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OPINION: Why bio-economy represents a path towards fuel assurance for India

Bio-fuels are compatible with the existing supply chain and, to a certain extent, the current production chain for blending. As a result, bio-fuel clearly proves to be a versatile and effective solution in today's times.

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New Delhi: Today, August 10th, is the World Biofuels Day! Increased consumption of fossil fuels, increased fuel dependency causing economic stress, especially for countries like India and the inevitable environmental damage caused by fossil fuels, point to the urgent need for sustainable alternatives. Biofuel is a benevolent option that not only solves the environmental issue but also brings with it several possibilities for positive transformation. Let's take an overview on the perspective of fuel assurance and economy.

Albert [Einstein](#) once said: "We cannot solve our problems with the same thinking



These poignant words of Einstein, the iconic inspiration to the science fraternity, not just show the path of research and innovation, but lay down a formula of sorts for the progress of mankind as a whole.

The Industrial Revolution in the late eighteenth, nineteenth and early twentieth centuries lent momentum to development. The

growth in the electronics and information technology space began barely half a century ago and may be called the third phase of this revolution. While it started to engulf our day to day lives, the fourth wave began in the late twentieth century with the advent of automation and digitization. Closely following it is the highly interesting stage where automation and human resources work in tandem to render synergistic outcome. Now visible on the horizon is a new milestone where human hunger for progress is complemented by technological prowess to achieve loftier goals.

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But what will be achieved by relentlessly chasing these materialistic goals? Would the same methods give us solutions to new problems? Or has that very thinking and those very methods become the cause for concern? Probably now is the time to ponder Einstein's words afresh?

On the threshold of the Fifth Industrial Revolution efforts are being made to implement the concepts of sustainable development. But before looking into the

Society 5.0 is described as an anthropocentric society that successfully integrates human behavior and cyber behavior while also fuelling economic progress and attaining social transformation. The industry developed from such a society is considered to be a well-developed industrial system (cobots) with the help of 5.0 human and [Robots](#). While this concept may be in tune with modern times, it is also expected to offer socially responsible solutions. This is the point where harnessing of eco-friendly resources for economic development comes to light. Such a bio-economy is expected to be an organic part of what is called Industry 5.0.

The increased demand for energy in our economy is because of the growth in population and accelerated development. Electricity and fuel are two forms of energy which are crucial to the nation's growth. But as a country that is debilitatingly dependent on energy imports, it is not feasible for India to fulfill the unbridled demand for energy. India accounts for 18% of the world's population. But natural gas and fossil fuel reserves are a miniscule 0.6 and 0.4% respectively out of the total world reserves. Therefore 83.7% i.e. 22.66 million tons of fossil fuel requirement has to be imported. As for natural gas, 47.2% i.e. 2.07 million tons are imported. We have spent Rs. 9250 billion for these imports.

Besides the stress on the economy, fulfillment of the aspirations of the common citizens is also a challenge. Arbitrary decisions of oil-producing countries, lack of transparency in price determination of natural gases, and dependency on imports are serious obstacles in the way of 'Energy Security'. Add to it the unrest among oil rich countries that have agreed to cooperate with India, and we have a grave situation before us. Example: The US-Iran conflict.

India's predicament stems from the increasing demand for energy and the heavy dependence on foreign countries for its supply. In a situation where demand is not likely to abate as development possibilities proliferate, the only way out is to find new sources of supply. In 2018, Prime Minister [Narendra Modi](#) announced the National Bio-fuel policy. In 2019 he also expressed his deep faith in bio-fuels as the panacea to India's energy problem. In India, the amount of ethanol blending in petrol was then 2% and that of [biodiesel](#) in diesel was just 0.1%. He announced that this amount would be upgraded to 20% and 5% respectively by 2030. However, in order to accelerate the process, this goal has been recently advanced to the year 2025.

The road-transport sector accounts for 6.3% of the total domestic production in

vehicles run on **CNG** and **LPG**. It is evident that we need a better eco-friendly option for diesel.

Let us explore some possibilities towards this. India has the largest usage of vegetable oil in the world. Taking all factors well into consideration, India may be able to recycle 220 crore liters of oil used for cooking, for biodiesel production by 2022. If we were to fulfill only 40% of the demand through bio-sources, we would still be saving more than 340 crore barrels of import i.e. 22 billion dollars. One third part of the expenses in the current account due to fuel imports can be saved with this single option.

On this occasion, I would like to give more information on bio-fuels. The use of bio-fuels can help us reach the much desired self sufficiency in energy. In terms of economy, Biofuels helps reduce the country's high import bill and foreign exchange payout for crude oil. To that extent, it also helps mitigate spikes in volatile crude oil pricing.

Stubble and agricultural waste can be the biomass for these fuels. This will also reduce the average carbon-emission due to the functioning of the cyclical bio-economy. This concept is inclusive and beneficial across the cross section of society. This will also generate employment in rural areas and provide alternative income resources to the farmers. This will also lead to the growth of a strong rural entrepreneurship ecosystem.

Efforts are being made to use non-conventional energy sources like solar and wind energy to produce electricity. Conventional energy sources are also being seen as potential sources of fuel, especially for transportation. As for electric vehicles, it would need a completely new technology and infrastructure to produce the vehicles and to get them running on the roads. But bio-fuels are compatible with the existing supply chain and, to a certain extent, the current production chain for blending. As a result, bio-fuel clearly proves to be a versatile and effective solution in today's times.

[This piece was authored by Ghanshyam Deshpande, President- Technology and Engineering, Praj Industries]

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