

# Chennai start-up 'chuggs' food waste to generate biogas

**Narayanan V**

Chennai

What ensues when two former colleagues meet over lunch after many years? A lot of chatter, some old office stories, and, of course, a lot of wasted food at the end. When Ravi Ayyangar and Satish Patel caught up over a meal, an idea to address the menace of food waste germinated.

After three decades in finance and project management, both in India and abroad, Ayyangar returned to India around 2014, intending to start something on his own. Patel, a scientist with experience in the research, design and development of effluent treatment plants in India and abroad, suggested that Ayyangar focus on solid waste management. This was even before the government of India came out with the Solid Waste Management Rules in 2016.

After working on a product prototype and R&D, Ayyangar, along with Srikanth Sitaraman and Bharath V, started Avris Environment Technologies LLP in 2018 to focus on the design and development of food waste treatment plants for industries and domestic usage.

"Over 40 per cent of the total solid waste is food waste, which is recyclable but often ends up in landfills. So, we decided to focus on addressing this problem," says Ayyangar, Director, Avris.

Avris developed a portable food-waste treatment system called 'Chugg', which breaks down the waste at source into two by-products: biogas and slurry. Chugg runs without electricity and there is no carbon emission either.

## CHUGGING WASTE

The Chugg food waste processing system uses a rectan-



Ravi Ayyangar, Director, Avris Environment Technologies LLP

gular fibreglass tank fitted with a rubber balloon on top. As a first step, a crusher turns the food waste into liquid form, which then collects in a barrel and is transferred to the main digester through an inlet pump.

Before the first use, the digester (fibreglass tank) is filled with cow dung and a patented additive and left closed with a lid to allow the bacteria to settle into an anaerobic condition. Later, when food waste is poured in, the bacteria begin to digest it

anaerobically (in the absence of oxygen). While the biogas collects in the balloon, the slurry (treated water) collects in a barrel.

Ayyangar says the biogas can be used in homes, thereby reducing dependence on LPG, while the nutrient-rich slurry serves as manure for plants.

Chugg comes in two variants: Chugg75, which can process 75 kg of food waste and generate 2-3 kg of LPG-equivalent biogas per day; and Chugg35, which digests 35 kg to generate 1.5-2 kg biogas per day.

## GROWTH PLANS

Avris' waste treatment plant has been installed by sanitaryware brand Roca, non-profit organisation Worth Trust, the Indian Army at the Dakshin Bharat Area in Chennai, and a few residential communities and Amma Canteens in the city.

"All bulk waste generators

like hotels, restaurants, and large apartment blocks are our potential target," Ayyangar says.

Avris' food waste treatment plant has also been installed in places like Havelock Island in Andaman and Nicobar.

Bharath V, Director, Avris Environment Technologies LLP, says the company is now focussing on ecologically-sensitive and tourist areas such as Goa, Ooty and Kodaikanal in Tamil Nadu, and hilly regions such as Himachal Pradesh, Sikkim and Uttarakhand. "We are also appointing sales and installation partners across Tamil Nadu, Karnataka, Maharashtra and Andhra Pradesh," he added.

The company is looking for partners overseas in countries such as Malaysia, Vietnam and Indonesia, where food waste as a percentage of solid waste is as high as 70 per cent.

## Church of England dumps all oil & gas investments over climate

**C**ampaigners on Thursday hailed a move by the Church of England to exclude all oil and gas majors from its investment portfolio because of climate concerns.

The body that manages the Church's £10.3-billion (\$13.1-billion) endowment fund excluded 20 companies from its list of financial assets two years ago.

It has now extended the ban to 11 more, including BP, ExxonMobil, Shell and TotalEnergies, after assessing that none was meeting the goals of the 2015 UN climate accord to tackle global warming.

"With the 2021 exclusions and those announced today, the Church Commissioners (for England) will have excluded all oil and gas majors," it said. "The broader exclusion of all oil and gas exploration, production and refining companies will follow by the end of 2023."

The Church of England Pensions Board announced separately that it, too, would disinvest from fossil fuels.

AFP



BP, ExxonMobil, Shell and TotalEnergies have been banned by the Church of England for any future investments.

REUTERS



## Oil Sinks as Hawkish Fed Spooks Investors, Overshadows EIA Data

Oil losses accelerated even after US data showed a strong pull on crude inventories, with a global warning on the dangers of inflation ringing in trader ears.

West Texas Intermediate tumbled more than 4% and fell to its lowest in a week as risk-off sentiment in wider markets overshadowed US inventory data. Federal



Reserve Chair Jerome Powell's comments yesterday that further rate increases were likely warranted to quell inflation were followed by rate hikes Thursday in England and Norway. The global tightening heightened investor concerns that the quest to slow inflation could result in a global economic slowdown as consumers pull back on spending in a high interest rate environment. **Bloomberg**

## **ONGC commences 3.6 MMSCMD Gas evacuation from Panna Field through newly laid 70 km Subsea Pipeline**



Oil and Natural Gas Corporation Ltd (ONGC), India's Energy Maharatna, today announced a significant milestone with the successful linkage of Panna Process Platform with subsea pipelines, which lie approximately 70 KM offshore at a depth of around 65 meters.

Currently, the Panna Process Platform is producing 3.6 Million Metric Standard Cubic Meters of natural gas per day from the field. ONGC has achieved a significant cost reduction of approximately USD 43,000 per day by connecting the platform with subsea pipelines, which will lead to the faster and hassle-free evacuation of gas.

# ONGC links its Panna oilfield with sub-sea pipeline, saves \$43,000/day

## OUR CORRESPONDENT

NEW DELHI: State-owned Oil and Natural Gas Corporation (ONGC) on Thursday said it has linked Panna oilfield in the Arabian Sea to shore through a sub-sea pipeline, helping save \$43,000 a day in cost that was previously incurred in transporting crude oil through ships.

Panna field, which is part of ONGC's Bassein & Satellite (B&S) asset of western offshore, produces 9,600 barrels of oil per day. With "the successful linkage of Panna process platform with subsea pipeline", the company "has achieved a significant cost reduction of approximately \$43,000 per day," ONGC said in a statement.

Oil from the field was previously transported through ships. Now it flows to shore through the sub-sea pipeline.

"The submarine pipeline



connection minimizes the production downtime associated with tanker changeovers and eliminates demurrage charges during adverse weather conditions," it said. "These combined savings and improved operational agility position ONGC for long-term success in the offshore oil and gas sector.

The job involved laying of two segments of 37.50 km of submarine pipeline and installation of three main oil line

pumps (MOL) and 3 booster pumps.

The Panna-Mukta oilfield consists of two adjacent offshore oil fields north-west of Mumbai.

"This remarkable feat is a triumph for ONGC and underscores its commitment to technological advancement and ushering in operational excellence in the oil and gas industry to raise output and further secure India's energy interest," the statement said.



Oil from the field was previously transported through ships.

BLOOMBERG

## ONGC links Panna field with pipeline

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Oil from the field was previously transported through ships. Now it flows to shore through the sub-sea pipeline.

"The submarine pipeline connection minimizes the production downtime associated with tanker changeovers and eliminates demurrage charges during adverse weather conditions," it said. "These combined savings and improved operational agility position ONGC for long-term success in the offshore oil and gas sector."

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PTI



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PTI / New Delhi

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With "the successful linkage of Panna process platform with subsea pipeline", the company "has achieved a significant cost reduction of approximately USD 43,000 per day," ONGC said in a statement.

Oil from the field was previously transported through ships. Now it flows to shore through the sub-sea pipeline.

"The submarine pipeline connection minimizes the production downtime associated with tanker changeovers and eliminates demurrage charges during adverse weather conditions," it said. "These combined savings and improved operational agility position ONGC for long-term success in the offshore oil and gas sector."

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## ONGC links Panna field with sub-sea pipeline, saves cost

PTI ■ NEW DELHI

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Panna field, which is part of ONGC's Bassein & Satellite (B&S) asset of western offshore, produces 9,600 barrels of oil per day. With "the successful linkage of Panna process platform with subsea pipeline", the company "has achieved a significant cost reduction of approximately USD 43,000 per day," ONGC said in a statement.

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## **ONGC Links Panna Field with Sub-Sea Pipeline, Saves Cost**

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## ONGC links Panna field with sub-sea pipeline, saves cost

FE BUREAU  
New Delhi, June 22

**OIL AND NATURAL** Gas Corporation Ltd (ONGC) on Thursday said it has started evacuation of oil from Panna field through newly laid sub-sea pipeline and that the pipeline is likely to help reduce costs by \$43,000 per day.

The successful linkage of Panna Process Platform with sub-sea pipeline in the Arabian Sea, a part of ONGC's Bassein & Satellite (B&S) Asset, minimises the production downtime associated with tanker changeovers and eliminates demurrage charges during adverse weather conditions. "These combined savings and improved operational agility position ONGC for long-term success in the offshore oil and gas sector," the country's energy maharatna said in a statement.

The Panna segment includes laying of two segments of 37.50 km of submarine pipeline and installation of three Main Oil Line Pumps (MOL) and three booster pumps. The Panna-Mukta oilfield consists of two adjacent offshore oil fields north-west of Mumbai.

ONGC said the laying of pipeline, which can handle 9,600 barrels of oil per day, underscores its commitment to technological advancement to raise output and further secure India's energy interest.

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# QUICKLY.

## ONGC starts evacuating oil from Panna field

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**New Delhi:** ONGC on Thursday announced a significant milestone with the successful linkage of Panna Process Platform with subsea pipeline. ONGC has achieved a significant cost reduction of approximately \$43,000 per day by connecting the platform with subsea pipeline. OUR BUREAU

लैपटॉप, कंप्यूटर, 7 फर्जी आईडी कार्ड, 350000 रुपये बरामद

## अदाणी सीएनजी पंप की डीलरशिप दिलाने के नाम पर ठगी, 4 काबू

फरीदाबाद, 22 जून (हप्र)

साइबर थाना बल्लभगढ़ प्रभारी नवीन कुमार व उनकी टीम ने अदाणी सीएनजी पंप की डीलरशिप दिलाने के नाम पर साइबर ठगी की वारदात को अंजाम देने वाले गिरोह का पर्दाफाश करते हुए गिरोह के 4 सदस्यों को गिरफ्तार करने में सफलता हासिल की है। एक आरोपी बंटी जो पैसे का लेन-देन करता था, आरोपी विवेक ठाकुर उर्फ विकास उर्फ धोखाधड़ी में इस्तेमाल फर्जी वेबसाइट को डेवलप करना, आरोपियों से वारदात में प्रयुक्त लैपटॉप, कंप्यूटर, 7 फर्जी आईडी, 3 मोबाइल फोन, 4 सिम, रजिस्टर व 350000 रुपए बरामद किए गए हैं। डीसीपी अमित यशवर्धन ने बताया कि गिरफ्तार किए गए आरोपियों में अभिषेक कुमार, दूसरा आरोपी

### आरोपियों ने ऐसे दिया वारदात को अंजाम

आरोपियों ने अदाणी सीएनजी पंप की डीलरशिप दिलाने के लिए तीन फर्जी वेबसाइट बनायी थी। जिस पर कस्टमर आवेदन फॉर्म डीओडीओ फॉर्म भरता था। जिससे कस्टमर की डिटेल्स इत्यादि फिलअप करता है और आरोपियों के पास डाटा चला जाता है। जिसका इस्तेमाल करके कस्टमर को अदाणी कंपनी के नाम पर फर्जी दस्तावेज भेजने व मोबाइल नम्बर का प्रयोग कर आरोपी कस्टमर को कॉल करके अलग-अलग सर्विसेज के नाम पर अपने दिए हुए बैंक खातों में धोखाधड़ी की रकम को ट्रांसफर कराते थे। आरोपियों के खिलाफ थाना साइबर बल्लभगढ़ में मुकदमा दर्ज कर आरोपियों की तलाश की गई।

अभिषेक कुमार, बंटी और विवेक ठाकुर उर्फ विकास उर्फ रोमक का नाम शामिल है। आरोपी अभिषेक कुमार मूल रूप से बिहार के शेखपुरा जिले के गांव देवले का रहने वाला है। दूसरा आरोपी अभिषेक कुमार बिहार के नवादा जिले के गांव असमां का, बंटी कुमार बिहार के गांव विद्यापुरा का रहने वाला है। आरोपियों ने बल्लभगढ़ के सेक्टर-2 के रहने वाले विशाल के साथ 1362000 रुपए की धोखाधड़ी

को अंजाम दिया है। आरोपियों को साइबर टीम ने अपने सूत्रों से प्राप्त सूचना से पटना, बिहार व अहमदाबाद, गुजरात से गिरफ्तार किया गया है। आरोपी अभिषेक कुमार अदाणी सीएनजी पंप डीलरशिप के लिए मेल करना व फर्जी कागजात तैयार करके कस्टमर को भेजना आरोपी दूसरा अभिषेक कुमार अदानी गैस का अधिकारी बनकर कस्टमर से बातचीत करता था (शिक्षा 12 वीं)।

## पेट्रोल और डीजल की कीमतें स्थिर

नई दिल्ली, वार्ता। वैश्विक स्तर पर तेल की कीमतों में गिरावट आने के बावजूद घरेलू स्तर पर पेट्रोल और डीजल की कीमतें आज भी स्थिर रही, जिससे दिल्ली में पेट्रोल 96.72 रुपये प्रति लीटर तथा डीजल 89.62 रुपये प्रति लीटर पर पड़े रहे।

तेल विपणन करने वाली प्रमुख कंपनी हिन्दुस्तान पेट्रोलियम कॉर्पोरेशन की वेबसाइट पर आज जारी दरों के अनुसार, देश में आज पेट्रोल और डीजल की कीमतों में कोई बदलाव नहीं हुआ है।