

# Heard and McDonald Islands wayside energy storage system

Where are the Heard and McDonald Islands located?

The Heard and McDonald Islands are remote subantarctic volcanic features located in the Southern Ocean, halfway between Australia and South Africa. They are approximately 1700 km from the Antarctic continent and 4000 km southwest of mainland Australia (Australian Government 2016 ). Heard Island is 43 km long and 21 km wide.

Who manages the Heard & McDonald Islands?

The islands are administered under the Heard and McDonald Islands Act of 1953 and the Environment Protection and Management Ordinance of 1987 by the Antarctic Division of the national Department of Tourism, Arts & Environment (formerly the Department of the Arts, Sport, the Environment, Tourism & Territories, DASETT).

How big is Heard Island & McDonald Islands?

Administered by the Antarctic Division of the national Department of Tourism, Arts & Environment. Heard Island sea level to 2,745m (Mawson Peak); McDonald Islands: sea level to 230m. Heard Island is roughly circular, about 20 km in diameter with a peninsula extending 9 km northwest and a spit extending 8 km to the east.

How were Heard Island and McDonald Islands formed?

The Heard Island and McDonald Islands group was formed by the plume type of volcanism, a process that is poorly understood in comparison with the earth's other two main volcanic types - subduction and seafloor spreading.

What is the difference between Heard Island and McDonald Island?

Heard Island is dominated by Big Ben (an active volcano rising to a height of 2,745 metres), and is largely covered by snow and glaciers. McDonald Island is much smaller, covering only 100 hectares at the time of inscription, and is surrounded by several smaller rocks and islands.

When was Australian territory of Heard Island and McDonald Islands inscribed on the World Heritage List?

Australian Territory of Heard Island and McDonald Islands was inscribed on the World Heritage List in 1997. Australian Territory of Heard Island and McDonald Islands was one of 15 World Heritage places included in the National Heritage List on 21 May 2007.

o The purpose of wayside energy storage systems (WESS) is to recover as much of the excess energy as possible and release it when needed -For use by other trains (energy conservation = reduction of utility energy costs) -To reduce substation average power demand (reduction of utility demand costs)

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The islands are a territory (Territory of Heard Island and McDonald Islands) of Australia administered from Hobart by the Australian Antarctic Division of the Australian Department of Climate Change, Energy, the Environment and Water.

Heard Island and McDonald Islands in the Southern Ocean A map of Heard Island and McDonald Islands. Heard Island, by far the largest of the group, is a 368-square-kilometre (142 sq mi) mountainous island covered by 41 glaciers [21] (the island is 80% covered with ice [1]) and dominated by the Big Ben massif has a maximum elevation of 2,745 metres (9,006 ft) at ...

Heard Island and McDonald Islands Marine Reserve Management Plan . 2014-2024. ISBN: 978-1876934-255. ... Representative System of Marine Protected Areas. In recognition of its outstanding natural universal values, the Territory was inscribed on the World Heritage List in December 1997.

There are three major challenges to the broad implementation of energy storage systems (ESSs) in urban rail transit: maximizing the absorption of regenerative braking power, enabling online global optimal control, and ensuring algorithm portability. To address these problems, a coordinated control framework between onboard and wayside ESSs is proposed ...

World Heritage Committee information for Heard and McDonald Islands. Brief synthesis. Heard and McDonald Islands are remote sub-Antarctic volcanic islands located in the southern Indian ...

Technology company ABB's 1,500 Volt DC Envelope wayside energy storage system (ESS), a three-year project, captures braking energy and then returns it for the the acceleration of other trains which later use the same ...

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The Australian Territory of Heard Island and McDonald Islands lies in a remote and stormy part of the globe, near the meeting-point of Antarctic and temperate ocean waters.

The activity on the McDonald Islands group resulted in the island doubling in size and increasing in elevation by about 100 m (Australian Government 2016). Along with the ...

Wayside energy storage for rail is typically located in, or close to a rail traction power substation. ... are also commonly used to rectify power quality and thus can further contribute to voltage control in outdated systems. Advantages. Our compact, fire safe, and efficient kinetic energy storage solutions can service a station for more than ...

McDonald Island is much smaller (2.5 km<sup>2</sup>), about 100 000 years old and totally ice-free, and is

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predominantly composed of phonolitic rocks. 9, 10 During the campaign, signs of volcanic activity ...

implementing effective wayside energy storage systems for rail transit. Energy storage applications addressed include braking energy recapture, power quality voltage sag regulation, ...

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HEARD AND MCDONALD ISLANDS AUSTRALIA Heard Island and the McDonald Islands are in the Southern Ocean, approximately 4,100 km south-west of Perth and 1,700 km from the ...

Many vascular plants are also found on the Heard and McDonald Islands. Elephant seals in Heard Island. Image source: Heard Island Expedition/laikolosse/Flickr. The main native fauna of the Heard and McDonald Islands include several insects along with large populations of seals, penguins, petrels, albatrosses, and other seabirds.

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