



Biomethane Report

Market Intelligence

December 2022

Competitive Landscape

biogasworld.com

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About BiogasWorld

BiogasWorld is a business generation network and project support platform, connecting the suppliers of products and services with project developers. We accelerate the biogas and biomethane industry worldwide.

With the experience of working with hundreds of suppliers and collaborating to over 50 biogas and biomethane (RNG) projects in North America, BiogasWorld offers to project developers a wide range of services to help them reduce the cost and duration of their project implementation.

For more details, feel free to contact us at info@biogasworld.com.



Project Leads

Access public and private opportunities for your business; find funding and grant opportunities for your projects.



Market Intelligence

Support your business development efforts and grow your business by getting access to market intelligence and tools.



Online Promotion

Promote your business in biogas and biomethane industry and generate business opportunities through our online platform.

Upgrading Market

In recent years, the biogas upgrading market has been in strong development phase with many companies on the market to offer their solutions. The figure below presents the major players (in alphabetical order).

Figure 1. Biogas Upgrading Suppliers

Water Scrubbing	PSA	Membrane Separation	Chemical Scrubbing	Cryo
<ul style="list-style-type: none"> • Chaumeca • Econet • Greenlane • Malmberg 	<ul style="list-style-type: none"> • Air Liquide • Carbotech • ETW • Greenlane • Guild Associates • Mahler AGS • NeoZeo • Quadrogen • Sysadvance • Xebec 	<ul style="list-style-type: none"> • AB Energy • AgriKomp • Air Liquide • Arol Energy • Axiom • Bimeo Solutions • Bright Renewables • DMT • Eisenmann • EnviTec Biogas • Galileo Technologies • Gazpack • Greenlane • Hitachi Zosen INOVA • Honeywell • Pentair • Prodeval • PyroGreen Gas • Unconventional Gas Solutions (UGS) • Unison Solutions • Veolia • Weltec Biopower 	<ul style="list-style-type: none"> • Ammongas • Bilfinger • Carbonoro • Greenmac* • Hitachi Zosen INOVA • Honeywell • Morrow Renewables • Schwelm • Wartsila 	<ul style="list-style-type: none"> • CryoPur • GirmGreen • Gasrec • Waga Energy

*As of 2021, Greenmac is part of Bright Renewables

It is important to note that due to limits in data acquisition, incomplete public information and some private data, the study may analyze fewer projects than are actually in operation in Europe and the North America. BiogasWorld conservatively estimates that only 65-70% of existing plants are analyzed in this section. To have a full picture of the European market, BiogasWorld suggests additional market study.

The current competitive analysis is based on information on more than 1,700 upgrading units:

- 241 plants in the North America
- 1,416 plants in Europe
- 42 in Asia, Africa, Oceania, and South America

The data for Asia, Africa and South America is mentioned with the sole aim to show the world presence of each upgrading technology supplier.

Graphs below represent the technology share based on the number of operational units (Figure 2) and installed capacity (Figure 3).

Figure 2. Share of Analyzed Upgrading Technology Suppliers, Based on Number of Units

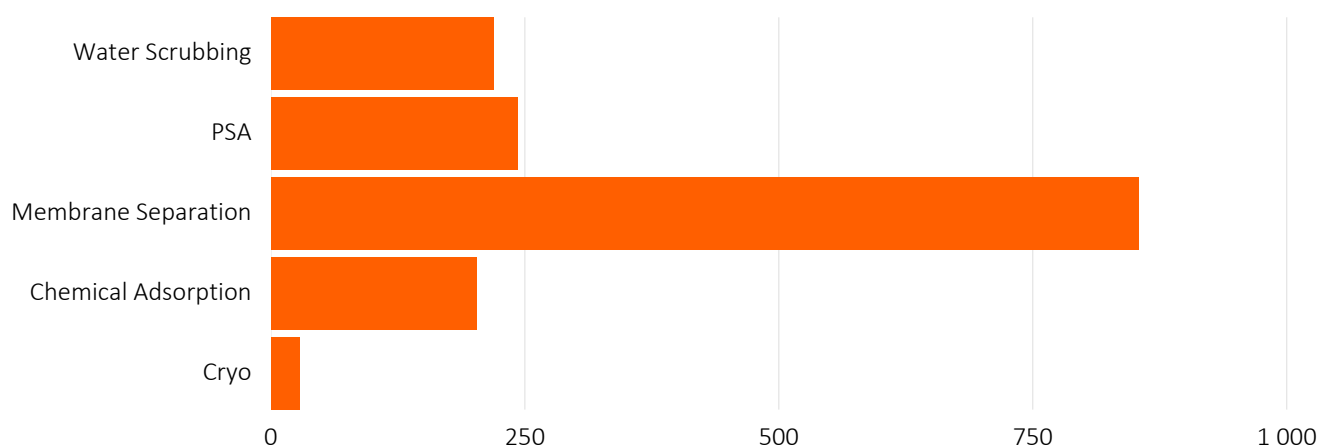
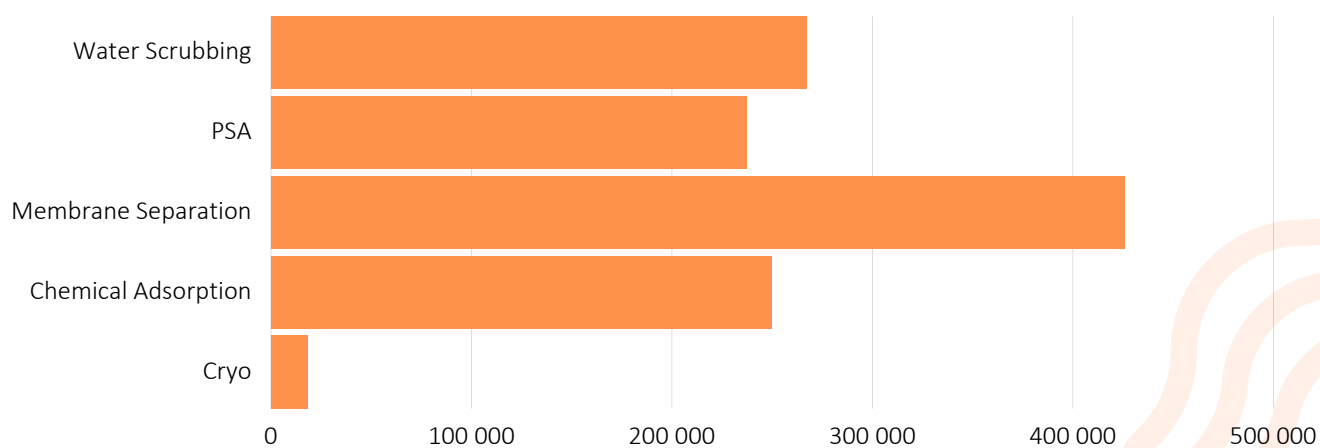


Figure 3. Share of Analyzed Upgrading Technology Suppliers, Based on Installed Capacity (m3/hr)

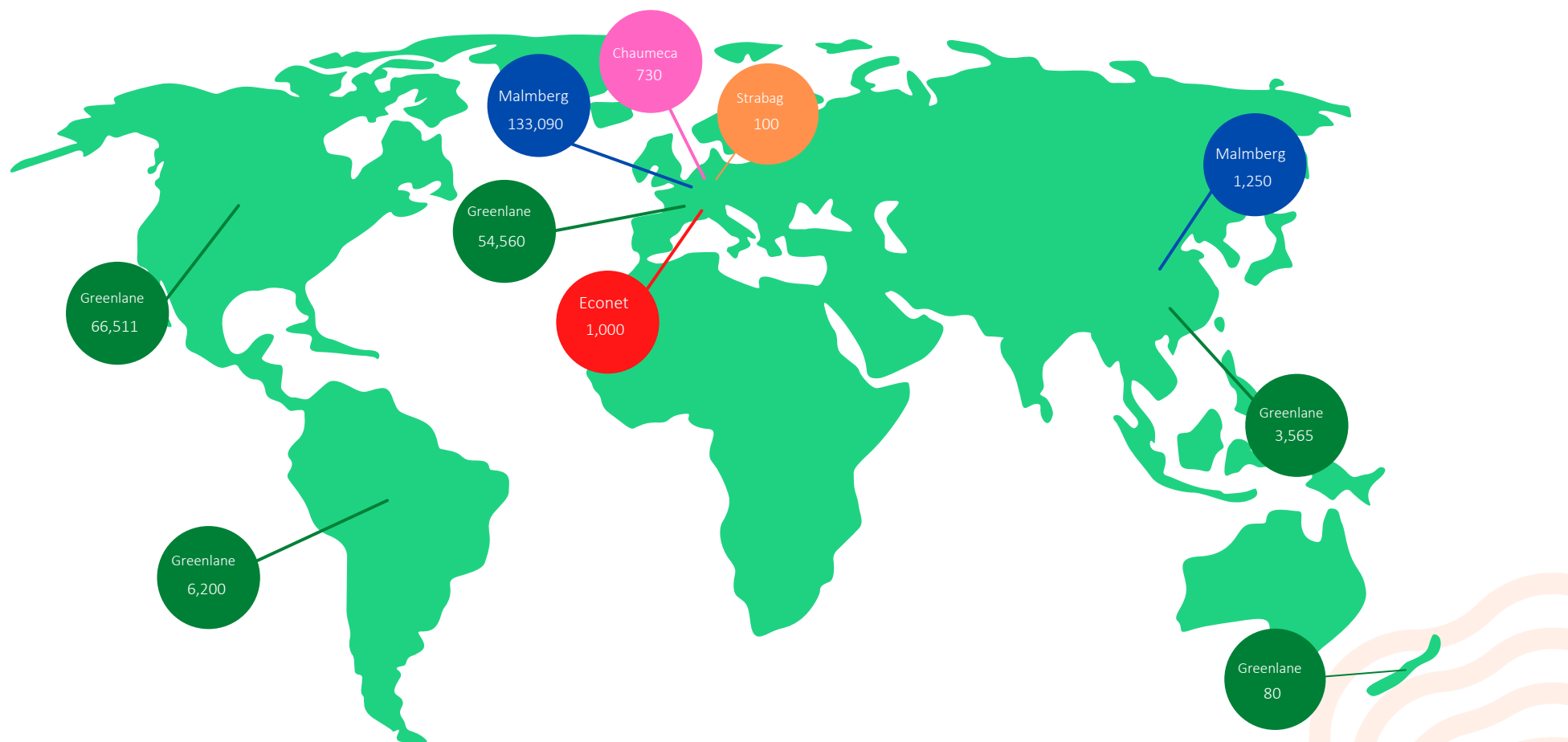


Water Scrubbing

Major Suppliers - Water Scrubbing

COMPANY	Number of plants in operation	Capacity, plants in operation, m3/hr	Installed capacity during last 3 years (2020-2022), m3/hr	Number of plants under construction (2023-2024)	Capacity, under construction, m3/hr
CHAUMECA	5	730	N/A	N/A	N/A
ECONET	3	1,000	N/A	N/A	N/A
GREENLANE	91	130,916	20,751	N/A	N/A
MALMBERG	119	134,340	11,727	N/A	N/A
STRABAG	1	100	N/A	N/A	N/A

Figure 4. Presence of Water Scrubbing Suppliers, Installed Capacity of Units in Operation (m3/hr)



PSA

Major Suppliers - PSA

COMPANY	Number of plants in operation	Capacity, plants in operation, m3/hr	Installed capacity during last 3 years (2020-2022), m3/hr	Number of plants under construction (2023-2024)	Capacity, under construction, m3/hr
AIR LIQUIDE	1	22,000	N/A	N/A	N/A
BIOFERM	8	8,731	2,277	N/A	N/A
CARBOTECH	76	70,644	N/A	N/A	N/A
ETW	13	10,161	6,450	N/A	N/A
GREENLANE	8	8,240	8,240	14	23,000
GUILD ASSOCIATES	8	20,600	570	N/A	N/A
STRABAG	1	500	N/A	N/A	N/A
SYSADVANCE	7	3,405	740	N/A	N/A
XEBEC	105	69,509	16,639	N/A	N/A

Figure 5. Presence of PSA suppliers, Installed Capacity of Units in Operation (m3/hr)



Membrane Separation

Major Suppliers - Membrane Separation

COMPANY	Number of plants in operation	Capacity, plants in operation, m3/hr	Installed capacity during last 3 years (2020-2022), m3/hr	Number of plants under construction (2023-2024)	Capacity, under construction, m3/hr
AB ENERGY	1	1000	1000	N/A	N/A
AGRIKOMP	32	5,136	4,851	4	690
AIR LIQUIDE	33	101,406	N/A	N/A	N/A
AROL ENERGY	41	7,370	5,960	41	9,190
AXIOM	12	2,220	120	N/A	N/A
BIMEO SOLUTIONS	N/A	N/A	N/A	N/A	N/A
BRIGHT RENEWABLES	137	50,229	34,510	16	16,410
CLARKE ENERGY	3	2,880	2,800	N/A	N/A
DMT	66	47,179	27,121	N/A	N/A
EISENMANN	3	425	N/A	N/A	N/A
ENVITEC	58	31,570	6,110	N/A	N/A
GALILEO TECHNOLOGIES	3	1,029	964	N/A	N/A
GAZPACK	5	3,200	N/A	N/A	N/A
GREENLANE	1	1,300	1,300	3	7,800
HITACHI	59	16,650	10,140	N/A	N/A
HONEYWELL	4	20,900	N/A	N/A	N/A
PENTAIR	63	54,294	12,294	N/A	N/A
PRODEVAL	321	77,707	65,022	62	16,443
PYRO GREEN GAS	1	240	240	N/A	N/A
UGS	N/A	N/A	N/A	4	12,500
UNISON/BIOCNG	9	1,700	N/A	N/A	N/A
VEOLIA BIOTHANE	15	5,845	N/A	10	5,600
WELTEC BIOPWER	7	3,930	270	N/A	N/A

Figure 6. Presence of Membrane Separation Suppliers, Installed Capacity of Units in Operation (m³/hr)



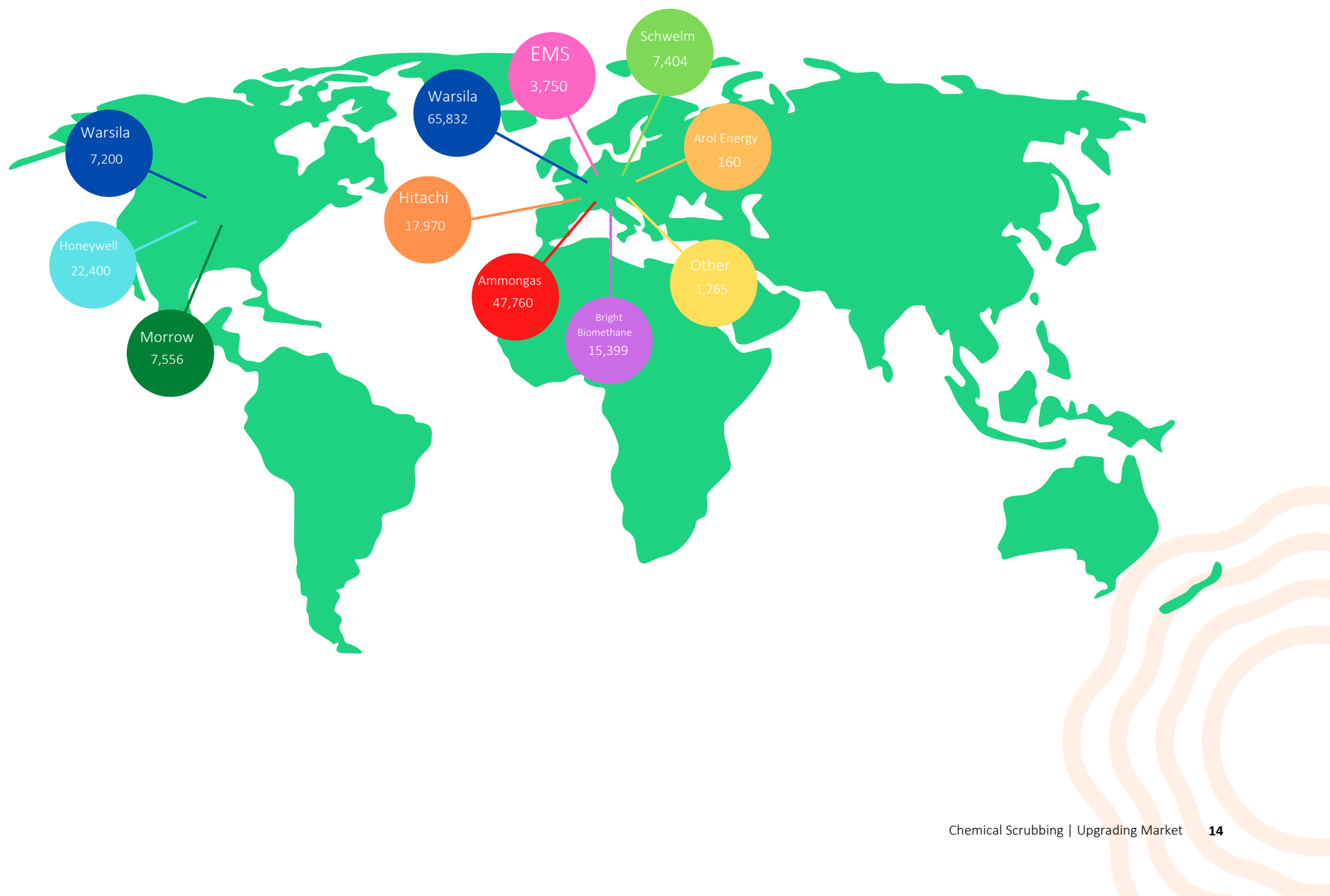
*BiogasWorld only has location information for 33,000 m³/h or Pentair's 54,000 m³/h

Chemical Scrubbing

Major Suppliers - Chemical Scrubbing

COMPANY	Number of plants in operation	Capacity, plants in operation, m3/hr	Installed capacity during last 3 years (2020-2022), m3/hr	Number of plants under construction (2023-2024)	Capacity, under construction, m3/hr
AMMONGAS	29	47,760	17,570	4	2,620
AROL ENERGY	1	160	N/A	2	650
BRIGHT RENEWABLES	36	15,399	40	N/A	N/A
CARBONORO	2	240	240	N/A	N/A
EMS BILFINGER	2	3,750	N/A	N/A	N/A
HERA	4	195	N/A	N/A	N/A
HITACHI	41	17,970	N/A	N/A	N/A
HONEYWELL	2	22,400	N/A	N/A	N/A
MORROW	15	7,556	N/A	N/A	N/A
STRABAG	2	1,330	N/A	N/A	N/A
SCHWELM	23	7,404	840	N/A	N/A
WARTSILA/PUREGAS	46	64,032	17,652	1	1,156

Figure 7. Presence of Chemical Scrubbing suppliers, Installed Capacity of Units in Operation (m3/hr)

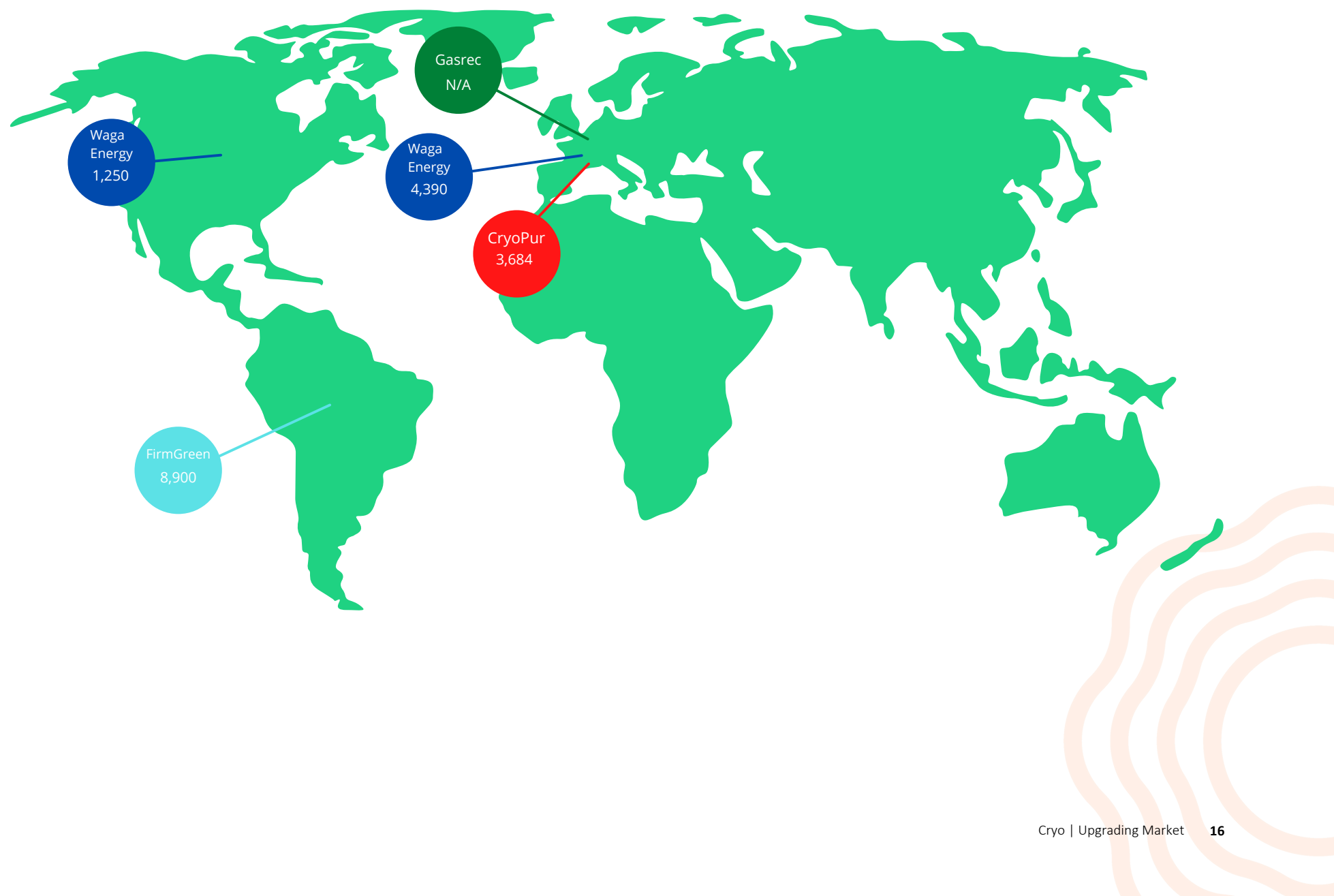


Cryo

Major Suppliers - Cryo

COMPANY	Number of plants in operation	Capacity, plants in operation, m3/hr	Installed capacity during last 3 years (2020-2022), m3/hr	Number of plants under construction (2023-2024)	Capacity, under construction, m3/hr
CRYO PUR	8	3,684	3,384	N/A	N/A
FIRMGREEN	1	8 900	N/A	N/A	N/A
GASREC	1	N/A	N/A	N/A	N/A
WAGA ENERGY	16	5,640	3,650	5	N/A

Figure 7. Presence of Cryo Suppliers, Installed Capacity of Units in Operation (m3/hr)



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