



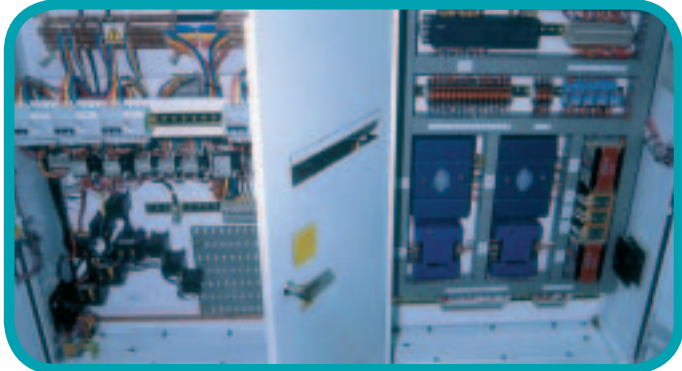
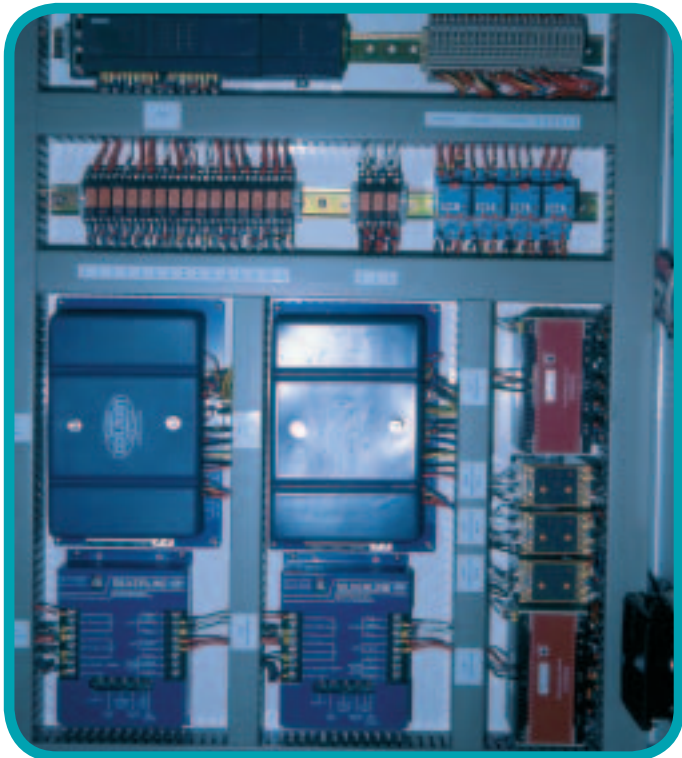
POWER AT YOUR CONTROL

AC Power Management

CUSTOM YACHT ELECTRICAL POWER PANELS

Energy Solutions offer a range of electrical design and design & build services to the yacht industry.

- **Design Service.** We will carry out the entire electrical design including load analysis for your project. This will generate a detailed set of drawings, bills of materials, cable schedules and any custom system design that may be required.
- **Panel Building.** We can design and build AC and DC electrical panels. This can involve generator sets in parallel (isochronous or droop), load management and monitoring. If required we can build remote monitoring and control panels or liaise with another supplier.
- **PLC Programming for alarms and other systems.** Large yachts have complex alarm, monitoring and control requirements. PLC control allows these needs to be met in a flexible and upgradable way.



The illustration shows a custom power management system for a 105ft motor yacht, which controls the output from two diesel generators and a shore power converter. Power is distributed throughout the yacht via six outgoing feeds, with sequential switching and load shedding.

The system is designed for unattended operation. Once started, the generators operate in a duty/standby mode, where the duty set provides continuous base load and the standby set is brought into operation to supply extra load at times of peak demand. The generators run in isochronous (constant frequency) mode with controlled load sharing.

Selection of the duty set can be done manually, or duty will alternate according to length of running time. Typically, duty will change over every 12 hours.

Total load demand is continuously monitored to start and stop the standby generator. When it is required, the standby set starts and synchronises automatically. Should the standby set not be available, a designated 'non-vital' feeder is switched off to avoid overloading the running machine.

The system is controlled by a programmable logic controller (PLC) to give fully automatic control. A combined instrument and mimic display panel in the wheelhouse remotely controls the power management system.

Full manual operation of the switchgear is provided so that in the unlikely event of failure of the PLC a power supply is still available to the yacht.

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