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# **GSTC Global Syngas Database**

Global Syngas Technologies Conference

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Ian Barton

# GSTC Plant Database

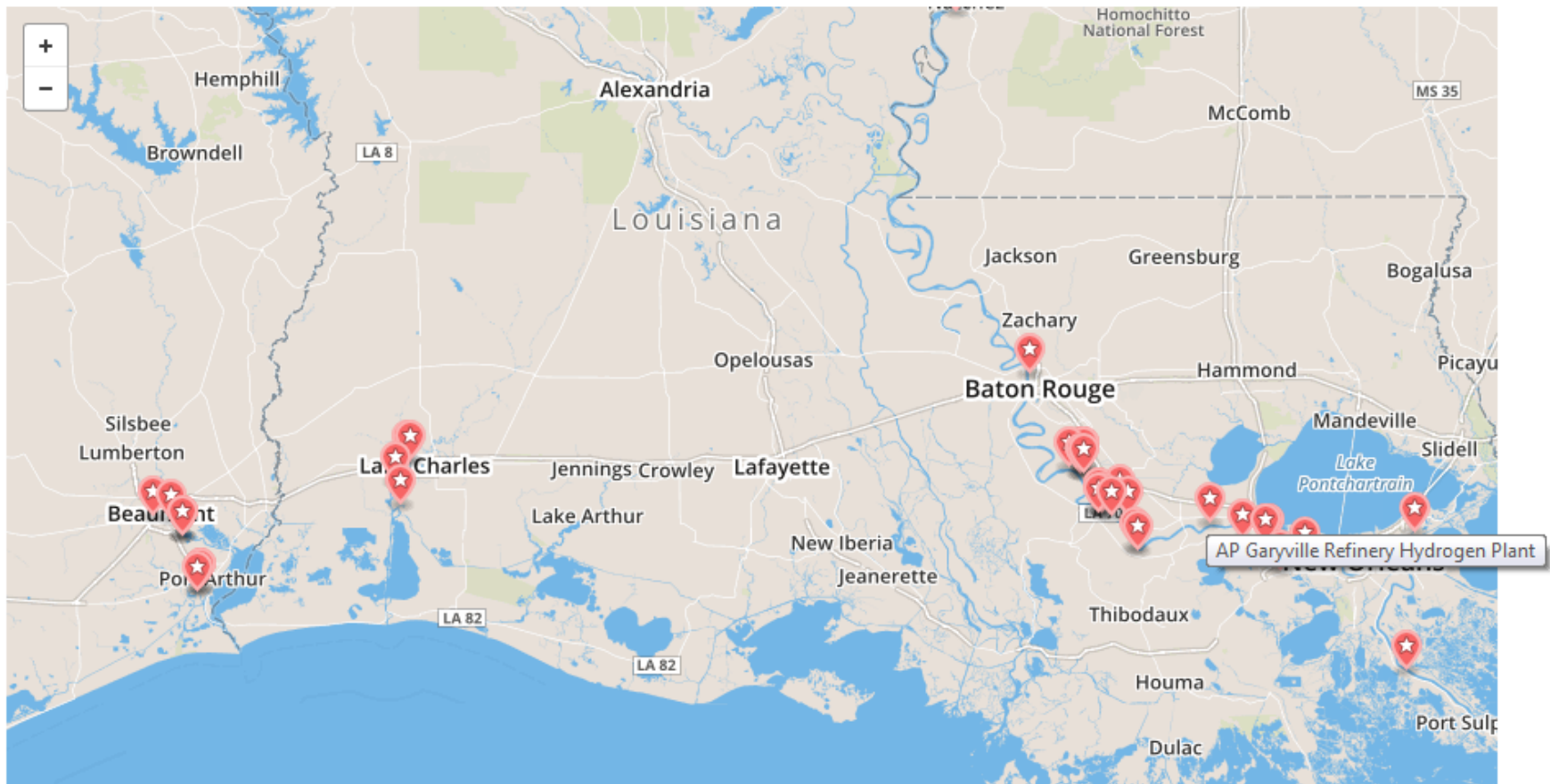
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- A database of information about syngas plants globally that is available to GSTC members
- Syngas is a process stream with a significant hydrogen content that is used to synthesise chemicals or burnt for heat or power
- Covers production of syngas via gasification, steam-reforming, electrolysis and ammonia cracking
- Data for over 3100 plants and projects, a subset of which is shared on-line
- Raw data compiled from public sources and licensors
- Data can be downloaded for further analysis

# GSTC Database - Plant Map

## Map of Facilities

Gasification is a commercial manufacturing technology that has been used around the world to produce chemicals, fertilizers, transportation fuels, substitute natural gas, and electricity. See where gasification is used around the globe by clicking the map below.



# GSTC On-line Database - Scope

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## **Includes...**

- Syngas for power (IGCC), chemicals, refinery processes, fuels (FT, SNG), DRI (Steel)
- Plants that are operating or under construction
- Projects under development with expected operation within 3 years
- Technical details - licensor(s), feed rate, product rate, etc.

## **Excludes...**

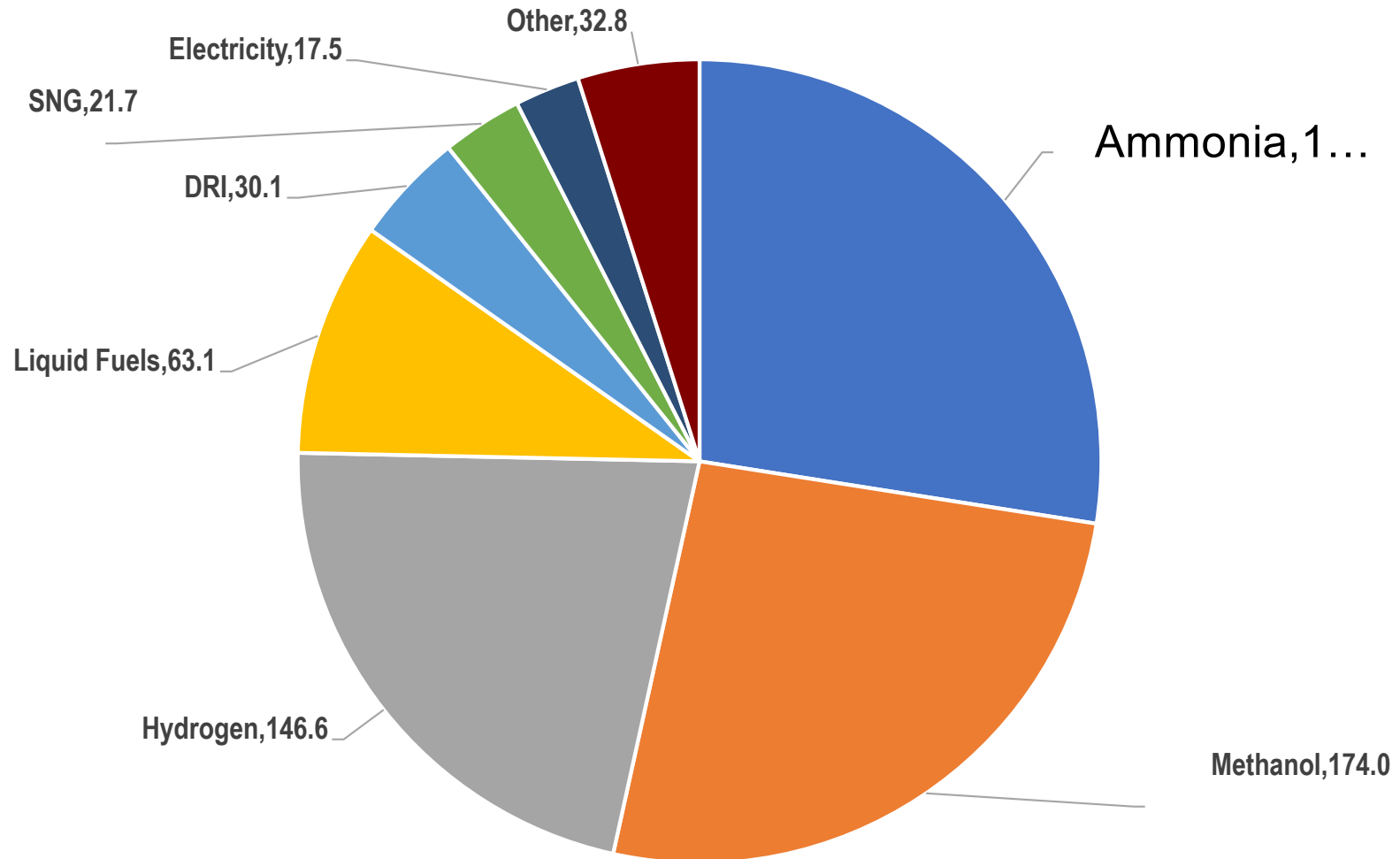
- Shut-down plants
- Processes that are further downstream, such as urea, olefins or hydro-processing
- Projects at early planning stage (expected start-up after 2027)
- Projects smaller than about 80 MWth (250 tpd of ammonia or methanol, 20,000 Nm<sup>3</sup>/Hr of hydrogen)
- Lower size thresh-hold for electrolysis (20 MWth)

# GSTC Database - issues

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- Exaggeration of the scale of a project or its greenness
- Developers rarely admit they have given up on a project
- Project time-scales tend to be over-optimistic
- Project developers and politicians have different agendas

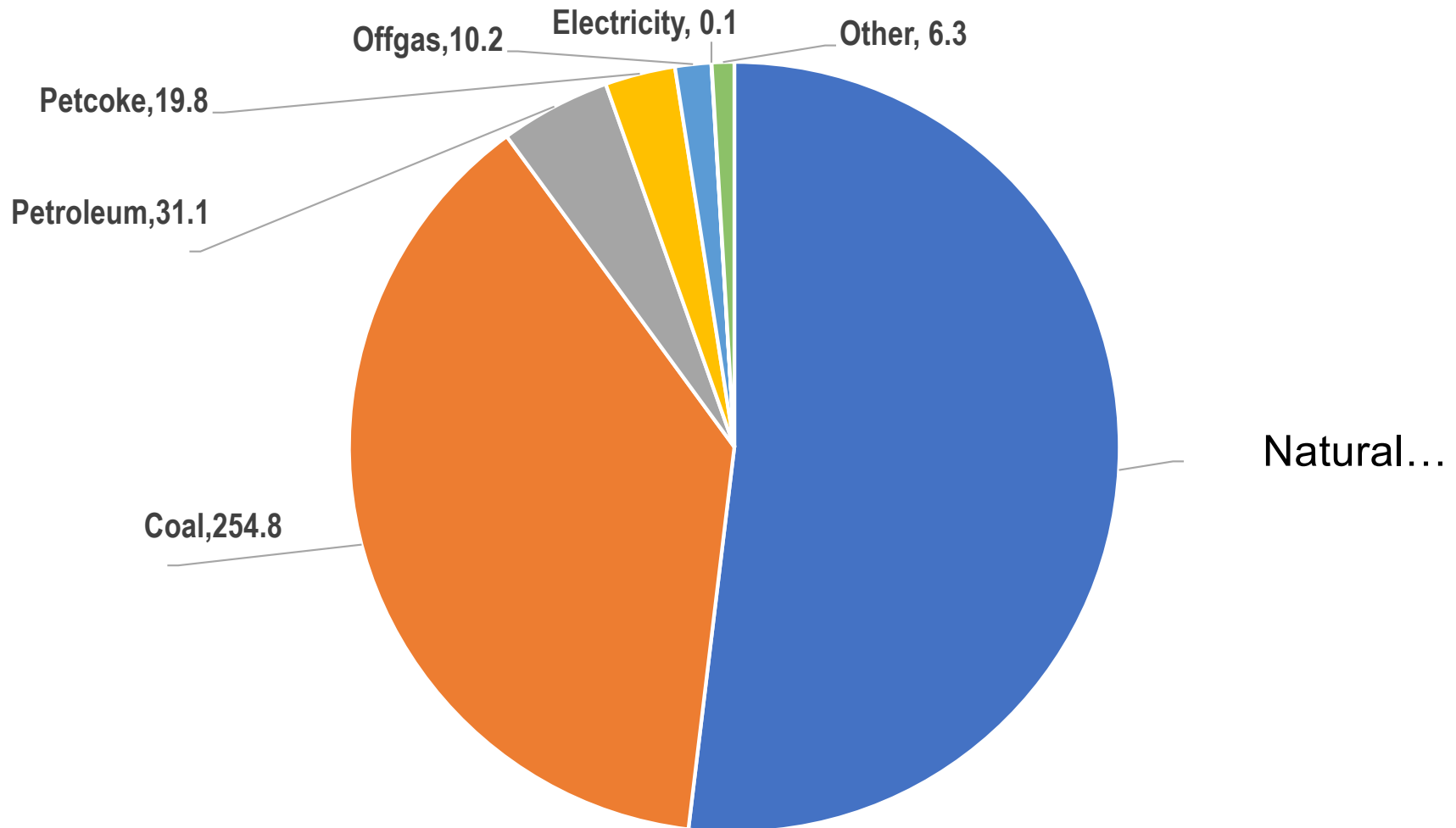
# Total Syngas Market - by product



Only includes plants operating (or expected to be) by the end of 2024

Data in GW (Thermal) of Syngas  
Source: GSTC Database, 2024

# Total Syngas Market - by feed

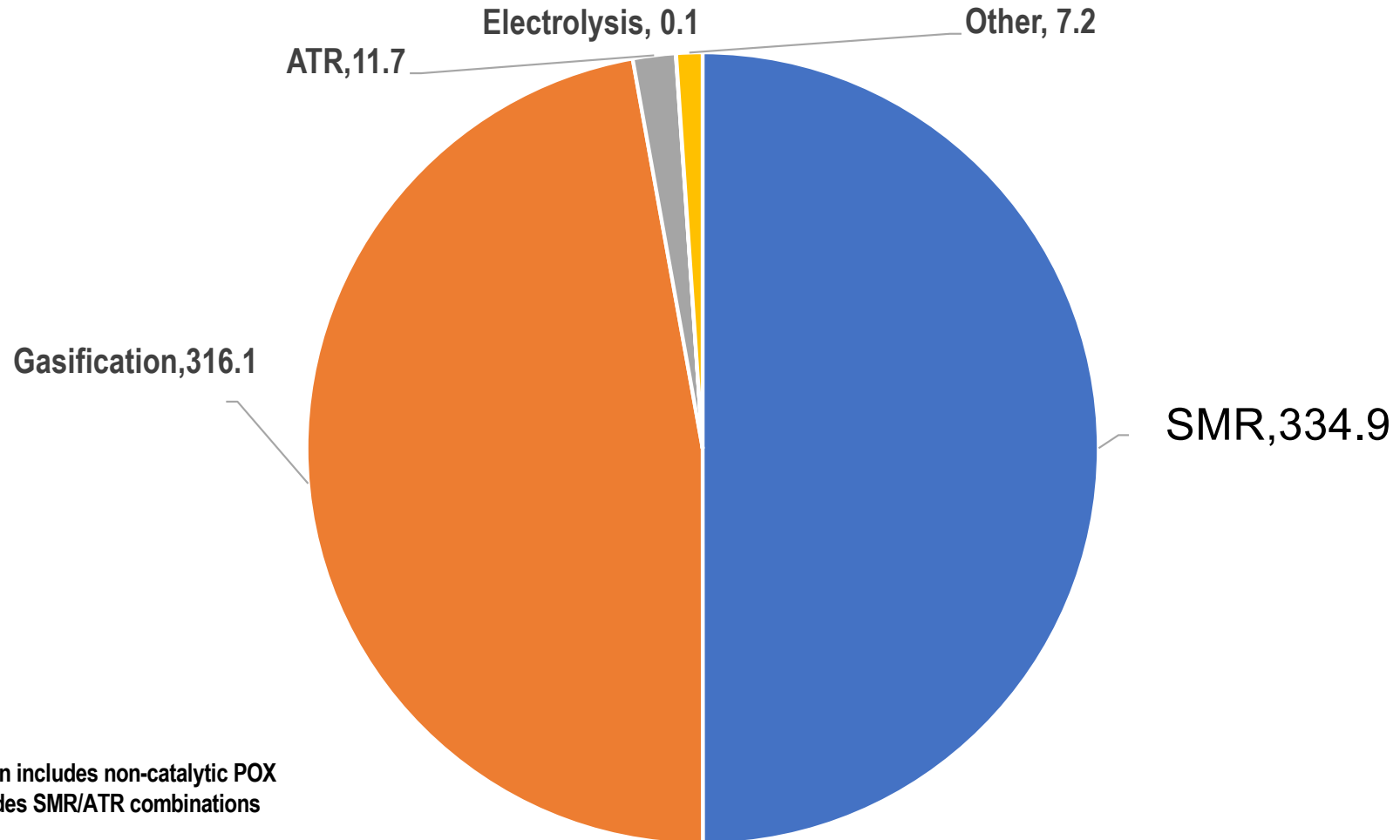


Only includes plants operating (or expected to be) by the end of 2024

Data in GW (Thermal) of Syngas

Source: GSTC Database, 2024

# Total Syngas Market - by technology



Gasification includes non-catalytic POX  
SMR includes SMR/ATR combinations

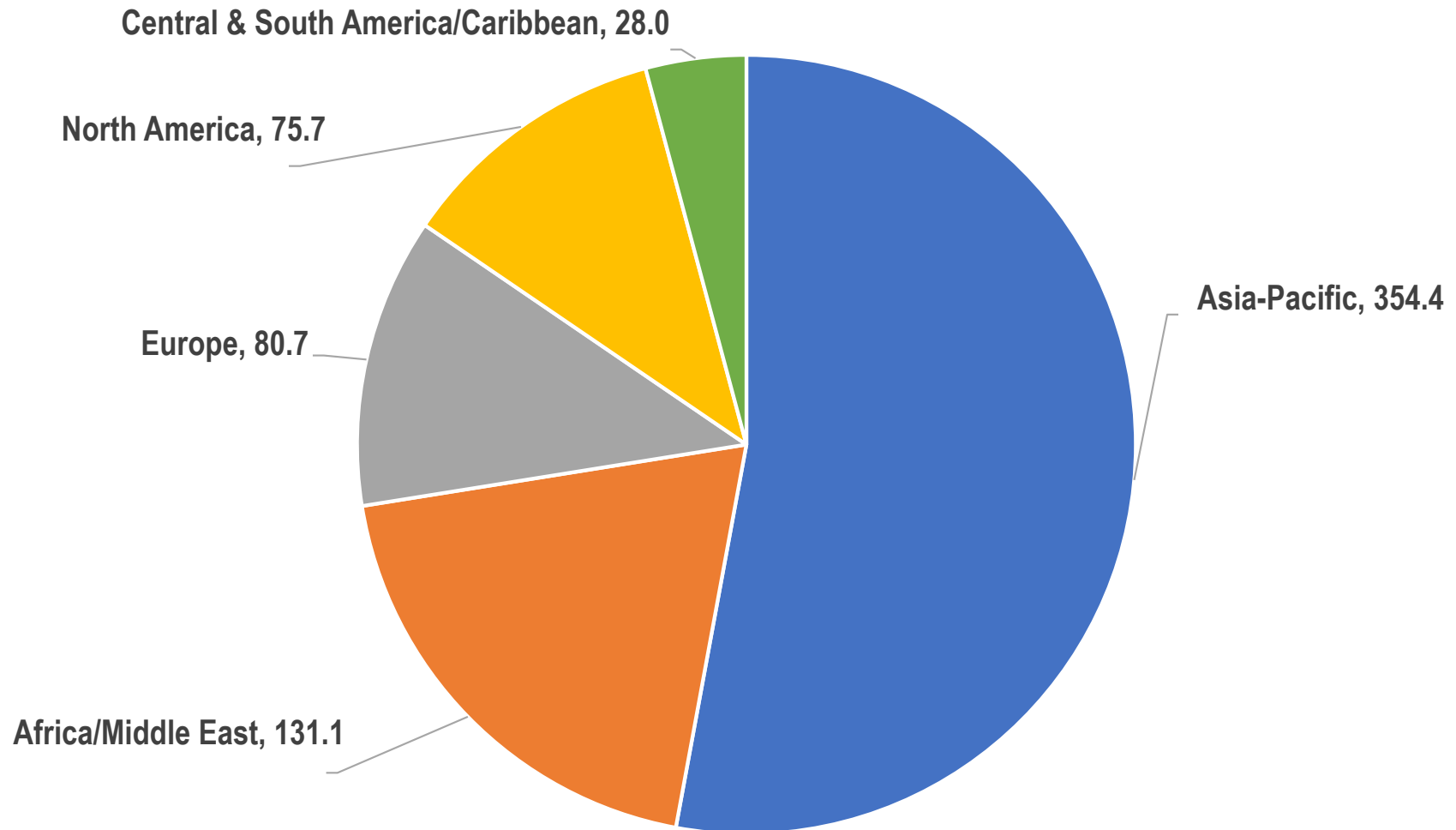
Only includes plants operating (or expected to be) by the end of 2024

Data in GW (Thermal) of Syngas

Source: GSTC Database, 2024



# Total Syngas Market - by region

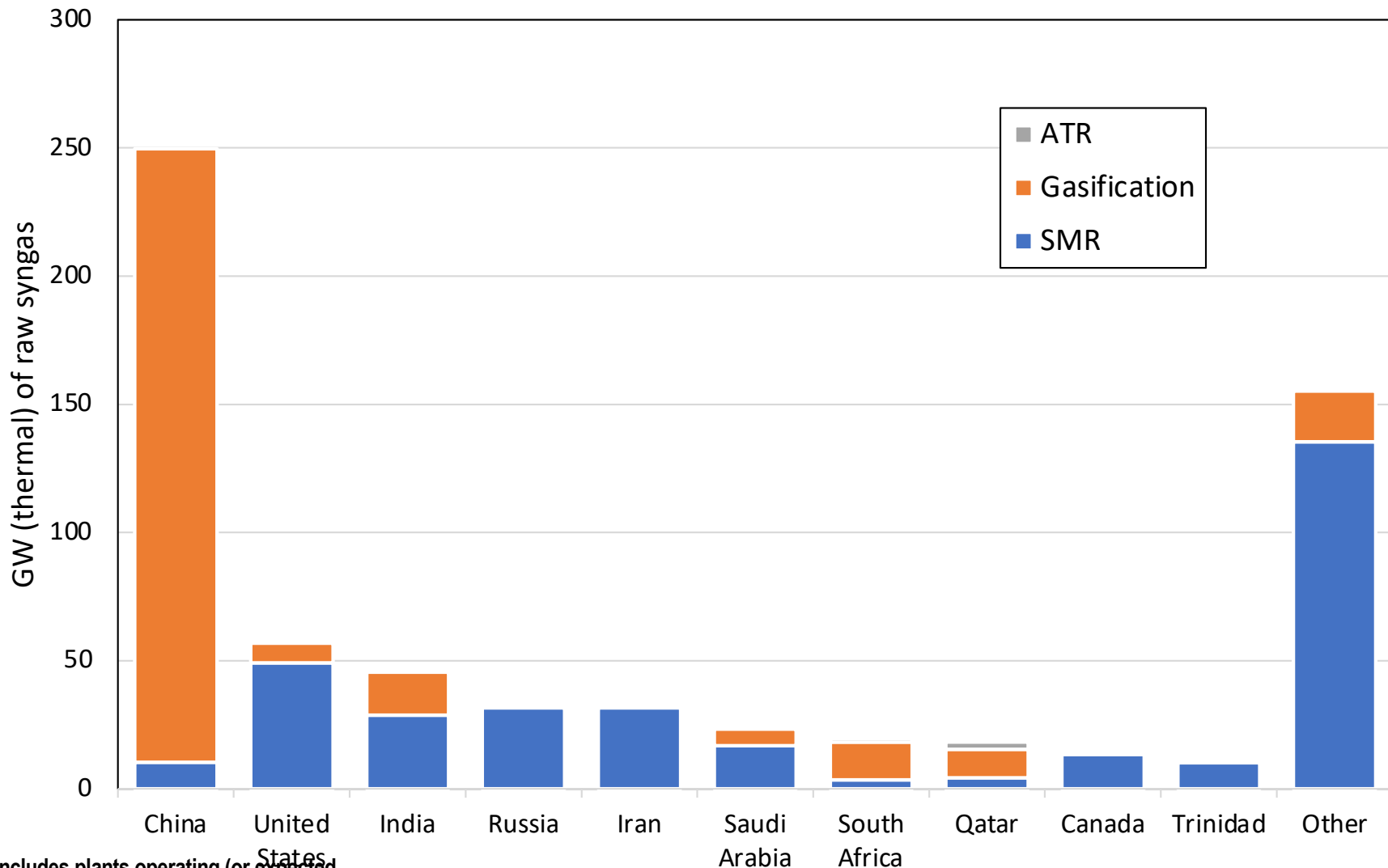


Only includes plants operating (or expected to be) by the end of 2024

Data in GW (Thermal) of Syngas

Source: GSTC Database, 2024

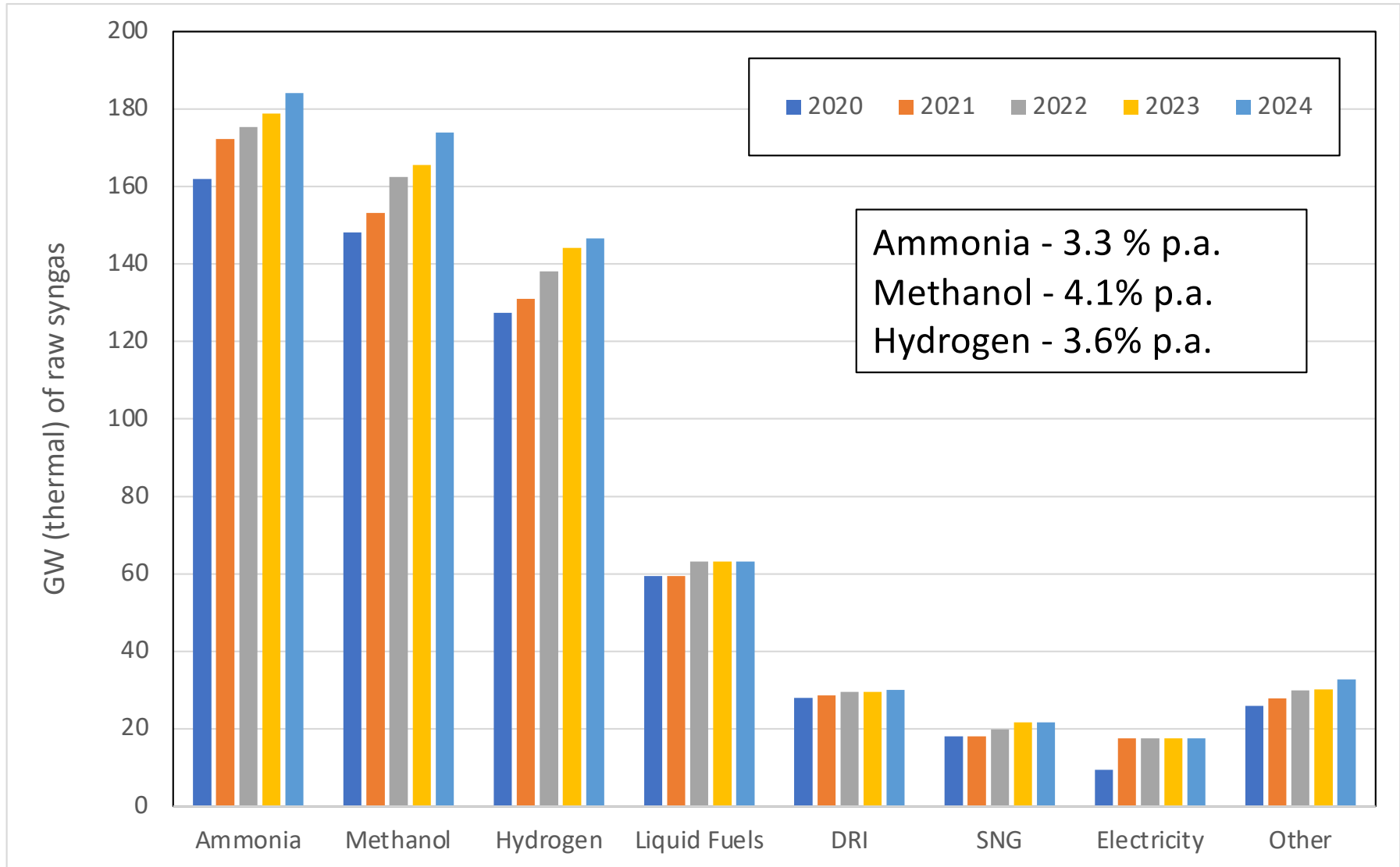
# Total Syngas Market - by country



Only includes plants operating (or expected to be) by the end of 2024

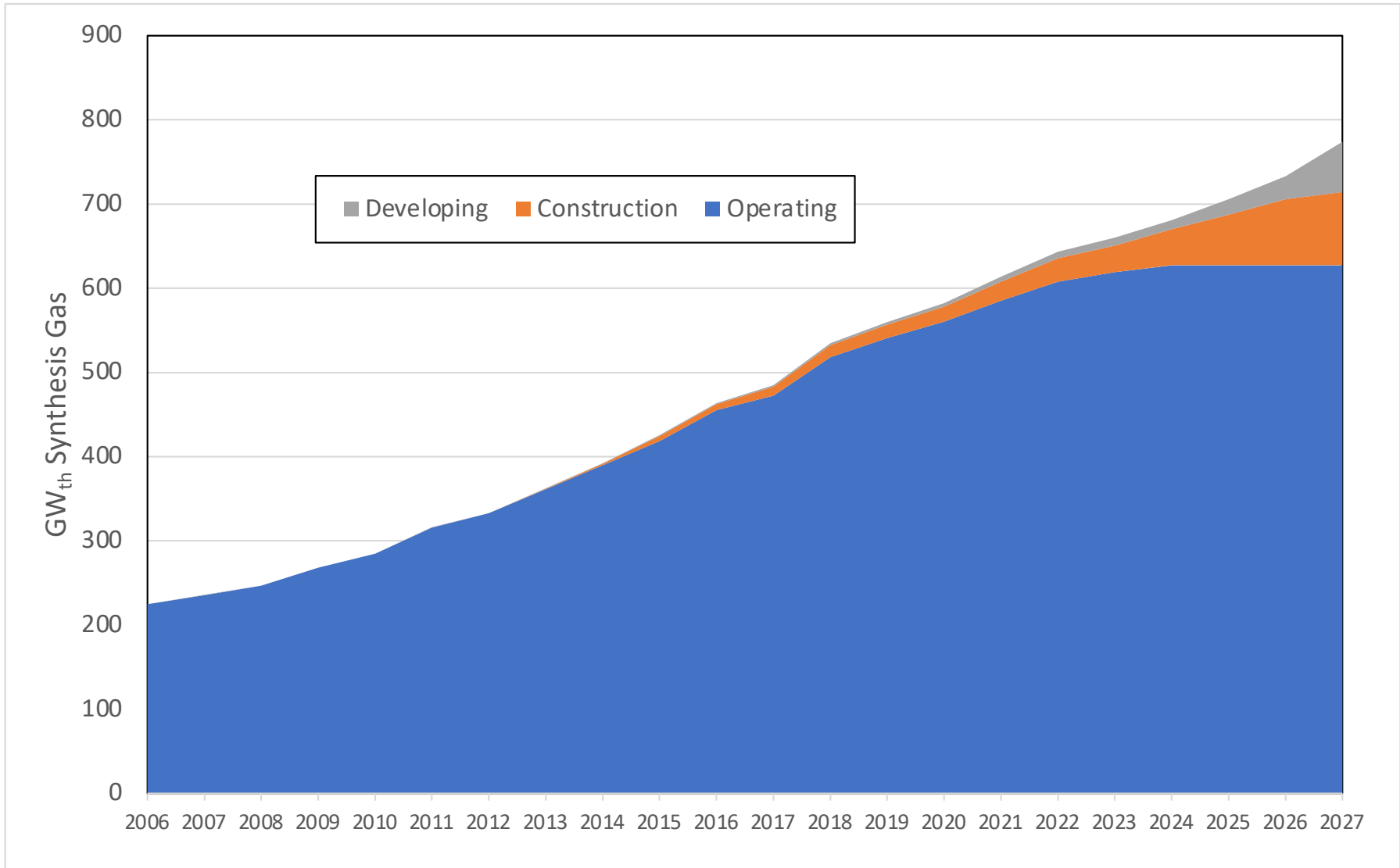
Source: GSTC Database, 2024

# Syngas Market Development 2020-2024



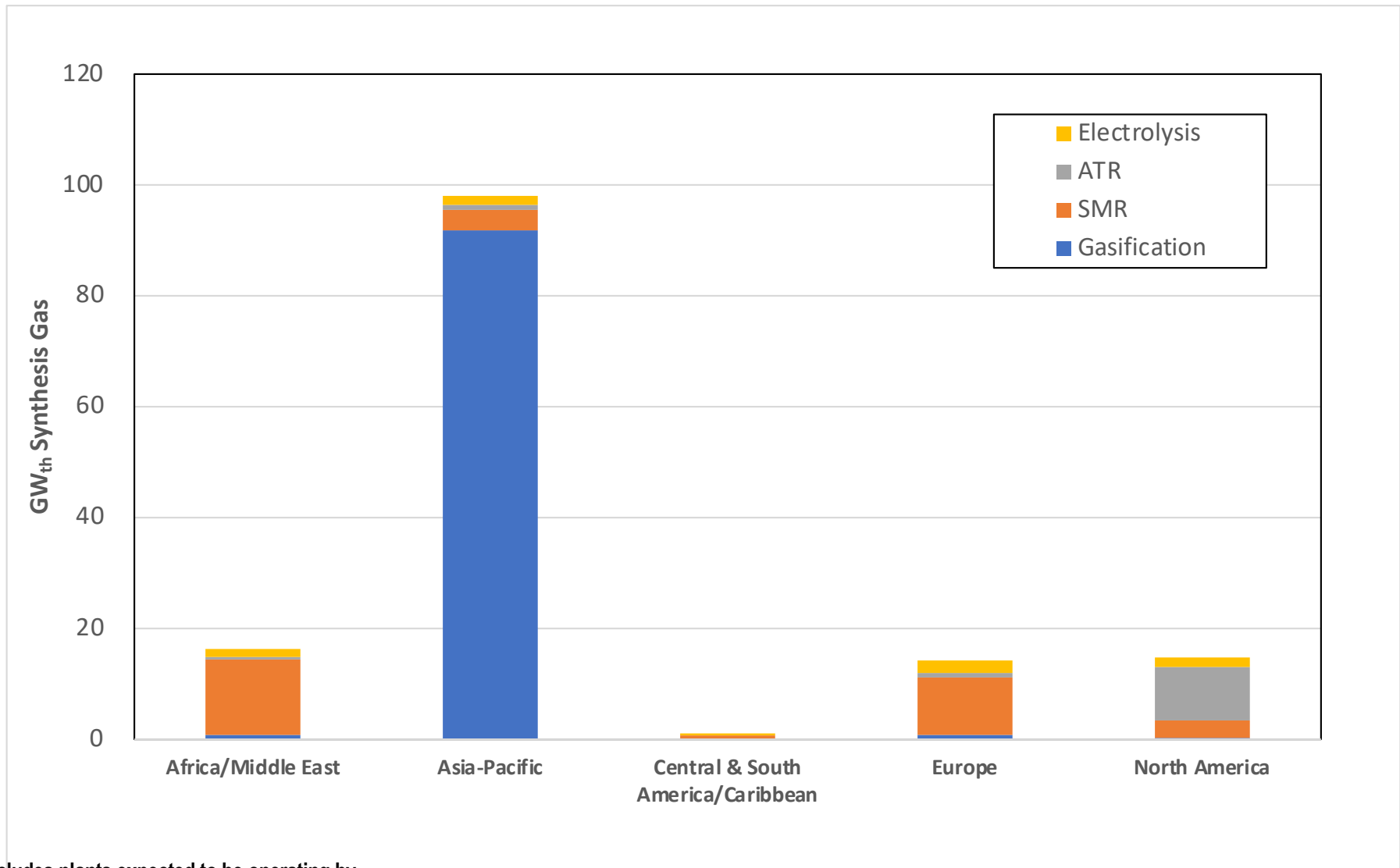
Source: GSTC Database, 2024

# Cumulative Capacity with Expected Increase



Source: GSTC Database, 2024

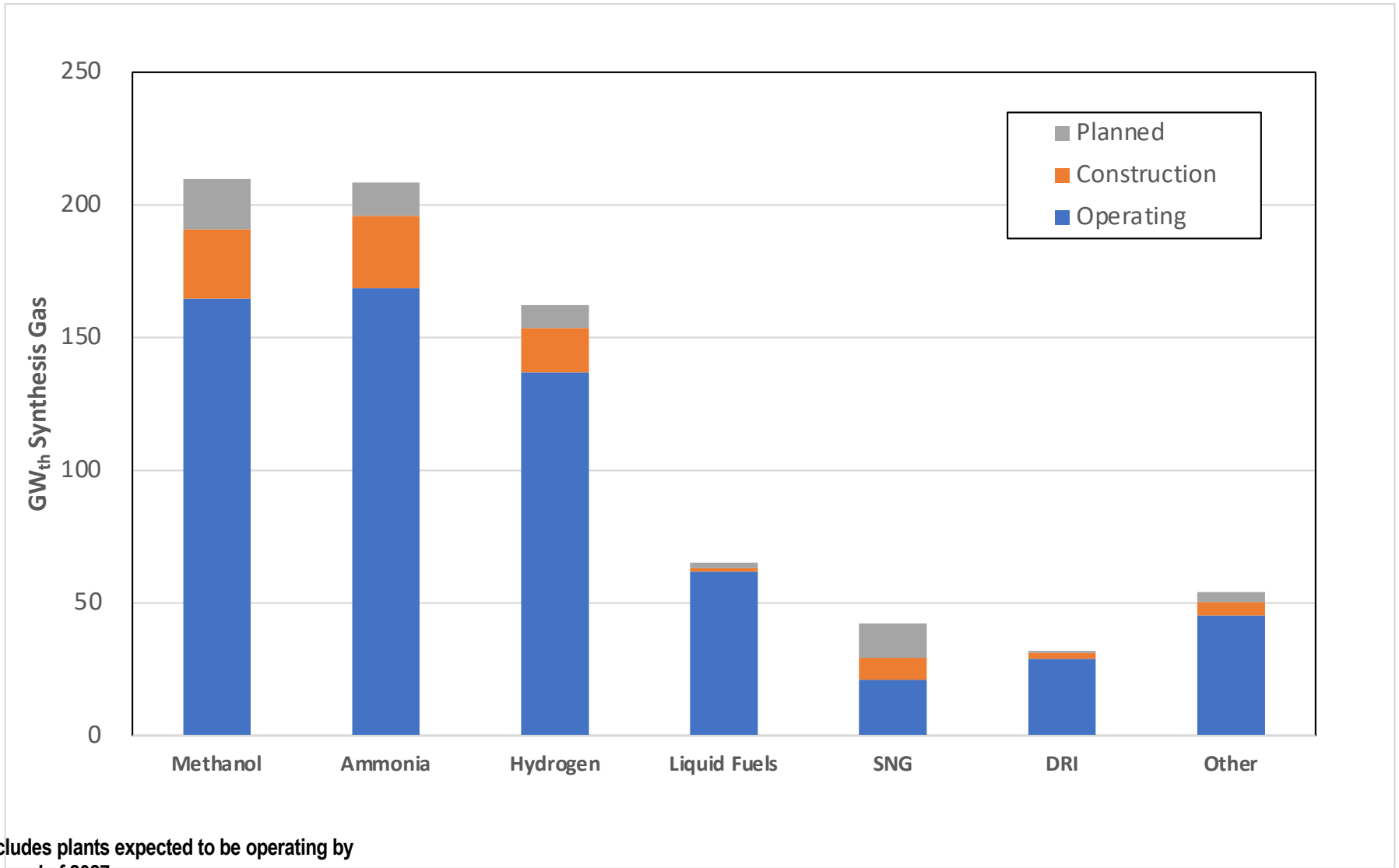
# New Plants by Region and Technology



Includes plants expected to be operating by the end of 2027

Source: GSTC Database, 2024

# Market Size and Growth - Expected by end 2027



Includes plants expected to be operating by the end of 2027

Source: GSTC Database, 2027

# Conclusions

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- Data emphasises importance of Chinese activities
- Delays in Russian projects
- Some signs of slower growth rate and project delays, perhaps due to political uncertainty
- Significant development of projects based on electrolysis, but expected start-up of large plants beyond a 3-year forward view

# Acknowledgements

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- Global Syngas Technologies Council
- Technology licensors, plant owners and others for contribution of project data
- Any additions, corrections or suggestions are always welcome

Ian Barton

[ianb3494@gmail.com](mailto:ianb3494@gmail.com)

