

Challenges in the era of energy transition

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There's not a day where the threat of climate change to the planet and the accompanying challenges to the continued survival of all living beings in our ecosystem is not discussed. Unfortunately, the hydrocarbon industry, identified as a key contributor to global warming, is under attack from activists to contribute more vigorously to meeting the goals set under the Paris Climate Change accord. Simultaneously, activists are also lobbying with governments to provide more robust policy support for accelerating the development and commercialisation of green energy technologies.

Energy transition is, therefore, a reality. With the adoption of renewables as the likely primary source of future growth in the power sector and the focus on Electric Vehicles ("EVs") in the transportation sector, the debate is now to understand the likely pace of its progress in the future and how the current energy industry plans to respond to the challenges posed by the climate change accord.

So what does the future hold for the hydrocarbon industry? The share of Coal, Oil and Gas in the 2020 global energy basket is projected to be about 83 per cent whereas those of renewable energy sources is about 13 per cent. Given the high growth in renewable power and EVs, the projected global energy mix in 2040 is likely to be 73 per cent contributed to by Coal, Oil and Gas and 22 per cent by renewables. At first look, this hardly sounds alarming, given that despite losing

ground to renewables, there is still growth ahead for the hydrocarbon sector in the expanded global energy basket. However, the differing demand saturation horizons for these fuels is a concern, making the industry introspect carefully in reshaping their business.

Why does the threat of energy transition matter?

Energy transition has historically been a key driver in economic development. Coal, as a fuel source, was key to the success of the industrial revolution. The subsequent rise of oil and gas as primary fuels with much higher calorific values provided the platform for a quantum leap in energy efficiency, thereby accelerating exponential growth in the power and transportation sectors. Not only did this usher in an interconnected world, but also energised the creation of a new workforce generation employed by new industries, a better quality of life, and cross-border trade amongst nations to levels never previously imagined.

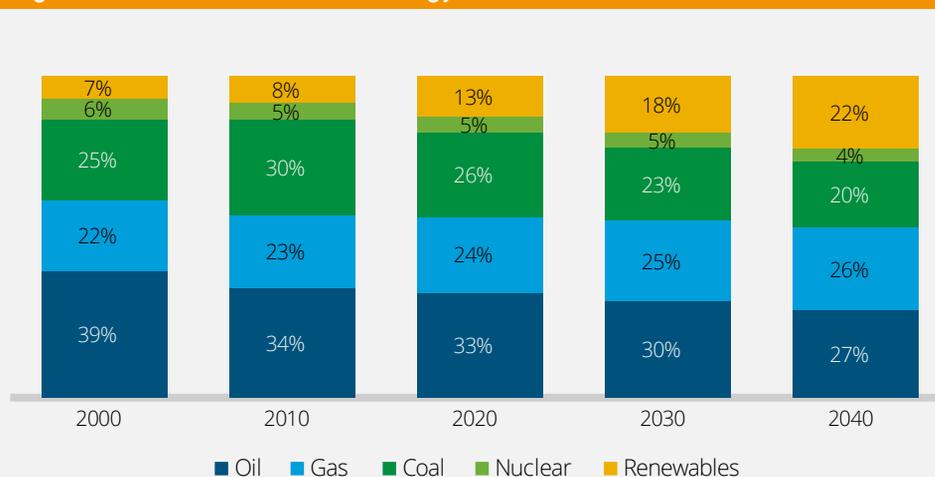
It may seem very commonplace today in tropical Asia to have the ability to gift fresh tulips from Holland to your friends and family, but not too long ago this was just a vicarious experience for most, gleamed through books, movies and magazines. Such has been the transformative power of the last energy transition from coal to oil and gas.

Unsurprisingly, this increased energy intensity from hydrocarbon sources has come at a price – an additional

pressure on the environment accompanied by threats to the continued well-being of our planet. Historically, energy transition has been a multi-decade event. However, given how established players have found their businesses upended by disruptive new technologies, the industry could face a much shorter transition period, and a deeper existential threat, as can be seen from:

Coal: Losing its share of global energy basket over the past several decades to oil and gas, the decline is being accelerated by concerns about it being the dirtiest of

Figure 1: Evolution of Global Energy Basket



Source: BP 2019 Energy Outlook Report



hydrocarbons. Coal is projected to lose its share in the global energy mix not just in percentage terms but in absolute terms, reflecting an actual decline in demand.

Oil: It has taken less than a decade for the industry to shift from the talk of “Peak Oil” to “Peak Demand” now. Despite a rapid growth in EVs, oil demand is still projected to grow, triggered by a growth in demand from emerging markets and the petrochemical sector. However, this growth will flatten out around 2035 and go into gradual decline thereafter.

Gas: The least carbon intensive amongst all the hydrocarbons, Gas is seen as the transition fuel for meeting the goals of the climate accord since growth in renewables alone will not help meet those targets. Amongst the hydrocarbons, gas probably boasts of both the highest rate of growth and the longest projected growth cycle (until 2040) before demand growth moderates out.

Key issues to be faced by the industry in the new normal

The oil and gas industry is characterised by a long lead cycle in discovering and monetising new resources. With large capital commitments involved, businesses will have to help meet the key objectives of the climate change accord, while being focused on their projected demand growth. Consequently, some of the issues which the industry stakeholders are now likely to confront are:

Restructuring of existing E&P portfolios to reduce carbon footprint: New operating standards will need to be set for the industry aimed at reducing the carbon footprint. Change in business strategies will result in some opting to go gas-heavy into the future while others will choose to concentrate on oil, aided by investments in newer technologies focused on reducing the carbon intensity of its operations and in end use of products.

Cost for meeting enhanced environmental scrutiny: The industry will be faced with increased costs to deliver on the climate accord objectives and management of energy transition risks. These will emanate from key stakeholders such as the regulators, investors and the financial community, all of whom have been aligning themselves much more closely to the recommendations of the Task-Force on Climate-related Financial Disclosures (“TCFD”) framework.

The challenge of raising equity and debt capital: Increasingly, with business uncertainty around demand growth and shorter time horizons available for generating satisfactory returns, maintaining continued access to equity and debt capital markets will be a key challenge. It will result in an enormous

premium on players who can operate in the top quartile of the cost curve, using not just standard cost discipline but also new technology and practices geared towards delivering enhanced efficiency gains to offset the inevitable increase in costs.

The upstream business will be significantly more agile than it is currently with greater emphasis likely to be placed on reducing lead times to monetisation through smaller, modular but quickly replicable projects with lower initial capital commitments. For the downstream sector, to ensure long-term viability of investments in a peak demand and beyond period, players will have to increasingly invest in ‘Crude-to-Chemicals’ integrated refineries requiring significantly larger capital outlays.

Role of supportive host governments: Going forward, the fiscal framework provided by host governments will assume greater significance as players seek to manage conflicting demands of investors, activists and host governments. In an unsupportive economic framework there will be a significant likelihood of unexploited assets being left in the ground.

How to attract young talent: This battle will become even more critical as the industry fights the perception battle, both on the reputational front and in projecting its long-term viability as a career option for young talent.

Future Energy Landscape

Every change presents opportunities for players who are able to adapt to the new normal. This era of energy transition, even if it’s an accelerated one, will span several decades before Oil and Gas sectors surrender their primary role to new, cleaner energy alternatives. In the interim, new resources will need to be discovered and brought to the market lest we risk wild fluctuation and concomitant price shocks in the global economy. We will see a significant consolidation opportunity in the sector driven by the survival of the fittest, a matter of lasting power and adaptability. Equally, given the financial strength and operational capabilities, expect also to see some of the existing industry players emerge as disruptors and aggregators in the new clean energy sector.

In future, as energy transition unfolds, we can expect to see greater convergence between the old and new energy forms with technology bridging these phenomena. Ultimately, only with the advancement in technology will we be able to deliver on the twin goals of increase in energy efficiency with reduction in energy intensity, a key to reducing the impact of global warming on climate change while enabling continued improvement in living standards globally. ●