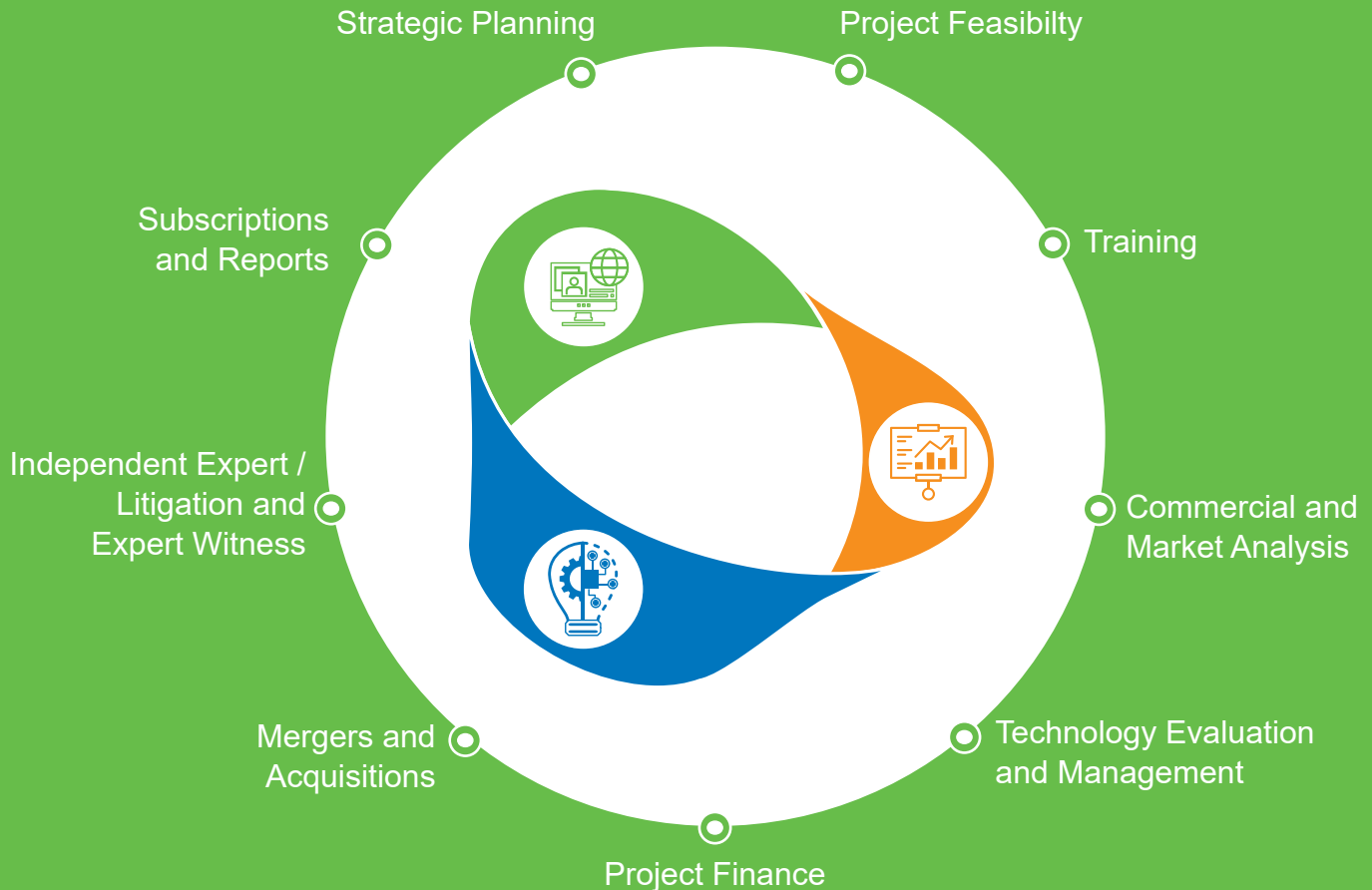




Data Analytics and Insights
for a Sustainable Future

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The energy and chemical industry is in transition, NexantECA clients are tackling changing energy requirements driven by environmental change and sustainability.

This requires our clients to make strategic and operational decisions regarding solutions to plastics waste and marine pollution, transition to electric vehicles, future use of plastics and composite materials in lightweighting solutions, on building insulation and energy efficient or smart buildings, on water and food supply: delivery and then packaging recovery, reuse and recycling.

Our technical, economic, market, commercial and environmental expertise and deep industry insight, backed by proprietary databases and models that capture decades of research, analysis with long-term forecasts enables NexantECA to support our clients in making strategic and operational decisions.

The NexantECA team is partnering with clients to help them navigate the big global energy, chemicals and materials issues of tomorrow.

Richard Sleep, President

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NexantECA, the Energy and Chemicals Advisory company

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

Staffed by over 100 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, implementable and sustainable.

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.

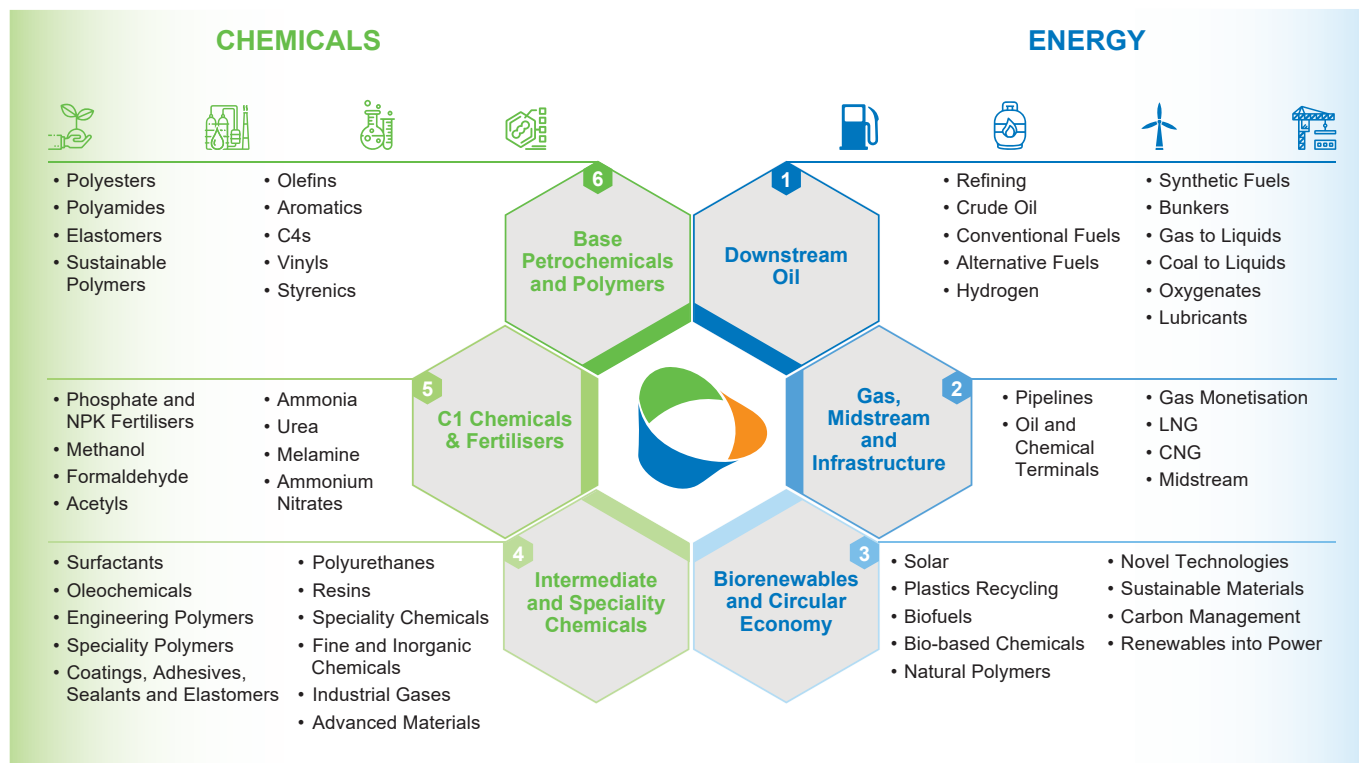
In addition to private client engagements, NexantECA has on-going interaction with the industry through our Subscription and Reports which provides multi-client reports, databases, and planning tools by combining our business expertise with a deep, broad understanding of markets, technologies and economics. 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.





Our Expertise

NexantECA has expertise across the energy and chemicals value chain, with focus on six core segments



Sustainability

The world is facing unprecedented challenges. The market landscape is evolving with a heightened emphasis on opportunities offered within the sustainability and circular economy framework, as well as the challenges and risks presented by climate change and the need to meet the increased commitments to achieving net-zero emissions without compromising prosperity.

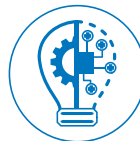
NexantECA Sustainability Champions



At NexantECA, we utilise our expertise, in-depth knowledge, and comprehensive datasets to support clients in addressing the major issues facing our industry across the supply chain, for energy, chemicals, and related sectors.

As a business with experienced industry professionals based in all key regions globally, we understand the different regional priorities. Our global sustainability champions team of experts are well placed to assist on this strategic and operational journey to enable our clients deliver positive environmental, social, and economic impact. We are helping companies to assess their risk, identify opportunities and implement solutions.

When we talk about sustainability, decarbonisation and circular economy, we discuss the important role our industry can play and its impact on our plant and the environment, the prosperity of our business, the wellbeing of our society, our employees, and the wider community.



Consulting



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 financing metrics such as 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
- 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 key financing metrics such as 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



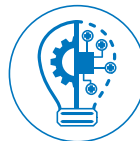
Commercial and Market Analysis

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:

- 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)
- In-depth country specific and global market analyses, along with trend analysis
- Unmet customer needs

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
- Technology and operational benchmarking
- 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
- Cost of production modelling and benchmarking

NexantECA is engaged in a wide range of studies modelling and benchmarking new technologies for recycling within the polymer industry. In addition, as part of the energy transition, 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 hydrogen, solar, biomass power generation and fuels production.



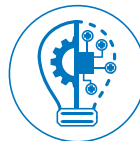
Merger and Acquisitions

NexantECA 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. Our commercial due diligence support includes:

- Over 100 successful transactions with a project value of over \$200 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

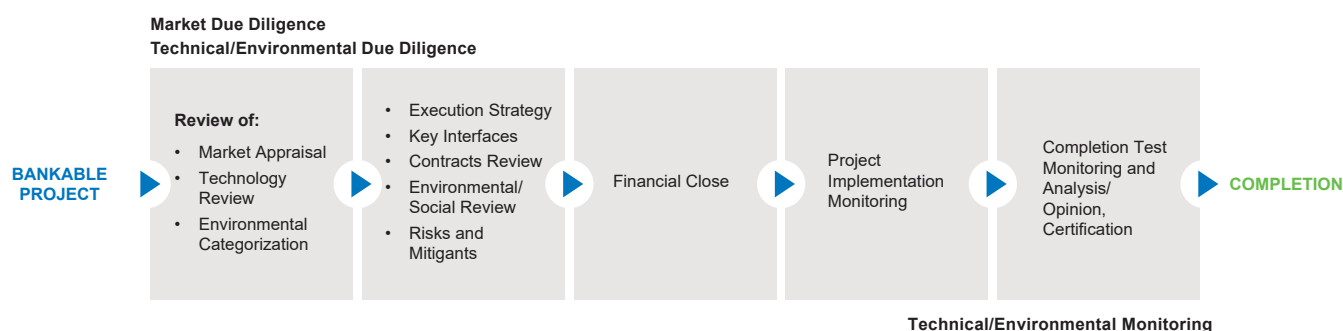
If appointed on the buy-side, NexantECA typically performs a risk-based analysis on the seller's claims and investigates the issues that have the greatest impact upon the deal. We will check market dynamics, industry structure and competitive landscape, technical risks, and business plan assumptions;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



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 \$200 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.



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.



Markets and Profitability

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.

In addition, NexantECA has launched a series of new reports, Market Insights, with focus on sustainability, and peripheral markets to the petrochemical industry.

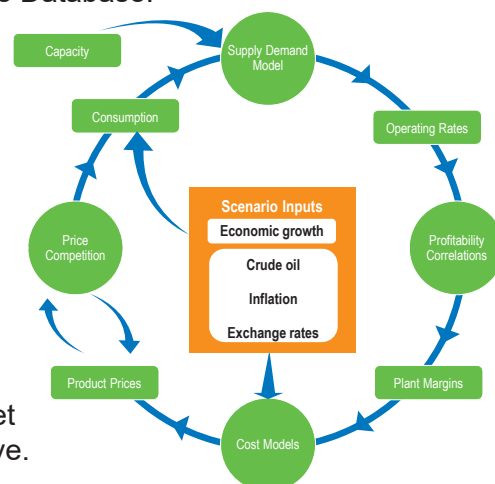
NexantECA Markets and Profitability program is underpinned by two key models.

Petrochemical Simulator

NexantECA's proprietary model producing multi-scenario simulations of the petrochemical sector, modelling supply, demand and pricing.

World Gas Model

The world gas model is designed to provide gas market scenarios from global, regional and national perspective.



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. These include:

- Technoeconomics – Energy & Chemicals (TECH): technology trends, process economics and commercial overviews of petrochemical commodities, specialty chemicals and polymers, advanced materials, energy and fuels
- Biorenewable Insights: evaluations of technologies, cost competitiveness, and business developments in the biorenewable chemicals and fuels sector
- Cost Curves – Relative cash cost positions of global players on a plant-by-plant basis, with historical, current and projected views



Special Reports

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. Recent reports have focused on sustainability-related topics, such as plastic waste recycling by both conventional and advanced methods.



Training

NexantECA provides industry leading Online, Virtual, In-House and Public training courses and workshops globally. Our courses cover 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 over ten thousand 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.



Online

We've created an online version of our famous 'Global Petrochemical Industry' training course. This online course maintains the same quality content as the public and in-house versions and is available in an accessible and convenient format, allowing you to enjoy the flexibility to study wherever and whenever you choose, and at your own pace, ensuring learning fits around your busy schedule.

Blended and Virtual

Enjoy the benefits of blending face-to-face training with the convenience of learning from home or office. Our virtual learning courses cover the same 3-day content from our public training courses and are delivered via an online video platform. The added option of creating a blended 'in-house' course which incorporates both online and virtual learning for up to 25 employees is also available.

In-house Courses and Workshops

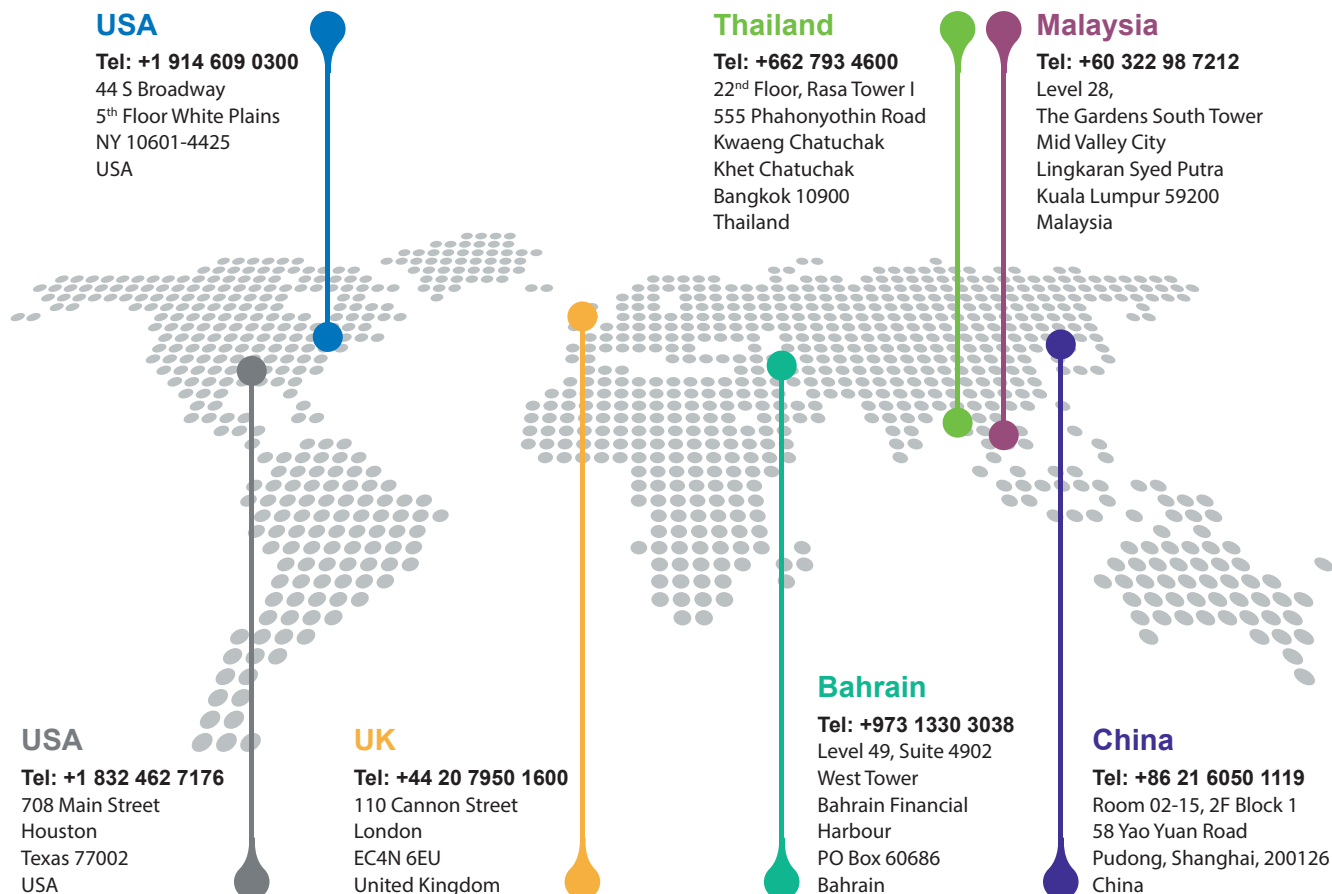
NexantECA continues to partner with many of the industry's leading energy and chemical companies, helping them to ensure continued employee development with tailor-made training courses designed to fulfill their specific learning and development objectives. We collaborate with them to design their training course and bring it their location, while they decide the duration, date and times that their course takes place. The cost of in-house training is per course and not per delegate. This means the investment is more efficient with the possibility of training up to 25 employees per course.

Public Training Courses

We host multiple training courses and workshops globally each year which cover today's fast moving chemical industry, including the whole value chain, from refined products to polymers and plastic processing. They also deal with the external environment – How the macroeconomic and the energy environment affect the chemical industry. Our industry experts have extensive experience and proven track records of delivering key Petrochemical industry training, knowledge and workplace skills.



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

This Report was prepared by NexantECA, the Energy and Chemicals Advisory company. Except where specifically stated otherwise in this Report, the information contained here is prepared on the basis of information that is publicly available, and contains no confidential third party technical information to the best knowledge of NexantECA. Aforesaid information has not been independently verified or otherwise examined to determine its accuracy, completeness or financial feasibility. Neither NexantECA, Client nor any person acting on behalf of either assumes any liabilities with respect to the use of or for damages resulting from the use of any information contained in this Report. NexantECA does not represent or warrant that any assumed conditions will come to pass.