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“The total energy demand is projected to rise by about 35 percent through the year 2040. However, in upcoming 25 years, we expect industrial energy demand growth to shift towards the rest of the developing world as China’s economy matures”

Energetica India talks to Mr. Shankar Karnik, General Manager- Industrial, ExxonMobil Lubricants Private Limited about ExxonMobil’s “The Outlook for Energy: A View to 2040”.

ENERGETICA INDIA: Please tell our readers about ExxonMobil’s “The Outlook for Energy: A View to 2040”?

MR. SHANKAR KARNIK: The Outlook for Energy is an investment of ExxonMobil to understand and analyse the energy needs around the globe. The way we go about this, is that we analyse energy demand versus supply in more than 100 economies around the globe, and we also look at 15 different types of fuels (sources of energy) which can make an impact in terms of energy supply-demand around the world. So, the Outlook also looks at upcoming three decades and ExxonMobil comes up with this update on yearly basis considering the changing environment, energy supply-demand. This is the key aspect that has been analysed in Outlook for Energy. The latest edition has come out recently. The key aspect is that we have gone further in deep understanding of specific geographies of the world, with Asia-Pacific in focus. The energy demands in Non-OECD countries have been led by China & India. India, being one of the key markets, considering India would grow over next three decades. It becomes an important aspect to gain better understanding of energy needs of the country and the supply capability

around the world, so the Indian economy grows. So, these are the aspects that are analysed in the report in terms of country perspective.

ENERGETICA INDIA: Considering India as key market how has the energy requirement of India accelerated at present as per the Outlook for Energy: A View to 2040?

MR. SHANKAR KARNIK: When you consider the shifting dynamics, two key factors come into play here, one is the Economic Growth, propelled by the consumption in the country, which is again you need to consider the population. India, being a populous country, is expected to take over China by the year 2030 in terms of population. Our understanding is that China would plateau in terms of no. of 1.4 billion by 2030, while India would continue to grow and then, become the world’s most populous country, with an anticipated 1.6 billion people by 2040, which in itself is a significant area for energy consumption. Why it is important? Look at our living standards today, considering emerging economy and the middle class forms a significant part of the total population, which ensures purchasing of wants, rather reaching out to creating wealth for satisfying their needs.

So, middle class would then be the significant consuming class in economies. That’s why, it is a significant factor covered in the report as well. Beyond this, as we look at energy demands from various economies & geographies, China & India are leading. Besides that, a set of countries hailing from Mexico, Brazil & some of the African countries as well, which are emerging are expected to consume energy and will form a significant part in overall economics of energy supply-demand globally in years to come.

ENERGETICA INDIA: The Report talks of emerging economies in terms of energy supply-demand. In what ways, can the increasing demands be met without hampering the present supply-demand chain?

MR. SHANKAR KARNIK: In terms of India as one of the economies, India is net importer of energy. A significant portion of energy requirements of the country is met by oil and gas, which again is obtained and explored, India is in deficit vis-a-vis demand. If you look at the broader region, the Asia-Pacific region, again most of the economies there are consuming energy rather than having geographical sources for obtaining energy.

The consumption is far going to exceed the source. So, Asia-Pacific in terms of region is going to be significant in terms of leveraging technology to process hydrocarbon. From the supply side, the dependency will be on some of the conventional sources of energy and there is we will see that coal will be a significant contributor to meeting energy supply in the year 2040. Basically, due to two major reasons, one the pollution requirements, that is difficult to manage & other is that the coal reserves are going down. So, these are two factors that should bring down consumption of coal. It has to replace with some of the clean fuels such as natural gas. We expect natural gas to increase to 60 percent over the current levels by 2040. At the same time, solar & wind energy are going to see more significant growth, may be in double digits in comparison to current lower base. Sources like nuclear will also play an important role in terms of meeting the requirements of energy, electricity specifically, around the economies. We have seen government policies which support bringing in more nuclear resources to convert to electricity. More investments have been witnessed in renewable sources, solar and wind specifically. These are very positive signs, because industry as a whole consumes 30 percent of primary energy and caters to above nearly 50 percent of total electricity demand. The source is important at the same time need for energy significantly impacted by energy efficient technologies which is key enabler to ensure demand is kept below certain limits. These are the key factors required to be considered- Population, Growth & Economy, fuelled by industrial growth, fuelled by manufacturing. Energy efficiency is going to play an important role in ensuring that the energy demand-supply chain is kept under the limits.

ENERGETICA INDIA: The Ministry of New and Renewable Energy has recently come out with Draft National Renewable Energy Act, 2015. How does ExxonMobil see this development thus encouraging wind & solar power in making India as an energy efficient economy?

MR. SHANKAR KARNIK: When it comes to wind & solar sector, we are quite well positioned in terms of our presence in technological terms. The products, we deliver to the

industry and services we offered to wind sector specifically, we are proud of our product range. Basically, it commands over 40,000 wind turbines around the world. It's a significant achievement. We have rich experience to cater to the industry. So, it gives a confidence to enhance productivity. We have sustainable offer for the wind industry. In solar, in terms of hydraulic mechanism are fully catered by leading Mobil products. Renewable energy development in any which ways is an extremely exciting development and we are watchful about it.

ENERGETICA INDIA: With The Outlook for Energy: A View to 2040, where does ExxonMobil see itself as industry leader in upcoming three decades?

MR. SHANKAR KARNIK: We have been serving the needs of the industry for more than 125 years. The brand has been delivering on technology promised to our customers

ExxonMobil's innovative products and services help deliver tangible performance benefits in the areas of safety, environmental care and productivity

in terms of delivering advancing product benefits, which is about delivering economic benefits through oil drain equipments. We also have been delivering social aspects through improving safety. Where the customer is interested and competing in the world, sustainability is key factor towards success. Mobil Industrial Lubricants consider enhancing energy efficiency as a core component of their comprehensive sustainability strategy, which is referred to as 'Advancing Productivity'. This strategy defines how Mobil applies its lubricant technologies, engineering services and application expertise to help companies enhance safety, achieve their environmental care-related goals and maximize productivity. And, when it comes to energy efficiency, Mobil works with its customers to identify lubricant solutions that can, not

only, keep machines operating at top performance, but also help improve energy output and reduce carbon emissions.

ExxonMobil's innovative products and services help deliver tangible performance benefits in the areas of safety, environmental care and productivity. All three areas can be impacted by lubrication improvements in equipment reliability, efficiency, reduced maintenance or even longer service intervals.

- **Safety** –Enhanced equipment reliability and long-life lubricants can help limit potential employee risks, and the possibility of leaks and spills, arising from direct contact with equipment by providing long service intervals and limiting need for maintenance, which can help minimize employee-equipment interaction and mitigate the potential risk of employee injury
- **Environmental Care** – ExxonMobil's commitment to minimizing environmental impact has created technologically advanced products and services. Our advanced lubricants can offer energy-efficiency benefits that help lower energy bills and reduce greenhouse gas emissions. In addition, many of these advanced lubricants provide longer service intervals that can reduce the generation of used oils and greases even as they extend component life, which reduces equipment disposal and related maintenance waste
- **Productivity** –Enhanced equipment uptime and efficient operation can boost your operation's competitive edge by helping to reduce production costs, maintenance expense and equipment replacement

These three pillars of Advancing Productivity align with our commitment to sustainability. Helping customers reach their Safety, Environmental Care and Productivity goals through our innovative lubricants and services is our highest priority. That's Advancing Productivity. And that's how we help you achieve your broader vision of success.

We are working closely with our customers to deliver benefits. Our technologically advanced & world-class product offer that we make to our customers has helped them advance and thus, making us one of the industry leaders in today's time ◀