

● **GAME OF GIANTS**

For these companies, the wait for green hydrogen is over

Government's allocation of ₹19,744 crore has given the much-needed boost

Over the last couple of years, India saw a plethora of announcements for green hydrogen. Companies announced their plans forming partnerships to get into electrolyser manufacturing for green hydrogen or for the production of green hydrogen.

For biggies like Reliance and Adani, green hydrogen represents a new and presumably growing business opportunity. The two conglomerates have announced \$75 billion and \$50 billion investments respectively, in the entire gamut of green hydrogen chain. Even if these investments are to be made over the next ten years, the annual outlays are huge.

For oil refiners like IOC and BPCL, green hydrogen is a must, its use by them is going to be man-

dated by law. For energy companies like NTPC too, such a mandate may not be too far. For renewable energy companies like ReNew Power and Greenko green hydrogen is a new market for their electricity, where they would probably get a higher margin. Engineering companies like L&T look at this sector as yet another opportunity where they can make and sell electrolysers.

All these companies have been waiting for some policy clarity. Would the government give any financial support and if yes, how much? This was answered unambiguously by the government's 'new year gift' of ₹ 19,744 crore allocation for supporting this sector.

The idea is to create enough capacity in the country for an annual

production of 5 million tonnes of green hydrogen, which (according to the National Chemical Laboratory, a public funded research institution working on green hydrogen) would entail 32 GW of electrolyser capacity and consume 115 mld (millions of liter per day) of water. This needs an investment of \$86 billion, requires 130 GW of renewable energy and take up 3,40,000 hectares of land. Also, around 5 mtpa of green hydrogen would help avoid fossil fuel imports amounting to ₹ 1 lakh crore and reduce 50 million tonnes of carbon dioxide emissions annually.

For all the companies that made big-splash announcements in the last couple of years, the wait is over. Now is the time for them to lick their paws and get into action.

Who said what and where they stand today

Company	Date of announcement	Partnership with	Plans
Reliance	Oct 2021	Stiesdal, Denmark	- To manufacture Stiesdal technology based 'HydroGen' electrolysers \$75b for green energy push, including RE, solar modules and electrolysers
NTPC	Oct 2021	Technip Energies	5MW of PEM electrolysers, though not necessarily powered by RE - Plan to produce Methanol
NTPC	Dec 2021	Bloom Energy	Microgrid plus 240 kW of SOEC electrolyser of Bloom, at Simhadri, power from a nearby floating solar plant
		Marie Tecnimont	Green methanol project
Greenko	Mar 2022	John Cockreill, Belgium	Manufacture of 1GW of electrolysers
BPCL		BARC	- Alkaline electrolysers 20 MW of electrolysers tender, for Bina, MP
GAIL			10MW of electrolysers at Vijaipur, MP
Nanosol Energy			Solid oxide electrolyser for 24 hour supply
H2E Power Systems			1GW of electrolysers, all four technologies
Adani Green	Dec 2022	Cavendish Renewable Technology, Melbourne	- Plans to invest \$50 b in green hydrogen, over next 10 years 1 mt of GH2 by 2030 - Adani New Industries Ltd (ANIL) to spearhead GH2 - TotalEnergies of France acquires 25 % stake in ANIL - To manufacture 5 GW of electrolysers with Cavendish technology - Underpinned by 30GW of RE
Ohmium			The only electrolyser manufacturer in India, plans to increase capacity to 500MW
L&T	Jan 2022	HydrogenPro, Norway	Manufacture 1GW alkaline electrolysers with HydrogenPro technology
	Aug 2022		Commissioned 800 kW PEM and Alkaline electrolysers, powered by roof top solar at Hazira

Compiled by **M Ramesh**

Govt push: Green signal for clean energy stocks

RIL, Adani, NTPC to gain as new policy may help cut cost by 50%, say experts

HARSHITA SINGH

New Delhi, 19 January

The central government's National Green Hydrogen mission is set to provide a fillip to the renewable energy sector by making green hydrogen significantly cheaper, aiding the industry to establish global supply chains, analysts say.

The reduced cost of the green fuel is meant to make it competitive against the widely used grey hydrogen, which is produced from fossil fuels.

According to experts, producing grey hydrogen currently costs around ₹160-220 per kg, much lower than green hydrogen. The policy push, though, will bring the cost of the green fuel at par with that of grey hydrogen. "Green hydrogen production cost has been closer to ₹500/kg but now with the new policy, it can drop by 50 per cent. The incentive of ₹50 per kg will also bring the cost closer to that of grey hydrogen. This could make India a leading player in this space by 2050 with a \$340 billion (bn) market," said Ambareesh Baliga, an independent market analyst.

The policy aims to put India on the global map as one of the leading producers and suppliers of green hydrogen and its derivatives. With an initial outlay of ₹19,744 crore, it targets to domestically produce 5 million tonnes (mt) of green hydrogen, annually, by 2030 with a focus on manufacturing electrolyzers — a key component for making the green fuel.

"The beneficiaries within the value chain would be electrolyser manufacturers, fuel cell makers for non-emission vehicles, traditional players engaged in energy storage solutions or battery manufacturers, among others," says Nitin Tiwari, executive vice president, Yes Securities.

The government estimates the



NOT MUCH TO CHEER ABOUT

Stock (price in ₹)	Change (%)*
Adani Enterprises	71.7
Larsen & Toubro	28.6
NTPC	24.8
IndianOil	5.0
Adani Green Energy	2.0
Thermax	1.9
Oil India	-1.5
Bharat Petroleum	-2.8
MTAR Technologies	-3.8
GAIL (India)	-6.1
RIL	-6.2
Linde India	-9.8
Tata Power	-14.1
Sterling and Wilson RE	-17.0
S&P BSE Sensex	3.9

* All figures are for FY23, up to January 19
Sources: Bloomberg, exchanges

Compiled by BS Research Bureau

price of the green fuel to come down to \$1 per kg by 2030 from the current \$4-5. This will benefit domestic refiners through healthier margins, with Reliance Industries (RIL) and Adani New Industries (ANIL), among others, being key beneficiaries, as per Nuvama Institutional Equities.

RIL, as part of its ₹75,000 crore

green investment push, is in partnership with Denmark's Stiesdal to make electrolyzers.

Jefferies on Tuesday said that the European Union's and India's green hydrogen policy could translate into a \$74-billion market for RIL's electrolyser business by 2030. It has valued the conglomerate's green hydrogen business at

\$8 bn, raising the base case target for the stock to ₹3,100. "RIL would replace grey hydrogen with green hydrogen at its refineries and could monetise the captive green hydrogen production by moving it into an InvIT (infrastructure investment trust) and inducting investors. Any meaningful capital subsidy to RIL should aid the valuation of its green hydrogen foray," the brokerage said.

Adani group arm ANIL is also in pact with France-based TotalEnergies SE to invest \$50 bn over the next 10 years in India to produce green hydrogen, while Adani Enterprises has signed a pact with Ashok Leyland and Canada's Ballard Power to develop a hydrogen fuel cell electric truck.

NTPC remains another key player, which is setting a 5MW electrolyser with several other projects across mobility and green hydrogen blending.

CLSA sees NTPC as a key player in India's entry into the global green hydrogen space and expects it to corner 15 per cent of domestic demand, translating to 7.6 lakh kg of annual production by the 2031-2032 financial year (FY32). "NTPC's green hydrogen business could add ₹155 bn to its revenue and ₹58 bn to its Ebitda (earnings before interest, tax, depreciation and amortisation) by FY32. This could add ₹14.4 per share or 9 per cent to its current market price," it said. The brokerage has a 'buy' rating on the stock with a target price of ₹188.

Besides, Tata Power, Adani Green and Sterling & Wilson Renewables will be other key gainers as a result of the rise in demand for renewable energy, a major cost component of green hydrogen, said Nuvama Institutional Equities.

L&T, Indian Oil, GAIL, BPCL, and Oil India are other prominent companies currently investing in the sector.



GAIL SHOWCASES ITS INITIATIVES ON ENVIRONMENT & BIODIVERSITY

"Interdependence" and "Interactions" initiatives are two global awareness milestones where GAIL integrated its messaging through renowned Film makers from many nations to reach millions with one consolidated voice on climate change, environment & biodiversity produced under the auspices of organisations like United Nations, WMO, WAAS, COP15 and climate advisors. INTERACTIONS comprises of 12 short films produced by Art for the World (Geneva, Switzerland) with the participation of 12 international film-makers. INTERDEPENDENCE, was Premiered at Rome and was viewed by over 500 million people across continents including India. To support its mission & vision statement GAIL has also initiated a path to a Net Zero GAIL along with a Net Zero India & a Net Zero World. For GAIL there are many milestones that need to be laid, along the path being paved for a cleaner, sustainable future and more habitable Earth. GAIL has been constantly striving to create awareness against Climate Change, Air Pollution and spreading the tenets of Sustainability in individual and corporate lifestyles through its initiative Hawa Badlo. Hawa Badlo (Change the Air) an initiative by GAIL (India) Ltd was started in 2016. It connects with the citizens on a digital platform for creating awareness for better air and environment and to provide solutions for curtailing the effects of air pollution was originally started as a in the year 2016.

Fertiliser subsidy: Shortcuts won't work



UTTAM GUPTA

The initiatives taken by the Government are unlikely to bring down the quantum of fertiliser subsidy

Propelled by the need to return to fiscal consolidation path and targeting fiscal deficit as a proportion of GDP at 5.9 per cent for financial year (FY) 2023-24 (against 6.4 per cent for FY 2022-23), the Union government is keen to rein in major subsidies. It wants to slash fertilizer subsidies from the likely actual of around Rs 250,000 crore during the current FY to Rs 140,000-150,000 crore during 2023-24.

Does it have measures to deliver? Is it merely banking on a drop in international fertiliser prices?

Fertilizer subsidy is payments made to manufacturers or importers to cover the excess of the cost of production/import and distribution (or cost of supply) over a low maximum retail price (MRP) they are directed by the Union Government to charge from the farmers. The subsidy on each ton of fertilizer produced (or imported) and sold is nothing but the difference between the cost of supply and MRP.

When multiplied by the total quantity of fertilizer sold in a year, it gives aggregate subsidy payments, as reflected in the budget.

Even as fertiliser sales are primarily demand driven (this in turn, depends on the weather, area sown under different crops, fertilizer use per hectare and so on), the other two crucial factors are MRP and the cost of supply. As for MRP, given the massive political ramifications of any hike and a spate of assembly elections during 2023 followed by general elections in 2024, the government won't dare to bring about even a small hike, forget a steep jump needed for slashing the subsidy by over Rs 100,000 crore.

As for the cost of supply, India is overwhelmingly dependent on imports. Nearly 50 per cent of India's requirement of diammonium phosphate (DAP) is imported, whereas in case of muriate of potash (MOP), our import dependence is 100 per cent. Similarly, all phosphoric acid and the bulk of ammonia (raw materials or RMs used in making of DAP and other non-urea fertilisers) are imported. About one-third of the urea demand is imported. Even for the balance of two-thirds supplied domestically, India depends on the import of natural gas (NG) for at least 1/3rd of its requirement.

Of the total potash imports, India draws close to 50 per cent from Russia and Belarus. Russia, Belarus and Ukraine together account for 20 per cent of our phosphoric acid import. Additionally, India gets around 15 per cent of its ammonia imports from Russia who also supplies 10 per cent of our NG imports. Nearly 60 per cent of Indian DAP imports come from China and Saudi Arabia.

In the case of urea, over one-third of Indian imports come from China. The war following military action by Russia and sanctions imposed on it by European countries and the USA has resulted in dis-

CONVENTIONAL UREA AND NANO UREA ARE TREATED AS EQUAL. CAN A MERE 20 GRAMS IN NANO UREA DELIVER WHAT 20 KG IN CONVENTIONAL UREA DOES? NANO UREA COULD SOLVE INDIA'S FERTILISER SUBSIDY CONUNDRUM IF ONLY MIRACLES HAPPEN!

(The author is a policy analyst)



ruption in supplies from the region and steep increase in price of both fertilisers as well as RMs used in their production. All of these cost escalations were absorbed by the Centre by increasing subsidies during 2022-23 even as MRPs of all fertilisers were kept unchanged. Given the unfolding geo-political and military situation with NATO countries getting increasingly entangled in the conflict and Russia and Ukraine showing no sign of scaling down hostilities (forget ending), there seems to be no end to the war at least till the end of 2023.

Therefore, any relief from the current tight global supply and elevated fertiliser prices is highly unlikely. The government has been trying to diversify sources of supply, for instance, buying more of MOP from Canada, Israel, Jordan, etc., or more of DAP from Saudi Arabia and Morocco. But, these efforts have only helped in ensuring adequate supplies but not much relief in securing lower prices.

Meanwhile, Chemicals and Fertiliser Minister Mansukh Mandaviya has led delegations to major supplier countries seeking long-term agreements. These are welcome moves but the timing isn't apt. When the global supply-demand scenario is tight, India is unlikely to secure good price deals, notwithstanding some concession over the prevailing high price in lieu of our committing to buy long-term.

In regard to NG, the government is working on a couple of initiatives such as "incentivizing companies that contract fuel at better prices", idea of an aggregator for

procuring the fuel on behalf of fertilizer producers and buying NG from gas exchanges.

Since 2015, the Centre has been running a system of pooling NG to supply all urea plants connected to a national grid at a uniform delivered price (UDP).

Even as individual units pay as per their respective weighted average delivered cost, the pool operator, viz. GAIL India Limited, notifies the UDP at the beginning of every month. A unit that pays less than UDP has to deposit the differential amount with the pool, whereas another unit that pays more gets the difference from the pool.

Under the scheme, the ability of a urea manufacturer to purchase gas at a lower price is not rewarded, just as there is no disincentive for others who buy at a higher price. Hence, any talk of "incentivizing companies that contract fuel at better prices" is laughable.

The idea of an aggregator procuring fuel on behalf of Indian fertiliser producers is appealing as consolidation of demand enhances the negotiating power with global suppliers. But then, GAIL India Limited, in coordination with the Department of Fertilisers (DoF), is already doing this by assessing the deficit in supply from existing sources vis-à-vis the projected demand and importing LNG to plug it.

Buying NG from gas exchanges won't help either. This is because the quantity traded at the exchange is miniscule. The government is also pinning hopes on Nano liquid urea or urea in the form of nanoparticles. It provides nitrogen to plants in liquid form

as an alternative to conventional urea. A 500ml bottle of nano urea is equivalent to a 45kg bag of conventional urea. While, selling the latter for Rs 242 requires subsidy support of Rs 2,758, the former is available to farmers at the same price sans subsidy.

A 45kg bag of conventional urea contains 46 percent 'N' or 20 kg (45x0.46), whereas a 500ml bottle of nano urea has 4 percent 'N' or 20 grams (500x.04). Yet, the two are treated as equal. Can a mere 20 grams in nano urea deliver what 20 kg in conventional urea does? Nano urea could solve India's fertiliser subsidy conundrum if only miracles happen!

To conclude, the initiatives taken by the Government are unlikely to make a dent on subsidy on the desired scale. An outgo of Rs 140,000 crore-150,000 crore during 2023-24 seems to be beyond reach. During 2020-21, the budget estimate (BE) for fertilizer subsidy was Rs 70,000 crore but actual was Rs 138,000 crore. During 2021-22, BE was Rs 80,000 crore but the actual was Rs 162,000 crore. For 2022-23, BE was Rs 105,000 crore but the actual is likely to be Rs 250,000 crore. If, for 2023-24, the finance minister keeps BE at Rs 140,000-150,000 crore, we will only see a repeat of the past.

India can break away from this trend only if the Government pursues major reforms such as urea decontrol and direct benefit transfer (DBT) of subsidy, which can force suppliers to cut costs, stop leakages, and farmers to improve fertilizer efficiency.

ALAS! None of these is on the radar.