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Hope is not a strategy

Chemical companies face difficult times if they cling to the hope that current challenges will simply disappear

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Major change is underway in petrochemicals and polymers markets, which will create winners and losers. The current round of major capacity expansions has been based on two flawed assumptions:

- Oil prices would always be above $100/bbl and provide US gas-based producers with long-term cost advantage
- China would always grow at double-digit rates and require ever-increasing volumes of petrochemical imports

Life would be difficult enough if just one of these assumptions had proved to be wrong. But now the industry is going to labour under the burden of spare capacity for years to come. Even worse, this surplus will be occurring at a time when global trade is being impacted by rising protectionism, as governments focus on preserving local jobs. The winners will be those who develop new business models, aligned to future market needs. The losers will simply carry on, business as usual, heading into an inevitable brick wall.

CHINA CHALLENGE

China highlights the new paradigm. It used to be the world's largest importer of polyethylene (PE), polypropylene (PP), purified terephthalic acid (PTA), polyvinyl chloride (PVC) and many others. But now its focus is on self-sufficiency. The new five-year plan for 2016-2020 targets 93% self-sufficiency in the propylene value chain, and 62% in ethylene. PP confirms the change in direction. Its self-sufficiency rate has already reached 87% this year, versus 77% in 2014, with year-to-date production up 37% versus 2014 and imports down 24%.

In turn, of course, PP is acting as the proverbial "canary in the coal mine" in terms of the overcapacity issue. Already propylene prices have fallen quite sharply relative to the ethylene price, with the average European propylene contract price at just 70% of the ethylene value so far this year. This price advantage is already stimulating inter-polymer competition in certain applications.

> **"Previously successful growth models are going to be increasingly challenged by overcapacity, protectionism and the climate change agenda"**
> **PAUL HODGES**
> Chairman International eChem

The problem is that many companies were blind to this development. They assumed that cost curve economics would determine China's operating rates. But China has never operated on this basis (see chart). Sinopec has invested $79bn of capital expenditure (capex) in its refining and chemicals businesses since 1998, for a total earnings before interest and taxes (EBIT) of just $10bn. Refining EBIT has actually been a negative $8bn, while even chemicals EBIT has been less than half of capex.

No Western company with shareholders would dream of operating this way. But Sinopec is 71% owned by the government, and its mission is to boost Chinese living standards by being a reliable supplier of raw materials and oil products to downstream factories and consumers. Profitability is largely irrelevant.

OIL PRICE IMPACT

The collapse of oil prices adds a further dimension to the overcapacity issue, particularly for North American companies. Over $170bn is being invested in new capacity on the assumption that shale gas economics will overturn traditional relationships with oil prices, and provide a long-term competitive advantage versus naphtha-based producers in Europe and Asia. However, oil prices have more than halved from the assumed minimum $100/bbl level. In addition, the International Energy Agency (IEA) reported recently that the Organisation for Economic Co-operation and Development (OECD) oil and product stocks were at record levels.

DO NOT RELY ON EXPORTS

Political factors create additional headwinds. The failure of central bank stimulus policies to restore the world to the previous levels of economic growth has led to a steady drift from free trade towards protectionism. Both candidates for the US presidency have come out against the proposed Trans-Pacific Partnership (TPP), while leading policymakers in France and Germany have suggested that its European equivalent, the Transatlantic Trade and Investment Partnership, should be abandoned. The writing is on the wall for export-oriented strategies, which assume that any surplus in one's domestic market can easily find a home in another region.

HOPE IS NOT A STRATEGY

So what are companies to do? They could hope that most of the major expansions around the world will be heavily delayed, but hope is not a strategy. They also need to be mindful that pressures are coming from a new direction – climate change and the circular economy. A key report earlier this year from the World Economic Forum and the Ellen MacArthur Foundation called "The New Plastics Economy" said that 95% of plastic packaging has only a short first-use cycle, resulting in a loss to the economy of more than \$80bn a year. Its analysis, developed with experts from major polymer producers, also noted that within a decade, business-as-usual strategies would mean that the oceans will contain 1 tonne of plastic for every 3 tonnes of fish.

The good news is that two major new opportunities are available to spur future revenue and profit growth, as we highlight in the joint ICIS/International eChem study "Demand – the New Direction for Profit". Both require new business models, but are closely aligned with core business competencies.

MEGATREND OPPORTUNITIES

One opportunity is based on the future megatrends of water and food – two of the five critical risks highlighted by the World Economic Forum for the next decade. The study challenges the common assumption that the answer to increasing demand is simply to produce more. Instead, it highlights the opportunity to focus on reducing the 40% of water and food that is currently being either lost or wasted.

Polymer companies could have a key role in meeting this challenge. Water leakage is one major opportunity. In Italy, for example, 65% of the water fed into the network is lost before it reaches the consumer. Similarly in agriculture, greater use of drip irrigation techniques using plastic veins would reduce the vast amount of water that never reaches the plants and boost yields by spreading water and fertilizer more evenly.

Similar potential exists in the food area. As the Food and Agriculture Organisation (FAO) has highlighted, food losses during harvest and in storage have an immediate and significant impact on people's livelihoods and food security in the developing world. Similar waste occurs in the developed world, as retailers and consumers continue to throw away major volumes of perfectly edible food. Greater use of plastics would improve storage and transport conditions, while also reducing consumer waste via intelligent reusable packaging.

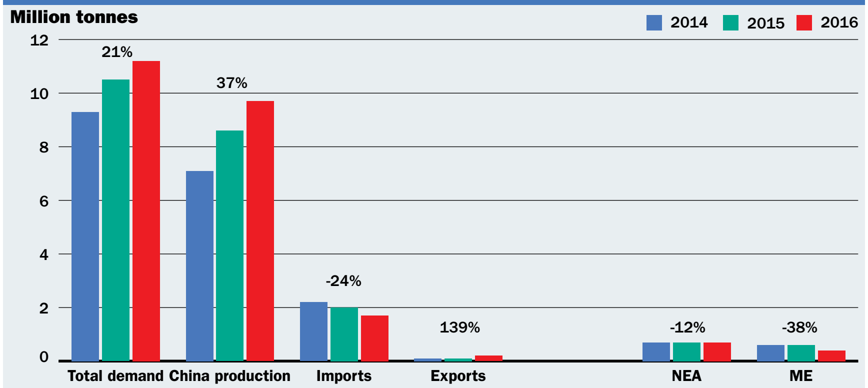
SERVICE-BASED BUSINESS MODEL

The second opportunity is to develop a more service-based offering, using industry expertise in areas such as process engineering and research and development (R&D). Water treatment is an obvious target for new thinking. It makes no sense for this to still be dominated by inefficient, high-cost civil engineering techniques. Water is a chemical, after all, and we have vast experience in treating it successfully.

A further benefit of this approach is that it would also help to transition the industry away from its current focus on products with only limited first-use application. It would instead align us with the development of a more circular economy, and avoid taking us up the cul-de-sac promised by current business models. Plastics production already accounts for around 6% of global oil consumption, equal to that used by the aviation industry, and is forecast to increase to an entirely unsustainable 20% by 2050, when plastics would also be taking 15% of the global annual carbon budget.

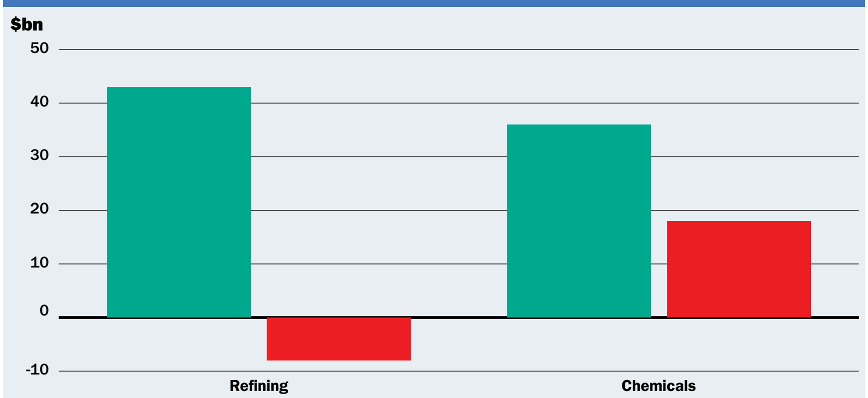
There is no doubt that the industry faces difficult times in the next few years. Its previously successful growth models are going to be increasingly challenged by overcapacity, protectionism and the climate change agenda. The losing companies will ignore the mounting evidence of paradigm shift, as well as the potential for growing revenue and profit by helping customers to "do more with less". But winners will recognise that new, more service-driven strategies will provide an excellent base from which to develop the new offerings required for future success. ■

CHINA PP PRODUCTION & TRADE DATA JANUARY - JULY 2016 VS 2014 & 2015



SOURCE: IeC analysis, China Customs

SINOPEC'S REFINING & PETROCHEMICAL CUMULATIVE CAPEX & EBIT, 1998-2015



SOURCE: PH report analysis, company reports

KEY FACTS

ICIS EPCA petrochemicals survival and profit seminar

Paul Hodges will take part in a free ICIS seminar ahead of the 50th EPCA Annual Meeting in Budapest on 2 October. Together with ICIS consultants, he will discuss the topic "Survival and profit in today's chaotic petrochemicals markets", offering views on how conditions in feedstock and product supply and demand are likely to impact business and investments in the next 10 years.

Find out more and register for the free seminar here: icis.com/icis-at-events/icis-at-epca/