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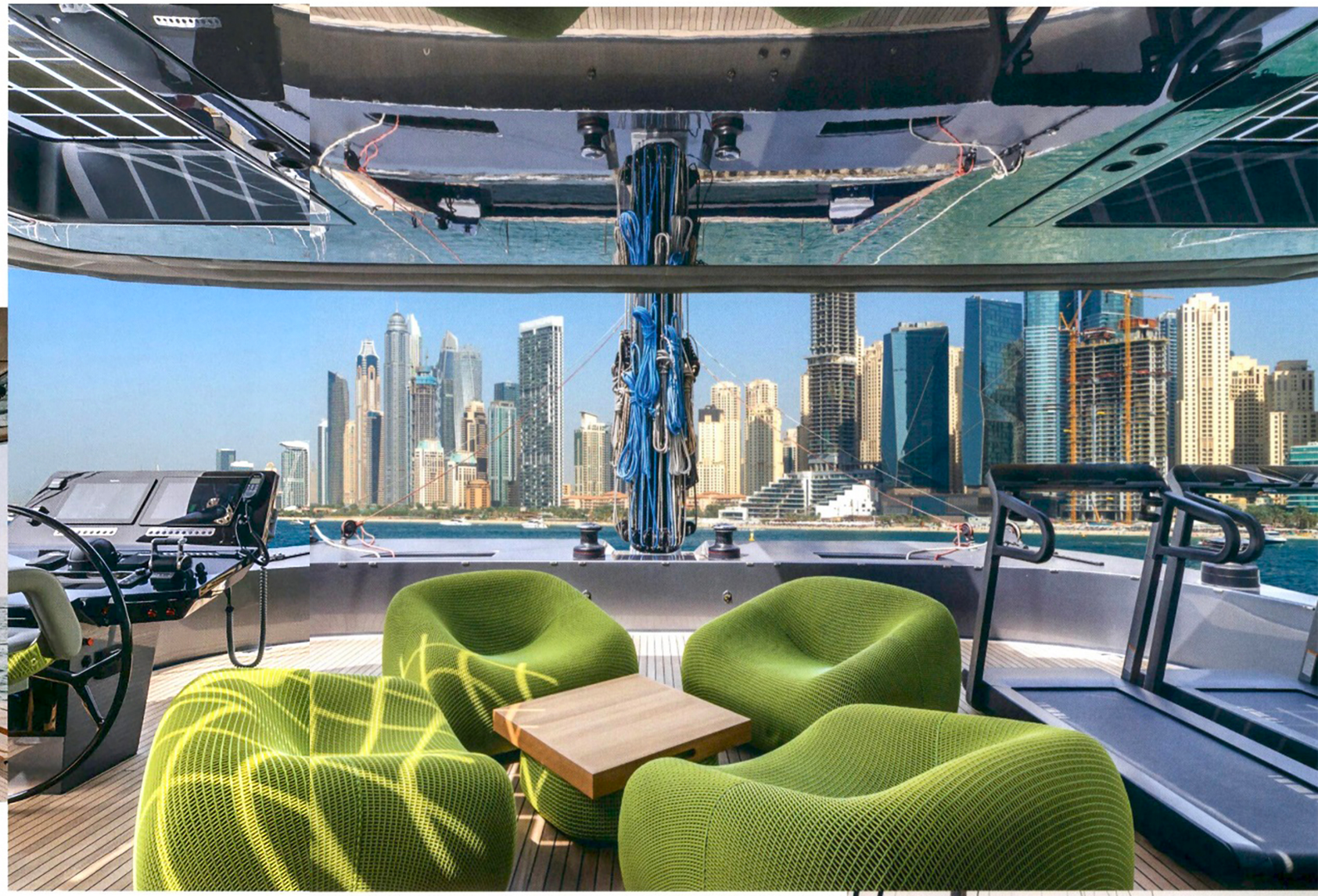

Right: bright pea green is an accent colour throughout, including on the flybridge's Paola Lenti seating

Just to be clear on what he means by autonomous, Sunreef says that the boat can run for days, weeks or even months without burning a drop of fossil fuel – enough to cross an ocean. Having sails is the biggest single factor here: a powerful 200-square-metre, fully battened main and a 155-square-metre jib. The boat is no lightweight flier, so top speeds of nine knots upwind and 11 to 13 knots downwind are the norm, but that is enough to cover 250 nautical miles in the course of a good day, for fast passage times.

Hydrogeneration – the harvesting of power from the water moving past the hull as the boat sails – is not new, and has existed in small sailing boats and ocean giants like *Black Pearl* for more than a decade. But it is the smart integration of this system that marks Sunreef out. The two large variable pitch propellers turn the prop shaft backwards, rotating the 180kW electric motors so that they act like giant alternators. "The energy obtained is used to power both the propulsion and the house appliances," says Lapp. "The system will be able to generate more than 15kW while sailing above seven knots." That's a whopping 360kWh over 24 hours – far more than the efficient air con and mood lighting could consume.

Solar panels are the other weapon in the renewable energy armoury, and Sunreef has pioneered a strikingly new approach by embedding the solar cells in almost every surface of the hull, superstructure and mast. If you go all out on solar, the cells cover 160 square metres with a maximum power rating of 34kW – far more than the average home solar array can manage. It's a theoretical figure that they will never reach, even though the sea reflects extra light into the vertical panels, but Sunreef says that 100kWh per day (equivalent to 10kW of power for 10 hours) is a reasonable expectation. "On a sunny day, the Sunreef 80 Eco owner doesn't need to use a generator at all," says Lapp.

Back to Fernando Alonso for a moment, because he put this theory to the test during his Greek jaunt. "The performance under sail was perfect for me – we didn't start the generator for 10 days," he says. "Then to sail with no noise... I could work out on the flybridge."

To manage and then store all this energy is no mean feat, and the Sunreef 80 Eco is packed with up to 550kWh of batteries – that's more than 2.5 tonnes. Naturally enough, they're no ordinary batteries – they're special, lean lithium-ion packs that have been engineered to save around 30 per cent weight compared to off-the-shelf varieties. And they contain enough power to motor for eight to 10 hours at eight to 10 knots on a single charge.

When you're talking about batteries on this scale, you can't simply plug in to the shoreside power and recharge. And in any case, this is a boat that's designed to stay offshore for days at a time. Instead, it carries its own battery-charging system with it in the form of twin 80kW diesel gensets. If you need to motor for longer than 10 hours, these would fire up automatically to replenish the depleted batteries. "When not under sail, you need the generators on for four hours per 24 hours in total. It might be two hours in the morning and two hours in the evening," says Lapp. "There is no need for the genset when not motoring."

Attractive as they are, renewable power and silent cruising are not enough to sell yachts. The reason Sunreef has sold more than 40 Sunreef 80 sailing cats (including 10 of the 80 Ecos off-plan) is its understanding of comfort.

The styling for the 18- to 30-metre Eco lines is almost exclusively done in house by Sunreef's 14-strong interior design team. All the joinery and upholstery is also typically done by the shipyard workforce, which has ballooned from 830 people to 2,000 in three short years as the order books

Although rated at 180kW each, the electric motors consume just 25kW at cruising speed