

6 billion liters of Ethanol could have been generated besides reducing Smog

India, 8th November 2016:

In early October 2016, according to NASA Earth Observatory (<http://earthobservatory.nasa.gov/>) it's satellites began to detect small fires in Punjab, and the number of fires increased rapidly in the following weeks. By November, thousands of fires burned across the state, and a thick pall of smoke hovered over India. According to NASA, a staggering amount of 32 million tonnes of agriculture residue were burned in Punjab adversely affecting the air quality.

Since the fires are small, short-lived, and burn at relatively low-temperatures, the smoke generally stays near the surface. On November 2, winds carried a stream of smoke—likely mixed with small particles of soil, dust, and partially burned plant material—toward New Delhi, pushing the levels of particulate matter in the capital city to unusually high levels. The worsening situation can be gauged by the fact that the Delhi Government has announced 3-days shut down of schools across the city-State.



We at Praj Industries draw inspiration from tweet dated 7th November 2016 by **Mr. Dharmendra Pradhan, Minister of State for Petroleum & Natural Gas**: "2nd Generation Ethanol production technology using rice- paddy straw in Punjab & Haryana will be a permanent solution to crop burning problem".

Praj Industries has developed a long term solution to the farmer's challenge of disposing off ligno cellulosic waste - agri residue in this case - and turning it into 2nd Generation "Bio" Ethanol. This is an efficient technology of converting agri waste into fuel grade ethanol and a permanent solution to an age old agri residue burning.

Typically, 1 tonne of agri residue on dry basis can generate around 250 liters of bio-ethanol. Thus, approximately 6 billion liters of bio-ethanol could have been generated from cellulosic material burnt in this season alone. This is equivalent to approximately 20% of the total petrol consumption of the country.

Praj Industries is working with a leading Equipment Manufacturer to handle the collection and baling of biomass for downstream production of 2G Ethanol. Further,

Indian Oil Corporation Limited (Indian Oil), India's flagship national oil company, has selected Praj as technology partner for setting up multiple 2G bio-ethanol plants based on their indigenously developed technology. Indian Oil will be setting up three such 2G bio-ethanol plants, out of which, one plant is expected to be in the state of Haryana. Praj is also in the advanced stage of discussion with another project developer to set up a bio-ethanol plant in Punjab.

Mr. Pramod Chaudhari, Executive Chairman of Praj Industries, said: "Praj is committed to deliver sustainable and clean energy solutions and with the use of our 2G bio-ethanol technology; we can reduce Smog levels as well as pollution arising from burning of agri residue to a great extent. Besides, the collection of agriculture waste will create employment for thousands of rural people, which in itself will help create a 'sustainable' revenue model for the farmers, rural people and the ethanol manufacturers. 2nd Generation Ethanol Technology will support in achieving 10% blending of Ethanol with Petrol and thereby reducing the Oil import bill. And more importantly, reduce smog formation in future and ensure clean air for our citizens".

About Praj Industries Limited: Praj is a global process solutions company driven by innovation and integration capabilities, offers solutions to add significant value to Bio-ethanol facilities, Brewery plants, Water & Wastewater treatment systems, Critical Process Equipment & Systems, Hipurity solutions and Bio-products. Over the past three decades, Praj has focused on Environment, Energy and Agri process led applications. Praj has been a trusted partner for process engineering, plant & critical equipment and systems with over 750 references across five continents. Solutions offered by Praj are backed by its state of the art R&D Center called Praj Matrix. Led by an accomplished and caring leadership, Praj is a socially responsible corporate citizen. Praj is listed on the Bombay and National Stock Exchanges of India.

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