NexantECA
The Energy and Chemicals Advisory company

Technology and Costs

The Technology and Costs Programs examine the impact of new, emerging and improved industrial technologies on the comparative economics of different process routes in various geographic regions, as well as the cost competitiveness of individual production plants.

Data Analytics and Insights for a Sustainable Future

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The **Technology and Costs** programs provide technology analyses, comparative economics and costs curves for a broad range of sectors including energy, chemicals and biorenewables.

Technoeconomics – Energy & Chemicals (TECH)

TECH issues twenty reports per program year, including eight petrochemical updates (building blocks, intermediates and polymers) and twelve special topics covering areas such as specialty/performance materials, refinery products, energy technologies, and engineering know-how.

TECH reports involve detailed reviews of the available literature , extensive liaison with technology licensors, producers, and EPC contractors, as well as NexantECA know-how. Reports cover:

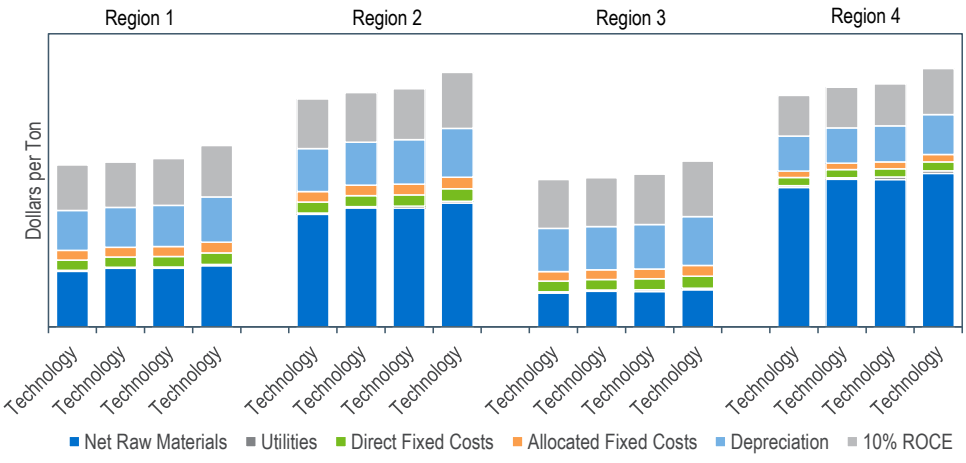
- Trends in chemical technology
- Strategy/business overview
- Process technology
  - Chemistry
  - Process flow diagrams and technology descriptions
- Process economics – comparative cost of production estimates for different technologies/process routes across different geographic regions
- Overview of product applications and markets for new as well as established products
- Regional supply and demand balances, including capacity tables of plants in each region
- Regulatory and environmental issues where relevant

Biorenewable Insights (BI)

Biorenewable Insights (BI), provides in-depth evaluations and reliable data on the technology, cost competitiveness and business developments of biorenewable chemicals and fuels. BI issues ten reports per program year. Reports typically cover:

- Technology descriptions
  - Chemistry
  - Process flow diagrams and process descriptions
  - Company profiles
- Capacity analysis
  - Announced projects
  - Project-by-project analysis
  - Risk-adjusted project capacities
- Process economics – cost of production technologies for biorenewable technologies
  - Multi-regional cost of production estimates
  - Comparison to the conventional technology
- Implications for the conventional industry
  - Upstream and downstream implications
  - Scales and market sizes
  - Cost, price, margins, and return

Sample Cost of Production Benchmarking



Sector Technology Analysis

In addition to the TECH and BI reports, NexantECA issues regularly a series of reports focusing on the technology developments and comparative economics within a particular industry sector.

The Polyolefins Technology Report, formerly known as the POPS Technology Report, is published on a bi-annual schedule and provides technology analysis for all polyethylene resins (LDPE, LLDPE and HDPE) and polypropylene in a single study. The report includes comparative process economics for all major licensed technologies, as well as technologies not licensed but important to the polyolefins industry. Factors within the industry and the external market that shape technology development and competitive positioning are also examined.

Additional Sector Technology Reports for other industry segments will be coming soon.

Cost Curve Analysis: NEW!

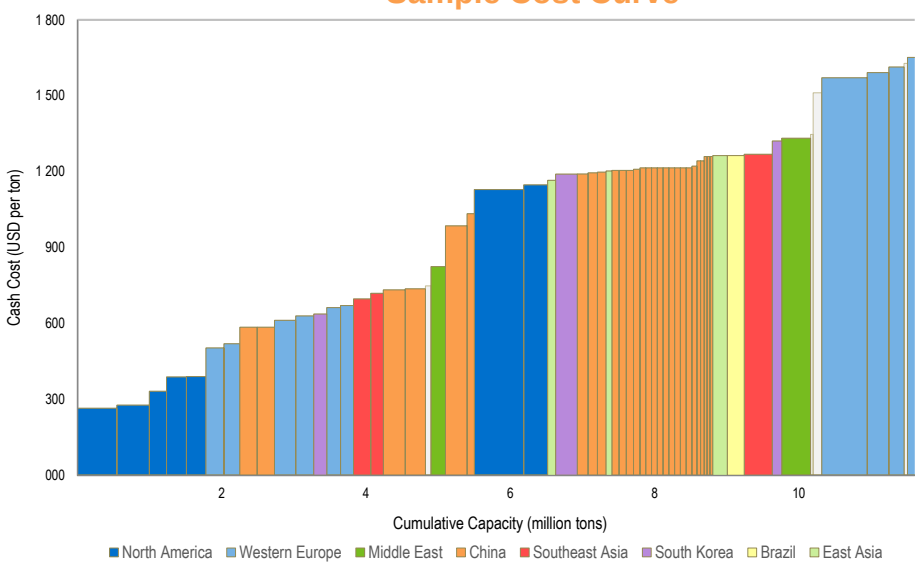
The NexantECA Cost Curve Analysis program provides comparative cost positions of individual producers within the global chemical industry. For individual chemical products, the Cost Curve Analysis model generates both historical and projected cost curves and presents data for both global and regional competitive analysis.

NexantECA's Cost Curve Analysis program is built upon a strong foundation consisting of our well-known Markets and Profitability program and Technology and Costs program. From Markets and Profitability, we incorporate our global plant capacity database, regional and country level supply and demand analyses, and NexantECA's annual price forecasts developed for three different oil scenarios. The interactive Cost Curve Analysis model combines this information with our extensive cost of production database developed through NexantECA's Technoeconomics – Energy & Chemicals (TECH) program to model operating costs for individual plants across the globe.

Key features of the NexantECA Cost Curve Analysis model include:

- Global coverage with breakdown into major regions and/or countries
- Annual cash cost of production and cash margin presented by plant
- Historical (5 years) and forecast (10 years) cost curves incorporating NexantECA's low, medium, and high oil scenarios for forecast years
- User defined functionality for selecting the year, oil scenario, and transfer price basis for integrated downstream derivatives
- User defined plant call-out capability to identify specific plants on the cost curve and includes summary tables with plant company, location, process, cash cost, and cash margin
- Hypothetical plant investment scenario functionality for evaluating the competitiveness of a new plant investment, and options for user defined price inputs for select raw materials
- Excel-based with a menu-driven user interface

Sample Cost Curve



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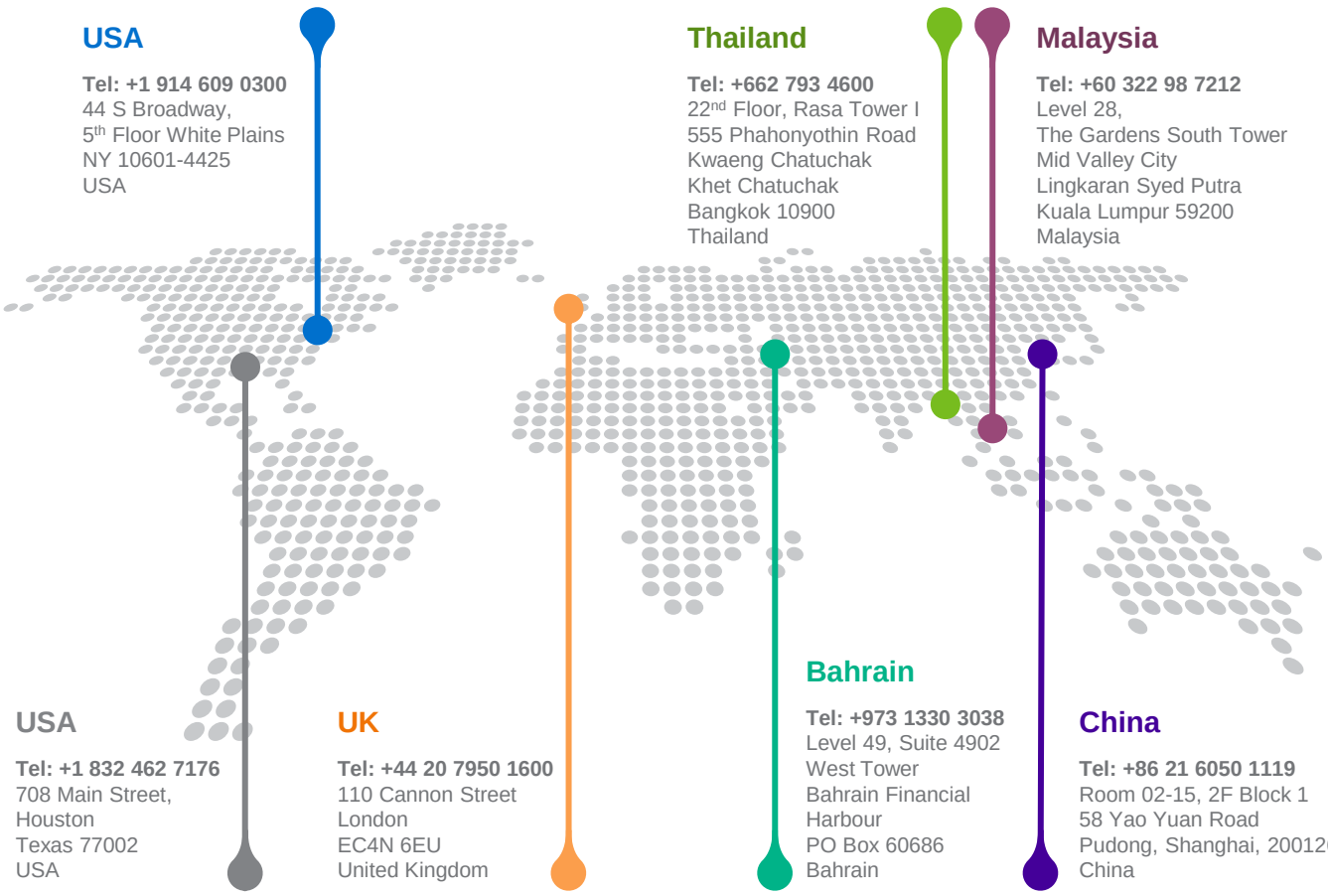
NexantECA partners with clients to help them navigate the big global energy, chemicals and materials issues of tomorrow. We provide independent advice through our consulting, subscriptions and reports, and training businesses using expertise developed in markets, economics and technology through our fifty years of operation. We are entirely dedicated to supporting sustainable development of the industry and provide expert advice with efficiency, speed, and agility.



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