GUIDE FOR

POWER SERVICE FOR MARINE AND OFFSHORE APPLICATIONS

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Foreword

Power vessels are power plants installed on marine or offshore vessels (e.g., barges, ships, offshore installations, mobile offshore units, and converted vessels) that offer a quick and economic method of providing power to remote locations. To meet the increasing global demand, this Guide has been developed to provide requirements on design, construction, and survey for class review and approval of power vessels. This Guide is for the use of designers, builders, owners, and operators and specifies ABS requirements for obtaining the classification notation **Power Service**.

This Guide is applicable to power barges, power ships, power offshore installations (OI), power mobile offshore units (MOU), which includes self-elevating units (SEU) and column-stabilized units (CSU), and power converted vessels. Power vessels can be equipped with single or multiple gas turbines, reciprocating diesel or gas engines, or boilers for power generation.

In this Guide, the requirements of the power generation and distribution equipment installed on board are associated with an optional notation. Design and installation requirements for power generation and distribution equipment included in this Guide are based on existing industry practices that are deemed to provide an adequate level of safety. The application of this Guide by ABS will not prevent the use of technological approaches that can demonstrate an acceptable level of safety.

Power generation and distribution equipment designed, constructed, and installed in accordance with the requirements of this Guide on an ABS classed vessel, barge, offshore installation, or mobile offshore unit, under ABS review and survey, will be classed and identified in the *Record* by the optional notation ✠ **Power Plant**.

This Guide is to be used in conjunction with other Rules published by ABS and recognized international Regulations.

This Guide becomes effective on the first day of the month of publication.

Users are advised to check periodically on the ABS website www.eagle.org to verify that this version of this Guide is the most current.

We welcome your feedback. Comments or suggestions can be sent electronically by email to rsd@eagle.org.

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SECTION 1 Scope and Conditions of Classification

1 Classification

The requirements for conditions of classification are contained in the separate, generic ABS *Rules for Conditions of Classification (Part 1)* and ABS *Rules for Conditions of Classification – Offshore Units and Structures (Part 1).* Additional requirements specific to power vessels including power barges, power ships, power offshore installations, power mobile offshore units, and power converted vessels are contained within this Guide.

3 Application

This Guide covers new construction of power vessels including power barges, power ships, power offshore installations, and power mobile offshore units as defined in Subsection 1/9.

This Guide has been developed for classification requirements specific to design, construction, and survey of power vessels. The following base ABS Rule sets, as applicable for the vessel's base Class notation, apply in full for design, construction, and survey of the vessel, except as modified herein:

- The ABS *Rules for Building and Classing Steel Barges (Barge Rules)* are to be complied with for power barges intended for ocean service, as applicable.
- The ABS *Rules for Building and Classing Steel Vessels for Service on Rivers and Intracoastal Waterways (River Rules)* are to be complied with for power barges intended for river service, as applicable.
- The ABS *Rules for Building and Classing Steel Vessels (Steel Vessel Rules)* are to be complied with for power ships, as applicable.
- The ABS *Rules for Building and Classing Offshore Installations (Offshore Installations Rules)* are to be complied with for fixed power offshore installations, as applicable.
- The ABS *Rules for Building and Classing Floating Production Installations (FPI Rules)* are to be complied with for floating power offshore installations, as applicable.
- The ABS *Guide for Building and Classing Mobile Offshore Units (MOU Guide)* is to be complied with for power mobile offshore units including self-elevating units (SEU) and column-stabilized units (CSU), as applicable.
- The ABS *Guide for Floating Offshore Liquefied Gas Terminal (FLGT Guide)* is to be complied with for gas power vessel offshore terminals utilizing stored liquefied gas, as applicable.

This Guide is also applicable for the conversion of existing vessels. Applicable base ABS *Rules* are to be complied with for power converted vessels.

This Guide has also been developed to provide requirements for the design, construction, installation, and survey of power generation and distribution equipment on power vessels.

5 Class Notations

5.1 New Construction

Power vessels complying with the full requirements in Sections 1 to 4 and 6 in this Guide may be classed and distinguished in the *Record* by adding the classification notation **Power Service.** The vessels will maintain their base rule notations such as barge, floating offshore installation, etc. For example, ✠ **A1 Barge, Power Service** for ocean power barges; ✠ **A1 Barge, River Service, Power Service** for river power barges.

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If the power vessel uses LNG or LPG as a fuel source and is in compliance with Subsection 3/5, an optional notation **(LNG)** or **(LPG)** may be added to the notation.

Power generation and distribution equipment, systems, subsystems, and components that have been built, installed, and commissioned to the satisfaction of the Surveyors to the full requirements in Sections 5 and 6 of this Guide, where approved and reviewed by the Committee, may be classed and distinguished in the ABS *Record* by the optional notation ✠ **Power Plant**.

Note: The mark ✠ (Maltese-Cross) signifies that the vessel or system was built, installed, and commissioned to the satisfaction of the ABS Surveyors.

5.3 Conversion of Existing Vessels

When an existing vessel is converted to a power vessel and it complies with the full requirements in Sections 1 to 4, and 6 of this Guide, it may be distinguished in the *Record* by adding the classification notation **Power Service**. The primary class notation should reflect the base rule set notation for the conversion.

For example, if an existing drillship is converted into a power vessel, the base rule set, the *FPI Rules*, is to be applied for this conversion and it would possess the notation ✠ **Floating Offshore Installation (Ship-Type) (CI), Power Service**.

7 Submission of Plans

For the **Power Service** class notation, plans and documents specified in Sections 1 to 4 and 6, together with supporting calculations, as appropriate, are to be submitted before proceeding with the work.

For the optional class notation **Power Plant**, the submission of design plans and data is specified in Sections 5 and 6.

Plans are generally to be submitted electronically to ABS. However, hard copies will also be accepted.

7.1 Materials

This Guide is intended for power vessels designed and constructed of steels having properties as specified in the ABS *Rules for Materials and Welding (Part 2)*.

The use of steel or other materials that have properties different from those specified in the ABS *Rules for Materials and Welding (Part 2)* and the corresponding scantlings are subject to special consideration.

Where the power plant is fueled by natural gas the materials used in liquefied natural gas (LNG) tanks, gas piping, process pressure vessels, and other components in contact with cryogenic liquids or gases are to be suitable for the intended purpose and in compliance with Section 5C-13-7 of the *Steel Vessel Rules*.

7.3 Stability, Loading, and Operating Information

Information is to be submitted on ballast, fuel, supplies and hold arrangement and capacities; summary and distribution of fixed and variable weights for each reviewed condition; and information on all loaded and ballasted conditions in which the power barge, ship, floating offshore installation, or mobile offshore unit may be operated.

In accordance with the requirements contained in Subsection 2/3, stability calculations demonstrating that the power barge, ship, floating offshore installation, or mobile offshore unit meets the stability criteria in all loading and ballast conditions are to be submitted for review.

Information is to be submitted for intended operating location and any specific requirements based on applicable local/national codes and standards for review.

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