



Internal carbon pricing for chemicals companies

Value beyond regulatory compliance:
Helping chemicals companies navigate
the energy transition



With the spread of global tax regimes and policies designed to influence decarbonization, more corporations are adopting internal carbon pricing (ICP) to try to get ahead of evolving regulations. This includes wider ICP adoption among companies in the heavy-emitting and hard-to-abate chemicals sector.

Chemicals is the third-largest carbon dioxide emitting industry, amounting to between 5 percent and 6 percent of global emissions. The pressure to decarbonize only continues to grow as global government and corporate net zero goals look increasingly harder to achieve.¹

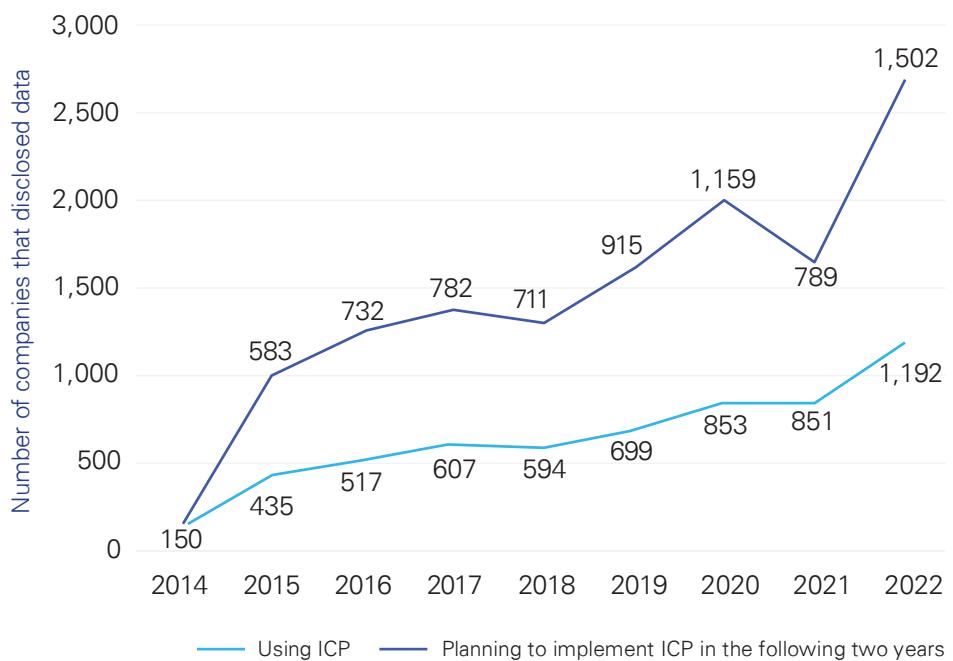
Chemicals clearly has an important role to play in reducing carbon given the sector's impact. But that role comes with a regulatory burden to carry through the transition to a low-carbon future, as well as a risk: chemicals companies that fail to reduce their emissions today may be left with higher-carbon products that are less competitive in the global markets of tomorrow.

Internal carbon pricing is a strategy chemicals companies can use to not only get ahead of regulated carbon pricing, but also add to their toolkit to better manage carbon pricing risk, reduce operating costs, and incentivize lower emission behavior.

¹ IEA, Chemicals Tracking Report; Global CO₂ emissions by sector, 2019–2022

More companies are using or planning to implement ICP

Internal carbon pricing places a value on the amount of a company's greenhouse gas (GHG) or CO₂ equivalent (CO₂e) pollution. The number of companies using or planning ICP increased 67 percent in three years through 2022, the latest public data from the CDP global disclosure system.



Source: CDP





The overarching goal of carbon pricing

Carbon pricing in general is designed to create a glidepath to help an economy or an organization manage the transition to a low-carbon or net-zero future. Typically, over time, the cost of CO₂ pollution and other GHG emissions (commonly referred to collectively as “carbon”) should be priced to encourage market participants to change their behavior as the price of pollution gradually and predictably marches upward. Funds collected from any charge or tax should ideally be used to help cover costs required to transition toward lower-carbon solutions.

References to carbon pricing typically fall under two types. Regulated carbon pricing markets can either involve (i) a direct excise tax on emissions (or emissions-generating products), or (ii) an emissions trading scheme (e.g., California cap-and-trade or the European Emissions Trading System). Ethylene, ammonia, methanol, PVC, and polystyrene are typically the most carbon-intensive products in the chemicals and petrochemical industries.

Shadow pricing and internal carbon fees

Within ICP, the two most common forms are shadow pricing and internal carbon fees.

Shadow (or proxy) pricing is an estimated price on emissions used strictly for management purposes to determine impact and identify lower-carbon alternatives.

For example, it can be used to compare the carbon liabilities of competing capital planning or merger and acquisition (M&A) alternatives. The “charge” does not result in actual financial flows or the transfer of cash within the company.

An internal carbon fee (also known as a carbon charge) is self-assessed by the company and can be levied by a business unit or operating activity and typically transferred intercompany to incentivize better behavior and self-fund sustainability activities. This type of ICP impacts the financial statements and taxable profit of group entities, and as such, exerts a higher influence on corporate behavior. For example, a company could levy a carbon charge on electricity usage that feeds a fund to pay for a rooftop solar array. Importantly, as discussed below, an internal carbon fee may have a direct transfer pricing (and tax) impact that should be understood and assessed.

Companies may also retrospectively or prospectively analyze the historical or planned investments made to reduce GHG pollution and use this quantum as a numerator divided by the actual or expected GHG reduction to create an “implicit price.” The implicit price provides organizational visibility into the blended cost of the actual or forecast cost to abate pollution.

ICP in the chemicals sector

As the regulatory and business environment has evolved to achieve lower emissions, the chemicals sector has increasingly implemented tools like ICP. Industry trends supporting greater implementation include:

- Increasing use of innovative materials. To reduce carbon footprint and optimize costs, the global chemicals industry is exploring emerging materials such as those used in advanced batteries, as well as nanomaterials and biotechnology.
- A shift toward green chemistry. Companies are trying to minimize the use of dangerous or hazardous chemicals and materials by developing and implementing new processes and products such as recycling technologies, enhanced waste management, and alternative energy resources.
- Sustainability-related dealmaking. More companies in the chemicals industry are exploring M&A opportunities that would add or enhance low-carbon and sustainable offerings in their product and service portfolios.
- Global sustainability initiatives. Countries around the world are collaborating on multiple initiatives to promote investment and introduce greater sustainability across the chemicals industry value chain.

In the most recent CDP data, 44 percent of chemical companies report already having or planning to adopt an ICP within two years. Of those, more than 60 percent are using a shadow price to inform capital planning and M&A decisions. A small percentage (7 percent) of chemical companies are also using an internal fee on carbon to reduce emissions.

²Source: CDP, KPMG analysis

Chemicals sector snapshot

3rd

largest industry emitter

3 billion

tons of CO₂ annually

5%-6%

of global industrial GHG emissions

44%

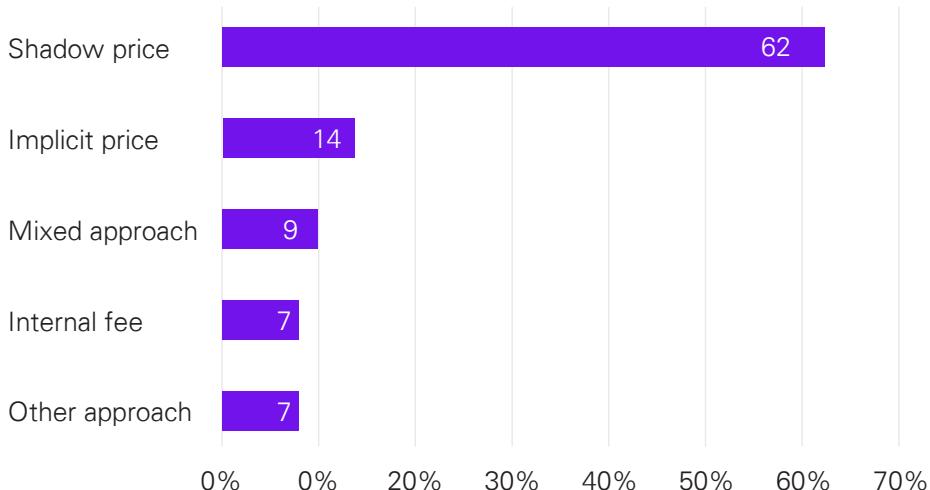
of chemicals companies use or intend to implement ICP within two years

Source: IEA, CDP, KPMG analysis

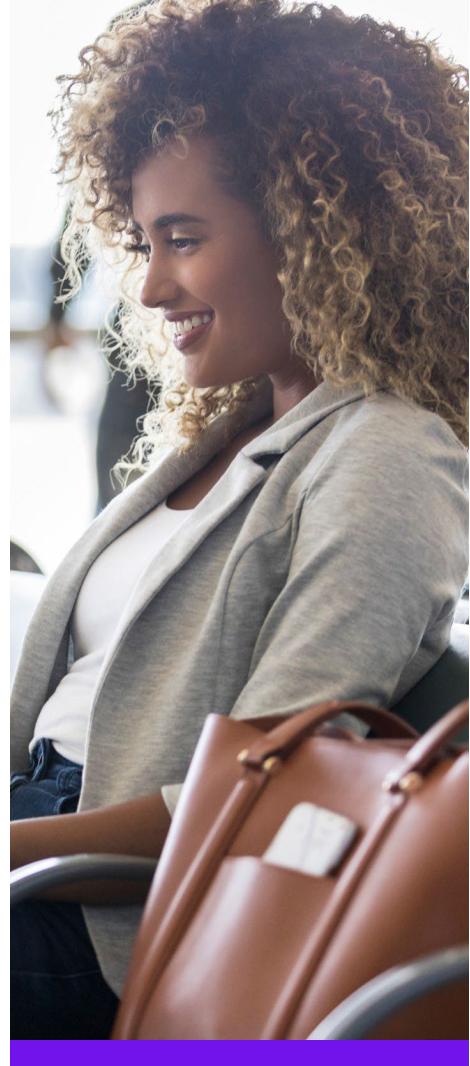


Types of internal carbon pricing in use by chemicals companies

More than 60 percent of chemicals companies with ICP use shadow pricing.



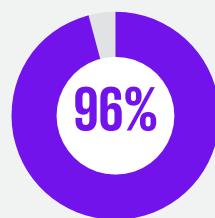
Source: CDP, KPMG analysis



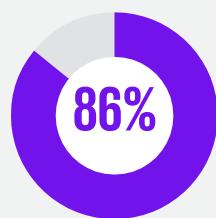
Scope 1 emissions process or combustion emissions controlled by the entity, and Scope 2 “indirect” emissions associated with purchased energy, typically contribute to both higher costs and higher emissions for chemical businesses.

Accordingly, chemicals companies are using ICP schemes to drive emissions reductions; more than 85 percent apply ICP to both Scope 1 and Scope 2.³

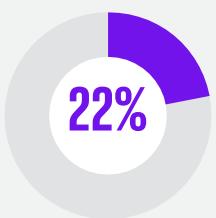
Percentage of companies in the chemicals sector including Scope 1, 2, or 3 in their ICP coverage



Scope 1



Scope 2



Scope 3

³ CDP, KPMG analysis

Benefits of ICP

Organizations implement ICP for multiple reasons beyond regulatory considerations. ICP can help chemicals companies:⁴

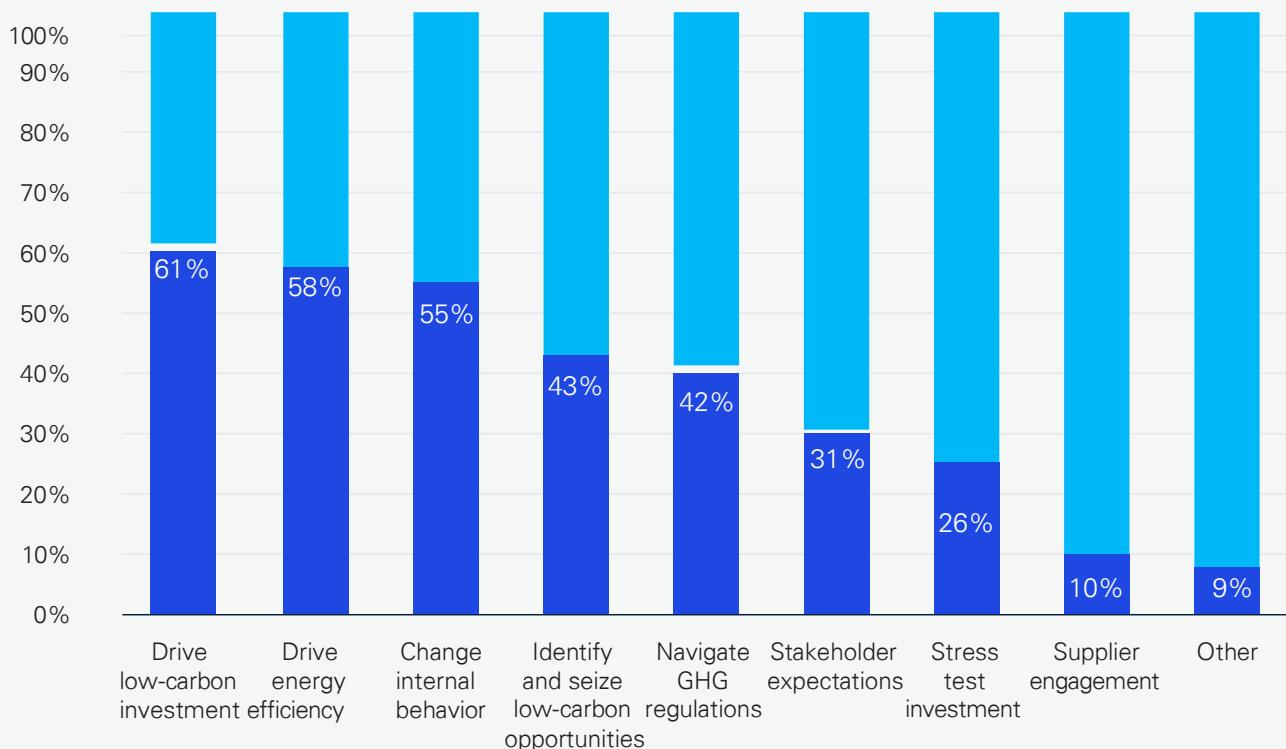
- Accelerate reduction in their carbon footprints and make progress toward emission reduction targets
- Incentivize lower-carbon decision-making and potentially fund sustainability and energy efficiency initiatives
- Communicate readiness to address climate change concerns and enhance performance on climate disclosure platforms

- Prepare for upcoming climate-related policies and regulations and carbon pricing schemes
- Attract environmentally aware investors and build reputational standing with stakeholders
- Prioritize carbon considerations and risks more centrally to business operations and strategy.

Aligning an ICP with opportunities to reduce costs or otherwise drive value creation is critical for ensuring successful implementation. A poorly designed ICP or one deployed purely to address environmental objectives may risk pushback from key stakeholders.

Corporate objectives for using ICP

Most companies across all sectors state multiple reasons for implementing ICP, including goals to drive investment and internal behavior toward lower-carbon alternatives and improve operational efficiencies.



Source: CDP, "Putting a Price on Carbon," 2021

⁴World Bank, High-Level Commission on Carbon Prices; CDP; World Bank Carbon Pricing Dashboard

New regulations will increase global competition and pressure to decarbonize

Existing regulated carbon pricing laws (carbon taxes and cap-and-trade schemes) in California, Canada, the European Union (EU), and other parts of the global economy already include the chemicals sector. On the horizon, the Carbon Border Adjustment Mechanism (CBAM) designed to help the EU reach climate goals will impose a cost on inbound goods sold into EU markets based on the carbon intensity of the product.

The products targeted by the CBAM—cement, iron and steel, aluminum, fertilizers, electricity, and hydrogen—will likely create value chain competitiveness impacts for the chemical industry. EU-exporting countries can avoid the CBAM by adopting their own carbon pricing schemes, which would in turn only serve to further prioritize carbon intensity as a key driver of product competitive advantage.

Meanwhile, climate disclosure reporting rules due to take effect in 2025 and beyond in California (SB-253), the EU, and the United States will likely result in additional investor pressure to decarbonize. The EU's CSRD and the proposed US Securities and Exchange Commission's climate disclosure rules would both require companies to disclose and describe the adoption and usage of any ICPs. Although neither set of rules require ICP, widespread marketplace adoption may indirectly pressure those organizations without to do so.

The first step toward understanding a company's carbon pricing exposure is comparing the organization's global footprint against enacted and pending carbon pricing legislation, and understanding where in the value chain the business may be directly or indirectly impacted by carbon pricing policy instruments.

Important transfer pricing implications of an ICP

Finance and Tax departments have an important role to play in the design and implementation of an ICP.

A chemicals company looking to adopt an internal carbon fee to drive decarbonization outcomes may consider an annual charge-out process for the ICP fees. As the carbon fees are estimated, budgeted, tracked, and (re)charged, the process becomes incorporated into traditional budget and finance processes. To avoid costly delays, finance and tax teams should be involved early in the design process when they can shape the ICP model.

A transfer pricing analysis is relevant to address the following questions when it comes to ICP models:

- Should carbon costs be allocated across the group, and if so, how? Which entities will be net carbon payers or payees (e.g., internal investments to reduce emissions in the supply chain, external investments in carbon offsets, etc.)?
- Where ICP funds are used to fund decarbonization investments, is an analysis needed to appropriately allocate the costs in accordance with the benefit test per guidelines from the Organisation for Economic Co-operation and Development?
- If internal fees are charged cross-border to various business units, then will those fees be tax deductible, and how should one consider an "arm's-length" price for carbon?
- What is the price of internal carbon that will best prepare the company for regulated carbon prices now or in the future?



The case for centralized and coordinated carbon management

Additional opportunities within finance and tax arise when considering the usefulness or necessity of a carbon management “hub.” This is particularly the case for companies in highly regulated, carbon-intensive, global industries like chemicals and petrochemicals that are well suited to benefit from a hub to support broader organizational carbon management.

Carbon management strategies may take the form of taxes, credits, offsets, and internal prices. The opportunities and complexities around carbon mean that a centralized carbon management function may be highly useful to manage functions, assets, and risks of carbon pricing. From a transfer pricing perspective, the carbon management hub may control important functions and risks (e.g., carbon price hedging and risk) that drive profits for the company, creating additional planning opportunities around where

such a hub should be located.

Aside from tax implications, chemicals companies must also balance business impacts and risks when considering an ICP. An internal price that's set too high can risk cultural “rejection” within the business. It's best to start with a low price that gradually increases, and to work up over time to create a tailored approach for the organization to manage the energy transition.

Finally, collaboration and design are critical to ensure a company achieves the objectives it set for internal carbon pricing, whether that is reducing emissions, saving money, funding projects, or all of the above. Cross-functional teams—empowered with key stakeholder support—create alignment and support effective implementation.

Case study

With the help of KPMG, a global agriscience and chemicals company developed an internal carbon pricing estimate to support capital planning, M&A, and emissions reduction efforts.



Challenge

A global company in the chemicals sector wanted to use carbon pricing to guide investment in M&A and capital projects, estimate the cost of carbon pricing regulation, and meet 2030 emissions reduction target. Carbon pricing would primarily provide a baseline estimate for the marginal cost of decarbonization levers needed to meet the reduction target.

The company needed a carbon proxy pricing tool to help its financial planning and analysis team evaluate exposure to future carbon liabilities, and robust analysis to support an appropriate price on emissions.



Response

KPMG worked with the company to estimate an *explicit carbon pricing range* across the company's global operating regions by cataloging current carbon pricing regulation (cap-and-trade and carbon tax schemes) at the country, province, and state levels. KPMG also made note of any policies under consideration or scheduled to be implemented in the near term.

Next, KPMG helped estimate an *implicit carbon pricing range* by identifying decarbonization levers capable of meeting the company's emissions reduction target. KPMG researched the marginal abatement costs of these technologies and constructed target-aligned scenarios. These scenarios helped the client understand different opportunities for ICP price points.



Benefits

- **Investment:** The estimated ICP range will help guide low-carbon capital project and M&A decisions.
- **Optimization:** For specific sites or regions, breakeven analysis informs the choice between paying local regulatory fees or investing in decarbonization.
- **Education:** The company became familiar with decarbonization levers (beyond net savings) capable of meeting emissions reduction target. The rationale for the lever marginal abatement costs came from third-party sources.

- **Reporting:** The company can disclose its internal carbon price in future reporting and compare to the internal carbon prices adopted by their peers.
- **Flexibility:** Deliverables can be easily adapted and updated in the future to reflect global developments in carbon pricing regulation or investment in specific decarbonization levers that may adjust the calculated implicit carbon price.

How KPMG can help

Integrating internal carbon pricing into business strategy can help chemicals companies future proof their products and drive value across their organizations.

KPMG helps global companies in chemicals other carbon-intensive industries on numerous decarbonization and other strategic efforts. We have extensive experience helping companies launch and complete their ICP journeys—including experience establishing our own internal carbon fee to support sustainable decision-making and our commitment to net zero by 2030.

Our professionals work side by side with companies to help with the following:

- Define the vision for their ICP programs
- Understand the impact of regulated pricing on their organizations
- Customize a strategy using ICP price methodology and peer benchmarking
- Conduct a pilot program and define a roadmap for implementation.

We look forward to speaking with you about your organization's plans to drive value with ICP.



Authors



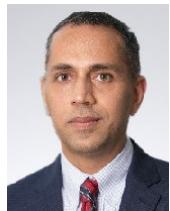
Matthew Roling
Director, Advisory, ESG

Matt, a Chicago-based director in the KPMG Energy Transition & Climate Advisory practice, has more than 15 years of experience in the clean energy, corporate finance, and technology commercialization sectors. His practice focuses on helping companies develop and execute value-creating decarbonization strategies and sustainability policies and tools, such as clean hydrogen, carbon pricing, and GHG accounting.



Geoffrey Chiles
Senior Manager, Tax, Economic & Valuation Services

Geoff, an Atlanta-based senior manager in the KPMG Economic Valuation Services practice, supports companies in the development of global transfer pricing strategies to govern intragroup transactions. Geoff brings experience from a recent international assignment to Denmark where he partnered with clients to develop transfer pricing strategies to support decarbonization efforts.



Anjit Bajwa
Principal, Industry Leader for Chemicals, KPMG Tax

Anjit is a principal based in Houston. He serves as the industry leader for Chemicals as well as Engineering & Construction for the tax practice. Anjit advises companies on value chain planning in the energy & chemicals sector. De-carbonization and business transformation are key current focus areas.

Contact us

Matthew Roling
Director, Advisory

T: 312-665-1000
E: mroling@kpmg.com

Anjit Bajwa
Principal, Industry Leader
for Chemicals, KPMG Tax

T: 206-734-5712
E: abajwa@kpmg.com

Some or all of the services described herein may not be permissible for
KPMG audit clients and their affiliates or related entities.

Learn about us:  kpmg.com

The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavor to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act upon such information without appropriate professional advice after a thorough examination of the particular situation.

© 2024 KPMG LLP, a Delaware limited liability partnership and a member firm of the KPMG global organization of independent member firms affiliated with KPMG International Limited, a private English company limited by guarantee. All rights reserved.
The KPMG name and logo are trademarks used under license by the independent member firms of the KPMG global organization. USCS012408-1A