

Clusters: Ensuring Europe Remains Competitive in Chemicals

SURVIVAL THROUGH VALUE-CHAIN INTEGRATION

For well over 100 years, Europe has been the world's leading chemicals manufacturing and exporting region but this position has been challenged by the exponential growth in Asia. During the past 10 years, we have witnessed the shifting of the center of gravity of the global chemical industry eastwards to areas such as the Middle East, China, India, and Asia as these countries have become the preferred focus of attention of investors. The huge volumes of new production capacity that have been brought onstream or are under construction in these regions will have a significant impact on the leading position that Europe has so far enjoyed.

At the same time, Europe has not found itself completely out of favor in attracting chemical investment. A mature chemicals-producing region, Europe has benefited from substantial ongoing investment in expanding and debottlenecking existing plants, and modernizing plant operations. The result is that Europe has been steadily consolidating and strengthening its manufacturing base, which has helped to position the region to meet the challenges it has faced since the onset of the global economic crisis.

The global economic crisis and its consequential effects on the global chemical industry are resulting in a shake out of production capacity worldwide. Many older, smaller chemical plants will be the victims of this shake out, but most of these are expected to be non-integrated plants. However, plants located in large integrated sites or clusters have a greater chance of survival due to the considerable cost benefits of these plants. In this respect Europe enjoys a special position in the global industry because of its strong integrated sites and clusters.

Although Europe may appear to be less interesting or a lower priority at present (and in the immediate future) for grassroots investment, the reality is that its value proposition remains as strong as ever. From a competitiveness viewpoint, the region is disadvantaged only by a lack of indigenous hydrocarbon resources, for which it is dependent for a large part of its needs on imports from the Middle East, Russia, Africa etc. That aside, Europe can offer the chemical investor a unique set of benefits which, in combination, more than offset any feedstock disadvantage and provide a solid and low-risk business environment for successful chemical operations. Specific benefits which Europe brings to the table include:

- ◆ A market of more than 500 million discerning consumers
- ◆ Annual chemical demand growth, which in terms of volume exceeds that of Asia
- ◆ A long tradition of cutting-edge technological innovation in chemical manufacture
- ◆ World-class logistical infrastructure for handling and moving chemicals
- ◆ Highly productive skilled labor
- ◆ High-quality technical education programs
- ◆ Best-in-class operational safety record
- ◆ Strategic location allowing easy access to both local and global markets
- ◆ Environmental compliance viewed as a business opportunity rather than a threat
- ◆ Political and social stability

Europe No. 1 in clusters

Europe stands out from other regions through its high degree of operational integration, due to chemical production predominantly being located in integrated chemical sites and clusters. With the rapidly changing world order in chemicals, Europe has recognized the need to develop smarter operations, not just in manufacturing but along the whole value chain. Its continued competitiveness is proving that clusters offer tremendous opportunities for extracting benefits and synergies throughout the value chain. Today Europe leads the field in applying the cluster concept and sees clusters as a valuable tool for maintaining and further strengthening the region's competitiveness. Although not immune to the shake out, Europe is expected to be able to weather the storm.

The role of clusters and the advantages that can be gained from operating within cluster have recently been confirmed by the European Commission's High Level Group

(HLG) study project on the competitiveness of the European chemical industry. The European Chemical Site Promotion Platform (ECSPP) played a significant role in guiding the CEFIC ad-hoc working group that developed the key inputs on clusters published in the HLG findings.

What makes clusters successful

ECSPP has identified a number of key attributes that it believes can be used to measure and determine success in chemical industry clusters:

- ◆ World-scale production of feedstocks, base chemicals, plastics/polymers, intermediates/specialties or performance materials
- ◆ Upstream integration into primary raw materials, feedstocks, commodities or intermediates
- ◆ Downstream integration into other chemical industry sectors or into key customer industries such as automotive, construction
- ◆ Synergy with energy, utility, infrastructure, and service providers
- ◆ Access to at least three of the major transport modalities (maritime, inland waterways, pipelines, rail, road)
- ◆ A significant employer and contributor to local job creation

Applying these attributes, and using its own knowledge and research base, ECSPP has identified some 35 chemical clusters in Europe, which today account for the lion's share of Europe's current chemical production.

These clusters differ widely in terms of size, geographic location, and leadership. For example, because they provide port facilities, coastal clusters tend to be large and highly diversified (Antwerp, Rotterdam, Le Havre), whereas inland clusters may be smaller and more specialized depending on where they are located and the markets they are intended to serve.

ADVANTAGES OF CLUSTERS

Recent European experience and practice show that clusters play an important role in a number of key operational areas:

Organization of production operations

Clusters make it possible for companies to pursue operational integration opportunities with other cluster members, to develop manufacturing synergies and to make use of outsourcing possibilities for non-core

activities. This enables fast and low-cost investment. Clusters also tend to generate a more favorable local investment climate through co-siting opportunities. In many cases, clusters can count on a more prominent role and active support from local authorities. Although often companies located in a cluster may be direct competitors, a collaboration mindset can be developed between cluster members, which will work to collective advantage (not simply “what’s in it for me?” but also “what’s in it for all of us?”).

Raw materials and feedstock supply

Clusters offer advantageous conditions for companies to source raw materials and feedstocks, and to sell by-products to site companies as raw materials. Generally speaking, alternative supply sources are available, which lead to more competitive pricing and help to guarantee continuity of production by providing back-up supply at times of need. Opportunities for upstream integration can be developed (over-the-fence delivery or dedicated pipelines), while more flexibility in storage and delivery patterns can also be achieved.

Energy, utilities, and services

Many clusters have more than one supplier of energy, utilities, and other site services, providing cluster members with a choice of provider for these important cost compo-

nents. Service and utility providers are keen to work closely with chemical companies in the cluster to develop tailor-made supply solutions to mutual benefit, ensuring efficient and rapid integration into the cluster at low cost. Other advantages include sharing supply and distribution infrastructure, and pooling purchasing arrangements.

Logistics infrastructure

Clusters often have optimal transport and storage amenities for chemical producers, giving maximum flexibility and service. Most clusters are directly linked to the main transport modalities like road, rail, waterways and pipelines. In addition, coastal clusters provide direct access to ocean and coastal shipping routes. The availability of third-party storage and handling facilities can lead to beneficial outsourcing arrangements and improved supply flexibility. The critical mass of clusters means that often a wider range of logistics service providers will normally be active in a cluster, giving producers a choice of provider and the opportunity to negotiate more competitive rates.

Labor and maintenance

There is normally a permanent pool of both skilled and unskilled labor within a cluster, which producers can tap into as needed.

Plant maintenance turnarounds can also be planned efficiently to synchronize with those of suppliers and service providers.

Health, safety, environment

By sharing knowledge and experiences in the field of HSE, cluster members can contribute to maintaining and improving overall HSE standards in the cluster. Safety activities such as emergency response, fire-fighting, and crisis management can be organized on a communal basis instead of each company having its own contingency plan, leading to more effective procedures at reduced overall cost.

The European chemical industry has actively embraced and promoted the cluster philosophy and is increasingly benefiting from the many opportunities that these offer for extracting maximum advantage out of the whole value chain. The process is an ongoing one—a work in progress—but the HLG report has now firmly acknowledged that clusters are key to the continued success of the European chemical industry.

ECSPP believes this will further reinforce the future investment prospects for the European chemical industry following the recovery from the global economic crisis. —FRED DU PLESSIS, *President, ECSPP*

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