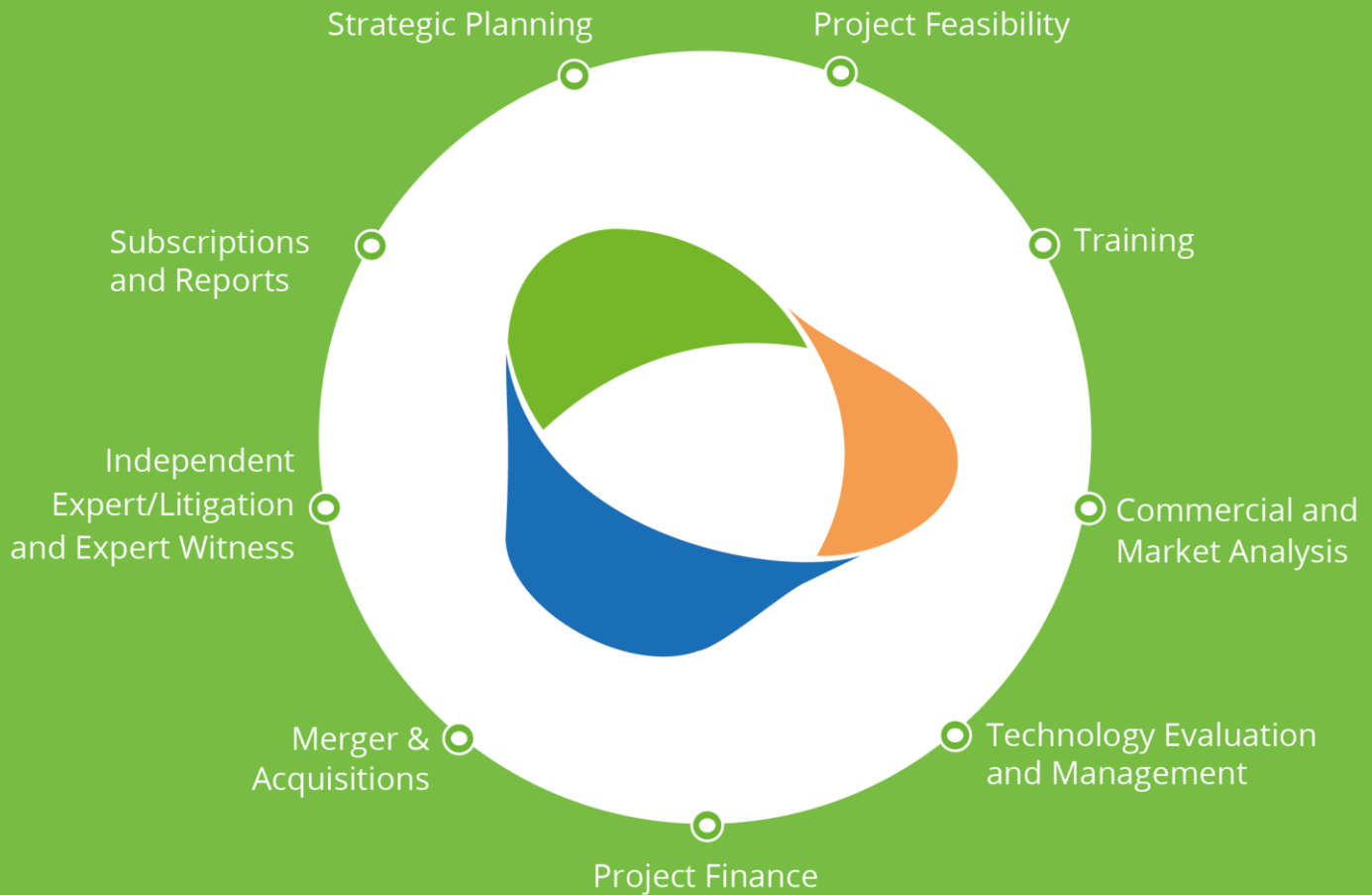




The Energy and Chemicals Advisory company



The leading advisor for
the energy, refining, and
chemical industries.



Just some of the industry trends and developments that will shape strategies and decision-making going forward

- Distinct differences between the developed and developing worlds in terms of focus and opportunity
- Emerging market multi-nationals seeking to develop value-added strategies in both their home markets and around the globe
- The renewed competitiveness of the US petrochemical industry as a result of shale gas – and the emergence of US LNG exports
- Shifts in portfolio strategies accelerating M&A activity, with strong growth in private equity interest in the industry
- Major technology trends accelerated by volatile energy prices, biotechnology, re-emergence of coal and the search for innovation



NexantECA, the Energy and Chemicals Advisory company

NexantECA is the leading advisor to the energy, refining, and chemical industries, having advised clients in these sectors for half a century. Our clientele ranges from major oil and chemical companies, governments, investors, and financial institutions to regulators, development agencies, and law firms.

Staffed by over 150 industry specialists, we understand the challenges facing senior management in these complex and dynamic global markets. Our consultants blend strategic consulting, operational and technical expertise with deep energy, refining, and chemical sector knowledge. Many of our consultants have also spent several years in their fields working for energy, refining, and chemical producers, and thus have first-hand experience with the challenges companies are facing. We work closely with our clients to address real issues and identify opportunities that deliver value to their businesses. NexantECA has offices in the major energy, refining, and chemical producing regions of the world. Our international presence allows us to provide insight through our consultants' local market knowledge and our vast network of sector specialists. Since its founding, we have completed thousands of client assignments in more than 100 countries.

Our *purpose* is to deliver subject matter expertise that gives a clear perspective and **provides visionary thinking** which allows our customers to be insightful and act ahead of the competition. We are a diverse team of people united through the *principles* of providing **breadth and depth to our engagements**, which ensures all solutions are relevant and implementable.

We are responsive, agile and flexible in the way we address all of our client's needs; our *intention* is to be helpful in all things, proactively **thinking of ways to ensure our customers are enabled**. Customers are assured by the objectivity of our thinking because of our independence and integrity, **making better decisions** as a result.

In addition to private client engagements, NexantECA has on-going interaction with the industry through the **NexantECA Subscription and Reports** which provides multi-client reports, databases, and planning tools by combining our business expertise with a deep, broad understanding of markets, technologies and economics. These multi-client offerings support decision making by providing consistent, in-depth data, analysis and forecasts in a ready-to-use format for a core range of important products that include natural gas, refined products, basic chemicals, intermediates, polymers and plastics, C1 chemicals, fertilizers, specialties, and bio-renewable chemicals and fuels.





Strategic Planning

Our global consulting team brings together our collective technical, commercial and financial skills, working closely and confidentially with our clients to address real world issues and identify opportunities that add value to their businesses. Our staff includes engineers, chemists, biochemists, economists, MBA's and seasoned business leaders from the sectors we serve. With our deep industry knowledge, we are able to help identify commercially viable strategic options.

NexantECA supports clients with:

- Corporate strategy development and business planning, master plans and independent business plan review
- Strategy analysis – business intelligence, portfolio analysis, market segmentation, value chain and competitor positioning
- Strategic options and screening – innovation strategy, project feasibility, market entry, company and product acquisition screening, corporate vision development, management workshops



Project Feasibility

Properly conducted feasibility studies require multiple inputs and careful evaluation of detailed commercial, technical, economic, competitive, and financial factors, all of which need to be addressed seamlessly and consistently. Cash flow modeling results in numerical quantification of the benefits of a given project and helps to identify key parameters which have the most influence on IRR and NPV.

NexantECA can perform project feasibility studies quicker and more efficiently because we have extensive databases of commercial information, technology, and production economics. Specific aspects of project feasibility studies include:

- Market overview including identification, characterization and attractiveness of addressable target markets
- Profitability and price forecasts, including "netback" forecasts, or the revenue actually received at the plant gate
- Pro-forma competitiveness as compared to leading competitors, both on a cash and landed target market basis
- Technology overviews, including license availability and cost of production economics
- Cash flow model (in Excel) resulting in IRR and NPV projections
- Other aspects that might be analyzed include environmental issues and regulations, downstream investment opportunities, benefits to the community, and investment incentives that might be available



Training

NexantECA Training offers a range of public and in-house training courses on the commercial, technical and strategic aspects of the petrochemical value chain, from refinery to consumers, discussing oil and gas, chemicals, petrochemicals, polymers, plastics, and renewables. NexantECA's courses have benefited thousands of professionals for more than three decades and are led by highly knowledgeable consultants and industry experts, who bring lively examples, animations, and case studies to help attendees gain a wider and deeper understanding of the global chemicals business.

OUR EXPERTISE

150
Specialists
& OVER
50
YEARS



Commercial and Market Analysis

Central to the success of any enterprise is the thorough analysis and understanding of the markets served and how to best access those markets. NexantECA consulting staff combine traditional data mining methodologies with primary market research, resulting in deep and frequent insights into market developments across the chemical, polymer, fertilizer, refined products, and natural gas markets around the world.

NexantECA's vast experience in the industry provides a deep understanding of fundamental market characteristics. Our trusted methodologies allow NexantECA to provide:

- Soundly based and widely accepted profitability and price forecasts
- Up-to-date assessments of market trends and developments
- In-depth country specific and global market analyses

The primary benefit of working with NexantECA on commercial analyses is that we can quickly and efficiently develop an independent assessment of markets. We routinely conduct studies on a wide range of chemical, polymer, fertilizer, refined products, and natural gas markets around the world, giving us an extensive database of proprietary commercial information to support market analysis.



Technology Evaluation and Management

NexantECA's experts track many chemical, refining, and energy technology development efforts...from novel polymer catalyst systems to clean energy technology. Our technology analysis capability ranges from assessing the material performance benefits of novel technologies in contrast to incumbent routes, to preparing competitive economics to assess competitiveness. We can identify world-class technology or practices and recommend a case for action in areas such as:

- Technology analysis, screening and selection
- Identification and appraisal of technology options
- Comparison of new process technology to incumbent routes
- Technology due diligence (i.e. independent opinion on novel technology)
- Competitive technology intelligence
- Identification and development of strategic technology partnerships
- Technology and operational benchmarking
- Cost of production modelling and benchmarking

In clean energy, we have provided technical, environmental, policy and management consulting (e.g., owner's engineer) services to various global energy industrial sectors and governmental agencies. Our focus is on advanced technology system analysis and end-use application integration. We offer real-world process design, engineering experience and techno-economic analysis on a broad range of energy systems including: advanced clean coal technologies; CO2 capture and sequestration; and cutting-edge renewable energy power generation concepts, including solar thermal, biomass power generation and fuels production.



NEXANTECA SUPPORTS CLIENTS WITH:

- **Market assessment** – Market assessment – including capacity, supply, demand and trade-flow projections, profitability and price forecasts, value chain, and end use
- **Competitor analysis, market research** (including market participant interview programs)
- **Trend analysis**
- **Unmet customer needs**

TYPICAL STUDIES INCLUDE:

- **Technology and operational benchmarking**
- **Cost of production modelling and benchmarking**
- **Technology evaluation and screening**

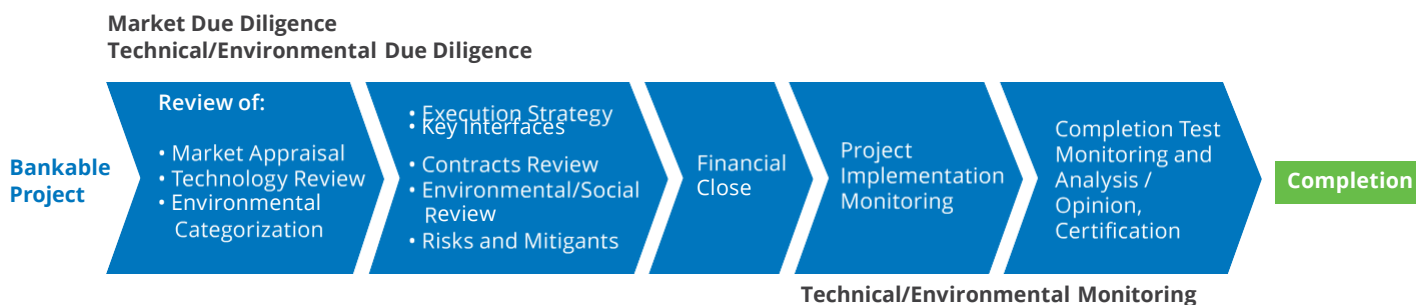




Project Finance

NexantECA has established a pre-eminent reputation by providing independent due diligence and project monitoring support for lenders on major energy and chemicals project finance transactions. We have advised on:

- Over 100 successful transactions with a project value of over \$100 billion, including transactions in all geographies around the world
- Financing for multiple completed and on-going mega projects in the Middle East
- The first successful international finance transactions in India
- Many of the “flagship” transactions in China
- The largest petrochemical project in Latin America



NexantECA provides lenders with independent technical, market/commercial and environmental due diligence, the latter including evaluation of compliance with the Equator Principles, national and international standards, and other relevant guidelines and impacts. NexantECA is an established and trusted advisor to the lending community, with long standing experience providing advice to international and local banks and, export credit institutions, and multilateral lending agencies.



Merger & Acquisitions



Nexant is a leader in strategic M&A support for chemicals, energy and clean energy transactions, providing independent commercial and technical due diligence services. As a result of our deep sector experience we have immediate insight into the issues which drive value. NexantECA's analysis is based on both market and product level knowledge as our project teams are staffed by chemists, chemical engineers, economists and professionals with relevant industry experience.

When acting on the sell-side, NexantECA has deep insight into the energy and chemicals industries and is well-placed to anticipate purchasers' areas of concern and value. We are confident that our commercial due diligence support will:

- Increase sale proceeds
- Minimize surprises during the sales process which favor bidders
- Accelerate the timetable and reduce disruption to management

If appointed on the buy-side, NexantECA typically performs a risk-based analysis on the seller's claims and investigates the issues that have the greatest impact upon the deal. We will check market dynamics, industry structure and competitive landscape, technical risks, and business plan assumptions; and we will provide an opinion on the prospects for the business under new ownership.

OUR TRANSACTION SUPPORT SERVICES COVER A WIDE RANGE OF TOPICS:

- Technical and commercial review/forecast
- Cash flow and profit margin projection
- Asset valuation and appraisal
- Synergy analysis
- Fair market value and orderly liquidation value opinion
- Technology and competitor assessment
- Industry, business sector analysis, and strategy formulation
- Coordination with other expert opinions (environmental, audit)



Independent Expert/Litigation and Expert Witness

NexantECA consultants have advised and testified in a wide range of litigation cases across the energy, refining and chemicals sectors in both technology and commercial roles. We have successfully provided expert analysis and testimony for governments, law firms and operating clients. Our experience covers the full range of expert services, including the following:

- Contract, quality and pricing disputes
- Full range of industry-expert consulting services, historical fact and damage reviews, and valuation aspects of litigation support
- Economic damage assessments
- Litigation and arbitration support in patent cases
- Trade and lender claims in bankruptcy proceedings
- Extensive technology capabilities and experience to provide expert reports and expert testimony



Subscriptions and Reports

NexantECA Subscriptions and Reports provide clients with comprehensive analytics, forecasts and insights for the chemicals, polymers, energy and cleantech industries. Using a combination of business and technical expertise, with deep and broad understanding of markets, technologies and economics, NexantECA provides solutions that our clients have relied upon for over 50 years



- The **Markets and Profitability** program provides accurate data, insightful analysis and dependable long term forecasts of the profitability, competitive position and supply/demand trends for over 60 feedstocks, gas, petrochemicals, polymers, chemical intermediates and fertilizers. Continuously monitoring and tracking the industry, this program provides regular updates via published reports and an interactive Online Database.

Markets and Profitability comprises the former Petroleum and Petrochemical Economics (PPE), PolyOlefins Planning Service (POPS), Strategic Business Analysis (SBA) and World Gas Analytics (WGAS).

Contact us at Markets@NexantECA.com



- 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.

Technology and Costs comprises the Technoeconomics – Energy & Chemicals (TECH) program (formerly known as PERP), the Biorenewable Insights program (BI), and the new Cost Curve Analysis. These programs provide comparative economics of different process routes and technologies in various geographic regions.

Contact us at Technology@NexantECA.com

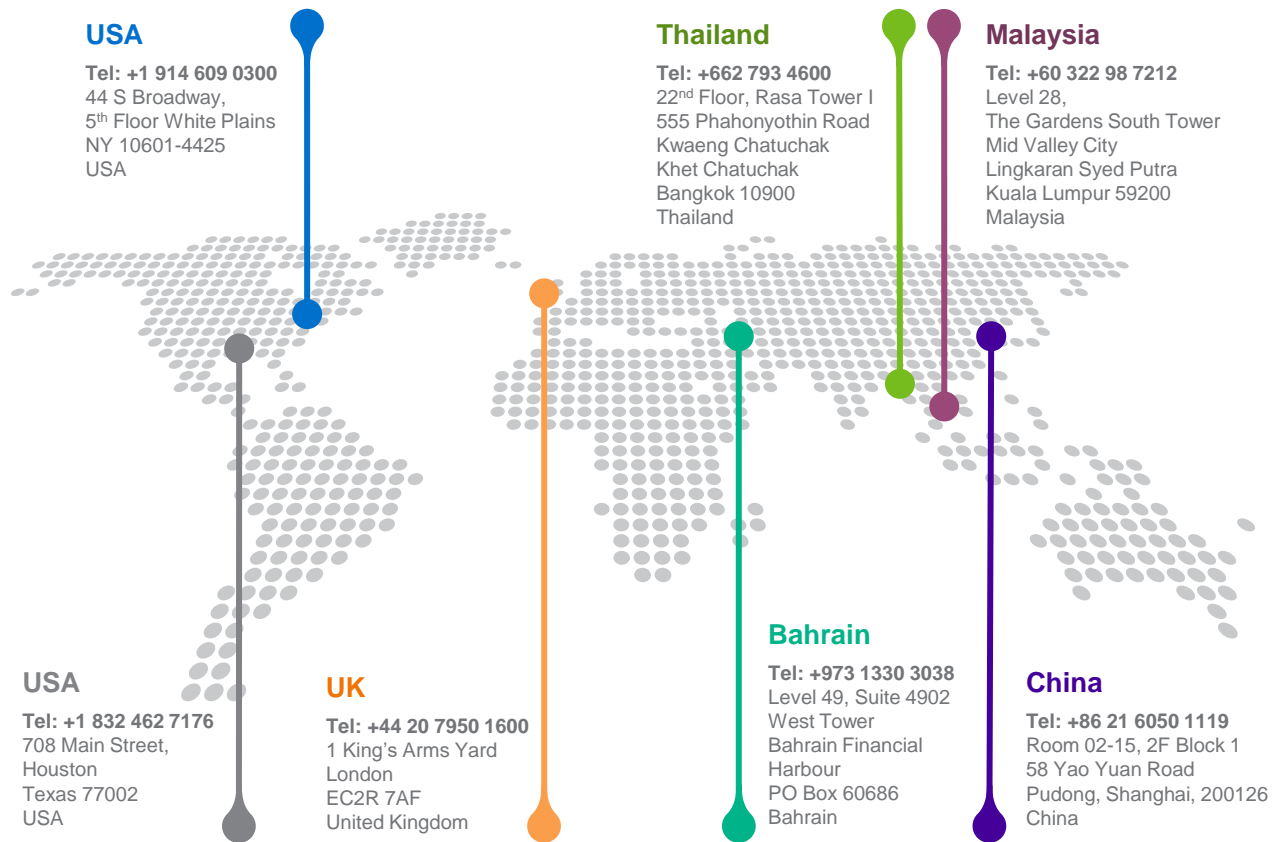


- **Special Reports** analyze issues of topical importance to the energy and chemicals industry. Each special report explores the subject matter in detail to provide an up-to-date and thorough understanding of the related issue allowing investment decisions and new business strategy to be formulated.

Contact us at SpecialReports@NexantECA.com.



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.



Disclaimer

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