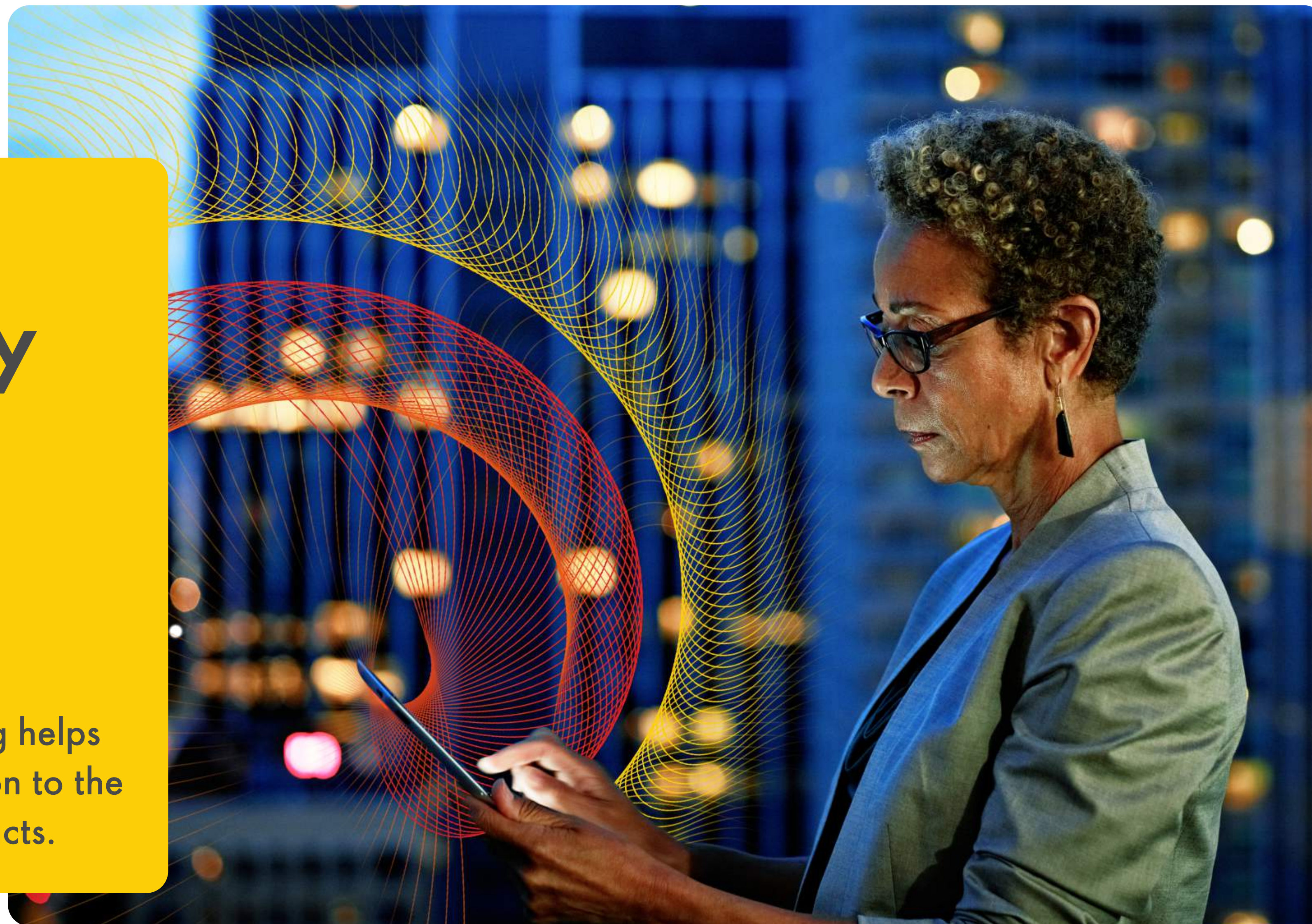




Shell Chemicals

Making sustainability claims in a complex value chain

How mass balance accounting helps facilitate an immediate solution to the demand for sustainable products.



Introduction

When it comes to sustainability, more and more companies are acknowledging its benefits for the present and the future. Why? Because according to IBM research, more than half of customers want to buy from brands that are committed to sustainability.¹ And this consumer demand is increasing.

Of course, developing a sustainable line of business has benefits beyond the bottom line. The future of the world depends on it.

As a result, many businesses are already working to reduce their carbon footprint and address waste. There are numerous options that can help us take steps toward the goal of sustainability. Reducing waste and the carbon footprint is essential for businesses. Moving from a linear economy to a circular economy is one key to the puzzle. Instead of producing products that inevitably end up in landfills, supply chains and feedstocks are changing to be able to include sustainable materials throughout the workflow.

However, businesses are also challenged to prove their claims of moving towards ESG goals. While one-fifth (21%) of companies on the Forbes Global 2000 have net-zero commitments, earning consumer trust may be more challenging than ever.² The 2023 Edelman Trust Barometer found that 52% of those surveyed don't trust business CEOs "to do what is right."³

Manufacturers need independent verification of their sustainability claims. Of the various techniques available, mass balance accounting is an established approach that ensures sustainability claims align with output and process efficiency. Independent organisations certify this process, bringing transparency and credibility to sustainability claims.

So what exactly is mass balance accounting?



The 2023 Edelman Trust Barometer found that 52% of those surveyed don't trust business CEOs "to do what is right."³

¹ IBM, "Sustainability at a turning point," May 2021, <https://www.ibm.com/downloads/cas/WLJ7LVP4>

² University of Oxford, "Taking Stock: A global assessment of net zero targets," March 2021, https://ca1-eci.edcdn.com/reports/ECIU-Oxford_Taking_Stock.pdf

³ 2023 Edelman Trust Barometer, Edelman, 2023, https://www.edelman.com/sites/g/files/aatuss191/files/2023-01/2023%20Edelman%20Trust%20Barometer%20Global%20Report_Jan19.pdf



Simply put, mass balancing is an approach which supports responsible co-processing of conventional and sustainable materials in common facilities.

The mass balance approach

Mass balance is a broadly accepted accounting approach that allows the manufacturing supply chain to mix sustainable materials with conventional materials. Doing so provides credibility of sustainable attributes present in the final product.

An independent third-party verification organisation, such as ISCC, SCS, or REDcert, tracks each step of the value chain, from the sourcing of sustainable resources to the manufacture of final products, certifying that a verified quantity of sustainable resources has been used to displace conventional (non-sustainable) resources.

Mass balance accounting is far from a new concept. It's been used for years for renewable power and sustainable fuels, as well as in other industries, such as cocoa, coffee and cotton.

Let's look at an example of how mass balance is used in the energy sector. A power grid receives energy from both conventional fuel-based plants and renewable energy sources such as solar and wind power.

Utilizing the mass balance accounting approach, renewable inputs are measured and mixed with conventional sources. This certified quantity of energy can then be allocated to various energy outputs.

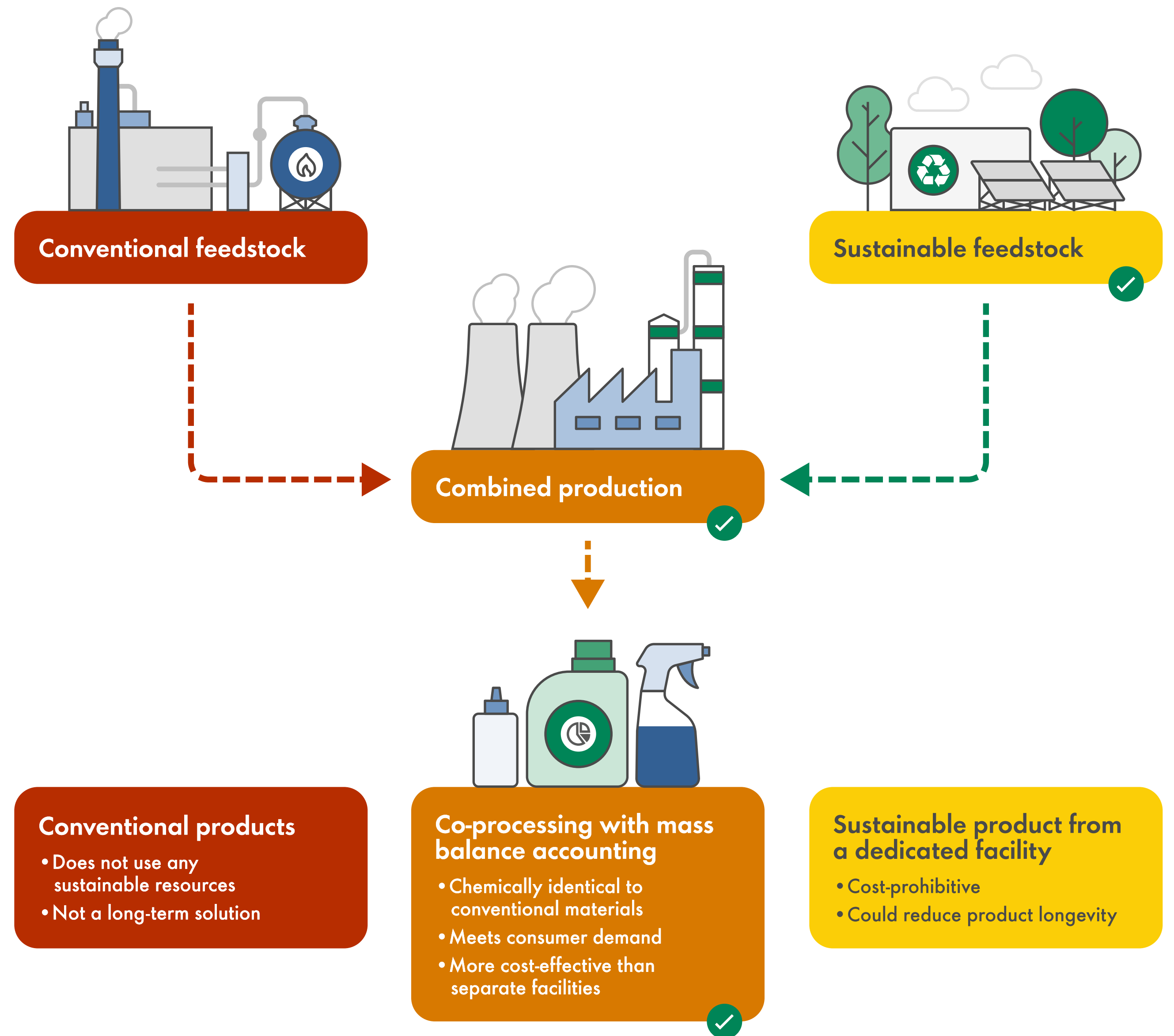
Unique certificates, such as Renewable Energy Certificates (REC) in the United States or Guarantees of Origin (GO) in Europe, are issued for each individual megawatt-hour (MWh) of renewable energy that is produced. This verifies ownership of these renewable energy inputs down the line and ensures that each unique MWh is only accounted for once as it is mixed into the grid.

Finally, consumers can choose to purchase credits or blocks of renewable energy to support green energy production, helping to displace usage of fossil fuel-based energy sources.

Verifying sustainable resource output with a mass balance accounting approach

Using existing infrastructure, the mass balance approach monitors and verifies that sustainable resources are consistently quantified throughout the manufacturing process. It is also a cost-effective method as it allows the mixing and co-processing of conventional and sustainable resources in the same facility rather than building new plants.

Co-processing sustainable materials and utilising a mass balance accounting approach enables an immediate solution to the demand for sustainable products. It allows manufacturers to replace conventional materials with more sustainable, bio-based alternatives without establishing new manufacturing processes or supply chains.



✓ Third party verification



The benefits of mass balance

Businesses are facing increased pressure to stay in step with society and meet expectations around adopting sustainability initiatives. Let's consider six key benefits of the mass balance approach:

Assurance

There's no doubt about the sustainable origin of materials used in production. Independent parties verify sustainable input and output from beginning to the end product.

Transparency

As opposed to a book-and-claim system, mass balance certifies sustainability at every step of the product value chain. Each step in the value chain is certified to ensure sustainable resources are used, and the chain is not broken at any point. This is not easy but is a critical component of claiming sustainable practices and building trust among customers.

Certifiable

Manufacturers can trust sustainability initiatives because they are governed by independent standards organisations.

Resourcefulness

The mass balance approach generates value by using existing infrastructure to process sustainable materials rather than build new plants. It provides the opportunity for companies to initiate sustainable offerings in a phased and more affordable approach.

Customer satisfaction

The result of mass balance most beneficial for businesses is giving customers what they want. As noted earlier, customers are looking to buy from brands dedicated to sustainability.

Quality

Mass balanced, sustainable products are chemically identical to their conventional counterparts. They retain the same performance characteristics and are equally strong, effective and durable.

The future of sustainability is now.

Your business can increase consumer confidence in the sustainability of your products. This confidence is supported through independent third-party sustainability certification.

According to industry analysts, two-thirds of consumers state that they are changing their consumption habits in favour of a lower environmental impact, and businesses that promote the eco-friendly benefits of their products have recorded above-average growth.⁴ Consumers' preference for sustainability continues to gain momentum in powering their purchasing decisions.⁵

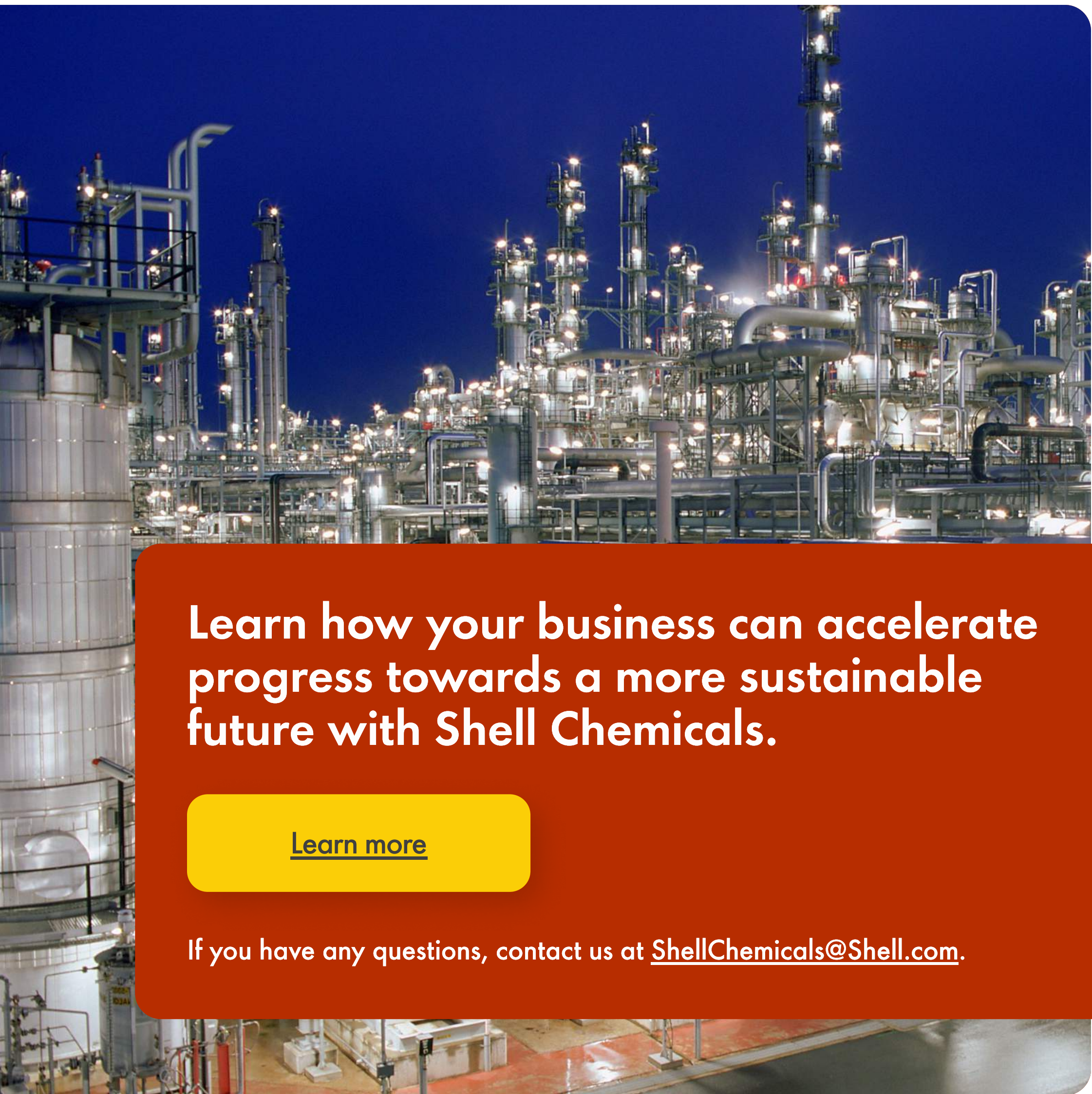
Forward-looking companies are adopting processes to verify the sustainable attributes of their products in order to credibly and transparently support ESG initiatives. In light of claims of greenwashing – or a company's attempt to lead the public to believe their products are more environmentally friendly than they are – regulatory agencies in both the E.U. and the U.S. are adopting new disclosure laws to enhance the scope and reliability of sustainability reporting.⁶ Mass balance accounting is one way to ensure sustainability claims align with output and process efficiency throughout the supply chain.



⁴ McKinsey, "How to prepare for a sustainable future along the value chain", January 2022, <https://www.mckinsey.com/industries/consumer-packaged-goods/our-insights/how-to-prepare-for-a-sustainable-future-along-the-value-chain?cid=other-eml-alt-mip-mck&hdpid=39a5e707-2073-44bc-96fe-0e100bb9152f&hctky=12549301&hlkid=19a0fc32bc4f41dabdbb929db04f7661>

⁵ McKinsey, "Rise of the inclusive, sustainable consumers", April 2022, <https://www.mckinsey.com/featured-insights/sustainable-inclusive-growth/future-of-america/rise-of-the-inclusive-sustainable-consumers/>

⁶ Brookings, "The coming age of sustainability disclosure: How do rules differ between the US and the EU?" June 2022, <https://www.brookings.edu/blog/future-development/2022/06/06/the-coming-of-age-of-sustainability-disclosure-how-do-rules-differ-between-the-us-and-the-eu/>



Learn how your business can accelerate progress towards a more sustainable future with Shell Chemicals.

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If you have any questions, contact us at ShellChemicals@Shell.com.

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Powering Progress is Shell's strategy to accelerate the transition of our business to net-zero emissions and is designed to create value for our shareholders, customers and wider society. Shell Chemicals plays a vital role in that journey, helping customers across sectors reduce the product carbon footprints of consumer goods such as tires, vehicles, electronics, clothing, furniture, mattresses, personal care products and more. Through advanced technologies and strategic partnerships, we are positioned to respond to the growing demand for more chemical products with fewer virgin hydrocarbons.

As global demand for chemicals increases, our business will continue to grow to meet our customers' needs. With five integrated Energy and Chemicals Parks and a strong global market position, Chemicals is a proven leader to help businesses achieve sustainability and profitability. Together we can shape the everyday.

For further information, please visit our website at www.shell.com/chemicals.

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