

IndianOil's

**NET-ZERO**

**BY 2046**

Through Net-Zero Operational Emissions

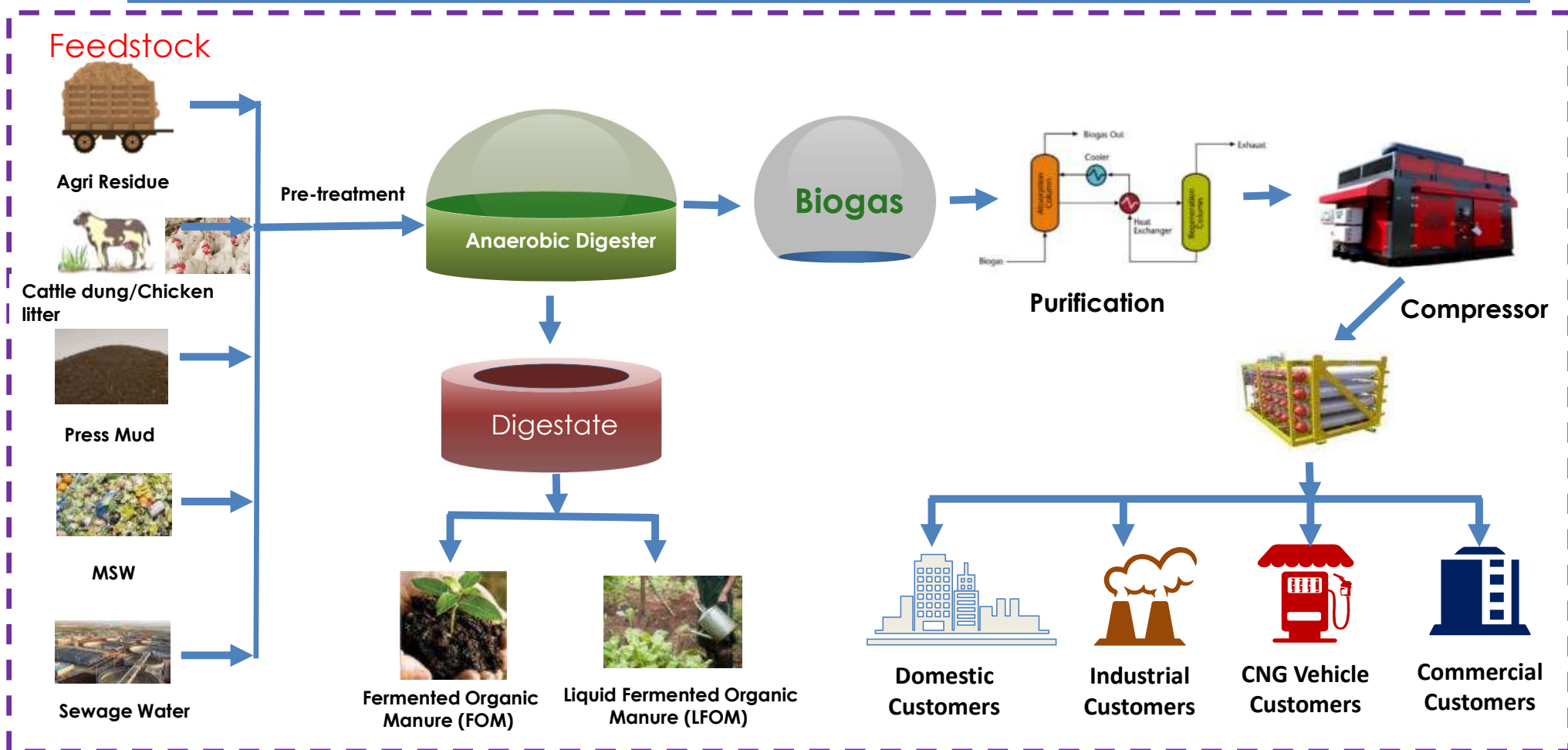


*Compressed Bio Gas (CBG) creating new  
revenue streams for the Poultry sector*



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**NOVACON, Kolkata**  
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# Compressed Bio-Gas – CBG value chain



## Comparison between CBG and CNG



S No.	Characteristic	CBG IS 16087 : 2016	CNG IS 15958 : 2012
1	Methane, minimum	90%	90%
2	Ethane, maximum	-	6%
3	C3 and higher HC, maximum	-	3%
4	C6 and higher HC, maximum	-	0.5%
5	Total unsaturated HC, maximum	-	0.5%
6	Carbon Dioxide, maximum	4%	3.5% (CO <sub>2</sub> and N <sub>2</sub> )
7	Total sulfur, maximum	20 mg/m <sup>3</sup>	20 mg/m <sup>3</sup>
8	Moisture, maximum	5 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>
9	O <sub>2</sub> , maximum	0.5%	0.5%

**Hence CBG is a Premium CNG and can be used as automotive fuel for CNG vehicles**

## Feedstock wise CBG Potential

<b>Feedstock</b>	<b>Feedstock Requirement for production of 1 TPD CBG as per Conventional Technology (Tentative)</b>
<b>Agriculture Residue</b>	<b>10 ton</b>
<b>Press Mud</b>	<b>25 ton</b>
<b>Municipal Solid Waste</b>	<b>20 ton</b>
<b>Cattle Dung</b>	<b>50 ton</b>
<b>Chicken Litter</b>	<b>25 ton</b>
<b>Napier Grass</b>	<b>15 ton</b>
<b>Sewage Waste</b>	<b>20 MLD</b>

# SATAT initiative on CBG



## Launch

- Launched on 1.10.2018 by Govt. of India
- Synergy with Swachh Bharat Mission/ COP 21 commitments/ Atmanirbhar Bharat

## Features

- 5000 CBG Plants to be set up
- CBG – 15 MMTPA / Organic Manure – 50 MMTPA

## OGCs

- CBG Plants to be set up by Entrepreneurs
- Off take by Oil & Gas Companies
- Commercial Agreement for 15 years

## Benefit

- Employment in rural & waste management sectors
  - Estimated direct employment (~25 / plant) : 1,25,000
  - Estimated indirect employment (~50 / plant) : 2,50,000
- Import reduction
- Waste management and consequent pollution control
- Additional income to farmers from their unutilised organic waste

# Enablers under SATAT scheme



## Financing

- Inclusion of CBG under Priority Sector Lending
- Canara Bank nominated as Nodal Banker
- Canara Bank, Punjab National Bank, Bank of Baroda, State Bank of India, Union Bank have formulated policy for financing of CBG Plants

## FOM / LFOM

- Inclusion of Fermented Organic Manure / Liquid Fermented Organic Manure in Fertilizer Control Order 1985 notified

## Pollution Clearance

- Included conditionally under White Category

## State Level SATAT Committee

- Formed for Punjab, Haryana, Uttar Pradesh, Chhattisgarh, AP, Tripura & West Bengal
- Govt. of Haryana has notified biomass clusters for agri-residue based Plants

## CGD Synchronization

- Guidelines on CBG synchronization with CGD network issued

## Explosive License

- No separate approval or licence from PESO is required for selling CBG if license is granted for selling CNG and vice versa.

# New Pricing Scheme of CBG under SATAT (Co-ordinated by IndianOil)



New procurement price of CBG delivered at IndianOil Retail Outlet situated at any distance (up to 75 km one way):-

S No	Lower Retail Selling Price of CBG in Slab	Higher Retail Selling Price of CBG in Slab	Procurement price of CBG	Procurement price of CBG
	including tax	including tax	Without GST	With GST
	Rs./kg	Rs./kg	Rs./kg	Rs./kg
1	Retail Selling Price of CBG up to 70		54.00	56.70
2	70.01	75.00	55.25	58.01
3	75.01	80.00	59.06	62.01
4	80.01	85.00	62.86	66.01
5	85.01	90.00	66.67	70.01
6	90.01	95.00	70.48	74.01
7	95.01	100.00	74.29	78.01

- The minimum procurement price of CBG will not be lower than Rs. 46/kg + applicable taxes for the period up to 31.3.2029.
- The Retail Selling Price of CBG in a market shall be at par with RSP of CNG (as provided by the authorized CGD entity).
- Additional transportation cost for transportation of CBG beyond 75 km (one-way distance) from CBG Plant shall be paid separately, at mutually discussed & agreed rates.
- For further increase in slabs beyond Rs. 100/kg, procurement price will be extrapolated as per the above.

## SATAT initiative on CBG



5000 CBG Plants



15 MMT of CBG



50 MMT of Bio-Manure/FOM

### Status in West Bengal

### Industry

- 74 LOIs awarded for 0.19 MMTPA Capacity
- Sale of CBG has been initiated from 1 CBG Plant
  - Phoenix India, Birbhum (6TPD) selling to commercial / industrial sector

### IndianOil

- 50 LOIs awarded for 0.13 MMTPA Capacity

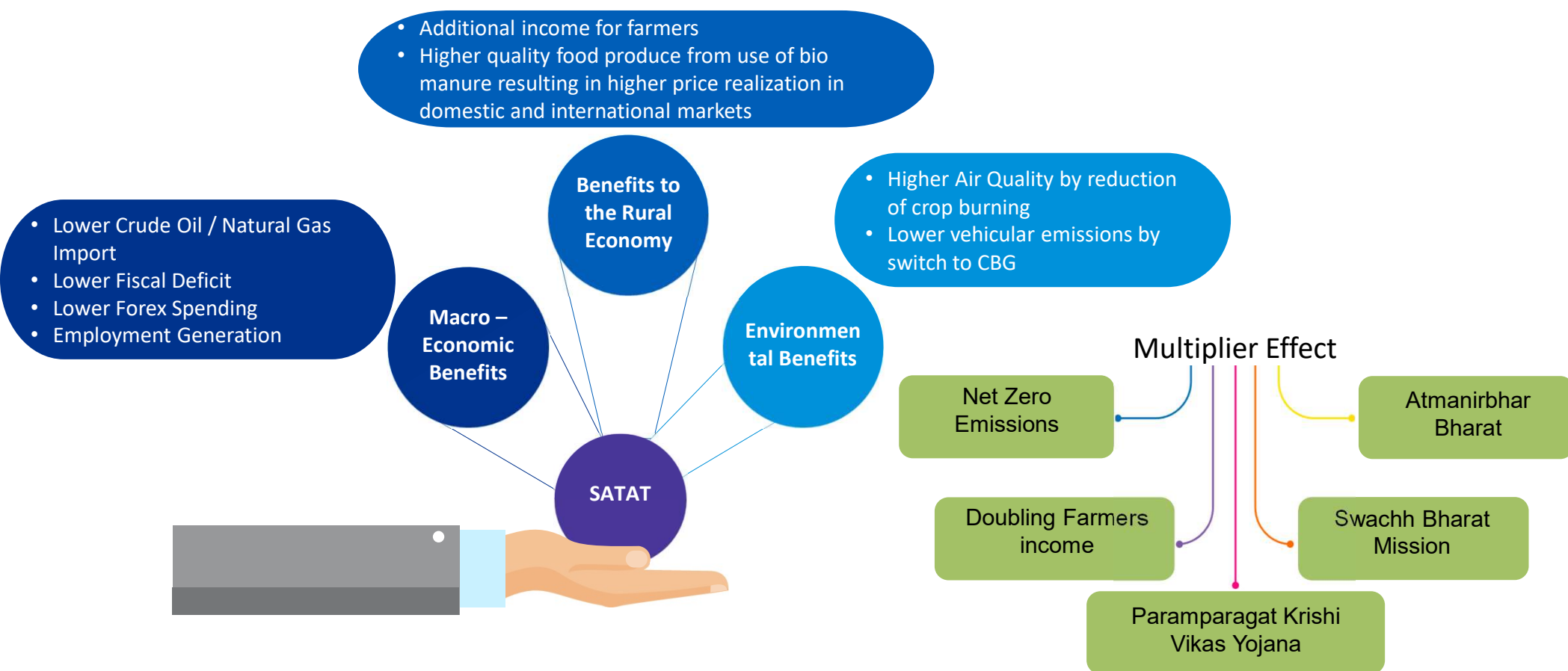


# Status of SATAT initiative

<b>Industry</b>	
CBG Plants Commissioned:	40
CBG supply initiated through Retail Outlets:	98
<b>IndianOil</b>	
CBG Plants Commissioned:	18
CBG supply initiated through Retail Outlets:	39



# Multidimensional Impact of SATAT Scheme



SATAT Scheme is expected to have a multidimensional impact on India's overall economy, rural economy in particular and the environment

# CBG Plants

**IOT Biogas, Namakkal; Press Mud / Chicken Litter**



**Spectrum, Rohtak; Press Mud**



**Clarus, Sangli; Press Mud**



**Indian Potash, Muzaffarnagar  
Press Mud**





## Chicken litter based CBG Plant: Solika Energy Pvt. Ltd



CBG Plant of M/s Solika Energy Pvt. Ltd. at Shadnagar, Hyderabad, Telangana. The Plant has designed capacity of processing 60 Tons per day Chicken Litter which produces 2 tons of CBG per day and 10 tons of Solid Fermented Organic Manure.

# CBG Plants

*Bleach Energy, Anand*



*Green Earth Biogas Pvt. Ltd., Surendranagar*



*Glow Green Biotech, Surat*





# Verbio – Asia's Largest CBG Plant

**Plant: Verbio India Pvt. Ltd., Sangrur**

Feedstock: 300 TPD Paddy Straw

Capacity: 33 TPD CBG

Commissioned: April 2022



- **Favourable Government Support**
- Abundance availability of Feedstock for CBG production – **estimated CBG potential 0.6 MMTPA**
- Upcoming Gas Pipelines **‘Pradhan Mantri Urja Ganga project’** connecting – Haldia, Kolkata, Hoogly, Durgapur
- **41 existing CNG stations** (as on 31.10.22) and counting...
- **Upcoming CGDs** - East Midnapore, West Midnapore, Jhargram, Hoogly, Howrah, Nadia, North and South 24 Parganas, Purulia, Bankura, Darjeeling, Jalpaiguri, Burdwan, Birbhum, Murshidabad, Malda and many more

## Potential CBG Feedstock: Agriculture residue

### Agriculture residue

- Residue generation: 35.9 MMTPA
- Surplus: 4.3 MMTPA
- **CBG Potential: 0.43 MMTPA**
  - If entire quantity is made available for CBG





## CBG Feedstock: Animal waste

Cattle & buffalo population – 19 million

Poultry population – 77 million



CBG Potential 5.64 TMT per annum



## CBG Feedstock: Municipal Waste



S No	Major Cities	Total MSW (TMTPA)	Estt. Organic Waste (TMTPA)	CBG Potential (TMTPA)
1	New Town Kolkata	1340	670	33.49
2	Durgapur	102	51	2.56
3	Asansol	76	38	1.89
4	Medinipur	66	33	1.64

**Total CBG potential from MSW : 40 TMTPA**

# Benefits of Compressed Bio Gas Production under SATAT



## Reduction in import dependence

- Import of Natural Gas in 2021-22<sup>1</sup>
  - LNG import: 24.2 MMT (USD 13.7billion)
  - **Potential of reduction of import through CBG Production: 15 MMTPA (62% of LNG)**
- Import of Chemical Fertilizer 2020-21<sup>2</sup>
  - Urea imports: 9.8 MMT (USD 2.6 Billion)
  - **Reduced through use of Organic Manure @5% initially (USD 0.13 billion)**

## Employment generation

- Direct manpower/CBG Plant: 25
- Indirect employment: 50

## Swachh Bharat

- Reduction in Crop Burning
  - 1 ton of paddy burned emits 1.5 ton CO<sub>2</sub>, 199 kg ash, 60 kg CO, 2 kg SO<sub>2</sub> & 3 kg Particulate Matter<sup>3</sup>
  - **1 ton of paddy straw can produce 100 kg CBG & 500 kg Manure**
- Utilization of Cattle Dung, Press Mud, Municipal Solid Waste & Food Waste

## Climate Change Mitigation

- 1 ton CBG reduces ~3 ton CO<sub>2</sub>e emission

1- Petroleum Planning & Analysis Cell  
2 - Ministry of Chemical & Fertilizer  
3- [http://www.iari.res.in/files/Important\\_Publications-2012-13.pdf](http://www.iari.res.in/files/Important_Publications-2012-13.pdf)

Brand name of CBG in IndianOil



IndianOil

IndiGreen

Compressed Bio-Gas

100% Green Auto Fuel

# KNOW MORE ABOUT SATAT

## Web portal on SATAT scheme

- Details on SATAT scheme documents
- Financing of CBG Plants
- Technology providers
- Enablers
- Government Policies
- FAQs
- Manure marketing
- Monitoring of existing LOI holders



Learn More ▾



### Why Satat?

SATAT would help the country to meet its growing energy demand in an eco-friendly manner, reduce pollution and contribute to climate goals.

[Click to know more about SATAT](#)



### Let's Know CBG

CBG is a greener fuel produced from waste/ biomass sources with properties similar to CNG and that can be used for automotive, industrial and commercial uses.

[Click to know more about CBG](#)



### Enablers of Scheme

CBG projects under SATAT is categorized under Priority Sector Lending and eligible for subsidy by MNRE, besides facilitated by OMCS.

[Click to know more about Enablers](#)



*Thank You*



Net - Zero  
Emissions

