

RV RESILIENCE – Electric-hybrid research vessel for US operations



Shipbuilder:	Snow and Company, Inc
Designer:	Incat Crowther USA
Vessel's name:	RV Resilience
Owner/Operator:	US Department of Energy, Pacific Northwest National Laboratory (PNNL)
Country:	US
Flag:	US
Total number of sister ships already completed:	1
Total number of sister ships still on order:	0
Contract date:	February 2022
Delivery date:	July 2024

RV Resilience is a hybrid research vessel designed by global digital shipbuilder Incat Crowther and built by Snow & Company, which was delivered to the US Department of Energy's Pacific Northwest National Laboratory (PNNL) in July 2024.

Something of a milestone vessel, it is also the Department of Energy's first hybrid electric-diesel research vessel. Ushering in a new era for research for the Department of Energy, the 15m hybrid catamaran research vessel will help PNNL sustainably expand its research activities in the Sequim Bay region of Washington state.

RV Resilience's 28m² main deck is equipped with an A-Frame, boom crane and moveable davit in addition to a foldable swim platform. Designed to support the work of six scientists, RV Resilience also features multiple research workstations, a dry laboratory, observation stations on the flybridge and convertible sleeping arrangements for multiday assignments.

Sustainability and operational flexibility are enhanced via the vessel's advanced parallel hybrid-electric propulsion system, which comprises two standard diesels, capable of producing 374kW each, and two electric motor-generators. While RV Resilience can

travel at speeds of up to 23knots on its two main diesel engines, it can quickly transition to a silent, all-electric mode capable of speeds of up to 7knots.	
This silent, all-electric mode will allow the PNNL researchers to conduct their activities with minimal noise pollution, allowing for enhanced research capabilities when taking sensitive acoustic measurements. Christian Meinig, division director for PNNL's Coastal Sciences division, comments: "This first-in-class electric-hybrid vessel will greatly expand our R&D and testing capabilities and help us build new partnerships. The large working deck and heavy-lift capability will allow us to deploy and recover larger instruments and uncrewed vehicles to rapidly develop technology and deliver impact to our sponsors."	
TECHNICAL PARTICULARS	
Length, oa	15.24m
Length, bp	15.15m
Breadth, moulded	4.86m
Depth, moulded	2.3m
Gross tonnage	38
Displacement	35tonnes
Design, draught	1.316m
Design, deadweight	8.526tonnes
Lightweight	26.474tonnes
Deck space (total)	28.3m ²
Deck capacity	1tonne/m ²
Service speed	20knots@90% MCR
Max speed	24knots@100% MCR
Range	350nm
Propulsion	
Main engine(s):	
Number of engines	2 x diesel
	2 x electric
Make	Volvo (diesel)
	Danfoss (electric)
Model	D8-510 (Volvo)
	EM-PMI375-T200 (Danfoss)

Output of each engine	374kW (diesel)
	55kW (electric)
Gearbox(es):	
Number of gearboxes	2
Make	Twin Disc
Model	MGX-5075SC
Output speed	1,126.5rpm
Propeller(s):	
Number of propellers	2
Make	Michigan Wheel
Model	M500
Diameter	711.2mm
Material	Bronze
Number of blades	5
Fixed/controllable pitch	Fixed
Open/nozzled	Open
Deck machinery and bridge electronics	
Crane(s):	
Number of cranes	1
Make	Morgan Marine
Model	150.2
Capacities/SWL	1.3tonnes
Other deck machinery/equipment	5tonne SWL aft deck A-frame
Onboard capacities:	
Fuel oil	2,300litres
Fresh water	300litres
Sullage	300litres
Complement:	
Number of crew	2
Number of passengers	6
Number of cabins	0
Classification society	
	Designed to DNV-GL HSLC notations
Other important international regulations complied with	
	Compliant with ASTM F3553-19 – Standard Guide for Shipboard Use of Lithium-Ion (Li-ion) Batteries

