Be a winner, not a victim!

With cheap competition from the Middle East fast becoming a reality, now is the time to capitalize on the advantages of being a US petrochemical player to ensure prosperity

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Consultant's corner

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MAJOR CHANGE is underway in the North American petrochemical sector.

First, its traditional position as an exporter to the world is likely coming to an end, as the Middle East and Asia bring major new capacity on stream. Second, its feedstock slate is shifting rapidly, in order to take advantage of relatively lower US natural gas prices versus crude oil. And third, the US gasoline market is also going through profound change, which will in turn affect petrochemical product supply and margins.

So how should US petchem producers and users adapt to this rapidly changing landscape? A key step is to better understand the nature of the changes now underway, and the critical drivers behind them. The first change is likely to be the biggest culture shock. For as long as I have been in the industry, the US has been a major petchem exporter, because of its advantaged feedstock position in the US Gulf. More recently, Canada has joined it, based on its access to ethane in Alberta.

But we are now moving into a world where overcapacity is likely to be the norm for many years, as over-ambitious expansion plans developed during the 2003–2007 boom period come to fruition. We analyzed this position in our major Feedstocks for Profit study (see *ICIS Chemical Business* August 18-24, 2008). This was published before the credit crisis hit, but its global downturn scenario still seems to provide a reasonably robust view of the outlook for the next few years.

The new capacities it detailed are now coming on stream, with the Middle East and China starting up a total of 6.90m tonnes of ethylene capacity in 2009, and a further 7.25m tonnes scheduled for this year. Thus, North American producers will find it very hard to maintain their traditional level of export sales.

The Middle East, in particular, is now poised to take over the role of "supplier to the world" that has been the prerogative of producers in the US Gulf since the petchem industry began. Instead, North America will have to fight hard to retain its domestic market, particularly as Asian producers look to replace their previous exports to China.

MORE POSITIVE

The second change, of moving to lighter feedstocks based on natural gas, is more positive. It will certainly provide domestic producers with a helpful mechanism for resisting the expected push from Asia. Already, the scale of the switch has become most significant. In the first quarter (Q1) of 2008, the industry's feedstock slate was 47% based on "heavy feeds" from crude oil. But a recent analysis by ICIS news showed that this had dropped to just 25% by Q3 last year. Even in Q4, it was only 27%.

This switch provides olefins producers with a very competitive cost base in defending their local market. But it also means that coproduct balances are changing quite dramatically. Butadiene (BD), in particular, is seeing shortages develop, as there is very little on-purpose production at the moment. This may seem counter-intuitive, given that US auto sales have collapsed from 15m to 10m since 2007. But lower cracker operating rates, plus the move to lighter feeds, means that BD consumers now face difficult market conditions.

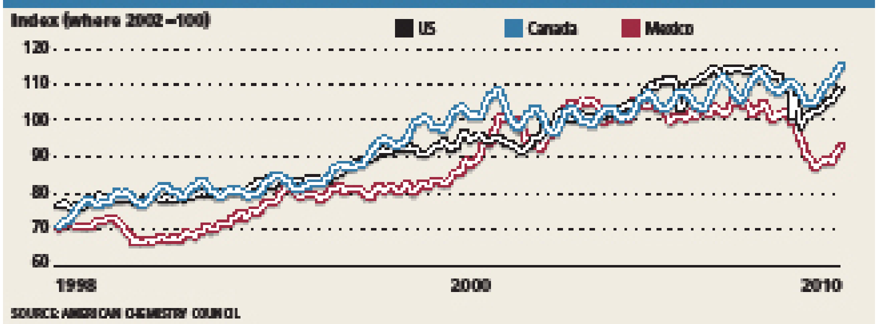
The BD example, of what one might call unintended consequences, is also helpful when trying to understand the third change underway, in the upstream refining area. Once again, this is a major shift, as the US has been a growth market for gasoline as long as any of us can remember. But no more. As UK energy giant BP's CEO, Tony Hayward, forecast recently, it is likely that US gasoline consumption ex-refineries peaked in 2007.

There are many reasons. Higher gasoline prices have led to a slowdown in demand. Also, as UK energy consultancy Wood Mackenzie has noted, ethanol use is likely to increase from 7% in 2008 to at least 11% in 2015, further reducing demand for refinery gasoline production.

And then there are the new auto fuel efficiency rules, which start to be introduced with the 2012 model year. By 2016, all new autos will have to meet a 39 miles per gallon (mpg) standard, up by a massive 42% from the current 27.5mpg requirement.

The US refining industry is much larger than that for petchems. So a change of this magnitude is bound to have a knock-on effect on it. It is also likely to be some time before its full likely impact is clear. But any major round of refinery closures would almost certainly affect production of benzene, propylene and paraxylene (PX).

NORTH AMERICA BUSINESS OF CHEMISTRY PRODUCTION INDICES BY COUNTRY



Thus we have a situation where:

- Cracker operators have already moved to lighter feeds, and thereby reduced coproduct availability.
- Refiners are considering shutdowns, which could well reduce associated petchem production.
- Major new capacity is starting to come on stream in the Middle East and Asia.

And underlying all these new challenges, of course, as the graph above shows (based on US trade group the American Chemistry Council data), US chemical production is already under pressure from the downturn in demand in core sectors such as autos and housing/construction.

"CAN DO" ATTITUDE

So what strategies can producers and consumers adopt to ensure they emerge as winners in the brave new world that awaits us? The US has always been the envy of the world for its "can do" attitude, which I experienced first hand when working in Houston, Texas, some years ago. In this context, every problem can potentially therefore become an opportunity.

Adopting this mindset would lead producers to focus on the inherent strength provided by their large domestic market, and brainstorm all possible steps to boost existing partnerships with their key consumers. Continuing to optimize feedstock costs will clearly be one important component of this strategy, as it will better enable producers to counter the potential import threat.

Equally, a new look should be taken at refining – the petrochemical interface could be productive in terms of cost-reduction strategies. The refiners' problem could become the petchem producers' opportunity, as rising US gasoline surpluses will force a reduction in crude runs, unless other uses can be found for the molecules. This provides an opportunity to add new low-cost aromatics and perhaps propylene production, by reconfiguring some refineries, even while older capacity is closing.

Finally, there are the opportunities for innovation. New routes to BD may well be required, for example. While automotive producers will require major new polymer volumes, if they are to meet the new fuel economy standards, similarly, the drive to reduce carbon footprints should lead to greater use of petchem-based insulation materials.

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The next few years are not going to be easy for the global petchem industry. It is quite likely that the world will split into two camps – of "players" and "victims" as we move towards the "new normal." Players will recognize the challenges, and aim to overcome them, while victims will complain about the unfairness of it all.

US producers and consumers therefore need to ensure they develop strategies that enable them maintain their traditional role as players. The alternative, of adopting the role of victim, could prove very painful as the petchem landscape changes around them. ■

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