



M E T A L I Q

Decarbonization : Innovative solutions for CO₂ intensive industries

Introduction

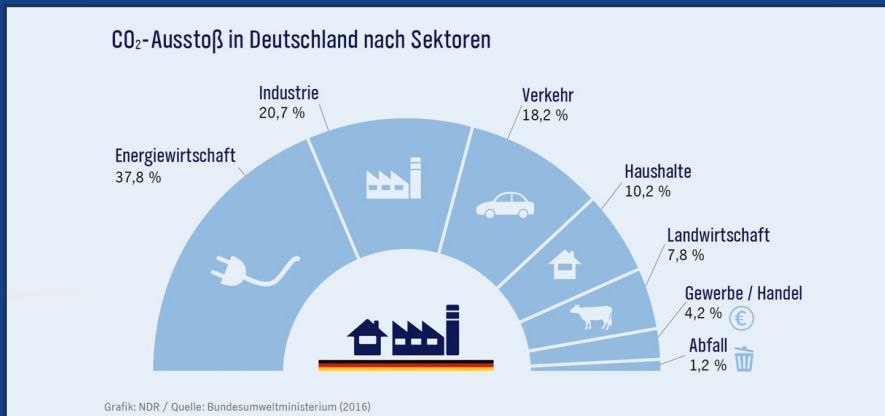
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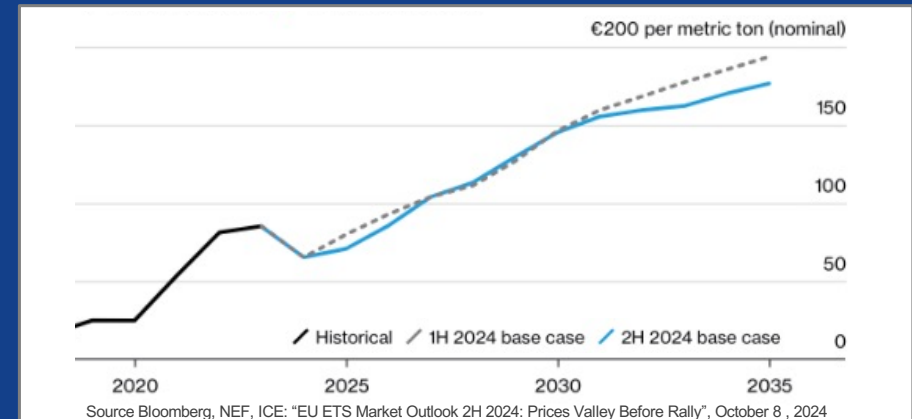
Problem

CO₂ endangers our environment



Industry is the second largest source of CO₂ emissions

Price development of CO₂ emission rights



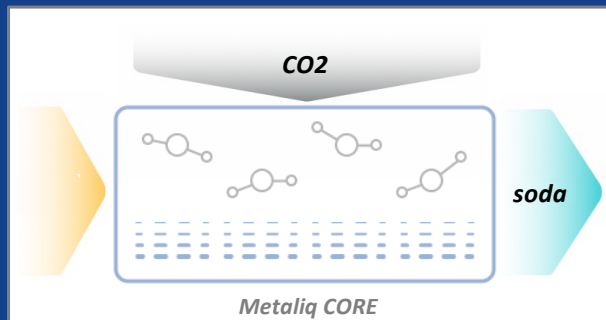
Pressure on **industry** increases due to limitations on ETS certificates and rising CO₂ taxes

Need for action for all energy-intensive industries with high CO₂ emissions :

CO₂ avoidance & CO₂ absorption

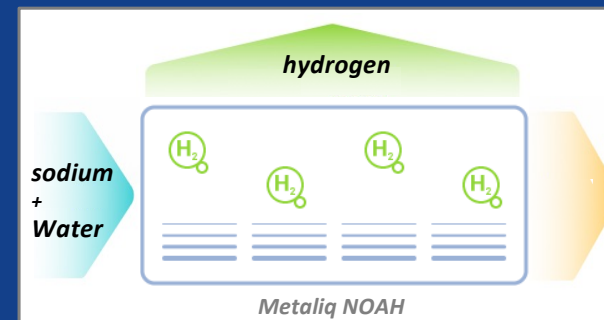
Solutions: Metaliq CORE (CCU) and NOAH (H₂)

CO₂ absorption : Metaliq CORE Innovative CO₂ recycling process (CCU)



- The Metaliq CO₂ reactor “CORE” absorbs CO₂ (Carbon Capture, CC) and converts it into soda (Utilisation , CCU)
- Use (Utilisation)
 - Soda (soda ash, Na₂CO₃) is a high-quality raw material for glass, paper, detergents, etc.

CO₂ avoidance: Metaliq NOAH Innovative in-situ production of hydrogen



- Metaliq NOAH produces hydrogen from sodium and water at the point of consumption without adding energy
- Process enables loss-free storage of hydrogen by storing sodium
- CO₂ avoidance through gas substitution



Market: CO₂ emitting industry (EU)

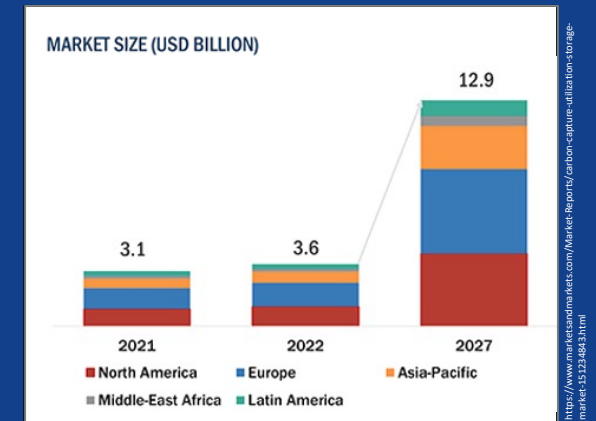
The entire CO₂ emitting industry is a potential market for Metaliq

The Metaliq CORE market is aimed at industries where CO₂ emissions are technically unavoidable, thus requiring a CCS/CCU solution

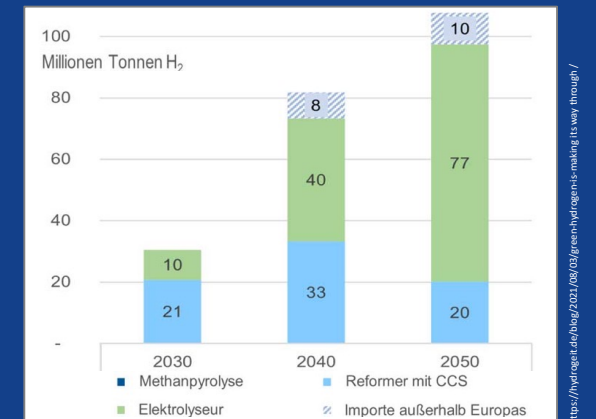
- Market for CCS/CCU solutions in EU (Source: marketsandmarkets.com)
 - 2023: 600 million €
 - 2030: € 6,500 million
- Metaliq market is the industrial sector with CCU potential, e.g. in soda demand

The Metaliq NOAH market is the industry of green hydrogen producers

- Market for hydrogen production systems (Source: marketsandmarkets.com)
 - 2023: 90 million €
 - 2030: € 10,400 million
- Metaliq market is the industrial sector that has a hydrogen demand and will produce it autonomously



Carbon Capture, Utilization and Storage Market (ww)



Development of hydrogen production (D)

Product and patent status

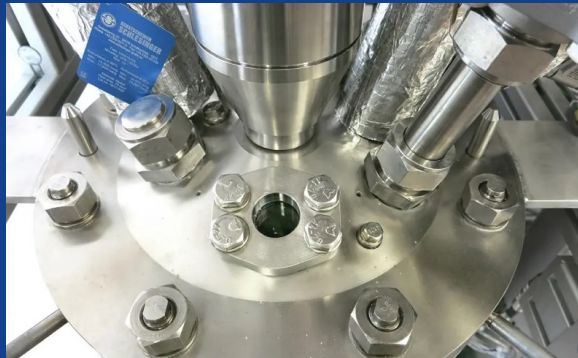
Metaliq CORE



CORE product series

- Metaliq CORE-LAB (Test Implementation)
 - Available since August 2024
 - CCU process implementation confirmed
 - Soda in the best, directly usable quality
- Metaliq CORE-SYS (production plant)
 - Sales from mid-2025
 - Sales pipeline: € 7 million

Metaliq NOAH



NOAH development project

- Process definition completed in mid-2024
- Hydrogen laboratory under construction
- Laboratory system mid-2025
- Sales from mid-2026

Patents

- EU patent applications for the entire CORE and NOAH processes have been filed



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Metaliq solves the glass industry's CO₂ problem

The **German Glass Association (Bundesverband Glas eV)** has solutions exclusively for “energy-related” CO₂ emissions (i.e. from electricity or gas combustion) – see Figure 1.

There is **no concept** for “raw material-related” CO₂ emissions, which account for 20% of glass CO₂ emissions and amount to 900,000 tons annually.

Metaliq Solution : Own soda production from own CO₂ (CCU)

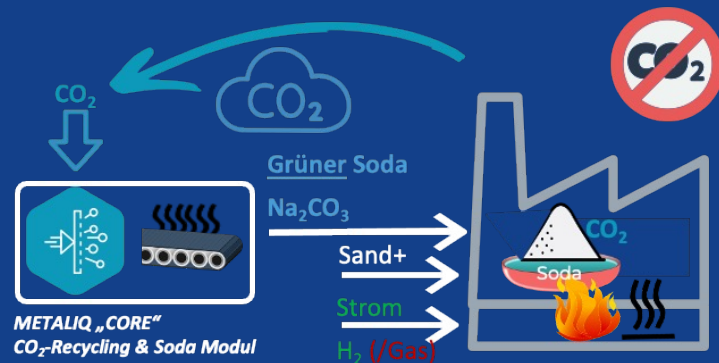


Image 3: Metaliq CCU produces soda from its own CO₂ for its own glass production

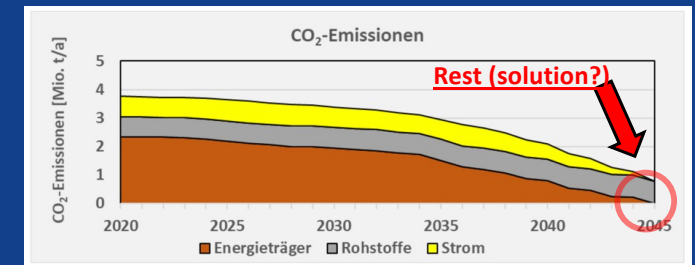


Figure 1: Decarbonization of the glass industry, Source: “Glas 2045” University of Stuttgart IER & BVGLAS (2021)

Solutions for CO₂ reduction glass in Germany [Million t CO₂/a] *

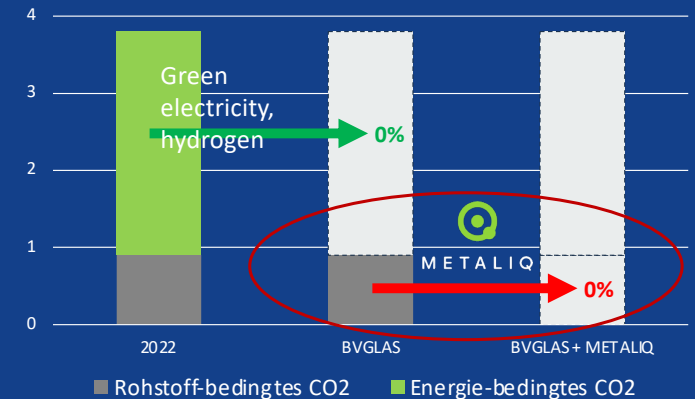


Figure 2: Metaliq solution eliminates raw material-related CO₂ emissions



Highly innovative CCU process

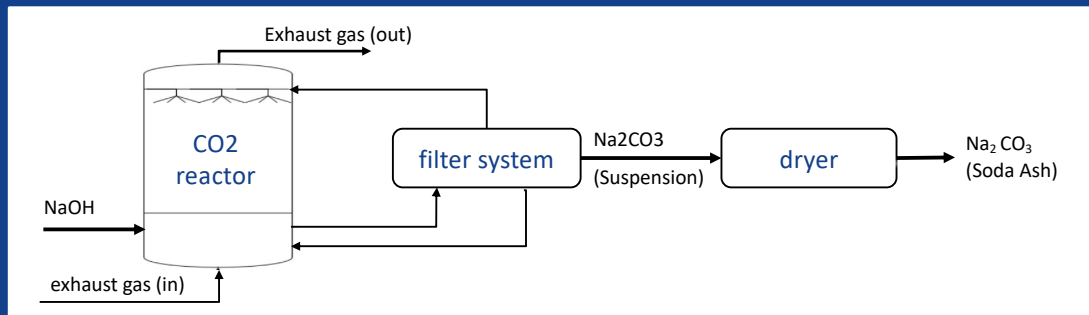


Figure: Process diagram CORE (abstracted)

Process parameters

70 kg NaOH /h => 92 kg Na₂CO₃/h - 38.5 kg CO₂/h

595 t NaOH pa => 782 t Na₂CO₃ pa - 327 t CO₂ pa

Litigation

- Continuous process control
(very advantageous for industrial plants)
- Soda-optimized filter system (Metaliq proprietary)
 - highest quality soda
 - low CAPEX and OPEX costs
 - patent pending
 - More advantageous than Fraunhofer or Max Planck projects on green soda
- Soda quality and energy optimized drying
- 95% CO₂ absorption from exhaust gas (at 5% CO₂ content)
- 99% SO_x absorption from exhaust gas

Metaliq CORE-LAB: Gas & Soda Test System



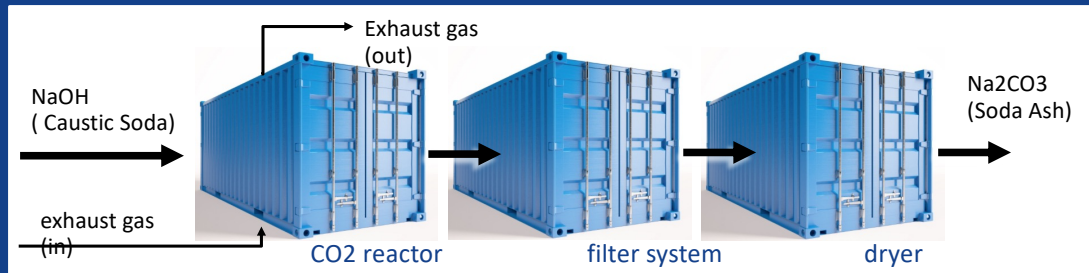
Mobile field test system:

- Soda production from customer CO₂, carried out by Metaliq employees
 - Important, because soda quality is customer-specific, as it depends on CO₂ and flue gas parameters
 - Analysis of the soda is carried out by certified partners
 - Verification of the CCU process (CORE in batch mode)
- High planning security for glass quality of the customer



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Metaliq CORE-SYS: Product Concept



CORE-SYS 6td : Modular, scalable system

- 6 t/day Soda Ash production from customer CO₂
- Construction in 3x 20' containers
 - Expandable with additional modules for performance
 - Expandable with redundant units
 - Service & upgrades also via module exchange



Image: Metaliq CORE-LAB

Metaliq CORE Features

- NaOH feed as lye or flakes
- Soda dried and storable
- No intervention in customer processes, no adjustments to the factory
- No rare earths
- No external heat supply
- Positive RoI in 3-5 years

Container modular construction

- Uniform design per module series
- Manageable product variety, simplified approval processes
- Modular expandability to any system capacity (scalability)
- Simplified service or module exchange



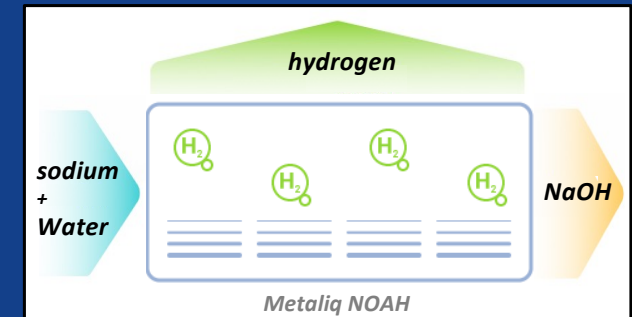
Hydrogen reactor “NOAH”

Development project “NOAH”:

Reaction: Sodium reacts with water to form NaOH + hydrogen

Innovations:

- Delivers H₂ hydrogen “on demand ”
- Delivers H₂ hydrogen at the point of consumption and without added energy
- H₂ is therefore easy to store, as sodium can be stored indefinitely
- NaOH can be produced on demand
- In combination with CORE: Energy-optimized soda production through dry NaOH process + hydrogen



METALIQ “NOAH” (Na->NaOH-H₂ reactor)

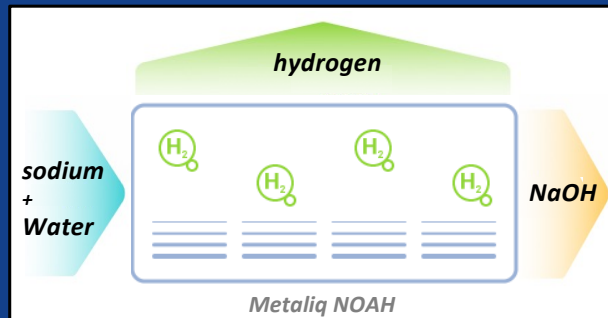
Specification NOAH (Na-H₂+NaOH reactor module):
40 kg Na /h + 31 kg H₂O /h => 70 kg NaOH /h + 1.7 kg H₂ /h + P_w

Customer benefits:

- CO₂ savings by replacing gas with hydrogen in production
- CO₂ savings in electricity by replacing hydrogen in fuel cells
- No hydrogen leakage during storage
- Own NaOH production for CO₂ absorption and soda production

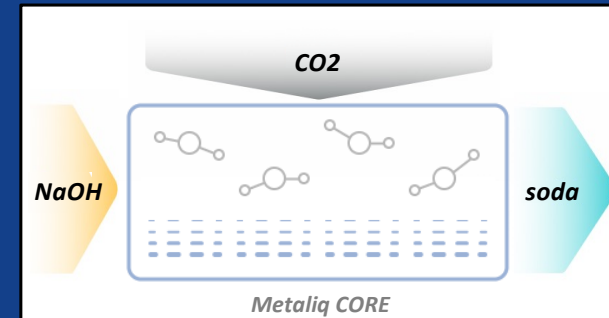
NOAH+CORE process chain: Best CO₂ reduction

CO₂ avoidance: Metaliq NOAH
Innovative in-situ production of hydrogen



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METALIQ

Team



Hans-Ullrich Werner, Managing Director
Dipl.-Ing. Mechanical Engineering
Main shareholder

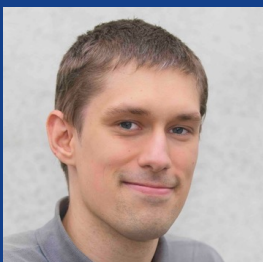


Mathias Renner, Head of Finance
Dipl.-Ing., Dipl.-Kfm.
Shareholders

MetalIQ GmbH is based in Chemnitz and, in addition to office infrastructure, also has a laboratory environment and workshop resources for the production of machine components and prototypes of systems.



Dr. Sebastian Scharf, Development
Dr. rer.- nat , M.Sc . Chemistry



Sebastian Notz, Process Engineering
M.Sc. Chemistry



Marcel Krause, Construction
technician



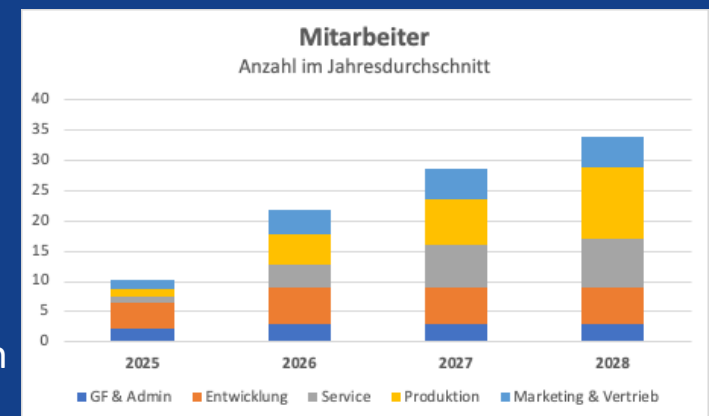
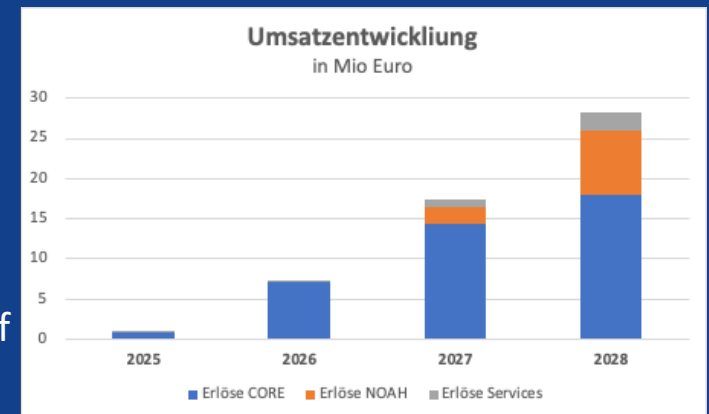
Sales and organizational development

Sources of revenue

- CORE Product: Marketing active, pilot “live” in Q3/25, with planned revenues of 1 million euros in 2025 and 7 million euros in 2026, etc.
- NOAH Product: Sales revenue from 2027
- Services for CORE and NOAH (especially maintenance contracts)
- Sales scaling through standardized “products” (and derivatives thereof for project business) and with manufacturing service providers

Organizational development

- Shareholders in CEO and CFO management positions
- Focus on expanding the core management team to include marketing and product management (in 2025) for management backup
- Employee participation program for management and development team (via silent partnerships)
- Scaling of production and service departments parallel to sales growth



Milestones & Financing

Metalq GmbH was founded in 2019 and has been focusing on industrial environmental technology solutions since 2022.

outlook

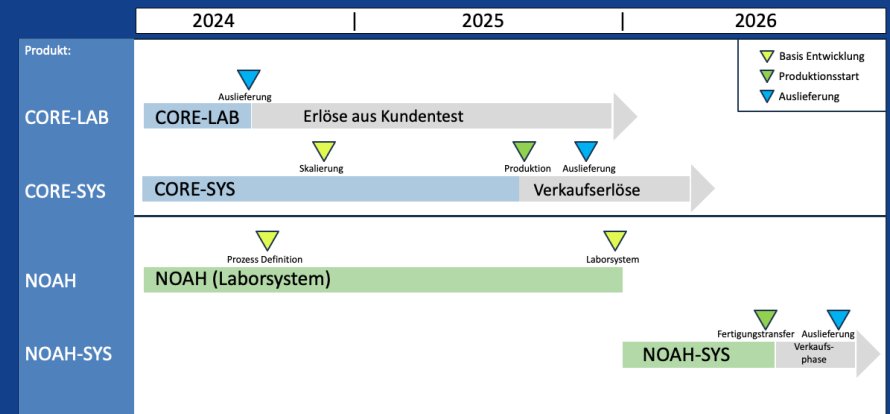
- CORE sales from mid/2025
- NOAH sale from end/2026
- Sales pipeline CORE: 7 mio €

Previous financing, including

- Private funds of the management 450 T€
- Private investors 275 T€

Financial needs 2025

- **1.5 M€ for completion of the CORE-SYS pilot plant, start of production and expansion of marketing and sales, as well as for the development of the NOAH laboratory system**
 - 600 T€ of which pledged by private investors
 - 300 T€ of which provisionally allocated for TGFS/MBG (LoI available)
 - 600 T€ outstanding
- **Note: NOAH-SYS hydrogen prototype requires further 0.7 M€ in 2026 (target: financed by banks/customers)**



Timetable based on 600T€ commitment Q2/2025 and 0.7M€ commitment end of 2025



Revenue planning & net income

Sales focus in 2025 is on

- CORE-LAB test positions (services)
- First CORE-SYS plant sales, followed by large plants in 2026.

The investments in product development and organizational structure are intended to ensure rapid market entry

- Realization of strong sales growth in 2026 and beyond through active marketing – supported by a well-positioned internal organization
- Realization of high returns through module-based plant construction and manufacturing synergies
- Profitability from 2026

Ertrag	2024*	2025	2026	2027	2028
Verkäufe CORE		825.000	7.200.000	14.400.000	18.000.000
Verkäufe NOAH		0	0	2.000.000	8.000.000
Services (CORE+NOAH)	105.500	194.000	180.000	922.000	2.188.000
Nettoumsätze	105.500 €	1.019.000 €	7.380.000 €	17.322.000 €	28.188.000 €
Selbstkosten	2.638	670.000	3.600.000	11.190.000	15.000.000
Bruttogewinn	102.862 €	349.000 €	3.780.000 €	6.132.000 €	13.188.000 €
Betriebsausgaben	2024	2025	2026	2027	2027
Löhne und Gehälter	134.517	685.320	1.481.880	1.889.400	2.229.120
Abschreibung	6.260	125.388	268.963	306.413	337.013
Miete		39.750	85.200	104.400	104.400
Büromaterial		25.200	49.200	60.700	63.600
Reisen		18.900	54.100	73.200	73.200
Werbung		42.000	68.000	76.000	76.000
F+E Material		205.600	97.000	54.600	54.600
Sonstiges	188.502	93.440	56.400	60.600	60.600
Betriebsausgaben gesamt	329.278 €	1.235.598 €	2.160.743 €	2.625.313 €	2.998.533 €
Einkünfte aus Betrieb	-226.416	-886.598	1.619.257	3.506.687	10.189.467
Neutrale Erträge (Kosten)	26.259	-75.178	397.292	-19.314	-68.800
Einkommen vor Steuern	-200.158	-961.776	2.016.549	3.487.373	10.120.667
Kosten für Unternehmenssteuer	0	0	604.965	1.046.212	3.036.200
Nettoeinkünfte	-200.158 €	-961.776 €	1.411.584 €	2.441.161 €	7.084.467 €

Table: Financial planning 2024-2028 (version cg); preliminary actual values indicated by *)



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