INDUSTRY RISK ANALYSIS

Non-Renewable Energy

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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 cyclicality 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 risk of Power Sector (Non-Renewable Energy) of Pakistan.

Power Sector (Non-Renewable Energy) in Pakistan

The non-renewable energy segment in Pakistan consists of Thermal Power and Nuclear Power, with the country having a considerable dependence on this segment to fulfill its power needs. As of 30 June 2021, these two sources accounted for almost 70% of the total power generation capacity. Using a network of transmission lines, substations, and distribution lines, the electricity is supplied to different types of end consumers (residential, commercial, and industrial) in accordance with their needs. Availability of electricity at an affordable is a fundamental requirement for the economic prosperity of any country and for uplifting the living standards of its people. The idea is even more relevant for a country like Pakistan, where tariffs are high and people have to deal with load shedding due to power shortage. Hence, enhancing the operational efficiency of this segment is of utmost importance.

OVERALL INDUSTRY RISK

High
High to Medium
Medium
Medium to Low
Low

Cyclicality Risk

Cyclicality risk for Non-Renewable Energy segment of Pakistan is categorized as 'low'. Given the 'Take or Pay' nature of contracts, there is a negative correlation between the GDP growth and EBIT margins of entities operating in the sector. In addition to that, given the essential nature of the product, there has been a consistent increase in revenues over the years. This includes FY20, a year that was marked by economic stress due to COIVD-19. Even if there is a fall in commercial or industrial demand due to an economic downturn, usage of household consumer continues to rise of because of multiple geo-demographic factors. These include growth in population, increased urbanization, changing lifestyles, and higher technological dependence.

Competitive Risk

Barriers to Entry Risk

An assessment of barriers to entry, substitution risk and risk in growth trends in the industry reflects the competitiveness of the industry. This particular sector is a highly regulated one. A generation license has to be obtained from the government before a project can become operational. The government also vets all the agreements and decides the tariff via NEPRA, so regulators are involved throughout the value chain. Moreover, huge set up costs further act as a deterrent to entry. Existence of government owned projects along with Independent Power Producers (IPPs) owned by renowned groups makes establishing a new business even more difficult. As for transmission and distribution networks, there are only public corporations that operate (with the exception of K-Electric). Hence, considering the above-mentioned points, the risk associated with the effectiveness of barriers to entry can be categorized as low.

Risk of Substitution

There is no substitute for the final product, which is electricity. However, utilization of alternate sources of power generation can be raised over time. Over the medium to long-term, the Government of Pakistan (GoP) plans to increase the proportion of renewable sources of energy in the overall production (20% by FY25 excluding hydel projects). The objective is to reduce dependence on fossil fuels and replace them with cheaper and cleaner alternatives. Nevertheless, successful execution of this plan is an uphill task, considering non-renewable sources excluding hydel power accounted for only 5.4% of total power generation in FY21. Consequently, the risk of substitution over the rating horizon can be deemed as 'medium to low'.

Growth Trends

Growth trend in the sector is mainly attributable to rising electricity consumption due to geo-demographic factors discussed earlier. As per World Bank, Pakistan has a population of 225 million, with a growth rate of almost 2% in 2021. To add to it, rural-urban migration and changing lifestyles that have resulted in greater use of electronic appliances

have all contributed to an increase in demand for electricity. However, capacity factors of existing fossil fuel based power plants are low (40-50% over the past five years). So, with the rising focus of GoP on non-renewable sources of energy that also offer a cheaper alternative, growth may be restricted to some extent going forward. Hence, the associated risk can be categorized as medium to low.

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

Capitalization Levels and Technology Risk

The capital investment required is huge, with an estimated cost of $1.5/MW (NEPRA State of Industry Report 2021). This also explains why some projects are operational even after the PP expiry of 25 years, although some changes in agreements are required for it. Such a large amount of funding can only be provided by the government or major conglomerates, which also have access to local and foreign debt. Even for the transmission and distribution networks, the repair and maintenance costs are quite high. Accordingly, capital intensity risk is considered to be high.

Considering that the final product and generation process remains the same, rate of innovation and hence the risk of obsolescence is quite low. However, the acquisition of cost of technology and maintenance related expenditure is very high. Moreover, the availability of required technological services is limited due to the fact that EPC and O&M agreements are reached with specialized companies. Hence, technology risk is categorized as medium.

Regulatory Practices

Government entities are involved in every step of the value chain of this sector. Before a power generation project becomes operational, license has to be obtained. The relevant authorities vet all the agreements (PPA) and tariff is determined by NEPRA. As for transmission network, it is operated by NTDC alone, which is a public corporation. Even the distribution companies (DISCOs), with the exception of KE, are owned by the government. Due to these factors, there is also a high level of political interference. Consequently, the regulatory environment risk for non-renewable energy segment is considered high.

Energy Consumption

The source of energy used to generate power constitutes a major proportion of the overall cost mix (80-90%), so the associated expenditure is on the higher side. However, comfort is drawn from the fact that all entities have signed long-term supply contracts, which ensures adequate supply on a regular basis. Accordingly, energy sensitivity risk is deemed to be medium to low.

On overall basis, based on the factors discussed above, overall risk of Power Sector (Non-Renewable Energy) has been assigned as Medium to Low

Table 1: Summary of Industry Risk Factors

NON-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					
Generation									
Low	Low	Medium to low	Medium to low	Medium	High	Medium	High to very high	Medium to low	**Medium to low**
Transmission									
Low	Very low	Very low	Low	Very low	High	Medium	High to very high	NA	**Medium to Low**
Distribution									
Low	Low to very low	Low to very low	Low	Low to very low	High	Medium	High to very high	NA	**Medium to Low**

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