

# innovations

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## Green cruising from the inside out



**Special Report**  
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## When it comes to environmentally responsible cruising, no detail is being overlooked by conscientious owners and their increasingly discerning guests, writes YSA Design Chairman, Trond Sigurdson.

Wherever one stands on environmental issues, there is no disputing that it's warmer out there: on average, the last five years (2014-2019) have been the warmest recorded in the 139 years since the US National Oceanic and Atmospheric Administration (NOAA) started counting.

Melting glaciers, rising sea levels and coastal communities under threat from more frequent extreme weather are also real rather than imagined, and are events that shape attitudes in street protesters and consumers alike.

The consciousness change is now also a key cruise sector business driver: visiting the most beautiful places on earth calls for shipowners to take environmental responsibility, with guests also seeking evidence that their individual carbon footprints are being minimised.

Meanwhile, the expedition ships pushing ever further into the most vulnerable areas of the world attract a greater proportion of guests expecting everything possible will be done to protect the environment - by energy saving, emissions reduction, waste management and even materials chosen for use on board. In some quarters, 'Green' may soon be more important than 'inexpensive'.

Therefore, you would not expect me to say that environmental responsibility is anything other than a core value for YSA Design, but it is nonetheless important to understand what this means in 2019-2020 in relation to our cruise ship clients, shipyards and sub-contractors.

YSA Design is not itself a marine engineering or naval architecture firm but, as a company specialised in the design of ship exteriors and interiors, its knowledge, skills and experience



*YSA Design's Chairman, Senior Architect and Partner, Trond Sigurdson*

work in tandem with both sets of professionals. This means that, as well as adapting to the constraints placed on us by naval architecture and engineering installations, our designs contribute directly to ensuring that vessel safety, performance and environmental

expectations are met.

On one level, we have recently helped Ulstein secure a contract for the latest Lindblad Expeditions 'National Geographic' polar (PC 5 Category A) cruise ship, which is now under construction at Ulstein Verft. As is widely known, this ship will feature Ulstein's signature X-BOW®, whose design benefits include vessel fuel efficiency and thus cutting emissions, and lower pitch to improve comfort.

YSA Design does not seek to score points by association but it is fair to say that where hull shapes have been optimised – whether for open seas or ice, for speed or energy efficiency - we take valuable lessons on interior and exterior design into subsequent projects.

### Use of LNG

In the same context, YSA Design was one of the first design companies to work with owners and shipyards on integrating LNG propulsion. With CO2 emissions banned in Norwegian World Heritage fjords from 2026, one of the most challenging parts of the work we are doing today relates to designing interior spaces that best 'fit' with hybrid propulsion solutions, including battery power.

As hinted, our environmental role goes beyond adapting to the work of others. For example, the materials selection process considers production methods, choosing processes that achieve a lower carbon footprint and avoiding those that create toxic emissions. Recyclable products are favoured, while any wood we use must come from managed forests. Again, in one of our recent projects, we asked Gudbrandsdalens Uldvarefabrik to adjust its wool sourcing so that at least 30% of the materials are obtained locally in Norway, rather than from New Zealand.

But our skill as designers is being put to use to address the 'green' agenda beyond responsible sourcing. Many cruise customers want to know that grey water is not being wasted, that power for air conditioning is being used responsibly and that their own garbage and human waste is being dealt with sustainably.

Our efforts to deploy photovoltaic technology on board ship to capture energy that would otherwise be lost are exemplary. At the moment, covering the whole ship in solar panels will not produce sufficient power for propulsion, of course, but using solar panels can cut overall energy needs, in turn



*Gym bikes could be used to charge phones and to power other services on board*

reducing the power plant requirement.

Furthermore, this is a technology whose attractions are rising as the quality and appearance of solar panels improve, and their costs decline. Now, solar panels can be virtually transparent; based on MIT research work, solar power could soon be derived from panels, which double as windows, glass walls or rails on cabin balconies.

In a recent project, YSA Design also proposed covering penthouse suite roofs with solar panels, suggesting that premium guests may pay a supplement for 'lower carbon' accommodation, on the same basis that flyers with an environmental conscience agree to offset air miles.

Some may argue that such steps as largely symbolic, but they are meaningful for a growing number of guests and their impact on fossil fuel consumption should be considered as cumulative. In the same way, net fossil fuel consumption could be reduced in small but consistent quantities if food waste was burned rather than disposed of.

We certainly believe that environmental sensitivities are as significant a brand issue for cruise companies as they are for airlines. It is now a matter of routine for YSA Design to provide elegant solutions so that bike-work in the gym can be converted into phone charge, for example.

## **Hotel load reduction**

But environmental benefits can also be experienced by cruise guests whether they notice them on the individual ship or not. Here, I would draw attention

to our co-operation with SCENSO to provide specific proposals to monitor and reduce ship hotel loads in ways that require an understanding of a ship as a small town with autonomy in its supply of water, electricity and air-conditioning. Greater efficiency here also means lower cost and more space for passenger-related activities.

SCENSO has been undertaking some very interesting studies for leading cruise brands on air quality in cruise ship interiors, with an emphasis on casinos and smoke removal, with one ship even featuring its own small air quality laboratory.

Cleaner air is always desirable – for passengers and crew - and cruise clients and contractors are increasingly looking to move on from fixed rate ventilation systems to balanced systems that work in combination with sensors and demand more active air cleaning methods. One focus for SCENSO is how to make newer systems more compact and energy efficient to enhance return on investment.

Clearly, this is an opportunity for YSA Design to self-select, as a project management partner co-ordinating naval architects, marine engineers and technology providers, but also as the party best placed to integrate technologies, such as ionisation seamlessly into interior spaces. In fact, with guests on board and the watching world demanding greater sustainability, I take it to be self-evident that in these and other initiatives, the interior designer's awareness is critical in taking a process forward that relies on co-operation between shipyards, engineers, class societies and other industry stakeholders.

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