



Message from DIRECTOR (R&D)

Happy
new
Year
2021

Dear Colleagues

With the first golden rays of the rising Sun of New Year 2021 light up Mother Earth, a whole new set of hopes, possibilities and **opportunities** unveil before mankind to circumvent the past uncertainties and to question the status quo of many domains. New paradigms of “growth” and “progress” will demand clear cut distinction between satiating the “need” and overzealous human “greed”. Ongoing COVID-19 pandemic serves as a good reference point to recalibrate the socio-economic dictum and more importantly our energy strategy.

Although globally, the Year 2020 has been perceived as *Annus Horribilis*, IndianOil lived up to its core values of Care, Innovation, Passion and Trust. Team IndianOil defied all difficulties during the pandemic and exhibited steadfast commitment by ensuring seamless business continuity in supplying fuels to millions of customers. The agility and dexterity demonstrated by each one of us has once again affirmed the ethos of a responsible energy company which places the national cause much above the business interests- **Pehle Indian Phir Oil**.

IndianOil R&D, during this phase, galvanized its efforts to present a few of the most innovative solutions to safeguard the countrymen and fellow colleagues from the menace of this deadly pathogen. We developed **IOC Clean** - the WHO complied hand sanitizer for viral and fungal protection, the anti-COVID hand tool- **Xtra Safe** for ease of doing things under the COVID scenario and an anti COVID hydrogel for virucidal activities on face masks besides finding utility as a surface disinfectant spray-all validated for their **real anti-covid** efficacy at authorised and most reputed laboratories.

R&D during this time continued to hone its strengths in the core areas to consolidate the scientific pursuits besides intensifying its efforts towards developing technologies that are relevant during this era of energy transition.

Pan India migration towards BS VI fuel regime was a decisive step in the history of the country. IndianOil R&D successfully demonstrated the indigenously developed indeDiesel technology at five locations of IndianOil’s refineries to produce BS VI diesel. At BGR, the technology is being used for simultaneous production of high-quality diesel and ATF for the very first time. The third resid up gradation INDMAX unit (0.74 MMTA) was successfully commissioned at Bongaigaon Refinery. This flagship technology from IndianOil once again brought laurels by bagging **Global Hydrocarbon Processing Award 2020 as Best Refining Technology**, beating other co-finalists such as *Chevron Lummus, Halder Topsoe and HPCL*. Continuing its efforts on plastic neutrality by converting Waste Plastic to Fuel, IndianOil R&D developed **“INDEcoP2F”** (IndianOil’s Eco-friendly Plastic to Fuel Conversion technology), which was successfully demonstrated at Digboi Refinery.

Our in-house developed on-purpose technologies like **OCTAMAX** proved to be a potent tool, when IndianOil launched **XP-100**- the first 100 Octane fuel to the Indian market. The availability of such fuel is going to enable the implementation of Corporate Average Fuel Economy (CAFE) standards and engine downsizing resulting in lower CO₂ footprint. We have further complimented this initiative by developing a Green Combo of fuel efficient lubricants for heavy duty diesel engine segment. Year 2020 also witnessed the successful development of 1st indigenously developed Gasoline Multi-Functional Additive **“SERVO-GMFA”** for premium gasoline. The GMFA additive package has also been certified for enhancement of fuel economy by 2.2% in conventional gasoline. The fuel hygiene issues of Indian Navy warships were addressed by developing customized HFHSD fuel bench-marked to International military standard that was launched during March 2020. Based on the encouraging results of nano-additized LPG, resulting in >5% fuel saving in LPG besides higher flame temperature, the product **Xtra-Tej** (Differentiated LPG) was launched by Marketing Division.

To transform adversities into opportunities, IndianOil R&D is broadening the energy narrative in the country and is resolute in expanding its alternative and renewable energy portfolio. Our endeavours in 2G / 3G ethanol are continuously progressing in-line with the corporate plans. New R&D campus at Faridabad is the dream which is being fostered by RHQ and R&D teams. The foundation stone of 2nd R&D campus at Faridabad was laid by Hon’ble Minister of Petroleum & Natural Gas and Steel in June 2020. The modern age panorama would impart a new fillip to our efforts in research & scale up in both conventional and sunrise areas.

IndianOil and its R&D Centre continue to pioneer in ushering hydrogen economy to the nation. A 4 tonnes per day HCNG production plant based on R&D’s patented compact reforming technology was inaugurated by Hon’ble Minister of Petroleum & Natural Gas and Steel at Delhi’s Rajghat Bus Depot and 50 buses are under trial for six months. A month and half experience of use of HCNG in 50 DTC buses revealing very promising results much beyond our claims with respect to improvement in fuel economy and emission reduction. Our Centre has been pioneering the introduction of hydrogen as a fuel in the mainstream. Recently, a mammoth project of setting up of pilot plants having a collective production capacity of ~1 tonne of hydrogen per day based on 4 innovative concepts to refuel 15 fuel cell buses was approved for partial funding by MoPNG. IndianOil is also in process of leveraging the hydrogen available in refineries for fuel cell applications and would soon be initiating a major demonstration project from select refineries.

Last year, IndianOil R&D filed 162 national and international patents while garnering 168 grants to expand our portfolio to 1117 effective patents. Getting recognized as the **top innovator Indian Company in Chemicals and Energy fields** by M/s Clarivate- a global IP analytics organisation is testimony of R&D’s growing research scale and its efforts in guarding the innovations through effective patenting.

Friends, while the energy outlook is going to transform in the coming times, it is equally incumbent on us to maintain our leadership by ensuring the energy supply pipeline in the country. The post COVID world will unanimously endorse the commitment towards low carbon economy and renewed consensus for an urgent climate action. In this year of **Opportunities 2021**, let’s vow to grab every **opportunity** that comes our way and to turn every adversity into opportunity, to bring this change through cutting edge technologies for empowering lives through sustainable solutions.

My wife Ramani joins me in wishing you and your family, a very happy and prosperous New Year 2021.



Dr. SSV Ramakumar
Director (R&D)