



ELECTRICAL, INSTRUMENTATION & TELECOM SOLUTIONS

INDEPENDENT CONSULTANCY FROM FEASIBILITY TO DECOMMISSIONING

RAMBOLL

DEDICATED ELECTRICAL, INSTRUMENTATION & TELECOM SOLUTIONS

ENSURING SAFE AND RELIABLE OPERATIONS AT PROCESS AND UTILITY FACILITIES

Electrical, instrumentation and telecommunication solutions (EIT) are essential parts of oil and gas projects, as they make the entire facility run smoothly. Furthermore, the installations are complex and the value of assets and safety of personnel depend on safe and reliable systems.

Project lifecycle services

Ramboll provides multidisciplinary services independent of third party interests, and we have 25 years of experience with the EIT disciplines.

Based on our multidisciplinary profile, we offer wide-ranging services for any project throughout the project lifecycle; from feasibility studies, basic design, specifications, detailed design, calculations, installation procedures and commissioning to maintenance planning, lifetime extension and decommissioning. We handle projects of all sizes ranging from green field jobs to modifications in the brown field area.

Cost-efficient and safe procedures

A majority of our projects involve brown field activities and our client

portfolio includes oil companies worldwide. Clients value our ability to deliver timely, professional and cost-efficient services. In all our activities we are able to draw on a vast amount of expert knowledge within Ramboll and have access to cutting-edge technology, ensuring our clients the very best solutions with little or no shutdown time.

Power generation and distribution

For several years we have designed complete power generation and distribution systems. Our design covers both autonomous and grid connected systems as well as AC and DC systems. We master state-of-the-art calculation software and we complement theoretical calculations with advanced measurements, e.g. in design of complex power management systems, dynamic calculations on starting large motors and relay coordination.

Our team has extensive experience within specification and design of distribution systems, emergency power generation including UPS systems and small power.

Lighting architecture

Calculation of lighting on process and utility areas is also part of our services, and we are able to design optimal architecture of e.g. lighting in control rooms taking human psychological and biological aspects into account.

Instrumentation, control and safety systems

Our EIT teams provide overall solutions in design and engineering for all types of control and safety systems, including SCADA/DCS and safeguard/ESD/F&G/HIPPS systems based on the latest technology. All safety systems include necessary SIL assessments.

We have expert knowledge within field instrumentation based on the latest wiring and field bus technology for the communication to instruments such as metering systems, gas chromatographs, temperature and pressure transmitters, valves etc. Our experience includes hook-up to high pressure and high temperature systems.

Designing electrical installations in explosive areas

We design power and control systems in hazardous areas, including classification of these areas as well as designing the equipment in order to minimise the likelihood of ignition. Our main expertise is based on IEC standards and ATEX requirements. Further, we have experience in F&G mapping giving proper shutdown if leak or fire should occur.

Communication between people and between systems

The telecom discipline is complex and all about securing safe and reliable communication between people and systems. We incorporate functional safety in the design of telecom between e.g. control room equipment and satellite platform or gas compressor station. We have been involved in projects concerning communication to remote control rooms, to ships and helicopters. Alarm, telephone and entertainment systems are also part of our service portfolio.

Space allocation for electrical equipment

It is important to secure space allocation for electrical equipment in process areas and in equipment rooms early in a project. We provide advanced 3D modeling in all design phases.

About Ramboll

Ramboll is a leading engineering, design and consultancy company founded in Denmark in 1945. Today, we employ some 10.000 experts with a strong presence in Northern Europe, Russia, India and the Middle East. With more than 200 offices in 19 countries, we emphasise local experience combined with a global knowledge base. We constantly strive to achieve rigorous solutions that make a genuine difference to our clients, the end-users and society.

The business unit Ramboll Oil & Gas provides highly specialised engineering consultancy services to the worldwide oil and gas industry. We have worked in the industry since the 1970s, and employ close to 1,000 dedicated oil and gas specialists.

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OUR SERVICES WITHIN EI&T:

- Power systems design
- Transient stability and harmonic analyses
- Power management systems
- Relay coordination
- Area classification and ignition source control
- Lighting architecture and calculations
- 3D equipment and racking modeling
- Power measurements and analysis
- Public grid connection
- Green power, solar panels, wind energy
- Fault tolerant safety system design
- SCADA/DCS system design
- Simulation of complex control systems
- Mapping of F&G detectors
- Metering and field instrumentation
- Functional safety and SIL assessment
- PA/GA systems incl. audio coverage calculations
- Radio systems and line of sight configuration
- IP based networks and telemetry



Images to the left and front page: Offshore module under inspection prior to sail out