

Section 2
Policies and Incentives



**Market Opportunities
for Anaerobic
Digestion of Livestock
and Agro-Industrial
Waste in India**

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2. Current Biogas Policies and Incentives in India

India is investing in its national strategy to increase biogas production and reduce methane emissions. Beginning with the Electricity Act of 2003 which promotes generation from non-conventional sources (Government of India, 2005), the biogas strategy includes many policy initiatives, including capacity-building and public-private partnerships, which are spearheaded by different ministries. In addition to the climate benefits of biogas project development, the benefits of this strategy support India's sustainable development goals, including improving sanitation, providing affordable clean energy, and increasing jobs in the green economy.

India's nationally determined contribution as part of the Paris Agreement include a commitment to achieving 40 percent cumulative electric power installed capacity from non-fossil fuel-based energy resources by 2030, increase renewable energy capacity from 30 GW by 2016–2017 to 175 GW by 2021–2022, and increase installed capacity of biomass energy from 4.4 GW to 10 GW by 2022 (Union Environment Industry, 2015). Apart from this international commitment, India has also undertaken the Swachh Bharat Mission (Clean India Mission), which is geared toward cleaning India's cities, towns, and rural areas. The effort in rural areas, among addressing other issues, includes efforts to productively use agricultural waste and crop residues to generate biogas.

This section describes the current policies and initiatives that help promote biogas development in India.

2.1 Waste to Energy Program

The Ministry of New and Renewable Energy (MNRE) is the nodal Ministry of the Government of India for all matters related to new and renewable energy. The broad aim of MNRE is to develop and deploy new and renewable energy projects, including biogas, to help meet the energy requirements of the country. MNRE promotes the Waste to Energy Program, a national program that promotes the recovery of energy from urban, industrial, and agricultural wastes through waste-to-energy projects. The program focuses on converting municipal solid waste and agricultural waste into fuel for heating and cooking, combined heat and power, and bio-compressed natural gas (bio-CNG). MNRE has proposed financial incentives to encourage participation in these projects (EAI, 2017), including:

- Financial assistance through interest subsidies for commercial projects, capital cost for innovative demonstration projects that generate power from municipal or industrial waste and sewage treatment plants, and conducting studies on waste-to-energy projects and covering the full cost of such studies
- Incentives to the state nodal agencies for promotion, coordination, and monitoring of waste-to-energy projects
- Promotional activities including research and development, resources assessments, technology upgradation, and performance evaluations.

While there are no limitations on size of the projects, based on the capital subsidy cap for individual projects, projects are typically in the range of 1,200 to 36,000 m³ biogas/day. In July 2018, MNRE announced the continuation of the program to promote energy from urban, industrial, and agricultural waste and Central Financial Assistance for three fiscal years (2017–2018, 2018–2019, and 2019–2020). The Central Financial Assistance includes a capital subsidy of INR 1.0 crore (approximately USD 150,000) per 12,000 m³ biogas/day for biogas projects and INR 4.0 crore (USD 600,000) per 4,800 kgs of bio-CNG/day generated from 12,000 m³ biogas/day. The latter is reduced to INR 3.0 crore if bio-CNG were to be generated from an existing biogas plant. The maximum for any project is INR 10.0 crore (USD 1.5 million).

India's Waste to Energy Program

<https://mnre.gov.in/waste-energy>

https://mnre.gov.in/file-manager/UserFiles/biofuel_policy.pdf

2.2 Sustainable Alternative Toward Affordable Transportation (SATAT) Initiative

In October 2018, the Union Minister for Petroleum and Natural Gas announced plans to develop bio-CNG plants (Government of India, 2018d). The SATAT Initiative is geared toward reducing India's dependence on oil and gas imports by producing bio-CNG using agricultural residues, cattle dung, sugarcane press mud, municipal solid waste, and sewage treatment plant waste. The Ministry of Petroleum and Natural Gas (MoPNG) anticipates development of 5,000 bio-CNG plants in five years. As part of the initiative, MoPNG guarantees offtake of biogas by publicly owned oil and gas companies and plans to invest INR 175,000 crore (about USD 24 billion) in infrastructure development for bio-CNG distribution as automotive fuel. There is a particular focus on developing bio-CNG using paddy straw with a locational focus in the northern states of Punjab, Haryana, Uttar Pradesh, and Bihar, where 40 million tons of paddy straw is burned every year, causing major environmental and health problems.

This initiative is being implemented in coordination with the public sector undertakings (PSUs) marketing oil and gas, including Indian Oil Corporation, Bharat Petroleum, and Hindustan Petroleum. These PSUs requested letters of intent, in early 2019, from applicants (entrepreneurs, sole proprietorships, partnerships, limited liability partnerships, companies, cooperative societies, and technology providers) to supply bio-CNG. The PSUs assure a purchase price of INR 46 crore per kg of bio-CNG. These facilities are expected to be large-scale projects that can consistently provide bio-CNG as a transportation fuel.

2.3 National Policy on Biofuels

The National Policy on Biofuels (Government of India, Undated), approved on December 24, 2009, aims to ensure that a minimum level of biofuels is available in the market to meet demand at any given time. The policy seeks to elevate biofuels into the mainstream to supplement gasoline and diesel in transportation and stationary applications. This will help ensure energy security, mitigate climate change, create new employment opportunities, and lead to environmentally sustainable development (USDA Foreign Agricultural Service, 2017).

The Government of India announced in 2018 that it proposes to reduce its dependence on crude oil purchases by ten percentage points by 2022. It also aims to achieve 5 percent blending of biodiesel in diesel by 2030 by increasing domestic production of biodiesel, developing new feedstocks and conversion technologies, and creating a suitable environment for biofuels (Government of India, 2018c). This policy includes bio-CNG as an "advanced biofuel" (along with cellulosic ethanol, bio-methanol, drop-in fuels, and algae-based fuels). (Bio-CNG, a renewable form of energy produced from agricultural and food waste, is a purified form of biogas with over 95 percent pure methane gas.) The National Policy on Biofuels includes provisions for financing as well as financial and fiscal incentives.

India's National Policy on Biofuels

https://mnre.gov.in/file-manager/UserFiles/biofuel_policy.pdf

2.4 Galvanizing Organic Bio-Agro Resources (GOBAR)-DHAN

Livestock waste management in India can result in air pollution and associated health impacts when cattle manure is dried and used as a cooking fuel. Poor sanitation practices from manure discarded in open spaces results in land and water pollution and health impacts due to pathogens. GOBAR-DHAN is an effort to create clean villages in India by using livestock manure and solid agricultural waste to produce biogas or bio-CNG.

This effort, led by the Ministry of Drinking Water and Sanitation (MDWS), is an extension of the Swachh Bharat Mission. It aims to help villages manage their bio-waste and educate people about the importance of safe and efficient bio-agro waste management. MDWS aims to establish 700 small scale and community scale bio-agro waste management projects in about 350 Districts from 2018 to 2019. The scheme will be implemented in two phases, with half of the projects in the first half of the year and the remainder in the second half (Government of India, 2018a). In addition to providing energy and improving sanitation, GOBAR-DHAN will benefit villages in several ways, including:

- Providing organic fertilizer for farmers
- Reducing insect-borne diseases, including malaria, by decreasing waste stagnation
- Improving indoor air quality by reducing reliance on dung cakes and firewood
- Creating green jobs such as waste collection and transportation, plant operation and maintenance, and biogas distribution
- Reducing the burden of firewood and dung cake collection on women.

States can choose to develop as many viable projects as possible to achieve effective bio-waste management in their villages. Funding under the initiative will be based on the number of households in each Gram Panchayat (village or small town with local government) and the chosen model of operation. Villages with up to 150 households will be eligible for a maximum of INR 3.5 lakh, villages of 300 households will be eligible for up to INR 6 lakh, villages up to 500 households will be eligible for up to INR 7.5 lakh, and villages of 500 or more households will be eligible for up to INR 10 lakh. Villages cannot receive GOBAR-DHAN funding if they have used funding for other solid and liquid waste management projects under the Swachh Bharat Mission.

The GOBAR-DHAN Initiative

<http://drs.jk.gov.in/pdf/GOBAR%20DHAN%20guidelines.pdf>

2.5 National Biogas and Manure Management Program (NBMMP)

NBMMP, first implemented in 1981 by MNRE, promotes the use of biogas plants based on cattle manure and other organic waste. NBMMP has helped establish small-scale biogas plants that families in rural areas can use to obtain cooking fuel and organic fertilizer. In 2018, MNRE announced that it aimed to produce at least 255,000 (2.55 lakh) biogas plants by the end of 2020 in the capacity range of 1 m³ to 24 m³ per day (Government of India, 2018b).

State nodal departments and agencies, as well as the Khadi and Village Industries Commission (KVIC), implement the program. These organizations also employ their state- or district-level institutions, and trained turn-key workers and rural entrepreneurs to help implement the program. Additionally, the local governments (Panchayats) help select beneficiaries and monitor the program. Thirteen Biogas Development and Training Centers have been established in various universities, Indian Institutes of Technology, and other technical institutes to provide training and technical support (Venkateswara and Sundar Baral, 2013).

India's National Biogas and Manure Management Program

<https://mnre.gov.in/biogas>

2.6 Electricity Act

The Electricity Act of 2003 (Dhussa, 2008) helps State Electricity Regulatory Commissions promote co-generation and generation of electricity from non-conventional sources (Government of India, 2005). It includes provisions for government support of biogas in India. These provisions include open access to the grid for renewable sources of power, preferential tariffs by state regulators, targets for renewable energy, and decontrolled captive generation.

India's National Electricity Policy

<https://powermin.nic.in/en/content/national-electricity-policy>

2.7 Companies Act of 2013

The Companies Act was originally passed by the Parliament of India in 1956 and is implemented by the Indian Ministry of Corporate Affairs. Under the Companies Act of 2013, companies having a certain level of profits are directed to spend 2 percent of their average annual net profit on Corporate Social Responsibility (CSR)

activities. The profit thresholds include a net worth greater than rupees 500 crore (72.7 million USD), a turnover of rupees 1,000 crore (145.4 million USD), or an annual net profit of rupees 5 crore (727,300 USD) or more (Government of India, 2013; PwC India, 2013). Estimates indicate that a fair share of the available CSR funding of about INR 220 billion (USD 3.5 billion) annually will be invested in environment initiatives. This funding may be used to support biogas projects.

India's Companies Act of 2013

<http://www.mca.gov.in/Ministry/pdf/CompaniesAct2013.pdf>

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