

Sugar gets sweeter

India's food-and-fuel self-sufficiency runs through its oldest commodity

For generations, India's sugar industry was measured by one outcome: how much sugar a tonne of cane could produce. Recovery rates, quotas, monsoons and prices defined success and sugar was priced, traded and governed as a food commodity. That definition is being rewritten. The same crop that has supported millions of farmers and workers for centuries is now called upon to power vehicles, generate electricity, produce cleaner fuel for aviation and strengthen the country's energy security. In the language of the countryside, the *annadata*, the giver of food, is becoming an *urjadata*, a giver of energy. And, as sugar mills turn into bio-refineries, we can also attribute another characteristic to it – *urvanakdata*, giver of fertiliser & soil nutrition.

The farmers' definition and an expanding definition shift matters – because of where India stands. The country imports nearly 85 per cent of its crude oil, which exposes the economy to volatile markets and geopolitics it cannot control. At the same time, India generates one of the world's largest pools of agricultural biomass, more than 750 million tonnes a year, including over 200 million tonnes of surplus crop residue that remains largely underused. Few countries hold an energy challenge and a domestic resource that align so naturally. Every litre of bio-fuel produced from Indian agriculture strengthens energy security, adds income across rural value chains and trims the import bill. Security in food and fuel converge into a single economic strategy and being myopic about this means we continue to have dependencies and are accepting the hurdles in our energy self-sufficiency.

The past decade shows how fast this can move. Ethanol blending in petrol rose from roughly 1.5 per cent in 2014 to 20 per cent in 2025, reaching the national target years ahead of schedule. That success has changed how sugar mills think. Performance now spans sugar and energy together and the daily question on a mill's desk is how to allocate cane juice and molasses between the two, reading market conditions and national priorities. Every part of the cane now earns: juice and molasses as fuel, bagasse as power, press mud as biogas. The sector has diversified as well. Grain, led by maize, accounts for an estimated 37 per cent of ethanol output; dual-feedstock distilleries run through the year, compressed biogas plants are in operation and sustainable aviation fuel is moving from announcements towards early production.

Yet, one constraint receives far less attention



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than policy or capital: reliable information. Sugar learned this lesson decades ago. Fragmented market intelligence, delayed policy signals and limited transparency once made trading inefficient and decisions poor and the industry matured only as its information did. Bio-energy has reached the same point. Feedstock availability, ethanol demand, carbon markets, logistics, sustainability rules and technology choices are all moving at once, while the information that should guide them sits scattered across ministries, agencies and market participants. Producers, investors and policymakers routinely take decisions on intelligence that is incomplete, delayed, or both. Lack of clear information can also be attributed to the consumer dissonance in ethanol blending, as there are more myths and fear-mongering circulated than facts.

As the sector expands beyond ethanol into compressed biogas, aviation fuel and bio-based materials, information will matter as much as cap-

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ital or technology. Markets allocate investment well when participants can see clearly, and even well-intentioned policy creates inefficiency when they cannot. India's journey to food-and-fuel self-sufficiency will be shaped by thousands of decisions taken every day: farmers choosing crops, mill operators evaluating feedstocks, investors assessing projects, policy-makers responding to changing realities. Better information leads to better decisions and better decisions will decide how quickly India's bioeconomy reaches its potential.

Solar parks, battery factories and green hydrogen will carry much of India's energy transition. A meaningful share will also be built in sugar mills, distilleries and the rural supply chains that have sustained the economy for generations. Sugar remains one of India's oldest commodities and its role has never been more contemporary. What India now asks of cane has changed. Meeting that query, with technology, with investment and, above all, with better information, may prove one of the country's quietest and most important advantages.

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