



ONGC News as on 05 July 2023(Print)

## CORPORATE KALEIDOSCOPE



**Dr. VK Saraswat with ONGC Chairman & CEO Arun Kumar Singh and other dignitaries at the 11th Subir Raha Memorial Lecture. The prestigious Subir Raha Memorial Lecture organised by United Nations Global Compact Network India (UN GCNI), Indian Oil Corporation Limited and Oil & Natural Gas Corporation (ONGC) witnessed the Member of National Institution for Transforming India (NITI) Aayog and Chancellor of Jawaharlal Nehru University Dr. VK Saraswat as the keynote speaker.**

MPOST

### 11TH SUBIR RAHA MEMORIAL LECTURE

## We have to balance energy trilemma of energy security: Dr V K Saraswat



"For an accelerated path to Net Zero, India needs to adopt new policies like carbon pricing, technology breakthroughs like Carbon Capture Utilisation & Storage (CCUS) and accelerated shift to electric mobility. I am happy that Oil and Natural Gas Corporation Limited is deep into the pursuit of CCUS," remarked the missile technology and defense research expert Dr. Vijay Kumar Saraswat, Padma Bhushan, as he delivered the keynote address

on "Sustainable Energy Transition" at the 11th Subir Raha Memorial Lecture in SCOPE Complex, New Delhi on July 4, 2023.

The prestigious Subir Raha Memorial Lecture organized by United Nations Global Compact Network India (UN GCNI), IOCL, and ONGC witnessed the Member of NITI Aayog and Chancellor of Jawaharlal Nehru University Dr. Vijay Kumar Saraswat as the keynote speaker.

# Discounted Russian crude: Indian refiners save \$7 billion

SUKALP SHARMA  
New Delhi, July 4

**INDIAN REFINERS SAVED** at least \$7.17 billion in foreign exchange in the 14 months that ended May 2023 by ramping up purchases of discounted Russian crude oil following the outbreak of the war in Ukraine, an analysis of India's trade data for the period shows.

India, the world's third-largest consumer of crude oil, depends on imports to meet over 85% of its oil needs. With Western buyers cutting oil imports from Russia in the wake of its February 2022 invasion of Ukraine, Moscow has been offering discounts on its crude. Indian refiners have been lapping up these discounted barrels, so much so that Russia, which used to be a marginal player in India's oil trade, is now New Delhi's biggest oil supplier.

The total value of India's oil imports for the 14-month period from April 2022 to May 2023 was \$186.45 billion. Had Indian refiners paid for Russian oil the average price they paid for crude from all other suppliers put together, the oil import bill would have been \$193.62 billion, the analysis shows. The



## WAR IMPACT

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value of oil imports from Russia for the period was nearly \$40 billion. The average landed price of Russian crude for Indian refiners for the 14-month period was \$79.75 per barrel, about \$14.5 lower than the average landed price of non-Russian barrels. It translates into an effective discount of 15.3% to the average price of oil imported from other supplying nations.

Although \$7.17 billion may not appear to be a significantly

high amount in the overall scheme of India's foreign trade, the savings are substantial considering these were accrued by five Indian refining majors – Indian Oil Corporation, Reliance Industries, Bharat Petroleum Corporation, Hindustan Petroleum Corporation, and Nayara Energy – and their arms.

The government releases commodity-wise and country-wise trade data with a lag, and so far, data up to May 2023 has been released. While the price of crude oil depends on grades and their prices can vary substantially, the average landed price of crude and import volumes from the supplying countries were used for computations as the government does not release grade-wise data. Russian crude accounted for 24.2% of India's oil imports totalling 280.41 million tonnes, or 2.06 billion barrels, in the 14 months to May. During the period, Russia displaced traditional heavyweights like Iraq and Saudi Arabia to emerge as India's largest supplier of crude. Iraq was the second-biggest supplier with a market share of 21% by volume, followed by Saudi Arabia with a 16.4% share.

Compared to the next five

major suppliers of crude to India during the 14-month period, the landed price of Russian oil was at discounts ranging between 10% – in the case of Iraq – and 22.1% – in the case of the UAE. The UAE was the fourth-biggest supplier of crude to India during the period.

With regard to import of Saudi Arabian crude, Russian oil was at a discount of 19%. In the fifth spot was the US, followed by Kuwait in sixth. Russian oil supplies to India were at a discount of 11.7% to US crude, and 15.4% to oil bought from Kuwait, the computations show. The share of Russian crude in India's oil import basket has been rising continuously for over a year and has been hitting fresh highs for the past few months. In May, Russian crude accounted for 40.4% of India's total oil import volumes, followed by Iraq with a market share of 18.3%, and Saudi Arabia with a share of 12.2%, the trade data showed. The average landed price of Russian crude imported by Indian refiners in May was \$70.17 per barrel, \$8.11 per barrel or 10.4% lower than the average landed price of oil imported from all other suppliers.

# Battery backup for e-mobility

To help balance power supply and demand, a new cost-effective ecosystem of battery swapping is emerging

## THE WIDER ANGLE.



PARAN BALAKRISHNAN

**A**nkit Mittal has a dream that's already beginning to come true. For starters, he wants to turn every *kirana* store into a swapping station for electric vehicle batteries. In another innovative move, his company, Sheru, is linking up the batteries so they can store power from the utilities and sell it back to them at peak consumption times when demand is high and solar energy and wind production is intermittent. It's already running a pilot scheme selling electricity to giant BSES.

With India's huge growth plans for the renewable-energy sector, power storage is where EV batteries neatly come into play. While EVs are still a long way from taking over Indian roads, they're gaining ground rapidly and a huge, hard-driving industry has already sprung up around them so the potential is there for what's called the "vehicle-to-grid system" to help balance power supply and demand.

Look at Hyderabad-based RACEnergy, which has just built its own battery plant that can manufacture 30,000 batteries a year for two-wheelers and three-wheelers. By 2025, it hopes to have batteries installed in 80,000 vehicles. RACEnergy founder Arun Sreyas says the company wanted to ensure top-notch battery quality and figured early on at the start of the decade it should make its own. "Batteries are sensitive to a lot of things like temperatures, currents, voltages and humidity," says Sreyas.

Sheru has about 600 battery swapping operators in Delhi already and, in the next two years, aims to scale that up by five times in Delhi alone and also expand by almost the same number elsewhere. Aside from supplying power to BSES Rajdhani, it's in talks with other private energy-generating companies like CESC, Tata Power and Torrent. Supplying power to PSUs involves more complex formalities such as obtaining certain licences so that will likely



**CHARGING UP.** EV adoption is higher in the two-wheeler segment mainly because of the cost benefits REUTERS

happen only at a later stage.

Already, Mittal reckons India requires some 20 gigawatt-hours of energy storage and 80 per cent of that is needed for intra-day management when renewable energy generation is variable. The renewable energy sector is expected to grow rapidly and the electric-vehicle segment is also expected to boom. By 2030, India will need about 260-gigawatt hours of energy storage capacity, Mittal calculates.

Mittal adds that India has to perforce go green because otherwise, as economic growth ramps up, the level of emissions will rise to further unacceptable levels. But building back-up facilities is a very low-margin game for the power utilities. And that's where he steps into the picture because he can store the power at no extra cost. Says Mittal: "We're aggregating

**India is unlike other countries in that the bottom-end of the market has been the first to go electric**

batteries at our swapping stations instead of the power companies "having to build dedicated infrastructure."

### TARGET SEGMENT

India is unlike other countries in that the bottom-end of the market has been the first to go electric. Both Sheru and RACEnergy are aiming particularly at the three-wheeler segment where battery-swapping is likely to be popular, firstly because it can keep vehicle costs down. Sreyas says it's specifically the cargo three-wheelers that have become early adopters because they see a cost advantage. In cities like Delhi, passenger autorickshaws are also starting to go electric. Says Mittal: "These guys are adopting two-wheelers and three-wheelers, not because of the green narrative but because there's a cost benefit."

RACEnergy is also tying up with delivery company Hala Mobility which is putting 2,000 electric two-wheelers on the road starting this month. All the two-wheelers will use RACEnergy's batteries. RACEnergy currently has tie-ups with Hindustan Petroleum and Bharat Petroleum and has 17 battery

swapping stations at these two companies' Hyderabad outlets. The batteries weigh 9 kg and most swapping stations are unmanned. Sreyas reckons it takes about two minutes to swap batteries and that includes payment time.

At a different level, Sheru will work with Zingbus, which is looking at running inter-city buses and also electric taxis. Sheru will establish its charging points at Zing's bus depots for its electric fleet. It also has ambitious plans to move into electricity storage linked to rooftop solar. The banking sector, for instance, has a huge corpus earmarked for rooftop solar and Mittal is already talking to some banks. Mittal also says even though the plant-load factor of solar energy is quite low, per-unit production cost is already cheaper than coal.

Both Sheru and RACEnergy are operating in an industry where change is a constant and technological breakthroughs are always happening. But they're looking to stay in the fast lane and out in front on the road to a new world of electric mobility.

### REC lends ₹4,785 crore for HPCL's Barmer refinery



**New Delhi:** REC on Tuesday said HPCL Rajasthan Refinery has executed a loan agreement under consortium arrangement for ₹48,625 crore wherein its share is ₹4,785 crore. HRRL is setting up a green field refinery cum petrochemical unit in Barmer at ₹72,937 crore. OUR BUREAU

# India mulls bilateral deals for green hydrogen-linked carbon credits

REUTERS  
New Delhi, July 4

**INDIA IS CONSIDERING** bilateral agreements with countries such as Japan to allow them to use carbon credits linked to green hydrogen production in India in exchange for investment and purchase deals, two government sources and one industry source told *Reuters*.

New Delhi this year approved a 174.9 billion rupee (\$2.13 billion) incentive plan to promote green hydrogen in a bid to cut carbon dioxide emissions and become a major exporter in the sector.

Indian companies such as Reliance Industries, Indian Oil and Adani Enterprises have big plans for green hydrogen, a fuel generated using renewable energy.

Trading in carbon credits - earned by projects for reduction of greenhouse gases and each equivalent to one tonne of carbon dioxide - can bring in more investments and assured offtake to India, said the sources, all of whom declined to be named as the discussions are not public. Any agreements will see overseas companies or financial agencies signing investment and purchase deals with Indian green hydrogen makers, the sources said, adding that In-

dia is already in talks with Japan.

On March 17, Japan and India signed a preliminary agreement to establish a joint crediting system (JCM) for decarbonisation under Article 6 of the Paris Agreement, which is a legally binding international treaty on climate change, according to a document seen by Reuters.

Article 6 provides for sharing of carbon credits between countries and private companies. This would allow buyers of green hydrogen to also get carbon emissions credit for green hydrogen production, which would otherwise be credited to the producers.

Japan already has agreements with 26 countries including Bangladesh, Ethiopia, Kenya, Indonesia and Saudi Arabia.

The Indian ministries of environment, renewable energy and external affairs have held discussions on the proposed carbon-trading agreements, said the sources. The government has spoken with the industry too ahead of a three-day international summit on green hydrogen on Wednesday in New Delhi, they said. The three ministries did not respond to emails seeking comment. Japan's Indian embassy said their response might be delayed.

*Reuters* could not immediately determine the other countries India was in talks with.

**New Delhi this year approved a 174.9 billion rupee (\$2.13 billion) incentive plan to promote green hydrogen**

### IOC board to meet on July 7 for rights issue



**Chennai:** The board of Indian Oil Corporation will meet on July 7 to consider raising of capital through right issue. The fund raising is to meet the capital expenditure plan for its projects, the PSU oil major said. Shares of IOC closed at ₹94.61, down 0.81 per cent on the BSE. OUR BUREAU



## Green H2 ideal for our needs: Niti member

**MANISH GUPTA**  
New Delhi, July 4

**INDIA NEEDS TO** promote green hydrogen on a large scale and work on reducing the cost of electrolyzers for an accelerated path to net zero, said NITI Aayog member VK Saraswat at the 11th Subir Raha Memorial Lecture on Tuesday.

“With most parts of India receiving 4-7 kWh of solar energy per square metre per day, the green hydrogen play looks like an ideal solution to help India meet its energy needs,” Saraswat said speaking on ‘Sustainable Energy Transition’. He, however, said that green hydrogen at existing cost of \$5-\$6 per kg will not be sustainable. It has to be brought down to below \$2 per kg. He listed down the requirements to bring down the cost of green hydrogen to \$1 per kg.

“Cost of electrolyzer must come down 80% from \$650-\$1,000 per kilowatt (kW), electricity cost must fall to 2 cents per kWh, electrolyzer plant life should go up to 20 years, electrolyzer efficiency must increase to 76% and electrolyzer plant load factor (PLF) must go up to 4,200 hours per year,” he said, adding that the weighted average cost of capital has to be at 6%.

Saraswat, who is a missile technology and defense research expert, said that the cost of green hydrogen will remain unaffordable till 2030. For its success, 90% greening of the grid is also required.



# Sembcorp eyes ReNew's green energy projects

ReNew Energy's 1.1GW projects have estimated enterprise value of \$1.2 bn

Utpal Bhaskar  
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NEW DELHI

**S**ingapore's Sembcorp Industries Ltd is in talks to acquire green energy projects totalling 1.1 gigawatts (GW) from ReNew Energy Global Plc, with the deal estimated to be valued at \$1.2 billion at the enterprise level and around \$450 million in terms of equity, two people familiar with the development said.

*Mint* had earlier reported that Ahmedabad-based Torrent Power had submitted a non-binding offer for the same projects comprising solar and wind power assets of 350 megawatts and 750MW, respectively.

Sembcorp and Torrent Power had been vying for the acquisition of India Infrastructure Fund II, a private equity firm owned by US's Global Infrastructure Partners, to buy Vector Green Energy Private Ltd, which Sembcorp Green Infra Ltd eventually acquired for an equity value of \$474 million, or \$345 million. "Sembcorp is doing due diligence. Torrent is interested in the assets as well," said one of the two people cited above, seeking anonymity.

Sembcorp, which is listed on the Singapore Exchange, has an energy portfolio of 18.5GW, of which 1.1GW is renewable energy projects, including wind, solar, and energy storage. Of this, its installed and under-development renewables portfolio in India is at 3GW, including 1GW solar assets and 2GW wind assets. The firm is further increasing its investments in India's green energy sector after the sale of Sembcorp Energy India Ltd to Tanweer Infrastructure Pte. Ltd for ₹11,700 crore. Sembcorp Energy operates two supercritical coal-fuelled power projects totalling 2.6GW.

A ReNew Energy Global Plc spokesper-



Sembcorp's installed and under-development renewables portfolio in India is at 3GW

son said in an emailed response: "We don't have any comment to offer." Queries to spokespersons of Sembcorp Industries and Torrent Power on Sunday night did not elicit any response till press time.

Meanwhile, ReNew Energy Global is working on selling its operational, clean energy capacity as part of its capital recycling strategy to reinvest the proceeds in building new clean energy assets. ReNew has been exploring several opportunities, including selling a 30% stake in its 2.3GW commercial and industrial projects. It had recently announced a partnership with Malaysia's state-run oil and gas company, Petrolim Nasional Bhd, where Petronas' subsidiary Gentari Sdn Bhd will buy a 49% equity stake in NASDAQ-listed ReNew's 403MW peak power project.

India is witnessing a surge in green energy deals. *Mint* has reported on several

transactions, including investments from Japan's Sumitomo Mitsui Banking Corp., Asian Infrastructure Investment Bank, and private equity firm Intermediate Capital Group's plans to invest \$250 million in Amp Energy India.

As of 31 March, India's overall power generation capacity stands at 416.05GW, of which renewable energy contributes 125.16GW, with solar accounting for 66.78GW and wind accounting for 42.63GW. Besides, efforts are on to implement 82.62GW of green energy capacity, and another 40.89GW is in various stages of tendering, according to government data.

ReNew, one of India's largest clean energy companies, has a ₹35,000 crore capital expenditure plan and a total portfolio of 13.7GW, around 8GW of which is operational. As part of its growth strategy, the company founded by Sumant Sinha has joined hands with AES and Siemens-backed Fluence to form an equal venture for the energy storage business in India.

**\$450 mn**  
The estimated value of the deal in terms of equity

## SUPPLIES APLENTY from producers outside the 23-member OPEC+ such as the US, West Africa and North Sea *Saudi Oil Cuts See Top Buyers Looking at Alternatives*

### Bloomberg

Asia's oil refiners, responsible for meeting about a third of the world's fuel consumption, are getting ready to go elsewhere for crude should Saudi Arabia and Russia's latest pledged output cuts deprive them of barrels.

The two producer countries said on Monday that they will prolong and deepen output cuts into August. Along with reductions they already made, and ongoing curbs by other nations in the OPEC+ alliance, total supply curtailments will amount on paper at least to 3.1 million barrels a day, or about 3% of global consumption.

Traders in Asia said there's a plentiful supply of barrels from producers outside of the 23-nation alliance particularly in locations like the US, West Africa and the North Sea that they will turn to if the region does bear the brunt of the latest cuts.

Any influx into Asia of oil from the

Atlantic Basin could be a mixed blessing for Middle East producers. On the one hand, it could help to drain supplies in the US and Europe, home to the world's most traded oil futures contracts. On the other, it could mean losing a share of the fastest growing demand market.

So far, the production jolts by Saudi Arabia and its allies have failed to make any meaningful difference to headline oil prices, which have been stuck at between \$70 and \$80 a barrel for weeks. That said, prices for grades that are similar to those that the kingdom pumps have rallied more strongly, catapulting them above Brent last week.

In the next few days, Saudi Arabia will publish official selling prices for its crude for different buying regions around the world. Those numbers, often mirrored closely by other Saudi Arabia's neighboring producers, can be pivotal in defining demand from different regions. They are normally released by the 5th of each month.

Before the latest Saudi cuts, traders



estimated that prices for August-loading cargoes from Saudi Arabia would be kept unchanged at what many of them already said they considered to be relatively high levels. Several traders said they anticipated a price hike if Saudi Arabia's intention is to tighten supplies.

Demand in the Asian spot market was healthy last month, but expectations for relatively high pricing for Saudi oil in August may deter interest for term Middle East cargoes to Asia in this cycle, the traders said.

### BRENT-DUBAI

The spread between two crude benchmarks Brent and Dubai has also narrowed sharply in the past month, indicating that Brent-linked crude could be more appealing. Cheaper shipping costs also lower the overall import bill for long-haul deliveries from the Atlantic.

Refiners in South Korea, India, China and Taiwan are able to swing between barrels from the Middle East and the arbitrage cargoes. For example, they can use the US grade West Texas Inter-

mediate or North Sea Forties instead of Abu Dhabi's Murban, and switch out Upper Zakum or Oman for Norway's Johan Sverdrup or Mars from the US.

There are already signs that Asian demand for West African grades is creeping up.

China's refiners already snapped up a relatively large number of Angolan cargoes, while state refiners in Indonesia and India also bought some Nigerian cargoes for August loading, said traders involved in those markets.

So-called arbitrage flows from North Sea to Asia also resumed, meaning it's profitable to move barrels over thousands of miles.

In the North Sea, Johan Sverdrup was most in demand. It was last bid at a premium of \$1.70 a barrel more than benchmark Dated Brent in a pricing window run by S&P Global Commodities Insights, known as Platts by traders. It is now more expensive than Ekofisk which is lighter and sweeter and usually has a higher price.

# 'New hydro power policy to make tariffs viable'

bl.interview

**Rishi Ranjan Kala**  
New Delhi

Hydro power will play a key role in India's clean energy transition, says former Power Secretary Alok Kumar, adding that the Ministry is working on a new hydro power policy to enhance the sector's viability. Kumar, who superannuated on June 30, told *businessline* in an interview that the policy will focus on making tariffs viable, with plans afoot to offer financial incentives for laying enabling infrastructure. Excerpts:

**Hydro power is one of the key focus areas for the government. What are your thoughts on it?**  
India has a definite place for hydro power in its energy mix and planning. We are keen to develop our hydro power resources as soon as possible, but at the same time, ensure that environmental concerns are addressed.

We conduct an in-depth environmental impact assessment for every project and required safeguards are put in place. Studies have shown that incidents of landslides have come down after hydro power projects are built. They result in



We are keen to develop our hydro power resources as soon as possible, but at the same time, ensure that environmental concerns are addressed.

**ALOK KUMAR,**  
Former Power Secretary



general economic prosperity and lead to environmental stability, more greenery in those areas.

**What are the government's plans for expanding hydro power?**

We came out with guidelines for pumped storage projects (PSPs) in April, which received a good response. I'm told that industry has approached the Central Electricity Authority for close to 30,000 MW of projects.

The new hydro power policy will have two features. First, all stakeholders will work to ensure that hydro power tariffs are kept in a viable range vis-a-vis benchmark tariffs. So, Central government entities and States will chip in during the initial 12-15 years. Second, to make hydro power projects viable, government

financial assistance would be extended for enabling infrastructure, such as providing transmission lines from the project to pooling stations. Earlier, it included roads and bridges. There is also a proposal to support the north-eastern States to acquire up to 24 per cent equity in a project so that they are full partners in it and help in its early commissioning. They will earn return on equity in addition to free power for the rest of the life of the project. It is a win-win situation.

**Recently, India was ranked 67th in the WEF's Energy Transition Index. How do you view this development?**

Our rank has improved. It is a good development. Although a developing country with

low per capita emission, India is one of the largest economies witnessing rapid energy transitions. This is a far more important lesson. What is relevant is what the country is doing. It is trying to do far more than what is expected from a developing country.

That India's efforts are being recognised is a matter of satisfaction. It has been clear and forthcoming in its endeavours. Though all the major economies talk of Net Zero in 2050, barring one or two countries in Europe, the rest never spell out clearly what they plan to do in the next 10 years. That shows their sincerity.

**The Bureau of Energy Efficiency has played a key role in this. Your thoughts...**

No single institution in India has contributed to energy efficiency as the BEE. On the supply side, there are ministries and a large number of CPSEs which are involved in energy transition. But on the demand side, it is the BEE which has contributed immensely. They have done commendable work. However, a lot more needs to be done. The BEE has been doing this job with limited resources, but with dedication and sincerity. I'm sure it will contribute to half

of the transition on the demand side.

**As you hang your boots and look back, what are your thoughts on India's power sector?**

I would say we are mid-way and the journey is not complete. Our near future milestone is 2030. There is a fixed plan to achieve 500 GW of non-fossil fuel capacity. We have also come out with a detailed plan for evacuation of power and transmission lines have been identified.

We also have a clear roadmap for development of grid storage capacity in terms of battery storage and PSPs. Also, the MNRE has come out with annual targets. This is supported by the PLI scheme. So we have a definite action plan in place.

On the demand and consumption side, we have done well in our programme for industrial energy efficiency.

The BEE has prepared action plans sector by sector, with clear sub-targets and technology interventions. We have run a successful programme of standards and labelling of efficient appliances, building code and matching the target of 45 per cent reduction in energy intensity. We have also worked with other ministries such as MoPNG and steel.