

Redefining value: Climate transition and the future of GCC chemicals



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Faced with emissions-intensive value chains and a deep reliance on hydrocarbons, the chemical industry stands at a climate crossroads. The challenges of the climate transition are immense – but so is the opportunity to lead.

Nowhere is this potential more pronounced than in the GCC, where record-breaking investments in renewables, green hydrogen, and bold national strategies are laying the foundation for a reimagined value creation model.

The real question? How can companies reframe climate transition risks as strategic levers, and embed climate alignment at the core of business performance and decision-making?

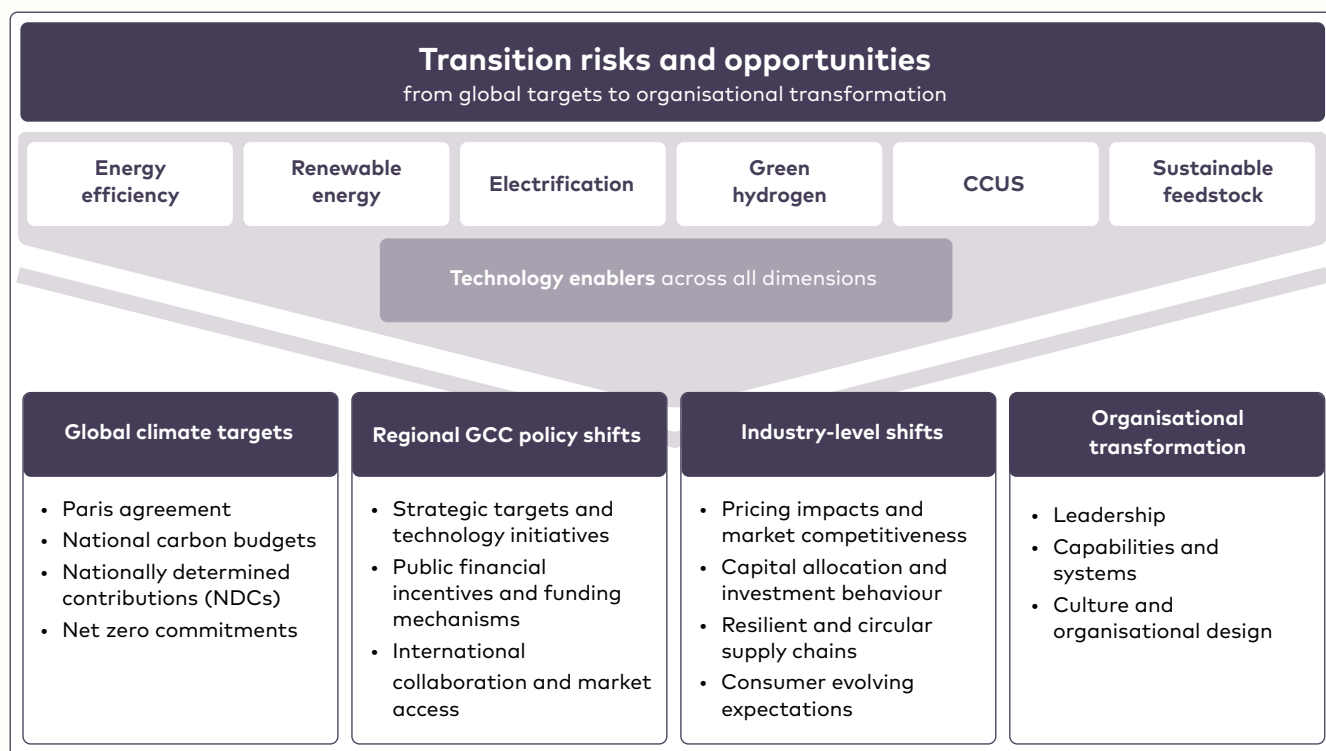


Figure 1: Structural view of how transition drivers interact, anchored in technologies that catalyse progress across levels

The answer lies in connecting five forces (Figure 1) – **enabling technologies, global climate targets, regional policy signals, industry shifts, and organisational transformation** – into a unified strategy. Done well, this can future-proof chemical players against disruption and set them apart in an increasingly carbon-conscious market.

Why the chemical industry is under pressure

The chemical industry emits over 3 billion metric tons of CO₂ equivalent each year. This is 5-6% of all global emissions, making the sector the third largest industrial emitter behind cement and steel. In fact, the seven primary chemicals account for nearly half of these emissions.

The challenge is producing more with less emissions especially as demand for these products is rising with global population growth.

For chemicals, this challenge is amplified. The use of hydrocarbons as both energy source and chemical feedstock means chemicals face more constraints in reducing emissions compared to other industries. Renewables and electrification can decarbonise emissions from energy use, but replacing fossil-based feedstocks that produce core chemical products is far more complex.

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This complexity sharpens the urgency to transition. The International Energy Agency's (IEA) Net Zero Roadmap calls for reducing primary chemicals emissions by 95% to just 65 million metric tons of CO₂ by 2050. Reaching it will require technologies and business models to transform at scale quickly.

For GCC companies, rather than only reacting to global pressure, proactively shaping the future of low-carbon chemicals can create a global competitive advantage.

From policy signals to market position in the GCC

GCC governments are sending increasingly clear signals that the transition is here. National strategies like the UAE's Net Zero 2050 and the Saudi Green Initiative are backed by multi-billion-dollar investment plans, industrial incentives, and emissions reduction frameworks.

Green bonds now account for 30% of bond issuance in the region, which is double the global average. Hydrogen strategies are taking shape for example in the UAE, Saudi Arabia, and Oman. Infrastructure for renewables, CCUS, and green ammonia is rapidly expanding, with landmark projects like NEOM's green hydrogen plant setting global benchmarks.

These moves matter, because they are shaping the operating environment for chemical producers. Thereby, carbon intensity, once a secondary consideration, is becoming a core metric for investment, procurement, and trade.

Take the European Union's Carbon Border Adjustment Mechanism (CBAM): it will introduce tariffs on the embedded carbon content of certain imports. GCC producers unable to demonstrate low-emission production may face restricted market access – or see their margins eroded.

Likewise, downstream end-user industries are tightening supplier requirements. Disclosure of Scope 3 emissions, recyclability standards, and low-carbon material preferences are already becoming prerequisites.

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Six integrated technologies that enable the transition

At the heart of this are **six critical technology enablers**, of which each offers value alone, but together, they form a system of transformation.

- **Energy efficiency** reduces baseline demand, making it easier and more cost-effective to electrify operations
- **Electrification**, when powered by clean electricity, cuts Scope 1 emissions and supports flexible plant operation
- **Renewable energy**, increasingly available through purchase from the grid or direct investments, help companies reduce Scope 2 emissions and stabilise energy costs
- **Green hydrogen** serves both as a low-carbon fuel in high-heat processes and a core feedstock for producing low-carbon ammonia and methanol
- **CCU(S)** is a viable option for capturing CO₂ emissions released in chemical processes where substitution is technically infeasible
- **Sustainable feedstocks**, including alternative and recycled inputs, are inevitable to cutting embedded carbon and support meeting Scope 3 targets

The key is integration. For example, improving energy efficiency lowers the threshold for renewable substitution. Electrification then enables the use of that renewable energy in chemical processes where fossil combustion would otherwise dominate. Captured CO₂, combined with green hydrogen, can be turned into synthetic feedstocks, further reducing emissions.

These technologies are already being demonstrated in pilot projects, but unlocking full value requires one additional, often overlooked dimension: the readiness of the organisation itself.

The hidden lever is often organisational transformation

The transformation ahead is not just technical, it is deeply organisational. And in many cases, this is where progress stalls. Most companies focus on what is visible: technologies, reports, and KPIs. But real transformation happens below the surface in how people lead, learn, and work. As illustrated in the iceberg model (Figure 2), the visible aspects of sustainability performance rest on a deeper foundation of mindsets, behaviors and practices – all supported by leadership, capabilities and systems, as well as culture and organisational design.

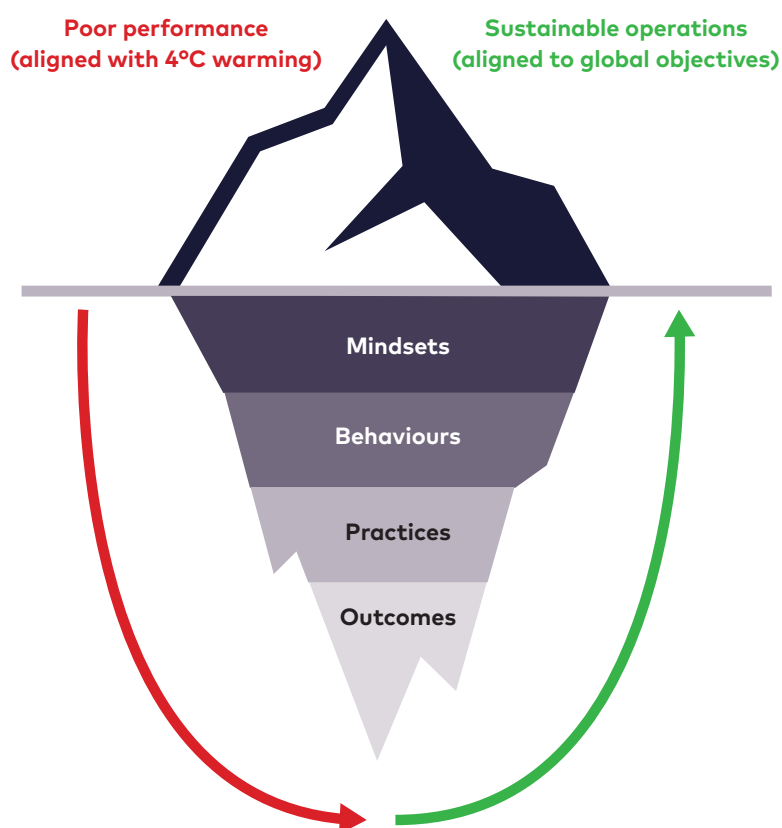


Figure 2: Cultural transformation encompassing systematic changes in mindsets, behaviors and practices

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Strategy sets the direction, but organisational readiness and transformation determine the pace

Leadership goes beyond vision and advocacy. It needs to integrate climate thinking at all levels and every decision point, from capex planning to procurement to product design. Alignment across functions, teams, sites, and geographies driven by leaders who can coach, mobilise, and model a new way of thinking is critical.

Capabilities and systems are the infrastructure for change. The global renewable energy workforce has more than doubled from 7.3 million in 2012 to over 16 million in 2023. This is a signal. The GCC has an opportunity to lead here by becoming a hub for climate-skilled talent. Building these capabilities requires targeted learning and embedded digital systems, e.g., for emissions monitoring or supply chain traceability. Companies that invest in upskilling will outpace peers in readiness and return on investments (ROI).

Culture and organisational design determine how fast and how far companies can move. Agility, ownership, and cross-functional integration are also competitive differentiators. When frontline employees understand their role in emissions reduction, when functions collaborate and break silos, when climate KPIs are tied to real business outcomes, change happens faster, with deeper impact. Organisational design matters here.

In short: strategy sets the direction, but organisational readiness and transformation determine the pace.

This decade decides

The forces of policy, industry shifts, and climate risk are converging for the GCC chemical industry. But so are the tools to respond technologically, financially, and organisationally.

Those who act now, decisively and systemically, will not only adapt but lead. They will shape future trade flows, define new industry norms, and capture long-term value in a world that increasingly rewards carbon performance.

Those who delay, risk reacting to standards they did not help set and pay a premium to catch up.

It is clear: **the advantage lies with those ready to shape and benefit from the change already underway.**

To dive deeper into the technologies, policy and industry shifts, and organisational capabilities driving the climate transition, look out for our upcoming full report.

About the GPCA

The Gulf Petrochemicals and Chemicals Association (GPCA) represents the downstream hydrocarbon industry in the Arabian Gulf. Established in 2006, the association voices the common interests of more than 250 member companies from the chemical and allied industries, accounting for over 95% of chemical output in the Arabian Gulf region. The industry makes up the second largest manufacturing sector in the region, producing over USD 108 billion worth of products a year.

Find out more at www.gpca.org.ae

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