


Sustainability: Where's the Money?

Insights for the
chemical industry


accenture



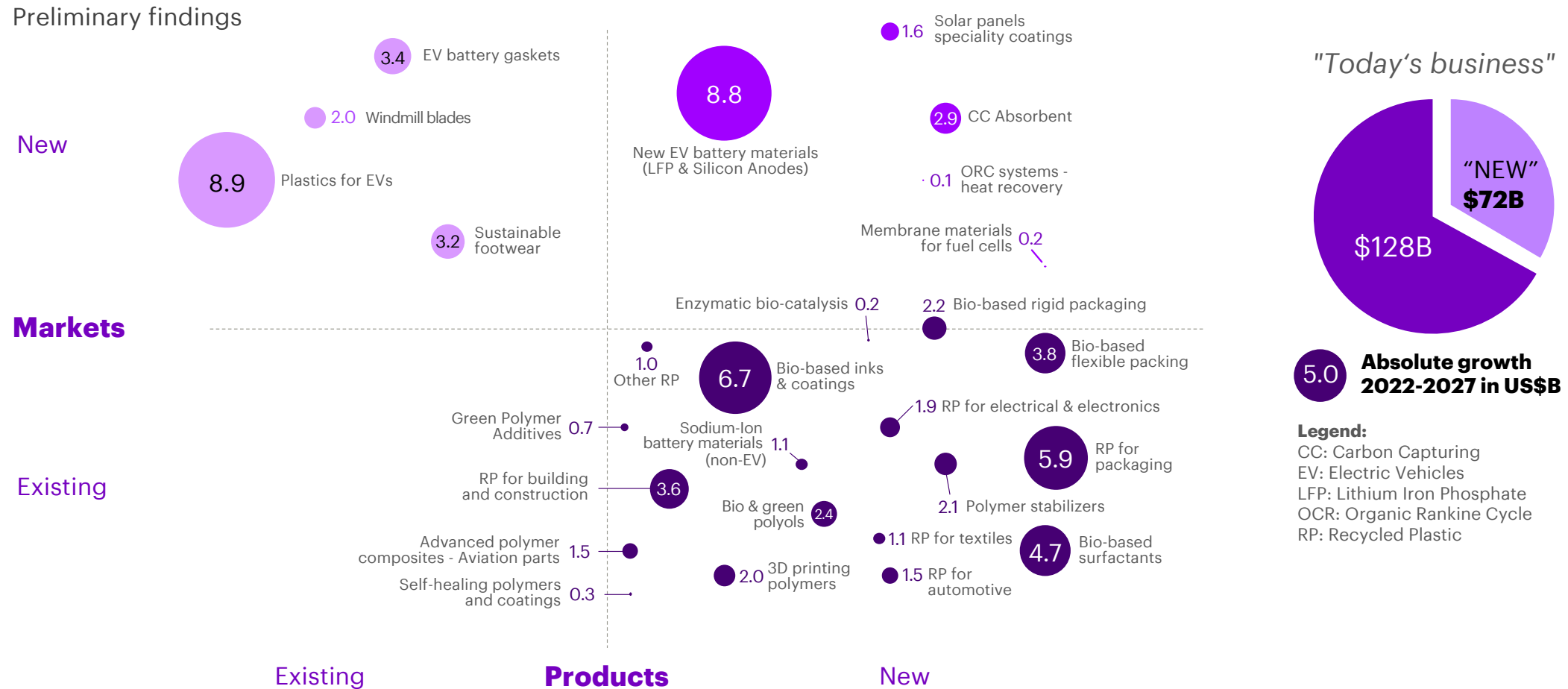


In the chemical industry, the drive for sustainability is reshaping entire value chains

from upstream raw material providers to end customers—and the industry is looking for ways to thrive in this changing environment. This is evidenced by a fivefold increase in the number of sustainability-related project and product announcements made by chemical companies and their customers over the last five years. However, there has also been a significant increase in sustainability-related regulation, including mandatory targets for greenhouse gas emissions and plastics recycling. This has prompted many industry executives to question whether the shift to sustainability will bring real value to the industry.

The answer is clearly “yes.” Over the next five years, sustainability-related offerings will account for nearly one-third of industry growth, creating a potential US\$200 billion opportunity, according to recent Accenture research. These offerings will encompass existing and new products, and both sustainability-enabling products—such as materials for windmills and solar panels—and products involving sustainable production—such as bio-based products or products made from recycled materials (See Figure 1). This broad range means that companies across the industry can participate in this growth.

Figure 1: Growth opportunities for existing and new markets and products



Source: Accenture Research, Market reports





Demand for sustainability-related offerings is strong

but Accenture's research clearly shows that the industry is already struggling to keep up with that demand, which could limit chemical companies' ability to take advantage of this growth opportunity. However, companies can take several steps now—from building plants to strengthening supply-chain relationships—to ensure that they have access to the resources, technology and knowledge needed to deliver the sustainability-related offerings that customers want. Starting out on these actions today will help chemical companies thrive and profit from the growing demand for sustainable offerings.

Where is growth coming from?

The industry's various sustainability announcements have included initiatives focusing on new plants and offerings, new partnerships and collaborative agreements, and operational changes in existing plants to increase efficiency and thereby reduce greenhouse gas emissions. There is a belief that these plans have been driven by pressure from stakeholders and governments for increased sustainability in the industry. However, there are also sound business reasons behind them, according to Accenture's research.

Demand for sustainability-related chemical offerings is growing rapidly. The market for such offerings, which stood at approximately US\$300 billion in 2022, is expected to reach about US\$500 billion by 2027—an additional US\$200 billion of the US\$700 billion total expected chemical industry growth over that period.

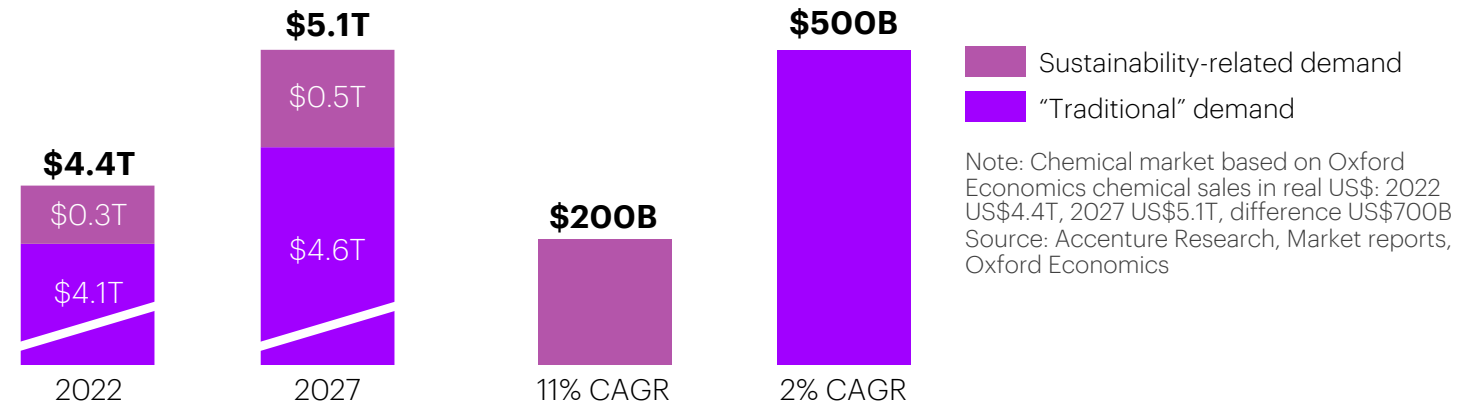
This translates to a compound annual growth rate of 11% through 2027, compared to a 2% rate for

“traditional” industry products—making sustainability-related offerings an especially attractive opportunity (See Figure 2).

About two thirds of this growth will come from existing products and markets related to sustainability—insulating materials for buildings, plastics for electric vehicles, polyurethane foams used in windmill blades, and so forth. To a great extent, these offerings will take advantage of existing infrastructure, and thus involve relatively low levels of investment and risk.

About one third of the coming growth will come from new markets and offerings, such as new electric battery materials, carbon-capture materials and bio-based inks and coatings. Altogether, this broad mix of traditional and new offerings means that sustainability is creating growth opportunities for companies across the chemical industry.

Figure 2: Projected chemical industry demand



The challenge of meeting demand

Not surprisingly, chemical companies have been expanding their operations to prepare for this opportunity. An analysis of company announcements shows that over the last five years, the chemical industry has invested an estimated US\$60 billion to US\$90 billion in new plants that produce sustainability-related products (See Figure 3 on next page). What's more, that estimate does not include startups or investments in GHG reductions at existing plants.

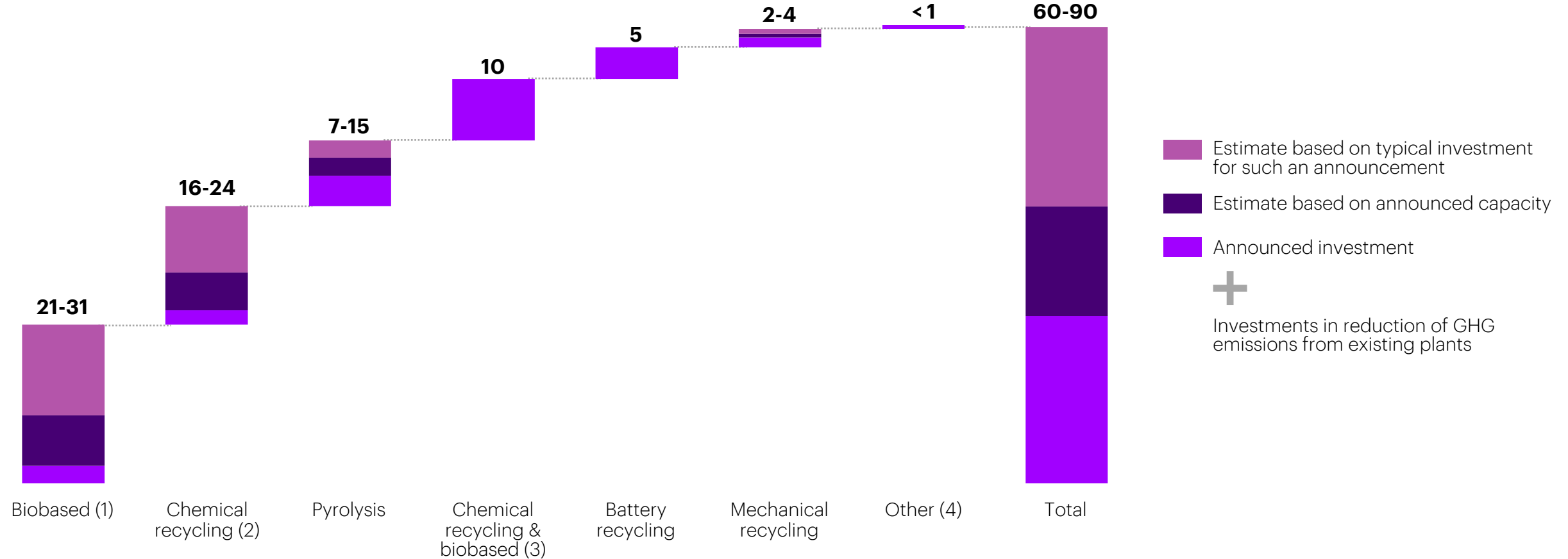
In general, these new plant investments are focused on products that are core to the industry, rather than new or niche products. They include investments in naphtha alternatives, such as chemically recycled, bio-based or mass balanced products, mechanically and chemically recycled standard polymers and bio-based intermediates and polymers.

In spite of these large investments, it appears that the industry will find it difficult to meet growing demand. Already, customers are looking for more sustainability-related offerings than the industry can supply. Indeed, some new chemical plants that are not yet up and running are reported to be sold out or nearly sold out—

an unprecedented development in the industry. As the plants are sold out, there are offtake agreements for feedstock such as naphtha alternatives as well as intermediates and chemicals for customers such as polymers. These early agreements give chemical companies a high level of certainty that their products and new plants will be profitable.

Demand is not likely to abate any time soon. Chemical companies' customers from across industries have made commitments and set targets for recycled content and increased sustainability. However, they are falling short in meeting those commitments, running the risk of reputational damage with investors and other stakeholders. In part, this lack of progress is due to the fact that they often find it difficult to find the sustainability-related chemical industry offerings they need. Across the packaging, food and beverage, consumer goods and textiles industries, many large companies are less than halfway to meeting the commitments they have set for 2025—which is rapidly approaching. This means that customers will continue to search for sustainable packaging, plastics and other materials.

Figure 3: Sustainability-related new plant investments



Notes: 1. Biobased: incl. biobased raw materials and biomass, but excl. pyrolysis 2. Chemical recycling excl. pyrolysis 3. Investments with multiple feedstocks incl. chemically recycled and biobased raw materials 4. Other incl. carbon capture and utilization, plastic waste sorting etc.

Source: Accenture Research, press and company announcements of major sustainability investments since 2018-2022; Selected announcements = 154, excludes start-ups and private companies, core focus on major chemical companies, error calculation excluding outliers, assessment based on +/- 0.5 standard deviation



A blueprint for success

Overall, the market for sustainable products is highly attractive, and it presents a clear growth opportunity for the industry for years to come. Taking advantage of this opportunity will require more than scaled-up operations. As the industry evolves to meet the demand for sustainable offerings, chemical companies can take steps to occupy “sweet spots” in future value chains and solidify their positions in those chains. And the race to do so is already underway.

To win this race,
chemical companies
need to consider
several key success
factors

- 1 Ensure access to sustainable feedstocks
- 2 Forge value chain partnerships
- 3 Secure IP and proprietary knowledge
- 4 Develop compelling and credible sustainability narratives

1. Ensure access to sustainable feedstocks



There is a shortage of the raw materials that will be needed for sustainability-related offerings in the industry. For example, companies with recycled offerings will require sufficient volumes of plastic waste, which could prove to be challenging. In the U.S., the average resident produces about 120 kg of plastic waste a year, while a typical minimum efficient scale asset, such as a steamcracker, might require about 1 million tons of waste a year. Thus, that plant would need to access waste streams from about 12 million residents. This could require the plant to work with sources located some distance away. In the U.S., for example, the chemical industry is largely concentrated on the Gulf Coast, while many metropolitan centers are on the east and west coasts.

2. Forge value chain partnerships



Value chain partnerships will be critical. For example, chemical companies will need to work closely with logistics companies that can collect, clean and sort that plastic waste and ship it to chemical companies' locations. Partnering with customers will also be key, both for understanding their needs and forming offtake agreements, which customers seem to be willing to make, given what has been happening recently with new plants. Overall, the ability to meet and exceed customer requirements for sustainability-related offerings—reliably, efficiently and at scale—will depend on close collaboration with partners across the value chain, from raw-materials suppliers to the end customers.

3. Secure IP and proprietary knowledge



Chemicals with sustainability-related properties—those with low carbon footprints or made with bio-based feedstocks, for example—will require new production processes, assets and equipment. Thus, chemical companies that focus on securing intellectual property (IP) and proprietary knowledge will have an opportunity to gain competitive advantage. This is especially true for IP related to technology—both production technology and information technology. At the same time, companies can monitor the startup landscape for opportunities to acquire or license sustainability-related IP. Such steps will be key to both improving core operations and pursuing the growing segment of new and innovative offerings.

4. Develop compelling and credible sustainability narratives



Last but not least, sustainability is an increasingly important driver of share price and enterprise value. That means that chemical companies should shape their sustainability-related narratives for investors and other stakeholders. Communications should include not only intentions and plans, but evidence of actual action and progress on the sustainability front—which will be key to building ongoing support for the shift to sustainability.

The race is on

In the near future, the race to occupy the chemical industry value chain's key hot spots can be expected to accelerate. Thus, the need to move ahead with the steps outlined above is urgent. Chemical companies that don't act soon are likely to find themselves being left behind—

and missing out on the expanding range of sustainability-related growth opportunities.

Fortunately, the shift to sustainability plays to the chemical industry's strengths—its ability to use efficient large-scale core operations to build quality

products, coupled with its long history of successful, ongoing innovation. Chemical companies that draw on those strengths to reinvent themselves around sustainability will be in position to achieve significant profitable growth for decades to come.

Author



Dr. Bernd Elser
Senior Managing
Director, Global
Chemicals Lead
Accenture

Contributors



Ashley-Rachelle Horstman
Managing Director, North
America Chemicals
Strategy Lead
Accenture



Serge Lhoste
Managing Director,
Global Chemicals
Strategy Lead
Accenture

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