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Editorial Comment

Embrace biofuels for sustainable climate actions

The global sugar industry is at the cusp of exciting times. While the demand for sugar is plateauing, sugarcane in particular doubles up as an energy crop. This is finding market traction as a source of clean and green energy. In the wake of the throes of climate change, demand for biofuels is on the rise, and the sugar sector has an important role to play.

Climate change-induced extreme weather adversities affect all nations, whether rich or poor, in terms of economy and ecology. Heat waves in Europe and North America or floods in south Asia are just a few examples from recent times. There is an alarming rise in the number of climate calamities around the world, creating massive damage to human life, infrastructure and economy.

Calls for immediate measures to fight climate change are getting louder from all quarters around the world. The Race to Zero campaign towards carbon neutrality, launched during COP 26 summit held in Glasgow in 2021 is gaining strong momentum. Several nations and global conglomerates have pronounced a roadmap centred on energy transition to achieve a net zero target.

The world is currently passing through testing times triggered by geopolitical challenges. Volatile oil prices and the rise in inflation, mainly attributable Russia-Ukraine war situation, have engulfed the global economy. This has brought to the fore need for energy security by exploring alternative energy sources that are captive in nature. This has precipitated urgency to harness sustainable development and drive towards an environmentally friendly economy. As a result, the world is witnessing mainstreaming of the bioeconomy that facilitates sustainable climate action.

A bioeconomy, in simple terms, is a knowledge economy that uses renewable natural resources to produce food, energy, products, and services. Bioeconomy utilizes biological resources available in abundance to generate wealth from waste. Using biobased products facilitates carbon recycling with no or minimal addition of new carbon in the atmosphere. Bioeconomy positively impacts 11 of the 17 Sustainable Development Goals defined by the United Nations. Biofuels have emerged as one of the mainstays of the Bioeconomy.

Biofuels are a mainstay of the global bioeconomy. They have gained rapid acceptance as a sustainable solution for decarbonizing the transportation sector. After industry, the transportation sector is second largest energy consumer and emitter of GHGs. Decarbonization of transportation is not a matter of choice but an imperative as climate action. Rising global GDP has only increased the need for transportation across all modes. While biofuels for surface mobility are already an established solution, there is an increasing traction in the aviation and marine sectors.

Biofuels use renewable feedstock to produce low carbon fuels for all modes of transportation viz road, air and marine. Biofuels are derived from carbohydrates, unlike fossil fuels that originate from hydrocarbons. As oxygenating agents, biofuels facilitate the complete combustion of fuel, resulting in very low carbon emissions and negligible particulate matter. The sugar industry has been one of the major driving forces in establishing biofuels as an important element of transportation fuel-mix globally. Molasses, a co-product of sugar mills, is one of the most widely used feedstock for ethanol production globally. Additional revenues from ethanol plants attached to the sugar mills have become a lifeline to the financially stressed sugar sector. Depending on the sugar demand, mills can divert excess sugar to produce ethanol. This is helping sugar producing nations address challenges related to sugar glut arising due to low sugar demand and higher supply as well as dependence on imported crude.

Being a captive resource, biofuels help 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.

Biofuels work very well in internal combustion engines and do not call for radical changes in vehicle manufacturing systems and facilities. Biofuels leverage the existing infrastructure for fuel dispensing. This eliminates any disruptions in existing jobs and industry systems.

Based on market needs, Praj develops and deploys innovative technology solutions for producing biofuels in liquid plus anhydrous form from sugary, starchy, lignocellulosic (agricultural & forest waste) feedstock. Praj's BIOSYRUP solution allows sugarcane juice storage for one year without contamination or loss of sugars. This enables ethanol plants to operate throughout the year. Praj solutions focus on optimizing energy requirements while reducing carbon & water footprints.

Over 65 nations have institutionalized progressive policy frameworks to harness the potential of biofuels as social-economic and energy growth enablers. And this count is on the rise. Calls for accelerating energy transition as sustainable climate action are only getting louder on the foothills of the COP 27 summit being held at Cario from6-18 November. I am convinced that going ahead, biofuels have an even more prominent role to play in facilitating energy transition and the sector's future remains bright.

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