of Germany supported by Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) on behalf of the German Federal Ministry for Economic Cooperation & Development (BMZ) to create a network between their respective industries, public sectors and innovation networks in the Renewable Energy (RE) and Energy Efficiency (EE) field.

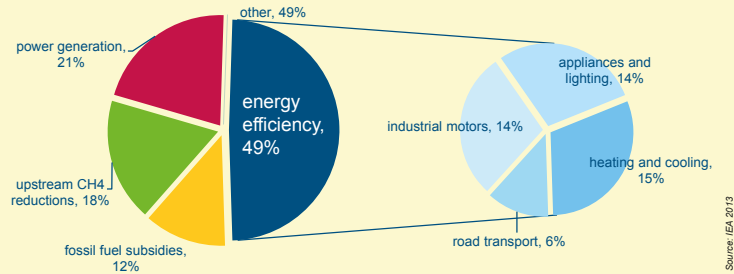
Background and vision

Pakistan's energy sector is marked by a substantial electricity shortage of about 6000 MW installed capacity, affecting economic growth as well as social development – with no or limited and unreliable access to electricity (ca. 50% of the population), frequent load-shedding and high energy prices relative to income levels. With economic growth and rising energy demands, the energy crisis continues to hamper Pakistan's development.

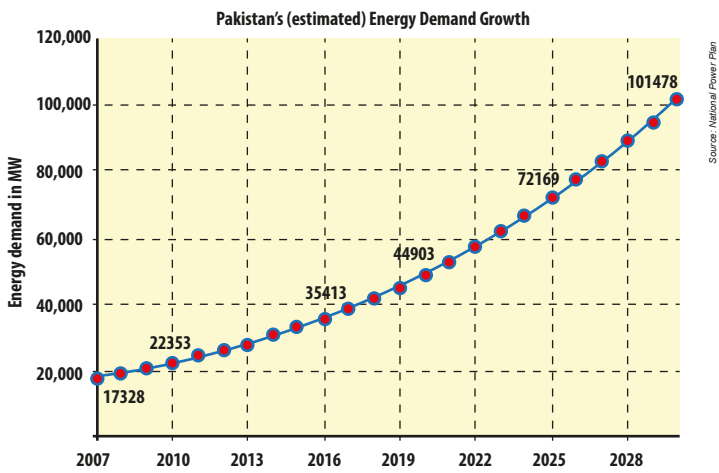
Pakistan's current energy mix

Projections indicate that on top of a 10% increase on the current 30% of electricity provided by hydro-power in Pakistan, up to 30% of Pakistan's electricity in the next decade could come from other renewable sources mainly solar PV, wind power and biomass. Additionally, Energy Efficiency and Conservation (EE & C) measures need to contribute by adding demand-side management to reduce the relative need for energy (decoupling). The overall potential for energy savings from EE & C, and with its CO₂ emission reduction, is estimated to be approximately 30-50%.

Efficiency is the most important means of reducing CO₂ emissions.

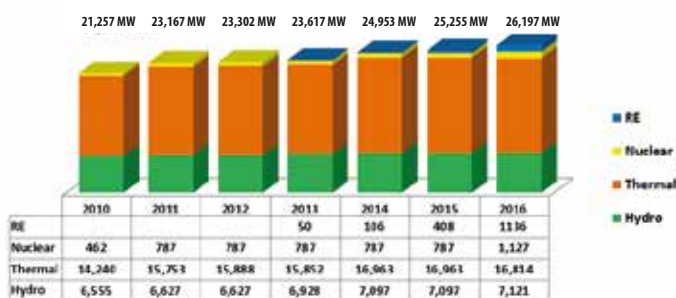


Source: IEA 2013



Germany, a country that initiated the energy transition (German: *Energiewende*) and where renewables currently contribute about 25% to the country's electricity mix, offers valuable lessons for Pakistan's energy problems.

Electricity installed capacity by type of source



Source: Power System Statistics 2013-14 39th Edition, Planning Power National Transmission & Despatch Company (NTDC) and AEDB website.

Goals and envisaged activities of PGREF

- Promoting cooperation and knowledge transfer in the fields of RE and EE:
 - Facilitating business-to-business and business-to-government links and joint ventures for international projects (service centres).
 - Promoting exchange on RE & EE legislation, policies and guidelines.
 - Introducing Public-Private Partnerships (PPPs) in model RE & EE projects.
 - Creating an Online Knowledge Resource Center providing relevant information and contacts.
 - Running adaptable task forces on specific RE & EE topics, e.g. net-metering, mini-hydro, academic exchanges.



June 2017, Munich: MoU signing ceremony between the Solar Quality Foundation (SQF) and the German Solar Association (Bundesverband Solarwirtschaft, BSW) at the 2017 InterSolar Europe.

• Informing foreign investors of business opportunities and creating a RE & EE landscape in Pakistan

- Assisting investors, traders and project developers with data provision, process help and business advice and an exchange platform on business opportunities.
- Organizing exhibitions of German RE & EE technologies to promote the high-quality Tier-1 products in the Pakistani market.
- Improving quality by introducing solar PV and battery passports.

• Capacity development and trainings

- Identifying training demands of the Pakistani market.
- Developing capacities to create a functional Energy Service Company (ESCO) market and reducing energy consumption through Energy Management Systems (EnMS).
- Supporting creation of an educational Energy Resource Centre (in an energy efficient building).
- Offering tailor-made capacity development on project management and quality management.
- Establishing local training institutions of German standards focusing on improved quality in the solar PV value chain.

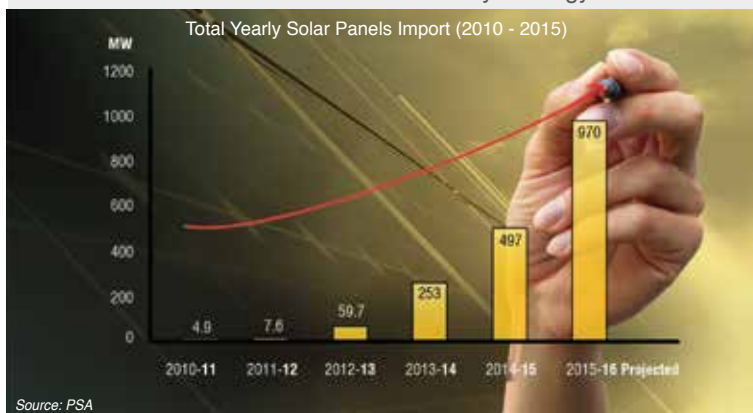
Members and partners

- Alternative Energy Development Board (AEDB), Ministry of Water & Power, Government of Pakistan.
- Energy Department, Government of the Punjab.
- The Solar Quality Foundation (SQF).
- German Solar Association (Bundesverband Solarwirtschaft, BSW).
- German Pakistan Chamber of Commerce & Industry (GPCCI)

shares the mission to promote, develop and further the economic well-being of members by providing a collective voice in advocacy to represent and protect member's interest, as well as quality services to help members enhance their competitiveness and success in their businesses thereby contributing significantly to the economic progress of both nations.

The Pakistani RE market offers great potential for investment

Pakistan, located on the global sun-belt with a daily irradiation an average of 6 kWh/m², has excellent RE conditions, specifically for solar PV (over 300 days/year of stable sunshine in large parts of the country). Additionally, the wind-corridor in Sindh has considerable wind power potential. In 2015, Pakistan imported 800 MW worth of solar PV panels - largely of poor quality. The local market requires high-quality, highly efficient products as provided by German technology and expertise in order to sustainably develop and expand the contribution of RE sources to the country's energy mix.



Conducive Environment for investment in RE

1. National Power Policy (NPP), 2013

Two major goals:

- Reducing the power shortage in Pakistan.
- Moving towards an optimal energy mix by incorporating more renewable energy sources; namely solar, wind, small-hydro, and bio-energy.

2. Renewable Energy Policy, 2006

- Guaranteed electricity purchase.
- Protection against political risks and changes in the law.
- Financial incentives: Attractive 'Cost Plus Tariff'; Feed-in-Tariffs for wind power, solar PV, bagasse power projects; custom duty and tax incentives on imports of equipment.
- High return on investment.

3. Net-Metering Policy, 2015

- The National Electric Power Regulatory Authority (NEPRA) has approved and put into effect a net-metering policy for solar and wind power of up to 1 MW.
- Framework for the regulation of Distributed Generation by renewable energy resources.

Overview of current Feed-in Tariffs for various RE

Proceedings have been initiated by the regulator (NEPRA) for the below proposed tariff for Solar PV power projects*	
North Region Levelized (1-25 years)	South Region Levelized (1-25 years)
9.9236 Rs./kWh	10.5074 Rs./kWh
9.4511 (US Cents/kWh)	10.0070 (US Cents/kWh)

*The final tariff will be determined and approved in the light of applicable regulatory framework of NEPRA

Levelized (1-30 years) Upfront Tariff for Hydropower Projects (1 to 25 MW) in US Cents/kWh			
Low Head: 20 meters and below		High Head: more than 20 meters	
100% Foreign Financing	100% Local Financing	100% Foreign Financing	100% Local Financing
10.8892	12.7804	0.0597	11.8299

Proceedings have been initiated by the regulator (NEPRA) for the below proposed tariff for wind power projects*	
Levelized (1-20 years)	Levelized (1-20 years)
100% Foreign Loan	100% Foreign Loan
Rupees 8.6066/kWh	US cents 8.1968/kWh

*The final tariff will be determined and approved in the light of applicable regulatory framework of NEPRA

Upfront Generation Tariff for New Bagasse based Co-generation Power Projects	
Levelized Tariff (1-30 years)*	
US\$ Cents 10.5601/kWh	

*(Levelized tariff discounted at 10% per annum)

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