




OIL AND GAS



We have in-depth expertise in things
that matter and we are easy to work with.

Our clients trust us and we are
respected for our creative thinking.

Together we build strong relationships by
repeatedly delivering on our promise.

MAKING COMPLEX EASY



SPECIALISED EXPERTISE INDEPENDENT ADVICE

Faced with regulatory uncertainty, market volatility and growing concerns over long-term, sustainable supply, energy producers need high quality commercial and technical advice to support smart exploration and field development.

We've been involved in some of the world's most technically challenging exploration and development initiatives for over 30 years, providing the data to ensure

producers invest wisely, stay safe and maximise operational viability – across the asset lifecycle, both onshore and offshore.

Specialising in solutions for projects delivered in remote, sensitive and operationally challenging environments, we work with clients to manage environmental impacts, optimise their return on investment, develop their staff and bring energy to market cost-effectively and safely.



SUPPORT ACROSS THE ASSET LIFECYCLE

What we do	Making complex easy
We understand that investing in oil and gas projects requires a complete understanding of the changing commercial and technical landscape.	<p>We draw on decades of experience facilitating positive commercial, technical and delivery outcomes for infrastructure and development projects, we work with you to realise project goals and maximise return on investment.</p> <p>Assembling a team of consultants that intimately understands the commercial and technical landscape in which you work, we provide commercial and technical advice to underscore the financial viability and construction of major infrastructure projects.</p>
Interpret data used to evaluate plays, optimise exploration, generate investment and deliver robust technical studies for onshore and offshore exploration projects.	<p>A thorough understanding of the geological and geophysical characteristics of the major hydrocarbon basins ensures RPS can deliver robust technical studies for onshore and offshore exploration projects.</p> <p>Our specialist geophysics and geology teams have in-depth experience in attribute analysis and biostratigraphic and sedimentological interpretations.</p>
We ensure the seismic data collected meets our client's project requirements.	We deploy specialists worldwide to oversee all aspects of seismic data operations; from technical to environmental to safety. Our seismic project managers and technical client representatives have specialist knowledge in meeting the health, safety, environmental, technical and commercial performance objectives critical to project success. We use objective analysis and leading software to test equipment, process and visualise data.
Manage the permitting and consents process.	Navigating the complexities of multiple regulatory frameworks and stakeholder engagement needs specialist knowledge and experience – getting this right can prevent your project becoming tangled in unnecessary and expensive delays and escalating development and operating costs. RPS has advised on offshore energy projects successfully for over 40 years – our local expertise is backed by an international network to help clients navigate the nuances of increasingly complex regulatory landscapes.
We enable cost effective operating conditions of an asset by providing accurate data acquisition, evaluation and interpretation during the drilling phase of a well, and the timely and effective communication of uncharacteristic situations.	<p>Our highly-skilled resources support drilling operations world-wide, often in challenging geographic locations and complex geological environments. Our independent expertise has been developed across the complete spectrum of well drilling activity – from predrill well planning and design, well execution and management to post drilling close out.</p> <p>We ensure that when drilling or at the well-site, project delivery outcomes are balanced technically, socially, environmentally and economically – this combination ensures complex projects are delivered successfully and operate efficiently across the life of the asset.</p>
We provide independent reporting, independent technical and economic assessments of oil and gas assets internationally, and an impartial, informed and considered view for the client.	<p>All senior members of our team have the necessary international expertise and recognised qualifications to prepare and deliver Competent Person's Reports (CPRs) for transactions to the specific reporting requirements of the major stock exchanges.</p> <p>These reports include CPRs (or mineral expert reports) for public flotation and private fund raising, valuation reports for banks providing project finance or reserves-based lending and annual reserves reports.</p>
Design customised data portals to make using data and producing reports fast and easy.	We develop customised, cloud-based, integrated systems for the management, processing, preservation and visualization of data through client portals. This allows for nimble browser and mobile based access to high quality measured and modelled Metocean data, analysis tools and forecasts.
Define, design and manage marine and environmental monitoring data collection systems.	Our team has over 35 years of experience in the collection, analysis, interpretation and application of Metocean data – including wind, waves, current – and salinity/temperature profiles. RPS maintains a large inventory of sophisticated field instrumentation, including acoustic releases, tide gauges, acoustic doppler current profilers, single point current meters, temperature loggers, in-situ laser sediment samplers, seabed-mounted PUV instruments, acoustic wave measurement instruments, wave, meteorological and telemetering current buoys.



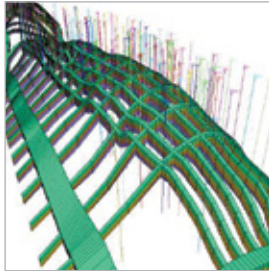
ORJIP, Minke Whale, Iceland, ecology and underwater acoustic studies

RPS and project partners Marine Conservation Research (MCR) have been working on a project for the Offshore Renewables Joint Industry Programme (ORJIP) - to test the effectiveness of an Acoustic Deterrent Device (ADD) as a mitigation tool to reduce potential injury to low frequency cetaceans, such as the Minke whale, during offshore oil and gas operations. The project, managed by the Carbon Trust, was part of a UK-wide, collaborative programme of environmental research aimed at reducing consenting risks for offshore energy projects.

- Ecology
- Underwater acoustics
- Marine biology
- Technical reporting

Integrated field development study, Kirkuk field, Iraq

For this field development study, an optimised grid design was needed to provide the required level of detail while minimising run-times in the simulator. The main objectives of the 3D model were to assess the volumes of hydrocarbon in-situ and to provide a basis for scoping simulations of various development scenarios for the ultimate purpose of economic modelling. The Kirkuk simulation grid structure was optimised for simulation modelling, in areas of high well density, the cells were forced to be smaller, whereas in areas between the main domes, the cell size was increased.



- Compilation of technical database
- Geological and geophysical review
- Petrophysics and reservoir characterisation
- Preparation of static geological model
- Reservoir engineering review
- Reservoir simulation, including history matching and predictions
- Recommendations on optimum development plan





BMG decommissioning, Victoria

Roc Oil on behalf of its Joint Venture Partners, transitioned the Basker Manta Gummy (BMG) field in Bass Strait, Victoria to a Non-Production Phase (NPP). The transition was complicated and involved several phases. RPS provided HSE resources and support services as required, including an RPS consultant embedded in the project team for the planning and execution phases. The transition was successfully completed without any long-term injuries or significant loss or containment incident.

- Risk Management, including project Formal Safety Assessments
- Review / development of HSE Plans and bridging documents for project work
- Regulatory Compliance and submissions
- Contractor and Sub-Contractor Management
- Emergency Response planning, drills and exercises
- Mobilisation for field support during operational phases

Kosmos Energy offshore drilling program, Mauritania, Environmental and Social Impact Assessment

Kosmos secured the Environment Permit based on the Environmental Impact Assessment prepared by RPS for drilling off the coast of Mauritania. In addition, RPS performed two Social Impact Assessments (SIAs) to meet their internal social responsibility standards.

The highly regulated permitting process included submissions to Direction du Contrôle Environnemental, public consultations in Keur Macene and Nouakchott, EIA write-up and submission followed by disclosure during a formal public consultation process.

Our project team was led by a native French speaker who conducted the consultations in-country. We utilised our established relationships with local consultancies throughout the process.

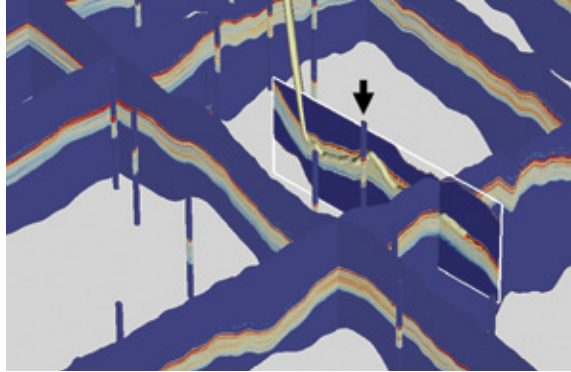
- Environmental Impact Assessment (EIA)
- Social impact field work
- Social Impact Assessment (SIA)
- Public consultation



Leading minds

Integrated 3D geomodelling and fracture stimulation modelling, Midale Reservoir Saskatchewan

Wyatt Oil & Gas looked to re-evaluate their frac plan for the Midale Reservoir in south eastern Saskatchewan to improve the accuracy and quality of the fracture design and model. A high-quality frac design utilising a 3D model can greatly increase the effectiveness of hydraulic fracturing operations while reducing the amount of material required for fracturing on site. RPS was able to recommend reducing the number of frac stages from 30 to 20, in addition to providing an optimised pumping schedule. Wyatt adopted the optimised design and pumping schedule and the 33% reduction in frac stages greatly reduced the amount of fracturing materials, time, and overall cost of fracturing operations while increasing well productivity and net pay coverage.



Barents Sea: Jurassic and Triassic Reservoir Quality Database

RPS was appointed to devise, carry out and report the sedimentological and petrographical findings of various wells drilled in the Barents Sea, Norway.

Until this multi-client study was conducted, there was no single report available that covered the sedimentological and petrographical analysis of the cored Jurassic – Triassic section in the Barents Sea, though several clients had drilled various wells.

Our geologists carried out the study in order to provide multiple clients a single database of cored sections in the Barents Sea. Facies association data was synthesised into palaeogeographical maps, constrained by biostratigraphic data. Depositional modelling followed on from the sedimentological analysis of cores to better understand the sedimentary processes operating at various stratigraphical horizons. Petrographic analysis, to investigate controls on reservoir quality from both a primary

(depositional) and secondary (diagenetic) perspective, was performed.

A summary report of the 105 samples and 61 wells that were studied was made available to clients. They used this data to aid them in further exploration in the Barents Sea.

- Core description
- Palaeogeographical mapping
- Depositional modelling
- Thin section analysis
- Scanning electron microscopy
- X-ray diffraction analysis
- Reservoir quality analysis

BHP Billiton, Deepwater current profile, waves and CTD moorings, Trinidad and Tobago

RPS is collecting full water column hydrodynamic profiles, wave measurements, and bottom water characterisation data with three deep-water moorings. The study supports engineering and planning of major infrastructure installations in the Deepwater prospect fields at BHP Billiton's blocks in the Trinidad and Tobago Deep Atlantic Areas.

In this region the Guiana Current flows north-westward along the northeast coast of South America and is fed by the North Brazil Current (NBC) which frequently collides with shelf topography, spinning off NBC rings, causing high speed currents.

The moorings combine multiple profiling and single-point instruments. Water depths of the three mooring locations range from approximately 1750m to 2200m. The current observations are being used to compare with model predictions from the global HYCOM application in the area. They will be used to assess the model's ability to characterise the current speeds that development or operations at the sites would experience.

- Deep water mooring design and installation
- Full water column hydrodynamic profiles
- Current modelling
- Wave measurements
- Bottom water characterisation
- Time series met-ocean analysis

Alcatel Submarine, offshore UXO service

Desk studies of unexploded ordnances (UXO) where Alcatel plan to lay their cables were undertaken to identify whether there was a risk of encountering UXO in the area. The report identified several munitions dumping areas within the cable route that could pose a risk. Based on the risk during cable installation, RPS is providing EOD trained personnel onboard cable lay vessels to identify any encountered UXO.

- UXO desktop studies
- UXO risk assessment
- Certified Explosive Ordnance Disposal (EOD) personnel
- Project and logistics management



Shell realtime environmental and stress modelling, US Gulf of Mexico

Measuring the actual metocean and other conditions that have affected and are affecting the structure of offshore platforms can be a way to redetermine the expected lifespan of an existing structure. Original lifespan forecast benefit from fresh modelling and monitoring.

RPS in collaboration with Stress Engineering is defining, designing and building a system to automate the analysis of data being collected and measured on Shell's Mars Tension Leg Platform in the US Gulf of Mexico. RPS is installing and testing a real-time metocean observation system along with sensors that will test for motion and tension on the platform. Quick and easy analysis of the real-time data, stored in the cloud, can be performed using the customised visualisation tools. Decisions can be made rapidly using dashboard of key indicators and automatic monitoring. Longer term modelling is beneficial when investigating decommissioning timing and options.

- Monitoring systems design and implementation
- Cloud based data storage systems
- Visualisation tools, dashboards and automated reporting
- Data integration
- Project and logistics management

Dutch North Sea Logger Field – Experts to Court of Appeal in the Hague

RPS were appointed the 'Named Experts' by The Court to provide relevant advice on this landmark legal case. In 1992 Unocal (subsequently Chevron) claimed that the Logger Field operated by Conoco extended to their adjacent acreage and requested a pooling arrangement.

The Court formulated specific questions for RPS in relation to Unocal's claim. The questions probed issues such as the amount of oil that had migrated across the license boundary as a result of Conoco's activities, and whether the remaining oil in Unocal's block was consequently less productive as a result. Since the field was never unitized, Ian Linnett advised The Court as to what Unocal might have produced without the influence of prior production in the adjacent block, and what profits might have resulted.

A range of potential scenarios were forward modelled from time-zero based on a comprehensive, integrated static and dynamic model, having first established a valid history match to actual production. This required detailed technical, procedural and commercial analysis to deliver a result The Court could rely on after more than a decade of legal and commercial dispute.

The RPS team has deep expertise in this area, frequently acting as Expert in hydrocarbon ownership disputes in field redeterminations.

We created a history-matched 3D reservoir simulation which we then ran forward modelling of multiple 'imagined' scenarios. These involved economic evaluation to establish Net Present Value (NPV) for a series of cases, and incorporating economic evaluation including the establishment of cost estimates for different production cases. Our challenge was to produce a pragmatic solution that would withstand scrutiny and be accepted by deeply divided parties.

The Expert's Final Report was accepted by The Court to fix the matter of damages. Following a series of further hearing the parties ultimately settled the matter out of Court for an undisclosed and confidential sum.

Further details are publicly available as a matter of public record in Court Papers.



Schönkirchen 3D Seismic Survey, Austria

Acquiring seismic data over mature producing fields presents a unique set of challenges, especially in agricultural areas. Careful planning was required to execute this detailed 3D programme which covered a variety of environmentally sensitive areas, roads, villages and large expanses of farmland, including commercial vineyards.

To avoid causing damage to crops, the survey was planned for the winter months and had to be completed before farmers commenced work again in the spring.

Technically the geologic target was deep, and the aim was to acquire a high-quality full azimuth dataset at a reasonable cost. The programme used innovative techniques to acquire the seismic data. These included the use of a cable-free nodal recording system to minimise the physical impact of the survey, and four fleets of seismic vibrators operating in "slip sweep" mode to maximise production.

This project provided the data required and was completed on time, on budget and with no HSE incidents.



MAKING COMPLEX EASY

Making complex easy for our clients and our people is what we do. Solving problems that matter, confidently and pragmatically, while providing independent advice and a global perspective, to connect our people and clients.

We define, design and manage projects that create shared value for a growing, urbanising and resource scarce world. At RPS, we're as committed to ensuring that these projects balance the technical, social and environmental with responsible economic outcomes.

Our deep expertise working in the oil and gas industry for over 40 years ensures we're the team to deliver the right solutions - making complex easy.