

Assessment of industry risk is an essential part of credit rating process. The industry risk assessment sets the ceiling for ratings of individual entities within a given industry. It focuses on the degree of cyclicity and the strength of competitive forces along with the extent of capital intensity, vulnerability to technological change, level of regulatory interference and energy sensitivity. All these factors are assessed on a scale ranging from High to Low to assign an overall risk level to each industry. Industry risk categorization for different industries is available on our website under Sector Updates “Industry Risk Analysis” (<https://docs.vis.com.pk/docs/Industryrisk062021.pdf>).

This document explains VIS approach to assess industry risk of Renewable Energy (RE) Sector of Pakistan.

Renewable Energy Industry in Pakistan

For quite some time, Pakistan’s electric power sector has been striving to meet the goal of providing affordable electricity to its citizens. Once faced with a shortage of electric power generation capacity, the power sector’s biggest challenge today is to control and reduce the rising cost of electricity for consumers. Competitive electricity prices are required not only to boost industrial activity in the country, but also to raise the living standards of the common man. The energy mix to generate power in Pakistan comprises natural gas, liquefied natural gas (LNG), crude oil, coal and renewable sources like biomass, hydro, nuclear, solar and wind energy. The total installed power generation capacity in Pakistan stood at 39,772 MW as at end June, 2021. More than 63% of the power is generated using fossil fuels, followed by hydro-power electricity contributing 24.9% in the production. Nuclear energy comes at the third place with a contribution of 6.6%. Meanwhile, renewable energy sources like wind, solar and biomass contribution remains low adding 5.4% to the total energy mix.

OVERALL INDUSTRY RISK

High
High to Medium
Medium
Medium to Low
Low

Under the current circumstances, where the country is relying on importing fossil fuels for energy generation, renewable energy resources are considered to play an integral role. The Government of Pakistan (GoP) issued an Alternative Renewable Energy (ARE) policy in 2019. The policy not only provides detailed guidelines for energy generation by renewable energy sources, but also promotes the use of renewable technologies across the country. The policy is formulated to achieve a contribution of 30% from renewable energy sources by 2030 and provides a pathway for large-scale renewable energy projects across Pakistan. We have seen a lot of progress in the implementation of renewable energy projects in Pakistan in last few years. As of June 2021, 24 wind power projects are contributing 1,233 MW to the national grid. Meanwhile, 6 solar projects and 8 biomass projects are supplying 430 MW and 259 MW respectively to the national grid.

Cyclicity Risk

The demand in Pakistan’s RE sector is closely related to population growth, increased urbanization, a general change in lifestyle, and high reliance and usage of electrical appliances. The domestic consumers and their electricity consumption has a share of 86% and 48%, respectively, making them the largest consumer of total electricity, at the end of FY21. On a timeline basis, the share of domestic consumers electricity consumption represents a growing trend. Given the economic downturn, commercial or industrial demand may fall, but the general population will continue to use power. As a result, overall sector cyclicity is rated as low risk.

Competitive Risk

Barriers to Entry Risk

The assessment of entry barriers, substitution risk, and risk in growth trends in the industry reflects the industry’s competitiveness. The RE sector is one of the most strictly regulated sectors in the country. There is a requirement of acquiring a generation license from the GoP before any project can begin operations. Power Purchase Agreements (PPA) and Energy Purchase Agreements (EPA) must be vetted by the government. NEPRA, a government entity, regulates the tariffs. The government is involved throughout the entire value chain, from raw material purchases to electricity sales. Further, the ownership structure also varies between hydel and Alternative Renewable Energy (ARE) technology RE projects; GoP is mainly the owner of Hydel projects while corporates are owners of ARE technology projects so a cascading risk categorization is made with ‘Low Risk’ for hydel and ‘Medium Risk’ for ARE projects.

Risk of Substitution

There is no substitute for the end product, which is electricity. Furthermore, the risk of substitution of the generation source/fuel is very low. According to the approved ARE policy 2019, RE are expected to meet 20% of generation capacity by FY25 and 30% by FY30. The hydel projects are not included in ARE technology and will account for an additional 30% by FY30. Considering this, we may expect the reliance on renewables to increase in the medium to long term. Another goal of the policy is to reduce Pakistan's average basket cost of generation. As a result, the need for capacity expansion is not the only motivator. Another driving factor is the replacement of more expensive fossil energy with cheaper and cleaner renewable energy. However, the substitution of existing capacity is highly unlikely to be replaced by any other source thus the substitution risk for the overall RE sector is considered low.

Growth Trends

Growth trend in the RE sector is heavily influenced by rising electricity consumption, due to increase in population. According to the World Bank, Pakistan has 225 million people and is growing at a rate of 1.9 percent. The population is expected to rise to 263 million by 2030. Rural-to-urban migration averaged 2% per year, with city growth hovering around 3%. Changes in lifestyle and technological dependence, combined with favorable socioeconomic factors, would increase electricity demand. Overall, the RE sector is deemed to be low risk in terms of growth trends.

Based on medium to low risk of effectiveness of barriers to entry along with low substitution and growth trend risk, 'competitive risk' of the industry is assessed as low.

Capitalization Levels and Technology Risk

The capital investment is significant, particularly in hydroelectric projects, because investment of that magnitude is difficult to obtain and can only be provided by large conglomerates or the government. Moreover, investment in ARE technology can be made by large groups with strong financial strength. These are long-term projects with return of capital easily over 7 years and enormous sunk cost. Capital intensity risk is considered to be high

RE sector is characterized by a lower rate of innovation and product obsolescence. However, the Engineering, Procurement, and Construction (EPC) cost is the major component comprising around three-fourths of the total cost. Operation and Maintenance (O&M) is also very costly. Furthermore both EPC and O&M agreements are made with very specialized companies, so the supply/provision of technological services is also limited. Therefore technology risk is considered to be medium.

Regulatory Practices

More than 20 institutions are involved in the power sector and this does not include the power generation and distribution corporations. The monitoring and regulating of the distribution companies' operations and management is done by at least three entities, namely NEPRA, Central Purchasing Agency (CPPA), and Pakistan Electric Power Company (PEPCO). Meanwhile, Private Alternative Energy Development Board (AEDB), NEPRA, Power Infrastructure Board (PPIB) and provincial departments have the direct or indirect power to ensure the technical compliance of private power generation entities. NEPRA is responsible for setting the power tariff. All the distribution companies (DISCOs), except K-Electric, are government owned companies. As a result, the regulatory and competitive environment for renewable energy in Pakistan is very high to high.

Energy Consumption

The energy composition in cost is not a major proportion; therefore the gross margins of RE players are significantly higher around 70-80%. Furthermore, as the name suggests the availability of each resource is 'Renewable' meaning "Abundant/Infinitely Available" the cost of running out or depleting is zero. We have assigned energy sensitivity risk as Low.

On overall basis, based on the factors discussed above, industry risk of RE sector is assigned as Medium to Low

Table 1: Summary of Industry Risk Factors

RENEWABLE ENERGY									
Cyclicality	Competition				Capital Intensity	Technology Risk	Regulatory Framework	Energy Sensitivity	OVERALL RISK
	Risk of Effectiveness of barrier to entry	Risk of Substitutes	Risk in Growth Trends	Overall					
Low	Medium to Low	Low	Low	Low	High	Medium	Very High to High	Low	Medium to Low

Analyst Contact

M. Owais Atta Siddiqui, FRM, CSAA

Group Head - Shariah, Research &

Training

owais@vis.com.pk