



## CLEAN TECHNOLOGY

### BRIEF LANDSCAPE OF PAKISTAN'S CLEANTECH MARKET

Pakistan's clean technology sector serves as a vital tool for tackling environmental issues, enhancing energy security, fostering economic growth, and improving public health. Its adoption is imperative for Pakistan's sustainable development and global competitiveness. Swiss companies can play a pivotal role in revolutionizing Cleantech in Pakistan. Explore the dynamic potential and make a lasting impact on the health landscape in this factsheet.

#### INTRODUCTION

Clean technology, or "cleantech," encompasses various strategies to combat environmental issues by promoting sustainable practices, renewable energy, and efficient resource use. Clean technology is crucial for tackling pressing environmental challenges like pollution, deforestation, and climate change, which is why Pakistan is taking necessary measures to adopt Clean Tech. By leveraging innovations such as solar and wind power in the energy sector and improving waste management and transportation, Pakistan is exploring to address these issues while unlocking economic opportunities and enhancing community resilience. Pakistan plans to save \$1 billion annually through a new energy conservation plan.

#### MARKET GROWTH

Pakistan's government aims to generate 30% of its electricity from renewables by 2030, excluding hydroelectricity. Wind energy adoption is rapid due to government mandates and technological advancements. In 2022, Din Energy Pvt. Limited started commercial operations at Jhimpir wind power station, costing \$ 65 million. The Alternative and Renewable Energy Policy 2019 aims to increase renewable electricity share from 5% in 2020 to 30% by 2030. The market is expected to grow at a rate of 4.9% by 2028, with 2.1m active households and an average revenue per installed Smart Home of PKR US\$5.96. The government is investing in renewable energy to address power shortages. Pakistan is actively exploring and implementing various clean technologies in sectors such as **renewable energy, waste management, water purification, and transportation**.

## GOVERNMENT'S EMPHASIZE TO HAVE RENEWABLE ENERGY

Pakistan has been making efforts to diversify its energy mix and reduce its reliance on fossil fuels.

The prime minister of Pakistan suggests controlling oil imports with alternative resources like solar, wind, and hydel power. The country currently imports 27 billion dollars for power and transportation, and plans to install clean, low-cost hydropower and renewable plants in the future.



## WIND POWER PLANT INDUSTRY ANALYSIS

The wind power industry in Pakistan has grown rapidly, driven by the country's aim to diversify its energy sources and reduce reliance on fossil fuels. With ambitious renewable energy targets, Pakistan plans to generate 10% of its electricity from renewables by the end of 2025 and 30% by 2030. Over 300 wind turbines currently operate in regions like Sindh, Balochistan, and Khyber Pakhtunkhwa, with a total capacity of about 1,500 MW. The Jhimpir Wind Farm, the country's largest, hosts 56 turbines producing 127 MW in Thatta. The Gharo Wind Farm, under construction, will have 50 turbines generating 100 MW, enough to power 70,000 homes. Despite challenges, Pakistan's wind power sector is on track to be a key player in its renewable energy landscape. The Pakistani wind energy market is partially fragmented. Some of the major companies include Vestas Wind Systems AS, China Three Gorges Corp., General Electric Company, Goldwind International Holdings Ltd, and United Energy Group Limited, among other Swiss Companies.



Source: Profit Pakistan

## WIND ENERGY POTENTIAL

Pakistan is blessed with ample wind energy potential in the southern coastal regions of Balochistan and Sindh. Resultantly, it can harness wind energy given the presence of felicitous and consistent wind velocity corridors. In Sindh, there is the 'Gharo-Jhimpir' wind corridor with 43000MW gross wind power capacity. Furthermore, the government is carrying out a mapping project with regards to renewable energy in order to uncover new wind corridors.

Pakistan Wind Energy Market



Study Period	2020 - 2029
Base Year For Estimation	2023
Forecast Data Period	2024 - 2029
Historical Data Period	2020 - 2022
CAGR	> 5.00 %

### Major Players



\*Disclaimer: Major Players sorted in no particular order

Up till 2022, the operational wind power projects in Pakistan were 26 with a cumulative capacity of 1335MW. In addition, there are ten under-construction wind energy projects with a power potential of 510MW. In 2020, the government of Pakistan also approved the 2019 ARE-Alternate and Renewable Energy Policy to augment the renewable energy share (chiefly wind and solar) in the energy mix to 10% by the end of 2025 and almost 30% by 2030.

## SOLAR ENERGY POTENTIAL

Pakistan also possesses humongous solar energy potential, as the average sunlight duration is 10 hours per day with 1500-2750 watts per square meter radiation intensity range in areas of Balochistan, Sindh, and southern Punjab. In Pakistan, its gaining momentum as a renewable energy option thanks to ample sunlight, aiming to diversify the energy mix, decrease reliance on fossil fuels, and tackle energy shortages through government and organizational solar projects. Pakistan has installed several solar power plants, including one of the world's largest Quaid-e-Azam Solar Park in Bahawalpur, to improve electricity access in rural areas. The government has launched initiatives to promote solar energy, including subsidies and incentives. Private sector investment is also increasing, and efforts are being made to raise public awareness about solar energy's benefits. Pakistan is embracing solar energy due to rising electricity costs, with Enabling Solutions Solar Energy Company offering scalable solutions. Governments are providing financial aid and incentives, while technological advancements reduce manufacturing costs.



Source: QASOLAR

## PAKISTAN RAILWAYS PLANS TO CONVERT ALL ITS STATIONS TO SOLAR ENERGY

Pakistan Railways intends to transition the power network of all its stations, including major railway stations, offices, workshops, and factories, to solar systems in various stages. This initiative is expected to result in substantial savings for the department, amounting to billions of rupees.

## SWOT ANALYSIS



## PRESENCE OF SWISS FIRMS

Currently, 25 Swiss based multinational companies are operating in the country in the sectors of agriculture, food, beverages, tobacco , pharmaceuticals, textile, chemicals energy/electricity generation, and banking (growth of asset base in calendar year 2022 at 19.1%). 16 companies have their headquarters in Karachi while 8 companies are based in Lahore, and one is headquartered in Islamabad. 11 companies also have their manufacturing facilities in Pakistan; the number of these manufacturing units currently stands at 18. Swiss companies are generally performing well in Pakistan despite economic challenges.

Swiss MNC ABB Power & Automation (Pvt.) Ltd. through direct participation in tenders as well as sub-contractor for Independent Power Producers (IPPs), is providing power and energy efficient equipment for almost all solar and wind projects in Pakistan, along with Hitachi, and Accelleron in the sector of Machineries is directly present in the Pakistan's MEM Sector. Other Swiss SMEs having active presence in the sector are also known to be available through Pakistani representatives.

## UPCOMING CONFERENCE IN PAKISTAN 2025

**PAK WATER & ENERGY EXPO (Sept. 22-24, 2025) LAHORE EXPO CENTRE:**  
**Exhibits:** Water Technologies, Waster Water Solutions, Power Generation, Transmission and Distribution, Sustainability and Green Engineering, Automation and Instrumentation



## CONCLUSION:

In conclusion, the Cleantech sector of Pakistan offers opportunities for growth in various areas. It opens a pathway to sharing knowledge, expertise, and capital, paving the way for a more prosperous and innovative era in Pakistan's Clean Technology Sector.

## HOW S-GE CAN SUPPORT

We would be delighted to support you in your expansion plans to Pakistan and connect you with the appropriate business partners. Our renowned experts in Zurich work closely with the Embassy and our specialists at the Trade Point in Pakistan, ensuring that you benefit from firsthand information. We look forward to hearing from you!

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## GET IN TOUCH



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