

# Calciner

To mitigate climate change, we'll need methods to reduce emissions from heavy industries, as well as economically viable solutions to utilize hard-toavoid carbon dioxide emissions.





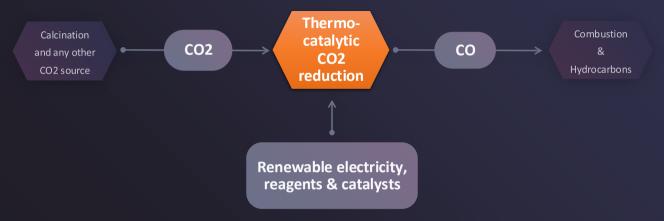


Our solutions are converting fossil-based processes like cement & lime production from carbon dioxide emitters to sustainable solution!





### Base process and reaction







#### Sustainable use for produced CO-gas



### eFuel gas

Producing sustainable eFuel gas for the combustion based processes which are hard to electrify directly.

Fossil based processes can be converted and retrofitted for carbon-neutral energy based solution.



### **Synthetic hydrocarbons**

Hydrogen efficiency is significantly improved at synthetic hydrocarbon production, when rWGS is replaced with Calciner's solutions.

The loss of valuable hydrogen in the traditional production process is avoided.





#### **Business potential**

Market size at 2050		
eFuel gas for internal use		
Pulp	Lime	Cement
€5B	€30B	€150B
Synthetic hydrocarbons for		
Chemicals	Marine fuels	Aviation fuels
€100B	€500B	€1.200B

Calciner's methods can decrease opex & capex above 20% at synthetic hydrocarbon production, and we can produce eFuel gas which use cost is lower than fossile-based fuels.

## Calciner

#### **Intellectual Property**

Our solutions are based on well-known reactions that have been widely verified.

Thanks to electric calcination, and the high temperatures it requires, reactions are faster and more efficient than previously known.

The way how these methods are connected to each other is new, and which for we have several pending patents.







#### Team











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Α

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Conceptualization and carbon sequestration

Calcination and carbon dioxide utilization

Commercial business development

Gasification and synthesis gas processing

Reagents and co-product valorisation

VTT



**VTT** 





#### **Timeline & scaling**

2024 Proof of Technology

Carbon dioxide reduction and CO gas utilization processes has been verified as invidual process steps at VTT lab's. 2025 Proof of Concept

Proof of concept will be done to prove continous process where carbon dioxide is reduced to carbon monoxide for utilization.

2026 Demo scale project

Demo project where carbon dioxide reduction is placed alongside the existing operations, and produced carbon monoxide is used as eFuel gas.

2027 Industrial scale project

Full-scale project where carbon dioxide reduction produces all feed for downstream processing at combustion or synthesis processes.





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