



# AQUALIS OFFSHORE

MARINE & ENGINEERING SOLUTIONS

June 2017

# who we are.



**Aqualis Offshore is a specialised offshore, marine and engineering consultancy, focusing on the shallow and deep-water offshore segments of the Oil & Gas Industry and the offshore renewables market worldwide.**

Our multidisciplinary engineering and marine teams are recognised in the industry for their competence and experience. We work closely with clients to understand their requirements, identify solutions and execute their projects and marine operations in a timely, cost effective and safe manner.

Aqualis Offshore specialise in the following marine and engineering services:

- Deep and shallow water installation engineering and related marine operations
- Marine operations and surveying, including rig moving and tow master services together with support engineering services
- Vessel construction supervision and owner representation
- Engineering and project management support to the renewables industry
- Third party approvals on behalf of owners and underwriters such as marine warranty and audits of dynamic positioning systems
- Concept, FEED and basic design for new-build and vessel upgrades

Our engineering and marine team comprises:

- Naval Architects
- Mooring Analysts
- Hydrodynamicists
- Structural Engineers
- Geotechnical Engineers
- Installation Engineers
- Project Managers / Site Superintendents
- Marine Engineers
- Marine Advisors
- Marine Warranty Surveyors
- Marine Surveyors (vessel / rig surveys)
- Master Mariners (Tow Masters / Rig Movers / Mooring Masters)
- DP Vessel Auditors (Marine Engineers / Electrical Engineers)
- Risk Managers / Engineers

Aqualis Offshore is fast growing and already providing our clients with a global footprint. We aim to be your reliable long term partner.





# what we do.



## ENGINEERING

Aqualis Offshore provides a unique solutions-based approach to engineering. Our engineers are trained to work with the Client as a one stop shop to find efficient solutions to their engineering projects.

Due to our independent nature, all solutions are cost-effective, fit for purpose and tailored to suit the specific needs and constraints of the Client. Our offshore engineering expertise covers the life-cycle of an offshore facility from concept and basic design through installation and on to aging platform integrity management and finally, decommissioning. We are involved in both the shallow and deep water ends of the offshore oil & gas industry and operate in the major centres of the offshore industry.

Our team of highly qualified engineers can provide unique solutions for many platform types including Mobile Offshore Drilling Units (MODU), Wind Turbine Installation Vessels and Liftboats, Mobile Offshore Production Units (MOPU) including FPSO, FSO, FLNG, as well as other offshore installations and floating structures.

### These solutions range from:

- Concept Design
- FEED and Pre-FEED solution
- Basic Design
- Upgrade and modification engineering
- Advanced engineering solutions

### Our combined teams of engineers include:

- Naval Architects
- Structural Engineers
- Piping and Mechanical Engineers
- Electrical and Instrumentation Engineers
- Process Engineers
- Mechanical Engineers
- Pipeline Engineers

## TRANSPORTATION & INSTALLATION

Our multidisciplinary teams of Engineers, Surveyors and Master Mariners have many years of experience in the offshore industry. We specialise in complex marine operations and can provide valuable early planning and advice to optimise the solutions with regard to vessel and equipment selection, structural design and offshore procedures. Subsequent engineering comprises analysis and design associated with all temporary phases of a marine operation from loadout and transportation to installation or discharge of high value offshore assets.

### Such calculations include:

- Vessel ballasting
- Global and local vessel strength
- Vessel motions and stability
- Grillage and seafastening design
- Dynamic lifting and rigging
- Hydrodynamic analysis
- Jacket launch and upending
- Dynamic analysis for floatover installations
- Geotechnical analysis etc.
- Production of appropriate documentation

Our service then extends to offshore operation supervision and support from our qualified and experienced Marine Superintendents and Project Engineers. We draw on the services of external companies where supplementary skills or input are required – for example metocean data for transportation assessment and planning.

These services are tailored to suit our Clients' requirements and can be supplied as conceptual / feasibility studies, detailed engineering and operation, or verification.

## MARINE WARRANTY

Our teams of Marine Warranty Engineers, Surveyors and Master Mariners act to protect Underwriters' interests or self-insured Clients. We provide independent third party review and approval of offshore projects. The teams have extensive experience in a wide range of offshore activities from simple marine operations to complex and challenging offshore projects.

### Typical activities may include:

- Document reviews
- Suitability surveys of offshore marine spreads
- Approval of towages, heavy lifts and installations
- Subsea operations
- Decommissioning and removal of offshore structures
- Acting as Marine Advisors to oil companies and their contractors



## MARINE CONSULTANCY

We offer a wide range of marine capability to the oil & gas and maritime industries. Our mariners have many years of experience associated with drilling rigs and offshore vessels. We aim to assist our clients in finding practical solutions to their marine operations and projects and / or protect their interests when sub-contracting or making asset investments.

### We can offer:

- Provision of Towmasters and Rig movers
- Provision of Marine Advisors
- Dry transportation consultancy and operations
- Vessel inspections
- Rules & Regulations compliance
- Inclining experiments
- Pilotage operations
- Rig move procedures
- Suitability surveys
- Pre-charter audits / surveys
- Pre-purchase surveys
- Bollard pull certification
- Drafting and review of offshore project related procedures
- Mooring plans
- Anchor handling procedures
- Witnessing equipment trials and tests
- DP inspections and audits
- Towing plans and procedures
- CMID & OVID Surveys

## RIG MOVING

We offer a full range of rig moving support services; our teams being fully experienced with both jack-up and floating units.

We also offer full engineering assessments for site specific location approvals and provide both Marine Warranty Surveyors and Rig Movers / Towmasters for offshore attendance during rig moves.

### The following services are provided:

- Site specific rig deployment consultancy
- Jack-up engineering related studies including Site Specific Assessments, fatigue analysis, collision studies, earthquake assessments, wet / dry transit
- Pre-contract rig suitability engineering analyses
- Leg penetration analyses
- Site Specific Location Approvals
- Mooring analyses
- Marine Warranty Services
- Dry transportation approvals and consultancy
- Towage approvals
- Provision of Towmaster services
- Turnkey rig moves
- General rig moving consultancy
- Training courses



## TECHNICAL DUE DILIGENCE

With our assistance, owners and financial institutions can obtain an objective expert view on the actual project performance or asset value, as an important input to the decision making process related to loans, consolidation or acquisitions.

With a combination of engineers that have been in charge of engineering from the first concepts to sail-away, yard contract negotiations, the operational phase, yard stays with repairs, upgrades, modifications and special periodic surveys; and mariners that have been in charge of vessels, rig moves, and major marine operations including vessel inspection/survey, Aqualis Offshore is well placed to perform solid, independent technical due diligence.

- Pre and post-contract reviews
- Payment milestone audits
- Assessment of market demand for a specific vessel or type of vessel
- Yard evaluation and inspection: Competence, capacity, experience, execution, etc.
- Thorough full vessel inspection including hull and drilling/process equipment, cranes, etc.
- Suitability survey, condition survey, assessment of vessel function
- Lifetime extension budget evaluation
- Opine on remaining physical lifetime
- Assessment of owner and project management team: experience, performance, execution
- Evaluation of project plans
- CAPEX budget evaluation
- OPEX budget evaluation
- Design review
- Verification of actual project progress
- Project schedule feasibility
- Identify delay risks and other project risks
- Asset value determination
- Review acceptance criteria and testing regime

The above services are performed for the following vessels:

- Drilling units: Semi submersibles, jack-ups, drillships and tender barges
- Production units: Ship-shaped, semi submersibles and jack-ups
- Accommodation units: Semi submersibles, jack-ups and tender barges
- Offshore service vessels: Anchor handlers, supply vessels, cable layers, crane vessels, liftboats, tugs, etc.
- Other vessels: Shuttle tankers, oil tankers, floating storage units, wind turbine installation vessels, barges, cargo vessels



## RISK CONSULTING

The Risk Consulting business line strengthens Aqualis Offshore's marine and engineering services with methodological and systematic approach to risk management.

Our engineering risk management experiences include drilling and productions facilities. Within marine operations we have performed numerous risk management activities within load out, transport, anchor handling, rig move, heavy lifting, subsea and SURF installation, dynamic position (DP), hook-up, diving and ROV operations, personnel transport, vessel layup and decommissioning.

We provide the best practices for identifying and managing risks and hazards to personal safety, assets, environment and reputation both in engineering and in operations. We can lead, facilitate or contribute to risk management activities such as:

- Hazard identification analysis (HAZID)
- Hazard and operability analysis (HAZOP)
- Quantitative risk analysis (QRA)
- Safety case studies
- Risk assessments
- Failure Mode, Effect and Criticality Analysis (FMECA)
- Carry out inspections
- Provide people who can work within a Client's team to manage risk within a project

## CONSTRUCTION SUPERVISION

Aqualis Offshore provides teams to work with the Client throughout the construction or conversion of an offshore asset. The project team monitors the project to ensure that it is carried out in accordance with the contract, the specifications, Clients' expectations, flag and Class requirements.

The project team consists of key personnel with the necessary skills to ensure that the construction meets the build schedule. Aqualis Offshore provides a group of engineers and inspectors of various disciplines to be utilised at different stages of the project. In addition, dedicated planning and document control functions are provided throughout the duration of the construction phase.

## Key project control activities include, inter alia:

- Development and implementation of project procedures
- Review of machinery and equipment purchase orders and specifications
- Development and implementation of project execution plans
- Monitoring of work progress and testing activity
- Monitoring of quality control of each activity throughout the construction
- Attendance at formal safety meetings
- Attendance at Factory Acceptance Testing (FAT)
- Audits of subcontractors' facilities
- Attendance during sea trials and inclining experiments
- Reporting to the Client on a weekly and monthly basis
- Tracking of site queries, observing safety policy, monitoring quality control measures
- Maintaining electrical & mechanical completion and commissioning records and database
- Monitoring and reporting on extras and credits



## DYNAMIC POSITIONING

We provide an experienced multidisciplinary team of engineering and operational resources to support the Dynamic Positioning (DP) industry.

Our aim is to assist our Clients to operate and validate according to their units' specific industrial mission. Whether identifying the critical activity mode or verifying the worst case failure mode through FME(C)A, Aqualis Offshore aims to provide Clients with independent technical reviews to enhance safe operations. Through experience with our DP FME(C)A work, we can also provide analyses of cranes, bilge and ballast systems, pipelay systems, and many more complex systems.

## DP Services Include:

- FME(C)A
- DP FMEA Proving & Annual Trials
- DP Design Review / Redundancy Analysis
- DP Suitability / Condition Surveys
- DP Gap Analysis
- Development of WSOG & ASOG
- DP Incident Investigation
- DP Manuals & Procedures
- DP Operator Competence Assessment & Verification
- DP Project Management & Sea Trials Management
- Planning for DP Conversions & Life Extensions
- Witness FATs & CATs

## PORTS AND HARBOURS SERVICES

- Project management, advisory and engineering services for planning, design and installation or modification of infrastructure:
  - Fender and foundation systems
  - Linkspan, loading ramps and passenger gangway systems
  - Terminal buildings and key logistics (incl. facilities for Check-in and Customs)
  - Erosion protection
- Project management, engineering services, design and site management for maintenance projects:
  - Large and small modification work
- Risk consulting services for:
  - Environmental risk analysis and assessments
  - Safety case studies
  - Container-handling risk analysis
- Planning, project management and engineering services for special operations:
  - Special lifts and load outs
  - Special transports (heavy / oversized)

## RENEWABLES

### Offshore Wind

Through our London and Hamburg offices we are a globally focused, specialised consultancy providing independent services to the offshore renewables industry. We specialise in providing consultancy services to offshore wind farm developers and investors into offshore renewables projects. We have an unrivalled reputation for providing a quality service and delivering innovative and reliable solutions by being able to draw upon extensive technical knowledge and practical experience which goes back to the late 1990s in offshore wind.



### Key activities include, inter alia:

- **Consultancy Services** - experienced in providing advice through the project life cycle including developing strategies for projects and site selection, procurement strategies, design and construction methodologies, installation and commissioning, development of financial models and risk mitigation
- **Engineering Services** includes site evaluations, geotechnical and geophysical site investigations and evaluations, foundation structures, health and safety management, marine operations, offshore installation, special assessments and subsea cable installation and protection

- **Due Diligence** services to potential offshore renewables investors planning to undertake equity risk in projects or on behalf of banks and lenders who are providing debt facility to projects
- **Expert Witness** leveraging our knowledge of the offshore wind farm industry to act as an expert witness
- **Project Management Support Services** through all stages of an offshore wind farm project, from early stages planning through design and engineering to construction and installation

### Solar

ADLER Solar is the leading full-service provider for the PV industry. We offer an extensive spectrum of technical solutions and services "Made in Germany" to ensure the high performance and smooth operation of photovoltaic plants during their entire life cycle. ADLER Solar has 120 employees based in Germany, Europe and around the world. Main services offered:

- Recall Campaigns
- Engineering Services
- O&M Support
- After-Sales Services for Manufacturers
- Test & Repair
- Logistics



# where we are.



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