

Carbon Capture Solutions

MODULAR & AI POWERED



ergil

Problem

Industrial CO₂ emissions are one of today's biggest global challenges. Companies face strict regulations, rising carbon costs, and social pressure. Current capture systems are costly, slow to deploy, and difficult to scale leaving industries without practical solutions.



Society

Communities demand cleaner air and sustainable industry, but companies struggle to balance emission cuts with economic growth.

Environment

Conventional capture methods waste energy and resources, increasing operational costs and limiting efficiency.

Climate

Global CO₂ levels keep rising, intensifying climate risks and regulations, while scalable, smart, and adaptive solutions are still missing.

Regulation

Tighter global policies increase pressure on industries to act quickly, yet existing solutions fail to provide compliance at scale.

Solution

We deliver a **Smart, Modular, AI-powered Carbon Capture System** that directly addresses the inefficiencies of current technologies.

Our solution is **cost-effective, energy-efficient, and scalable**, enabling industries to cut emissions while improving ROI and compliance.



Market

A flexible and innovative system designed to meet global sustainability demands and be accepted across diverse markets.

Industry

Practical, modular units that reduce CAPEX and OPEX, align with regulations, and create measurable climate impact.

SEM

AI-driven optimization and real-time data analytics ensure precise, efficient, and adaptive carbon capture performance.

Facilities

Industrial plants and utilities gain a reliable, scalable solution that reduces emissions, lowers operating costs, and meets climate goals.



Smart Carbon Capture, Powered by Experience & AI

ERGIL combines 40+ years of scrubber expertise with next-generation AI-powered carbon capture technologies.



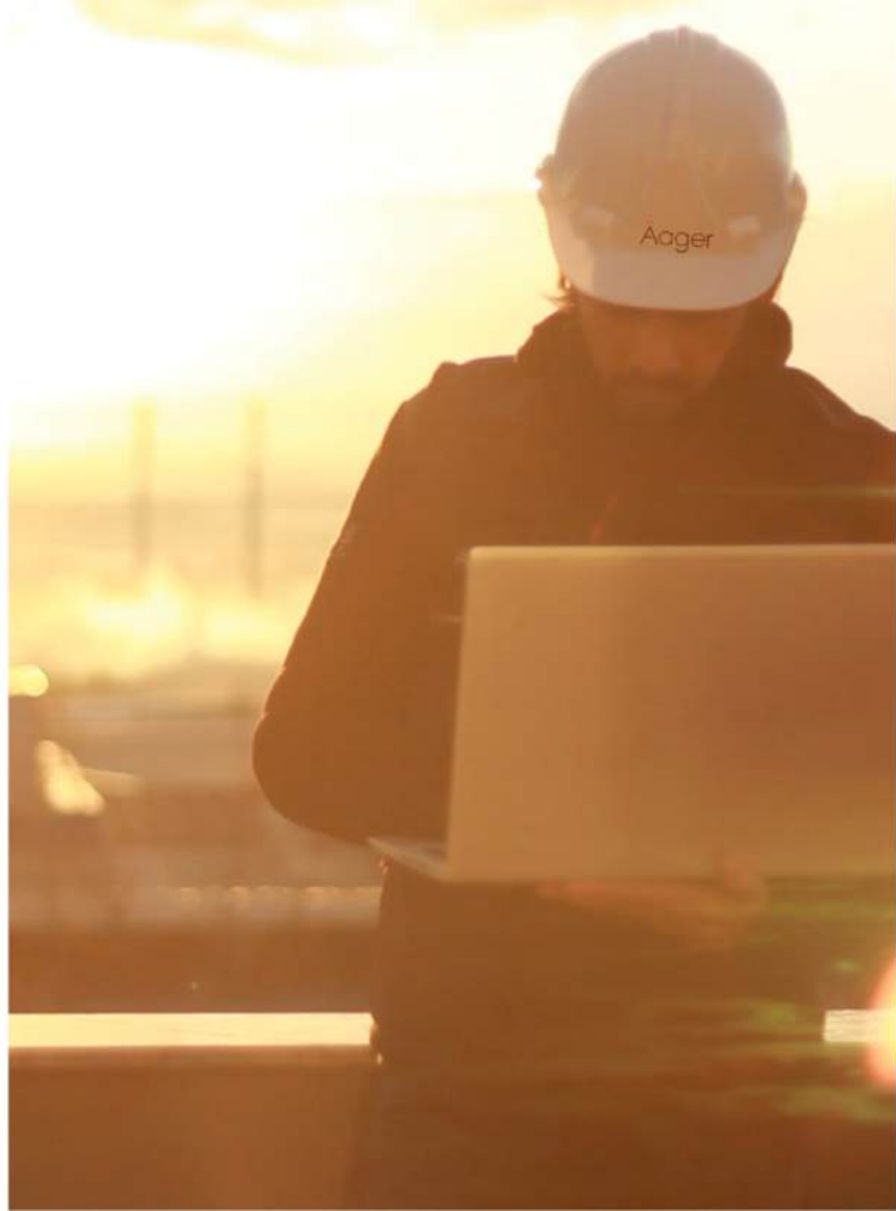
Proven Emission Control

Our scrubber systems have long been trusted to control H_2S , NH_3 , SO_x , NO_x , VOCs, and particulate emissions across multiple industries.



Next-Gen CCS Technology

AI-driven algorithms instantly adapt to flue gas variables—composition, temperature, pressure, pH, and energy—ensuring stable CO_2 capture and reduced energy use.



Efficiency & Sustainability

Modified amine-based solvents with AI-optimized regeneration deliver high selectivity, lower OPEX, and extended solvent life. ERGIL CCS achieves higher capture rates with less energy.



Towards Net-Zero

When powered by renewables, our systems can even deliver negative emissions, eliminating the carbon footprint.



Comprehensive Solutions

By integrating scrubber and CCS technologies, ERGIL provides turnkey solutions for air pollution control and greenhouse gas reduction in cement, steel, power, and chemical industries.





Pre-Treatment (SETO)

Compatible with gas pre-treatment units.

Energy Integration

Heat recovery & electrification to lower energy demand.

Performance Guarantee

High separation efficiency with low energy use.

Modularization

Cost-efficient design, easy to scale up.

Service

Training, operation & maintenance support.

Material Selection

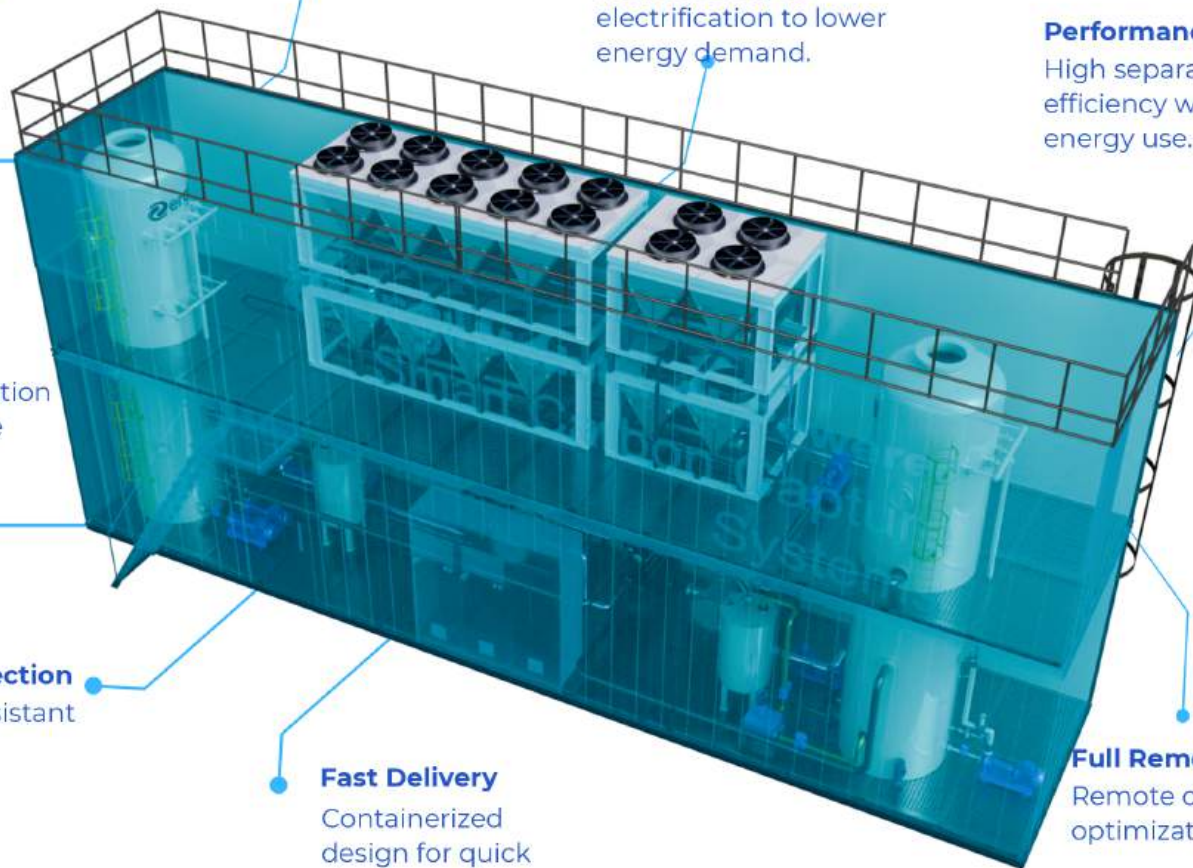
Corrosion-resistant & durable materials.

Fast Delivery

Containerized design for quick site integration.

Full Remote Assistance

Remote control & optimization ready.





Desorption Column

Heat Recovery Unit

CO2 Storage

Scrubber

Carbon Capture Unit

Carbon Capture Process Chain

ERGIL delivers the full carbon capture process chain with in-house design and manufacturing. From pre-treatment and cooling to absorption and finally regeneration & compression, every stage is built by **ERGIL** for maximum efficiency, reliability, and cost savings.

Pre-Treatment & Cooling

Flue gas is cooled and pre-treated to remove impurities and prepare for efficient CO₂ capture.

Absorption & Separation

Advanced amine-based solvents absorb CO₂ from the gas stream with high selectivity and stability.

Regeneration & Compression

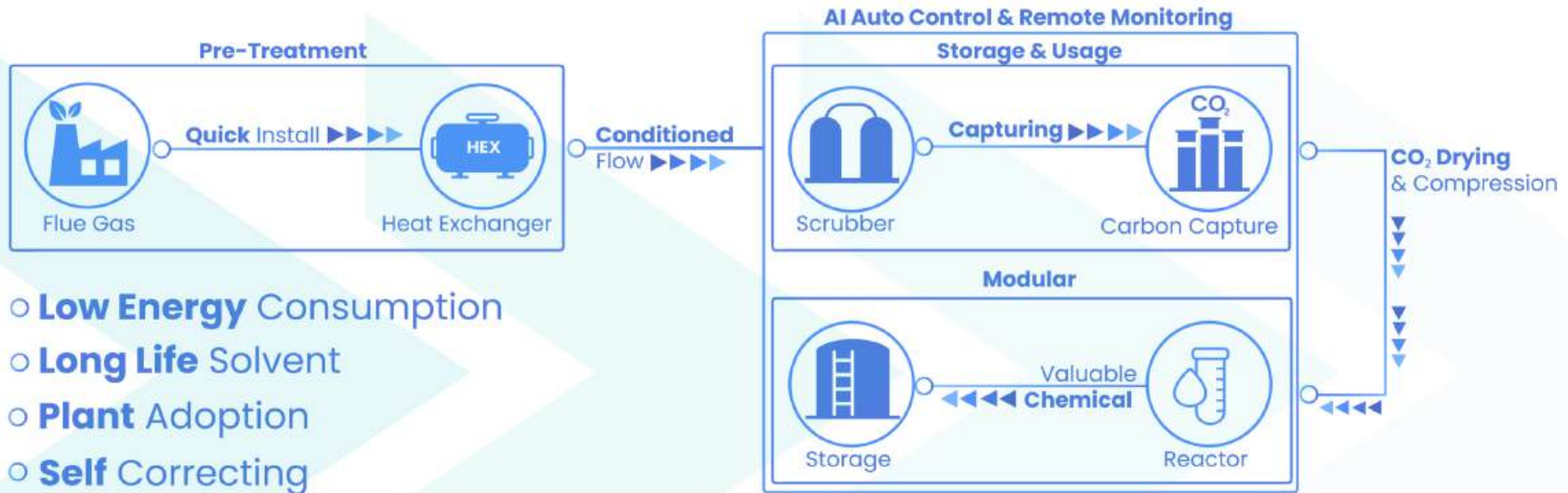
CO₂ is released, purified, and compressed for safe storage or utilization, while solvents are regenerated for continuous use.



Smart Design. Real Efficiency.

How We Achieve It?

ERGIL combines proven scrubber technology with advanced AI control to deliver reliable, modular carbon capture systems. Each stage — from gas pre-treatment to CO₂ regeneration — is engineered and built in-house for seamless integration and maximum performance. Smart heat recovery, optimized solvent management, and real-time monitoring extend amine life, lower OPEX, and ensure >99% capture efficiency.



Amine based absorption Heat recovery Amine regeneration >99% CO₂ purity

Ergil, delivering excellence in industrial solutions.



Ergil engineers and manufactures process & environmental equipment and modular skids at our 35,000 m² facility in Mersin, Türkiye. For 40+ years, we have delivered scrubbers, separators, pigging systems, and tank-safety equipment (flame arresters, PVVs) for oil & gas, chemicals, power, and carbon-capture projects.

We combine in-house design, machining, welding, blasting/painting, and testing with rigorous QA/QC and full material traceability.

All equipment is built to international codes (ASME/EN/API) and verified through client-witnessed FAT/SAT. Our multi-disciplinary team supports the full lifecycle—from sizing/simulation to commissioning and remote monitoring.





NH3 CAPTURING



DeSOx



VOC H2S

Challenge

2,700 m³/h process gas with HCl 680 ppm and SO₂ 500 ppm.

Solution

Two 2-stage wet packed scrubbers with a single optimized reagent program; 24/7 operation with cyclic chemical tank

Impact

Ovens/reactor lines integrated; ≥99% removal, stable for 2+ years, lower OPEX and compact footprint.

Capture Link

Acid gas removal protects downstream CO₂ capture (amines/membranes) and improves solvent life.

Chemical and odor emissions on a common header.

Two-stage wet packed scrubber in a single unit using a dual-purpose chemistry to minimize chemicals/water; 24/7 operation.

Dryers and reactors connected; ≥99% abatement, 3+ years consistent performance; OPEX and space savings.

Clean pre-treatment reduces solvent degradation and odor carry-over in CO₂ capture trains.

Atmospheric acid gases and loss of valuable process streams.

Two x 2-stage scrubbers + a chemical reactor to neutralize emissions and reclaim by-products back into the process.

≥99% chemical emission removal, 2+ years stable operation; in-process recovery adds value with no extra major CAPEX. Lower acid-gas load extends CO₂ capture unit stability and uptime.

Shaping the path to
Net-Zero