

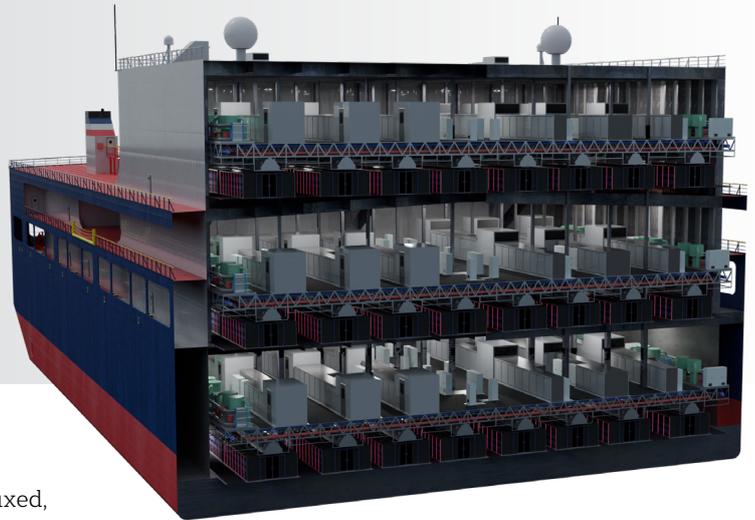


# OFFSHORE DATA CENTERS



## POWERING THE DIGITAL FUTURE, SAFELY AND RELIABLY OFFSHORE

As the demand for high-performance data infrastructure grows, offshore data centers are emerging as a transformative solution for scalable, resilient and sustainable digital operations. ABS leads this space by providing comprehensive class, certification and verification services that support the safety, reliability and regulatory compliance of offshore data centers worldwide.



### CLASSIFICATION AND CERTIFICATION

ABS provides comprehensive classification services for fixed, floating and subsea data centers, including their station-keeping capabilities. In addition, ABS certifies key components such as service systems, cooling units and dedicated power generation modules. These offerings support projects that adhere to the highest standards of safety, structural integrity and environmental protection.

- **Structural Design and Integrity**
  - Global performance analysis and structural integrity assessments, inclusive of the hull, superstructure, and deckhouse, under marine and environmental loads; evaluating strength, buckling, and fatigue, while accounting for estimated corrosion over the design life
  - Evaluation of watertight integrity, compartmentalization and intact/damage stability
- **In-Service Integrity Management**
  - Risk-based Inspection, life extension assessment and structural health monitoring
- **Risk Workshops**
  - HAZID/HAZOP/FMEA
- **Review of Material and Corrosion Protection Plan**
- **Mooring and Station-Keeping Systems**
  - Assessment of mooring arrangements and equipment through dynamic mooring analysis for site-specific conditions
  - Analysis of anchoring systems and redundancy
- **Power Systems**
  - Power generation from conventional fuel, alternative fuel and renewable energy sources
  - Class review and approval of vessels having onboard nuclear power system installations (ABS FNPP non-propulsion)
  - Review of energy storage systems and hybrid electrification solutions
  - Assessment of electrical distribution, safety and emergency backup systems
- **Cooling and Environmental Systems**
  - Review of seawater cooling systems for server and reactor heat management
  - Environmental impact assessments and support for emissions and discharge standards
- **Cybersecurity and Risk Advisory**
  - Advisory on cybersecurity considerations for offshore digital infrastructure
  - Operational technology risk assessments and architecture review

- Support for compliance with marine cybersecurity standards, domestic and international verification and technical advisory
- **Independent Design Review**
  - Third-party verification of engineering, safety and operational plans
  - Risk assessments for novel technologies and integrated systems
- **Construction and Commissioning Support**
- **Asset Integrity Management and Life-cycle Support**
- **Modeling and Simulation**
  - Evaluation of system energy efficiency, power quality, system protection and control performance using hardware-in-the-loop simulations.

## WHY CHOOSE ABS?

Working with ABS offers access to extensive experience in marine and offshore classification, along with specialized knowledge in nuclear, electrification and hybrid energy systems that support the unique demands of offshore data centers. ABS provides life-cycle services from concept and design through operation and decommissioning. With a focus on safety, sustainability and innovation, ABS supports clients in meeting their digital, environmental and operational objectives.

## ENABLING INNOVATION

ABS supports the adoption of novel concepts and new technologies for offshore data centers. Structured review and qualification processes help reduce risk and accelerate market acceptance.

### APPROVAL IN PRINCIPLE

- Early-stage validation of new offshore data centers concepts, including nuclear-powered and hybrid designs
- Demonstrates alignment with fundamental safety and performance criteria
- Builds stakeholder confidence and streamlines project development

### NEW TECHNOLOGY QUALIFICATION

- Stepwise qualification of technologies not yet proven in the offshore environment
- Rigorous evaluation of performance, reliability, and integration with existing systems
- Supports the introduction of advanced solutions such as small modular reactors, advanced battery storage and next-generation cooling systems



## CONTACT ABS TODAY

Learn more about how ABS supports safe, efficient and future-ready offshore data centers. Visit [www.eagle.org](http://www.eagle.org) or reach out to us directly at [globaloffshore@eagle.org](mailto:globaloffshore@eagle.org) to begin your journey with ABS.

### WORLD HEADQUARTERS

1701 City Plaza Dr., Spring, TX 77389 USA | +1 (281) 877-6000 | [ABS-WorldHQ@eagle.org](mailto:ABS-WorldHQ@eagle.org) | [www.eagle.org](http://www.eagle.org)

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