

## Electrical and Propulsion Systems

Electric power for propulsion and ship's services is provided from a "Central Power Plant" through a 6600 VAC, 60Hz, 3-phase common bus distribution system. Power is generated by four diesel generator sets located on the main deck. This system provides several distinct advantages; eliminating the need for separate ship service generators, providing redundancy in the power generating plant, and offering the flexibility to operate only enough generators to supply the required load, while permitting maintenance to be performed on the other units.

Propulsion power is provided by two fully reversing, variable speed, AC synchronous motors fed from the common bus, through an AC/AC Cycloconverter system. The cycloconverter controls the speed of the propulsion motors by varying the frequency of the power provided to the motors. A number of distinct advantages are gained using AC synchronous motors including smaller size and weight, excellent torque characteristics for icebreaking, and reduced maintenance.

[Click on image for larger view.](#)

The Ship's Service electrical system provides 450VAC, 60 Hz, 3-phase power from the common bus through a switchboard, which is separated into sensitive and non-sensitive power. The sensitive power is provided via motor generator sets, and the non-sensitive power via transformers.

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