

THAR WILL CHANGE PAKISTAN



M E S S A G E S

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It gives me great pleasure to see that the coal extracted from Thar Coalfields is generating more than 2640 MW of electricity, and this is just the beginning. A vision that spans three decades is finally bearing fruit. Only ten years back, the process of extracting coal from the Thar Desert began, signifying substantial financial, and execution risks. Extraction of coal, and its conversion into electricity signifies the success of the public-private partnership that resulted in development of two coal mines having capacity of more than 16 million tons per annum, and power plants generating more than 2600 MW of electricity.

The Government of Sindh has demonstrated that through effective public-private partnerships, it is possible to generate economic, and welfare returns for stakeholders across the board. The first phase of Thar Coalfield was about exploration and exploitation of coal from two mines. We are now heralding the second phase, wherein production of coal needs to be scaled up such that it can serve interests of industries other than power. It is now time to think about rapidly scaling up production of indigenous energy to save precious foreign exchange reserves for Pakistan, and ensuring energy security. It is essential to consider that energy security effectively translates into economic, and national security. The Government of Sindh understands the importance of indigenous energy, and through the Thar Coal Energy Board is now embarking on accelerating utilization of indigenous resources for industrial development, that not only benefits the country at large, but also the local inhabitants of the area. Catalyzing industrial development through indigenous resources remains a high priority for the Government of Sindh, and we will continue to work on converting indigenous resources into high value output through strategic public-private partnerships, and tactical policy actions. We look forward to a decade of ensuring energy security through effective utilization of indigenous resources.

Through a successful public-private partnership model, we have demonstrated that it is possible to execute large-scale energy and infrastructure projects in the country, as long as the will is there. The country has been transitioning from one crisis to another, but it is through sheer hard work and dedication of all stakeholders that we have been able to generate more than 2600 MW of electricity from Thar Coalfield and have coal mines in place that can produce more than 16 million tons of coal every year. Over the last one decade, we have converted a small portion of the mighty Thar Desert into an indigenous resource supplier, a strategic national asset that can add tremendous value to the country's economic development for years to come.

The country is going through economic stress right now, and a key reason behind that is excessive reliance on imported sources of energy. The country's energy requirements are mostly met by imported energy sources, whether that is petroleum products, LNG, or coal.

We are at the cusp of the next phase of growth in Thar Coalfield. That will be about scaling up Thar Coalfields to triple, or even quadruple production of coal from Thar Coalfield, and benefit from economies of scale. It is entirely possible to completely substitute demand of imported coal with indigenous Thar Coal, and not only save precious foreign exchange reserves in the process, but also reduce cost of production.

The Government of Sindh requires support to steer the country towards an export-oriented economy, and a key prerequisite for the same is affordable, and cheap energy, that can be provided by Thar Coalfield. We need to come up with a strategic vision, with an executable plan to convert the coal into high value added export-oriented products, and steer the country towards a middle-income country over the next two decades.

Opening up Thar Coal for non-power uses

Syed Akhtar Ali

Thar coal has come up a long way. Two blocks are functional with an installed power capacity of 2000 MW. Power sector has helped opening up of the Thar coal which was lying dormant after its discovery in 1960s. Several attempts were made to make a breakthrough but failed. Solving federal vs provincial control issue took a period of full five years. On the other side of the border, India also has the same continuation of Thar Desert which India started exploiting in 1970s and is about to consume it all in less than a few decades more. With SECAM third phase, Thar coal production would reach a level of 122 mtpa and fortunately at a viable low cost of 20 USD/ton as opposed to twice the current prices. Combined with SMOSSR, production of the combined total Thar coal production would be around 20 mtpa through the 3000 MW power capacity. There are two problems, however, with Thar coal: high moisture content (40-50%) and low calorific value (60% of the normal sub-bituminous coal). It has to be dried and may be processed before transportation, but that is safety and economic reasons. This adds to cost. It is conventionally priced lower at 25-30 USD/ton as opposed to 80-100 USD/ton of conventional thermal coal. Current Thar coal costs of 65 USD/t might have been another constraint in wider use of Thar coal. As mentioned elsewhere, these costs/prices may come down to 27-30 USD/ton in near future in 1-3 months.

Unfortunately, we installed three coal power plants on imported coal. One can be wise in

hindsight. At that time, there was power capacity crisis - these coal types do not lend themselves to gasification at all. Humic acid and Leonardite are well-known. Leonardite is naturally oxidized lignite and rich in Humic acid. It is found close to the surface of lignite mines. Humic acid is used as a soil conditioner in agriculture and Leonardite is used in oil and gas drilling mud. India has been exporting Leonardite at \$1400 per tonne.

While, there may be sufficient power plants capacity, industrial sector is suffering from the pricing and availability issues of thermal energy in the form of gas or LNG. While local gas production is declining, spot market LNG prices have gone up and India not available at any price. Fortunately, we have long term LNG contracts with Qatar which have partly saved from a catastrophe. Fortunately, our cement sector had already converted it to coal, although to imported coal. This conversion trend has become worldwide in the cement industry. But other sectors are still gas dependent. In Gujarat and adjoining areas in India, which is a textile hub of India, lignite is being used making India competitive in that sector, while our textile industry is dependent on energy subsidies. Our industry is converting to expensive Furnace Oil to fire their boilers. Cement is a big sector in Pakistan with an installed capacity of 70 mtpa which may go upto 100mtpa in next ten years or earlier. Cement sector also earns foreign exchange through exports to the regional countries. Cement sector coal demand itself is very high as much as 70 mtpa which is equivalent to Thar coal of 14-15 mtpa. But the cement sector depends on imported coal

mostly. This alone can be a sizable market for Thar coal. There is steel sector which can also be converted to Thar coal. Steel sector is suffering from lack of energy supplies and high costs. Cement and steel combined are major inputs for the construction sector. The latter can give a fillip to the economy or otherwise slow down the economy and the associated employment creation.

The question is why don't these sectors utilize Thar coal? It is local and cheaper and now foreign exchange is not there or is terribly expensive. The answer is that Thar coal has been wedded with the power sector alone. And coal imports were cheaper and easier. Thar's remoteness and isolation was an issue which is going to be solved in near future by laying a Railway line connecting Thar to the Railways network. There is a policy vacuum relevant to non-captive uses of Thar coal. Existing coal production capacity is constrained from using Thar coal due to legal and financial lacunae which could have been removed by allowing them to sell at marginal cost plus a reasonable profit margin. However, the main issue is opening up of Thar coal to non-power users such as Cement, Steel and Textile sectors and others. Cement sector is very big and progressive one. They have highly modern and capital expensive cement plants. They have organizational and other resources and capability. A coal mine costs the same CAPEX of a few hundred million USD as one or two cement plants would be. There can be many business models such as competitive mine auction capacity in blocks of 5 mtpa or more. Cement or steel sector may turn a

cooperative to reduce risk. Classical IPF model with some changes can be adopted. There can be price control via pharms industry or unregulated prices. GMD (Gujarat Mining India) model can be adopted. Possibilities and potential are many.

Existing players may also be inducted in the initiative so that inevitable resistance barriers may be reduced. They can participate as mine contractors making good use of their experience. 70s of mine contractors with local parties may be encouraged. Currently, there is a scope to opening few Thar coal mines of 5 mtpa. I would create a competitive market. The mining activity can be quiet and much less visible and noticeable than coal power plants. These mines may not require international financing as power plant require and can be implemented with ease as they are intensive plants like Cement ones are intensive plants like Cement ones are. Cement, Steel and Textile sectors put together are a great resource that should be mobilized by the policy makers. Sindh government should also consider establishing a SME industrial Estate in Thar area which may engage a various Thar coal processing industries like coal for drying, briquetting, sales and despatch etc for miscellaneous customers. This is not to suggest that other initiatives like Coal-to-Gas, Fertilizer or Diesel may be dropped. However, these can wait due to various constraints. Let us make some beginning.

(The writer is former Member Energy Planning Commission; author of several books on the Energy Sector)

Pakistan possesses one of the largest coal resources in the world, located in the Thar Desert, and is estimated to have over 175 billion tons of coal deposits. In recent years, there has been a growing interest in the potential of the Thar coalfields to boost Pakistan's economic development and energy independence. With the development of necessary infrastructure, the extraction of coal from the Thar Desert has become risk-free and more viable for other industrial applications, such as cement and fertilizer production. Pakistan's cement industry is facing significant challenges due to its reliance on imported coal (importing almost half a million tonne per month), resulting in difficulties in availability and fluctuations in cement prices, that are impacting production activities. Coal is a critical fuel for cement production, accounting for 50 to 60 per cent of the production cost. With the rising cost of doing business due to increased fuel prices and the devaluation of the local currency, cement prices are expected to rise even higher. The industry anticipates this price hike to the disruption in the global coal supply chain,

which has caused an increase in global coal prices. This situation may put Pakistan's cement industry in a state of crisis. The cost of imported coal is not only affecting the profitability of the cement industry but also the country's economy. The industry must explore Thar coal as an alternative and sustainable source of energy to reduce its dependence on imported coal.

One of the primary advantages of utilizing Thar coal in process industries other than mine-mouth power generation is cost-effectiveness. It is possible to achieve considerable cost savings when compared to other fuels, including furnace oil, imported liquefied natural gas (LNG), and diesel. These cost savings not only increase profit margins but also enhance competitiveness and energy security, reducing Pakistan's dependence on costly imports. With dwindling indigenous gas supplies, relying on domestic energy sources such as Thar coal is critical to reducing Pakistan's vulnerability to international energy market fluctuations and to preserving foreign currency reserves. In addition to cost-effectiveness, using Thar coal in

Reducing Dependence on Imported Coal: The Case for Thar Coal in Pakistan's Energy Industry

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extended industrial applications can also boost economic activity in the region and will also drive the development of supporting industries, such as transportation and infrastructure, further boosting the local and regional economy.

To encourage investment in these new industrial applications, a revised pricing mechanism for Thar coal is essential. The stable pricing structure provides investors with confidence that Thar coal prices will remain consistent, making investment in these industries more attractive. A clear and stable pricing mechanism can also help to attract private investment in the coal mining sector, which is critical to the expansion of the Thar coal. The eventual goal of the revised pricing mechanism is to establish a thriving

spot market for Thar coal, enabling the evolution of competitive prices. This can promote efficient resource use by ensuring that Thar coal is used in the most economically feasible manner possible, such as pricing based on quality and promoting best practices in energy efficiency. The pricing mechanism can also help to minimize waste and promote sustainable resource use, ensuring that the benefits of Thar coal are available for future generations. The pricing framework can depend on various factors such as production costs, transportation costs, demand-supply dynamics, and regulatory requirements. Various pricing approaches are available including Cost-Plus (involves adding a markup on top of the production cost, currently adopted for Thar

coal), Market-based (involves setting the price of Thar coal based on the supply and demand dynamics of the market), Royalty-based (a fixed percentage of the revenue generated from the sale of coal is charged by the Government as a royalty fee), Long-term contracts (the price negotiated based on expected production costs and market conditions), and Carbon pricing (considering cost of carbon emissions). It is important to establish a fair and transparent pricing model for Thar coal that benefits all stakeholders involved. With a variety of options to consider, the pros and cons of each model must be weighed to ensure that it aligns with the government's energy and environmental goals. Historical pricing data reveals the necessity for transitioning towards indigenous

energy resources. Energy net importers like Pakistan remain exposed to the vagaries of the international commodity market, and the recent commodity super-cycle is a testament to this vulnerability. The cost of natural gas, which currently constitutes over 50% of Pakistan's energy mix, is highly dependent on imported LNG prices. This dependence on imported LNG prices. This dependence on imported LNG prices not only makes the country susceptible to energy market fluctuations but also strains the country's foreign currency reserves. The establishment of a comprehensive and integrated approach to the development of Thar coal is critical to realizing its potential to transform Pakistan's energy industry and contribute to the country's overall economic growth. A policy discussion involving all

relevant stakeholders, including government agencies, private sector companies, and local communities, is essential to developing a clear and comprehensive plan for the development of Thar coal that is supported by all stakeholders and provides a framework for

