Australia's new icebreaker, RSV Nuyina, will make its maiden voyage to Antarctica in 2020-21. The ship will be the main lifeline to Australia's three Antarctic research stations and its sub-Antarctic station on Macquarie Island, and will support Australia's leadership role in Antarctic and Southern Ocean scientific research. The ship is also flexible enough to cope with future research and operational demands during its expected 30 year lifetime.

Scientific capability
The Nuyina is the only ship in the world to have a watertight room or 'wet well' to process seawater for krill and other fragile marine organisms, at up to 1600 litres per minute. Other state-of-the-art scientific equipment includes acoustic instruments to map and visualise the sea floor and organisms in the water column, and instruments to measure atmospheric gases, cloud properties, wave heights and ice conditions.

What's in a name?
The word nuyina means 'southern lights' in palawa kani – the language spoken by Tasmanian Aborigines today. It is pronounced “noy-yee-nah”. The name Nuyina recognises the long connection that Tasmanian Aboriginal people have with the southern lights (or aurora australis). The ship name was suggested by Australian schoolchildren through a ‘Name our Icebreaker’ competition.

RSV Nuyina can:
- break 1.65 m thick ice at a continuous speed of 3 knots
- cruise efficiently at 12 knots, with a maximum speed of 16 knots
- handle sea state 9 (waves over 14 m)
- handle Beaufort 12 winds (hurricane)
- cope with air temperatures as low as -30°C and up to 45°C
- support voyages of up to 90 days
Once in a generation investment

A new icebreaker represents a once in a generation investment by the Australian Government and is the centrepiece of the Australian Antarctic Strategy and 20 Year Action Plan launched on 27 April 2016. The $1.9 billion package will cover the design, build and 30 year operational and maintenance lifespan of the icebreaker. It is the single biggest investment in the history of Australia’s Antarctic Program.

Heavy Lifting:

- 1200 tonne (t) capacity below decks in up to 96 20-foot shipping containers
- 60 20-foot containers above deck for cargo and labs
- Cranes: 2 x 55t on bow; 1 x 15t side loader; 1 x 15t aft; and smaller cranes on science work deck
- Helicopters: 4 small (B3s) or 2 medium (S92s)
- Tenders: 3 ship + 1 science
- Barges: 2 x 45t capacity

Dynamic positioning system maintains ship’s position ±20 m in sea state 4 (moderate seas)

2 diesel engines (19 200 kW total) for icebreaking and two electric motors (7400 kW total) powered by diesel generators for silent operations

Multi-beam echosounder to map 25 km-wide swaths of seafloor up to 11 000 m deep

Two drop keels with acoustic instruments to map and visualise the sea floor and organisms in the water column

Moon pool to deploy autonomous vehicles and oceanographic equipment

‘Silent R’ acoustic rating at 8 knots minimises noise radiating from the ship

Wet well to process seawater containing krill

2 controllable pitch propellers; 3 bow and 3 stern thrusters for manoeuvring.

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