

# How can net zero in chemicals be profitable?

A US perspective



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Decarbonization is poised to do more than just make chemical companies cleaner. It will forever reshape the way the industry operates.

- ▶ Decarbonization in the chemicals sector is critical to the future viability of the industry and society.
- ▶ A minority of US-based ICIS Top 100 chemical companies have disclosed net-zero climate goals or goals aligned with the Science Based Targets initiative.
- ▶ The Biden administration's emphasis on climate change means that more substantive steps can be taken toward profitable decarbonization.

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## The transition to a net-zero-carbon future may be one of the biggest challenges to ever face human society.

Perhaps that is why less than 40% of US-headquartered chemical companies in the ICIS Top 100 have published net-zero climate goals or climate goals aligned with the Science Based Targets initiative (SBTi). The initiative now counts over 1,000 companies worldwide that are setting emissions reduction targets grounded in the science and actions necessary to limit global temperature rise to below 2 degrees Celsius above preindustrial levels. Buy-in lags in the US despite demonstrations across industry sectors that these targets boost profitability, improve investor confidence, drive innovation, reduce regulatory uncertainty and strengthen brand reputation.<sup>1</sup>

Decarbonization is particularly challenging for the chemicals sector, which sits at the center of the connections between the products that people use in everyday life and the raw materials used to manufacture them. The most carbon-intensive sectors (such as oil and gas and power and utilities) have faced shareholder pressure regarding climate change for years, and chemicals now face more of the same scrutiny. Most of the largest companies have enhanced climate disclosures and conducted scenario analyses following the Task Force on Climate-related Financial Disclosures (TCFD) [recommendations](#).<sup>2</sup>

In the past year, many leading companies have set net-zero or other decarbonization ambitions. The financial sector is showing greater awareness of the systemic risk of destabilization that climate change presents, calling on companies to lead and considering the changes that will be necessary at a portfolio level to achieve net-zero greenhouse gas (GHG) emissions by 2050 or sooner as a society. Pressure continues to accelerate on all industries to decarbonize, especially those that are carbon intensive or highly consumer-facing. This pressure is also increasing in the US, intensified by the Biden administration's emphasis on climate.<sup>3</sup>

Renewable energy is increasingly cheaper than fossil fuel energy, and even the previously dismissed idea of cracking using renewable energy is being taken seriously.<sup>4 5 6</sup>



Fortunately, breakthroughs in technology that can support profitable decarbonization strategies seem to be accelerating in the past year.

Many aspects of this work are putting pressure on long-term value for the chemicals sector, including:

- ▶ **Increased demand from governments, regulators, investors and the public to support net-zero commitments and decarbonization more quickly than previously considered.**
- ▶ **Investor uncertainty about future growth in the context of a changing and increasingly volatile business environment**, which can now be described as “BANI”<sup>7</sup> – brittle, anxious, nonlinear and incomprehensible.
- ▶ **The changing future of the global energy system, which is the primary feedstock supplier to the chemicals industry.** Many thought leaders are wary of the future role of carbon-intensive sectors, advocating for complete removal of fossil fuels from the global energy system and a rapid transition to lower-carbon energy sources. This move would probably bring increased volatility and higher pricing to basic chemicals feedstocks.



It's our view that decarbonization strategies must move toward the top of the agenda in the chemicals sector, which has both direct and enabling roles to play in this race to net zero:

▶ **Radically reduce the "footprint" of chemicals industry operations.**

Building on strategic objectives, define an optimization framework across your organization to evaluate the cost/benefit case for different operational adjustments that will drive a reduction in GHG emissions. Many leading companies have been doing this for decades; one chemical company reports that it added \$4 billion to its bottom line through energy efficiency improvements during a single decade. And there is still more to be done: new technology developments mean that opportunities that were previously judged not worthy of investment should be reconsidered. The proven EY decarbonization methodology has helped several large companies develop plans for profitable footprint reductions.

▶ **Improve the "handprint"<sup>8</sup> benefits of the products of chemistry.**

Implement a supply chain approach that identifies emission hotspots in your supply chain, providing a

platform for engagement. Then consider collaboration opportunities with value chain partners to develop ways to improve impacts at the point of greatest leverage. Revenue improvements and cost savings from more sustainable products have proved to be an important source of economic profit.

▶ **Take the lead in developing a blueprint of industry practices, public policy and cultural changes that will be needed to get to net zero.**

The voice of progressive industry is increasingly needed in today's policy discussions. Policymakers and advisors recognize that a profitable and progressive chemicals sector will be key to successful change. And progressive practices, such as valuing ecosystem services and the role of nature in solving engineering challenges, have been shown to provide hundreds of millions of dollars in additional value in the chemical industry.

<sup>1</sup> Six business benefits of setting science-based targets, Science Based Targets, accessed May 2021 via <https://sciencebasedtargets.org/blog/six-business-benefits-of-setting-science-based-targets/>.

<sup>2</sup> Implementing the Recommendations of the Task Force on Climate-related Financial Disclosures, Task Force on Climate-Related Financial Disclosures, accessed May 2021 via <https://www.tcfhub.org/recommendations/>.

<sup>3</sup> President Biden Takes Executive Actions to Tackle the Climate Crisis at Home and Abroad, Create Jobs, and Restore Scientific Integrity Across Federal Government, White House fact sheet, accessed May 2021 via <https://www.whitehouse.gov/briefing-room/statements-releases/2021/01/27/fact-sheet-president-biden-takes-executive-actions-to-tackle-the-climate-crisis-at-home-and-abroad-create-jobs-and-restore-scientific-integrity-across-federal-government/>.

<sup>4</sup> Harry Kretschmer, Renewable power is increasingly cheaper than coal, World Economic Forum, June 23, 2020, accessed via <https://www.weforum.org/agenda/2020/06/renewable-energy-cheaper-coal/>.

<sup>5</sup> Mark Thomas, "BASF planning to power crackers using renewable electricity, reducing emissions," *Chemical Week*, February 25, 2021, accessed via <https://chemweek.com/CW/Document/117713/BASF-planning-to-power-crackers-using-renewable-electricity-reducing-emissions>.

<sup>6</sup> *Cracker of the Future: Companies to explore electrical cracking to potentially reduce greenhouse gas emissions*, Trilateral Chemical Region, accessed May 2021 via <https://www.trilateral-chemical-region.eu/cracker>.

<sup>7</sup> BANI versus VUCA: a new acronym to describe the world, Stephan Grabmeier, July 2020, accessed via <https://stephangrabmeier.de/bani-versus-vuca/>.

<sup>8</sup> Gregory A. Norris, *Introducing Handprints: A Net-Positive Approach to Sustainability*, Harvard Extension School, November 30, 2017, accessed via <https://extension.harvard.edu/blog/introducing-handprints-a-net-positive-approach-to-sustainability/>.



# Addressing tension between growth and carbon reductions

Being profitable while remaining sustainable needs to be repurposed with the societal and regulatory trends advancing a low-carbon future.

One of the key failures EY teams have identified in decarbonization approaches to date is the lack of alignment between growth and emission reductions. Hence, our EY Decarbonization Architecture Framework that seeks to establish the critical components needed to create a sustainable decarbonization strategy. It should:

- ▶ **Be executable.** Many strategies ignore the realities of management of change and market mechanisms or technologies that are not of sufficient scale to implement. Chemical companies should evaluate upstream, operational and downstream emissions to determine what can be reduced and when.
- ▶ **Provide a return on investment.** Assessment of alternatives to combustion for heating processes in chemical companies' operations should be assessed with appropriate financial and emissions modeling to establish the business case for change. Incorporating an internal carbon price in that analysis should be seen as a necessary hedge to current and future pricing of emissions.
- ▶ **Have a realistic time frame.** There is currently an overreliance on future technologies to drive the emissions curve down in the future. This is a high-risk strategy that can leave a company with expensive short-term options (such as offset purchases) to achieve goals and targets. An effective decarbonization strategy establishes the appropriate dependencies and work streams based on level of effort, cost, emission reduction potential and return on investment to fully evaluate all possible decarbonization pathways.



## Setting priorities to realize sustainability

### Establish a framework for your company's decarbonization strategy.

Regardless of where you are in your low-carbon transformation journey, it will be necessary to focus on the following key steps to remain relevant and drive sustainable returns in the future:

**Strategy:** Define and implement a low-carbon strategy, and business models that reduce GHG emissions while remaining profitable. Articulate these strategies clearly to markets and other stakeholders. Key questions: do we have a strategy, and is it the right one?

**Reporting:** Accelerate reporting on climate change metrics that are transparent, objective and accessible to investors. Be honest about where you are and which objectives you still need to address. Key question: how should our reporting evolve as we execute our strategy?

**Innovation:** Harness technological advancements that improve the handprint of your products, delivering financial and environmental benefits for your entire value chain. Don't be afraid to think big and explore bold ideas that have the potential to bring you closer to your goals. Key question: how do we position our innovation efforts to align with future market expectations?

**Policy:** Help lead the development policy and societal changes that will be critical to success in achieving global decarbonization. Be a leader, not a follower. Key question: how do we leverage our strategic ambition and purpose to enhance external engagement and advocacy?

**Workforce:** Develop a workforce strategy that maintains the business as an attractive destination for talent concerned about carbon footprint and sustainability in the industry. Key question: what organizational structures and culture will be required to drive our execution efforts over the long term, while promoting a pipeline of new talent?

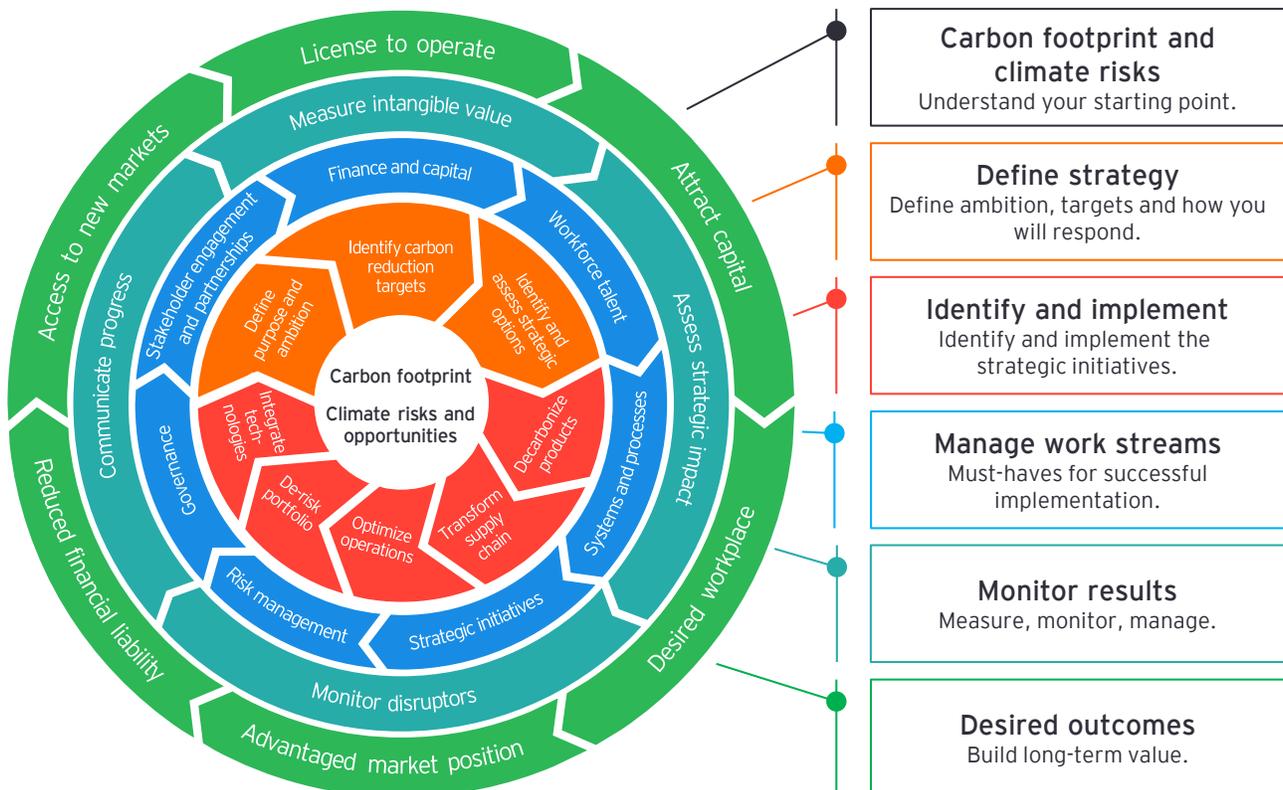
# Increasing efficiency and growth in disruption

## The momentum behind decarbonization is growing.

Our Decarbonization Architecture Framework and Sustainable Transformation Methodology, implemented with several major clients, have proved to lead to profitable growth and a clear strategy for future growth and sustainability.

When it comes to developing and implementing a decarbonization strategy, no two approaches will be the same. With this in mind, EY teams have developed a framework to help companies navigate the stages of developing and implementing a decarbonization strategy.

### The EY Decarbonization Architecture Framework





This framework is:

- ▶ Capability- and competency-driven and supports both the strategic outlook and the execution areas required to capture long-term value.
- ▶ Not a reporting framework such as TCFD. While there are similarities, the framework is intended to provide suggested capabilities or competency areas for discussion.
- ▶ The framework consists of six elements, each with distinct components, and is part of a broader decarbonization architecture including tools and enablers leveraging the reach and teaming capabilities of the global EY organization.

## Summary

The effort to decarbonize the chemicals industry will require pragmatic leaders who can see beyond the challenge and embrace the opportunity. President Joe Biden has committed the US to cutting greenhouse gas emissions in half by 2030. It's an ambitious goal, but one the industry can achieve to help America with strong, purpose-driven leadership.

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