



**BioCat Methane
Biomethanation to
Renewable Natural Gas
A Carbon Capture
Solution to Monetize Tail
Gas CO₂ at Digester RNG
Projects**

Electrochaea Snapshot



- Cleantech 100 growth-stage power-to-gas company incorporated in 2010
- Technology combines CO₂ and green hydrogen to create BioCat Methane – pure renewable CH₄ – through a patented biochemical process
- Value creation through storage of renewable energy, recycling CO₂, and displacing fossil methane in the gas grid and for transportation
- Successful gas grid injection in DK and CH, demonstration in USA with NREL
- Over EUR 75mn raised to date from strategic and financial partners including Baker Hughes, ENGIE / Storengy, EIC, MVP, b-to-v Matterwave, Energie 360° and KfW and grants
- *Now scaling up to meet market needs with 10MWe and 75MWe Archetypes*

Baker Hughes 

storengy



energie360°

Carbon Capture and Utilization Through Methanation



- Biogenic and waste CO₂ are value added feedstocks for methane or e-fuels production
- H₂ is a growing business – Access to the market requires significant infrastructure development and may take many years
- Methanation is a win-win for those looking to monetize their CO₂ streams and those looking to make investments in green H₂ production
- Power-to-Gas via biomethanation is the solution

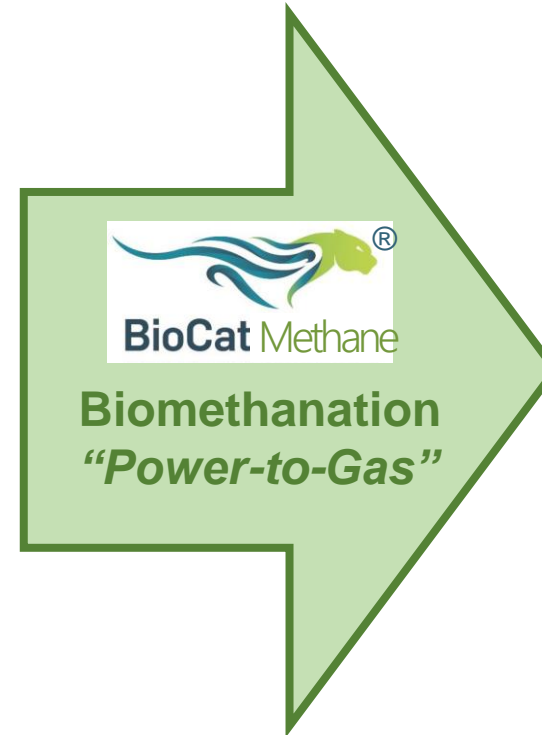
Power to Gas – CCU

Curtailed, lost-forever renewable power

Wind and Solar curtailment in certain generating regions presents an opportunity to make affordable green hydrogen for Power-to-Gas projects

Sources of CO₂

Anaerobic Digester / Biogas	Fermentation, Industrial
Solid, organic waste 	Food production e.g. breweries 
Dairies, pig manure 	Ethanol production 
Wastewater treatment 	Cement, lime, steel production 
Landfill gases 	



Renewable Natural Gas:

- Stores renewable energy in bonds of CH₄ molecule
- Decarbonize/leverage the natural gas grid
- Longer-term "battery" functionality → energy shift across time, geography

The Archaea

Transform almost every Molecule of CO₂ into CH₄

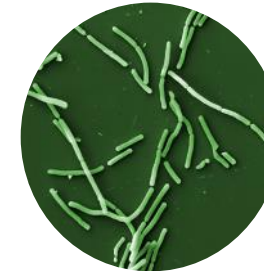
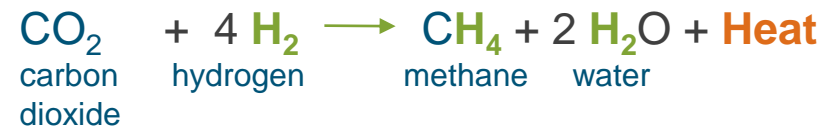
Electrolysis is the process that produces hydrogen.



Renewable hydrogen is synthesized in the electrolyzer from water and renewable electricity.



Carbon Dioxide



Methanation

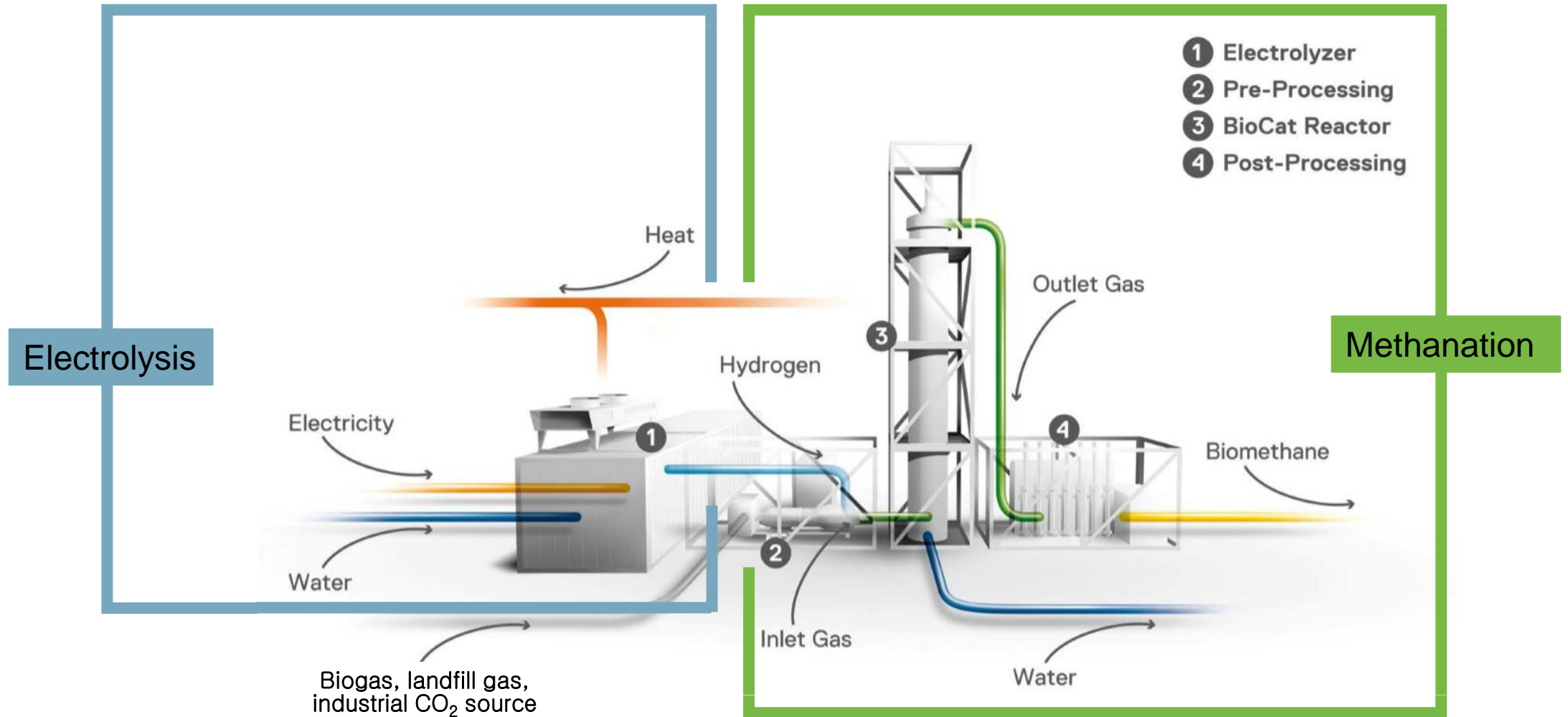


Methane is synthesized in each cell of the biocatalyst with trillions of cells working to produce methane in the reactor.

The biocatalyst is a 3.5 bn year old single-celled microorganism that belongs to the domain of Archaea.

The cells are self-replicating in the reactor, as such, the system is self-sustaining and self-regulating.

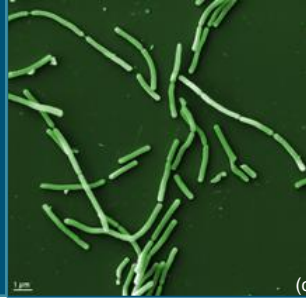
A Scalable and Simple System Design



Unique Features of Electrochaea Technology

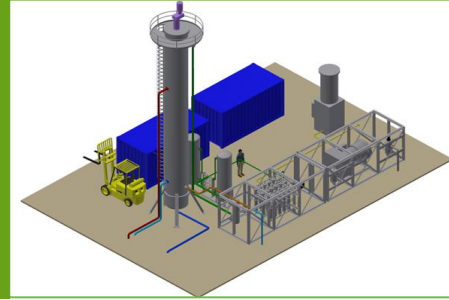
Unique Biocatalyst

- Patented strain
- Outstanding robustness
- Fast start/stop cycles



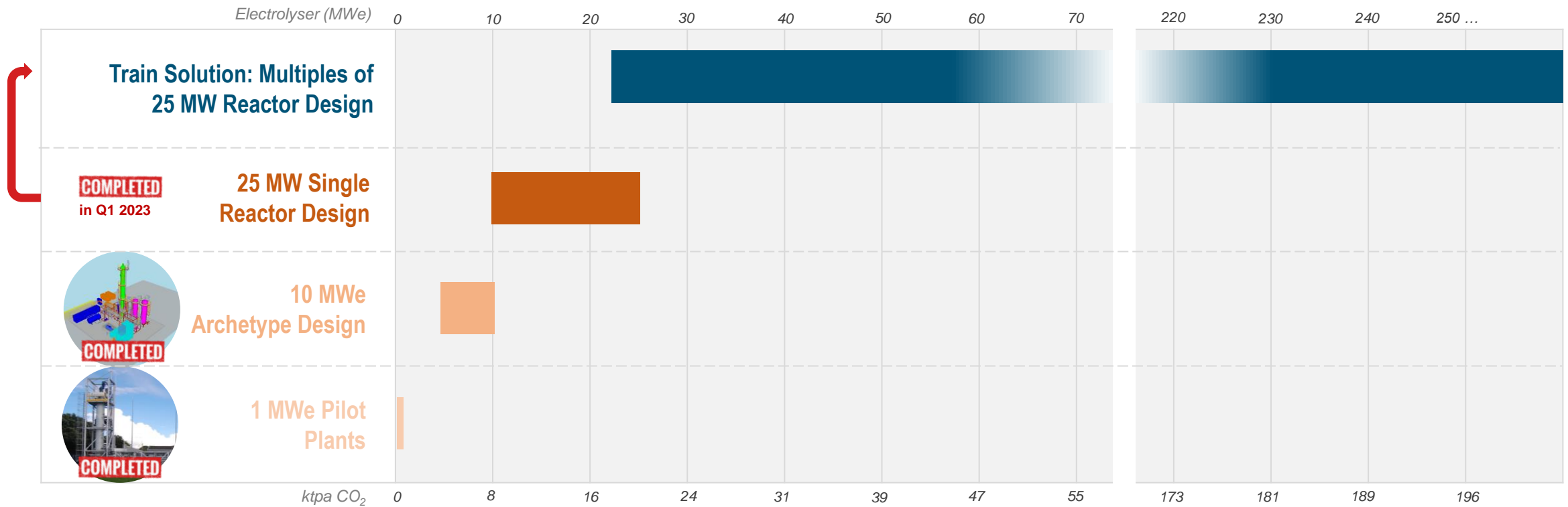
Scalable Bioreactor

- 10 and 25MWe
Archetype designs
- Currently scaling to
75MWe is ongoing

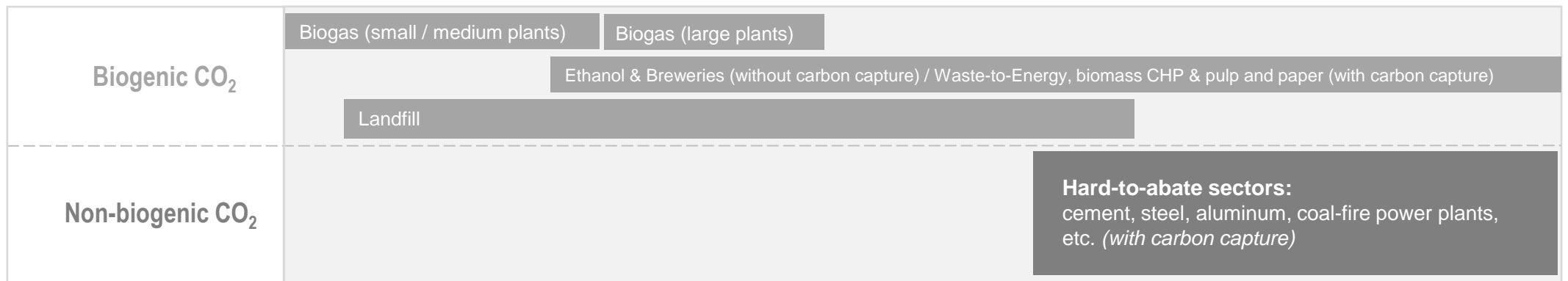


Efficient	>98.5% of carbon goes into methane
Highly Flexible	Able to turn down to 20% of capacity and load follow with H ₂ production – KEY FOR 45V OPERATION
Responsive	Quick return to methane production within seconds/minutes
Selective	100% methane , no intermediates
Simple	Moderate temperature range (60-65°C) and pressure (10 barg)
Proven	3.5 years of operational experience with CO ₂ and raw biogas in three pilot plants
Patented	Granted patents, exclusive licenses and growing Intellectual Property portfolio

Electrochaea is Scaling-Up its Technology to Address All Sectors



Targeted Sectors



10MW Project in the Works



Electrochaea

4,918 followers

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We are happy to share the news! [Electrochaea](#) and Erik Thun AB have signed a Letter of Intent to enter into negotiations on the off-take of e-methane to be produced by Electrochaea's subsidiary BioCAT Roslev Aps in Denmark for usage as maritime fuel in the vessels operated by Erik Thun AB.

Electrochaea is presently working to establish a power-to-gas production in the municipality of Skive. The resulting e-methane will be fed into the Danish gas grid, benefiting the decarbonization of gas consumers throughout Europe. The e-methane will fully comply with the EU requirements for RFNBO's.

Erik Thun AB plans to use e-methane to replace fossil-based LNG fuel, allowing it to operate its existing LNG fleet without replacing its propulsion systems to accommodate other renewable fuels.

- Recent announcement of e-methane offtake negotiations from dairy digester in Denmark

Electrochaea Business Summary

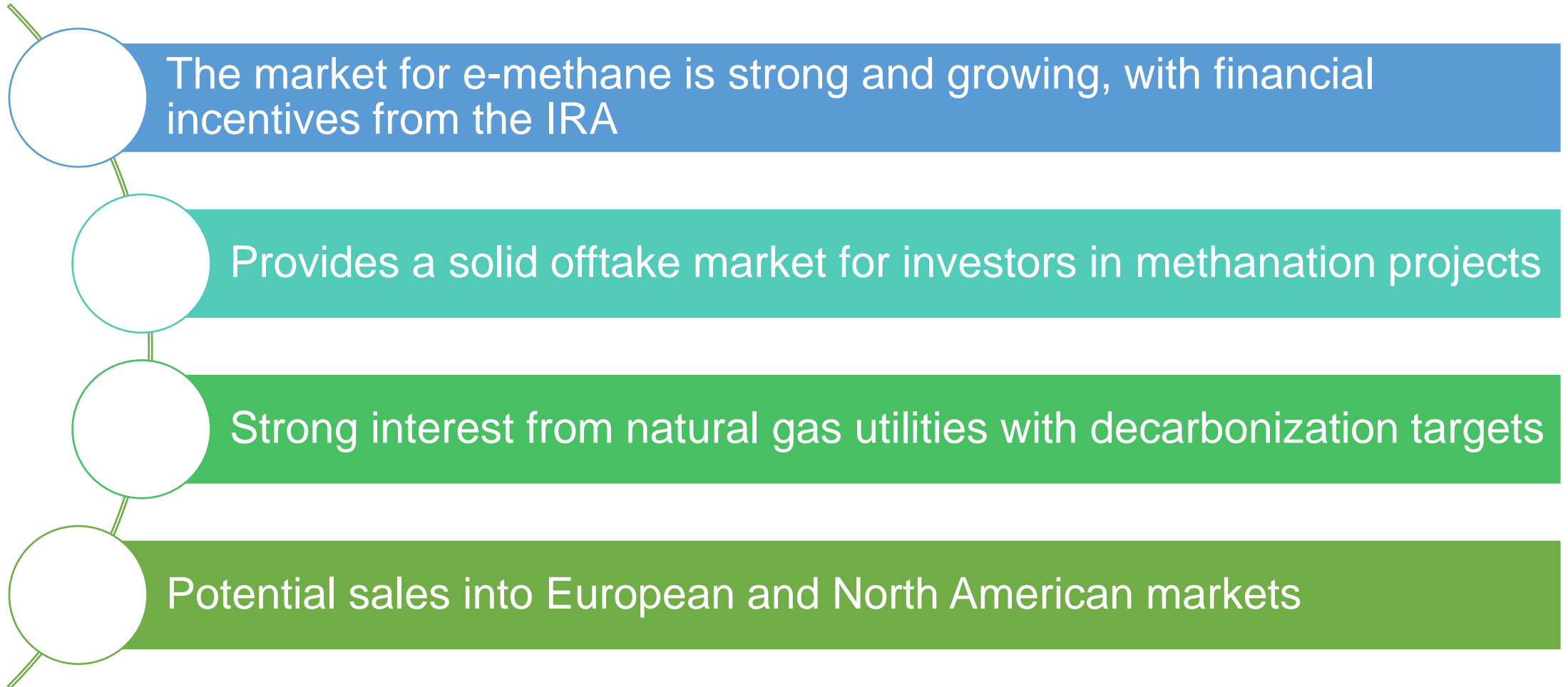


- Electrochaea provides our customers and partners with a long-term renewable gas and revenue stream for use of CO₂
- We license our technology to partners, developers and owner operators to generate value from sale or use of BioCat Methane, a low CI replacement for fossil natural gas
- Ideal site has biogenic CO₂ source, power & gas interconnect in place, preferably in regions where renewable energy is priced well.
- We support expansion of business models and regulatory policies that recognize the intrinsic value of low carbon methane

We share in the value created by our technology when BioCat Methane is used to displace fossil natural gas



E-Methane Market



Conclusions



- E-methane provides a unique opportunity to monetize CO₂ value add streams while allowing H₂ unlimited access to the gas grid
- The e-methane market is strong and growing globally
 - Provides surety for investment
- E-methane provides an opportunity for renewable energy developers to capture value from curtailed or soon to be retired wind or solar assets
 - BioCat methanation project provides case for long term PPA
- Electrochaea will help with finding ideal site/power and offtake commitments, and will provide assurance and financial backing for first of a kind commercial installs

Electrochaea – Who We Are!

Highly motivated and diverse team led by experienced management



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STRATEGIC INVESTORS



Swiss-based utility with significant renewable energy interests



Europe's leading gas storage company; unit of ENGIE



Global energy technology company