

BIOMETHANE IN THE DISTRIBUTION GRID – THE CASE OF CEGÁS

Biogas Research Center Conference – Linköping University

International Outlook

June 4, 2020

AGENDA

CEGÁS and the Biogas Production

Renewable Natural Gas Distribution

Natural Gas Consumption

Policy Drivers and Barriers to Growth

Proposals for Development

CEGÁS is the local concessionary for gas distribution in the State of Ceará, Brazil

CEGÁS Highlights



SHAREHOLDERS



GOVERNO DO
ESTADO DO CEARÁ
Secretaria da Infraestrutura



GASPETRO



SELECTED INDICATORS – 2019

Gross Sales (US\$ Million)*	176
Nº of Direct Employees	161
Nº of users	20,329
Ex-Thermal volume (m ³ /day)	549,829
Grid extension (km)	520

* Using average exchange rate 2019, US\$ 1.00 = R\$ 3.9451 (IPEADATA)

Source: CEGÁS

Cegás became, in 2018, the first gas company in Brazil to acquire and inject renewable natural gas in its grid

CEGÁS and the Production of Biogas



Fortaleza Metropolitan Region Unit (CE) – Remarks

- 75,000 m³/day** of Renewable Natural Gas (RNG or biomethane)
- Reduction** of emissions equivalent to 610,000 tons of CO₂ per year
- Issuance of 90 thousand CBIOS** (Brazilian credits of carbon) expected for 2020
- 23 km** polyamide pipeline
- US\$ 6.9 million** investment* – CEGÁS
- US\$ 31.3 million** investment* – GNR Fortaleza
- Integration** to the existing gas distribution grid



ASMOC Landfill
(Ecofor)



Biogas Collection and
Purification Unit
(GNR Fortaleza)



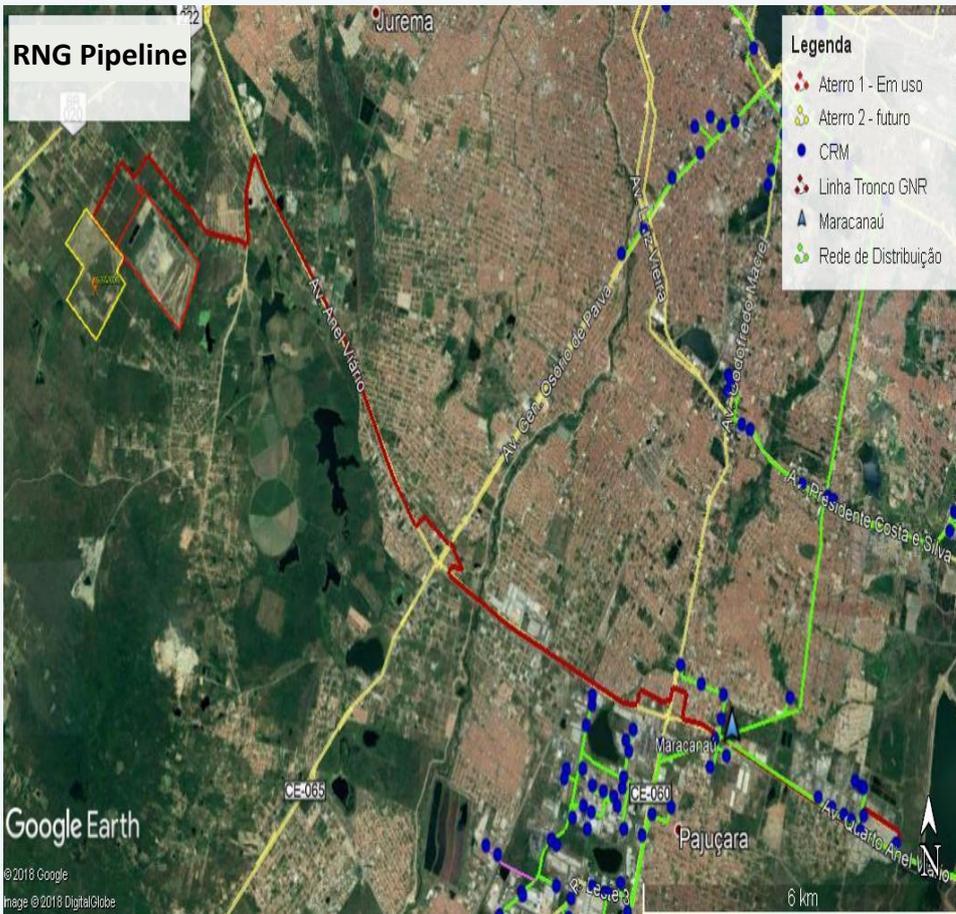
Custody Transfer Station
(CEGÁS)

* Using average exchange rate 2017, US\$ 1.00 = R\$ 3.1920 (IPEADATA)

Source: CEGÁS; Ecometano; <https://diariodonordeste.verdesmares.com.br/editorias/negocios/usina-do-ce-deve-captar-r-3-6-mi-em-credito-de-descarbonizacao-1.2192306>

Currently, Cegás has one of the highest percentages of renewable natural gas distributed in the world

Distribution of Renewable Natural Gas (RNG)



Indicators	Till Apr	Till Apr	Till Apr
	2018	2019	2020
Vol. RNG (daily average) – m³/day	25,817	70,251	73,620
Total Volume Distributed (Ex-thermal) – m³/day	508,646	554,648	455,468
% RNG (Ex-thermal)	5%	13%	16%
Max. % RNG Mensal Daily	9% 18%	13% 21%	28% 53%
Min. % RNG Monthly Daily	2% 0%	12% 0%	13% 10%
Non-operational hours (%)	35%	7%	1%
Availability (% Contracted Daily Quantity)	48%	94%	98%

Source: CEGÁS



The renewable natural gas, mixed with conventional gas, reaches several segments of the market, adding value to the final consumers

Consumption of Natural Gas – 2019



VEHICULAR

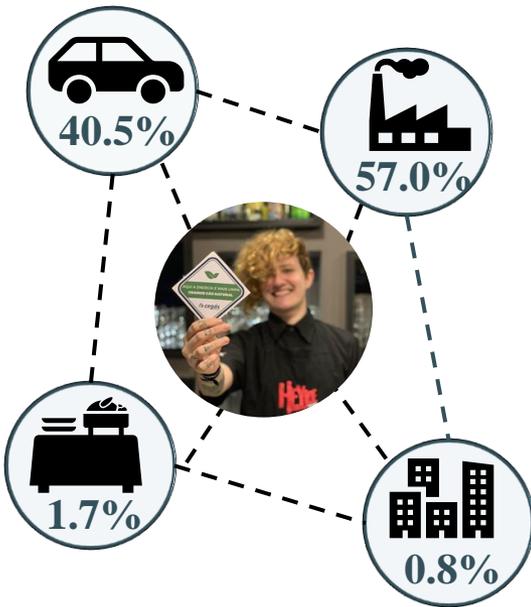
- 59 gas stations
- 223.1 thousand m³/day
- 54,145 light vehicles on NG



COMMERCIAL

- 459 users
- 9.2 thousand m³/day

Share of ex-thermal volume (%)



INDUSTRIAL

- 124 plants
- 313.2 thousand m³/day



RESIDENTIAL

- 20,325 households
- 4.3 thousand m³/day

Source: CEGÁS

Despite recent events, some barriers still hamper the spread of production and use of biogas in Brazil

Policy Drivers and Barriers

DRIVERS

- New national carbon credit law (Renovabio 2018)
- Offer of tax breaks by some state governments (e.g. Ceará)
- Offer of credit lines by government-owned banks
- Evolving regulatory environment (nation and state-wide)



BARRIERS

- Low dissemination and access to existing technological solutions
- High costs of imported technologies and limited local know-how
- Low awareness of the biogas potential among producers, investors and users
- Very strict norms of biomethane production for grid injection
- Inadequate collection and disposal of solid waste (mostly in open dumping grounds, 27% of cities in the country, 63% in Ceará*)
- Low coverage of sewage treatment (46% of volume in Brazil, 39% in Ceará**)
- Governance and scale of projects
- Small fleet of heavy vehicles running on NG (some trucks, no busses)

* Abrelpe (2018) e SEMA (2020)

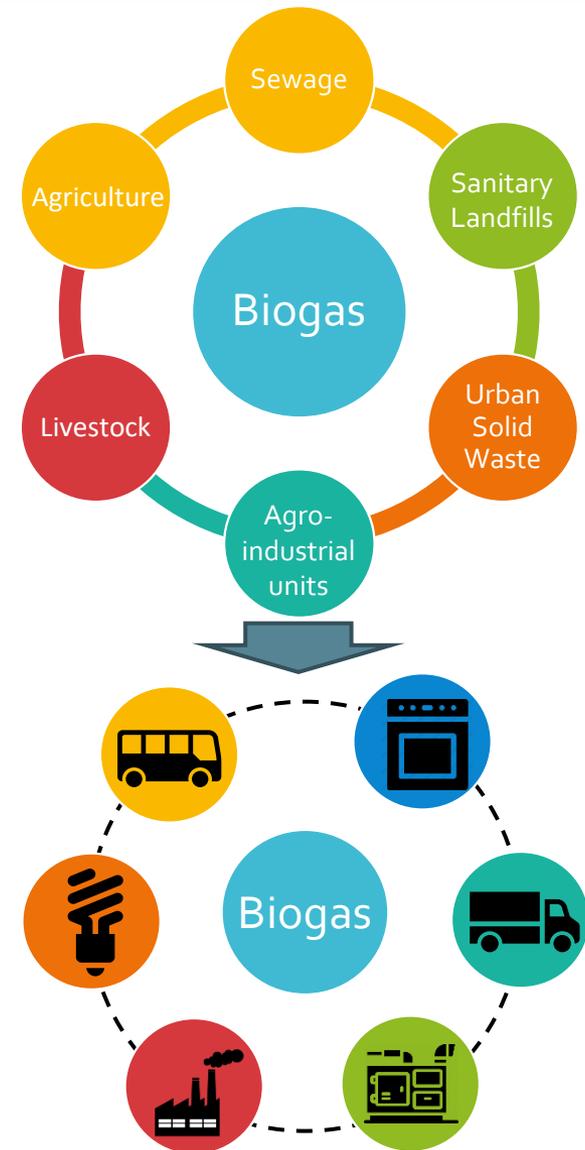
** SNIS (2018)

Source: CEGÁS; ABIOGÁS (2015); PROBIOGÁS (2016); SEBRAE RS (2018)

Some actions along the biogas chain are required to spur growth in Brazil

Proposals for the Development of the Sector in Brazil

- Incentive to R&D on biogas
- Development of local suppliers of equipment and specialized services
- Mapping of the biogas production potential and use
- Promotion of the market potential to investors
- Development of feasible governance options for new projects by source
- Reduction of bureaucracy in the licencing of production projects
- Acceleration of the registration of new equipment running on NG (for instance, heavy vehicles)
- Stimulus to the development of distributed power generation
- Continued expansion of the gas distribution grid





Thank you!

Companhia de Gás do Ceará

Av. Washington Soares, 6475 - José de Alencar

Fortaleza - CE - CEP: 60830 – 005

Fone: (85) 3266.6900 / Call Center: 0800 2800.069

E-mail: hugo.figueiredo@cegas.com.br

