

## CONTENTS

<b>About the author.....</b>	<b>1</b>
<b>Preface.....</b>	<b>3</b>
<b>Executive Summary .....</b>	<b>4</b>
<b>1. The growth in global RNG production is accelerating .....</b>	<b>6</b>
1.1 Global production reached 6 bcm in 2021 and above 7 bcm in 2022.....	6
1.2 RNG offers a threefold GHG emissions mitigation effect and multiple other key benefits.....	8
<b>2. Government push: security of supply, CO<sub>2</sub> and methane emissions reduction .....</b>	<b>10</b>
2.1 Security of gas supply at the top of the global policy agenda.....	10
Elevated natural gas prices and security of supply issues have highlighted the value of RNG.....	10
European RNG production to surge to partly displace Russian natural gas imports .....	11
2.2 Acceleration of decarbonization policies around the world .....	14
2.3 RNG is crucial to deliver the Global Methane Pledge .....	15
<b>3. Market push: major trends shaping the sector.....</b>	<b>18</b>
3.1 RNG is in demand by a wider group of end-users all over the world.....	18
3.2 The use of RNG as a vehicle fuel is leading development across the world .....	21
Growing demand by fleet owners and shipping companies is driving RNG demand growth.....	21
The European bio-LNG market is surging.....	24
3.3 Adoption of green hydrogen production from RNG is gaining traction.....	25
3.4 Energy majors are accelerating their participation in the biomethane sector .....	26
3.5 Private capital is flowing into the RNG sector .....	29
3.6 The sector is constantly innovating.....	31
<b>4. Europe is leading the global RNG sector .....</b>	<b>33</b>
4.1 Surging RNG production .....	33
4.2 The dynamism of national markets across Europe has been quite heterogeneous.....	34
4.3 Due to its versatility, RNG has a wide range of applications in Europe.....	35
4.4 Cross-border trade: first standardized trades.....	36
<b>Annex: Focus on selected European RNG markets .....</b>	<b>38</b>
Denmark .....	38
France .....	38
Germany.....	40
Italy.....	41
Netherlands.....	42
Spain .....	43
Sweden .....	44
<b>5. North America: Robust support will drive impressive growth.....</b>	<b>46</b>
5.1 United States: The Inflation Reduction Act is further accelerating growth in the sector.....	46
5.2 Canada: Future growth driven by utility demand and Canada’s CFS .....	50
<b>6. China: The right time to vigorously develop bio-natural gas .....</b>	<b>53</b>
<b>7. India: Additional public support will propel bio-CNG forward.....</b>	<b>57</b>
<b>8. Brazil: Growing interest of private and public entities in the RNG sector .....</b>	<b>60</b>
<b>Conclusion: Massive growth by 2030 and beyond.....</b>	<b>63</b>
<b>Main References .....</b>	<b>65</b>
<b>Abbreviations.....</b>	<b>68</b>
<b>List of Figures, Tables and Boxes .....</b>	<b>70</b>

## PREFACE

CEDIGAZ published a comprehensive report on global biomethane (also known as RNG) in 2019, together with an extensive database on biogas upgrading facilities around the world. Annual reports and databases update the 2019 report.

This 2023 annual report focuses on recent trends in global and regional biomethane markets in 2021 and 2022.

The associated database includes data by country on RNG production, number of biogas upgrading facilities and their capacity. It includes data for 34 countries from 2010 to 2021.