“Challenges & Opportunities in mainstreaming Indian Bio Methane (Compressed Biogas) Program – SATAT”

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CBG or Bio Methane – Indian Initiative

- World's first Bio gas plant was set up in 1893 at Matunga in Mumbai
- Since 1980's over 4.5 million small home and community Biogas plants set up in India to meet cooking and heating needs of rural homes mostly based on Cow dung
- Gobardhan scheme launched
- SATAT – Sustainable Alternative to affordable transportation launched in 2018 October.
- 47 Plants commissioned. Another 68 to be commissioned this year
- Target to replace 35% of total fossil gaseous fuel consumed
- Can replace 75% of imports of Natural Gas

Where do we get our feedstocks from?

Waste streams and CBG Potential

Waste/Biomass stream	Estimated waste/ Biomass generated	Bio-CNG Potential	Compost or Fermented manure
	(in MMT/annum)	(in MMT)	(in MMT)
Surplus Agri-residue	150	20	70
Spent wash/ Press mud	20	2	3
MSW	100	5	15
Sewage treatment plants		10	-
Recoverable cattle dung	1100	25	285
Total potential		**62**	**373**

SATAT- Sustainable Alternative To Affordable transportation

- 5000 commercial plants to be set up by 2025 -26
- 15 MMT of CBG + 90MMT of fermented organic Manure (FOM)
- 500 Plants to get Fiscal incentive in 2023-24
- 100 % off take guarantee by OMC's on CBG at remunerative price
- Pipe line injection of CBG – given a big push
- Priority lending by Public sector banks
- 3300 LOI signed 2400 MOU signed – 40 Commissioned
- Most of the 2 and 3 wheelers will run on CBG or E100 after 2025 besides already existing CNG vehicles

Challenges and evolving Eco system

- Streamlining the Feedstock Supply Chains. Different feedstocks have different challenges
- Off take guarantee implementation – Pipeline infrastructure seem to be the solution
- FOM offtake and creating a new narrative visa vis Chemical fertilizers – Focus on organic carbon getting back to soil
- Low cost & impact financing
- Carbon credits – accounting and rewarding mechanism
- Budgetary Provisions made for the FY 2023-24

Feedstock Supply Chain issues

- Agri residue availability is seasonal – Aggregation challenges – Narrow collection window- Availability of harvesters, rakers, bailers, Transportation and storage facilities
- No Established supply chain – Not a commodity – Not recognised as an Industry –Considered high risk business - No financing, Insurance coverage
- MSW – Segregation of organic wastes and assured supply through the year to CBG plants – Annual royalty to Municipality
- Press Mud – Sugar Industry dependent, Yields low but can be co processed with Poultry refuse
- Cattle dung – Procurement, Minimising the sand and silt
- A program to address these issues is on the anvil.

CBG Off take issues

- 2-4 TPD No issues in Marketing
- Above 4 tonnes – Transporting in cascades to R/O is a challenge – Issue gets compounded in rural areas where the Gas market is yet to develop
- CGD pipe line network is fairly okay in Large cities. Still the first mile connectivity from CBG plant to nearest pipeline – Who lays the pipeline? Who pays?
- When the pipeline has to over larger distances as in the case of rural areas the problem gets compounded
- Pricing is another issue – A clear policy on floor price would make projects bankable
- Draft Pipeline policy is circulated by MoP&NG. To spend Rs.963 Crores in 23-24 Fy to set up 2000Km of first mile pipeline

Fermented Organic Manure

- We get liquid and solid manure from CBG plants
- Moisture content quite high in solid Bio digestate even after liquid solid separation
- C:N Ratio is a major issue. Narrative has to change from NPK content to Replacement of Organic carbon in soil
- Fortification of manure or PROM could be a solution but adds on to the cost considerably
- The Chemical fertiliser Companies are not keen to market FOM
- Need for Market development assistance
- Storage facility creation and a new distribution mechanism in the vicinity of the plant – Circular economy
- MOA, MOF and dept. of drinking water & Sanitation is seized of the issue & designing a program for FOM offtake

Financing and carbon markets

- RBI guidelines recognise the sector as priority sector for lending
- Banks interest rates still high and expect 100% collateral security
- Concept of risk financing completely absent
- New financial institution which can tap into green funds across the globe and offer low cost impact financing is needed
- CBG sector being a major contributor towards achieving the Net Zero target – A carbon accounting, rewarding and marketing mechanism is needed.
- Export of Green attributes – Bilateral a Multilateral arrangements need to be established

Immediate policy interventions desired

- Agri. Residue supply chain creation with the involvement of state government
- Ensuring fair price to farmers, aggregators and CBG Industry is a challenge
- Storage infrastructure creation in rural areas where surplus biomass is available
- Streamlining the MSW segregation and supply chain to CG Industry and introduction of tipping fees instead of outward payment of Royalties
- Encourage Sugar Industry for backward integration to set up CBG plants from Press Mud and spent wash
- A central coordinating agency to be identified

300 TPD food waste to CBG plant in Pune

300 TPD Paddy Straw to 33TPD CBG plant in Punjab

CBG Storage – Branding & Marketing by IOCL

Fermented Organic Manure ready to be dispatched

Thank You