ENGINEERING SERVICES CONSULTANCY
Managing complexity, unlocking value
Discover the difference

Petrofac is an international service provider to the oil and gas industry. We have been supporting the industry for over three decades. More than 13,500 people assist our operations in 29 countries worldwide.

Our consultancy offering within Engineering Services supports clients in unlocking value from their assets through the provision of life cycle engineering support.

We tailor our solutions to deliver a truly differentiated outcome:

- Life of asset services, from pre-investment analysis to late life
- Broad technical capability, including subsurface and surface expertise
- Intelligent solutions that leverage the strength of Petrofac Group capabilities
- Responsive and flexible team that combines an innovative approach with practical knowledge of execution
- Cost and planning deliverables enhanced by real time operations and construction data sharing

15 year track record

> 700 feasibility and concept studies delivered

> 200 clients

> 1 million man-hours of consultancy services delivered

Our engineering services consultancy complements our wider engineering capability, enabling us to deliver expert analysis and assurance for developments onshore, offshore and subsea.

We deliver these services on a standalone basis or as part of our wider service delivery, seamlessly integrating with capabilities from the wider Petrofac Group.

Our clients include independent oil companies (IOCs), national oil companies (NOCs), technology developers, construction companies, Government bodies and public sector institutions.

Our services encompass:

- Advisory services – surface and subsurface expertise supporting new and existing assets, mergers and acquisitions
- Field development planning – feasibility, concept and pre-front end engineering design (FEED)
- Asset/facilities support
- Late life asset management – asset-led support services
- Process technology
- Renewable energy – offshore wind (fixed and floating)

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Enhanced delivery

Petrofac is renowned for its capability in lump-sum turnkey (LSTK) engineering, procurement and construction as well as operating and maintaining assets for clients worldwide. This track record provides us with vital insights that we use to enhance our delivery of concept studies, field development plans and FEED.

We combine this practical experience with our consultancy capability to fast-track developments from concept through FEED and straight into execution where necessary.

We support a wide variety of clients globally, applying our understanding of specific regional design and operating practices, logistics, harsh climates, local project execution capability and local legislation including environmental issues.

Our technical and international experience is enhanced by our ability to leverage and gain benefit from this EPC and operational experience. Our engineering consultancy solutions include constructability and operability reviews and CAPEX estimates that are benchmarked against our EPC procurement database and schedules using real-time execution information.

We deliver these services in support of Petrofac internal projects or as discrete pieces of work for external clients. As well as EPC delivery, we also have the capability through our EPCm business to approach EPC delivery on an integrated and reimbursable basis.

We have the capability and experience to help clients on their journey; whether that is at appraisal stage or through on-going and late life operations into decommissioning.
Technical assurance

Our ability to deliver across the value chain and to draw on a wide breadth of technical resources means we can deliver intelligent solutions that benefit from synergies within the Petrofac Group. We have a reputation for providing pragmatic and measured advice and have developed “trusted advisor” status with our clients.

Our capability includes:

- Reservoir characterisation/geological modelling and reservoir simulation
- Operations support and production technology and chemistry
- Well engineering (including plugging and abandonment)
- Dynamic simulation and transient analysis
- Computational flow dynamics
- Vibration analysis
- Acoustic engineering
- Flow assurance
- Safety and environmental assessment, compliance and engineering
- Process and facilities design
- Subsea and pipeline engineering
- Advanced structural analysis
- Asset integrity assurance
- Asset management
- Cost estimating and planning

We have a strong in-house technical capability that we bring together to deliver exceptional results. And, where there is need for technical or regulatory assurance, we can assemble a team quickly and effectively.

Advisory services

By integrating our technical capability, which spans both subsurface and surface domains, with the resources and know-how of the wider Petrofac Group, we provide a vital link between strategic level decisions and front line implementation. Our subsurface and surface expertise is also central to our modelling expertise, allowing us to deliver high-quality planning and forecasting.

Our subsurface skills span geoscience, petroleum engineering, production and well engineering. We use this expertise to identify uncertainties associated with oil and gas reservoirs and perform valuable analysis much earlier than traditional approaches. This front-end loading enables us to unlock significant benefits such as managing risk and reducing costs further down the line.

The strength of our advisory service is rooted in our technical capability and expertise around the challenges of risk, value and regulatory compliance. All these elements enable us to improve our clients’ business performance at all phases of an energy asset’s life cycle.
The breadth of our experience means we are fully equipped to manage the challenges that can emerge during this early planning. Our study managers are experienced in identifying the key issues and developing the right solution. Their expertise covers reservoir, well engineering, facilities, pipelines and refining.

We manage the whole field development process, developing options suitable for further screening and detailing. Our solutions are enhanced by an ability to cost benchmark against data held by our construction and operations services. We use this data to inform our decisions.

We apply proven methodologies and use sophisticated in-house tools to assure and speed up our concept selection processes. Our in-house tools include POISE, a tried and tested concept selection tool. We also use BEST, an estimating tool populated with data to support onshore, offshore and decommissioning estimates.

drawing on experience that covers design, construction and commissioning, our technical consultants assess the integrity of ageing facilities to provide debottlenecking, change of service and repair solutions (where standard like-for-like replacement is not possible). Our team utilises systems, tools and processes proven by Petrofac’s engineering, construction and operations service lines to enhance our delivery. We also utilise experienced detailed design engineers to further benefit our solutions. This expert analysis follows a structured, ‘Think’, ‘Plan’, ‘Act’ and ‘Do’ methodology.

We have been delivering field development services for over 15 years and our project history spans onshore, offshore and subsea developments. This includes assets where a combination of onshore and offshore facilities and pipelines are required and those in challenging or remote environments.

Our asset and facilities support services include plant performance studies as well as integrity assessment and plant modifications onshore and offshore.
Process technology

As Petrofac’s centre of technical excellence, our engineering consultancy team provides process technology support for upstream, downstream and midstream oil and gas facilities. Our capability spans oil production and processing (from well to export point), gas production, gas monetisation and refining.

Changing market conditions, environmental legislation, new feed streams, reservoir depletion and ageing assets are some of the issues we address during our study work. Our team is multi-disciplined and has the experience to provide solutions that overcome these new and emerging challenges.

We are well versed in the complex processes associated with a typical gas processing facility and perform “open art” designs to evaluate licensed technology and how they could integrate with our designs.

We have significant experience in assessing options for gas monetisation and working with licensed technology providers to build on their products to deliver comprehensive solutions without gaps in scope.

Our refinery experience ranges from studies to FEEDs. Petrofac has executed grassroots refinery process configurations and site development studies. We have also undertaken evaluations of alternate crude supplies and product distribution, as well as brownfield revamping and debottlenecking of individual process units.

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Late Life and Decommissioning

We support assets through late life, from concept and feasibility studies to enhanced production methodologies, including reservoir management, cost estimating and options analysis. We believe that early engagement offers the best opportunity to positively influence decommissioning outcomes. We also provide support for the requisite change in culture, transitioning from an operations-led to project-based mind set.

With a focus on maximising production and minimising operations costs, our late life asset management services span topsides, jackets, pipelines, subsea pipelines and terminals and include:

- Reservoir management and subsurface evaluation
- Comparative concept studies for decommissioning, including plugging and abandonment of wells and facilities decommissioning and abandonment
- Production enhancement and life extension strategies
- Removal and (de)construction considerations
- Transition planning towards asset retirement
- Structural and marine assurance
- Lifting analysis and technical safety
- Integration and support of our Operations-led Duty Holder in decommissioning service model
- Decommissioning schedules and cost estimation
Petrofac has an established track record for the design, engineering consultancy, EPC, operations and maintenance of offshore infrastructure, both in the UK and internationally.

We have transferred this life of asset experience, knowledge and understanding into the solutions we deliver to the renewables sector and have a growing capability.

To date, we have established ourselves as a service provider in both the German and UK offshore wind markets (fixed and floating) and are fully conversant with the sector’s challenges. In particular, we have significant experience in the design and engineering of subsea cables, including experience with large HVDC interconnectors as well as smaller wind farm export cables. This capability includes operational cable risk assessment and protection design.

We can address the growing demands of this sector and offer a number of key service differentiators:

- Extensive offshore design, execution, operations and maintenance experience
- Deep understanding of power infrastructure, integration of technology and the regulatory environment
- Appetite for innovative commercial approaches to risk management and execution of EPC projects
- Industry leading training capabilities for the offshore sector supported by a range of workforce competence solutions
- Undertaken the design and build of HVAC and HVDC substations

We have been involved in the design engineering and construction of numerous offshore wind farms in the UK and Germany.

Our service delivery is supported by 11 international engineering centres.