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Current Status and Future Developments of Escape Lighting Systems on Vessels

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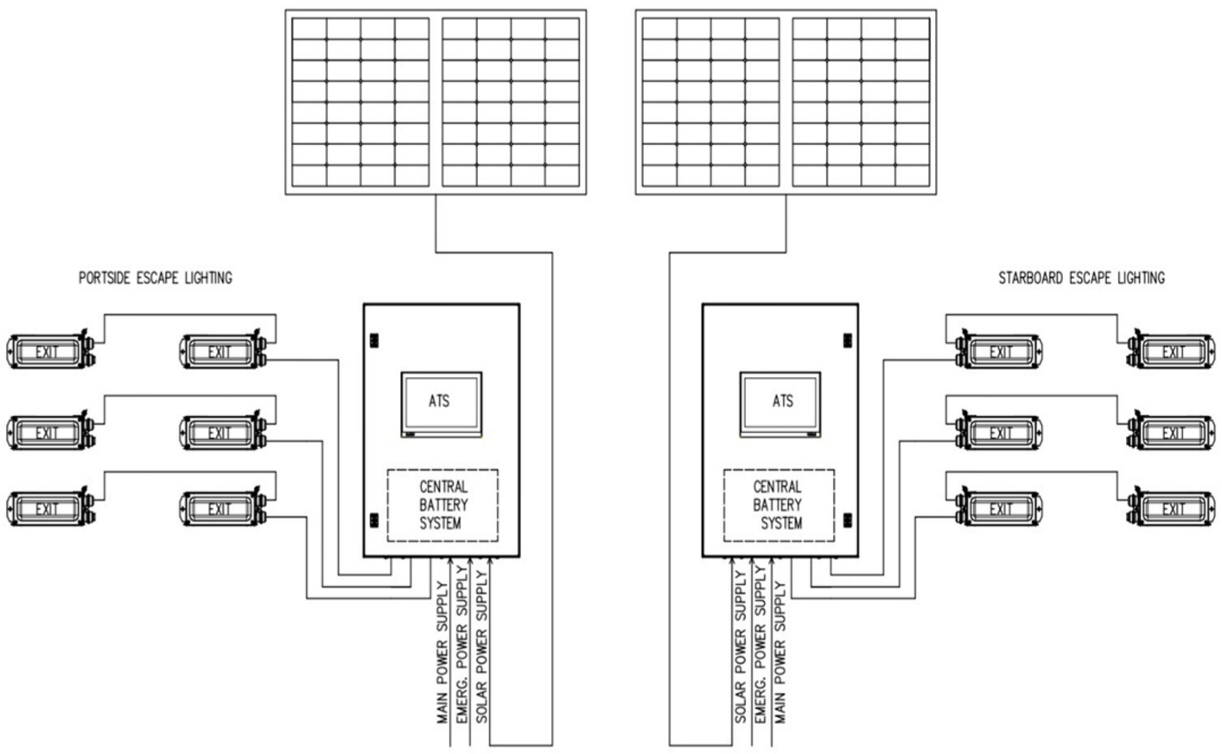
INTRODUCTION & AIM

Ships are highly advanced marine structures that incorporate state-of-the-art technologies. Nevertheless, they still depend on outdated systems in certain critical areas, such as escape lighting. This system, which is mandatory on all passenger vessels and ferries and higly recomendable in all vessels, is generally based on obsolete battery-powered luminaires and antiquated testing procedures. These legacy systems require the frequent replacement of numerous batteries, leading to considerable environmental impact, and must ensure a high level of operational reliability in emergency situations—entailing substantial costs related to testing and maintenance.

METHOD

Implementation of eco-friendly systems to replace obsolete traditional solutions with innovative control systems based on automatic testing procedures, designed to minimize battery waste. The primary power supply is based on photovoltaic technology, with direct interface to the ship's main and emergency nets in order to reduce the number of batteries and also the fuel oil consumptions for permanent and no permanent escape lighting.



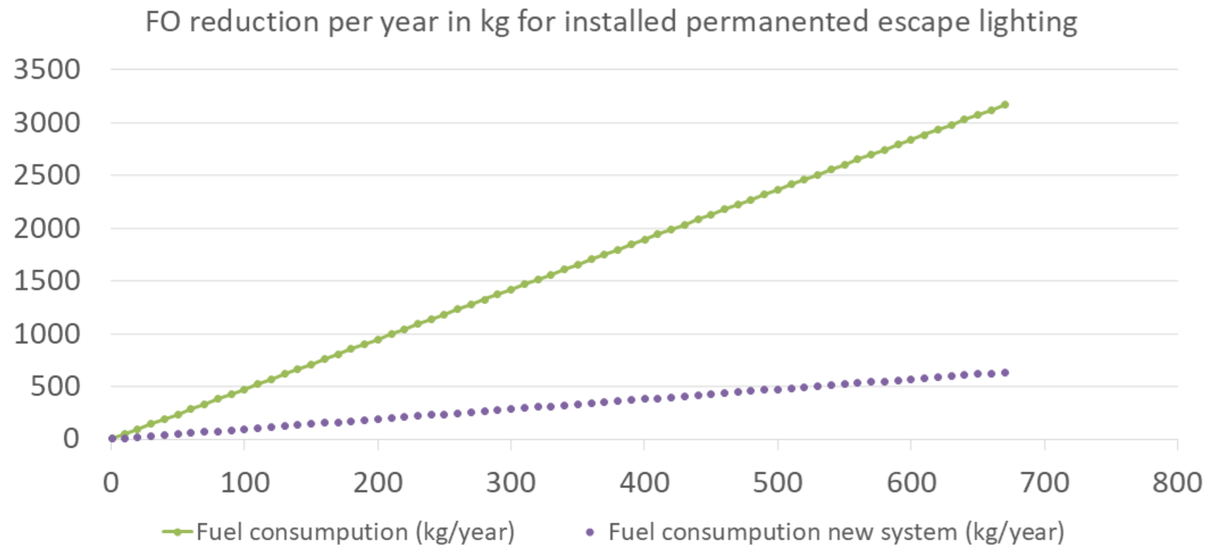
Main features of the system

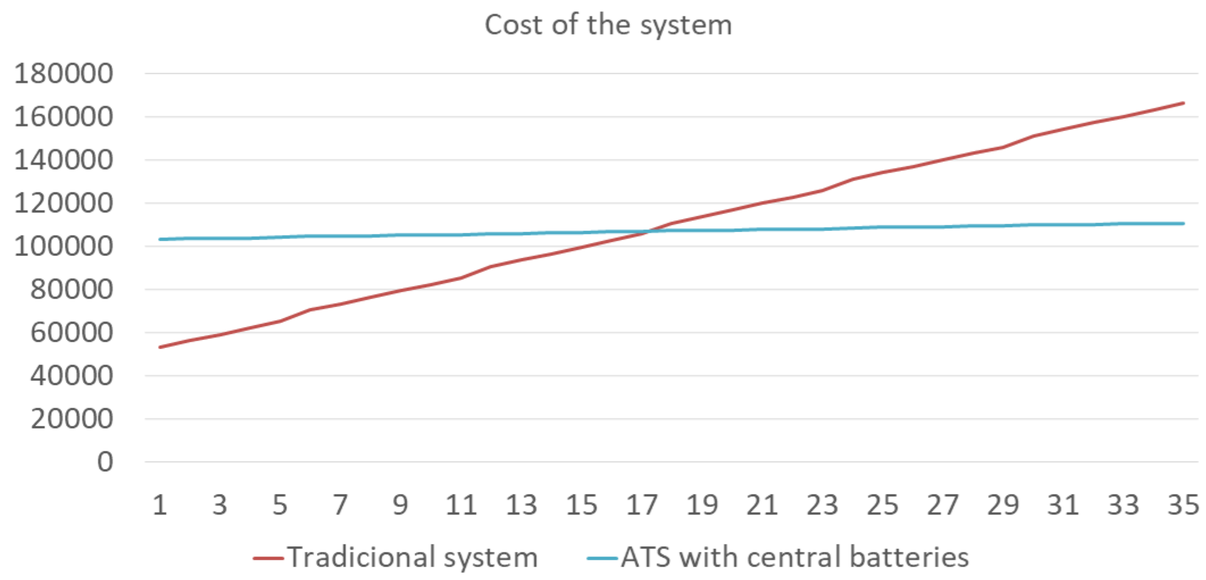
RESULTS & DISCUSSION

Several advantages can be achieved in comparison with the traditional system:

-Estimated of 20% Reduction of FO consumption per escape installed lighting.

- The reduction of the maintenance cost is approximatly 3:1.





Typical reduction cost of the during the life of the vessel (350 escape luminaries are considered)

CONCLUSION

Despite higher initial investment costs, these systems offer long-term economic savings, enhanced reliability through IEC 62034-compliant ATS, and significant environmental benefits. Reduced battery use and integration of photovoltaic technology lower hazardous waste and energy demand, leading to decreased fuel oil consumption and emissions—making them a sustainable, cost-effective alternative to traditional emergency lighting system.

REFERENCES

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