US recycling can secure the future

Chemical companies in the US have expanded polymer capacities too quickly and will struggle to find export markets. A major switch to recycling could be the answer

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We are living in increasingly turbulent times. Oil and gas prices have rocketed and then tumbled. Contagion is spreading in the banking sector as depositors worry about whether their money is safe. And geopolitical turmoil continues with the war in Ukraine entering its second year.

The situation isn't helped by the fact that we are also entering the endgame for the Federal Reserve's $8tn stimulus programme. As the Wall Street Journal warned earlier this month: "You can't run the most reckless monetary and fiscal experiment in history without the bill eventually coming due. The first invoice arrived as inflation. The second has come as a financial panic, with economic damage that may not end with Silicon Valley Bank."

Unfortunately, the North American chemicals industry is in the eye of the storm. It invested $200bn in new shale gas-based capacity at the peak of the central bank "experiment". And sadly, as the chart shows, there is now massive global over-capacity in polyethylene (PE), the focus of the expansions. Today's 26m tonnes/year of surplus capacity means that global operating rates are expected to be just 79% in 2023, versus an average 86% between 2000-2022. And the problems don't just impact PE. ICIS data shows global oversupply in the six major building block chemicals will reach 218m tonnes this year.

We questioned this euphoria back in 2016 in our joint New Normal – ICIS Study, 'Demand – the New Direction for Profit' (see the ICB article 'Polymers face Challenging Times'). The Study suggested that major paradigm shifts were underway, with regionalisation replacing globalisation as a key driver for the global economy. We also warned that the polymers business was moving into "A world where China no longer needs ever increasing volumes of imports, and where feedstock advantage no longer provides sufficient "competitive advantage." Unfortunately, it seems we were right to be cautious.

Our focus in the Study was on the key issue raised by these paradigm shifts, namely the need to "develop radically new value propositions that are based not only on the value of the product itself, but on the value provided by these products" to customers and other stakeholders. We were confident that "the New Normal world was opening for business, with excellent prospects ahead for the winners who understand and embrace the opportunities it is creating".

New thinking needed now

Today, the need for new thinking has become urgent. The growing financial crisis confirms the mistakes made by the central banks. As the head of the European Central Bank (ECB) confessed last August: "There are things that the models don't capture. Sometimes the unexpected happens. So we have to pay attention to traditional indicators while also monitoring empirical data and what we expect to happen in terms of geopolitics, energy price developments and demographics."

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The good news is that the opportunities we identified in the Study are even more attractive today. But they require companies to take a new, scenario-based approach to their Budget process:

- One question is to discuss the outlook for global growth – is it still 'business as usual'?
- A second question is to debate the nature of the risks ahead – are they temporary, with inflation likely to quickly disappear, or are they more structural?

The issue, of course, as the writer Mark Twain observed, is that "history rhymes, but it doesn't repeat". If we are moving into a New Normal world, we must expect the challenges and opportunities to be different from those of the past. It therefore makes sense to investigate this key issue by applying the four key scenarios to the outlook for PE. This, after all, is a critical area for many companies and their investors today.

Business as usual

Some companies may argue that we face only a temporary hiccup. And that one simply needs to wait for better times to arrive. Mean-while, they see an opportunity to become 'fitter and leaner' for the future by cutting costs in non-core areas.

Inflation leads to recession

Others will accept that central banks have made serious mistakes. As a result, they will assume that we are now set for a recession. But whilst this generates short-term problems, they will assume a return to business as usual by 2024/5.

New risks are emerging

Most companies, however, will focus on the ECB analysis and accept that energy prices, geopolitics and demographics have created a more uncertain world. Today's ageing populations in key consuming markets will inevitably impact growth.

A New Normal world

And they will likely tie this insight into a realisation that they are facing a new landscape and new challenges. In addition to the ECB's analysis, they also have to plan for a Net Zero economy focused on renewables and recycling.

The choices that companies make today will be critical for their future. There is no going back once they have been made. Essentially, we have reached a fork in the road, which will lead to Winners and Losers emerging over the next few years.

Helpfully, the US auto industry provides an excellent example of New Normal thinking in action. It is a major customer for the chemical industry and is investing $70bn over the next 10 years to produce electric vehicles (EVs). These will replace sales of gasoline/diesel autos, and have a major impact on chemical demand patterns. Many current sales will disappear, whilst new ones will appear. The transition will also impact feedstocks as refineries close and naphtha supplies reduce.

Similarly, the next few years will see a sharp decline in single use plastics, as legislators and brand owners respond to continuing consumer pressure. There is also little chance that China will suddenly ride to the rescue. Its self-sufficiency level has already jumped from 51% to 64% since 2020, and a further 2.2m tonnes/year of new PE capacity has come online in Q1 alone. It seems clear that PE and PP are following the same path as PTA and PVC, where China is no longer the world's major importer and has instead become a net exporter.

Essentially, these developments mean we have reached the endgame for today's business models. Management teams therefore

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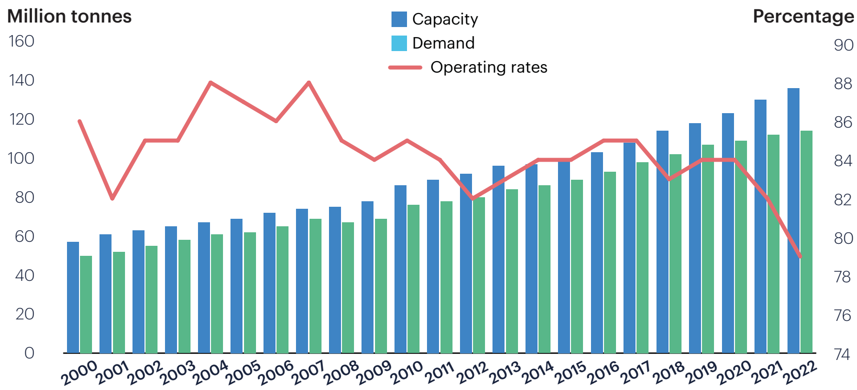
Risk management

Global growth	Temporary risks	Permanent risks
Recession	**Inflation peaks** Today's rise in inflation leads to recession, and then a return to "Business as usual"	**New Normal** These challenges combine with recession & Net Zero to change the future landscape
No recession	**Business as usual** Companies continue to face traditional risks	**Challenges ahead** Companies need to focus on new risks (Geopolitics, Energy markets, Demographics

Global PE operating rate falls as overcapacity grows



Source: ICIS Supply & Demand Database

need to start thinking 'out of the box' and develop new business models and strategies for the New Normal world. The question facing them is therefore simple. How can producers avoid major plant closures, given the pressures already in evidence?

US producers focus on recycling

Luckily, there is an answer, which is to expand as rapidly as possible into the domestic market for recycled plastic. The key enabler for this move is the existing US rail network which currently delivers polymers from Texas and Louisiana to customers around the country. At the moment, this is just a one-way trade. But there could be a major opportunity to use these otherwise empty railcars on the return journey, to bring back waste polymer for recycling.

Houston, after all, is already making great progress under the Cyclyx umbrella in building the necessary framework for this on a local basis. ExxonMobil and LyondellBasell are currently building a 150,000 tonnes/year Circularity Center to supply their advanced recycling projects and mechanical recycling markets.

End-users should be delighted to co-operate, given their commitment to recycle. And their involvement could also make the recycling process much more efficient, by making it easier to identify the type of polymer being returned. The project should also benefit from favourable logistic costs as the waste plastic will often be carried at cheaper, backhaul rates. Of course, this development will need funding, not just to develop the new infrastructure required, but also to repurpose current cracker production facilities. Hopefully, though, the Inflation Reduction Act could provide major support.

This PE example confirms the future could be very bright for those companies prepared to think 'out of the box', and develop new business models aligned with future needs. It also highlights how new thinking can create major new opportunities for the US industry in today's New Normal world, and position it to become a Winner for decades to come. ■

Paul Hodges is chairman of New Normal Consulting and the Advisory Board for Infinity Recycling. He publishes The pH Report and writes the ICIS Chemicals & the Economy Blog.