



## Details on fugitive methane emissions

**Fugitive natural gas emissions** (mainly methane) from the gas infrastructures controlled and operated by ENGIE are one of the Group's sources of greenhouse gas (GHG) emissions because of the high warming power of methane. Even if these methane emissions (converted into tons of CO<sub>2</sub> equivalent) represent a small part (3 to 4%) of the Group's total direct GHG emissions, they are the first source of direct GHG emissions for the Group's activities as a distribution network operator, storage facility or LNG terminal operator, and the second source for its activities as a transmission network operator, just after the emissions related to the consumption of gas as a driving force for the transmission network.

Methane releases generally occur during operations or maintenance (e.g. venting of a pressure-reducing station), more rarely during commissioning or shutdown operations (e.g. purging of a pipeline), and very exceptionally during operating incidents (e.g. following damage to a pipeline caused by the work of a third-party operator). The other minor sources of GHG emissions from gas infrastructure managers are direct emissions from the entities' vehicle fleets (scope 1), indirect emissions related to energy consumption in buildings (scope 2) and those related to the purchase of goods and services (scope 3).

The following tables show the GHG and methane emissions of each of the Group's infrastructure activities.

Absolute GHG emissions	unit	2018	2019	2020
Transmission	t CO <sub>2</sub> eq	682 187	639 091	490 781
Distribution		1 248 192	1 305 062	1 147 839
Storage		160 926	166 022	148 039
LNG terminal		194 541	113 519	118 998
<b>Total Group gas infrastructures</b>		<b>2 285 846</b>	<b>2 223 694</b>	<b>1 905 656</b>

Absolute methane emissions	unité	2018	2019	2020
Transmission	t CO <sub>2</sub> eq	401 987	305 097	237 814
Distribution		1 221 974	1 278 578	1 123 286
Storage		73 467	80 678	78 678
LNG terminal		132 764	62 521	76 577
<b>Total Group gas infrastructures</b>		<b>1 830 192</b>	<b>1 726 874</b>	<b>1 516 355</b>

The absolute methane emissions per unit of activity for each type of gas infrastructure illustrate the unit performance of each activity in this area expressed in g CO<sub>2</sub> /kWh :

Relative methane emissions	unit	2018	2019	2020
Transmission	g CO <sub>2</sub> eq / kWh transported	1,1441	0,982	0,8216
Distribution	g CO <sub>2</sub> eq / kWh distributed	3,1675	3,3781	3,2156
Storage	g CO <sub>2</sub> eq / kWh stored	0,8551	0,9183	0,7862
LNG terminal	g CO <sub>2</sub> eq / kWh regasified	1,8351	0,8303	0,8882



or in % of energy, assuming a conversion factor of 15.13 kWh/kg for methane:

Relative methane emissions	unit	2018	2019	2020
Transmission	%	0,031%	0,022%	0,019%
Distribution		0,138%	0,147%	0,140%
Storage		0,018%	0,021%	0,020%
LNG terminal		0,182%	0,115%	0,172%

Gas infrastructure operators carry out an annual assessment of their GHG emissions - including fugitive methane emissions - using precise, transparent and increasingly shared methods. Most have committed to reduction plans not only to improve their environmental impact, but also with a safety objective, for example by modernizing the operating methods of their facilities to avoid or limit methane releases and prevent damage to structures that may cause accidental leaks.

In France, the gas transmission operator GRTgaz, a 75%-owned subsidiary of ENGIE, has achieved its objective of dividing its methane emissions by three between 2016 and 2020. Beyond 2020, GRTgaz has set a target of reducing all its GHG emissions by 20% in 2024 compared to 2019. It has also committed to avoiding all methane emissions during maintenance operations and to continuing its efforts to report fugitive methane emissions in accordance with the recommendations of the *Methane Guiding Principles*.

For more information, see GRTgaz's DPEF 2020:

<https://www.grtgaz.com/sites/default/files/2021-03/Rapport-DPEF-GRTgaz.pdf>

In France, the gas distribution operator GRDF, a fully-owned subsidiary of ENGIE, has committed to a 30% reduction in all of its GHG emissions in 2030 compared to 2009, bearing in mind that these GHG emissions, 72% of which are methane emissions, have already fallen by 8.2% in 2019 compared to 2009.

For more information, see the GRDF website:

<https://www.grdf.fr/institutionnel/actualite/publications/bilan-des-emissions-de-gaz-a-effet-de-serre>

The latest GRTgaz and GRDF 2020 greenhouse gas emission balances (based on 2019 data) are available on the ADEME database at the following address: <https://www.bilans-ges.ademe.fr/fr/bilansenligne/bilans/index/siGras/0>

Finally, in 2020, the four French gas infrastructure managers of the ENGIE Group (GRTgaz, GRDF, Storengy and Elengy) joined the *Oil & Gas Methane partnership 2.0* initiative managed by the United Nations Environment Program, which aims to minimize fugitive methane emissions and to share an internationally recognized reporting framework in this area. For more information, please visit: <http://ogmpartnership.com/>