ENERGY-SAVINGS INITIATIVES

We are continuously investing in a broad range of voluntary energy reduction initiatives that meet or surpass the requirements of current laws and regulations. Reducing fuel and driving energy efficiency takes multi million-dollar investments and a multi-pronged strategy. Below is a list of some of the initiatives we are working on:

DESIGNING SHIPS FOR GREATER EFFICIENCY	• Optimize hull design to minimize drag. • Select fuel-efficient combustion equipment. • Install equipment such as steam turbines to use waste heat. • Install energy-efficient onboard equipment, including lighting.
INCREASING EFFICIENCY THROUGH SHIP OPERATIONS AND MAINTENANCE	• Optimize diesel generator use at sea and in port. • Manage use of evaporators and reverse osmosis plants. • Use LED lighting. • Utilize sophisticated control systems for heating ventilation and air-conditioning (HVAC). • Monitor and improve chiller performance. • Apply state-of-the-art anti-fouling marine hull coatings. • Clean propellers and hulls regularly. • Reduce energy consumption. • Increase use of waste heat from engine exhaust for fresh water production and steam generation. • Use on-demand methodology for galley ventilation control.
MINIMIZING FUEL USE AND ENGINE EMISSIONS	• Examine ways to increase energy efficiency through fuel homogenizers, which improve combustion and reduce fuel consumption. • Optimize the use of diesel generators onboard to improve efficiency. • Use waste heat generated by the ships' engines to make steam instead of relying on the ships' boilers. • Reduce the power required by engine room ventilation fans, through use of variable-frequency fan-drive motors and related pressure and temperature control systems.
IMPLEMENTING OTHER ENERGY-SAVING INITIATIVES	• Design more fuel-efficient itineraries. • Use voyage optimization tools. • Increase energy use awareness through education and training of guests and crew. • Develop our ability to use alternative fuels. • Research and developing emissions-reduction technologies. • Incorporate an innovative "Air Lubrication System," which creates bubbles between the ship's hull and water to reduce friction.
MINIMIZING ENGINE EMISSIONS	• Use Cold Ironing or Plug-In while in port. • Install Advanced Air Quality Systems. • Use alternative fuels like Liquefied Natural Gas (LNG).