

False Sense of Balance

BY JOSEPH NAEMI

It used to be easy; we worried about Peak Oil, political stability of OPEC member countries, and the price volatility of crude oil and refined petroleum products – for a long time, that is how the mighty oil industry managed the risks associated with its business; while allocating capital and human resources, to ensure that the international flow of hydrocarbons, satisfied the demands of the Hydrocarbon Man.

Now though, the landscape is a bit more complex. There are structural changes within the global economic and political construct, which are affecting the interpretation of the future; and often erroneously, providing us with a false sense of balance.

The dual dream of renewable energy and electric vehicles, has lulled us to believe that energy will be readily and abundantly available. We are led to believe that our planet shall be a clean, green, and serene world to live in. However, the facts are stacked against such utopianism.

- Renewables have proven to be more difficult to harness, than promoted. Wind power globally, is producing at less than 25% of its reported or installed capacity. Solar power worldwide, is producing at less than 15% of its purported total capacity. In other words, roughly 75% of wind power generation capacity and 85% of the solar power capacity, are for naught. The reasons are obvious; wind does not blow, and sun does not shine, all of the time. Inefficiency aside, the full cycle costs for Renewables, have been higher than estimated; primarily, because of expensive backup generation solutions [think of the giga batteries that are anything but cheap].
- The E.V. Revolution, is even more sensational than the story of Renewables:
 - a. Only 25% of the present global output of crude oil, is used for the mobility of passenger cars.
 - b. Sales of passenger cars worldwide, have increased by nearly 50% during the past decade. There is no evidence that the next decade, will not be as robust.
 - c. Even if, the forecasters were to be right, and by 2030, electric vehicles represent 20% of the global passenger car fleet; it challenges one's intel-

ligence, to accept the theory of massive demand destruction for oil. After all, the math is simple; 20% of 25% equates 5%.

- d. The preceding E.V. penetration forecast, assumes that the global supply of nickel and cobalt, the predominant elements in the rechargeable E.V. batteries; would at least double by 2030, which is a lot easier said than done. Just take a look at the price trajectory of cobalt during the past few years, and a new sense of scarcity becomes palpable.
- e. 35% of current global oil production, fuels; aeroplanes, ships, trains, and trucks. Notwithstanding the Tesla Electric Truck foray, there is negligible evidence that renewables or electrification, shall affect said modes of transportation for people and goods. In the course of the past five decades, global airline traffic has grown by 1,200% (i.e., by a factor of 12). Today, the airline industry worldwide, consumes about 6% of the global production of oil. During the next decade, based solely on Chinese air travel growth, the globe's airline traffic is expected to double; and for validation, look no further than the remarkable share price performance of Boeing. It is noteworthy to mention that an economy class traveller, on a round-trip flight from Europe to Australia; consumes as much oil as an average passenger car does, in a year.
- f. 40% of present global oil production, is consumed by industrial applications, a catch-all category, as distinct from the two previously mentioned consumption segments. By 2050, the human population of Earth, will reach 10 billion. That is an increase of 50% more people to feed, clothe, bathe, provide shelter, education, health-care, and so on. Plastic bags in supermarkets have mostly disappeared; however, the same fate would be impossible to imagine for tooth-brushes, personal hygiene products, cosmetics, fertilizers, synthetic yarns, synthetic leather upholstery in cars &

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aircrafts, and!

g. Finally, presuming plenty of affordable metals and minerals to facilitate even a greater E.V. penetration than current optimistic forecasts; where will the electricity be sourced from, for the re-charging of all those batteries? Coal is out, thanks to the Paris Climate Accord; Uranium is out, courtesy of the environmentalists on both sides of the Pacific and the Atlantic; Renewables are unreliable in practice, despite their much-touted contribution; the only logical option is natural gas (and shale gas), with the prerequisite that gas fired power generation capacity, also grows in line with the surge in electricity demand. For the record, the base assumption here, is that there will not be any shortage of gas (either conventional or unconventional). I am not aware of any natural resource embodied in Earth's crust, which can definitively be labelled as infinite.

With the foregoing backdrop, and as a consequence of the negative sentiment that has engulfed the international oil industry during the past several years, accompanied by the resultant capital deployment discipline; exploration investment has been halved, whereby the reserve replacement ratio for oil globally, has declined from approximately 58% in the year 2000 to less than 8% in 2016. What is even more frightening, is that with the exception of North America, spare production capacity worldwide has declined to the lowest level since 1970. In the mid 1980s, the spare production capacity was about 25% of the then consumption worldwide. In contrast; the spare capacity in 2017, stood at a meagre 2% of present consumption. The decimated oil replacement ratio, combined with essentially no spare production capacity, means an utterly soaring oil price on the horizon.

In addition to the above-mentioned imbalance of future oil supply and demand, as global economy continues to grow in

order to accommodate the 50% increase in the world's population during the next 30 to 35 years, a critical monetary and thus political transition is occurring; being the emergence of PetroYuan, in replacement of the PetroDollar. The latter terminology, the global role of U.S. Dollar, and the globalization model; have been officially around since 1974. PetroYuan, is reflective of the recent rise of China, whose continuing infrastructure development and evolutionary economic expansion still requires significant quantities of all types of natural resources, and most notably, oil and gas. The loss of the oil market, will surely not be existential to America; however, it poses a real risk for the decline of the U.S. Dollar and a tangible danger to the dominance of American capital. Until the 1950s, the Pound Sterling, was the driver of world economy; and since then, the U.S. Dollar has been in the lead. When will the Yuan take the lead, and how it would impact the dynamics of pricing and distribution of global energy resources is a new dimension of complexity, which requires careful consideration.

It is irrefutable that the link between energy flows and the progress of history, is indeed a vital correlation. Energy sources are a key aspect of progress in history, providing the necessary conduit to facilitate change, whether directly or indirectly. Successively, this process affects the communal and economic sophistication of society, as it effectively dictates both the direction and tempo of the progress in our world. The importance of energy flows both in history and the future, can be substantiated through the basic laws of thermodynamics, which suggest that the increasing growth and its intricacy, necessitate a larger source of energy. Accordingly, given the undeniable population growth as a continuous phenomenon, energy flows must grow concurrently; otherwise, humankind will cease to exist. The question of leadership is, therefore, existential and of paramount importance, as is a true sense of balance.



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