

LORD HOWE ISLAND BOARD

BOARD MEETING AGENDA

MEETING DATE:	MEETING LOCATION:	MEETING TIME:
Mon 19 March 2018	Public Hall, Lord Howe Island	Planning Session 9:00 am to 11:00 am
Mon 19 March 2018	Public Hall, Lord Howe Island	Closed Session: 11:00 am to 4:30 pm
Tues 20 March 2018	Public Hall, Lord Howe Island	Open Session: 9:00 am to 12:30 pm

	ITEM		OPEN (O)	CLOSED (C)
PH	1	ELECTION OF DEPUTY CHAIR	O	
PH	2	MINUTES OF PREVIOUS MEETING – NOTICE OF ADOPTION	O	
PH	3	OUT OF SESSION MATTERS STATUS REPORT	O	
PH	4	ACTIONS FROM PREVIOUS MEETING – STATUS REPORT	O	
PH	5	CHIEF EXECUTIVE OFFICER’S REPORT	O	C
PH	6	MOTOR VEHICLE IMPORTATION OR TRANSFER – STATUS REPORT	O	
	7	FINANCIAL IMPACT REPORT FOR PROPOSALS ON AGENDA		
BM	(i)	Closed Session		C
	8	DEVELOPMENT APPLICATIONS		
PH	(i)	Owner Consent approved under Delegated Authority	O	
PH	(ii)	DAs Determined Under Delegated Authority	O	
JL	(iii)	LHI Stage 1 Planning Proposal Update	O	
	9	POLICY & STRATEGY		
PH	(i)	LHI Land Allocation (Handley) Review - Implementation Report	O	
JL	(ii)	Policy - Transfer of Perpetual Lease – Proposed Amendment	O	
	10	FINANCE AND BUSINESS MANAGEMENT		
BM	(i)	Closed Session		C
BM	(ii)	Closed Session		C
	11	LEASING & LAND ADMINISTRATION		
JL	(i)	Transfer of Perpetual Lease – W and G Thompson	O	

	ITEM		OPEN (O)	CLOSED (C)
	12	GOVERNANCE		
		No papers. Governance seminar for Board members to be held during the Planning Session.		C
	13	OPERATIONS & SERVICES		
PH	(i)	Rodent Eradication – Progress Report	O	
JT	(ii)	Renewable Energy Program Update	O	
JT	(iii)	Airport Terminal Upgrade Project Update	O	
JT	(iv)	Airport Runway Extension Feasibility Study Update	O	
	14	WH&S and PUBLIC RISK MANAGEMENT		
LS	(i)	WH&S and Public Risk Management Update	O	
	15	INTERVIEWS		
	(i)	Closed Session		C
	16	GENERAL BUSINESS AND QUESTIONS ON NOTICE	O	

Board Meeting: March 2017	Agenda Number: 1	File Ref: ED18/1131
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LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Appointment of Deputy Chairperson

RECOMMENDATION

That the Board appoint a Deputy Chairperson.

BACKGROUND

Schedule 1A to the *Lord Howe Island Act 1953 (the Act)* outlines provisions relating to members and procedures of the Board.

The Deputy Chairperson is a statutory position created by Part 1 of Schedule 1A.

Schedule 1A Part 2, Section 3 of the Schedule states:

- (1) The Board is to appoint one of its members (not being the Chairperson) to be the Deputy Chairperson of the Board.
- (2) Subject to this Schedule, the Deputy Chairperson holds office for one year from the date on which he or she takes office

Under *the Act*, the Deputy Chairperson can only exercise the following statutory functions of the Chairperson in their absence:

- The power to preside over a meeting of the Board (clause 13(1) of Schedule 1A)
- The power to have a deliberative vote and in the event of an equality of votes have a second or casting vote (clause 13(2) of Schedule 1A)

It has been the practice of the Board that the Deputy Chairperson is the locally elected (Islander) Board member, who gained the most votes in the most recent Board election.

CURRENT POSITION

At the Board election held on 8 February 2018, four local Board members were elected.

The Board must now appoint one of the local Board members as Deputy Chairperson.

RECOMMENDATION

That the Board appoint a Deputy Chairperson.

Prepared: Penny Holloway, Chief Executive Officer

Board Meeting: March 2018	Agenda Number: 2	Record Number: ED18/1694
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LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Minutes of previous meeting – notice of adoption

RECOMMENDATION

Submitted for the Board's information.

BACKGROUND

The adopted process for distributing Board minutes from the previous meeting is:

- Draft minutes will be produced within five working days of a Board meeting, and posted to Board members on the sixth working day, unless delayed for a valid reason agreed to between the Chief Executive Officer and the Chairperson.
- Board members are to return their endorsement, or otherwise, of minutes on a pro forma document provided by the Administration no later than seven working days after date of posting.
- Seven working days after date of posting, the Board will deem the minutes of the meeting to be endorsed, subject to any amendments which were received prior to that date, and agreed for inclusion by the Chairperson.

CURRENT POSITION

Minutes of the November 2017 meeting were distributed to each Board member and have been endorsed through the above process with amendments.

A copy of the endorsed Minutes is attached.

RECOMMENDATION

Submitted for the Board's information.

Prepared: Chelsea Holden, Administration Officer

Endorsed: Penny Holloway, Chief Executive Officer

Attachments:

Attachment A: ED17/6708 Minutes – Board Meeting – November 2017 - Closed

Board Meeting: March 2018	Agenda Number: 3	Record: ED18/1696
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LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Out of Session Matters Status Report

RECOMMENDATION

Submitted for the Board's information.

BACKGROUND

Since the last Board Meeting in November 2017, one matter was considered at an out of session meeting as a closed session matter.

CURRENT POSITION

Results of the 'Out of Session' papers since the last Board meeting are shown on the attached tracking sheet as a closed session matter.

RECOMMENDATION

Submitted for the Board's information.

Prepared: Chelsea Holden, Administration Officer

Endorsed: Penny Holloway, Chief Executive Officer

Attachments:

Attachment A: Results of 'Out of Session' papers since the last Board Meeting – Closed session

Board Meeting: March 2018	Agenda Number: 4	Record Number: ED18/1923
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LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Actions from Previous Meeting – Status Report

RECOMMENDATION

Submitted for the Board's information.

BACKGROUND

As a matter of process and procedure, a list of actions is prepared after each Board meeting to ensure that the Board's resolutions are systematically carried out by staff.

CURRENT POSITION

A list of actions from decisions of the November 2017 Board meeting, and previous meetings, is attached for the Board's information.

RECOMMENDATION

Submitted for the Board's information.

Prepared: Bill Monks, Manager Business and Corporate Services

Endorsed: Penny Holloway, Chief Executive Officer

Attachments:

Attachment A: Action Sheet from November 2017 Board Meeting and Previous Meetings

LORD HOWE ISLAND BOARD

Action Sheet from September 2017 Board Meeting and Previous Meetings

Agenda Item No.	Item	Actions (refer to full minutes for detail)	Estimated Completion Date	By Whom	Progress	Actual Completion Date
10(iv) September 2015	Review of the LEP 2010	<ol style="list-style-type: none"> 1. Review the Vegetation Rehabilitation Plan, and 2. Seek funding from Government programs to support the LEP review process. 	December 2017	MECS	<p>In progress although, given the decrease in available funding for this activity over the past few years, priority for the review could be reassessed.</p> <p>No funding available from DPE to support review of LEP</p>	
7(iv) September 2016	DA2016-31 Vessel Launching and Retrieval Facility	Deferred commencement conditions in Part 1 of the recommendation be considered out of session before proceeding to Part 2.	December 2018	MIES	In progress, RMS revisiting options and speaking to Treasury for additional funding	
12(vii) November 2016	Commercial Tour Operator Licensing System	Investigate opportunities to align with Ecotourism Australia accreditation program.	December 2017	MECS	Consultation with operators undertaken. Further development work required as result. This action unlikely to be completed until June 2018	
7 (iii) March 2017	OC2017-07 Shearwater Cottage (Owens)	Complete a market demand study on staff and residential accommodation on behalf of the Board.	June 2018	MECS	Will form part of greater LEP Phase 2 review budgeted for 2 nd half 17/18 financial year.	

Agenda Item No.	Item	Actions (refer to full minutes for detail)	Estimated Completion Date	By Whom	Progress	Actual Completion Date
10 (iv) March 2017	Review of Boatshed Foreshore Encroachments	<ol style="list-style-type: none"> Review and adjust rentals where there has been, or will be, an approved increase in the footprint area of fixed improvements. Follow up anomalies identified in the assessment. 	Ongoing	MECS/MBCS	Ongoing	
			December 2017	MECS	In progress. Not likely to be completed before June 2018.	
13 (i) March 2017	Public Risk Management	Investigate the possibility of being able to turn on the sirens manually.	December 2017	MIES	Has been investigated and there is no switch option to access each site individually.	December 2017
15 March 2017	General Business	Consider improving the community hall in order that the doors can be closed to keep out the noise from vehicles when the hall is in use. e.g. air conditioning; venting to improve airflow.	December 2018	MIES	Application for funding for major upgrade of community hall submitted.	
12 (iv) May 2017	Strategic Asset Management Plan Update	Look into expediting the repairs of the jetty stairs, and follow up RMS funding for a second set of stairs.	June 2018	MIES	In progress, repair works to be undertaken with pile replacement.	
13 (i) May 2017	WHS and Public Risk Management Update	Investigate the exposed star pickets on walking tracks issue and advise the Board out of session.	January 2018	MECS	Substantially complete. However work continues on an opportunistic basis.	
15 (iv) May 2017	Island Trader Access to the Lagoon	The Board seek a blanket approval from the relevant authority to transfer cargo by lighter from the ship on those occasions when the ship could not access the jetty due to low tides.	April 2018	CEO	In progress.	
8 (vi) September 2017	Dog Importation and Management Policy	Clarify the status of the dog off-leash picnic area at the northern end of Old Lagoon Road and identify possible additional areas for off-leash activities.	May 2018	MECS/MIES	Picnic/BBQ in place. Site inspection by Board suggested regarding policy amendment	
12 (ii) November 2017	Renewable Energy Project Update	Obtain a cost estimate for the removal of the bird monitoring mast.	April 2018	MIES	In progress, need to assess footing details and lowering mechanism.	

ENVIRONMENT & COMMUNITY SERVICES UNIT**November 2017 to March 2018****Biodiversity Management**

- Biosecurity detection dogs and dog handlers continue to undertake on-Island training and have made a successful rodent detection on Island Trader.
- Saving Our Species grant implementation – this project includes weed search and control, targeted threatened plant monitoring and development and implementation of translocation plans for Sand Spurge *Chamaesyce psammogeton* and Phillip Island Wheat Grass *Elymus multiflorus*. Seedlings of both species have been successfully germinated in a nursery, which subsequently suffered significant browsing of seedlings by rodents indicating the ongoing, negative impact that rodents pose for these endangered plants.
- Commenced installation of rock anchors on Balls Pyramid to enable height access trained staff to undertake weed control of Five-leaved Morning Glory *Ipomoea cairica* from Phasmid food trees and to gain access up to Gannet Green to undertake surveys.
- 2017 Woodhen Survey is complete – the observed population is a little down on previous years but considered stable.

Research & Volunteers

The following persons were approved to stay in/use the Research Station during the reporting period.

Name	No. People	No. Nights	Project
Tim Wright	1	5	Dental Service – Lab use only
Andrew Denham	3	7	REP – Biodiversity Benefits (plants)
Leanne Elliot	1	7	REP/Taronga Zoo – Captive Mgmt
Terry O'Dwyer	1	12	Woodhen Surveys
Nicholas Carlile	1	3	Woodhen Surveys
Alpine	2	14	REP
Richard Segal	1	69	Diet & breeding performance of LHI Currawong
Di Browne	2	5	SOS Save Our Species
Terry O'Dwyer	2	8	REP – Biodiversity Benefits Black-winged Petrel
Marine Parks	3	43	Galapagos Sharks
Peter McLelland	3	14	REP
Reef Life Survey	6	16	Reef Life Survey
Mark Derwent	1	6	Food Inspections
Andrew Baird	6	11	Coral Biodiversity
TOTAL	33	220	

Rodent Eradication

- See Agenda Item - Rodent Eradication progress report.

Quarantine

- MEWH delivered presentation at National Myrtle Rust workshop in Canberra on the LHI rapid response to a Myrtle Rust incursion. The response treated all infected plants with registered fungicide and the Board obtained permission from each leaseholder with infected or highly susceptible plants to have them removed.
- Biosecurity detection dogs and dog handlers continue to undertake on-Island training and have made successful rodent detection on Island Trader.
- Training with Steve Austin dog trainer at Port Macquarie 16 – 23rd March 2018. This will provide first-hand experience and training in pre-border inspection procedures for loading freight and to gain familiarity with wharf facilities and stevedores and to work with other target scents not readily available on the Island (Cane Toad, Green Tree Frog, Asian House Gecko & snakes).
- Liaison with LHI Seafreight on biosecurity measures embedded in new shipping contract.
- Dogs and handlers training nearing completion to gain accreditation.
- Applications to import plant, mulch/potting medium have been assessed as required and inspections carried out of imports upon arrival.
- Maintenance of boot cleaning stations.
- DPI seeking to place draft Discussion Paper concerning Biosecurity Risk management for LHI on public exhibition. This paper proposes to amend the Biosecurity Act 2015 (the Act) and Biosecurity Regulation 2017 (the Regulation) to enhance biosecurity risk management arrangements for Lord Howe Island (and at same time incorporate changes statewide). It is proposed to manage the biosecurity risks to LHI using a range of management tools, including:
 1. List as prohibited matter on LHI, plant and animal pests and diseases, and weeds that are not present on LHI but are likely to have significant impact on the economic, environmental or community if they were introduced or became established.
 2. Implement a control order to support the eradication of plant and animal pests and diseases, and weeds that are present on LHI and identified for eradication in the Weed Management Strategy 2016 or deemed new emerging threats.
 3. Introduce a mandatory measure for managing certain species of non-indigenous animals that can be dealt with, i.e. kept, on mainland NSW but pose a biosecurity risk to LHI.

This proposal complements current legislative arrangements for preventing, eradicating, and minimising biosecurity risks from plant and animal pest and diseases, and weeds.

African Big-headed Ant Eradication

- Monitoring undertaken of previously infested areas (from 2015) in December 2017 and March 2018 did not detect any ABhA, which enables the Board to declare ABhA eradicated from LHI. The project outcomes will be reported to the Island Eradication Advisory Group (IEAG) and IUCN for external review.
- This is the first eradication of ABhA from an oceanic island, the largest ant eradication to have been achieved on an island, and is among the most significant for conservation having been conducted within a World Heritage listed area.
- Two other eradications of equivalent significance are the little fire ant, *Wasmannia auropunctata*, eradication on Marchena Island in the Galapagos (*Causton et al.* 2005) and for tropical fire ant, *Solenopsis geminata*, and *P. megacephala* within Kakadu National Park, Australia (Hoffmann & O'Connor 2004).

Weed Management

- The Board is currently running four externally funded weed eradication grant programs (including the NSW Environmental Trust, North Coast Local Land Services, Saving Our Species, NSW Weeds Action Plan). Over 310 hectares of weed search has been achieved this financial year, keeping on track with the yearly target of 500 hectares.
- **North Coast Local Land Services 'Progressing the treatment and eradication of invasive weeds and African Big Headed Ants (ABHA)'**. This program is due for reporting in May 2018. This grant has provided funds for weed search labour, ABHA and the removal of tree weeds from the Settlement.
- **NSW Environmental Trust 'The Tide is Turning'**. The remainder of this grant is focused on technical programs. Methods to detect target weeds using spectral signatures, plant geometry or high definition imagery applied with Unmanned Automated Vehicles ('Drones') and the application of aerial treatment methods using UAV (lance spray) and Herbicide Ballistic Technology. EOI's are currently being reviewed for the weed detection project work.
- **Saving our Species LHI Threatened Species Recovery Program – Project 2 (2017 - 2021)**. This four-year grant has reporting requirements to release funds yearly. This project is focused on the survey, translocation and management of 10 threatened flora species and their habitats. The majority of threatened species occur in the southern mountains requiring target search in remote terrain.

Revegetation

- Maintenance of revegetation sites has been undertaken in accordance with the Revegetation Work Schedule.
- Restoration of Sallywood Swamp Forest EEC at the Golf Club and establishment of new plantings continues with funding provided by North Coast Local Land Services.
- Revegetation at Calystegia site at the start of Max Nicholls track continues funded by the Saving Our Species program.
- Translocation plans developed for Sand Spurge and Phillip Island Wheat Grass with seed collected and germinated on Island and sent to Mt Annan herbarium for Seed banking. Significant amount of rodent browsing of germinated seedlings in the nursery indicates the impact that rodents pose to these species in the wild.

Incident Management

- Nil

Community Programs & Education

- Contribute to Signal and Community Information Bulletin.

Visitor Infrastructure

- General maintenance of walking tracks;
- Mt Gower ropes replaced and rock anchor system testing commenced.
- Replacement interpretation signs ordered where degradation is observed.
- Sallywood Swamp Forest interpretation sign ordered for erection at Cobbys Corner.

Marine Management / Moorings

- LHIB monthly mooring inspections were completed for the reporting period;
- Approximately 40 yachts visited the Island and attached to LHIB public moorings during the reporting period.

Human Resource Management

- Dan Kennedy awarded full time temporary Field Officer during Damian Ball's absence on LWOP.
- Field Supervisor, Bush Regeneration and Weed Eradication position has been advertised for recruitment.

Training

- Biosecurity detection dog handling training ongoing.
- Rope access refresher and training is using Rock Exotica testing unit for rock anchors.
- Work Health Safety.

Work Health & Safety

- Nil time-lost incidents during the period.

Environmental Assessment

- Ecological assessments for all OC / DAs referred completed
- Two Conservation Risk Assessments completed for installation of industry certified rock anchors to enable safe working at heights (access to Gannet Green on Balls Pyramid to undertake weed control and survey for LHI Phasmid and install rock anchors to enable emergency exit from the Pimple if helicopter can retrieve staff winched to the site).
- Tree risk assessments completed.

Land Administration

- Respond to applications for suspension of residency, lease transfers, minor land transactions, subleasing and tenure related project work.

Development Assessment

- Continue assessments for Owner Consent, Development Applications and s96 modification applications

Community Health & Wellbeing

- First meeting of Lord Howe Island Bush Fire Management Committee held in December. Items considered included the draft Lord Howe Island Bush Fire Risk Management Plan.

INFRASTRUCTURE AND ENGINEERING SERVICES

15 November 2017 to 07 March 2018

Airport

- On Friday 2 March 2018 the new Airport Terminal opened for business. While teething problems have been experienced, and were expected, the terminal is functioning well and is providing the enhanced visitor experience the upgrade sought to do. At the time of writing (Wednesday 7 March 2018) the official opening of the Terminal is planned for Sunday 25 March 2018 (see separate report).
- On 12 November 2017 AECOM Australia Pty Ltd was awarded the contract to undertake a feasibility study into extending the runway. The study will consider the technical, economic and environmental aspects of the extension.

The first stage of the study will determine the extent of the extension that could be built in line with safety regulations, physical obstacles that could affect landing and take-off, and the width of the airfield. It will also identify aircraft able to land with, and without, an extension and airlines interested in providing this service. The AECOM team will report on the first stage of the study after meetings with CASA, Qantas and Virgin during the week of 19 March 2018 (see separate report).

- From November 2017 Board staff have been undertaking additional bird harassment at the aerodrome. This is due to increased activity of the Migratory Wader species and the elevated risk of bird strike. At the time of writing (Wednesday 7 March 2018) the need for additional harassment is under assessment as the bird activity has significantly reduced.
- At the time of writing (Wednesday 7 March 2018) there has been one (1) bird strike recorded for 2018 at the aerodrome. A C-130 Hercules struck a Pacific Golden Plover during night training operations on Monday 5 February 2018. This is first bird strike recorded since 25 February 2017. For the intervening 12 months (March 2017 to February 2018), 1818 aircraft movements were logged for the Lord Howe Island Aerodrome. This equates to 0.55 strikes per 1000 movements. A QantasLink DHC8 struck a white tern over the lagoon on Sunday 18 February 2018 but as this is outside the field of influence of aerodrome staff, the strike is not included in the statistics.

Year to date there have been 348 aircraft movements, which equates to 2.87 strikes per 1000 movements. For the corresponding period in 2017 there was one (1) strike recorded (Pacific Golden Plover) with 344 aircraft movements. This equates to 2.90 bird strikes per 1,000 aircraft movements.

For the 2017 calendar year there was one (1) bird strike recorded with 1814 aircraft movements. This equates to 0.55 strikes per 1,000 aircraft movements. For the 2016 calendar year there were nine (9) birds struck with 1734 aircraft movements. This equates to 5.19 strikes per 1,000 movements.

- Clean up of access area.
- Removal of large green 'Qantas lounge' tent.

- Deconstruct temporary terminal.
- Removal of ablution blocks and associated plumbing.
- Re-establish air terminal gardens and lawns.

Building Construction Maintenance and Management

- From 14 to 28 February 2018 Essential Safety Protection conducted the annual Fire Safety Inspections for all Lord Howe Island Board premises and Island businesses.
- Continued sand bag wall maintenance at Pinetrees boatshed.
- Install new window eastern wall of the Marine Parks office.
- Repair decking in front of Islander Cruises boatshed.
- Repairs to nurses' flats at Hospital.
- Mid-February inspection of commercial and residential assets and subsequent maintenance program updated.
- 15 February inspection of all street furniture and subsequent maintenance program updated.

Emergency Management

- The Local Emergency Management Committee (LEMC) is to meet on Thursday 8 March 2018. Amongst matters to be discussed are the continued development of Consequence Management Guides for the LHI Emergency Management Plan, conducting the Annual Aerodrome Emergency Exercise and the development of Emergency/Evacuation Plans for Island Lodges and Businesses.
- On Friday 24 November 2017 Simon Lewis, Manager Severe Weather NSW/ACT, Bureau of Meteorology (BOM) in conjunction with the LEMC, presented the 2017/2018 Tropical Cyclone Briefing at the Public Hall. The briefing was attended by LHI Sea Freight Management, LHIB Management and interested members of the community.
- The Lord Howe Island Bush Fire Management Committee met on Thursday 14 December 2017. The committee discussed the final details for the draft Bush Fire Risk Management Plan. The draft plan will go on public display Monday 26 March 2018 for comment.
- Members of the LEMC and BOM staff closely followed the paths of Tropical Cyclones Fehi and Gita during February 2018 in preparation for any potential impacts to the Island. The North Coast Regional Emergency Management Committee were on standby to send assistance if required.
- After direction by the Environment Protection Authority (EPA) investigations have commenced into possible ground and groundwater contamination from the use of Fire Fighting Foam (FFF) containing per- and poly-fluoroalkyl substances (PFAS). In recent

years, it has been discovered that PFAS does not readily breakdown in the environment. The persistent, bio-accumulation and toxic nature of PFAS in the environment can lead to issues when it enters groundwater systems and/or aquatic ecosystems.

- Air Ambulance patient retrievals year to date (Wednesday 7 March 2018) total three (3) all of which were residents. Two (2) residents required treatment for illness and one (1) for an injury.

Patient retrievals for the same period in 2017 totalled one (1) which was a resident requiring treatment for illness.

The total number of Air Ambulance patient retrievals for 2017 was thirteen (13) of which eight (8) were residents and five (5) visitors. Five (5) residents required treatment for illness with three (3) requiring treatment for injury. Three (3) of the visitors required treatment for illness with two (2) requiring treatment for injury.

The total for 2016 was nineteen (19) with thirteen (13) residents – nine (9) illness and four (4) illness and six (6) visitors – five (5) illness and one (1) injury.

- 9 January 2018 – respond to asbestos contamination of timber burn pile at WMF. Mainland contractor being finalised week ending 16 March 2018. Contamination has been bonded and capped to Worksafe NSW satisfaction.
- 14 January SES call out re tree down during severe weather outside Pinetrees.
- Continued successful testing of emergency siren 1000 hrs first Wednesday of each month.

General items

- LHIB staff have been assisting Norfolk Island Regional Council with their transition to State legislation, particularly in the areas of Airport Management and Development Application and Assessment processes.
- LHIB staff undertook sampling and testing of the Island's groundwater wells & bores during February 2018.
- LHIB staff continue to monitor the Board's drinking water quality for NSW Health compliance.
- LHIB staff continue to monitor mosquito larvae as per the Lord Howe Island Mosquito Surveillance and Vector Monitoring Program. This program is part of a National scheme run by the Federal Government.
- LHIB staff continue to monitor wastewater discharge at the WMF with reporting for EPA licence compliance.
- LHIB staff continue to assist residents and businesses with their onsite wastewater management system installations and/or upgrades.
- LHIB staff continue to conduct building inspections and provide certification for Construction Certificates as part of the Development Application process.

- Purchased 3 x 10ft shipping containers to move possessions of contract LHIB staff. The use of timber packing crates has been extremely problematic with the 'flimsy' type construction failing during loading and unloading. The first of three containers were utilised to move the Logan family with great success. The containers are vermin and waterproof eliminating the time consuming tarping of crates.
- A new purpose built 6 metre aluminium punt vessel has been purchased under Capital purchases. The vessel has a drop down bow gantry door allowing less strenuous loading and unloading of materials such as timber at North Bay. The vessel will also allow effective seaside maintenance/construction at the jetty. The vessel will also be ideal for emergency response eg: oil spill containment.

Maritime Facilities and Coastal Activities

- The new purpose built 6 metre aluminium punt vessel 'Silver Eye' now commercially registered and in operation. First launch date 16 February, utilised to convey staff and timber to North Bay picnic area. Vessel performed beyond expectation allowing safe and easy access from the vessel via a lowering bow gantry door. Coxswain Class 1 minimum licence requirement to master vessel. Apart from many other uses such as jetty construction and maintenance the vessel is ideal and considerably more effective for emergency response operations such as oil spill containment.
- The jetty stairs and boat ramp were high temperate (140 deg.) /pressure cleaned in mid-February.
- The swimming pontoon was removed from the water post-Christmas for cleaning and maintenance. Several components of the anchoring tackle were replaced and a new ladder installed. The pontoon was out of service for one day only.

Roads, Parks and Visitor Facilities

- Extensive pothole repairs were carried out during January and February 2018.
- Potholing repairs continue utilising Bio blend cold mix product. A new product has successfully been trialled which is Canola oil based and friendlier to the environment.
- Six dangerous trees were identified and removed from locations on the island within the road reserve, commercial areas and several on cemetery road. The trees were removed without incident.
- Works Staff continue with significant road verge trimming of vegetation. A considerable amount of road trimming was completed at the south end of the island's road network.
- Spraying for clover and bindi commenced early January 2018. Extensive spraying for broadleaf and weeds will commence in late March 2018.

Waste Management Facility

- General maintenance and service on all equipment has been undertaken.

- Hotrot food composting is working well with a high quality product being produced.
- The first 2018 waste audit was conducted late February concluding 5 March 2018.
- Further concrete pouring operations were conducted on the compost storage area at the rear of the WMF facility with the installation of the trommel screen to be undertaken over the month.

ELECTRICAL SERVICES

Operation of the Powerhouse and Reticulation System for the reporting period 1st November 2017 to 6th March 2018

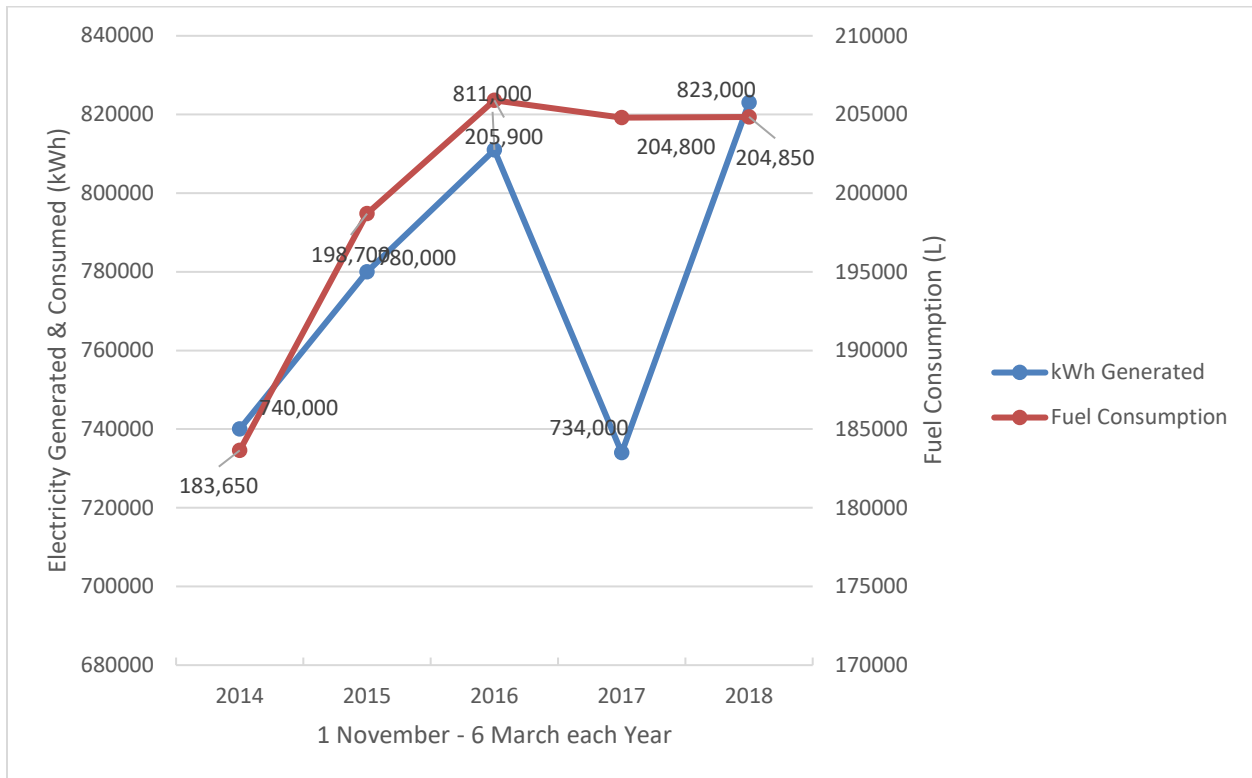
Overview of Activities

- Routine maintenance on Generating Units 1, 2 and 3 was completed
- Routine maintenance on Generator no.1, 2 and 3 battery banks was completed.
- Routine maintenance on Generator no.1 Air Circuit Breaker was completed.
- Routine maintenance on Generator no.1 day fuel tank and pumping system was completed.
- Routine maintenance on Ventilation fans no. 1 and 2 was completed.
- Routine maintenance on Generator no. 2, 3 and control board battery chargers was completed.
- Routine maintenance on Substation no. 2 Neds Beach Road and associated distribution pillars was completed.
- Routine maintenance on Substation no.11 Mountainview and associated distribution pillars was completed.
- Routine maintenance on Substation no.14 CBD and associated distribution pillars was completed.
- Supply load surveys were carried out on Substations no.2 Neds Beach Road, no.11 Mountainview and no.14 CBD along with their associated distribution pillars. Distribution pillars were monitored for their voltage levels. Substations were monitored for maximum demand and voltage levels. All maximum demand and voltage levels in the surveyed areas were within acceptable limits.

Information for Board Members

- Energy demand for the reporting period was 823 000 kWh.
- Fuel consumption for the reporting period was 204850 litres.

- Fuel energy efficiency for the reporting period was 4.01 kWh/L
- Presently there are 109 kW of privately owned solar panels connected to the electrical distribution system.
- Maximum demand for the period was 450 kW on the 6th November.
- There were no powerhouse supply interruptions during the reporting period.
- There was 1 distribution system supply interruption during the reporting period.
 - The supply interruption was the result of an individual customer overload on a sub-circuit circuit breaker.
- 4 new customers was connected to the supply system. There are currently 288 customers connected to the system.
- Electrical Compliance inspections were carried out on the new Airport Terminal and the new Maxwell Residence. Both services have now been connected to the system.



Board Meeting: March 2018

Agenda Number: 5

Record Number: ED18/1697

LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

Chief Executive Officer's Report to March 2018 Meeting of the Board

The following briefing provides an overview of key issues managed by the Board during the reporting period, and their status. It is intended that this document be available to the public as part of the minutes of the meeting. Matters which are subject to confidentiality, business in confidence or legal action are shaded and are not included in the public copy of the report.

Number of items excluded from this public edition:

Business & Corporate Service Report

Reason: Business in Confidence

MATTER	STATUS	ACTION REQUIRED BY BOARD AT THIS MEETING
Air Services	In December 2017, the Minister for Transport announced signing of a contract with QantasLink for provision of air services to the Island for four years from March 2018 to March 2022.	For noting
Handley Review	The final government response to the LHI Land Allocation (Handley) Review was released in November 2017. Action is being taken to implement the review recommendations.	See agenda item 9 (i)
Runway Feasibility Study	The project has been underway since late November 2017. In the first stage, consultants AECOM will investigate future aircraft requirements for the island, plane characteristics, existing runway/site limitations and CASA requirements.	See agenda item 13 (iv)
Rodent Eradication Program	Considerable work has been undertaken in preparation for the implementation of the rodent eradication project. The new permit from the APVMA has not yet been received.	See agenda item 12 (i)
Renewable Energy Project	The exploration of four options to replace the wind turbine component of the renewable energy project has been completed and submitted to ARENA for decision about whether the funding agreement will be varied to enable funding of a revised project.	See agenda item 12 (ii)
Airport Terminal Upgrade	Construction of the Airport Terminal Upgrade was completed at the end of February 2012. The new building is now operational. Landscaping works are still to be completed. The airport terminal will be officially opened on 25 March 2018.	See agenda item 12 (iii)
Grant funding	Assessment of round one of the NSW Government's Stronger Country Communities fund has been completed, with successful projects in the second tranche (including Lord Howe Island) still to be announced. Round two opens on 12 March 2018, with funding applications due by 4 May 2018.	For noting

Prepared: Penny Holloway, Chief Executive Officer

Attachments:

Attachment A: Chief Executive Officer Report – BCS Unit - **Closed**

Attachment B: Chief Executive Officer Report – ECS Unit - Open

Attachment C: Chief Executive Officer Report – IES Unit - Open

Board Meeting: March 2018	Agenda Number: 6	Record Number: ED18/1699
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LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Motor vehicle importation or transfer status report.

RECOMMENDATION

The report is submitted to the Board for information.

BACKGROUND

Since the last Board meeting 16 applications to import or transfer vehicles were determined by the Chief Executive Officer under the 'Vehicle Importation, Transfer and Use Policy':

CURRENT POSITION

There will be an increase of seven vehicles (six of which are trailers) to the island since the last Board meeting:

Applicant	Vehicle Type	Preferred Vehicle	Use	Variation	Comment
Lord Howe Island Board	Toyota Hilux	No	Essential	0	Approved 18/10/2017 Replacement
Lord Howe Island Board	Toyota Hilux	No	Essential	0	Approved 03/11/2017 Replacement
Roads and Maritime Services	Trailer	No	Essential	1	Approved 03/11/2017 subject to conditions
Lord Howe Island Central School	Trailer	No	Essential	1	Approved 08/11/2017 subject to conditions
Lord Howe island Board	Trailer	No	Essential	0	Approved 03/11/2017 Replacement
Somerset	Rav	No	Commercial	0	Approved 24/11/2017 Replacement
Marine Parks	Trailer	No	Essential	0	Approved 06/12/2017 Replacement
Ben Crompton	Trailer	No	Private	1	Approved 27/12/2017 subject to conditions
Amy Hickey	Suzuki Vitara	No	Private	0	Approved 29/12/2017 Replacement
Lord Howe Island Board	Fuel Trailer	No	Essential	0	Approved 08/01/2018 Replacement

Applicant	Vehicle Type	Preferred Vehicle	Use	Variation	Comment
Lord Howe Island Board	Waste Bin Trailer	No	Essential	0	Approved 08/01/2018 Replacement
Capella	Toyota Hilux	No	Commercial	0	Approved 12/01/2018 Replacement
Bradley Wilson	Fuel Trailer	No	Commercial	1	Approved 29/01/2018 subject to conditions
Bradley Wilson	Nissan Utility	No	Commercial	1	Approved 29/01/2018 subject to conditions
Bradley Wilson	Trailer	No	Private	1	Approved 29/01/2018 subject to conditions
Blake Thompson	Trailer	No	Private	1	Approved 05/02/2018 subject to conditions

As at March 2018

Registered Road Vehicles						
Essential	Commercial	Private	Hire	Plant & Equipment	Imported Without Approval	Total
28	89	153	8	26	69	373

At the May 2010 meeting it was requested that further differentiation in the vehicle statistics to identify motor vehicles and motor cycles / scooters and trucks separately be presented. This information is presented below.

Registered Road Vehicles						
Car/Utility	Bus	Motorcycle / Scooter	Truck	Plant & Equipment	Trailers	Total
173	31	50	9	30	80	373

At the June 2016 meeting it was requested that future reports include trends in regards to vehicles imported without approval and clarification that these are vehicles which pre-date the Board approval and monitoring process. There has been a total of 69 vehicles imported without approval:

- 65 vehicles were imported without approval prior to 2014. The majority of these vehicles were trailers.
- One vehicle, a boat trailer, was imported without approval in 2015.
- Three vehicles, all boat trailers, were imported without approval in 2016.

The following table shows further differentiation in the vehicle statistics to identify the types of vehicles that have been imported without written approval.

Vehicles Imported Without Approval – By Type						
Car/Utility	Bus	Motorcycle / Scooter	Truck	Plant & Equipment	Trailers	Total
6	1	12	1	3	46	69

RECOMMENDATION

The report is submitted to the Board for information.

Prepared: Chelsea Holden, Administration Officer

Endorsed: Penny Holloway, Chief Executive

Board Meeting: March 2018	Agenda Number: 8 (i)	Record Number: ED18/1723
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LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Owner's Consent approved under Delegated Authority.

RECOMMENDATION

The report is submitted to the Board for information.

BACKGROUND

The Minister for the Environment has approved delegated authority regarding the issuing of owners consents by the CEO providing:

1. The development value is not more than \$2 million,
2. Does not relate to development for the purpose of a new dwelling, and
3. Complies with any planning instrument in force relating to the Island.

CURRENT POSITION

There were no owner's consent applications determined by the CEO since the last Board meeting.

RECOMMENDATION

The report is submitted to the Board for information.

Prepared: Chelsea Holden, Administration Officer

Endorsed: Penny Holloway, Chief Executive Officer

Board Meeting: March 2018

Agenda Number: 8 (ii)

Record Number: ED18/1726

LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Development Applications determined under Delegated Authority.

RECOMMENDATION

The report is submitted to the Board for information.

BACKGROUND

The Minister for the Environment, under section 80(1) of the Environmental Planning & Assessment Act, issued authority to the CEO to determine development applications providing:

1. The development value is not more than \$150,000
2. No more than 3 written objections are received within the exhibition period; and
3. The application has not been called up for full Board determination by any Board Member. (All Lord Howe Island Board development applications are to be determined by the full Board)

CURRENT POSITION

The following Development applications complied with the above requirements and have been processed by the CEO since the last Board meeting, as detailed below:

DA	Applicant	Site	Proposal	Zone	Decision
DA2018.02	Daniel and Andrea Young	Lot 339 DP1017190	Convert existing garage into additional living space within existing detached habitable living space and add approximately 3 sqm additional new space	Zone 2 Settlement	Approved 27/11/2017 Subject to conditions
DA2018.03	Pauline Skeggs	Lot 358 DP1054109	Installation of wastewater management system	Zone 2 Settlement	Approved 20/12/2017 Subject to conditions

RECOMMENDATION

The report is submitted to the Board for information.

Prepared: Chelsea Holden, Administration Officer

Endorsed: Penny Holloway, Chief Executive Officer

LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

LHI Local Environment Plan (LEP) - Stage 1 Planning Proposal Update

RECOMMENDATION

That the Board note the information contained in this report.

BACKGROUND

The Board's previous Planning Consultants, RPS, prepared a Stage 1 Planning Proposal for amendment of the LHI LEP 2010 in 2016/2017. This Planning Proposal was subsequently lodged with the NSW Department of Planning and Environment (NSW Department of Planning) who chose not to prepare a Gateway assessment and determination at that time. Instead, the Department raised a number of questions and matters for resolution related to the Stage 1 Planning Proposal for the Board's consideration. The aim was to resubmit the amended Planning Proposal to the Department together with the additional information as requested.

All About Planning Pty Ltd (AAP) undertook a review of the earlier draft Planning Proposal in November 2017 including a site view of relevant proposals. The review included suggested revisions to the scope of the Stage 1 work to take into account feedback received from the NSW Department of Planning and the involving consideration of various rezoning proposals by the Board.

Refined Scope of Planning Proposal

Deferral of some items

In discussions between AAP and Board staff, taking into account previous comment from NSW Department of Planning, the following sites/rezoning amendments will be deferred from the original Stage 1 Planning Proposal.

- Site 6 (VCL Transit Hill, Blinky side) – Involves Permanent Park Preserve (PPP) – Will be separately surveyed, gazetted and NSW Department of Planning advised of mapping changes required.
- Site 10 ("Blackburn House" Lease) – Involves PPP - Will be separately surveyed, gazetted and NSW Department of Planning advised of mapping changes required.
- Site 11 (Special Lease, Cnr Lagoon & Old Lagoon Rds) – This proposed rezoning is not required to achieve road widening.
- Site 12 – (L & D Wilson Perpetual Lease, Smoking Tree Ridge Rd) - No rezoning or resurvey needed. Plan of Management for PPP needs to recognize and allow continued use, maintenance etc of existing roads within the preserve.

- An LEP amendment to permit subdivision without a minimum lot size of two detached or attached dwellings on one lot. Will be considered in Stage 2.
- An LEP amendment to permit the new use of a building as a dwelling. Will be considered in Stage 2.
- An LEP amendment to amend the site coverage controls for dwellings. Will be considered in Stage 2.
- Addition of carports as an exempt development item.
Comment: AAP considered that the proposal to exclude garages and other outbuildings from the gross floor area calculations, to exempt carports from the need for some form of consent, whilst also proposing to reduce site landscape area requirements and permitting the creation of smaller lots for dual occupancies, are matters best addressed in the Stage 2 LEP review and as such recommended that these be excluded from the Stage 1 Planning Proposal. It was considered possible that the combination of such proposals has the potential to erode the landscape and environmental quality of the island over time if not analysed and accounted for as part of a broader planning investigation and strategic review.

Addition of some items

Consistent with the Board's November 2017 meeting resolution, the planning proposal for the Lorhiti site (Diane Owens) is to be added as a rezoning site. Additionally, an amendment to the current Foreshore Building Line at Windy Point (near the Airport runway) to reflect the Board's updated 2100 coastline hazard line.

In March 2018, All About Planning (AAP) was formally engaged by the Board to undertake a review of the drafted Stage 1 Planning Proposal and to prepare a new Planning Proposal for issue to the NSW Department of Planning and Environment.

CURRENT POSITION

The Stage 1 Planning Proposal that AAP has been engaged to prepare is to now include the following amendments to the current LEP, being:

- A. An LEP amendment to permit the occupancy of a dual occupancy dwelling by non-family members

This is "Handley" Review recommendation 6 and the Government has agreed to implement this change.

- B. To update the LEP reference to vegetation restoration

Clause 31 of LEP 2010 requires vegetation restoration to be carried out in accordance with the Lord Howe Island Board Vegetation Rehabilitation Plan, adopted by the Board in March 2003. The proposed provision will be re-written to ensure that the Board does not need to update the LEP every time it reviews its Vegetation Rehabilitation Plan.

- C. Include LEP provisions in relation to development near a heritage item, based on the standard template LEP

It is proposed to add an LEP provision to enable the Board to take into account the potential impact of off-site development in the vicinity of a heritage item, which is a standard LEP provision in NSW template LEPs.

- D. To amend the LEP Dictionary definition of three terms, being an Education Facility, Environment Protection Works and Gross Floor Area. (Potentially a fourth definition could be added/amended, in respect of Home Business.)

- E. To include two additional items in Schedule 1 as exempt development, being Roof Mounted Solar Energy Systems and Chicken Pens.
- F. Rezone 9 (was originally 12) sites to reflect their existing use and/or amend mapping anomalies, these sites being (as per description in original Planning Proposal):
 - a. Site 1 - Rezone old powerhouse site from 5 Special Uses to 2 Settlement, Corner Neds Beach Rd and Lagoon Road.



- b. Site 2 - Rezone existing Playground on Lagoon Road from 7 Environment Protection to 6 Recreation OR alternatively, seek to add 'recreation' as a permissible use in the current Environment Protection zone on the lagoon/ocean side of the existing foreshore building line



- c. Site 3 - Rezone part of existing golf club (lagoon side) from part unzoned and part 7 Environment Protection to 6 Recreation OR alternatively add recreation as a permissible use in the Environment Protection zone on the lagoon/ocean side of the existing foreshore building line



- d. Site 4 - Rezone Portion 110 (vacant crown land) near existing runway from 7 Environment Protection to 1 Rural



- e. Site 5 - Rezone Part Portions 291 and 292 adjacent to new powerhouse site, from 7 Environment Protection to 1 Rural



- f. Site 7 - Rezone existing farmland near Milky Way on Part Lot 66, from 6 Recreation to 7 Environment Protection and Part 1 Rural



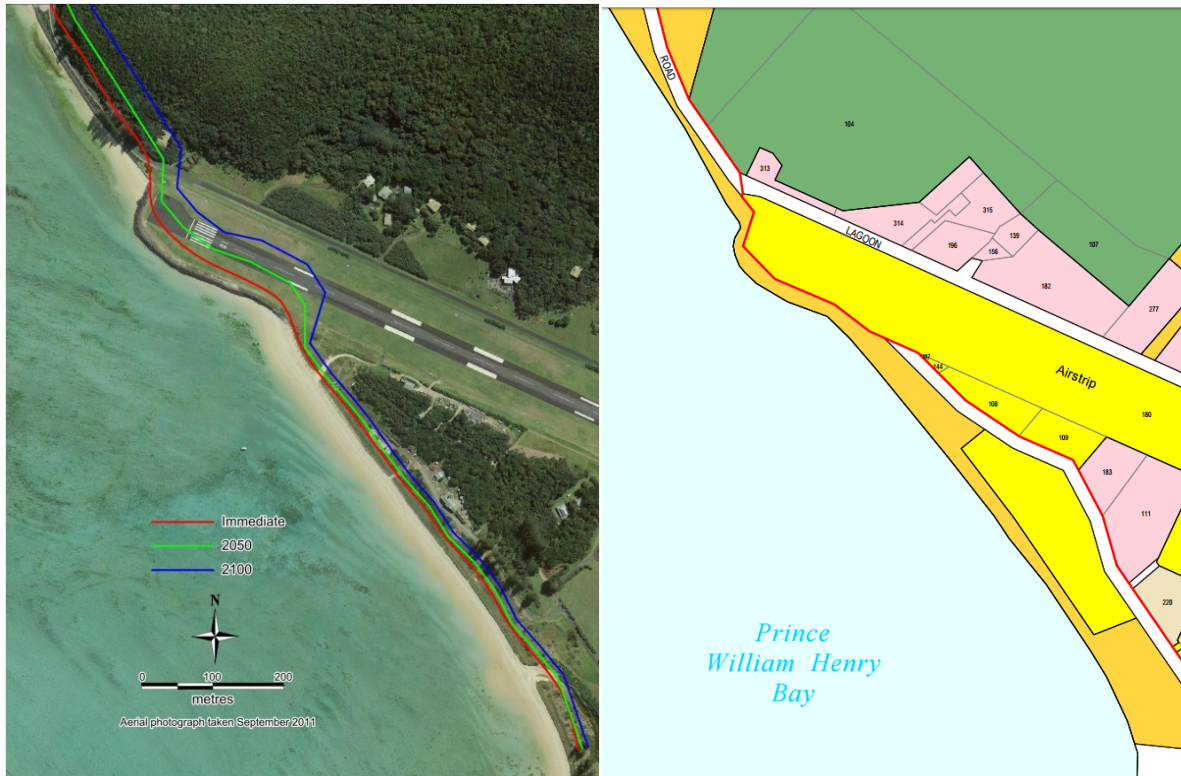
- g. Site 8 - Rezone crown land adjacent to Milky Way from 6 Recreation to Part 7 Environment Protection and Part unzoned (being existing road).



- h. Site 9 - Rezone Lot 174 (Cnr Anderson Road near Lorhiti) from 6 Recreation to 7 Environment Protection



- i. Site 13 – Add Lorhit (Diane Owens) Land Swap as a new rezoning site, as per the November Board resolution
- B. Amend Foreshore Building Line at Windy Point (near the Airport runway) to reflect the 2100 coastline hazard line.



Planning Proposal Statutory Process and Anticipated Timeframe

1. March 2018 - New Draft Planning Proposal prepared by All About Planning (anticipated by the time of the March 2018 Board Meeting) in accord with Department Guidelines
2. March/April 2018 – Informal referral of draft Proposal to the Grafton Regional Office NSW Department of Planning Environment, for their input and engagement with AAP and the Board in respect of any identified upfront key issues.
3. April 2018 - AAP meeting in Grafton with Regional Senior Planning Officer/Team Director (NSW Department of Planning), to discuss amendments and to confirm an agreed approach to key issues
4. April/May 2018 - Request and obtain zone map amendment details from Tamworth Office (NSW Department of Planning)
5. 14/15 May 2018 - Formal endorsement of revised Planning Proposal by the Board
6. May/June 2018 - Formal Lodgement revised PP with NSW Department of Planning Regional Team and formal internal review by the Department
7. June 2018 - Gateway Assessment by NSW Department of Planning Regional Team

8. Timeframe TBA - NSW Department of Planning Gateway Determination either by Regional Director – Craig Diss under delegation or Secretary if no delegation (Secretary (Sydney, previously D-G, currently Caroline McNally). NOTE: The Gateway Conditional Approval if issued, will indicate if any additional studies/community consultation or other additional details are required and an approval timeline
9. Timeframe TBA - AAP/**oard** to obtain additional information/consultation etc
10. Timeframe TBA – AAP to submit a revised/updated planning proposal taking into account the NSW Department of Planning gateway determination conditions, including updated maps if required

NOTE: AAP has enquired with the Department to confirm whether the Board has a statutory planning making delegation to make a new LEP. (It is noted that if they do, the LHIB could still choose not to exercise this delegation.). AAP has also actively sought to confirm a suitable meeting time to run through a draft of the revised Stage 1 Planning Proposal with the relevant Regional Senior Planning Officer.

Preparation of the required LEP zone maps was discussed with the NSW Department of Planning in February 2018 by All About Planning Pty Ltd. The Department advised that map preparation can likely be undertaken by Helen Willis of the NSW Department of Planning's Tamworth office or in the case of the heritage items, possibly the Office of Environment and Heritage's Heritage Branch, using updated site survey and/or other plans and details prepared by the Lord Howe Island Board and/or compiled by AAP.

RECOMMENDATION

That the Board note the information contained in this report.

Prepared: All About Planning – LHIB Consultant Town Planner

Supported: James Lonergan, Manager Environment & Community Services

Endorsed: Penny Holloway, Chief Executive Officer



The Lord Howe Island Land Allocation Review

Final Government Response to the Recommendations

Government response to the recommendations

#	Independent Reviewer's Recommendation	Government Response
1	Retain the present system of land tenure, with most Crown land outside the Permanent Park Reserve held under perpetual or special lease.	Supported
2	Properly police and enforce the residency condition in perpetual leases, with forfeiture as a last resort.	Supported Guidelines will be developed to support the Board in: > assessing applications for suspension in residency condition > monitoring habitual residence of leaseholders > enforcing the residency requirements in the case of 'joint tenants' and 'tenants in common' or situations where there are multiple dwellings on an allotment.
3	Special leases should be granted for 20 year terms with strong covenants to encourage new investment and ensure that the land is fully and properly used.	Supported The Lord Howe Island Act 1953 ('The Act') will be amended to increase the special lease term to 20 years. The addition of covenants can be done without legislative change. Applicants seeking renewal of their expiring special leases or initial grants will be required to lodge draft management plans for the use of the land for designated pastoral, agricultural or horticultural purposes. If successful in their application for a special lease, fully developed management plans will be requested and Lessees will be obliged by strict covenants (attached to the Lease) to make the land productive. Provision will also be made in the special lease for a review of the lessee's performance against the conditions of the lease every five years during the term.
4	Permissive occupancies for business purposes, principally as boat sheds, which are currently revocable at will (s31A(3)), should be granted for fixed terms of 5 years, to increase security of tenure and encourage investment.	Not supported This proposal is inconsistent with amendments to the Crown Lands Act 1989 made in 2005 to replace permissive occupancies with licences. Permissive occupancies are no longer issued over Crown land in NSW, having been replaced by licences. Permissive occupancies cannot be transferred and can be terminated by the Minister at any time. By comparison in certain circumstances a licence may be transferred, and may permit use or occupation for a specified or unspecified period of time. Investigations will be undertaken to explore the option of replacing permissive occupancies with licences to align the management of Crown land on Lord Howe Island with the current provisions of the Crown Lands Act.

#	Independent Reviewer's Recommendation	Government Response
5	Restrictions on the enforcement of mortgages of leases should be relaxed to make leases more acceptable to lenders as security and mortgages to corporations should not require the Minister's consent.	<p>Supported</p> <p>It was reported that mortgage providers do not regard leases as satisfactory security because of the restrictions on the enforcement of mortgages if the borrower defaults. The Act will be amended to remove the requirement for corporate mortgagees to obtain Ministerial consent before entering into a mortgage, entering into possession or foreclosing a mortgage.</p>
6	The restrictions on who can occupy a dual occupancy dwelling should be relaxed.	<p>Supported</p> <p>Currently the Lord Howe Island Local Environmental Plan (LEP) requires that the new dual occupancy dwelling is occupied by the 'children, siblings, parents, grandparents or grandchildren' of those proposing to live in the existing dwelling. The LEP will be amended to remove this restriction, allowing for occupancy by those other than family members in accordance with the Act.</p>
7	Subject to pending applications for approval of a Category A dwelling the remaining quota for new dwellings under the LEP should be reserved for dual occupancy dwellings.	<p>Not supported</p> <p>The Lord Howe Island Dwelling Entitlement and Allocation Policy will be updated in consultation with the community. It is proposed that:</p> <ul style="list-style-type: none"> > A register of interest in purchasing a building block and/or obtaining a dwelling quota be established. > This may encourage existing holders of large perpetual leases to subdivide their land and offer it for sale and will allow the Board to assess the true level of demand for housing. > Eligibility criteria will be established for allocating dwelling entitlements, with the criteria prepared in consultation with the community.

#	Independent Reviewer's Recommendation	Government Response
8	<p>The LEP should be amended to make it easier to subdivide perpetual leases with 2 existing detached dwellings erected before 28 October 2005 to increase the saleable housing stock without further building development, or use of the quota.</p>	<p>Supported</p> <p>There are perpetual leases occupied by two dwellings, erected before 28 October 2005, which cannot be subdivided because the LEP requires minimum lot sizes of 2500 square metres. As a result, one of the dwellings can be sub-let with the consent of the Minister but cannot be sold separately.</p> <p>The minimum subdivision principles have been included for a number of reasons including: protecting island landscape and visual character; protection of significant native vegetation within the settlement area; provision of open space to residents; and adequate area for effluent disposal.</p> <p>The housing stock available for purchase on the Island will be increased (without additional building development) by permitting subdivision of such leases where the Board is able to justify that a subdivision will not negatively impact on any of the above.</p> <p>The Department of Planning and Environment, together with LHI Board, will undertake further investigations to determine the most appropriate standards and conditions and amend the LEP accordingly.</p>
9	<p>There should be no more Category B allotments, and the 3 existing ones should revert to special lease land where substantial restitution by both parties is practicable and the former leaseholder agrees. Where restitution is not practicable or the former leaseholder does not agree, the allotment or allotments should be allocated by a revised ballot process open to Islanders deemed eligible.</p>	<p>Supported with amendment</p> <p>Given the extent of community concern with how the Category B process was instigated, the Government supports the three existing category B lots reverting to their original lease type if restitution can be achieved within a fixed timeframe (3 months). This process should be supported by an independent mediator. However, if restitution is not possible, the allotments should remain as Category B and be allocated via a new ballot process with revised criteria.</p> <p>The option to create future dwelling allotments from Special Lease land will be maintained (section 22(8) of the Act). However, new guidelines for the identification of land suitable for future housing and new ballot criteria will be prepared in close consultation with the community.</p>

#	Independent Reviewer's Recommendation	Government Response
10	The provisions in the Act dealing with the succession to perpetual leases on death (s23(10)-(13)) should be rationalised, clarified and extended to surviving spouses and de facto partners.	<p>Supported</p> <p>The amendments will predominately seek to clarify the provisions within the Act. The only amendments that would be considered a departure from the current Act are:</p> <ul style="list-style-type: none"> > Fixing a reasonable time for the administration of the estate to be completed (2 years - reflecting current policy) and place the onus on the legal personal representative (not the Board) to apply for more time if required. > Including spouse or defacto partner (of the deceased lease holder) in the class of beneficiaries who can apply under section 23(11) of the act to be deemed an Islander.
11	The existing exemption from land tax for all leases on the island (Land Tax Management Act s 21C(6)(h)) should be removed to allow that Act to operate on the island in the normal way. The Chief Commissioner and the Board should be permitted to exchange information to ensure that leaseholders only claim one principal or usual place of residence.	<p>Supported</p> <p>The NSW Government will amend the Land Tax Management Act 1956 and the Taxation Administration Act 1996 to remove the existing exemption from land tax and to permit the exchange of information between the Chief Commissioner and the Board.</p>
12	The Board should comply with its statutory duty under s 301(1) of the Duties Act by requiring grants, transfers and mortgages of leases to be stamped or marked exempt before they are registered by the Board.	<p>Supported</p> <p>There is no exemption in the Duties Act for dutiable instruments dealing with land on the island, but in practice the Board has not enforced the payment of duty on the grant, transfer, or mortgage of leases before registering such instruments.</p> <p>The Board, which maintains a register of leases, will give notice to the community and then in compliance with the Duties Act, require dutiable instruments to be stamped or marked as exempt before they are registered.</p>
13	In the interest of transparency and accountability, should recommendations 11 and 12 be adopted, provision should be made for the additional taxation revenue, raised from the island in these ways, to be returned to the island by being credited to the Lord Howe Island Account (s 34).	<p>Not supported</p> <p>This practice would be inconsistent with standard practice in NSW. The spending of stamp duty and land tax revenue raised in particular areas is never "quarantined" to those areas.</p>

#	Independent Reviewer's Recommendation	Government Response
14	<p>The legal framework under which the Board and the Minister consider applications for consent to the transfer of perpetual leases, should be strengthened to prevent vendors evading the maximum price provision, by requiring purchasers to purchase their furniture and other chattels at prices above their fair market value, and to prevent vendors withdrawing their lease from sale when an Islander is willing to purchase the lease.</p>	<p>Supported</p> <p>The Lord Howe Island Regulation will be amended to require applicants to lodge either a certified copy of a contract, or a draft contract, without any provision requiring the purchaser to purchase any chattels from the vendor. The vendor and purchaser will be free to bargain for the sale of the furniture and chattels, but without any compulsion.</p> <p>The Board's Transfer of Perpetual Lease policy will be amended to reflect these proposed amendments to the Regulation.</p>
15	<p>In the interests of transparency and accountability, the Board should maintain and publish in its Annual Report to Parliament (s36A) separate accounts for its functions as custodian and manager of the Permanent Park Reserve, and its functions as the local council for the Settlement. The island community cannot reasonably be expected to pay for the upkeep of the Park out of its own resources.</p>	<p>Supported</p> <p>The Act will be amended to require disclosure of the profit and loss balance sheets of the two functions in the LHI Board Annual Report.</p>
16	<p>Miscellaneous recommendations by way of statute law revision which are not thought to raise any question of principle.</p>	<p>Supported</p> <p>These changes would seek to clarify non-contentious areas of the Act and would only be made if other changes to the Act (as proposed above) are made.</p>



Land Allocation (Handley) Review – Implementation Plan

Recommendations (see: Final Government Response)	Tasks to be completed	Responsibility	Timeline
Amendments to the <i>Lord Howe Island Act 1953</i> (Recs: 3, 5, 10, 15, 16)	This requires engaging Parliamentary Counsel and drafting of amendments to the Act, prior to the draft legislation going to NSW Parliament	Office of Local Government	This has commenced but is a long process, so will not be completed until the end of 2018
Amendments to the <i>Lord Howe Island Regulation 2014</i> (Rec: 14)	This requires engaging Parliamentary Counsel and drafting of changes to the Regulation before submission to the Minister for the Environment.	Office of Local Government	This process should be completed by the second half of 2018
Amendments to other pieces of legislation (Rec: 11)	This requires the support of other State Ministers with responsibility for the particular legislation. Draft legislative amendments must be submitted to NSW Parliament.	Office of Local Government	This is a long process and will not be completed until the end of 2018
Amendments to the Lord Howe Island Local Environment Plan (LEP). (Recs: 6, 8)	This will be part of the comprehensive review of the LEP to commence during 2018.	LHI Board Planning consultants	This will commence in mid-2018 and be completed in early 2019
Development of Policies, Guidelines and Information Sheets (Aspects of Recs: 2, 13, 14, 3, 9)	A number of policies, guidelines and information sheets will need to be developed.	LHI Board	This will commence at the beginning of 2018 and be completed by second half of 2018
Remedial action to be taken (Rec: 9)	This relates to the undoing of the Category B process of land allocation. This will require the identification and appointment of an independent mediator and work with affected lease-holders.	LHI Board Independent mediator	An independent mediator will be appointed in early 2018. The mediation process will be completed by mid-2018.

LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

LHI Land Allocation (Handley) Review – Implementation Report

RECOMMENDATION

It is recommended that the Board note the report.

BACKGROUND

In March 2014 the Government appointed the Hon Ken Handley AO QC to conduct a review of land allocation and tenure arrangements for Lord Howe Island and provide advice to the Minister for Environment on options for reform.

The purpose of the review was to identify options for new land allocation methods and forms of tenure which maintain and protect the unique environmental and cultural values of the Island as well as being transparent and fair, financially sustainable and recognise the needs of current and future generations of Islanders.

Mr Handley undertook extensive consultation on the Island and at the end of 2014 provided to Government his final report, containing 16 recommendations.

The Government released the Discussion paper and preliminary Government Response in October 2016. The final Government Response was released in November 2017 (Attachment B).

The LHI Board has responsibility for implementing the recommendations of the Review in accordance with the Government Response.

CURRENT POSITION

An implementation plan for the Review outcomes is summarised in Attachment A. The LHI community will be involved at all stages of the implementation of the recommendations except for the undoing of the Category B process, which will only involve the affected leaseholders.

Progress has been made on implementing the recommendations as follows:

1. Legislative changes

The necessary changes to the *Lord Howe Island Act 1953* have been referred to NSW Parliamentary Counsel. This is being managed by the Office of Local Government.

2. LHI Local Environment Plan amendments

This will form part of Stage 2 of the review of the LHI Local Environment Plan. This recommendation has been referred to the Board's independent planning consultants for action.

3. Policies and guidelines

The *Suspension of Residency Policy* has been developed and adopted by the Board. Further policies and guidelines to be developed include:

- Enforcement of the residency condition of perpetual leases
- Guidelines for the identification of housing lots suitable for development

4. Category B reversal process

An independent experienced mediator has been engaged through a formal request for quotation from mediators listed on the NSW Government Panel. The leaseholders affected by Category B land will be formally notified of the independent mediation process before the end of March 2018.

The terms of reference for a mediator are:

1. To gain an understanding of the history and issues associated with the land, which is the subject of the Category B process.
2. To gain an understanding of the views and concerns of the impacted leaseholders.
3. To implement the Government's response to recommendation 9 of the Handley Review by working with the impacted leaseholders and the Board to achieve an agreed outcome for each parcel of land subject to the Category B process.
4. Delivery of a report on the outcome of the mediation process.

The mediation process is as follows:

1. The mediation process will take a maximum of three months from the time of initiation.
2. Initiation is the point at which the mediator makes formal contact with affected leaseholders.
3. The affected leaseholders will be notified by the Board of the mediation process, the appointed mediator and the timeline to achieve an agreed outcome.
4. The mediation process will take place on Lord Howe Island in a neutral location.
5. The mediator will first meet separately with the affected leaseholders and Board representatives.
6. The mediator will then bring the parties together to work through the land issues to an outcome agreeable to all parties.
7. The Lord Howe Island Board will consider, endorse and take all necessary action to implement the agreed outcomes from the mediation process.

RECOMMENDATION

It is recommended that the Board note the report.

Prepared: Penny Holloway, Chief Executive Officer

Attachments:

Attachment A: Land Allocation (Handley) Review – Implementation Plan

Attachment B: The Lord Howe Island Land Allocation Review – Final Government Response to the Recommendations

LORD HOWE ISLAND BOARD POLICY

TITLE	Transfer of Perpetual Lease Policy		
DATE ADOPTED	March 2014	AGENDA ITEM	10 (v)
CURRENT VERSION	March 2014	AGENDA ITEM	10 (v)
REVIEW	5 years	FILE REFERENCE	TE0003 / TE0001
ASSOCIATED LEGISLATION	<i>Lord Howe Island Act 1953 (NSW)</i> <i>Lord Howe Island Regulation 2004 (NSW)</i>		
ASSOCIATED POLICIES	Long-term Accommodation Policy		

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1 Introduction

1.1 Title and Commencement

This policy is titled the *Lord Howe Island Board Transfer of Perpetual Lease Policy (the Policy)*. The policy was adopted by the Lord Howe Island Board (the Board) in March 2014 to replace the *Advertising the Transfer of Perpetual Leases to Non Islanders Policy* which was last revised in 2007.

1.2 Purpose of the Policy

The purpose of the Policy is to set out a process for the transfer of perpetual leases on Lord Howe Island (the Island) in accordance with the requirements of the *Lord Howe Island Act 1953* (the Act). The policy also establishes a framework to guide the Board's consideration of the requirements in section 23(4) of the Act relating to applications to transfer perpetual leases to a person other than an Islander (non- Islander).

1.3 Objectives and Coverage of the Policy

The objectives of this Policy are to:

1. Set out processes in relation to the transfer of perpetual leases that satisfy the requirements and objectives of the Act and the *Lord Howe Island Regulation 2014* (the Regulation).
2. Establish a framework to guide the Board's consideration of applications for the transfer of perpetual leases to non-Islanders.
3. Guide the conduct of applicants, interested islanders and the Board in relation to applications for the transfer of perpetual leases.
4. Establish a framework for fair and transparent negotiations in relation to the transfer of perpetual leases to non-Islanders.

Whilst the Board must at all times comply with the Act and Regulations, it should not apply the Policy inflexibly. In circumstances where the Board considers it appropriate to depart from the Policy, the Board should document the circumstances and its reasons for the departure.

1.4 Background to the Policy

In accordance with section 16 of the Act, all land on Lord Howe Island is vested in the Crown. In accordance with section 21 of the Act, the Minister may lease vacant Crown lands (of 2 hectares or less) in perpetuity for the purpose of residence to an Islander (as defined in section 3 of the Act). Applications for the transfer or subletting of perpetual leases on Lord Howe Island can be made under section 23 of the Act. Section 23(3) of the Act states:

The Minister may consent to the transfer (not being a transfer referred to in paragraph (a) or (b) of subsection (2)) or subletting if the Board so recommends, or the Minister may at his or her discretion refuse consent.

The Act makes particular provision in relation to applications for transfer to a non-Islander. In accordance with section 23(4), the Board may only recommend that the Minister consent to a transfer or subletting where it is satisfied that no Islander desires and is in a position to take the transfer.

Section 23(4) of the Act states:

The Board shall have an absolute discretion to recommend the granting or refusal of any application for consent under this section, but shall not recommend the granting of consent to a transfer or subletting to any person other than an Islander unless satisfied that there is no Islander who desires and is in a position to take a transfer or sublease, as the case may be, of the lease.

Under section 23(2) of the Act, a transfer of a lease to a non-Islander (not being a transfer by way of mortgage) will not be valid unless the approval of the Governor has been obtained.

Section 23(1) of the Act provides that the consideration for the transfer of a lease shall not exceed the

fair market value of the interest of the transferor in the unimproved land the subject of the lease, the fair market value of the improvements on the land at the commencement of the lease and of any improvements subsequently effected with the Board's approval. Such fair market values (and any amount for good will) shall be as determined by the NSW Valuer-General.

The Act also establishes the functions, duties and responsibilities of the Board. The Board is required to act in accordance with the provisions of the Act and is guided by the Board's charter and the objectives of the Act: see section 5(2).

2 Application to Transfer a Perpetual Lease

Applications to transfer a lease must be made in accordance with the Regulation. The lease holder must pay the prescribed fee to the Board: see clause 39 and Schedule 2. The application must:

- a) Be in the prescribed form, being Form 5, with all information fully completed;
- b) Be accompanied by a formal valuation of the interest of the leaseholder prepared by the NSW Valuer General in accordance with the Act, in particular section 23(1);
- c) If a written agreement for sale has been entered into - be accompanied by a duly certified copy of the agreement and lodged within 3 months after the date of execution of the agreement: see clause 39(2) of the Regulation; and
- d) If the application is for consent to transfer part only of the land comprised in a lease - be accompanied by a sketch of the proposed subdivision of the land: see clause 39(3) of the Regulation.

2.1 Application to Transfer a Perpetual Lease to a Non Islander

From time to time, the Board receives an application to transfer a perpetual lease to a person who is not an Islander or able to be deemed an Islander under the Act. Section 23(4) of the Act provides that the Board shall have absolute discretion to recommend the granting or refusal of any application for consent to the Minister, except that the Board should not recommend that consent be granted for a transfer of a lease to a non-Islander unless the Board is satisfied that there is no Islander who desires and is in a position to take the transfer of the lease or sublease, as the case may be.

In the case of an application to transfer a perpetual lease to a non-Islander, in addition to the matters referred to in section 2 of the policy, the application must also:

- a) Include supporting information demonstrating that, prior to submitting the application, the lease holder advertised on the Island that the lease was available for transfer at the fair market value and that good faith negotiations were progressed with any Islander who expressed interest interested in taking the transfer; and
- b) Demonstrate how the proposed (non-Islander) transferee would satisfy the requirements of the Act in relation to perpetual leases, including in particular the condition in s 21(7) of residence on the lease.

Section 8 of the Policy outlines the process to guide the Board in determining whether an Islander desires and is in a position to take the transfer of lease where it has received an application to transfer to a non-Islander. All applications to transfer a perpetual lease to a non Islander will be advertised by the Board in accordance with the Policy for a period of 28 days in all local newspapers, on the Board internet website, by way of notice to all residents on the island, and by way of notice on all Board public notice boards.

2.2 Transfer a Perpetual Lease by way of Mortgage

All land on the Island is vested in the Crown. Dealings in respect of land on the Island are dealt with in the same manner as land under the “Old System” of land title. A mortgage of a perpetual lease involves a transfer of the lease to the bank or other financial institution mortgagee. The consent of the Minister is required in respect of any such mortgage, but the non-Islander status of the mortgagee is not an impediment to the giving of consent or the mortgage itself: see section 23(2) of the Act. No consent is required to retransfer a lease by way of a discharge of the mortgage: see also section 23(2).

2.3 Bequeathing a Perpetual Lease in a Will

A perpetual lease may be inherited, and the lease taken up by an Islander. The Minister may consent to the transfer on the recommendation of the Board.

Where under a will a perpetual lease devolves beneficially upon a lineal descendant who is not an Islander, that person shall be deemed to be an Islander if application is made for his or her registration as a holder of the lease not later than 2 years, or such longer period as the Minister may in a particular case approve, after the death of the lessee. A lineal descendant is a child, grandchild, great grandchild etc of the deceased.

If a perpetual lease devolves under a will or intestacy upon a person who is not an Islander or a lineal descendant of the deceased leaseholder, the person is not automatically entitled to take up the lease.

Upon the grant of probate the executor, as the personal representative of the deceased, owns the property of the deceased by the operation of law. No consent is required from the Board for this to occur and accordingly Form 5 is not relevant as it relates to an application to transfer a lease pursuant to Section 23(2).

The Act allows for the executor or administrator of the estate to hold a perpetual lease for the purpose of residence for a period stipulated by the Minister (section 23(10)(a)) to enable the executor to either obtain a certificate from the Minister that they are entitled to hold the lease; or to sell and transfer the lease (section 23(10)(b)). The provisions of section 23(4) of the Act are relevant for the purposes of determining entitlement to be granted a certificate by the Minister pursuant to section 23(10)(b) to hold the lease.

Neither the Act or the Regulation prescribe the process that must be followed for applying to the Board to recommend to the Minister for a certificate of eligibility to hold the lease for the purposes of section 23(10)(b). In order to effect this process the executor should write to the Board requesting that a recommendation is made to the Minister permitting them to hold the lease pursuant to section 23(10)(a) of the Act.

Section 23(10)(a) of the Act restricts the length of time that they are permitted to hold the lease to *“such period after the death of the testator or intestate as the Minister on the recommendation of the Board may permit.”*

A maximum of 2 years from the date of probate is a reasonable period of time to enable an executor to either apply to the Board for a certificate from the Minister that the beneficiary is entitled to hold the lease or to sell and transfer the lease pursuant to section 23 (10)(b).

Should a beneficiary wish to hold the lease they may apply to the Board to recommend to the Minister for a certificate that they are eligible to hold the lease on the basis of either:

- a) Demonstrating that they are eligible to hold the lease by virtue of being Islanders or being declared Islanders (section 3); or

Generally, to be eligible to hold a lease in perpetuity for the purpose of residence a person must demonstrate that they are Islanders as defined by the Act (section 3(1)) or a lineal descendant of the deceased (that is a child, grandchild, great grandchild etc) (section 23(11)).

On recommendation of the Board made in special circumstances, the Minister may, by order published in the Gazette, declare a person in whom a lease has devolved beneficially (and who is not an Islander or lineal descendant of the deceased leaseholder) to have acquired the status of an Islander: see section 3(1)(a) of the Act.

- b) As non Islanders they could apply for a certificate to hold the lease on the basis that there are no Islanders who desire and are in a position to take a transfer of the lease (Section 23(4)).

In considering an application to grant a certificate, the Board shall determine whether there is any Islander who desires and is in a position to take a transfer of the a lease in accordance with section 7 of the Policy. If no Islander desires and is in a position to take a transfer of the lease, the Minister may, on recommendation of the Board, grant a certificate.

Should the application for a certificate be successful then a beneficiary may apply for the lease to be transferred to them following the usual process for the transfer of leases (section 23) noting that should the certificate be issued on the basis of option ii. The approval of the Governor must be obtained (section 23(2)).

3 Board Decision-Making Processes in General

3.1 Transfer to Any Person/s

Section 21(7) of the Act provides that a condition of residence attaches to all perpetual leases that is to be performed by the holder or sublessee of the lease. Section 2 of the Act defines reside and residence to mean “a residing by the person referred to in the context continuously and in good faith on the land indicated by the context as his or her usual home, without other habitual residence.” It is important that the ability of any proposed transferee/s to comply with this requirement be assessed when considering applications to transfer a lease.

The Board should consider the circumstances of all proposed transfers and, if necessary, require any proposed transferee/s to complete a statutory declaration stating that, if the proposed transfer is approved, they intend to reside on the subject lease and they know of no circumstances currently existing that would preclude their taking up residence within a reasonable period as agreed by the Board.

This requirement will not be necessary in all cases e.g. where an exemption from the residency condition already applies or may be considered, however any such arrangements should be agreed prior to the transfer being recommended for the Minister’s consent (see also LHIB *Suspension of Condition of Residency on Perpetual Leases Policy*).

3.2 Transfer to Islanders

In accordance with section 21 of the Act, the Minister may lease vacant Crown lands, of 2 hectares or

less, in perpetuity for the purpose of residence to an Islander (as defined in s 3 of the Act).

The Minister may approve or refuse the grant of a lease, but the Minister can only grant consent to a transfer if the Board so recommends: sections 21(5) and (6). However, notwithstanding that the Board recommends consent to the transfer, the Minister may still exercise discretion to refuse consent.

The Board will consider the application in accordance with the Act. If the Minister approves the transfer, the leaseholder shall submit the prescribed form, being Form 6, for the lodgement of transfer of a lease, and the Register of Leases shall be updated by the Board to record the transfer.

3.3 Transfers to Non Islanders

In the case of applications which propose the transfer of a perpetual lease to a non-Islander, this Policy contains additional particular provisions:

- a) First, the Board must satisfy itself before recommending that the Minister consent to an application to transfer a lease to a non-Islander that there is no Islander who desires and is in a position to take a transfer of the lease – as to which see section 7 below; and
- b) Second, the Policy provides for specific procedures in relation to advertising applications to transfer a perpetual lease to a non-Islander, and decision-making by the Board – as to which see section 8 below.

Where the application proposes the transfer of a perpetual lease to a non-Islander, the Board shall have “absolute discretion” in making its recommendation to grant or refuse the application, except that the Board cannot recommend to the Minister that consent be granted unless the Board is satisfied that there is no Islander who desires and is in a position to take the transfer of the lease: section 23(4).

The Minister may approve or refuse the transfer of a lease, but the Minister can only grant consent to a transfer if the Board recommends so. However, notwithstanding that the Board recommends that the Minister consent to the transfer, the Minister may still exercise discretion to refuse consent.

If the Minister consents to the transfer, the Governor’s approval must also be obtained for the transfer to a non-Islander (other than by way of mortgage to a financial institution) to be valid. On approval by the Governor, the leaseholder shall submit the prescribed form, being Form 6, for the lodgement of transfer of a lease, and the Register of Leases shall be updated by the Board to record the transfer.

The decision by the Board to recommend approval or refusal of an application to transfer a perpetual lease to a non-Islander should not be made arbitrarily or without sound reason. The Board must always make the decision having regard to the objectives and purposes of the Act, and must act bona fides and comply with administrative law principles.

Further, as noted in section 1.3 above, whilst the Board must at all times comply with the Act and Regulations, it should not apply the Policy inflexibly. In circumstances where the Board considers it appropriate to depart from the Policy, the Board should document the circumstances and its reasons for the departure.

3.4 Processes following Approval of a Transfer

In accordance with the Regulation, a transfer of whole or part of a perpetual lease must be lodged at the Island Office of the Board in the prescribed form (Form 6), and must be accompanied by the relevant fee: clause 40(2). The transfer must be executed by both the transferor and the transferee:

clause 40(3).

A lease that is transferred remains subject to all conditions not complied with at the time of transfer and to all forfeitures incurred: clause 41.

4 Determining Whether There is an Islander Who Desires and is in a Position to Take a Transfer of a Perpetual Lease

The Board must satisfy itself before recommending that the Minister consent to an application to transfer a lease to a non-Islander that there is no Islander who desires and is in a position to take a transfer of the lease. In determining this, the Board should consider amongst other relevant matters:

- a) Whether the procedures in section 8 of the Policy in relation to advertising applications to transfer to non-Islanders have been followed; and
- b) Where the Board has advised the leaseholder of any Islander potentially interested in taking the transfer, whether there has been a genuine opportunity for that Islander to negotiate with the leaseholder to take the transfer.

In considering whether there has been a genuine opportunity for any interested Islander to negotiate with the leaseholder to take the transfer, the Board may consider a range of matters, including:

- a) Whether the leaseholder has:
 - Sought genuinely and in good faith to negotiate the transfer of the lease to an interested Islander for fair market value as determined by the NSW Valuer-General or for any lesser amount (noting that the Valuer-General's valuation is a cap on the transfer price not a minimum price);
 - Had regard to the interests of any interested Islander.
- b) Whether the interested Islander has:
 - Acted reliably in any representations about their capacity to take the transfer of the lease and to fulfil any offer made on the lease;
 - Sought genuinely and in good faith sought to negotiate the transfer of the lease for a fair and reasonable price (noting that the fair market value is as determined by the NSW Valuer-General);
 - Had regard to the interests of the leaseholder.

The Act does not place any specific obligations on the leaseholder and any interested Islander in how they conduct their negotiations. However, the Board may consider how the leaseholder and Islanders have conducted their negotiations in determining whether it is satisfied that there is no Islander who desires and is in a position to take a transfer of the lease.

Indicators of whether the parties have engaged in good faith negotiations may include:

- a) Unreasonable delay in initiating communication in the first instance;
- b) Unexplained failure to respond to correspondence, telephone calls or otherwise communicate with the other parties within a reasonable time;
- c) Failing to respond to reasonable requests for relevant information within a reasonable time;
- d) Failing to follow up a lack of response from the other parties;
- e) Failing to take reasonable steps to facilitate and engage in discussions with the other parties.

5 Specific Procedures in Relation to Advertising Applications to Transfer a Perpetual Lease to a

Non Islander and Decision-Making by the Board

Unless otherwise provided for under this Policy, the Board, the leaseholder and any non-Islander interesting in taking a transfer of a perpetual lease shall comply with the following procedures once an application to transfer to a non-Islander has been received by the Board:

- a) Notice of the application to transfer will be advertised by the Board:
- In all local newspapers circulating on the Island;
 - On the Board internet website;
 - By way of notice by post to all residents on the Island (householder); and
 - By way of notice placed on all Board public notice boards on the Island.

The advertisement shall include but not be limited to the following details:

- The name of the leaseholder/s and proposed transferee/s;
 - The lease number and lease area;
 - The value of the proposed transfer.
- b) The notice will give Islanders twenty eight (28) days to make a submission to the Board indicating that they desire and are in a position to take a transfer of the lease.
- c) All written submissions to the Board will be assessed by the Chief Executive Officer who will advise the Board whether any Islander has made a submission indicating that they desire and are in a position to take a transfer of the lease.
- d) For the purposes of this policy, the Board will determine that an Islander desires to take up a lease if:
- In the case of an application for transfer by sale, the Islander provides within the prescribed time a statement of intent to negotiate the transfer of the lease for a fair and reasonable price;
 - In the case of an application for a sub-lease, the Islander provides within the prescribed time a Statutory Declaration that they will, if required to by the leaseholder, for the period of the sub-lease, pay all lease fees, and any other fees and charges for which the leaseholder may be liable in relation to the lease.
- e) Where the Board determines that one or more Islander desires to take up the lease, the Islander/s will be provided with the Valuer-General's valuation for the property, and given twenty-eight (28) days, or some other reasonable period agreed to by the Board (**the prescribed period**), to engage in and finalise negotiations with the leaseholder for the transfer of the lease.
- f) The current leaseholder will be informed in writing if any Islander desires to take a transfer of the lease, and requested to engage in negotiations with the interested Islander/s for the transfer of the lease in accordance with the policy.
- g) The Board will proceed to determine the application to transfer:
- Where the Board does not receive any submission from an Islander indicating that they desire and are in a position to take a transfer of the lease; or
 - Where an Islander does not finalise negotiations for the transfer of the lease within the prescribed period; and
 - Where the leaseholder has demonstrated that the requirements of the Policy have been satisfied.

As noted in section 6.2 above, the decision by the Board to recommend approval or refusal of an application to transfer a perpetual lease to a non-Islander should not be made arbitrarily or without sound reason. The Board must always make the decision having regard to the objectives and purposes

of the Act, and must act bona fides and comply with administrative law principles.

The Board will not initiate the procedures in 1 to 7 above in the following circumstances:

- a) Where the application to transfer is by way of mortgage and the lease will be held for that purpose by a bank or other financial institution mortgagee.
- b) Where an Islander or leaseholder has applied to have a spouse who is not an Islander included as a lessee on their lease, provided that the spouse resides on the subject lease, and has resided there for a period exceeding twelve (12) months prior to the application being made.

6 Surrender of a Perpetual Lease

An instrument of surrender of a lease under section 22A of the Act must be lodged at the Island Office of the Board in the prescribed form (Form 7), and must be signed by the lessee: clause 42 of the Regulation.

7 Register of Leases

The Board will keep a register containing particulars of leases under the Act. The register is to be kept available at the Island Office of the Board for inspection by members of the public (on payment of a fee, if any, fixed by the Board under section 15 of the Act: see clause 45 of the Regulation.

8 Right to Vary or Revoke

The Board reserves the right to vary or revoke this Policy at any time following consultation with relevant interested parties.

9 Attachment: Form 5 – Application for Consent to Transfer a Lease or Part of a Lease or to Sublet a Lease

Form 5

Application for consent to transfer a lease or part of a lease or to sublet a lease

(Clause 39 (1))

Lord Howe Island Act 1953, section 23

RECEIVED the sum of \$ _____, being the fee required with this application.

Receipt No.

Date: / /

.....
Administration Officer, Lord Howe Island Board

Pursuant to section 23 of the Lord Howe Island Act 1953,

I, *[full name]*

of *[address]*

the holder of the lease(s) specified in Schedule 1, apply for the consent of the Minister (*and the approval of the Governor*) (*where required*) to transfer such lease(s) or part(s) of such lease(s) by way of

(sale, mortgage)

or sublet such lease(s) *[give particulars of subletting]*

.....
to *[proposed transferee or sublessees]*

of *[address]*

Declaration marked "A" has been made by me.

I enclose a certified copy of the original agreement or contract for the sale of such lease(s) or part(s) of such lease(s) and apply for approval of that agreement or contract. *[Strike out if there is no written agreement or contract]*

I also enclose a sketch showing the subdivision line or lines and indicating the part(s) of the lease(s) proposed to be transferred. *[Strike out if it is proposed to transfer whole of lease(s)]*

Schedule 1

Class of Lease (Perpetual or Special)	No of Lease	Area	Portion No

.....
Signature of person proposing to transfer or sublet:

Address to which notices are to be sent:
To the Chairperson,
Lord Howe Island Board
Lord Howe Island NSW 2898

Declaration “A” by persons proposing to transfer or sublet

I, *[full name]*

of *[address]*

being the holder of the lease(s) specified in Schedule 1, solemnly declare and affirm that the answers to the questions in Schedule 2 are correct in every particular.

Schedule 2

1	What is the date of your birth?	
2	What are your reasons for wishing to transfer your lease(s) or part(s) of such lease(s) or sublet your lease(s)? State fully.	
3	Are there any improvements on the land proposed to be transferred? Give brief particulars and estimated values of the improvements.	
4	What is the amount: (a) of the consideration agreed on? (b) of the sum for goodwill included in the consideration?	(a) (b)
5	Have you made any agreement or contract for the sale of the lease(s) or part(s) of such lease(s)? If so, a certified copy should be lodged with this application.	
6	Is the person to whom you propose to transfer your lease(s) or part(s) of such lease(s) or sublet your lease(s) an Islander?	
7	If the person to whom you propose to transfer your lease(s) or part(s) of such lease(s), or sublet your lease(s), as the case may be, is not an Islander, is there any Islander residing on the Island who desires and is in a position to take such transfer or sublease? Indicate the grounds for your answer to this question.	

I make this solemn declaration as to the above matters according to the law in this behalf made and subject to the punishment by law provided for any wilfully false statement in any such declaration.

.....
Signature of Declarant:

Made before me at

This day of, 20.....

.....
Signature of a Justice of the Peace, Commissioner for Affidavits or Notary Public:

Declaration “B” by proposed transferee or sublessee

I, *[full name]*

of *[address]*

solemnly declare and affirm that I am the person to whom

[the proposed transferor]

proposes to transfer the lease(s) or part(s) of such lease(s) (or to sublet) the lease(s) particularised in Schedule 1, that the transaction is entered into in good faith, and that Schedule 3 contains a true statement of all lands now held by me, my spouse and my children living with me or dependent on me.

Schedule 3

Class of holding	No of holding	Area	Portion No	By whom held (spouse or child)
If no land is held write “Nil”				

I solemnly declare and affirm that my sole object in acquiring the land is in order that I may hold and use it for my own exclusive benefit, and that the answers to the questions in Schedule 4 are true and correct in every particular.

Schedule 4

1	Are you an Islander? If so, state the grounds on which you claim to be one.	
2	What is the date and place of your birth?	
3	(a) What is your marital status? (b) State the age and sex of any children living with you or dependent on you.	(a) (b)
4	What is the amount: (a) of the consideration agreed on? (b) of the sum for goodwill included in the consideration?	(a) (b)
5	What are your reasons for wishing to acquire the subject lease(s) or part(s) of such lease(s)? Indicate the use you intend to make of the land.	

I make this solemn declaration as to the above matters according to the law in this behalf made and subject to the punishment by law provided for any wilfully false statement in any such declaration.

.....
Signature of Declarant:

Address to which notices are to be sent:

.....

Made before me at

This day of, 20.....

.....
Signature of a Justice of the Peace, Commissioner for Affidavits or Notary Public:

10 Attachment: Statutory Declaration – Heritage Islander

**STATUTORY DECLARATION
(Oaths Act 1900 (NSW))**

I,
(Insert full name)

of
(insert address)

....., do solemnly and sincerely declare as follows:
(insert occupation)

- 1. I resided on Lord Howe Island ("the Island"), continuously and in good faith as my usual home, without any other habitual residence immediately before 1 January 1982;

AND

- 2. (Please tick the appropriate box)

I am a person whose name was, on 22 April 1954, shown in the records of the Chief Secretary's Department as that of a holder (at any time before 22 April 1954) of a permissive occupancy of part of the Island from the Board of Control.

OR

I am the spouse, widow or widower of(insert name) who is a person whose name was, on 22 April 1954, shown in the records of the Chief Secretary's Department as that of a holder (at any time before 22 April 1954) of a permissive occupancy of part of the Island from the Board of Control.

OR

I am the issue of(insert name) who is a person whose name was, on 22 April 1954, shown in the records of the Chief Secretary's Department as that of a holder (at any time before 22 April 1954) of a permissive occupancy of part of the Island from the Board of Control.

OR

I am the spouse, widow or widower of(insert name) who is the issue of(insert name) who is a person whose name was, on 22 April 1954, shown in the records of the Chief Secretary's Department as that of a holder (at any time before 22 April 1954) of a permissive occupancy of part of the Island from the Board of Control.

And I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Oaths Act 1900.

Declared at Date.....
(Name of place)

Signature of person making declaration

Before me, signature of witness.....

Name of witness

Address of witness

Authority of witness(JP/ solicitor/ other (please state)): JP Registration Number:

11 Attachment: Statutory Declaration – 10 Year Islander

**STATUTORY DECLARATION
(Oaths Act 1900 (NSW))**

I,
(Insert full name)

of
(insert address)

....., do solemnly and sincerely declare as follows:
(insert occupation)

3. I reside on Lord Howe Island ("the Island"), continuously and in good faith as my usual home, without any other habitual residence

AND

4. I have resided on the Island, immediately previously to this time, continuously for a period of years;

AND

5. My continuous residence on the Island has not been interrupted other than:
a. to attend a school, college, university or other educational institution or
b. to gain experience in a trade, profession or gainful employment for a period of years.

And I make this solemn declaration conscientiously believing the same to be true, and by virtue of the provisions of the Oaths Act 1900.

Declared at Date.....
(Name of place)

Signature of person making declaration

Before me, signature of witness.....

Name of witness

Address of witness

Authority of witness(JP/ solicitor/ other (please state)): JP Registration Number:

12 Attachment: Form 6 – Transfer of Lease

Form 6 Transfer of lease

(Clause 40 (1))

[Lord Howe Island Act 1953](#), section 23

I, *[full name]*

of *[address]*

in consideration of the sum of *[specify sum]*\$

(the receipt of which is acknowledged) transfer by way of *[sale, mortgage]*

to *[full name]*

of *[address]*

all *[my, its]* estate and interest in the land described as follows:

Class of lease (perpetual or special)	No of lease (indicate if part only)	Area	Portion No

Signed at _____ the _____ day of _____, 20

Signed in my presence:

Witness

Signature of transferor

I accept this transfer.

Signed in my presence:

Witness

Signature of transferee

Notes:

- (1) The witness must be a legal practitioner, Justice of the Peace, Notary Public, Commissioner for Affidavits or bank manager.
- (2) If executed under seal, the usual attestation clause is also to be inserted. If signed by virtue of a power of attorney, the memorandum of non-revocation on the back of this form is to be signed by the attorney before a witness.
- (3) The following memorandum is to be published on the back of this form.

Memorandum of non-revocation of power of attorney

[/We] have had no notice of revocation of the Power of Attorney registered No

[specify No.] Miscellaneous Register under the authority of which *[/we]*

have just signed the transfer.

Signed at the day of , 20

Witness:

Notes:

- (1) All alterations and interlineations must be initialled in the left margin by the attesting witnesses.
- (2) Transfers, other than those by way of discharge of mortgage to the registered mortgagor or a legal representative or by way of mortgage or sub-mortgage, cannot be accepted for registration unless duly stamped or endorsed "exempt from duty" or bearing other evidence of having been submitted to the Chief Commissioner of State Revenue for assessment.
- (3) A transfer involving lands in the name of a deceased person (whether mortgagor or mortgagee) cannot be accepted unless the first transfer involving each such holding has been marked "Registration not opposed" by the Chief Commissioner of State Revenue.

13 Attachment: Form 7 – Instrument of Surrender

Form 7 Instrument of surrender

(Clause42)

Lord Howe Island Act 1953, section 22A

I, *[full name]*

of *[address]*

being the holder of the land described below, surrender the land to the Crown, intending that the land will vest in the Crown as Crown land.

[Description of land to be surrendered that will enable it to be identified]

Signed at _____ this _____ day of _____, 20 ____ .

Signature of surrenderor:

Signed in my presence by *[full name of surrenderor]*
who is personally known to me.

Signature of Justice of the Peace:

I, *[full name of mortgagee if surrender is by mortgagor]*,

the mortgagee under Mortgage No *[specify No]*, _____ join in this surrender.

Signed at _____ this _____ day of _____, 20 ____ .

Signature of mortgagee:

Signed in my presence by *[full name of mortgagee]*
who is personally known to me.

Signature of Justice of the Peace:

I, *[full name of mortgagor if surrender is by mortgagee]*,

being the mortgagor of the land described above, join in this surrender.

Signed at _____ this _____ day of _____, 20 ____ .

Signature of mortgagor:

Signed in my presence by *[full name of mortgagor]*

who is personally known to me.

Signature of Justice of the Peace:

Accepted for and on behalf of the Crown this _____ day of _____, 20 ____ .

Signature of Minister:

Signed in my presence by the Minister administering the Lord Howe Island Act 1953, who is personally known to me.

Signature of Witness:

LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Policy - Transfer of Perpetual Lease – Proposed Amendment

RECOMMENDATION

It is recommended that the Board:

1. Place the proposed amendment of the existing Transfer of Perpetual Lease policy on public exhibition for 28 days.
2. Adopt the amended policy if no public submissions are received during that time.

BACKGROUND

During public exhibition of the recently adopted Suspension of Condition of Residency on Perpetual Leases Policy, one public submission was received and a copy is included with this paper. The submission broadly suggests that, when considering transfer of Perpetual leases, the Board should take reasonable steps to satisfy itself that any proposed transferee will comply with the residency condition of the lease, or that other arrangements are or will be in place to satisfy this condition, prior to recommending any consent.

COMMENT

Although linked, the suggestion relates more closely to the existing Transfer of Perpetual Lease Policy than the Suspension of Condition of Residency on Perpetual Leases Policy. Accordingly the lease transfer policy has been amended to incorporate the submission and a copy of the revised policy is attached at "A" (see page 5 clause 3.1)

RECOMMENDATION

It is recommended that the Board:

1. Place the proposed amendment of the existing Transfer of Perpetual Lease policy on public exhibition for 28 days.
2. Adopt the amended policy if no public submissions are received during that time.

Prepared: James Lonergan, Manager Environment & Community Services

Endorsed: Penny Holloway, Chief Executive Officer

Attachments:

Attachment A: Policy - Transfer of Perpetual Lease – Proposed Amendment

From: Gary Crombie
Sent: Saturday, 25 November 2017 15:39
To: administration
Subject: public comment suspension of residency

- I support the policy but believe a little more needs to be added. It should be stipulated that the circumstances that require a person to seek a suspension of residency did not exist prior to the person taking transfer of the lease, or that the person could not reasonably have known that these circumstances existed when they applied for the lease.
- I am concerned that people may apply for transfer of a lease knowing that circumstances will preclude them from ever residing or substantially delay their requirement to reside. This is contrary to the intent and spirit of the Act.
- Any person applying for a new lease or transfer of an existing lease should be required to complete a statutory declaration stating that they do intend to reside and know of no circumstances currently existing that in any way preclude their taking up residence.
- I believe we have recently seen an example where people took transfer in poor faith with every intention of not residing for some time. Circumstances that existed prior to their application should not be allowed as justification for exemption and this should be clearly stated in advance. It should be clearly spelled out that pre existing circumstances can not subsequently be used as justification for exemption from residence re Form 1 where a person holds only 1 lease. Gary Crombie

Sent from [Mail](#) for Windows 10

-----Safe Stamp-----
Your Anti-virus Service scanned this email. It is safe from known viruses.
For more information regarding this service, please contact your service provider.

Board Meeting: March 2018	Agenda Number: 11(i)	Record No: ED18/1869
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LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Transfer of Perpetual Lease – W and G Thompson

RECOMMENDATION

It is recommended that the Board seek the Minister's approval to the transfer of perpetual lease 1963/03 by way of gift from William Frederick Thompson and Geoffrey Spurling Chase Thompson as tenants in common to Geoffrey Spurling Chase Thompson as sole tenant.

BACKGROUND

An application has been received for consent to transfer perpetual Lease 1963/03 by way of gift from William Thompson and Geoffrey Thompson as tenants in common to Geoffrey Thompson as sole tenant.

Section 23 of the Lord Howe Island Act, 1953 provides that the Minister, on recommendation of the Board, may consent to the transfer of a lease to two or more persons as joint tenants, and that where the proposed transferees are not Islanders within the meaning of the Act the Board shall not recommend consent unless satisfied that there is no Islander who desires and is in a position to take the transfer. Section 23 further provides that in the case of a transfer to a person other than an Islander, the approval of the Governor is required.

COMMENT

Geoffrey Thompson is the son of William Thompson and is an Islander within the meaning of the Act. The lease is not subject to mortgage and there are no other encumbrances registered on the title.

RECOMMENDATION

It is recommended that the Board seek the Minister's approval to the transfer of perpetual lease 1963/03 by way of gift from William Frederick Thompson and Geoffrey Spurling Chase Thompson as tenants in common to Geoffrey Spurling Chase Thompson as sole tenant.

Prepared: James Lonergan, Manager Environment & Community Services

Endorsed: Penny Holloway, Chief Executive Officer

Board Meeting: September 2017	Agenda Number: 8 (i)	Record Number: ED17/4297
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LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Lord Howe Island Rodent Eradication Program (REP) Final Go / No Go Decision.

RECOMMENDATION

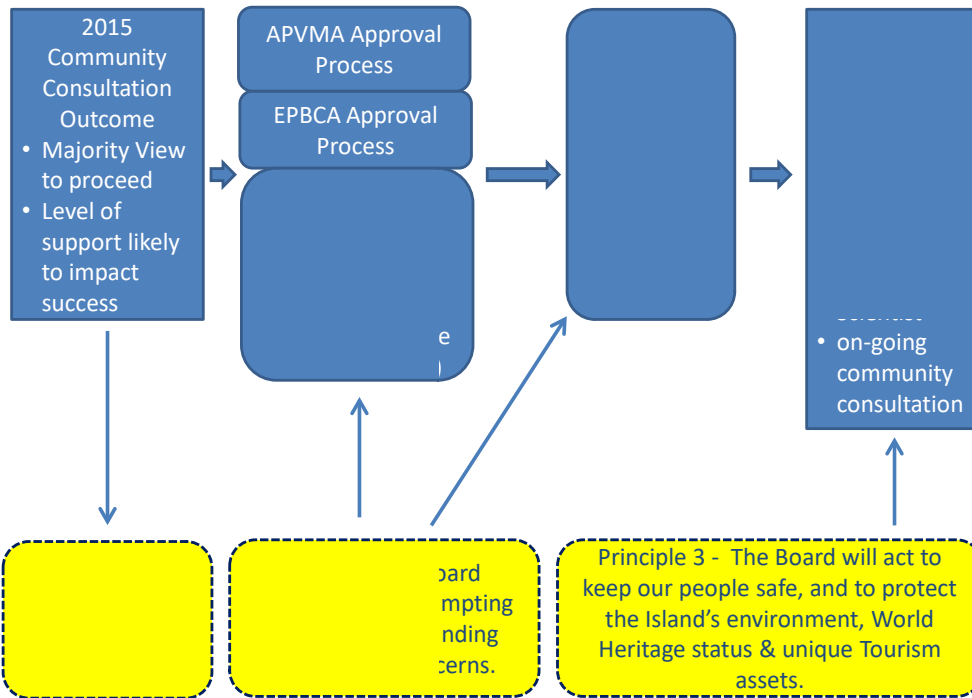
That the Board proceed to Stage Three of the LHI Rodent Eradication Program (REP) with implementation scheduled for winter 2018.

BACKGROUND

On 18 May 2015, the LHI Board decided to proceed with the planning and approvals stage of the REP in accordance with the process for resolution outlined in Figure 1.

Figure 1: Process for Resolution

Process for Resolution



The rodent eradication program has now been divided into three stages:

Stage One: Preliminary planning and community consultation

This stage has previously been completed. It involved undertaking required initial trials including captive management and toxin resistance trials as well as initial operational planning. It included the biosecurity review and progression of biodiversity outcome monitoring. Finally it included the community consultation and engagement process and the community survey.

Stage Two: Planning and Approvals

This stage is now complete. The key tasks during this stage were:

- Assembling key personnel to undertake the work on the next stages
- Reviewing the Rodent Eradication Plan to ensure that it takes into consideration all new information since it was drafted in 2009
- Developing individual property and livestock management plans, which inform the eradication plan and the approval process. This involved a detailed property by property consultation with individual leaseholders and residents.
- Continue working with community to fully understand the programs objectives
- Undertake any necessary studies required for the approval process, including independent human health risk assessment
- Continue the relevant baseline outcome monitoring
- Further develop detailed planning and all necessary risk assessments;

- Obtain required permits and approvals,
- Update operational details;
- Prepare key tender documentation

Final Go / No Go Decision

The Board must now make the final go / no go decision on whether to proceed with the REP considering:

1. The status of key approvals
2. Safety of the environment
3. The advice of the NSW Chief Scientist and Engineer regarding a further independent Human Health Risk Assessment
4. Social Acceptability
5. Budget considerations
6. Technical Feasibility
7. Steering Committee recommendation

Stage Three: Implementation and evaluation of the eradication plan

This Stage will not happen unless the decision to proceed is made.

Stage Three will involve the eradication plan being implemented in winter 2018 over an approximate three month period. Key elements are:

- Finalise detailed logistics and operational planning
- Assemble and train remaining resources
- Construction of captive management facilities for the woodhen and currawong
- Capture of woodhens and currawongs
- Operational readiness check
- Implementation of ground and aerial baiting
- Follow up monitoring and release of woodhens and currawongs
- Maintaining an ongoing biosecurity and rodent detection monitoring network

CURRENT POSITION

1. Status of Required Approvals

A range of approvals is required for the project, the status of which is detailed in Table 1 below.

All key approvals that formed part of the 2015 Process for Resolution above have been received.

A decision on the Development Application for the captive management facilities associated with the REP is required in this Board meeting (see separate report). Minor approvals remaining will be sought once the final decision to proceed is made.

Table 1: Approvals requirements and status

Agency / Legislation	Requirement and considerations	Received	Key Approval Conditions
Australian Pesticides and Veterinary Medicines Authority (APVMA) <i>Agriculture and Veterinary Chemicals Code Act 1994</i>	Minor Use Permit for use of the pesticide in Australia specifically for the LHI REP. Considers: Safety <ul style="list-style-type: none"> • Human health • Environment Efficacy <ul style="list-style-type: none"> • Effectiveness of the product 	Y	<ul style="list-style-type: none"> • Development of Risk Mitigation Plan • Education programme and information sheets for community and visitors
Department of the Environment and Energy <i>Environmental Protection and Biodiversity Conservation Act 1999</i>	Approval for an “action” that will have or is likely to have a significant impact on any of the matters of national environmental significance. Considers: Matters of National Environmental Significance <ul style="list-style-type: none"> • Threatened and migratory species • World Heritage values • Commonwealth Marine Area 	Y	<ul style="list-style-type: none"> • Establishment of Technical Advisory Group • Development of Monitoring and Mitigation Plan • Development of Biosecurity Management Plan • Reporting of non-target impacts • Reporting of post operational monitoring results
Department of Agriculture and Water Resources <i>Biosecurity Act 2015</i>	Permit to import the bait into Australia. Considers: <ul style="list-style-type: none"> • Biosecurity of the bait 	Y	<ul style="list-style-type: none"> • Manufacturer’s Declaration
Civil Aviation Safety Authority <i>Civil Aviation Safety Regulation 1998</i>	Pilot Licensing and Aerial Operator’s Certificate (held by helicopter contractor)	Y	
	General permit for flight lines	To be submitted once decision is made to proceed	
Department of Primary Industry – Fisheries <i>Fisheries Management Act 1994</i>	Section 220ZW Licence authorising an action that is likely to result in harm to a threatened species, population or ecological community.	Y	<ul style="list-style-type: none"> • Marine spill containment and clean-up plan

	<p>Considers:</p> <ul style="list-style-type: none"> NSW listed threatened marine species 		<ul style="list-style-type: none"> Marine research and monitoring plan Reporting of marine non target impacts Operational report
<p>Department of Primary Industry – Marine Park Authority</p> <p><i>Marine Estate Management (Management Rules) Regulation 1999</i></p>	<p>Consent to harm animals and plants in all zones of the Lord Howe Island Marine Park (NSW)</p> <p>Considers:</p> <ul style="list-style-type: none"> The Lord Howe Island Marine Park (NSW) 	Y	
<p>Office of Environment and Heritage</p> <p><i>Threatened Species Conservation Act 1995</i></p>	<p>A Species Impact Statement and Section 91 Threatened Species License to harm or pick a threatened species, population or ecological community* or damage habitat.</p> <p>Considers:</p> <ul style="list-style-type: none"> NSW listed threatened species, populations and ecological communities 	Y	<ul style="list-style-type: none"> Reporting of non-target deaths Operational report
	License to capture listed threatened species (Covered under existing LHIB licenses)	Y	
	Captive holding permits (held by Taronga Zoo as captive management contractor)	Y	
<p>Lord Howe Island Board</p> <p><i>Environmental Planning and Assessment Act 1979 (Part 4)</i></p>	<p>Development consent for construction of the captive management facilities.</p> <p>Considers:</p> <p>Local Environmental Plan 2010</p>	Decision required as part of this Board Meeting	
<p>Environmental Protection Agency</p> <p><i>Pesticides Act 1999</i></p>	<p>Pesticide use license for prescribed pesticide works to cover ground application.</p>	To be issued once ground staff in place. EPA will train and license staff on LHI May 2018	
	Chemical distribution license (Business and pilot). Held by helicopter contractor.	Y	

2. Safety of the Environment

Potential environmental impacts of not undertaking the REP are compared to the potential impacts and benefits from proceeding with the REP below.

Potential Environmental Impacts of Not Proceeding with the REP

The devastating impacts of introduced rodents on offshore islands around the world are well documented. The presence of exotic rodents on islands is one of the greatest causes of species extinction in the world. Ship rats alone are responsible for the severe decline or extinction of at least 60 vertebrate species and currently endanger more than 70 species of seabird worldwide (Jones *et al.* 2008)¹. They suppress plants and are associated with the declines or extinctions of flightless invertebrates, ground-dwelling reptiles, land birds and burrowing seabirds. Mice have also been shown to impact on plants, invertebrates and birds (Angel *et al.* 2009)².

On LHI, rats are implicated in the extinction of five endemic bird species, at least 13 species of endemic invertebrates, and two plant species. Rodents are also a recognised threat to at least 13 other bird species, 2 reptiles, 51 plant species, 12 vegetation communities, and seven species of threatened invertebrates on LHI (DECC, 2007)³. Rodents have therefore not reached equilibrium with native species on LHI.

Failure to proceed with the REP will result in continuing adverse consequences to biodiversity, and World Heritage values on LHI through:

- Ongoing impacts to biodiversity as a result of rodent predation and competition.
- An increased extinction probability for several species including seven species listed as Critically Endangered (probability of extinction in the wild is at least 50% within 10 years)
- An increased risk that several species could experience population declines and become eligible for higher or new threatened species status listing representing a higher degree of endangerment
- Continuation of the current rodent control program (and the continuous presence of poison baits in the environment) essentially in perpetuity. This presents an ongoing risk of poisoning for non-target species and potential for development of rodent resistance to poison.
- Potential further degradation of World Heritage values (including endemic and threatened species) and the potential for the LHIG to be inscribed on the “World Heritage in Danger List”.

¹ Jones, H. P., Tershy, B. R., Zavaleta, E. S., Croll, D. A., Keitt, B. S., Finkelstein, M. E. and Howald, G. R. (2008). Severity of the effects of invasive rats on seabirds: a global review. *Conservation Biology* **22**, 16-26.

² Angel, A., Wanless, R. and Cooper, J. (2009). Review of impacts of the introduced house mouse on islands in the Southern Ocean: are mice equivalent to rats? *Biological Invasions* **11**, 1743-1754.

³ DECC. (2007) Lord Howe Island Biodiversity Management Plan. Department of Environment and Climate Change, Hurstville.

Potential Environmental Impacts of Proceeding with the REP

The potential environmental impacts arising from the proposed REP were extensively assessed through the various environmental approval documents and processes. These included:

- Pollution of soil, air or water
- Bioaccumulation
- Mortality of non-target species due to primary poisoning from consumption of bait pellets
- Mortality of non-target species due to secondary poisoning from consumption of poisoned rodents, fish or invertebrates
- Bird strikes and collisions from helicopter activity
- Disturbance from helicopter activity
- Potential impacts as a result of handling and captive management during the captive management program
- Long term changes to ecological relationships affecting threatened species following the eradication of rats, mice and owls.

Based on evidence from similar eradications around the world, studies done on LHI, the physical and chemical properties of the bait and toxin and the relatively small quantity used in a one-off eradication, the risk to the environment and most species from the REP was shown to be very low.

The only species considered to be at significant risk from the REP were the LHI Woodhen and LHI Currawong. Mitigation is in place to manage risks to these two species through a detailed plan to manage large proportions of the populations of these two species in captivity during the REP. The captive management component of the REP will be managed by animal husbandry experts from Taronga Zoo including vets, vet nurses and experts in bird management. Both species have previously been held in captivity before with no observable ill effects. With the captive management in place, it is considered unlikely that the REP will have a significant impact on woodhens or currawongs.

An extensive monitoring program will be conducted before, during and after the REP. This includes

- Monitoring of weather in the lead up to and during the REP. This will ensure bait can be distributed safely and effectively and not during adverse weather conditions.
- Monitoring for non-target species deaths after bait distribution to ensure there are no unexpected impacts to endemic species.
- Monitoring breakdown of baits after distribution. This will provide confidence in bait breakdown prior to release of captive managed species.
- Soil monitoring before and after bait distribution. This will provide evidence that pollution has not occurred.
- Random sampling will be conducted on water bodies on the island to monitor Brodifacoum levels before and after the bait drop. This will provide evidence that pollution has not occurred and water is safe to drink.

- Monitoring of fish, milk and eggs to monitor Brodifacoum levels before and after the bait drop. This will provide evidence food is safe to eat.
- Monitoring of Woodhen post release. This will provide evidence of recovery.
- Monitoring of free-ranging currawong and captive Currawong LHPC post-release. This will provide evidence of impacts and recovery.

Potential Environmental Benefits from proceeding with the REP

The many successful rodent eradication programs undertaken on islands around the world have shown that the benefits to native plants and animals are both significant and immediate (Jones *et al*, 2016)⁴. Benefits include:

- significant increases of seeds and seedlings of numerous plant species on islands after the eradication of various rodent species
- rapid increases in the number of ground lizards (e.g. geckos, skinks) following removal of rats – including a 30-fold increase in one case
- dramatic increases in the numbers of breeding seabirds and fledging success
- rapid increases in forest birds and invertebrates.

The anticipated benefits specifically relating to the REP on the LHIG include:

- recovery of a range of species and ecological communities directly at risk of extinction due to rodents such as the cloud forest snail species, LHI Placostylus, Little Mountain Palm, Phillip Island Wheat Grass and Gnarled Mossy Cloud Forest
- a marked increase in birds, reptiles and insect density, diversity and distribution – this boost in diversity will increase food resources for predatory terrestrial vertebrates and potentially lead to population increases which will enrich the experience of both island residents and tourists
- increases in the abundance of plants, seeds and seedlings, thereby enhancing the process of forest regeneration
- removal of the economic and environmental burden of the ongoing control currently in place, eliminating the need for the ongoing use of rodent poisons in the environment and their associated long-term risks to native species, pets, livestock and people
- the ability to return species (or closely related surrogates/ecological equivalents) that have long been absent due to the predation of rats and mice, such as the Island gerygone, grey fantail, Boobook Owl, LHI Wood-feeding Cockroach and LHI phasmid
- Long term positive impacts for tourism through protection and enhancement of World Heritage values and improved visitor experience of a rodent free World Heritage Area.

⁴ Jones H. P., Holmes N. D., Butchart S. H., Tershy B. R., Kappes P. J., Corkery I., Aguirre-Monoz A., Armstrong D. P., Bonnaud E., Burbidge A. A., Campbell K., Courchamp F., Cowan P. E., Cuthbert R. J., Ebbert S., Genovesi P., Howald G. R., Keitt B. S., Kress S. W., Miskelly C. M., Opper S., Poncet S., Rauzon M. J., Rocamora G., Russell J. C., Samaniego-Herrera A., Seddon P. J., Spatz D. R., Towns D. R. and Croll D. A. (2016) Invasive mammal eradication on islands results in substantial conservation gains. *PNAS* **113**, 4033-8

The eradication of rodents is consistent with numerous local, state, commonwealth and international plans and obligations. Eradication of exotic rodents from high priority islands (including LHI) is the first objective in the Commonwealth *Threat Abatement Plan to Reduce the Impacts of Exotic Rodents on Biodiversity on Australian Offshore islands of Less than 100 000 Hectares*⁵.

Environmental Summary

There is a clear and demonstrated need for the REP based on documented evidence of significant impacts of rodents both globally and on LHI at the species and ecosystem level, even in the presence of ongoing rodent control. There are unacceptable consequences of failing to proceed with the REP.

The REP is essential and beneficial. Risks have been addressed through proposed mitigation to the point where they are considered to be very low. Any potential impacts are localised and short term and far exceeded by the benefits that will be provided by implementation of the REP. Potential impacts of the REP are also considerably less than the ongoing impact of failing to proceed.

3. Advice of the NSW Chief Scientist and Engineer regarding an additional Human Health Risk Assessment (HHRA)

In line with the agreed Process for Resolution above, in June 2016 the NSW Minister for the Environment (on behalf of the LHIB) requested that the NSW Office of the Chief Scientist and Engineer (OCSE) oversee an additional independent Human Health Risk Assessment for the project.

The OCSE was requested to convene an Expert Panel to:

1. Provide advice to the Board on processes for commissioning the HHRA including identification of suitable experts and scope of the request for proposal
2. Convene an Expert Panel to review proposals to undertake the HHRA and select a preferred candidate; review project plans and methodologies; and review draft and final reports of the HHRA as required
3. Provide advice to the Minister for the Environment on the HHRA
4. Respond to media enquires as they relate to the Terms of Reference for the Expert Panel

The Expert Panel consisted of:

- **Professor Mary O'Kane, Chair**
Mary O'Kane is the NSW Chief Scientist & Engineer.
- **Dr Chris Armstrong, Deputy Chair**
Chris Armstrong is the Director of the Office of Chief Scientist & Engineer, NSW.
- **Professor Brian Priestly**
Brian Priestly is Director of the Australian Centre for Human Health Risk Assessment

⁵ DEWHA, (2009). THREAT ABATEMENT PLAN to reduce the impacts of exotic rodents on biodiversity on Australian offshore islands of less than 100 000 hectares. Department of Environment Water, Heritage and the Arts, Canberra

(ACHHRA) associated with the Monash University School of Public Health & Preventive Medicine and an Independent Environmental Services Professional.

- **Emeritus Professor Stephen Leeder**

Stephen Leeder is an emeritus professor of public health and community medicine at the University of Sydney. He is also currently chair of the Western Sydney Local Health District Board.

The Expert Panel (with the assistance of two members of the Community Working Group; Dr Frank Reed and Mr Robert Rathgeber) selected Ramboll Environ Pty Ltd to undertake the HHRA.

The HHRA overseen by the OCSE and undertaken by the Ramboll Environ concluded that a comprehensive evaluation of the environmental releases from the REP **did not** identify exposures expected to lead to adverse health effects. The overall conclusion was that **estimates of exposure from all potential sources associated with the REP are below those likely to result in adverse health effects in any individuals** (Ramboll Environ, 2017).

The NSW Office of the Chief Scientist and Engineer (OCSE) has now presented its report⁶ on the HHRA prepared by the consultants Ramboll Environ in 2017 to the NSW Minister for the Environment, Local Government and Heritage.

The OCSE and Expert Panel supported Ramboll Environ's conclusions and recommended:

- a communication strategy for the period before and during the REP;
- a monitoring strategy to measure outcomes; and
- reports to the Minister on community and environmental outcomes at designated periods post REP.

The executive summary from the OCSE report is attached (Attachment 1). The Minister has now accepted the OCSE report.

A representative of the OCSE and two representatives from Ramboll Environ visited the island on the 2nd and 3rd of Aug 2017 to present the findings to community. Approximately 40 people attended the two public sessions.

The outcomes from this additional HHRA and expert panel review concur with the results of previous HHRA's undertaken by Toxikos Pty Ltd in 2010 and by Pacific Environment Ltd in 2015 that show that with the proposed mitigation in place, the **REP is safe for the community and visitors**. The executive Summary form the OCSE report is attached (Attachment 1)

4. Social Acceptability

Continued engagement with the community from 2015 -2017 via a variety of methods has resulted in steadily increasing acceptance of the REP. Whilst a small minority of the community may still be opposed to the REP, individual property management discussions have shown that even those opposed are willing to allow access to their properties for some baiting treatment method by some nominated islanders. Only one landholder has declared they will not be allowing access to their property for baiting, citing concerns about potential impacts to human

⁶ NSW Chief Scientist and Engineer (2017). Report on the Human Health Risk Assessment for the Lord Howe Island's proposed Rodent Eradication Program.

health and the environment. The project team will continue to work with this individual (and all residents) in the lead up to implementation to ensure we have 100% property access.

Social acceptability is supported by public submissions on key approvals documents:

- The Public Environment Report for the Department of Environment and Energy
 - 128 submissions were received with 118 (92%) of those in support of the project
- The Species Impact Statement or the Office of Environment and Heritage
 - 55 submissions were received with 52 (95%) of those in support of the project.

Support for the REP has been received from major organizations including:

- World Wildlife Fund Australia (WWF)
- BirdLife Australia and the Australasian Seabird Specialist Group
- Island Conservation
- International Union for the Conservation of Nature (IUCN) Invasive Species Specialist Group
- The Invasive Species Council
- CSIRO
- Taronga Conservation Society Australia
- Zoos Victoria
- Australia's Threatened Species Commissioner

A detailed economic evaluation of the project was undertaken in November 2016 (Gillespie, 2016)⁷. The study showed that the REP has a Benefit to Cost ratio of 17:1, resulting in an estimated net social benefits of \$142M with \$58M of that returning directly to LHI residents. Hence the REP is justified on economic efficiency grounds.

It is anticipated that acceptance and tolerance in the community will increase further still once a final decision to proceed has been made and outcomes of the approvals process and HHRA can be communicated to residents.

If the decision to proceed is made, the REP staff will continue to engage with the community via a variety of methods including one on one property discussions in the lead up to, during and after the implementation. PR consultants (also used by the LHI Tourism Association) will continue to provide assistance for on and off island stakeholder engagement.

A contingency has been put in place to cover the loss of project team member Anthony Wilson through use of Islanders in ongoing consultation. Anthony has also committed to returning to the island for implementation of the REP.

It should be noted that the REP does not need 100% acceptance to proceed or to be successful, rather it needs 100% property access (or with appropriate risk mitigation for any residual properties).

⁷ Gillespie Economics Pty Ltd. (2016). Economic Evaluation of LHI Rodent Eradication Project. Final Report Unpublished report for the Lord Howe Island Board

Property Access Options

Access to leases and residents properties will at all times be in accordance with “*LHIB Procedure for Access to Leasehold Land*” and the individual Property Management Plan negotiated with owners/occupiers for the Project. No access to residential dwellings will occur without approval from owners / occupiers. Options to ensure we have adequate bait coverage and property access are outlined below and in Figure 2.

Preferred Option

The LHIB’s preferred option for accessing properties (including access to residential dwellings) is to continue to negotiate with leaseholders and residents to gain consent for access to distribute bait during the REP. During the negotiations we will continue to discuss issues such as:

- Individual property areas of concern such as children, pets and vegetable gardens.
- The outcome of approvals applications, the Human Health Risk Assessment and the LHIB’s final Go/ No Go decisions. Some people are awaiting the outcomes of all of these before granting access to properties.
- Individual preferences for nominated persons to undertake the baiting on individual properties. Some people have expressed concern with certain individual staff from the LHIB conducting baiting on their properties or inside dwellings. The REP will employ approximately 30-40 staff during implementation, many of these will be locals. It is highly likely that local staff will be employed on the REP with whom individual residents are comfortable to grant property and dwelling access to for baiting.

Potential Alternative Access Options

The options below are *not preferred* but could be pursued if necessary.

Powers of Entry to Access to Properties

Under various pieces of legislation (outlined in the “*LHIB Procedure for Access to Leasehold Land*”), the LHIB has Powers of Entry to access all lease types on LHI (perpetual leases, special leases and permissive occupancies) in order to exercise functions of the LHIB. Where access is denied the LHIB can access leases after providing written notification of intent to enter. The REP, once approvals have been received and the decision to proceed is made, would be a valid function of the Board. Therefore access to properties can be obtained for the REP if necessary by providing written notice of intent in accordance with the access procedure.

Access to Residential Premises (Dwellings)

The LHIB’s Powers of Entry cannot be used in relation to residential dwellings except:

- a) with the permission of the occupier
- b) if entry is necessary for the purpose of inspecting work being carried out under an approval,
- c) under the authority conferred by a search warrant

Where permission to enter residential premises is not granted, the LHIB does not have the ability to obtain warrants under the LHI Act and would not be seeking warrants under other legislation for this purpose.

If there continues to be a small number of residents who refuse access to dwellings, there is potential to negotiate the use of alternate methods of rodent destruction on those premises. This could include the use of commercially available rodenticides such as Talon (which most islanders are familiar with and many currently use in their homes) on those properties. It could include the use of other methods such as rodent traps or clearance of the property with detector dogs. There may also be an option of extended baiting and surveillance monitoring (traps, cameras and detector dogs) at the perimeter of the residential dwellings where consent is not granted.

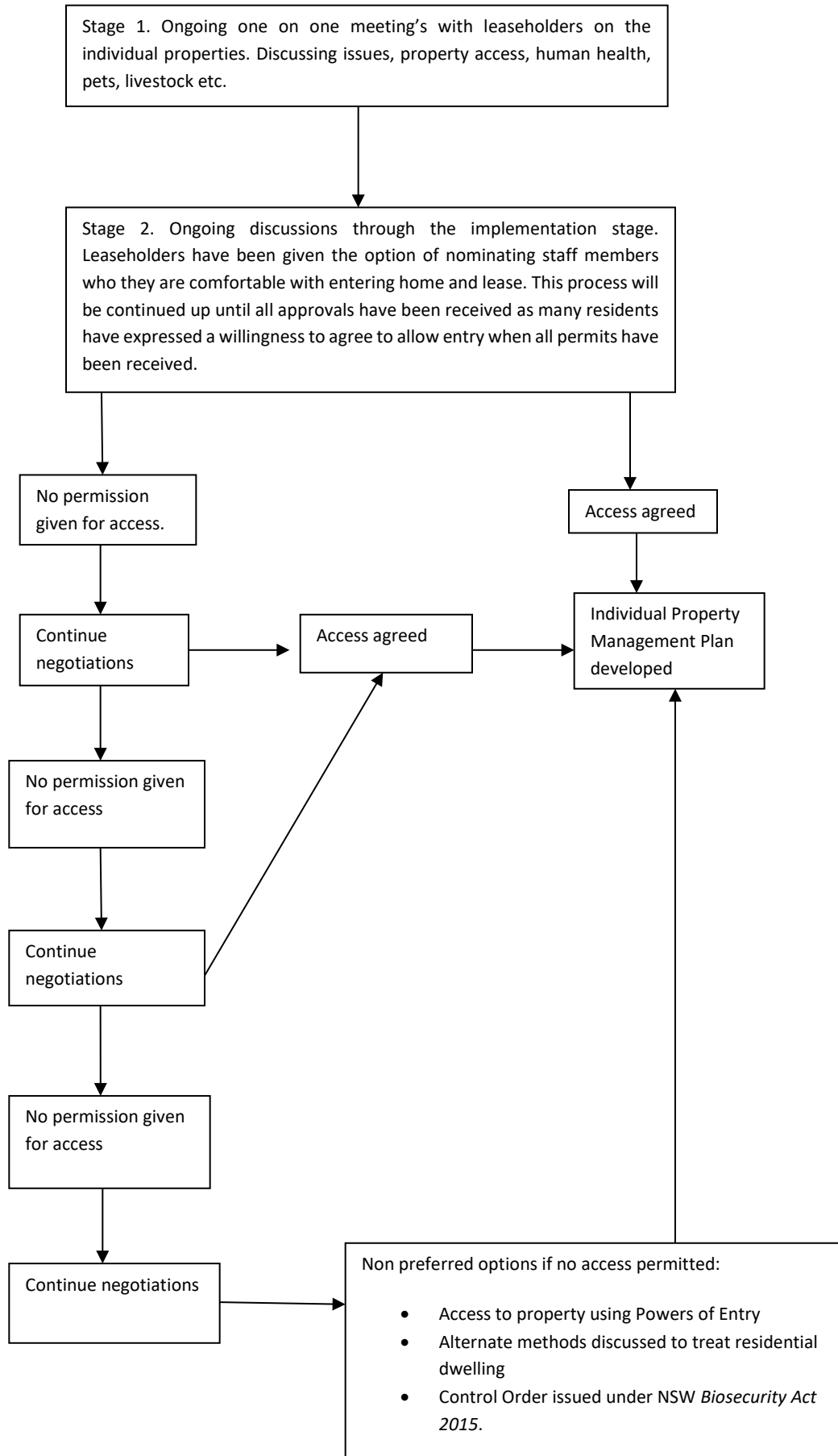
Biosecurity Act Control Order

With enactment of the new NSW *Biosecurity Act 2015* and development of the *Biosecurity Regulations 2016*, which came into force on 1 July 2017, new legislative options are available to deal with biosecurity risk matter.

The LHIB has been in discussion with NSW Department of Primary Industries about how best to manage all biosecurity risks for Lord Howe Island. Consideration is currently being given to having Lord Howe Island declared as a "Biosecurity Zone" or the ability to declare particular species that are considered biosecurity risks to Lord Howe Island and not mainland NSW (i.e. rats and mice) as Biosecurity Risk Species for Lord Howe Island only.

If the eradication proceeds, a Control Order establishing control zones or specific control measures can be issued to individuals or groups with particular control measures to be specified (i.e. baiting) for treatment or destruction of rodents. This would place the responsibility of complying with the control order on residents (i.e. residents would be responsible for baiting within their homes, not LHIB staff), therefore allowing effective bait coverage within properties and inside dwellings. Penalties are available under the act for non-compliance with a control order.

Figure 2 Property Access Flowchart



5. Budget Considerations

Both funding partners, the Australian Government National Landcare Program and the NSW Environmental Trust have recently extended the funding agreements for the project through to end of June 2019, ensuring continued availability to the previously allocated grant funds for the duration of the REP. Both funding partners have strict accountability and audit processes in place to ensure transparent and efficient management of government funds.

The Project budget has regularly been updated as the REP has progressed. Current estimates at completion of the REP show a final overrun of approximately 4% of total project budget. This is below the standard (and expected) 10% variance for a project of this size. At present there is still uncertainty in many individual line items until final costs are known (for example: sufficient budget has been allowed for helicopter time that includes extended weather delay, however this may not be required). It is highly likely that the budget will reduce over time as line item costs are confirmed.

In the event that minor additional funding is required, a funding strategy has been developed outlining various potential sources that can be pursued. This will be implemented if the REP proceeds. The strategy includes seeking additional funding (or alternate support such as resource sharing) through:

- Other relevant Commonwealth and State government grants programs including submitted and pending applications
- Conservation organizations including WWF, Birdlife Australia, Royal Society for the Protection of Birds, Island Conservation, Friends of Lord Howe and the Foundation for Australia's Most Endangered Species,
- High Net Wealth philanthropic donors with an interest in conservation or LHI.
- Crowd funding models such as "Go Fund Me" and "Pozzible"
- Corporate conservation investment/finance
- Volunteer positions on REP during implementation and follow up monitoring

It is expected that any minor budget shortfall can be addressed through a combination of the above sources if required.

It should be noted that if the decision not to proceed is made, all remaining grant funds will need to be returned to the funders. The funding cannot be used to fund other projects on Lord Howe Island.

LHI Rodent Eradication Project										
Balance										
			Balance on Hand 1 Jul 15	Balance on Hand 1 Jul 16	Balance On Hand 1 Jul 17	Balance Estimate 1 Jul 17- 30 Jun 18	Balance Estimate 1 Jul 18 - 30 Jun 19	Balance Estimate 1 Jul 19 - 30 Jun 20	Balance Estimate at Completion	
			\$ 8,172,756	\$ 8,041,314	\$ 6,939,653	\$ 2,736,015	\$ 39,316	-\$ 437,132	-\$ 437,132	
Revenue										
Project Revenue	Total Approved Revenue		Revenue Earned 30 June 2015	Revenue Earned FY15-16	Revenue Earned FY16-17	Revenue Estimate 1 Jul 17- 30 Jun 18	Revenue Estimate 1 Jul 18 - 30 Jun 19	Revenue Estimate 1 Jul 19 - 30 Jun 20	Total Revenue Estimate at Completion	Cross Check
NSW Env Trust	\$ 4,542,442		\$ 4,542,442	\$ -	\$ -	0			\$ 4,542,442	
Caring for Our Country	\$ 4,500,000		\$ 4,500,000	\$ -	\$ -	0			\$ 4,500,000	
Interest	\$ -		\$ 610,390	\$ 177,020	\$ 176,603	\$ 58,897	\$ 846		\$ 1,023,756	
Total Revenue	\$ 9,042,442	\$ -	\$ 9,652,832	\$ 177,020	\$ 176,603	\$ 58,897	\$ 846	\$ -	\$ 10,066,198	\$ 10,066,198
Expenses										
Item	Budget Estimate	Expenses Incurred 2012/2013	Expenses Incurred 2014 to 30 June 2015	Expenses Incurred 1 Jul 15 to 30 Jun 16	Expenses Incurred 1 Jul 16 - 30 Jun 17	Expenses Estimate	Expense Estimate 1 Jul 18 - 30 Jun 19	Expense Estimate 1 Jul 19 - 30 Jun 20	Total Expense Estimate at	
Captive Management Sub Total	\$ 2,183,839	\$ -	\$ -	\$ -	\$ 485,517	\$ 817,969	\$ 630,353	\$ 250,000	\$ 2,183,839	
Community Liaison Sub Total	\$ 709,381	\$ -	\$ 327,106	\$ -	\$ 82,275	\$ 210,000	\$ 90,000	\$ -	\$ 709,381	
Baiting Sub Total	\$ 2,233,681	\$ -	\$ -	\$ 3,000	\$ 34,438	\$ 1,597,743	\$ 596,250	\$ 2,250	\$ 2,233,681	
Livestock/Animal Management Sub Total	\$ 691,189	\$ -	\$ -	\$ -	\$ 23,677	\$ 378,863	\$ 288,649	\$ -	\$ 691,189	
Operational Monitoring Sub Total	\$ 577,275	\$ -	\$ -	\$ -	\$ 84,305	\$ 54,100	\$ 402,380	\$ 36,490	\$ 577,275	
Eradicating Owls Sub Total	\$ 137,000	\$ -	\$ -	\$ -	\$ -	\$ 12,000	\$ 78,000	\$ 47,000	\$ 137,000	
Project Management Sub Total	\$ 2,328,952	\$ -	\$ 336,000	\$ 305,462	\$ 470,515	\$ 706,290	\$ 382,685	\$ 128,000	\$ 2,328,952	
Biosecurity Sub Total	\$ 470,244	\$ -	\$ 60,000	\$ -	\$ 42,000	\$ 294,307	\$ 61,229	\$ 12,708	\$ 470,244	
Outcome monitoring Sub Total	\$ 414,800	\$ -	\$ -	\$ -	\$ 55,537	\$ 191,263	\$ 168,000	\$ -	\$ 414,800	
Misc Sub Total	\$ 756,970	\$ 756,970	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 756,970	
Total	\$ 10,503,330	\$ 756,970	\$ 723,106	\$ 308,462	\$ 1,278,264	\$ 4,262,535	\$ 2,697,546	\$ 476,448	\$ 10,503,330	\$ 10,503,330

6. Technical Feasibility

After completing a Feasibility Study in 2001⁸, the LHIB has carefully considered and evaluated the eradication of rats and mice on the LHIG. Due to developments in eradication techniques during the past 20 years, particularly the refinement of aerial baiting methods, the eradication of both rats and mice on the LHI Group in a single operation is now considered technically feasible and achievable. A range of possible methods and mortality agents were considered for use in eradicating both rats and mice on LHI. The only method capable of removing every rat and mouse on LHI is aerial distribution, in conjunction with minimal hand broadcast and bait stations where required (i.e. the settlement area), of highly palatable bait containing an effective toxicant. Assessment of other options considered and why they were unsuitable on LHI are shown in Table 2 below.

Table 2 Assessment of Eradication Options

Eradication Technique	Suitable for eradication	Feasible for Eradication on LHI	Justification
Disease	No	No	No suitable pathogen yet developed that could eliminate all individuals.
Trapping	Yes	No	May be feasible for eradication on small islands, however may cause individuals to become trap shy. Size and inaccessible terrain of LHI makes this option unfeasible
Biological	No	No	Likely to fail to completely eradicate the target species. High likelihood of unacceptable non-target species impacts.
Fertility Control	No	No	No suitable fertility control yet developed that could eliminate all individuals.
Toxicant - Bait station / hand broadcast only	Yes	No	May be feasible for eradication on small islands. Size and inaccessible terrain of LHI makes this option unfeasible.
Toxicant – Aerial Broadcast only	Yes	No	Highly successful on uninhabited islands. Socially unacceptable on LHI.
Toxicant – Combination of Aerial and Hand Broadcast / Bait Stations	Yes	Yes	Brodifacoum in the form of Pest off 20R has been selected as the preferred toxicant on LHI considering proven success, efficacy and non-target impacts

⁸ Saunders, A. and Brown, D. (2001). An Assessment of the Feasibility of Eradicating Rodents from the Lord Howe Island Group. Unpublished report to the Lord Howe Island Board.

The eradication techniques proposed for LHI are neither novel nor experimental. They are the culmination of more than 30 years of development and implementation involving more than 380 successful eradications worldwide (Howald et al. 2007⁹ and DIISE, 2016¹⁰). Systematic techniques for eradicating rodents from islands were first developed in New Zealand in the 1980s. Since then techniques have improved significantly, and eradications are now being attempted and achieved on increasingly larger and more complex islands, including those with human populations.

Aerial broadcasting of bait using helicopters has become the standard method used in eradications, particularly those on large islands (Towns and Broome 2003)¹¹. This method has proven to be a more reliable and more cost-effective option than the previous ground based techniques. Depending on the nature of the area to be treated, aerial baiting has been combined with hand broadcasting of bait and the use of bait stations, particularly around areas of human habitation. The use of new tracking and mapping technologies such as global positioning systems and geographic information (computer mapping) systems has increased the efficacy of aerial-based eradication programmes.

The toxicant selected for the eradication of rats and mice from the LHIG is Brodifacoum, a second-generation anticoagulant. Brodifacoum has proven to be successful in over 226 eradications, in a variety of climatic conditions including those similar to LHI, and on all 14 eradications on islands greater than 500 ha in size. An evaluation of potential rodenticides for aerial control of rodents (Eason and Ogilvie 2009¹²) concluded that Brodifacoum was the best rodenticide for island eradications. The use of any other mortality agent would be largely experimental and pose unacceptable risks of failure. The Island Eradication Advisory Group for the Department of Conservation in New Zealand who are recognised as leaders in this field, is of the opinion that *“there is no other alternative rodenticide on the market anywhere in the world with which we would have the same level of confidence in using to eradicate Ship Rats and mice from an island such as Lord Howe”*.

There are three key principles of eradication that must be met in every case for all target species. The LHI REP has been designed with these principles in mind and they are discussed in further detail below.

⁹ Howald, G., Donlan, C.J., Galvan, J.P., Russell, J.C., Parkes, J., Samaniego, A., Wang, Y., Veitch, D., Genovesi, P., Pascal, M., Saunders, A. and Tershy, B. (2007). Invasive rodent eradication on islands. *Conservation Biology* **21**, 1258-1268.

¹⁰ DIISE (2016): Database for Island Invasive Species Eradications accessed January 2016: <http://diise.islandconservation.org>

¹¹ Towns, D. R. and Broome, K. G. (2003). From small Maria to massive Campbell: forty years of rat eradications from New Zealand islands. *New Zealand Journal of Zoology* **30**, 377-398.

¹² Eason, C. T. and Ogilvie, S. (2009). A re-evaluation of potential rodenticides for aerial control of rodents. DOC Research and Development Series 312. Department of Conservation, Wellington, New Zealand.

1. *All individuals can be put at risk by the eradication technique(s).*

Constraints and solutions to this principle are detailed below.

Constraint	Solution
Efficacy of the bait	Brodifacoum is highly toxic to both rats and mice in minute quantities, allowing a lethal dose to be consumed in a single feed. It is also a chronic toxicant (i.e. its action is delayed) meaning the rodent does not associate any illness with the bait it has consumed. These two factors are important for avoiding the consumption of sub-lethal doses and the associated risk of bait shyness/avoidance. Trials on LHI have confirmed that doses available during the REP are sufficient to kill all rats and mice.
Palatability of the bait and alternate food sources	<p>The Pestoff 20R bait proposed to be used is specially designed to be highly palatable to rodents and this has been shown on LHI even with alternate food available in the laboratory and in field conditions. The Pestoff 20R bait is much more palatable than commercial rodenticides containing Brodifacoum as these contain waxes to preserve life and taste deterrents to prevent human ingestion.</p> <p>Whilst LHI has alternate foods sources available, unlike tropical islands, the sub-tropical LHI has reduced alternate food availability over winter when the REP is planned.</p>
Access to baits, inter species competition and home ranges of rats and mice	The LHI REP has been specifically designed to target both rats and mice considering the smaller home range of mice. Bait will be applied at a density that will allow all rats and mice access to a lethal dose. The second bait drop also acts as a contingency to ensure there are no gaps in the bait coverage and to target individuals that may have been denied access to bait distributed in the first application (by more dominant individuals that will now be dead).
Island size and topography (including cliffs, crevices, caves)	The aerial distribution of baits is the only realistic method of baiting a large topographically challenging island such LHI. Aerial application using a specifically designed spreader bucket has been shown to be effective in delivering a toxic dose of bait to every rodent on similar large and rugged islands (i.e. Macquarie and Campbell Islands). GPS technology will be used to ensure total bait coverage through the development of flight lines and ensuring 100% of island is bait treated. The second bait drop also acts as a contingency to ensure there are no gaps in the bait coverage.
Permanent human population	To minimise potential risks to human health, a combination of hand broadcasting and bait stations will be used in the settlement area. This will allow coverage to be maintained including in roofs and under buildings. A clean up of island hard waste successfully removed over 400 tonnes of hard waste that was providing potential rodent habitat.

Access to individual properties has been agreed with all but one leaseholder and will continue prior to implementation. Contingency options for property access are available as discussed above.

Potential survivors

A comprehensive rodent monitoring programme has been developed for the REP. It includes intensive monitoring particularly in the settlement area immediately after the eradication and then extending to all accessible areas across the island for two years after. This approach facilitates the early detection and removal of localised survivors but will also give a high level of confidence to allow declaration of eradication success which will be declared after two years of monitoring with no rodent activity.

The detection network will include a combination of detection tools including detector dogs, chew cards, chew blocks, cameras, trakka tunnels, traps and bait stations. Response to a detection will be guided by a Technical Advisory Group (TAG) who will be on immediate standby to provide consensus advice on how to respond to any specific situation. The TAG will consist of selected experts in eradication techniques, rodent detection and rodent behaviour.

2. Rodents can be killed at a rate exceeding their rate of increase at all densities

The use of aerial baiting is the only method that can be used on an island the size and topography of LHI to ensure that rodents can be killed faster than they can breed. The time between the two bait applications is deliberately shorter than the breeding cycle of rats and mice. The second bait drop also acts as a contingency to target any young recently emerging from nests after the first application.

3. The probability of the pest re-establishing is manageable to near zero

To protect the eradication investment and manage the risk of rodents reinvading and establishing, the LHIB is:

- upgrading the Island's biosecurity system (regardless of whether or not the REP proceeds)
- establishing a rodent detection network.

Biosecurity system upgrade

In 2015 a consultant was engaged to review and update the LHI Biosecurity Strategy. Recommendations from the updated Strategy (AECOM, 2015¹³) include:

- reducing risk at the Port Macquarie wharf
- increasing education and awareness for residents and visitors pre arrival to LHI

¹³ AECOM Australia Pty Ltd (2016). Lord Howe Island Biosecurity Strategy 2016. Unpublished Report for the Lord Howe Island Board

- Increasing inspection regimes for all pathways
- pursuing legislative declaration of LHI as a Special Biosecurity Zone under the Biosecurity Act 2015
- increasing residents' awareness of biosecurity risks of plants, animals and diseases both before and after import
- being prepared to react quickly to new incursions through early detection and rapid response
- continuing with on ongoing management and eradication programs
- ensuring biosecurity is adequately resourced with realistic cost and resource estimates

Specifically in relation to rodents the following measures will be applied:

- Employment of dedicated on island biosecurity officer(s) who will have primary responsibility for biosecurity detector dogs.
- Upgrades to the shipping contract to increase emphasis on rodent prevention including requirements to:
 - have in place a Biosecurity Management Plan
 - maintain rodent baiting at the point of mainland departure
 - maintain rodent baiting and De-ratting certificates on the cargo vessel
 - report biosecurity risk cargo and incidents prior to arrival

Rodent Detection Network

A permanent rodent detection and prevention monitoring network will be established on the island to detect any possible reintroductions. The monitoring network developed for the initial follow-up monitoring and declaration of success will be modified to allow targeted monitoring of high risk reinvasion points. It will include:

- A grid network of detection tools at high risk reinvasion points such as the wharf and airport and potential areas for initial recolonisation. This will be checked at a frequency commensurate with arrivals (i.e. daily at the airport and fortnightly at the wharf coinciding with cargo vessel arrivals)
- The permanent rodent detector / biosecurity dogs based on the island will routinely screen all incoming cargo and luggage
- The permanent rodent detector / biosecurity dogs based on the island will sporadically undertake targeted searches of high risk and random areas

This methodology will allow a high level of confidence that any reinvasion would be detected. Genetic testing on LHI rodents has been undertaken. In the event that rodents are detected post REP, the genetic samples will allow determination of whether the eradication failed or the detection was a reinvasion.

Summary of Technical Feasibility

Whilst it is difficult to predict a likelihood of success, the selected eradication techniques, toxin and bait give the LHI REP the best chance of being successful given the constraints on LHI and based on global experience developed over 30 years and more than 380 successful rodent eradications worldwide. The success rate for mouse eradications from 1997-2014 on NZ islands using the same bait and technique is 100% or 11 from 11 attempts (Broome and Fairweather, 2016,) whilst rat eradications on islands over the same period have been 98% successful (37 of 39 attempts) (DIISE 2016).

The LHIB receives technical advice on the project from the New Zealand Island Eradication Advisory Group (IEAG) to ensure best practice and lessons learnt from other eradications are

considered. The IEAG have reviewed several versions of the operational plan as the project has progressed to provide advice to the Project steering committee and LHIB as part of the final decision to proceed. The IEAG advice to the LHIB is presented below and in full in Attachment 2.

“The eradication of rodents is in our view, the only viable option for long-term ecological benefit on Lord Howe Island. It remains technically feasible assuming the operational plan can be delivered to a high standard and the basic principles of eradication success are adhered to; i.e.,

- *all individual target animals are exposed to the methods;*
- *they are killed at a rate higher than their ability to reproduce at all densities; and*
- *the risk of reinvasion is managed.*

The likelihood of success will largely depend on the ability of the team to implement the plan to the required standard of excellence. Continued attention to detail in the planning and preparation, including building a strong and motivated project team and strong support from the LHIB and community will be critical to success. There is much still to be done before next winter but the fundamental design and the preparation to implement that design we have seen so far gives every indication that eradication is achievable. A more thorough evaluation closer to the time of fieldwork beginning is advisable.”

In addition the IEAG will review a final operational plan after the decision to proceed is made and an IEAG member will undertake a final operational readiness check prior to on the ground implementation in May of 2018.

7. Steering Committee Recommendation

The Steering Committee for the LHI Rodent Eradication Project was established to:

- a) Support the Board in achieving the Project Objective of eradicating all ship rats and house mice from LHI.
- b) Advise on the best use of the funding to that end.
- c) Provide direction, guidance and support to the Project team in implementing the Project to achieve the Project Objective
- d) Provide support and advice to the Board at key milestone points where decisions have to be made about the direction of the project

Current membership is:

- Federal funding partner – National Landcare Program. Joanne Nathan (Director, Natural Heritage, Department of the Environment and Energy)
- State funding partner – NSW Environmental Trust. Peter Dixon (Director Grants, OEH)
- LHIB. Penny Holloway (Chief Executive Officer, LHIB)
- LHIB. Barney Nichols (locally elected member LHIB)
- Rodent Eradication Expert. Keith Broome (Chair, Island Eradication Advisory Group, NZ Department of Conservation)

The Steering Committee has met quarterly since 2012 and is very familiar with the Project, its development over time and current status. The Steering Committee recommendation to the LHIB is presented below.

“The Steering Committee is of the opinion that the project team has now satisfied all criteria that were established in May of 2015 to allow the decision to proceed to Stage 3 implementation to be made; namely:

1. *Key approvals required have been received with conditions that are achievable and do not impact implementation of the project. This includes:*
 - *Approval (EPBC 2016/7703) from the Department of Environment and Energy under the Environment Protection and Biodiversity Conservation Act considering Matters of National Environmental Significance This includes consideration of impacts to Commonwealth listed threatened and migratory species and species endemic to Lord Howe Island as part of assessment of impact to the World Heritage values*
 - *License to Harm Threatened Species (C0002763) issued under the NSW Threatened Species Conservation Act which considers impacts to NSW listed threatened species.*
 - *A Minor Use permit from the Australian Pesticides and Veterinary Medicines Authority allowing use the bait*
 - *A permit from NSW Fisheries and Marine Parks*
2. *Risks to human health have been extensively considered and are mitigated to the point where risks are considered to be very low. The Steering Committee endorse the outcomes of the Human Health Risk Assessment process overseen by the Office of the Chief Scientist and Engineer and support the recommendations made.*
3. *Community support now appears to be sufficient to allow the project to proceed*
4. *There is committed funding, sufficient budget remaining to implement the project and a contingency funding strategy in place if required.*
5. *The Project is considered to be technically feasible by eradication experts*

On the basis of the above the Steering Committee unanimously recommends to the Board that the decision to proceed to Stage 3 implementation be made with implementation in winter 2018”

8. Summary

A summary of essential criteria for the decision to proceed is shown below

Criteria	Additional Information	Result
Is the REP safe for residents and visitors	Three separate human health risk assessments of the project have shown it be safe for resident and visitors.	Yes
Is the REP safe for the environment	Receipt of the various Commonwealth and State environmental approvals required for the project is evidence that the REP is considered safe for the environment. Environmental benefits of proceeding significantly outweigh any potential impacts. Comprehensive mitigation is in place to manage the two species considered at risk.	Yes
Have all of the key approvals been received	All key approvals required have been received	Yes
Is the REP socially acceptable	The project is now well understood and accepted by the majority of the community. Property access is available for the majority of the Island	Yes
Are there sufficient funds to implement to REP	The REP currently has sufficient funds for successful implementation. Variance is currently within standard acceptable limits with some line items still to be confirmed. A plan can be enacted to seek additional funds if required.	Yes
Is the REP technically feasible	Eradication on LHI is technically feasible and achievable.	Yes
Are all risks mitigated or reduced to an acceptable level	Risks of proceeding have been identified, mitigated or reduced to an acceptable level. Several very high risks are associated not with proceeding. A more detailed risk assessment is included as Attachment 3.	Yes
Is the REP endorsed by rodent eradication experts	The eradication is endorsed by the Island Eradication Advisory Group	Yes
Is proceeding with the REP endorsed by the project Steering Committee	The steering Committee recommends proceeding to Stage Three implementation	Yes

RECOMMENDATION

That the Board make the decision to proceed to Stage Three of the LHI Rodent Eradication Program (REP) with implementation in winter of 2018.

Prepared: Andrew Walsh, Rodent Eradication Project Manager

Endorsed: Penny Holloway, Chief Executive Officer

Attachments:

Attachment A: Report on Human Health Risk Assessment

Attachment B: IEAG Recommendation

Attachment C: Risk Assessment

Board Meeting: March 2018	Agenda Number: 13 (i)	Record No: ED18/1780
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LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Lord Howe Island Rodent Eradication Program Decision

RECOMMENDATION

That the Board delay implementation of the LHI Rodent Eradication Program (REP) until winter 2019, with a change to methodology to bait stations only in the settlement area.

BACKGROUND

The rodent eradication program has been divided into three stages:

Stage One: Preliminary planning and community consultation

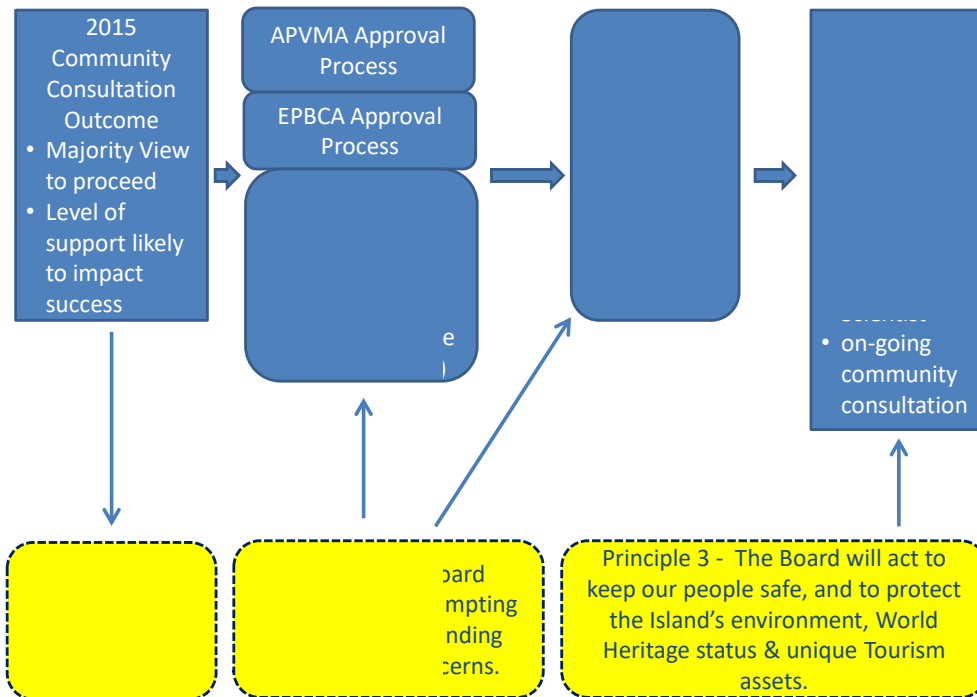
This stage has been completed. It involved undertaking required initial trials including captive management and toxin resistance trials as well as initial operational planning. It included the biosecurity review and progression of biodiversity outcome monitoring. Finally it included the community consultation and engagement process and the community survey.

On 18 May 2015, after the community consultation process over late 2014 and early 2015 ending with the community survey, the LHI Board decided to proceed with the planning and approvals stage of the REP leading towards implementation of the REP in accordance with the process for resolution outlined in

Figure 1.

Figure 1: Process for Resolution

Process for Resolution



Stage Two: Planning and Approvals

This stage is now complete. The key tasks during this stage were:

- Assembling key personnel to undertake the work on the next stages
- Reviewing the Rodent Eradication Plan to ensure that it takes into consideration all new information since it was drafted in 2009
- Developing individual property and livestock management plans, which inform the eradication plan and the approval process. This involved a detailed property by property consultation with individual leaseholders and residents.
- Continue working with community to fully understand the programs objectives
- Undertake any necessary studies required for the approval process, including independent human health risk assessment
- Continue the relevant baseline outcome monitoring
- Further develop detailed planning and all necessary risk assessments;
- Obtain required permits and approvals,
- Update operational details;
- Prepare key tender documentation

Final Go / No Go Decision

The Board made the final decision to proceed to implementation of the project at the Board meeting 12 September 2017 considering:

1. The status of key approvals
2. Safety of the environment
3. The advice of the NSW Chief Scientist and Engineer regarding a further independent Human Health Risk Assessment
4. Social Acceptability
5. Budget considerations

6. Technical Feasibility
7. Steering Committee recommendation

The business paper from the September Board meeting is attached as Appendix A for context.

At the September meeting, the Board resolved, that:

- In accordance with the previously approved Process for Resolution and noting that all required approvals had been received, the Board now proceed with Stage 3 of the Rodent Eradication Program with implementation in winter 2018, subject to all recommendations included in the Chief Scientist's Human Health Risk Assessment, the Environment Protection and Biodiversity Conservation and the Australian Pesticides and Veterinary Medicines Authority reports being adhered to.
- The conditions and recommendations of the certifying authorities should be made available to the community.

Stage Three: Implementation and evaluation of the eradication plan

This Stage is now underway.

Stage Three involves the eradication plan currently being implemented in winter 2018 over an approximate three month period. Key elements are:

- Finalise detailed logistics and operational planning including Property Management Plans
- Assemble and train remaining resources
- Construction of captive management facilities for the woodhen and currawong
- Capture of woodhens and currawongs
- Operational readiness check
- Implementation of ground and aerial baiting
- Follow up monitoring and release of woodhens and currawongs
- Maintaining an ongoing biosecurity and rodent detection monitoring network

CURRENT POSITION

1. Approvals

The new application for a Minor Use Permit from the Australian Pesticides and Veterinary Medicine Authority (APVMA) is still under assessment after the previous permit was voluntarily surrendered in November 2017. Despite representations being made about the decision being made expeditiously, the latest advice from the APVMA is that a decision on the new application may not be made until May 2018.

This presents significant risks to the REP in that until the permit is received and approval conditions are known, final logistics and planning cannot be undertaken. This includes finalizing the aerial and ground based operational plans and individual property management plans. It also includes ordering the correct quantity and sizes of bait, number of bait stations and even number of staff required to implement the plan.

Delays in receiving the permit increase the risk of failure as the operation cannot be planned to the standard required. This makes it impractical to proceed with the project in the current timeframe.

2. Community Acceptability and Property Access

There is a high level of support for the REP in the community but there is also still significant opposition. Ongoing consultation has shown that whilst some residents are opposed to the REP, they would allow access to their property. However several residents are refusing to allow access for baiting during the REP.

Whilst the community unanimously agrees with getting rid of rodents, some residents are still opposed to the current methodology. It is considered highly unlikely that some of those residents currently refusing access will change their minds without some change to the REP methodology.

Based on feedback from some members of the community, including some of those still refusing access to properties, an acceptable compromise may be to change the methodology in the settlement area to bait stations only. This will largely eliminate bait in the open in the settlement area, and therefore reduce people's concerns relating to this aspect. It may also present an opportunity to further compromise regarding livestock and poultry. Acceptable compromise could be that where people have a strong desire to keep livestock and poultry, they would need to work with REP staff to ensure that animals do not have access to bait and rodents do not have access to alternate food.

However this change to the methodology would require more time and resources on the ground during the eradication and more time invested in planning to the required standard. This considered acceptable if access to properties increases as a result.

3. Implications

Eradications either succeed or they fail. There is no such thing as a partially successful eradication. If one pair or even a single pregnant female survives, the project has failed.

One of the essential requirements of an eradication operation is that every single target animal is vulnerable to the technique(s) being used. In the case of LHI this requires that every rat and mouse has ready access to sufficient bait containing a lethal dose of the toxicant brodifacoum. If the inside of residential premises cannot be accessed for baiting, it is considered highly likely that the eradication will fail to eradicate mice and the risk of failure to eradicate rats increases. If properties cannot be accessed, it is considered highly likely that the eradication will also fail to eradicate rats. A compromise on methodology in the settlement area may aid in reducing these risks.

Both the issues relating to not having an APVMA permit and the high likelihood of not being able to enter some dwellings with the current methodology at this point present an unacceptable risk of failure to the rodent eradication project if implementation was to proceed in 2018. Given the above, it is considered that the essential conditions of the Process for Resolution, which were met at the September 2017 meeting, have now changed and are not yet satisfied.

Options for proceeding are discussed below.

4. Alternate Technologies

Alternate technologies have continued to be monitored and evaluated for suitability for eradication of rodents on LHI. In particular, sterilization techniques and gene drive technologies have recently been evaluated, with a summary provided below:

- Sterilisation – the product Contrapest, produced by Senestech is an emerging control, not eradication, technique suitable only for rats. It is delivered via liquid in bait stations. On LHI it would need to be dispensed via bait stations set on a 10m grid over the entire island with a very high service regime. This is simply not feasible on LHI. Senestech have advised the Board that they have no intention of registering the product in Australia in the foreseeable future.
- Gene drive technology, that seeks to produce daughterless rodents, is being researched by several institutions. The technology is currently in its infancy with proof of concept in a laboratory achieved. Researchers admit that the technology is at least a decade away from field trials *if* ethical and legal considerations can be overcome.
- Traps – Self resetting Goodnature A24 traps allow multiple kills between checks however these are largely unproven for eradication, of doubtful efficacy for mice and as with bait stations they would need to be distributed evenly over the whole of the island which is not feasible or safe on LHI. Ongoing trials in New Zealand show several design flaws with the traps also making them unsuitable for use in eradication.

Therefore, none of these techniques is suitable for eradication of LHI. The only technique considered suitable for LHI is aerial broadcast of bait in the PPP and ground baiting in the settlement area, because this is the only means by which risk of failure can be reduced to an acceptable level.

5. Options for Consideration

The following options, with associated benefits and consequences, are presented for consideration by the Board:

- a) Delay implementation of the program until 2019 with a change to methodology to bait stations only in the settlement area
- b) Pause the rodent eradication and assess the community and funders' acceptability of proceeding with a rat only eradication.
- c) Do not proceed with a rodent eradication. Increase ongoing rodent control to a level that significantly increase protection for ecological and World Heritage values at high risk from rodents

These options are analysed further in the table below. Risks and benefits of proceeding and not proceeding were also included in the September 2017 Business Paper which is attached for reference.

Option	Benefits	Risks / Consequences	Comments
1: Delay implementation of the program until 2019 with a change of methodology to bait stations only in the settlement area	<ul style="list-style-type: none"> • More time to receive the APVMA permit and for planning to reduce risks of failure. • Would still deliver the funded outcomes. • Removes ongoing use of poison • Would still allow eradication of Masked Owls. • Likely to increase social acceptability of the project. 	<ul style="list-style-type: none"> • Financial and social implications of delay. • Increased time and resources required during eradication • Even with a revised methodology, community acceptance may not change enough to reduce significant risks. • Higher risk of failure for both rodent species requiring meticulous planning to mitigate these risks 	<p>This is the only option that would deliver the currently funded outcome of eradication of rats, mice and owls.</p> <p>Process for Resolution gateways would need to be established during 2018 to test community acceptance and operational feasibility.</p>
2: Pause the rodent eradication and assess the community and funders acceptability of proceeding with a rat only eradication	<ul style="list-style-type: none"> • Eradication of rats only is likely to have some ecological benefits but not to the same degree as eradication of rats and mice. • Continues ability to undertake masked owl eradication. 	<ul style="list-style-type: none"> • Funding not available. The funders' current position is that eradication of rats only would not meet the project objectives and would not be funded. • In the absence of rats, mice numbers will increase and it is likely that they will fill at least part of the ecological niche rats currently occupy. • Ongoing mouse control and use of poison would be required and likely need to be funded by the Board. • Remaining mice would confound biosecurity surveillance for invading rats 	<p>This option may be ecologically more beneficial than an increased control regime.</p> <p>Community and funder acceptability would need to be tested. May require a Board decision to utilize Powers of Entry to leasehold land. This option could potentially also eradicate mice but this has a high level of uncertainty.</p>
3: Do not proceed with a rodent eradication. Increase ongoing rodent control to a level that significantly increase protection for ecological values at high risk from rodents	<ul style="list-style-type: none"> • Some level of protection afforded to ecological values. Better than doing nothing. 	<ul style="list-style-type: none"> • Ongoing impacts to biodiversity and World Heritage values. • Would require a significant increase to the current control regime (increase cost and amount of bait). • Current funding will not be available and cost would need to be met by the Board. • Ongoing use of poison would be required. • Potential implications for future grant funding. • No eradication of Masked Owls. 	<p>This option is considered unacceptable by the project team and may be considered unacceptable to the majority of the community.</p>

6. Steering Committee Recommendation

The Project Steering Committee has considered the alternatives above.

Options 2 and 3 were considered unacceptable as funders advised that they would not consider use of the existing REP funds for those options as the options did not meet the project outcomes.

The Steering Committee considers the REP still necessary and beneficial based on the evidence and recommends proceeding with Option 1: Delay implementation of the program until 2019 with a change to methodology to bait stations only in the settlement area.

Both funding partners have indicated that funds could be carried over to deliver the REP in 2019.

RECOMMENDATION

That the Board delay implementation of the LHI Rodent Eradication Program (REP) until winter 2019, with a change to methodology to bait stations only in the settlement area.

Prepared: Andrew Walsh, Rodent Eradication Project Manager

Endorsed: Penny Holloway, Chief Executive Officer

Attachments:

Attachment A: 8 (i) Rodent Eradication Business Paper – September 2017



Hybrid Renewable Energy Project

Lord Howe Island Board

Solar Only Options Analysis

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14 December 2017

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Hybrid Renewable Energy Project

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Document history and status

Revision	Date	Description	By	Review	Approved
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Appendix A. Financial Model

Executive Summary

Background

This report was commissioned by Lord Howe Island Board (LHIB) and the Australian Renewable Energy Agency (ARENA).

The report investigates and presents options to LHIB and ARENA for the LHIB Hybrid Renewable Energy Project (HREP) to proceed without the inclusion of wind turbines.

The LHIB business case (August 2014) and project feasibility study (December 2015) stated that the project aims were to:

- Reduce diesel consumption, which will help reduce future electricity tariff increases caused by fuel cost increases; and
- Reduce the cost of generation which will reduce the recurrent funding requirements from the NSW government.

The original ARENA contribution was \$4.0m of a \$10.3m capital budget. The LHIB feasibility report¹ estimated the project cost would be \$11.4m and the project financial model included this figure.

In June 2017 the Commonwealth Minister for the Environment's issued a decision on LHIB's referral under the EPBC Act, advising that the impacts of the wind turbines on the Island's World and National Heritage values are unacceptable, and therefore the wind turbine component of the project would not proceed.

The project system architecture before the wind generation component was vetoed was 450kW of solar PV, 400kW of wind and 400 kWh of battery storage, along with stabilisation and demand response technology. That configuration was calculated to replace up to 67 per cent of the LHIB distillate fuel used for power generation.

The results of this study indicate that the project can still meet the initial project goals without wind generation and suggests that an optimised system has significant show case potential as a high penetration, solar only project with a higher level of autonomy provided by the energy storage system that other systems installed or planned in Australia at the present time.

Solar Only Options Analysis

The following solar only options were investigated

- Scenario 1: 550kW Solar; HOMER² Optimised battery;
- Scenario 2.1: 550kW Solar + solar installed on the Wind Turbine site; HOMER Optimised battery;
- Scenario 2.2: 550kW Solar + solar installed on the Airport site (wind turbine site left available for possible future installation of wind turbines); HOMER Optimised battery;
- Scenario 3: HOMER Optimised Solar and battery; and
- Scenario 4: HOMER Optimised Solar and battery within June 2017 project budget.

The architectures determined by HOMER modelling were included in the project financial model included in Appendix A. The financial model was used to calculate the Net Present Value (NPV) of each scenario.

The architecture of the modelling outputs and the NPVs are included in Table 1-1.

¹ LHIB HREP Technical Feasibility Report - RT019500-0000-GN-RPT-0003 Rev 2 Final – 23 December 2015

² HOMER[®] is the trade name of a Hybrid Optimization of Multiple Energy Resources (HOMER) model that was developed by the National Renewable Energy Lab, a division of the U.S. Department of Energy. HOMER is widely used globally for micro-grid optimisation.

Table 1-1 Modelling results (excluding biodiesel)

Item	Scenario 1	Scenario 2.1	Scenario 2.2	Scenario 3	Scenario 4
Diesel Fuel Savings (L/year)	194,166	442,844	516,773	460,486	352,797
Renewable Fraction (%)	39	81	94	84	66
Solar PV (kW)	550	1,360	2,050	1,462	1,075
Battery Energy Storage System (kWh)	1,050	5,250	6,510	5,460	2,940
Total project budget including spent cost (AUD)	8,556,760	13,633,504	16,316,224	14,046,897	11,257,696
Number of Diesel starts per year	351	217	62	188	426
Net Present Value (AUD)	1,220,095	1,357,663	927,148	1,350,234	1,617,870

All scenarios modelled operate at 100% instantaneous renewable penetration and some operate for extended periods (days) without the diesel generators running. All scenarios were viable with the level of ARENA funding currently agreed.

Scenario 2.2 had the highest renewable fraction of the options investigated reaching 94%. However, this option had the lowest NPV of the scenarios considered.

Scenario 4 is able to achieve 66% diesel replacement with an estimated capital cost within the June 2017 budget (\$11.3m) without wind turbines. This renewable fraction compares favourably with the 70% original target and the 67% expected to be achievable with wind and solar. This is possible due to reductions in the cost of solar and battery technology (enabling larger solar and battery sizes) since the business case was completed. Scenario 4 also had the highest NPV of the scenarios considered.

Scenario 2.1 and Scenario 3 have similar NPV and renewable fraction. LHIB and ARENA are aiming to increase renewable fraction, selection of a solar farm this size will maximise the renewable fraction, while allowing the solar farm to be located at the power station site. The available area at the power station site is covered by the existing development approvals, which is likely to reduce any changes that may be needed.

Discussions with one preferred tenderer have confirmed that regardless of architecture the project could be completed in the 2018 calendar year if awarded in January 2018.

Biodiesel Investigation

Changing the diesel supply to biodiesel or a blend has the potential to reduce LHIB greenhouse gas emissions. For example, if 100% biodiesel is used, the island's power supply would be 100% renewable.

Our investigation suggests that changing to a 20% blend (B20) can be done at negligible capital cost and depending on negotiations with LHIB's existing supplier, may reduce the fuel supply cost. This change could provide a number of benefits including changing the emissions by the following amounts compared with fossil-fuel diesel:

- Unburned hydrocarbons 20% reduction;
- Particulate matter 12% reduction;
- Carbon Monoxide 12% reduction;
- Reduction of SOx emissions;
- NOx emissions could potentially increase by 2-3%.

In addition to these reductions, the renewable fraction of the total generation is increased by 20% of the diesel output. A summary of the effect that using B20 has on the renewable fraction for each scenario is included in Table 1-2.

Table 1-2 Renewable fraction for the scenarios when operated using B20.

Item	Scenario 1	Scenario 2.1	Scenario 2.2	Scenario 3	Scenario 4
Renewable Fraction with B20	51%	85%	95%	87.5%	73%

Running B20 is not expected to significantly increase the fuel consumption. The supply price of B20 to Port Macquarie was found to be lower than LHIB's existing supply. The actual supply cost would be dependent on negotiations with LHIB's freight forwarder. Once Large Scale Generation Certificates (LGCs) are considered, using B20 has a lower Levelised Cost Of Electricity (LCOE³) than fossil-fuel diesel.

Alternatively, operating with 100 % biodiesel (B100) would require an upfront capital cost to replace the existing diesel generators.

A high level estimate for this capital cost is \$370,000. If the change to B100 is timed so that the units are replaced rather than overhauled, LHIB could assign between \$105,000 and \$160,000 of their maintenance budget to reducing the capital expenditure.

Ongoing maintenance of the proposed B100 units is expected to be the same or lower than the existing units.

The supply price of B100 is roughly the same as fossil-fuel diesel and B20 blend. However, the cost of B100 to LHIB is 30% higher than fossil-fuel diesel after the excise rebate. This difference is 16% for the discounted weighted average of the two fuels over the project lifetime. When LCGs are considered the discounted weighted average cost of B100 to LHIB is 13% higher than discounted weighted average cost of fossil-fuel diesel.

Microgrid Enabling Technologies

With the exception of scenario 1 (550kW solar system), the battery systems recommended in this report, when charged, are able to supply the total network demand. The battery system will be capable of withstanding all system disturbances without the diesel generators running. At times when a diesel generator is required to run the battery system will still be connected and will provide additional stability support for the generator.

All solutions investigated generate excess energy on sunny days. Demand side management could play a role in shifting load into these sunny periods. Approaches that might be feasible include:

- Education programs;
- Optional time of use tariffs; and
- An incentive program for electrical vehicle charging at heavily discounted rates could incentivise use of the excess energy and renewable transport options.

Solar forecasting would be beneficial for stability in scenario 1. The grid forming batteries will be capable of managing any frequency variation caused by the new and existing in the other scenarios.

This options analysis has focused on a centralised solar battery system to minimise LCOE.

An alternate approach discussed in the report could be to create a virtual power plant with distributed solar and battery resources. Previous experience has indicated that the financial case can be similar for both a centralised and a distributed approach.

³ The levelized cost of electricity (LCOE), also known as Levelized Energy Cost (LEC), is the net present value of the unit-cost of electricity over the lifetime of a generating asset. It is often taken as a proxy for the average price that the generating asset must receive in a market to break even over its lifetime. (https://en.wikipedia.org/wiki/Cost_of_electricity_by_source)

However, in the case of Lord Howe Island previous investigations have suggested that there is a lack of suitable roof space. Additionally, the level of participation required to achieve the same results as the optimised systems is unlikely to be achieved.

Results of Options Analysis

A summary of the calculated NPVs for each option relative to the cost of Configuration 0 – “no project”, is shown in Figure 1-1. Of the configurations investigated, a system optimised for the current project budget and using B20 has the highest NPV and achieves a higher renewable fraction than the original wind and solar project. Configuration 4 achieved 66% renewable fraction using fossil diesel and 73% renewable fraction using 20% biodiesel. The project cost including spent to date is \$11.3M with a NPV of \$1.6M⁴.

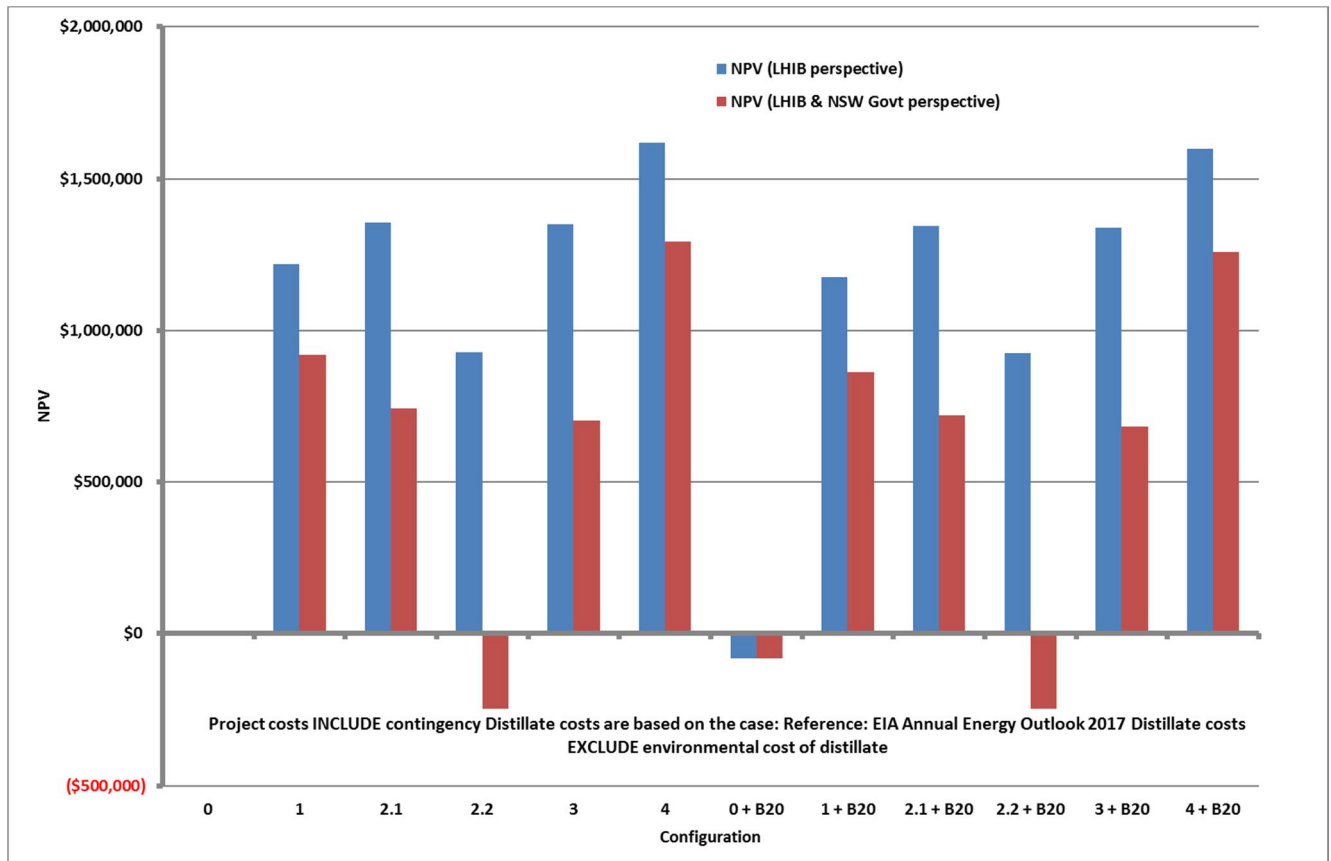


Figure 1-1 : Summary of NPV results

The results of Jacobs’ analysis indicate that a solution optimised for the available area co-located with the power station (original solar site plus the wind site) and switching the fuel use to 20% biodiesel could provide further benefits including:

- Renewable fraction of between 85.1% and 87.5%, which is higher than the other off grid projects in ARENA’s portfolio and achieves the project goal of significantly decreasing the island’s dependency on diesel;
- Significant running time with generators off (the generators do not start 177 days of the year);
- NPV of \$1.35m, which indicates that the project goal of reducing the recurrent funding requirement from state government is achieved.

⁴ Expressed for the LHIB plus NSW Government perspective. The results for the LHIB perspective is similar for this configuration as shown in Figure 1-1

Discussion should be commenced with the current diesel fuel supplier and biodiesel suppliers to confirm the logistics to bring a 20% blend of biodiesel to the island for generation use. Our investigation suggests that changing to B20 can be done for the same fuel price or reduced fuel price compared with the current fossil-fuel diesel supply, with no capital cost requirements..

Investigation and implementation of time of use tariffs is likely to maximise the benefit of the HREP. Subject to community consultation and financial analysis these tariffs would be compulsory for solar generators and optional for the remainder of the community.

The LHIB HREP is an iconic project for LHIB and ARENA with a range of opportunities for knowledge sharing and demonstration potential:

- Potential to be the highest penetration off grid hybrid system in ARNEA's portfolio;
- A high penetration solar only system. Many of the existing large scale high penetration off grid systems incorporate wind generation;
- Significant durations running with the diesel generation sets switched off (100% instantaneous penetration);
- The remote Pacific Island location will provide opportunities to identify improvements in project logistics, develop knowledge and demonstrate an approach that can be used on other remote islands in Australian and globally.

The logistical, economic and environmental factors associated with developing a Hybrid Renewable Energy System at Lord Howe Island are shared many Pacific Island jurisdictions. The knowledge and skills developed through the project are exportable to neighbouring Pacific Island Nations, many of which do not have an established renewable energy industry.

Important note about your report

The sole purpose of this report and the associated services performed by Jacobs is to provide analysis into solar only options for the Lord Howe Island Board Hybrid Renewable Energy Project. This review is undertaken on behalf of the Lord Howe Island Board in accordance with the scope of services set out in the contract between Jacobs and the Lord Howe Island Board.

In preparing this report, Jacobs has relied upon, and presumed accurate, any information (or confirmation of the absence thereof) provided by the Lord Howe Island Board and/or from other sources. Except as otherwise stated in the report, Jacobs has not attempted to verify the accuracy or completeness of any such information. If the information is subsequently determined to be false, inaccurate or incomplete then it is possible that our observations and conclusions as expressed in this report may change.

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1. Introduction

1.1 Background

Jacobs were engaged by the Lord Howe Island Board as the Owner's Engineer (OE) for the implementation of its Hybrid Renewable Energy Project (HREP) on the island.

The project aims are to:

- Reduce diesel consumption, to help reduce future electricity tariff increases caused by fuel cost increases.
- Reduce the cost of generation to reduce the recurrent funding requirements from the NSW government.

Work completed by Jacobs as part of this role has included:

- Carrying out the Lord Howe Island Hybrid Renewable Energy Technical Feasibility Study (RT019500-0000-GN-RPT-0003)
- Preparation of a Solar, Battery and Control System (SBC) tender package;
- Reviewing the SBC tender submissions and recommending two preferred tenderers;
- Preparation of a Wind Turbine tender package;
- Financial modelling and project management support; and
- Preparation of a memorandum providing high level notes on the potential for expanded Solar PV.

This report has been provided at the request of the Lord Howe Island Board and ARENA. Jacobs was engaged to report on the project economics and potential demonstration value of:

- Three solar and battery renewable energy scenarios;
- Using biodiesel for power generation; and
- A number of micro-grid enabling technologies.

1.2 Scope of Works

1.2.1 Financial model update with expanded solar scenarios

The project economics and potential demonstration value of the following scenarios is explored under this report:

- Scenario 1
 - 550kW Solar;
 - Optimised battery;
 - Designed to accommodate the future connection and control of up to 550kW of wind generation; and
 - Capable of 100% instantaneous solar penetration.

- Scenario 2.1
 - 550kW Solar + solar installed on the Wind site;
 - Optimised battery to accommodate the increased solar generation and minimise curtailment; and
 - Capable of 100% instantaneous solar penetration.
- Scenario 2.2
 - 550kW Solar + solar installed on the Airport site (wind site left available for possible future installation of wind);
 - Optimised battery to accommodate the increased solar generation and minimise curtailment; and
 - Capable of 100% instantaneous solar penetration.

1.2.2 Financial model update with biodiesel options

Carry out a high level review of using biodiesel on LHI.

1.2.3 Discussion of the potential impact of enabling technologies

Discuss the potential application of enabling technologies in the LHI context including and recommend technologies that warrant quantitative investigation.

1.3 Related ARENA projects

ARENA has contributed to a number of off grid solar battery hybrid systems including:

- Coober Pedy - \$18.41m - 1 MW solar, 4 MW wind, 0.5MWh battery – 70% renewable fraction
- King Island - \$6.08m – 390 kW Solar, 2450 kW wind, Biodiesel, fly wheel, 1.6 MWh battery 65% renewable fraction
- Flinders Island - \$5.5m – 200 kW solar, 385 kW wind, diesel, flywheel and 500 kWh battery – 60% renewable fraction

For a lower investment from ARENA, this project has the potential to delivery a higher renewable fraction relative to the previous off grid projects. Also it will be the only project using a solar only approach. There are many remote sites in Australia with a good solar resource without a viable wind resource. For this reason the LHI project has significant demonstration value and would enhance ARENA's hybrid generation portfolio.

2. Expanded solar scenarios

2.1 Solar Capacity

Jacobs has assessed the solar capacity that can be installed at the following areas selected by LHIB:

- Area 1 (Airport site)
- Areas 2 and 3 (Airport site)
- Solar Area C (as referred to in the Technical Feasibility Study, 2015) but expanded to incorporate the previously proposed WTG locations. We have considered two options, removing the met mast and using the area for solar generation or keeping the met mast.

Prospective areas are depicted in the following images (Figure 2-1 and Figure 2-2).

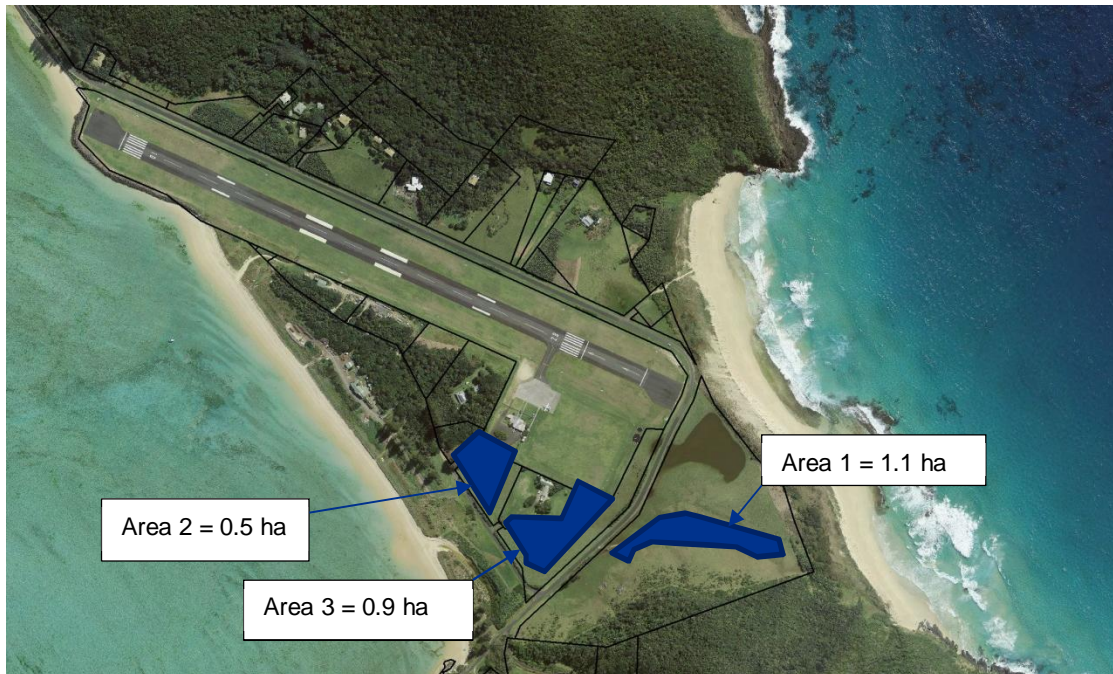


Figure 2-1 : Potential Solar Farm Areas



Figure 2-2 : Expanded Solar Area C at the Proposed Wind Turbine Site

Careful consideration needs to be given to geotechnical investigations and hydrology assessments as this may increase the cost of foundations.

Jacobs has made several assumptions when sizing the solar installation at each area. The slope at the sites was considered and spacing between rows was decreased where appropriate due to reduced inter-row shading on steeper terrain.

The solar installation is based on 320W modules with string inverters. Jacobs has assumed a DC/AC ratio of 1.08 consistent with the Technical Feasibility Study (Jacobs, 2015).

Energy has been assessed based on the expected long term solar resource at LHI and a generic solar system comparable to the one presented in the Technical Feasibility Study. Once a specific system and technology has been selected, the calculations are to be updated. Jacobs has also made several assumptions regarding losses and considered standard loss factors for soiling and electrical reticulation.

Table 2-1 below summarises the results of this assessment.

Table 2-1 : Results of Assessed Solar Sites

Site name	Area (ha)	Number of panels	DC capacity (kWdc)	AC capacity (kWac)	Annual generation (MWh)
Area 1	1.1	2,403	769	715	1,159
Area 2	0.5	966	309	285	457
Area 3	0.9	1,665	533	500	788
Expanded Solar Area C (excluding mast area)	0.9	1,944	622	580	937
Expanded Solar Area C (including mast area)	1.2	2,718	870	810	1,311

For the remainder of this report the solar capacity available at each of the sites to be considered is summarised as follows:

- Airport site = Area 1 + Area 2 + Area 3 = 1500kWac

- Wind site = Area C (including mast area) = 810kWac

2.2 HOMER Simulation Scenarios

Hybrid Renewable Energy Systems were modelled in accordance with each of the three scenarios based on the tenders submitted by Balance and Photon Vector. The architecture of the three scenarios modelled is summarised in Table 2-2 below. The electrical load data was retained from previous modelling completed by Jacobs.

Table 2-2 : Modelling Scenarios

Scenario	Battery Capacity (kWh)	LHIB Solar Capacity (kW)	LHI Private Solar Capacity (kW)	Diesel Engines (kW)
1	Optimised	550	120	3 x 285
2.1	Optimised	1360	120	3 x 285
2.2	Optimised	2050	120	3 x 285
3	Optimised	Optimised	120	3 x 285

2.3 HOMER Modelling Inputs

The scenarios summarised in Section 2.2 were modelled based on the tenders submitted by Photon Vector and Balance in August 2016. A single set of price assumptions were developed to create a single base model for each scenario (4 models). These models were repeated based on Vanadium Redox using pricing and technical data provided by RedT.

The Photon Vector tender was based on the use of the following components:

- Tesla Powerpack 2.0 210kWh battery system
- LG Neon solar modules

The Balance tender was based on the use of the following components:

- BYD CS-15 6.14kWh batteries
- LG Neon solar modules

Jacobs undertook high level assessment of changes in the market since the date of tender (August 2016). Photon Vector reported price changes of -25% and -6% for battery systems and solar systems respectively while Balance reported price changes of 22% and 3.3% for battery and solar systems respectively.

The modelling price inputs are summarised in Table 2-3 below. Jacobs has reviewed the prices provided by Balance and Photon Vector and created a price profile for modelling. Battery prices were based on the Tesla Powerpack 2.0 system as tendered by Photon Vector. Solar PV prices were based on LG Neon modules as tendered by Balance. The Solar PV price was adjusted to include the value of LGC's generated at each year and discounted to 2018 (the proposed year of installation), so as to yield an accurate LCOE result.

Table 2-3 : HOMER Modelling Inputs for Base Cases

Scenario	Balance (Tender 2016)		Photon Vector (Tender 2016)		Jacobs Selected (2018 Scaled)			
	Battery (\$/kWh)	Solar PV (\$/kW)	Battery (\$/kWh)	Solar PV (\$/kW)	Battery (\$/kWh)	Battery O&M (\$/year)	Solar PV (\$/kW)	Solar PV O&M (\$/kW)
1	89.6	2400	821	2,700	616	10,000	2068	0
2.1	89.6	2400	821	2,700	616	10,000	2068	0
2.2	89.6	2400	821	2,700	616	10,000	2068	0
3	89.6	2400	821	2,700	616	10,000	2068	0

HOMER simulations for each of the scenarios were also conducted based on Vanadium Redox battery systems. The battery system modelled was based on the RedT modular energy storage products, with modelling parameters provided by the manufacturer. Modelling cases were considered for both leasing and purchasing of the electrolyte battery fill. For each of the Vanadium Redox simulations, solar PV prices were consistent with those selected for the base case modelling. Table 2-4 below summarises the HOMER modelling assumptions for each scenario.

Table 2-4 : HOMER Modelling Inputs for Vanadium Redox Cases

Scenario	Electrolyte Purchased		Electrolyte Leasing		All Models	
	Battery (\$/kWh)	Battery O&M (\$/kWh)	Battery (\$/kWh)	Battery O&M (\$/kWh)	Solar PV (\$/kW)	Solar PV (\$/kW)
1	1,850	55.5	1,324	75.5	2068	0
2.1	1,850	55.5	1,324	75.5	2068	0
2.2	1,850	55.5	1,324	75.5	2068	0
3	1,850	55.5	1,324	75.5	2068	0

Table 2-5 below summarises the project wide simulation inputs were held constant across each of the four base scenarios. The updated diesel price was provided by the LHIB, while all other inputs were held constant from previous modelling completed by Jacobs.

Table 2-5 : Project Wide Inputs

Parameter	Value
Real Discount Rate	6.3%
Expected Inflation Rate	2.25%
Project Lifetime	20 years
Diesel Fuel Price (\$/Litre)	\$1.93 AUD ⁵
Diesel O&M Cost	\$0.0037/kW/h AUD
Diesel Replacement Cost	\$196/kW/h AUD

2.4 HOMER Modelling Results

The four scenarios summarised in Table 2-2 were modelled using HOMER based on the Jacobs selected price inputs, as detailed in Table 2-3. HOMER presents numerous results for each of the battery optimisation cases, which Jacobs subsequently categorised by Levelised Cost of Electricity (LCOE) and then by initial CAPEX.

Benchmarking was conducted against a Business as Usual (BaU) model which consisted of 3 x 285kW Detroit diesel engines and 120kW of private Solar PV, the results of which are summarised in Table 2-6 below.

⁵ This is a levelised price over the life of the project

Table 2-6 : Business as Usual Model Results

Scenario	LCOE (\$/kWh)	Diesel Consumption (L/year)
BaU	0.469	552,311

The HOMER modelling results based on the Jacobs selected price inputs are summarised in Table 2-7 below. The results do not consider the remaining capital budget and reflect the optimal system as determined by HOMER for each scenario.

The system architecture and costs based on LG Neon solar modules the Tesla Powerpack 2.0 energy storage system is also included in the summary below.

Table 2-7 : Base Case HOMER Modelling Results Ignoring Remaining Budget

Item	Scenario 1	Scenario 2.1	Scenario 2.2	Scenario 3
LCOE (\$/kWh)	0.383	0.317	0.326	0.314
Diesel Savings (L/year)	194,166	442,844	516,773	460,486
Renewable Fraction (%)	39	81	94	84
Solar PV (kW)	550	1,360	2,050	1,462
Battery Energy Storage System (kWh)	1,050	5,250	6,510	5,460
No. of Solar Panels (LG Neon 320W)	1,719	4,250	6,406	4,569
Annual Solar Output (kWh)	819,559	2,026,545	3,054,719	2,298,772
No. of Battery Energy Storage Modules (Tesla Powerpack 2.0)	5	25	31	26
EPC costs - Solar PV, BESS and Control System Capital Cost (\$AUD)	4,887,600	9,302,160	11,634,960	9,661,632
Owner's costs including contingency (Indicative) (\$AUD)	1,674,990	2,337,174	2,687,094	2,391,095
Spent to date	1,994,171	1,994,171	1,994,171	1,994,171
TOTAL PROJECT CAPITAL COSTS (\$AUD)	8,556,761	13,633,505	16,316,225	14,046,898

Modelling results which consider the project budget from the June 2017 financial model of \$11.34m are presented in Table 2-8 below. Scenario 1, Scenario 2.1 and Scenario 2.2 are not presented as the results were not deemed commercially viable. The system which yields the lowest LCOE was determined based on modelling which optimised both the solar PV and battery storage capacities.

Table 2-8 : Base Case HOMER Modelling Results Within Remaining Budget

Item	Scenario 4
LCOE (\$/kWh)	0.340
Diesel Savings (L/year)	352,797
Renewable Fraction (%)	66
Solar PV (kW)	1075
Battery Energy Storage System (kWh)	2,940
No. of Solar Panels (LG Neon 320W)	3,359
Annual Solar Output (kWh)	1,527,360
No. of Battery Energy Storage Modules (Tesla Powerpack 2.0)	14
EPC costs - Solar PV, BESS and Control System Capital Cost (\$AUD)	7,236,240
Owner's costs including contingency (Indicative) (\$AUD)	2,027,286
Spent to date	1,994,171
TOTAL PROJECT CAPITAL COSTS (\$AUD)	11,257,697

Modelling conducted based on RedT Vanadium Redox energy storage systems yielded commercially unviable results with all LCOE figures exceeding the business as usual case, where the lowest resulting LCOE figure was \$0.423/kWh. Furthermore, HOMER 'optimised out' all battery storage from these systems owing to the significant capital costs associated with Vanadium Redox.

The models were expanded to consider an electrolyte leasing option, whereby the electrolyte fill for the batteries is leased from RedT. Under this scenario, the capital cost of the Vanadium Redox batteries is reduced by \$526/kWh and the operating costs are increased by \$20/kWh. LCOE results for the leased option were similarly uncompetitive, with a minimum achievable LCOE of \$0.445/kWh based on a system consisting of a single 75kWh Vanadium Redox battery.

Our modelling of the Vanadium Redox option was based on the RedT 15 kW, 75 kWh flow machine. This machine was selected because of logistics considerations. The 15/75 model is housed in a 10-foot container and weighs 3.8T dry. RedT has advised that if logistics allows the installation of a 10.5T 20-foot container, the capital price would be 30% lower per kWh. In addition, their development pathway is expected to reduce the 2019 delivered price by a further 20 to 30%. It is evident that although Vanadium Redox technology has not compared favourably to Lithium for this project it is likely to be competitive for future projects.

2.5 Optimised Solution

2.5.1 Net Present Value

The technical performance parameters for the configurations (Scenarios) calculated by HOMER were used to update the previous financial model. The Net Present Value for each Scenario calculated using the financial model is included in Table 2-9.

Table 2-9 NPV for all Scenarios⁶

Item	Scenario 1	Scenario 2.1	Scenario 2.2	Scenario 3	Scenario 4
Net Present Value (AUD)	1,220,095	1,357,663	927,148	1,350,234	1,617,870

The financial model output ranks Scenario 4 as the most favourable scenario by NPV. This scenario is the optimised solution that is within the total budget from the June 2017 financial model. It achieves a 66% renewable fraction without B20 and 73% renewable fraction if B20 is used.

The next most attractive options were Scenario 2.1 and Scenario 3. These scenarios have higher renewable fractions 81% and 84% respectively, but they also have higher capital cost, requiring around \$2.5m of additional funding to proceed. Their NPVs are both \$1.35m and they would be a good option if the aim was to maximise renewable fraction.

The ranking of the Scenarios produced by the financial modelling results is different to the HOMER model. HOMER uses a fixed discount rate to calculate NPV. The discount rate applied to each Scenario in the financial model varies as the proportion of capital from the various sources changes. Jacobs has assumed for this analysis that the ARENA grant is fixed at \$4M, the LHIB contribution is fixed at \$456k and the remaining capital is provided by a NSW government loan.

2.5.2 System Architecture

The architecture of the lowest NPV scenario is:

- 1,075 kW Solar PV;
- 2,940 kWh Lithium energy storage system; producing
- 66% renewable fraction

⁶ NPVs shown are for the combined LHIB plus NSW Government perspective

For the next closes scenarios, Scenario 2.1 and Scenario 3, the architecture was:

- 1,360 kW and 1,462 kWh Solar PV;
- 5,250 and 5,460 kWh Lithium energy storage system; producing
- 81% and 84% renewable energy fraction

2.5.3 Economics

The results from the HOMER modelling optimising both the Solar PV and battery capacity are shown graphically in Figure 2-3 and Figure 2-3 : **Battery and Solar PV Optimisation Based on LCOE**

below. Optimisation has been considered on the basis of LCOE and CAPEX.

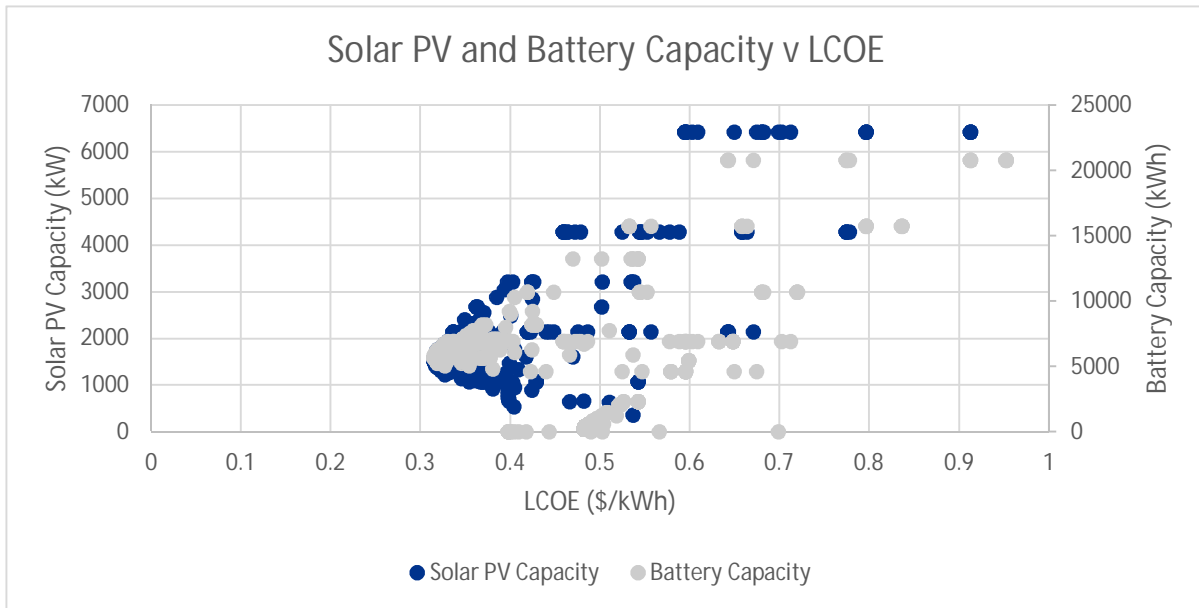
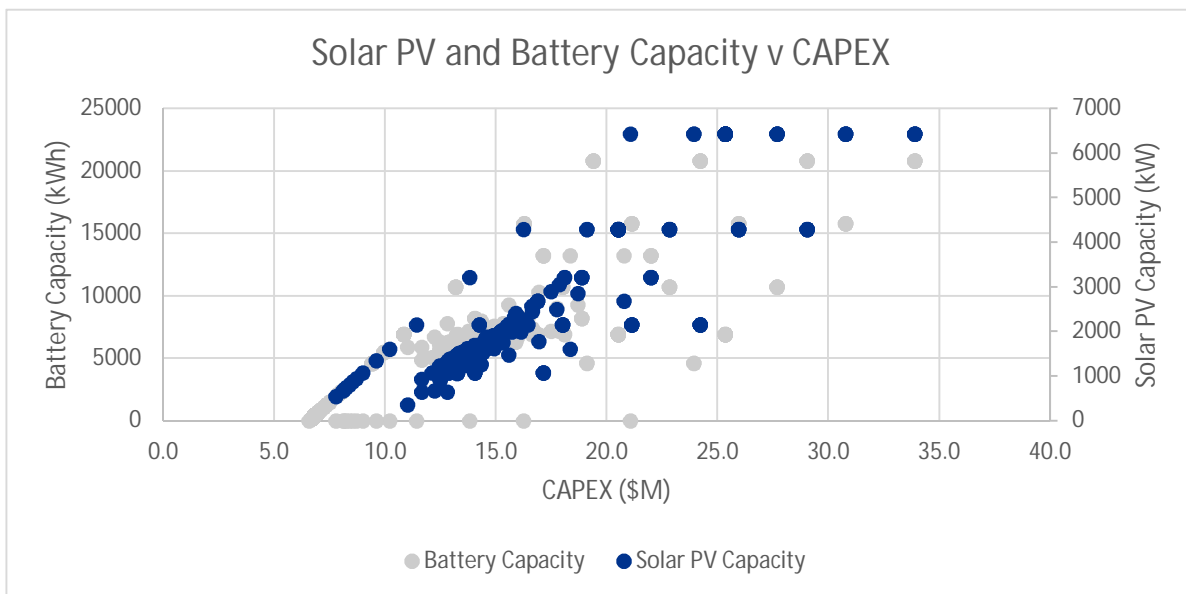


Figure 2-3 : Battery and Solar PV Optimisation Based on LCOE⁷



⁷ LCOE in the HOMER model is based on EPC costs and spent to date after the ARENA grant. Owner’s costs including PMOE and salaries are not included.

Figure 2-4 : Battery and Solar PV Optimisation Based on CAPEX⁸

2.6 Model Constraints and Assumptions

Homer model assumptions and constraints:

- The CAPEX is indicative as the 'fixed' costs are based on the tenders of Photon Vector and Balance for non-identical systems.
- The Homer model assumes the energy from the private solar is zero cost.

2.7 Conclusion

The following solar only options were investigated

- Scenario 1: 550kW Solar; Optimised battery;
- Scenario 2.1: 550kW Solar + solar installed on the Wind Turbine site; Optimised battery;
- Scenario 2.2: 550kW Solar + solar installed on the Airport site (wind turbine site left available for possible future installation of wind turbines); Optimised battery;
- Scenario 3: Optimised Solar; Optimised battery; and
- Scenario 4: Optimised Solar; Optimised battery within June 2017 project budget.

All scenarios modelled operate at 100% instantaneous renewable penetration and some operate for extended periods (days) without the diesel generators running. Figure 2-5 gives a clear impression of how often the generators are not operating in Scenario 3.

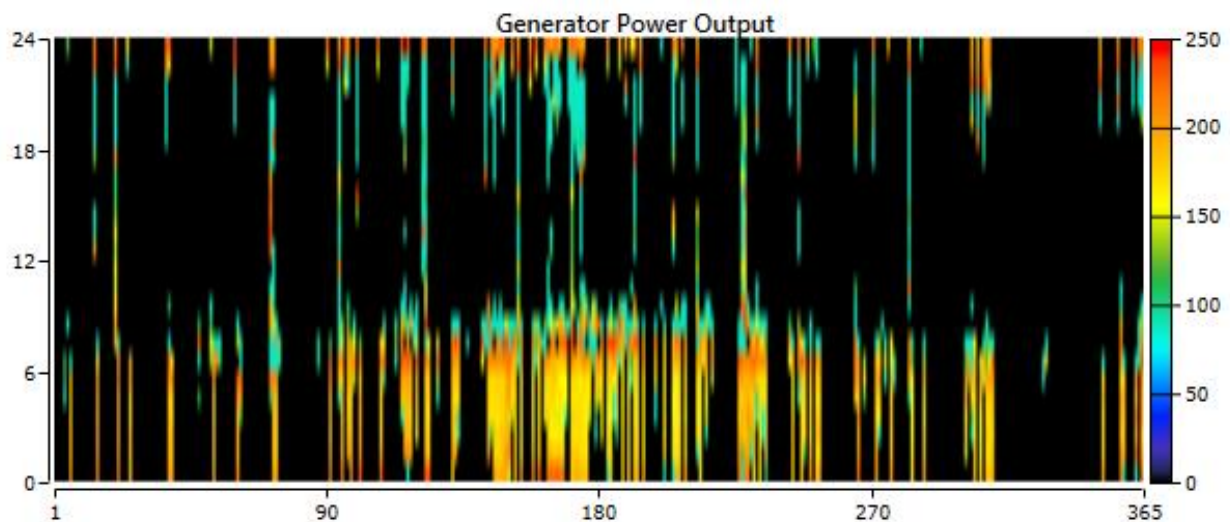


Figure 2-5 : Diesel Generator Annual Power Output

All scenarios were viable with the level of ARENA funding currently agreed.

Scenario 2.2 had the highest renewable fraction of the options investigated reaching 94%. However, this option had the lowest NPV of the scenarios considered.

⁸ CAPEX in the HOMER model includes spent costs and EPC costs after the ARENA grant. Owner's costs including PMOE and salaries are not included.

Scenario 4 is able to achieve 66% diesel replacement within the June 2017 budget (\$11.3m) without wind turbines. This renewable fraction compares favourably with the 70% original target and the 67% expected to be achievable with wind and solar. This is possible due to reductions in the cost of solar and battery technology since the business case was completed. Scenario 4 also had the highest NPV of the scenarios considered.

Scenario 2.1 and Scenario 3 have similar NPV and renewable fraction. LHIB and ARENA are aiming to increase renewable fraction, selection of a solar farm this size will maximise the renewable fraction, while allowing the solar farm to be located at the power station site. The available area at the power station site is covered by the existing development approvals, which is likely to reduce any changes that may be needed.

Discussions with one preferred tenderer have confirmed that regardless of architecture the project could be completed in the 2018 calendar year if awarded in January 2018.

The CAPEX figures quoted in this report are based on the assumptions made in this report. For accurate capital costs a full requote is required by the two preferred tenderers Photon Vector and Balance Decmil.

3. Biodiesel Investigation

3.1 Introduction

Lord Howe Island Board and ARENA have requested that Jacobs carry out an assessment of the issues around the possibility of using bio-diesel as a substitute for fossil-fuel diesel now used in its engines.

Current generating capacity is provided for with the following:

- a) Main generating capacity is 3x Detroit diesel engines, Series 60, model number 6063HK35, commissioned in 2007;
- b) Standby generator – 1x Cummins generating set, model C550 D5E, commissioned in 2013.

Current power demand is

- Average daily load (kWh/d) = 6,424.7
- Average power (kW) = 267.7
- Peak power (kW) = 489.63
- Annual Fuel usage (L, 2015) = 567,750

3.2 Engine data

Both engine suppliers (Cummins Power in Brisbane, and Penske Power Systems who represent Detroit Diesel power generation sets in Australia) have confirmed that their engines can operate using a bio-diesel blend of 20% bio-diesel, called B20. Note that the fuel specifications from both manufacturers are based on USA fuel standards and will need to be checked against Australian regulations. Also note that there is no Australian Standard as such, but legislation issued on the subject in 2003 which is the basis of supply quality for bio-fuels in Australia.

To operate using 100% biodiesel (B100), new engine units will need to be purchased.

Scania offers generating sets that are warranted to run on B100. The ex-works budgetary quote provided by Scania to replace the existing Detroit Diesel units and the standby Cummins are included in Table 3-1.

Table 3-1 Ex-works costs for B100 generators

Model	Enclosure	kVA	kW	Engine	Cylinders	Lph @ 50%	Lph @ 75%	Cost (+GST)
SG375	No	350	280	DC13 072A	6	37	53	\$53,832.00
SG550	Yes	500	400	DC13 072A	6	48	72	\$80,625.00

Although the new unit purchase price is similar to the existing unit overhaul cost, there is likely to be some cost involved with changing the gensets. The costs to be considered are:

- Possible requirement for new controllers and support with controller integration.
- It is unlikely that the existing fuel handling system will require modification to prevent clouding issues because of the relatively high minimum temperature on the island (the coldest temperature recorded on Lord Howe Island is 8.2 degC);
- Biodiesel has a solvent effect so the existing pumps and filters used by the island trader and the LHIB power station will need to be checked for compatibility.

The following estimates were used to produce an order of magnitude cost:

- 3 x \$70,000 for the primary units, transport and installation (assumes all units are changed at the same time);

- 3 x 10,000 for the controllers and their integration;
- \$30,000 contingency; and
- 1 x \$100,000 for replacement of the backup unit.

This is a total of \$370,000. The primary generators are overhauled every 18,000 hours for a cost of between \$35,000 and \$53,000. If the change to B100 is timed so that the units are replaced rather than overhauled, LHIB could assign between \$105,000 and \$160,000 of their maintenance budget to reducing the capital expenditure. We have assumed a capital cost of \$250,000 in the financial model.

The maintenance cost of the Scania units is equal to, or lower than the Detroit units.

Scania recommends that the engine is replaced every 20,000 hours. The replacement cost for the engine was quoted at \$37,605.00 plus GST, plus freight, LHIB salaries and incidentals. The past overhaul costs for the existing units has been between \$35,000 and \$53,500 (plus freight, salaries and incidentals), and was required at between 14,000 and 19,000 hours.

The Scania has also confirmed that the cost of parts between replacements should not exceed the historical costs, which are \$320 every 300 hours.

Scania advises that the units can run 100% fossil-fuel diesel or up to 100% biodiesel without any changes to the control system. All adjustments are automatic. This means that once the B100 units are installed, LHIB will have flexibility to change fuel if required for availability or cost reasons.

The consumption curve for the Scania engines has lower g/kWh consumption than the Detroit units. A comparison is included in Figure 3-1.

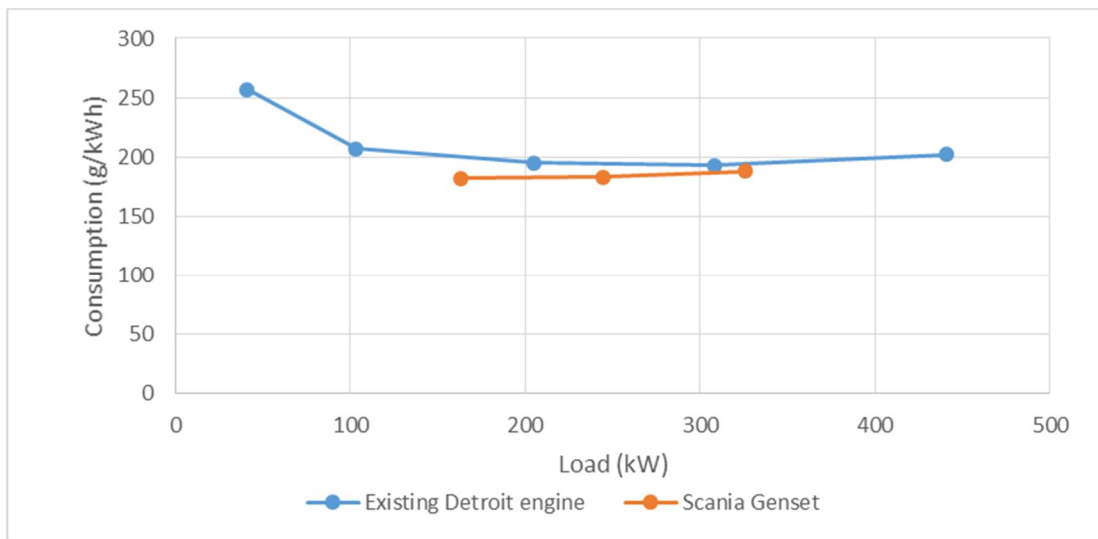


Figure 3-1 Consumption curve comparison for the Detroit and the Scania generators (from their data sheets)

It is possible that the consumption will be slightly higher for biodiesel than fossil-fuel diesel because the energy content is lower. However, Scania advises that most user do not notice a change in consumption. This may be due to biodiesel burning cleaner than fossil-fuel diesel.

In the Jacobs feasibility study for the LHIB HREP it was reported that the actual consumption recorded by LHIB was 7.5% higher than the modelled consumption for the business as usual case. It is likely that this discrepancy is due to generation losses including the alternator and other parasitic losses. The fuel consumption curve used in the HOMER model for this report has been adjusted to allow for these losses.

3.3 Bio-diesel availability in Australia

According to Biofuels Australia, there are suppliers of bio-diesel in most states in Australia (Table 3-2). However, as the shipping company servicing Lord Howe Island (the Island Trader) picks up from Port Macquarie, the nearest suppliers are in Newcastle and Brisbane. Both, through their blenders and bulk suppliers, are willing to negotiate a long-term supply contract for biodiesel B20 blend (20% biodiesel, 100% fossil-fuel diesel) based on fuel quality and quantity. Jacobs has been advised by biodiesel supplier Eco Oils that it is unlikely that LHIB will be able to secure a long term contract for 100% biodiesel. This is due to the volatility in feedstock price, rather than its availability.

Table 3-2 Biodiesel manufacturers in Australia

BIODIESEL PLANT	LOCATION	OWNER (* BAA MEMBER)	TOTAL INSTALLED CAPACITY (ML) (01.06.15)	FEEDSTOCK	STATUS (01.06.15)
ARfuels Barnawartha	Barnawartha, VIC	Australian Renewable Fuels*	60	Tallow, Used cooking oil	In production
ARfuels Largs Bay	Largs Bay, SA	Australian Renewable Fuels*	45	Tallow, Used cooking oil	Mothballed
ARfuels Picton	Picton, WA	Australian Renewable Fuels*	45	Tallow, Used cooking oil	Mothballed
ASHOIL	Tom Price, WA	Ashburton Aboriginal Corporation*	Unknown	Used cooking oil	In production
Biodiesel Industries	Rutherford, NSW	Biodiesel Industries Australia Pty Ltd*	20	Used cooking oil, Vegetable oil	In production
Ecofuels Australia	Echuca, VIC	Ecofuels Australia Pty Ltd	1.5	Canola oil	In production
EcoTech BioDiesel	Narangba, QLD	Gull Group*	30	Tallow, Used cooking oil	In production
Macquarie Oil	Cressy, TAS	Macquarie Oil Co	15	Poppy Seed Oil & Waste Vegetable Oil	In production
Neutral Fuels	Dandenong, VIC	Neutral Fuels (Melbourne) Pty Ltd	Unknown	Used cooking oil	Closed
Smorgon Fuels – BioMax Plant	Laverton, VIC	Smorgon Fuels Pty Ltd	N/A (Prior to closure 15-100)	Tallow, Canola Oil and Juncea Oil	Closed
Territory Biofuels	Darwin, NT	Territory Biofuels Ltd	140	Refined, Bleached & Deodorised (RBD) Palm Oil, Tallow, Used Cooking Oil	Closed
TOTAL INSTALLED CAPACITY (ML)			217		

Note that, as fossil-fuel-diesel is an internationally traded commodity, fossil-fuel diesel pricing is what is available on the spec market; bio-diesel is locally produced and pricing is subject to local supply/demand and the vagaries of government support.

3.4 Transport logistics to Lord Howe Island

The present fossil-fuel diesel supply contract is based on 540 kL of diesel per year. The results in Table 2-7 and Table 2-8 suggest that the supply will be reduced by between 180 kL and 480 kL if the HREP project proceeds, bringing the supply to between 360 kL and 60 kL per year.

The Brisbane-based bulk supplier can ship in standard tankers, 30,000 L per load. The Newcastle-based bulk supplier can ship by B-double tankers, 50,000 L per load.

Lord Howe Island's fuel is currently delivered by Lord Howe Island Freight on the MV Island Trader. This ship plies between Lord Howe Island and Port Macquarie only. Transport cost from one bio-diesel blender (Park Fuels) to Port Macquarie was quoted as \$0.003/L for a B-double and \$0.0039/L for a tanker. The present price for freight on the Island Trader from Port Macquarie to Lord Howe Island is \$0.369.

The Island Trader delivers to LHI fortnightly depending on weather.

Lord Howe Island Freight's vessel the Island Trader has two diesel tanks. The 30 kL tank is used for the ship's supply. The ship's engines are not permitted to run on biodiesel so this tank cannot be used to transport B100 or a blend. The 60 kL tank is designated for cargo. This tank could be used to transport either B100 or a blend. If both fossil-fuel diesel and a biodiesel product are required on the island, the fossil-fuel diesel cargo could be transported as part of the 30 kL tank's volume. Diesel is currently unloaded into 1300 L IBCs on arrival at LHI.

An alternative approach for consideration is sending the LHIB owned IBCs back with the Island trader and for them to be filled at Port Macquarie.

Whichever approach is taken, carrying two different types of fuels is likely to incur additional charges from LHI Freight for management and handling. Lord Howe Island Freight currently charge LHIB a 10% mark up on diesel supplied, which is reduced by an 8% bulk discount. We have assumed that additional charges for biodiesel add 50% to this mark up.

3.5 Fuel Storage and Pumping Issues

At present there is no specific diesel storage facility at the Lord Howe Island wharf. The Island Trader presently unloads diesel into 11 x 1300 litre IBCs and delivers this directly to the new powerhouse storage tanks. These consist of 1 x 34400 litre service tank and 2 x 17250 litre backup storage tanks. All tanks are above ground self bunded style. A standard delivery load from Lord Howe Island Seafreight is 14300 litres and depending on the time of year etc. LHIB receives either 1 or 2 loads per shipping voyage. The risks and options for this will be discussed in Section 3.8.

Bio-diesel, typically, has a lower cloud point (which is used as an indicator of cold flow properties) and slightly higher viscosity. Viscosity is defined as a resistance to flow, so the increased bio-diesel viscosity implies a higher pumping power. The lower cloud point also implies more resistance to flow through strainers and higher wax content.

Bio-diesel is prone to biological degradation which could lead to issues with long term storage. However, biocide additives can be used to minimise this problem. A common additive is "Fuel Doctor" which can be added at the blending stage. For the maximum expected diesel use of 360 kL per year, 15 kL of fuel will be supplied fortnightly. At this rate of turn-over no issues with storage are expected. If the consumption is reduced to 60 kL per year the two smaller tanks could be used with one 7,500 kL delivery every six weeks ensuring that a minimum of six weeks supply is retained in case a delivery is delayed. This will ensure that the fuel is not stored for more than 3 months. A similar approach will need to be considered for both biodiesel and fossil-fuel diesel

3.6 Environmental Issues

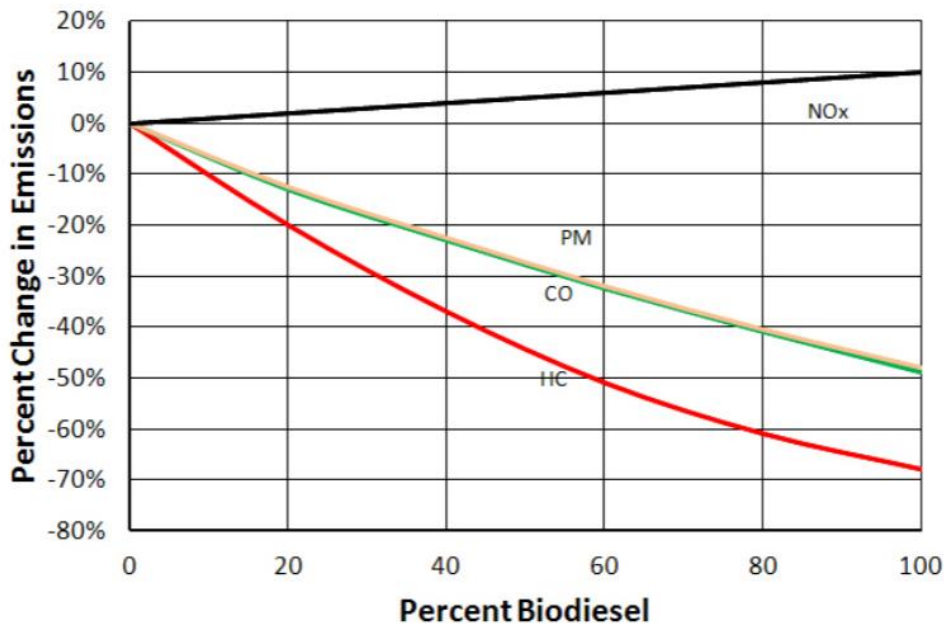


Figure 3-2 Emissions impact compared with bio-diesel percentage.⁹

In a paper produced from Worcester Polytechnic Institute, an important comparison chart is included – see Figure 3-2 above. The curves were generated from expected emissions from a test combustion rig, but are indicative of what could be expected. Bio-diesel has a higher inherent oxygen content, but also almost no sulphur. As a consequence, the required air-to-fuel ratio is lower for bio-diesel blends, and there are almost no SO_x emissions.

Marginally higher NO_x emissions while blending bio-diesel is shown in the chart. However, reports are conflicting as bio-diesel has a lower adiabatic combustion (burning) temperature. As there are very few cyclic hydro-carbons in bio-diesel, the unburned HC in the exhaust is considerably lower – by 20% for B20. For a similar reason, particulates (Particulate Matter = PM) are lower by 12%; also with fewer cyclic hydro-carbons combustion is more efficient and CO is also about 12% less.

Although not specifically mentioned, carbon dioxide is also a little less as the percentage of carbon per kilogram of fuel is lower for bio-diesel.

There are some negatives with bio-diesel. With a greater content of long chain hydro-carbons, the cloud point is significantly lower than fossil-fuel diesel. This is a risk for cold starts.

3.7 Fuel Costs

3.7.1 Australian biodiesel market and capacity

The Australian biodiesel industry and market is small. Mandates do not cover the entire country and remain modest compared to other countries with biofuel programs¹⁰. In 2016 64 countries had biodiesel targets or mandates including the EU, the US, Canada, India, China and many Asian, South American and African states¹¹. On 1 January 2017 Queensland introduced a 0.5% biodiesel mandate and NSW has had a 2% biodiesel mandated since 2007. However, the allowable exceptions have resulted in very little change in use. The South Australian Adelaide Metro bus fleet uses B5 with plans to begin using B20. Plant capacity 20ML per year.

⁹ "A comparative analysis of bio-diesel and diesel emissions", Curto JW et al, Worcester Polytechnic Institute.

¹⁰ "GAIN Report AS1712", US Department of Agriculture (USDA), Foreign Agricultural Service, 15 August 2017

¹¹ "Biofuels Mandates Around the World: 2016", Biofuels Digest, www.biofuelsdigest.com

The Australian Biofuels Association reports that the total installed capacity for biodiesel production is 217 ML. However, the actual production is much less than capacity. USDA estimates that Australia's annual production in 2016 was only 40 ML. Jacobs contacted Australian Eco Oils who confirmed that they could supply to Port Macquarie and that they currently operate their 20ML plant at 20% capacity. Australian Eco Oils advised that there was sufficient capacity available in their plant and that they would be able to source sufficient feedstock to meet the LHIB requirements.

3.7.2 Current prices

LHIB have recently renewed their diesel supply contract for 10 years.

The contract price breakdown is shown in

Table 3-3 LHIB diesel contract price breakdown

Item	Cost	Breakdown	Cost
Shipper - Sale price	1.353	Terminal Gate Price	1.186
		Caltex retail mark up	0.14
		LHI Sea Freight mark up	0.133
		LHI Sea Freight bulk discount	0.106
Lord Howe Island Sea Freight – Freight price	0.369		

Estimates of biodiesel and blend prices available to LHIB are included in Table 3-4. We have assumed that:

- The Shipper mark-up will apply to the prices that Jacobs has been quoted for biodiesel and B20 blend;
- the Shipper purchase price for biodiesel and B20 blend will not include a retail mark up as the quoted prices included delivery to the ship in Port Macquarie;
- The delivery price for the biodiesel and B20 was doubled to allow for a half load delivery (15,000 L).

Table 3-4 Current fuel prices available to LHIB

Fuel	Fuel price (includes taxes)	Transport to Port Macquarie	Shipper mark up	Shipper bulk discount	Freight (incl. GST)	Total (\$AUD/L)	Excise (rebate)	GST (rebate)	Cost after rebate
Diesel	1.326	included	0.133	0.106	0.369	1.722	0.403	0.157	1.162
B20	1.198	0.009	0.181	0.145	0.369	1.612	0.403	0.147	1.062
B100	1.223	0.009	0.185	0.148	0.369	1.638	0.027	0.149	1.462

There is not a significant difference between the fossil-fuel diesel sell prices and the biodiesel or blend purchase price. However, there is a significant difference in the amount that LHIB can claim back. For the blend, LHIB will be able to claim back the full fossil-fuel diesel excise (\$0.403/L). For B100 LHIB can only claim back the biodiesel excise which is currently \$0.027/L.

The biodiesel excise is legislated to increase to 50% of the fossil-fuel diesel excise by 2030, but this will not affect the economics as the excise is rebateable in either case through the BAS system.

Based on today's prices. It will cost LHIB no extra to use B20. If Lord Howe Island Freight pass through the lower price quoted to Jacobs the cost of B20 will actually be lower than fossil-fuel diesel. However, the final cost of B100 after rebate of the excise will be around 30% more than fossil-fuel diesel.

It is also important to note that the bulk discount offered by the Lord Howe Island Freight is based on 540 kL of diesel supply. All of the HREP solar battery options considered in this report will lower the volume of diesel supplied sufficiently to affect the discount. The effect will be to increasing the cost of all fuel types by up to 8%.

3.7.3 Price Forecasting

The cost of biodiesel in Australia is largely dependent on the feedstock cost. The primary biodiesel feedstocks in Australia are tallow and used cooking oil. The price of feedstock is heavily influenced by prices of equivalent biodiesel feedstock in the Asia Pacific region as a significant amount of these waste oils are exported to Asia for use in biodiesel manufacture. Neste is the world's leading supplier of renewable diesel and is the biggest importer of tallow in Singapore. Neste buys 200,000T of tallow 70,000T of UCO from Australia annually. The records of five years international commodities pricing and the Singapore biodiesel price is shown in Figure 3-3.

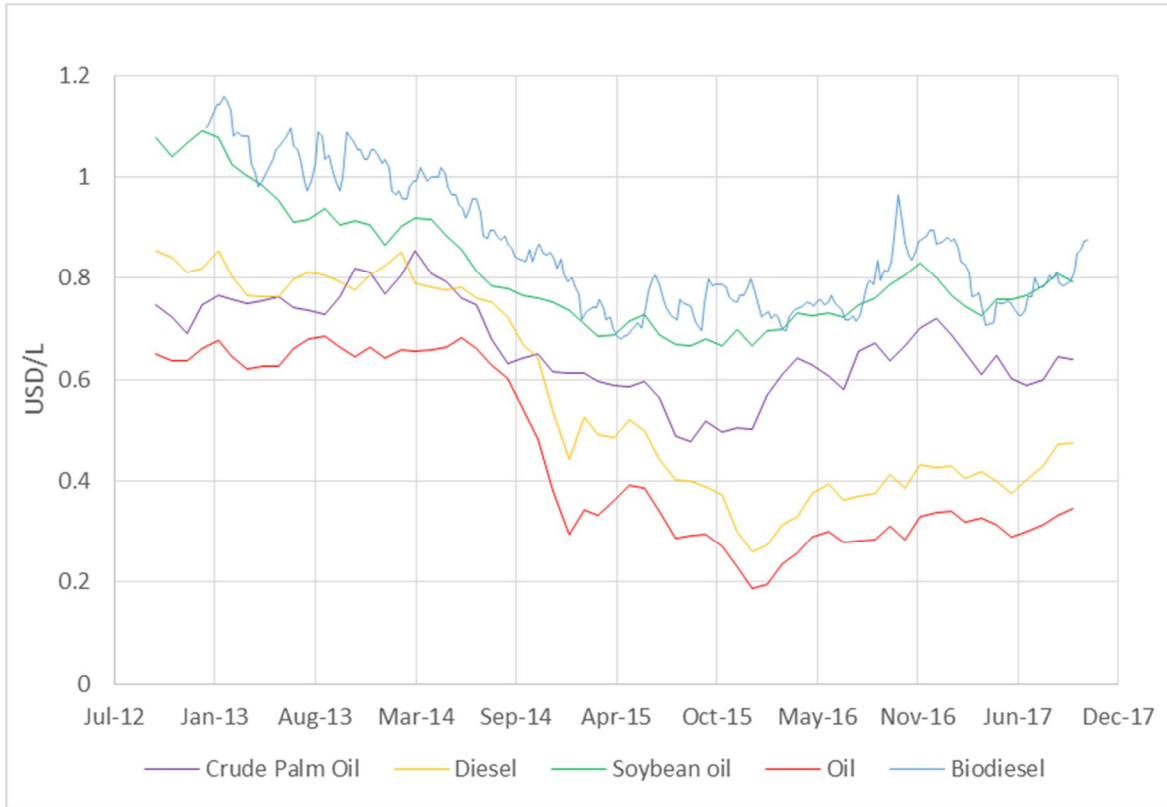
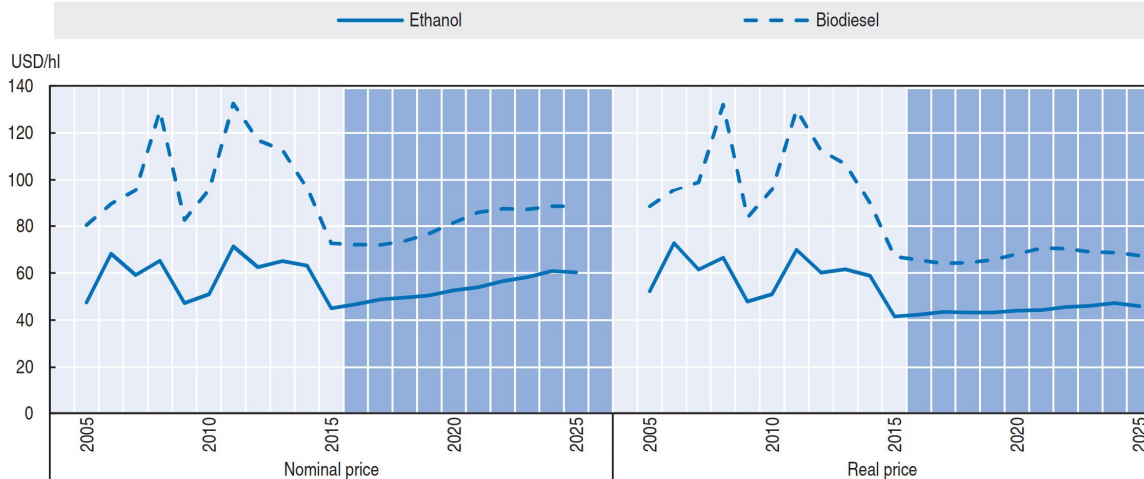


Figure 3-3 Five years of commodities price data (source: indexmundi.com), biodiesel from Neste

Comparison of Asia biodiesel prices with global feedstock prices for the same period reveals some relation, but that they are not linked. In comparison the price of diesel and crude oil are clearly correlated.

The Organization for Economic Cooperation and Development released the global biodiesel price forecast in Figure 3-4 in 2016. They forecast a 20% price increase between 2015 and 2025.



Note: Ethanol: wholesale price, US, Omaha; Biodiesel: Producer price, Germany, net of biodiesel tariff and energy tax.
 Source: OECD/FAO (2016), "OECD-FAO Agricultural Outlook", OECD Agriculture statistics (database), <http://dx.doi.org/10.1787/agr-data-en>.
 StatLink <http://dx.doi.org/10.1787/888933381654>

Figure 3-4 OECD FAO biodiesel forecast

For diesel prices, some agencies are forecasting moderate oil price increases including World Bank (27.5% 2015 to 2025) and the IMF (7.9% 2015 to 2022)¹². Figure 3-5 from the US Energy Information Administration's September 2017 "International Energy Outlook" report is very revealing suggesting that long term forecasting is extremely dependant on the assumptions used.

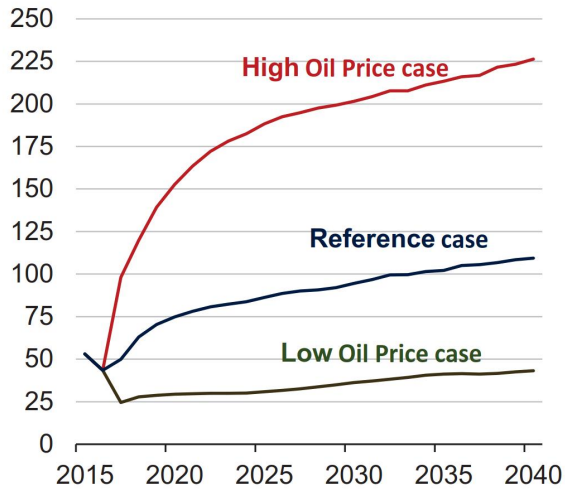


Figure 3-5 World oil prices in three cases (real 2016 \$USD per barrel)

From this desktop study Jacobs concludes that price forecasts for both fossil-fuel diesel and biodiesel are likely to be inaccurate.

In preparing the financial model, the following assumptions regarding long term fuel prices were used:

- The petro diesel price was indexed to the oil price. The LHIB's current contract price with the freight cost and taxes removed was used as the 2017 base price;
- The taxed B20 and the B100 price was assumed to be equivalent to the taxed fossil-fuel diesel price based on the following:

¹² "Crude Oil Price Forecast: 2017, 2018 and Long Term to 2030", Knoema

- The present day B20 price quoted to Jacobs is lower than the LHIB's diesel price. The difference in price is due to the shipper's supply price being high and further negotiations are likely to bring the two prices closer or to parity.
- In the longer term, biodiesel suppliers are likely to match their sell price to the domestic diesel market price. If the diesel price increases faster than the biodiesel cost, the manufacturers will take a larger margin, keeping the biodiesel price roughly equal the fossil-fuel diesel price.
- Excise rebate of 0.403 was applied to fossil-fuel diesel and B20
- Rebate on B100 was applied as per the Excise Tariff Amendment (Ethanol and Biodiesel) Bill 2015

Jacobs has discussed long term contracts for biodiesel with Eco Oils and have been advised that long term contracts are uncommon.

3.8 Site Logistics

Fuel handling implies risks for spills, environmental pollution and danger to personnel. Many of these issues could be addressed by adding a fuel storage tank at the wharf. It would also be prudent to install a pump at the wharf (inlet isolation valve, non-return valve and no-spill coupling) and coupled at the outlet to piping to the site storage tank (flow meter and isolation valves at the tank).

3.9 Conclusion

Changing the diesel supply to biodiesel or a blend has the potential to reduce LHIB emissions. If 100% biodiesel is used, the island's power supply would be 100% renewable.

Our investigation suggests that changing to a 20% blend (B20) can be done at no capital cost and depending on negotiations with LHIB's existing supplier, may reduce the fuel supply cost. This change could provide a number of benefits including changing the emissions by the following amounts compared with fossil-fuel diesel:

- Unburned hydrocarbons 20% reduction;
- Particulate matter 12% reduction;
- Carbon Monoxide 12% reduction;
- Reduction of SOx emissions;
- NOx emissions could potentially increase by 2-3%.

In addition to these reductions, the renewable fraction of the total generation is increased by 20% of the diesel output. For example, Scenario 3 renewable fraction would increase to 87.5% and Scenario 4 would increase to 73%.

Running B20 is not expected to significantly increase the fuel consumption. The supply price of B20 to Port Macquarie was found to be lower than LHIB's existing supply. The actual supply cost would be dependent on negotiations with LHIB's freight forwarder. Once Large Scale Generation Certificates (LGCs) are considered, using B20 has a lower levelised cost of electricity (LCOE) than fossil-fuel diesel.

Operating by using 100 % biodiesel (B100) requires an upfront capital cost to replace the existing generators.

A high level estimate for this cost is: \$270,000 to replace the three existing primary Detroit generators; and \$100,000 to replace the backup unit. The primary generators are overhauled every 18,000 hours for a cost of between \$35,000 and \$53,000. If the change to B100 is timed so that the units are replaced rather than overhauled, LHIB could assign between \$105,000 and \$160,000 of their maintenance budget to reducing the capital expenditure.

Ongoing maintenance of the proposed B100 units is expected to be the same or lower than the existing units.

The supply price of B100 is roughly the same as fossil-fuel diesel and B20 blend. However, the cost of B100 to LHIB is 30% higher than fossil-fuel diesel after the excise rebate. This difference is 16% for the discounted weighted average of the two fuels over the project lifetime. When LCGs are considered the discounted weighted average cost of B100 to LHIB is around 13% higher than discounted weighted average cost of fossil-fuel diesel.

4. Microgrid enabling technology

4.1 Centralised Hybrid Control and Stability Management

4.1.1 Stability

The existing power generation system on Lord Howe Island is typical of a small island microgrid. One power station provides all of the network's power.

Stability is maintained by the diesel generators, which are dispatched so that there is always sufficient spinning reserve and load acceptance (capacity available on the operating machines) to accept sudden changes in the grid demand. Sudden load increases in the network result in a drop in frequency. The prime mover's governor responds by delivering more fuel allowing the generator to pick up the load. Similarly the generator responds to changes in the voltage at the power station by adjusting the alternator excitation.

Connecting a battery at the power station changes the control philosophy. The battery is connected to the grid via a grid forming inverter. Because of the grid forming battery system's ability to respond to grid disturbances faster than the diesel generators, the battery becomes the primary method of maintaining stability. To perform this role the battery system must:

- Be sized to meet the maximum load expected at the power station; and
- Be in a state of partial charge.

Having the battery system primarily responsible for stability enables the system to shut down the diesel generators when there is sufficient alternate generation on the grid (solar generation) or sufficient charge in the battery.

4.1.2 Reliability

In the diesel only model, reliability of the system is provided by having redundant generators on standby. There is also a further redundancy by having a standby generator located elsewhere on the island in case the powerhouse is isolated from the rest of the network.

In the HREP proposal, the redundancy is maintained.

4.1.3 Advanced microgrid control technologies

As part of the Solar Battery Control System (SBC) tender, bidders were required to supply a control system to integrate with the existing generators, the proposed solar farm and the proposed wind turbines. This controller will use reference power flows at the main power station bus to control the system including:

- Real and reactive load sharing;
- Monitoring of voltage and frequency on the main bus and generator outputs;
- Provide reactive support when generators are on or off to manage voltage on the network;
- Droop control for voltage and frequency with the central controller;
- Back-feed control for diesel generators; and
- Coordinate the protection systems for both modes of operation.

With the exception of scenario 1 (550kW solar system). The batteries recommended in this report have sufficient capacity to supply the total network demand. The battery system will be capable of withstanding all system disturbances without the generators running with existing network configuration and loads. While the generator is running the battery system will still be connected and will provide additional stability support for the generator.

The proposed system can operate without monitoring and control of distributed generation and demand profiles, however it can be designed to allow integration with a system wide options described below with minimum additional cost.

The remainder of this section examines the possibility of incorporating advanced microgrid control technologies including demand side management, solar forecasting and distributed energy resource control.

4.2 Demand Side Management Technologies

4.2.1 Traditional Demand Side Management

Demand side management technologies provide a method of controlling the consumption of energy in a network. There are two uses for demand management: stability control and load shifting.

Demand management is used in traditional networks for stability control. For example, AEMO uses demand management for frequency control. They have agreements with large consumers such as aluminum smelters to shed their load if there insufficient generation capacity in order to maintain the network frequency.

Demand side management for load shifting has not been widely used in traditional networks, although it could be argued that time of use tariffs are a form of demand side management, as they influence the consumer to use power when the network demand is low through financial incentives, shifting the load to a time with lower network demand. A current example of load shifting in Australia are the Ausgrid demand side management trials. The trials provide a financial incentive for customers in parts of the network that are reaching capacity to shift their use to times when the network assets are less loaded. The intent is limit the requirement for capacity upgrades and by doing so reduce the cost of power.

4.2.2 Demand side management in microgrids

As in traditional networks, demand management in microgrids can be either passive or active. The passive approach uses incentives such as tariff structures to encourage consumers to change their usage habits. The active approach involves central or automated control to actively change the way consumers use power. An active approach will usually involve financial incentives to encourage consumers to participate in the demand side management program. Alternatively, participation could be mandated by the power authority.

The key differences between demand side management in a microgrid and a larger network is that controlling loads in residential and business connections can have a more significant effect on the network because these loads are a larger proportion of the total demand. Microgrids tend to be more susceptible to network disturbances because these disturbances are proportionately larger in a microgrid and the grid is weaker because there are usually only a few generation sources or and there are no intermeshed networks.

4.2.3 Application to LHIB HREP

LHIB is responsible for setting tariffs and would be in a position to implement incentive based demand side management if there was a reason to do so and it is accepted by community groups.

At the present time the electricity tariff is subsidised. Incentives can be applied with the subsidies in place.

Jacobs feasibility report concluded that there are no network capacity issues at present or forecast. This suggests that there is no advantage to demand side management to alleviate capacity constraints.

For most of the scenarios being considered the central battery's grid forming inverter will be sized to manage the current and foreseeable demand. This eliminates stability concerns.

If the 550kW solar farm scenario is selected the spinning reserve required may be reduced by employing demand side management. This could also be achieved using solar forecasting as described in Section 4.3.

Once the HREP project is completed, there will be a significant amount of excess solar energy during peak insolation. Jacobs has investigated the benefits that could be gained by load shifting demand from peak hours to times where there is an excess of solar generation. The results of the investigation are included in Section 4.2.4.

4.2.4 Load shifting to use excess solar generation

Figure 4-1 shows the excess solar generated in the optimised scenario.

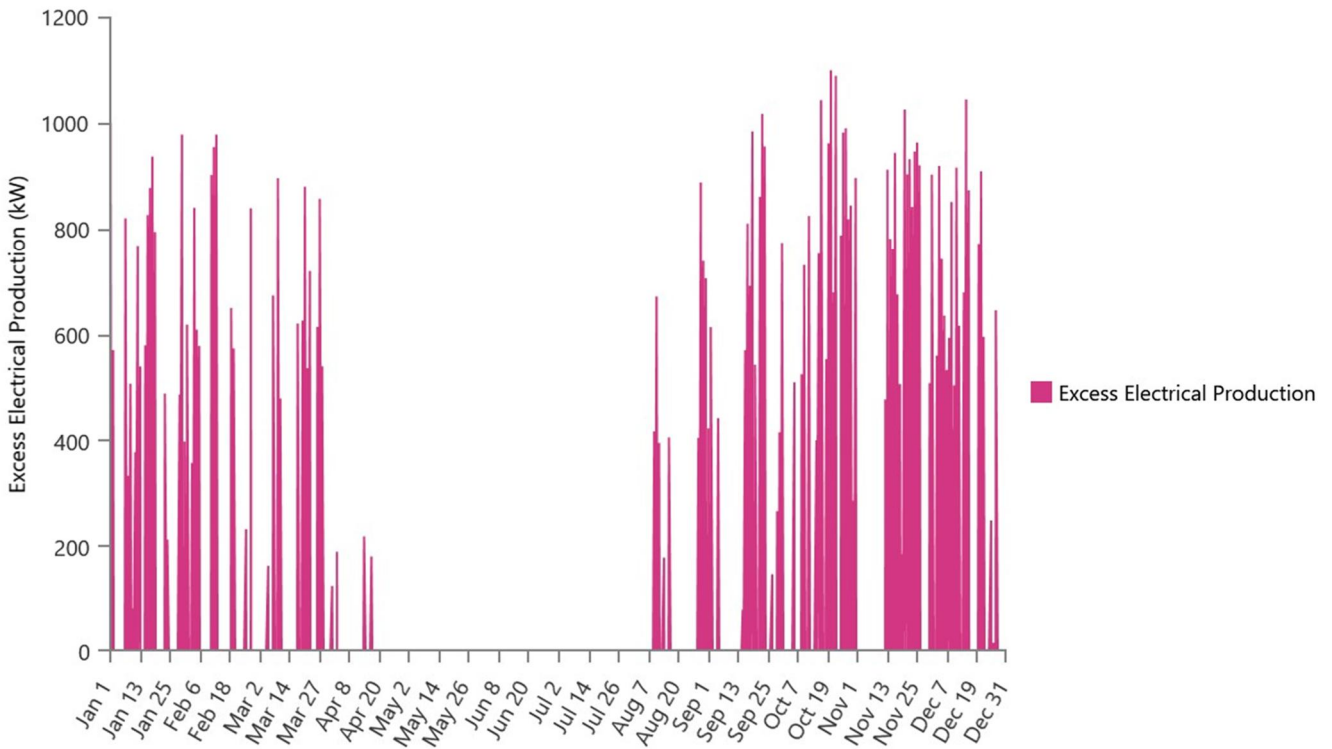


Figure 4-1 Chart of annual spilled solar in the optimized scenario

In our optimised scenario, the levelised cost of electricity is reduced to \$0.392 from \$0.494/kWh in the business as usual case. The renewable fraction is 83.1%. In the optimised case there is 148,865 kWh of excess solar energy produced per year. This is equivalent to 6% of the total demand.

To examine the effect that load shifting could play in reducing the cost of power, the load data was adjusted to move 20% of the load from 7am-10am and from 5pm-9pm to 10am-5pm. With the same system architecture the levelised cost of electricity is reduced \$0.005 to \$0.387/kWh. The renewable fraction was increased to 83.7 and the electricity spill was reduced to 144,992 kWh. A 0.5 cent saving per kWh is equivalent to \$12,000 annual saving for the network and an average saving of \$41 per year per connection based on 284 connections.

Figure 4-2 and Figure 4-3 show the same week in October before and after the load shifting. It is apparent that despite the increase in the day time load due to the load shifting, on sunny days the solar energy is still clearly surplus to demand for a short period of time. Figure 4-4 confirms this observation.

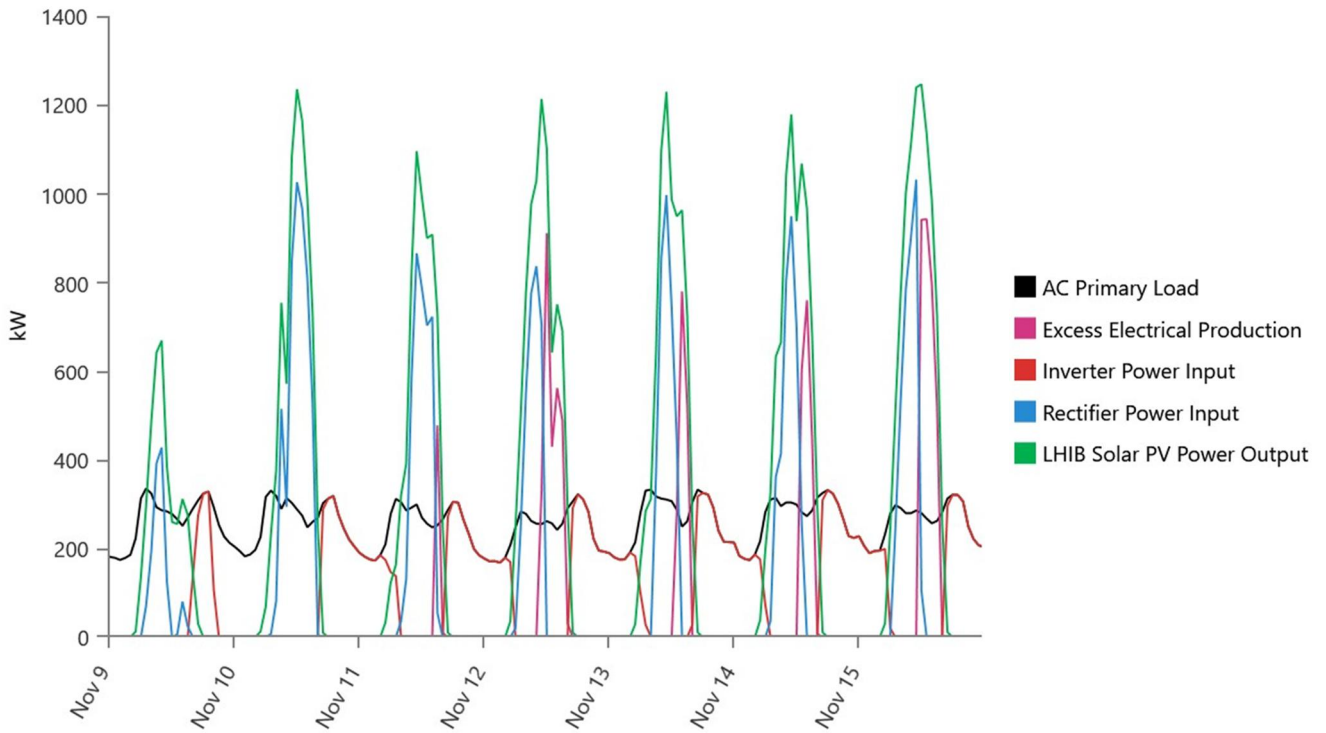


Figure 4-2 Relationship of spill solar to load profile and solar generation in the optimized scenario

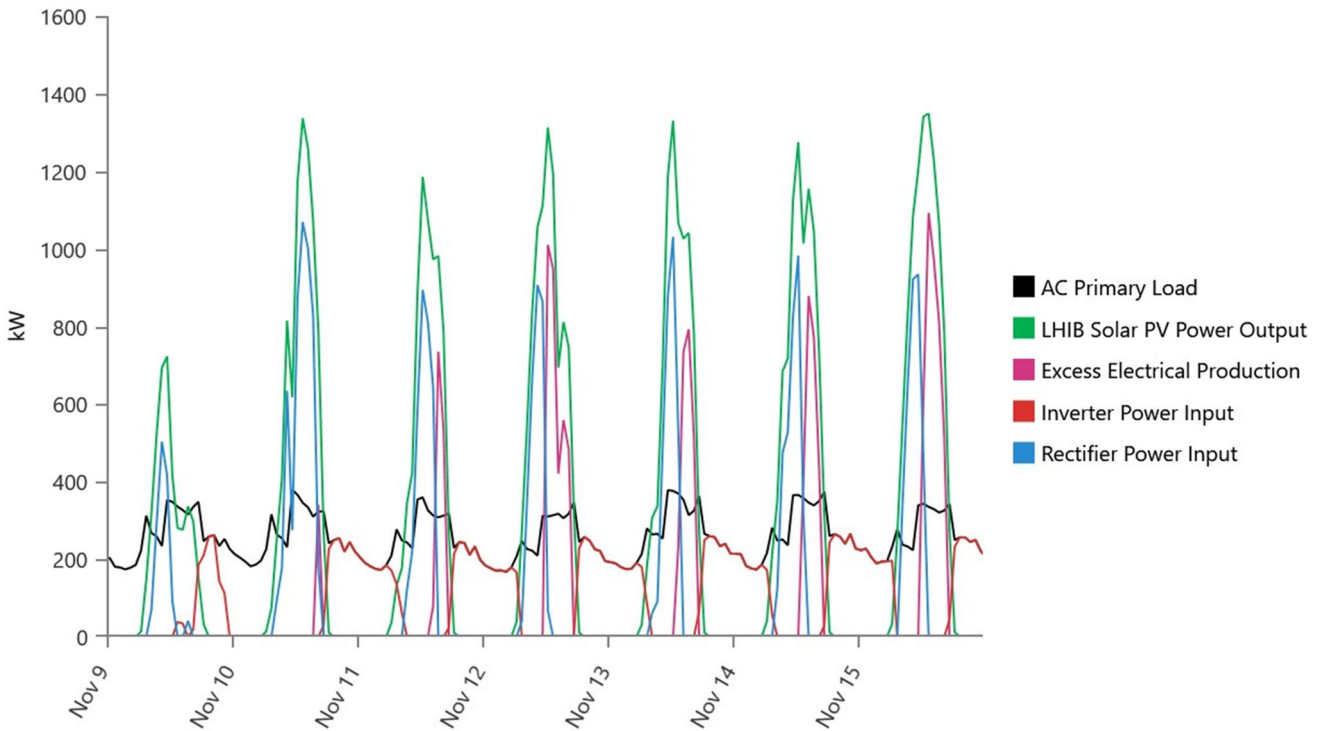


Figure 4-3 Relationship of spill solar to load profile and solar generation with 20% of morning and evening load moved to midday

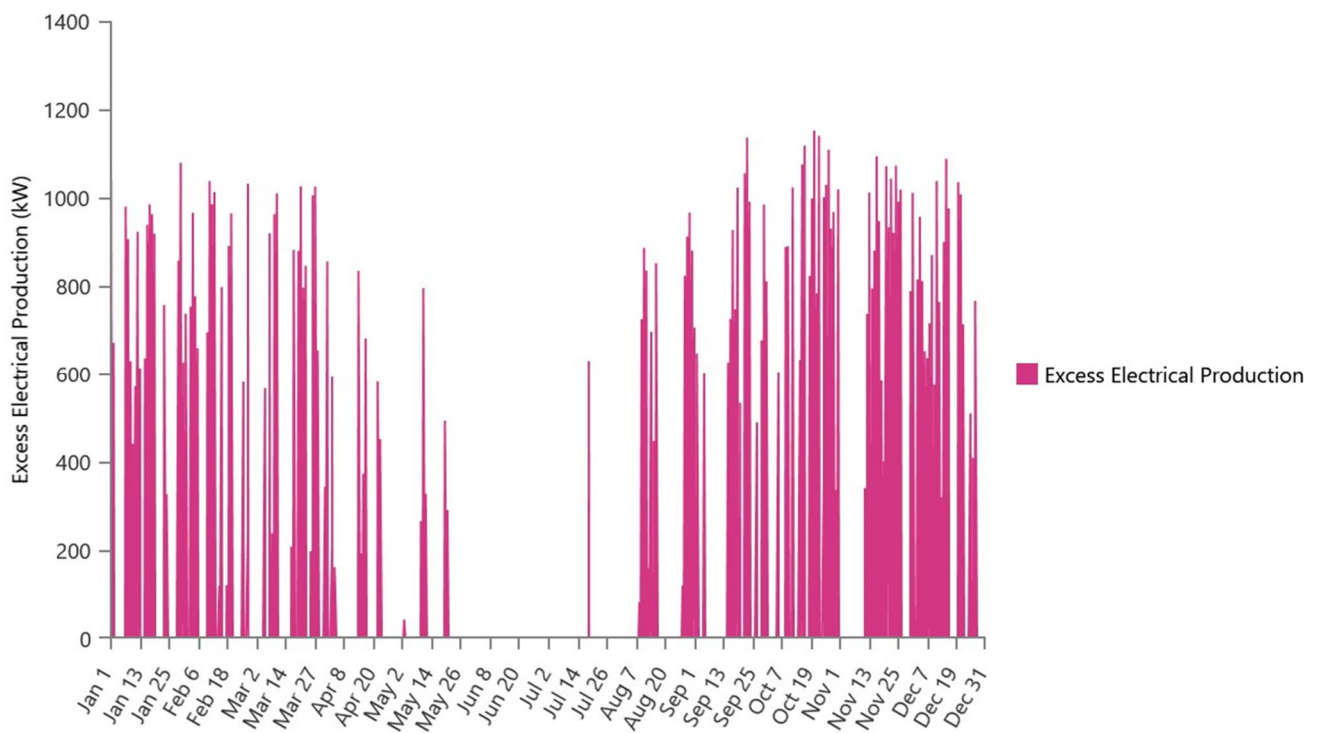


Figure 4-4 Chart of annual spilled solar with 20% of the morning and afternoon load shifted to midday

These savings are unlikely to provide sufficient financial incentive to drive behavioural change in the consumer. The cost to install time-of-use meters is \$500 to \$1000. This would make a payback between 10 and 20 years for the meter alone. The saving is also not sufficient to warrant investment in load shifting automation from the perspective of financial return.

An education program is likely to be a good investment to shift use of non-essential appliances to the daytime hours and to achieve savings by reducing power use.

Jacobs recommends that LHIB considers investigating the implementation of a time-of-use tariff that would be compulsory for solar generators and optional for others. The marginal cost of generation when there is sunlight is low compared with the cost of fuel. Having time of use tariffs empowers LHIB make tariff more cost reflective. It also would provide an incentive for large consumers to shift their load into the daytime hours which has the potential to reduce costs for all consumers.

4.2.5 Installing a non-essential load

Another demand side management technique is to add a non-essential load that can make use of the short duration excess power. At Rottneest Island in WA a desalination plant absorbs the excess energy to create drinking water. The energy required to desalinate seawater is around 3kWh per kilolitre (Prof Tony Fane, Director, UNESCO Centre for Membrane Science and Technology)

A typical household uses 900 L per day. Lord Howe Islands has 185 households. This equates to 60 ML per year. The excess electricity available could produce 50 megalitres of water per year. The only costs would be capital costs and maintenance costs. However, to achieve this the plant would need to be significantly oversized and be able to produce 200,000L/hr and would only run for an hour or two per day on sunny days. A plant of this size would not be practical or commercially sensible even with free power.

If there is a need for desalinated water, a smaller sized unit could be installed to make use of some of the excess power or an existing unit could be specifically operated when there is excess power. An audit of LHIB energy use may reveal similar non-essential equipment that can be specifically operated at particular hours of the day to make the most of the excess energy.

4.2.6 Electric vehicle charging and residential battery storage

There are currently 3 electric vehicle charging customers on the network. Electric car batteries are between 22 and 100kWh capacity. Single phase car chargers can deliver 3-9kW of power and three phase chargers deliver 22kW. It is foreseeable that 10 or 20 of these electric cars charging at the right time of day could use a significant amount of the power that would otherwise be spilled. Because this power would otherwise go to waste, it could be offered to electric vehicle owners at a discounted rate increasing uptake of electric vehicles and reducing solar spill.

Depending on the size of the car and the travelling speed, 1 kWh will allow an electric vehicle to travel 5km. This means that a full battery will last a Lord Howe Islander for a few days. This presents an opportunity for the vehicle owner. The vehicle could be charged during peak solar generation while the owner is at work and some of the charge could be used to power their house (and maybe their neighbour) overnight.

This business model does not appear to be viable for residential batteries. A Tesla PowerWall 2 can be installed for around AUD\$10,222, stores 13.2kWh, has a 5kWh inverter and an 89% round trip efficiency. If the LHIB allows energy storage systems to store power in peak solar generation times for an 80% discount and sell it back at around the LCOE (or use it at home), a PowerWall owner could make $(13.2 * 0.4 * 0.89) - (13.2 * 0.4 * 0.2) = \3.64 per day. Assuming the discount is only available on days with excess power the simple payback period will be longer than the 10-15 year warranty.

The electric vehicle model only works because the primary factor on purchasing an electric vehicle is to be green and to save money on fuel. It is also important to note that increasing the car battery through put to participate in this program will reduce the car battery life when compared to not participating. Using the vehicle battery may also affect the warranty depending on the manufacturer.

The analysis above is based on the assumption that LHIB has installed a central battery storage system and that distributed storage is used to capture excess solar energy. The use of distributed solar and battery systems in place of a central system is discussed further in Section 4.4.

4.3 Solar Forecasting Technologies

Solar forecasting is used in large networks such as Eastern Australia's National Electricity Market (NEM) to assist maintaining stability by informing the centrally-coordinated dispatch process of the likely changes in output of solar generators. The dispatch decision includes the spinning reserve capacity that dispatchable generation must have available to accept additional load if part of the solar generation is not available. The Australian Energy Market Operator (AEMO) is working with the support of ARENA to incorporate real time forecasting systems including accepting instantaneous signals directly from solar farms, but at the moment decreases in solar farm output are met by traditional frequency control ancillary services (FCAS). A decrease in solar farm output causes a decrease in network frequency. The frequency drop is detected by AEMO who sends a signal to units providing regulation FCAS to output more power and correct the frequency deviation.

Horizon Power (HP) operates the electricity networks in rural and outback Western Australia. Because their networks are smaller and less interconnected than the NEM, HP requires all solar generation to have energy smoothing functionality. Smoothing is a requirement to control the ramp rate of the generator output to provide a gradual increase or decrease in output. The intent is to minimise the network disturbances from the variable solar output. Typically participants have used batteries or local solar forecasting such as cloud cameras to meet the smoothing requirement. Cloud cameras use 360 degree cameras to take video imaging of the sky. The image is processed by a computer and algorithms predict the passage of clouds and their likelihood of shadowing the solar farm. If an event is considered likely, the system will gradually ramp down the output of the solar farm so that there is minimal effect on the output when the clouds shade the modules.

Batteries can be used to achieve the same result without the need to curtail the solar output. To achieve this a battery system is installed that is able to output the same power as the solar system. When the solar farm is shaded, the battery picks up the difference in output and gradually reduces its output as required depending on the smoothing requirements and its state of charge.

Solar forecasting using cloud cameras can be used to assist with system stability on island grids that have moderate to high solar penetration and do not have batteries. In this scenario, the cloud camera system allows time for diesel generators to start up and ramp up as the solar output is gradually reduced ahead of a predicted shadowing event. One of these systems was deployed in Kiribati this year.

Real time solar forecasting using a cloud tracker will be valuable if scenario 1 the 550kW solar option is selected. The cost of this type of system is not high. Both tenderers proposed the Fulcrum 3D sky camera technology and advised that it could be easily integrated into the hybrid control system offered.

For all other scenarios, the LHIB HREP battery system will have a battery inverter larger than the maximum demand and will be capable of managing any frequency variation caused by the new and existing solar. The battery systems are capable of accepting 100% of their capacity in around 8ms (within one cycle). For this reason solar forecasting technologies would not provide an advantage to these scenarios from a stability perspective. There may be some efficiency advantages from a dispatch management perspective to include medium term solar forecasting in the dispatch algorithm. These potential efficiencies are not expected to be significant and have not been investigated further as part of this report.

4.4 Distributed solar and storage control

This options report is focused on options for LHIB to install a centralised solar battery system that minimises LCOE over a 20 year project life.

Lord Howe Island Board is forecasting rooftop solar penetration to reach 120 kW. This represents less than 25% of peak demand. This level of penetration is significant for a system where diesel is the primary generation on the network because the generators would need to be dispatched with sufficient spinning reserve to respond if a large proportion of this solar generation stops exporting. The amount of spinning reserve could be reduced by incorporating solar forecasting using a cloud camera.

In the options investigated in this report, the central battery has sufficient capacity to maintain stability even if all 120kW was shaded at the same time.

An alternate option to installing a large central battery to perform this stability function is to install many smaller distributed batteries. The distributed batteries can be configured to perform a smoothing function as the batteries in the Horizon Power network do (see the discussion in the solar forecasting Section 4.3). Alternatively the combination of distributed rooftop solar and distributed batteries can be controlled centrally to perform in the same way as the central system.

4.4.1 Cost analysis and project structure

Cost analysis performed for previous projects indicates that the project costs and the final LCOE for a distributed solar battery system can be similar and sometimes cheaper than a central system. However, the implementation differs significantly. Table 4-1 details some of the advantages, disadvantages and risks of centralised and distributed solar battery systems.

Table 4-1 Advantages and risks of centralised and distributed solar battery systems

System type	Advantages	Risks / Disadvantages
Centralised	<ul style="list-style-type: none"> Installed in a single construction period Cost and return easy to calculate LHIB has access to grant money and cheap debt All residents benefit from the savings Time of use tariffs can be used to incentivise use at peak solar output, but are not required to realise the majority of savings 	<ul style="list-style-type: none"> Large capital investment required

System type	Advantages	Risks / Disadvantages
Distributed	<ul style="list-style-type: none"> • Maximises the community’s opportunity to participate • Low capital cost to LHIB • Expandable with demand growth (within the limits of available suitable rooftop) • Income stream for local installers • Reduces the network capacity requirements • Provides a smarter network and enhances the ability of participants to tailor their power use using smart energy management systems • Can lead to more efficient energy use practices 	<ul style="list-style-type: none"> • Not all residents will have the capital to participate or access to cheap debt • Participation must be incentivised – time of use tariff must be implemented • Low participation may limit the renewable outcome and the potential savings • The feasibility study warns that many premises may be unsuitable for solar • Biggest benefits are received by participants (not equitable) • Central stability battery is advisable • Virtual power plant controller is required • Communication network is required

The criteria that makes a virtual power plant unsuitable for the LHI context is available roof space. There are presently 284 connections. To achieve an optimised level of solar penetration, all connections would need to have 4.5 kW of solar PV installed with optimum conditions and 1.5 PowerWall 2 battery systems. It is unlikely that this level of participation would be reached with optional participation.

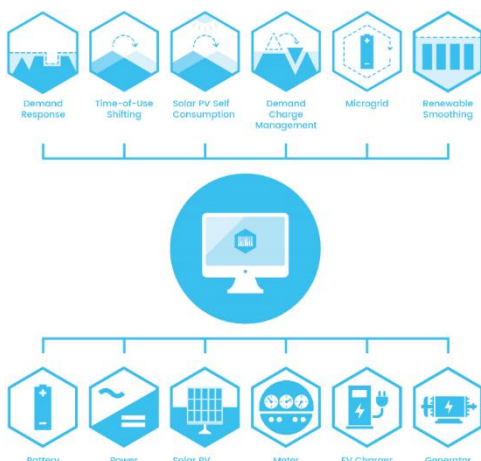
Compulsory participation with LHIB financial support is a possible option. But this approach has a number of draw backs:

- Residents and business with favourable roof tops will be preferred;
- Significant capital outlay is required from LHIB;
- The project management would be substantially more involved than a central system or a voluntary distributed system, further increasing LHIB costs; and
- Significant community consultation would be required, delaying the HREP project.

4.5 Available technology

There are a range of suppliers that provide demand response management for residences, including monitoring and control of batteries. Many of these systems overlap from pure demand response and also offer either partial or full virtual power plant services. Some of the technology available in Australian and currently in use are included in this section. Some of these technology have received ARENA support.

GELI Energy is essentially a solar/battery optimisation tool to maximise value for a residence depending on peak demand and time of use (TOU) tariffs.



GELI also offer grid reliability services and “through the wide deployment of Geli-enabled assets, grid operators can provide highly targeted grid support for behind-the-meter systems. Geli’s software allows you to create custom operating groups and dispatch schedules to meet the needs of the wider network” <https://geli.net/grid-services/>

This solution does require a “GELI Node” to be installed at every site wishing to participate in the energy solution.

Figure 4-5 The GELI Energy Platform

Greensync is another supplier and Australian startup based in Melbourne who have been developing demand aggregation market solutions. Their recently released Digital Energy Exchange (DeX) “creates an open marketplace for local energy to be generated, controlled or stored, and then traded between households, businesses, utilities and the larger market operators.”

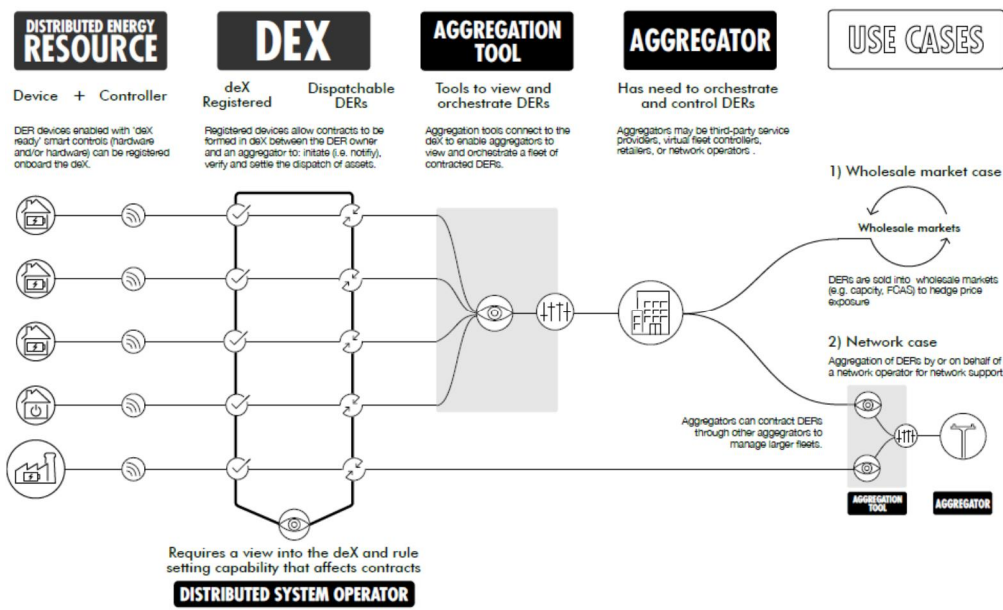


Figure 4-6 Actors involved in Greensync’s Distributed Energy Exchange (DeX)

Greensync can load software directly on devices in the home, through partnerships with multiple suppliers of batteries, inverters and home energy management systems (HEMS), or can provide a smart box to allow connection to the DeX platform. The network operator is required to establish its own Distributed System Operator to allow a market for residents to opt-in for demand response and provide complimentary services to the central power station.

Like GELI, Greensync also have product offerings to integrate DER as a Virtual Power Plant. Greensync has a VPP product for grid connected assets and an energy management product for microgrids. These two products are essentially the same and depend on the type of inter-connection with a grid, either continuously connected or occasionally islanded. For an island grid the solution will be continuous islanded and will need to integrate with the hybrid controller, with Greensync required to take integration responsibility for the whole system.

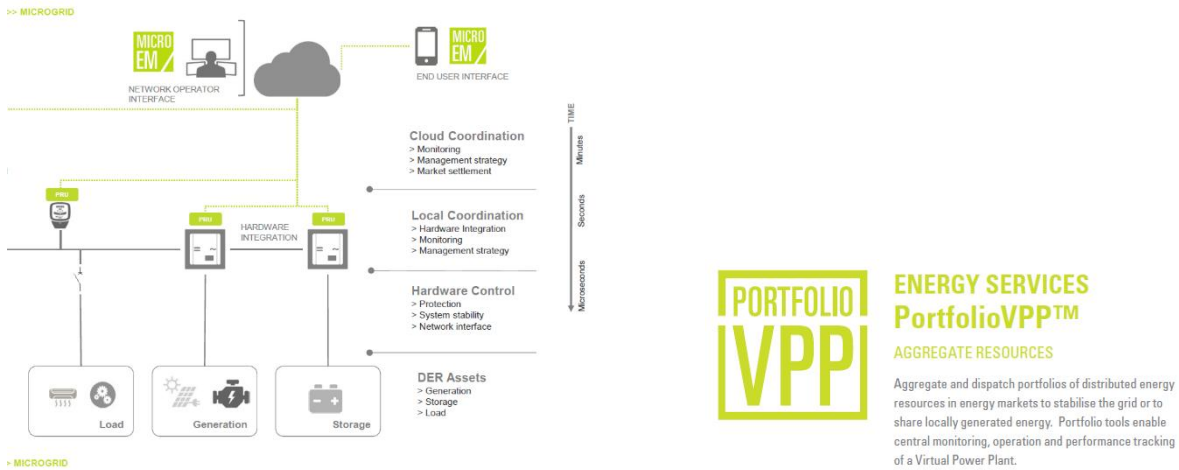


Figure 4-7 Greensync virtual power plant (VPP) and Microgrid (EM) products

Another supplier who offers both demand response and virtual power station in the Australian market is Reposit.

Finally, all the large international OEMs such as Schneider, ABB and Siemens have recently brought both demand response and virtual power station (or microgrid) solutions to the market.

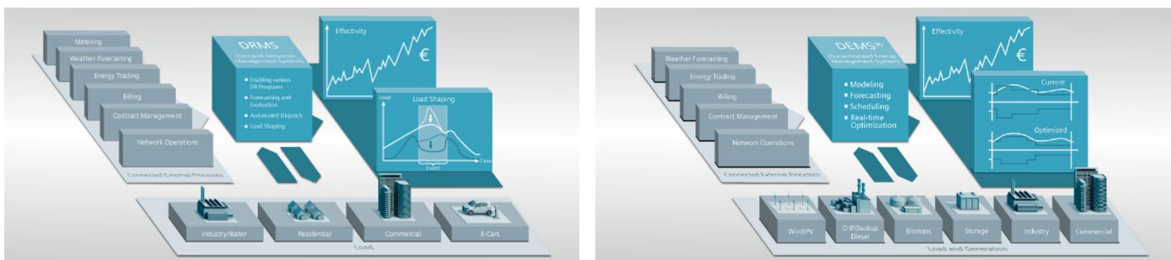


Figure 4-8 Demand Response Management System (DRMS) and Demand Energy Management System (DEMS), a virtual power plant, offered by Siemens

4.6 Conclusion

With the exception of scenario 1 (550kW solar system). The battery systems recommended in this report are able to supply the total network demand. The battery system will be capable of withstanding all system disturbances without the generators running. At times when the generator is required to run the battery system will still be connected and will provide additional stability support for the generator.

All solutions investigated generate excess energy on sunny days. Demand side management could play a role in shifting load into these sunny periods. Approaches found to be feasible include:

- Education programs;
- Optional time of use tariffs; and
- An incentive program for electrical vehicle charging at heavily discounted rates could incentivise use of the excess energy and renewable transport options.

Solar forecasting would be beneficial for stability in scenario 1. The grid forming batteries will be capable of managing any frequency variation caused by the new and existing in the other scenarios.

This options analysis has focused on a centralised solar battery system to minimise LCOE.

An alternate approach discussed in the report could be to create a virtual power plant with distributed solar and battery resources. Previous experience has indicated that the financial case can be similar for both a centralised and a distributed approach.

However, in the case of Lord Howe Island previous investigations have suggested that there is a lack of suitable roof space. Additionally, the level of participation required to achieve the same results as the optimised systems is unlikely to be achieved.

Appendix A. Financial Model

See: Model – Financial – RE Project – RT19500 LHI FINMODEL v25 20171214

LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Renewable Energy Program Update

RECOMMENDATION

It is recommended that the Board note the renewable energy program update.

BACKGROUND

In 2012, the Lord Howe Island Board (the Board) adopted the Lord Howe Island Renewable Operations – Energy Supply Road-Map (the Road Map), to reduce the Island's reliance on diesel fuel for electricity generation. The Road Map was developed with the important assistance of the community based Sustainable Energy Working Group (SEWG).

The Road Map set the ambitious target for the island of 63% renewable energy by 2017.

Funding for the project is provided through a \$4 million grant from the Federal Government via the Australian Renewable Energy Agency (ARENA), a \$5.9 million loan from NSW Treasury (to be paid back via diesel fuel savings), and \$0.5 million from the Board. With funding seemingly secured, work continued on the next phase of the implementation of the Road Map. A requirement of the funding from ARENA was that the project achieves a minimum 1 megawatt (MW) of new renewable energy.

Consultants Jacobs were engaged by the Board in 2014 to lead the technical elements of the project, and community consultation. Jacobs completed a Technical Feasibility Study in March 2015 which examined the mix of solar panels, batteries and wind turbines. The study showed that using 450 kW of solar panels (around 2,000 panels), a 400kWh battery and two small 275kW wind turbines, will reduce the Island's diesel fuel consumption from 541,000 litres per year to around 180,000 litres per year, a 66% reduction. This combination also provides 67% of the Island's annual electricity needs, exceeding the target set in the Road Map.

Solar, Battery and Control System Contract

The tender for the solar, battery and control system contract package of work was advertised on NSW e-tendering between 15 June and 24 August 2016. The assessment of the tenders by Jacobs and the Board is complete and a preferred contractor is known. ARENA and their consultants AECOM undertook a review of all tenders and the tender assessment in November \ December 2016, ultimately reaching the same decision.

However ARENA delayed the awarding of the contract by the Board until after their Go\No Go decision about the future of the project.

Wind Turbines

Environmental Assessment Process

A referral of the wind turbine component to the Federal Government under the *Environment Protection Biodiversity Conservation Act* was lodged on 29 September 2016. On 2 June 2017 the Federal Minister for the Environment and Energy, after calling the referral up for his decision, determined that the “proposed action of constructing and operating two wind turbines on Lord Howe Island would have unacceptable impact on World Heritage values and the National heritage values of the Lord Howe Island Group”.

This decision means that it is not possible to proceed with the wind turbine component at this stage.

ARENA Funding

A meeting was held with representatives of ARENA in late June 2017. The purpose of the meeting was to discuss the future of the renewable energy project now that the Federal Environment Minister has determined that the wind turbines would have an unacceptable impact on world heritage values.

The ARENA representatives indicated that they did not believe that the ARENA Board would support continued funding for the project in its current form, without the wind turbine component. This is because the ARENA funding is targeted to innovative renewable energy solutions which can serve as demonstration projects for other like areas, in Lord Howe Island’s case, for other remote locations. The proposed hybrid renewable energy project consisting of solar, wind, battery storage and back-up generator with a diesel saving of up to 70% per annum, was seen as an innovative solution to providing renewable energy in a remote location.

However, without the wind turbine component, the project with just solar and battery storage, saving 35% of diesel fuel is not seen as sufficiently innovative.

After extensive negotiations, ARENA approved the funding for the development of further options, comprising solar and other renewable approaches, which may be acceptable to their Board and lead to a variation in the Board’s funding agreement with ARENA.

CURRENT POSITION

Consultants Jacobs completed their other Options Analysis Report (Attachment A) on the project economics and potential demonstration value of the following options in December 2017:

1. “Wind Ready - Optimised Solar”
 - 550kW solar generation and a 400kW/400kWh battery
 - Designed to accommodate the future connection and control of up to 550kW of wind generation
 - Capable of 100% instantaneous solar penetration (i.e. operating in diesel off mode).
2. “Maximised Solar”
 - Area previously reserved for the wind turbines to be developed as solar arrays in addition to the area used for solar in Option 1.

- Battery optimised to accommodate the increase solar generation and minimise curtailment
- Capable of 100% instantaneous solar penetration (i.e. operating in diesel off mode)

3. Assessment of potential for 100% Renewables

- Assessment of substitution of diesel for biodiesel including: cost, availability and impact on existing diesel generators.

4. Assessment of the potential for enabling technologies to improve project performance, economics, renewable energy penetration, power quality/grid stability/reliability or demonstration value.

- Demand Management (e.g. incorporation of curtailable loads like pumps or air conditioning or a fleet of electric vehicles (potentially controlled as a load or generator)).
- Solar forecasting technologies (e.g. sky cam)
- Advanced micro grid control technologies

A further teleconference was held on 12 February 2018 between ARENA, LHIB and Jacobs to look at the recommendations and discuss any further requirements before ARENA would consider the report and respond. At the meeting, it was agreed that option 4, which consists of expanded solar and enabling technologies, was preferred. In relation to this option, a number of additional requirements were requested of the Board including:-

- Additional risks associated with the project
- Confirmation from the tenderers on the costing for the new preferred option 4
- Any DA changes that may be required for the new option 4
- Timeline to award the tender and complete the works

The teleconference in general was reasonably positive with the impression that ARENA is inclined to fund the revised project if the numbers from the options report are correct and the project risks could be appropriately mitigated. ARENA also offered to involve LHIB in the process of identifying risks.

Budget

The total cost of the project from July 2014 to date is \$2.4 million. Expenditure has been frozen since ARENA indicated that it was reconsidering the funding agreement with the Board.

To date ARENA has provided funding of \$500,000, and NSW Treasury provided \$60,000 to meet the cost of the preparation of the business case, leaving a shortfall (overspend) of approximately \$1.85 million. This overspend includes approximately \$500,000 that has been spent on the supply of road base materials for the access road construction, which is now on hold. Pending a decision on the future of the renewable energy project, these materials will be diverted to other road projects on the Island and the funds recouped from other capital project budgets.

In order for ARENA to approve the additional alternative investigation works by Jacobs they approved a change to the existing Deed of Agreement for the funding through a "Deed of Variation" which has inserted a new milestone 5: Alternative Scenarios Report and pushed back the other milestones consecutively up to milestone 12. Approximately \$100,000 has been earmarked by ARENA for the further investigation works.

Invoices amounting to \$600,000 (ex GST) have now been sent to ARENA for both Milestone 4 and Milestone 6.

RECOMMENDATION

It is recommended that the Board note the above information.

Prepared: John Teague, Manager, Infrastructure & Engineering Services

Endorsed: Penny Holloway, Chief Executive Officer

Attachments:

Attachment A: Jacobs Options Analysis Report

LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Airport Terminal Upgrade Project Update

RECOMMENDATION

It is recommended that the Board note the report.

BACKGROUND

The project has been underway since March 2016, and consists of two distinct components:

1. Project and Construction Management, and Design Services; and
2. Construction.

The project budget was initially established at \$1,981,604 (excl. GST). The costs for the project have increased to approximately \$2,500,000 (excl. GST). The funding for the project is being sourced through:

- | | |
|---|---------------------------|
| 1. Infrastructure NSW - Restart NSW funding | - \$1,800,000 |
| 2. Board Capital 16/17 | - \$130,000 |
| 3. Board Capital 17/18 | - \$450,000 |
| 4. Rodent Eradication Project | - \$150,000 |
| TOTAL | - \$2,530,000 (excl. GST) |

STEA Astute Architecture P/L were the successful tenderers for the Project and Construction Management and Design Services Contract and commenced work on the project at the beginning of July 2016. The development application was approved in 22 November 2016 and with Ministerial approval the tender for the construction of the new terminal was awarded to HSG Constructions Pty Ltd in early June 2017.

The temporary facilities for check-in and kiosk commenced operation on 6 June and the old building was demolished. Construction of the new airport terminal commenced on 26 June 2017.

CURRENT POSITION

As Practical Completion (PC) was not achieved at the end of 2017 due to a number of items not being completed, it was agreed that the change to the colour scheme would be undertaken before moving into the building. However, following the building industry's Christmas close-down, there was very little work that could be done through January 2018. The required trades, painters, plumbers, carpenters and electricians were reprogrammed to come to the island in

February to complete the works. The terminal building was handed over on 28 February 2018 when PC was issued.

There are still some additional works, which were not part of the original contract, that are now being completed. However, in general the terminal is operational with it accepting its first flight on Friday 2 March 2018. Before the end of the month a defects list for the contract will be prepared and a program of works developed by the builder to address outstanding issues.

There is still a reasonable amount of general tidying up of the site to be completed. The 'Qantas Lounge' marquee has been removed, however the remainder of the temporary terminal facilities are still to be demolished which will provide increased vehicle parking in the area.

Some additional planting of shrubs and palms is proposed for later in the year to take advantage of the weather to improve their expected survival rates.

Leslie Williams MP, Member for Port Macquarie, has advised that the official opening for the new Airport Terminal project will be on 25 March 2018 and arrangements are currently underway to meet this deadline.

RECOMMENDATION

It is recommended that the Board note the report.

Prepared: John Teague, Manager Infrastructure & Engineering Services

Endorsed: Penny Holloway, Chief Executive Officer

LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Airport Runway Extension Feasibility Study Update

RECOMMENDATION

It is recommended that the Board note the report.

BACKGROUND

Currently Lord Howe Island is serviced by QantasLink's Bombardier DHC-8 200 aircraft which will continue until 2023. However, beyond this, QantasLink may not be economically or operationally able to provide services to Lord Howe Island using the DHC-8 200 aircraft. The DHC-8 200 is QantasLink's smallest aircraft that can service the Island and it is reaching the end of its expected 20 year lifespan.

Lord Howe Island's restricted runway length of 888 metres limits the type of commercial aircrafts that can operate on the Island. While other options have been considered such as leasing or hiring other aircrafts to operate on Lord Howe Island or to get other airlines to operate; without extending the runway, airlines will be restricted in the types of aircrafts that can service the Island.

A sustainable and viable long-term solution is needed to secure the provision of air services to Lord Howe Island. Therefore a request to quote for the Lord Howe Island Airport Runway Extension Feasibility Study was sent out on 11 August 2017 to five (5) qualified engineering consultancies and closed on 11 September 2017. All consultancies submitted tenders which were assessed with the preferred tenderer AECOM Australia Pty Ltd being awarded the contract with Ministerial approval in November 2017. The project has been underway since late November 2017, and scoped to investigate the future aircraft requirements for the island, plane characteristics, existing runway/site limitations, CASA requirements, conceptual design, geotechnical investigation, environmental assessment, community consultation and economic impacts/costs. The project is broken down into a number of milestones.

Milestone	Description	Anticipated time
1.	Completion of detailed assessment of extended runway and suitable aircraft options	March 2018
2.	Completion of preliminary geotechnical investigation	June 2018
3.	Completion of conceptual engineering design	August 2018
4.	Completion of preliminary environmental assessment	September 2018
5.	Completion of economical assessment and preliminary business case	October 2018
6.	Final presentation and report	December 2018

The funding for the project is being sourced predominately through Infrastructure NSW with a small amount of Board staff wages for project management as shown below:

1. Infrastructure NSW - Restart NSW funding	\$450,000
2. Board staff wages	\$ 19,000
TOTAL	\$469,000 (excl. GST)

CURRENT POSITION

AECOM visited the island in December 2017 to undertake their inception meeting, various site inspections and to gather additional background reports of works previously undertaken by the Board.

AECOM have been in consultation with various airline operators in Australia to understand their current and future plans in respect to aircraft type and operations. Qantas have provided Q300 & Q400 performance data and confirmed that their Q400 are using a 90m wide runway strip at other airfields with in Australia. Skytrans confirmed they are currently upgrading to Q200's and Alliance confirmed they will be jet aircraft only before 2022. Discussions are ongoing with local General Aviation (GA) pilots with regards to turbulence.

AECOM have also been in discussions with CASA and Airservices Australia to determine what requirements may apply to the runway should any extension be proposed and issues relating to the south east threshold displacement.

AECOM still have planned face to face meetings with CASA, Qantas and Virgin to follow up on other matters relating to the current and proposed operations before they can provide the draft interim report for milestone 1 which is due this month.

In addition to this project AECOM will update the Obstacle Limitation Surfaces (OLS) map for the current runway along with a recalculation of the current PCN (pavement classification number) for the runway following the overlay in 2015

RECOMMENDATION

It is recommended that the Board note the report.

Prepared: John Teague, Manager Infrastructure & Engineering Services

Endorsed: Penny Holloway, Chief Executive Officer

LORD HOWE ISLAND BOARD

Business Paper

OPEN SESSION

ITEM

Public Risk and Work Health and Safety (WH&S) Management Update

RECOMMENDATION

It is recommended that the Board note the information provided on Public Risk and WH&S matters.

BACKGROUND

The Board has requested information on Public Risk and WH&S matters be presented on a quarterly basis.

CURRENT POSITION

Workplace Health and Safety

At 6 March 2018, 9 claims have been lodged for the 2017-18 financial year. There have been 4 new claims since the last reporting period.

2017/18				
No	Date of Injury	Type of Injury	Cause of Injury	Hours lost
1	3/07/2017	Disc bulge or prolapse	Bending over	TBC
2	12/07/2017	Tenosynovitis of extensor tendon R forearm	Jackhammering	Medical expenses only
3	13/07/2017	L lower costo-chondral cartilage tear	Removing rubble from tracks	45.6
4	2/08/2017	Petrol in R ear	Working on air blocked fuel line	Medical expenses only
5	4/08/2017	R pectoral muscle strain	Shovelling	Medical expenses only
6	31/10/17	Laceration L thumb	Angle grinder jumped and cut through glove	Medical expenses only
7	15/11/17	Sore knees	Walking mountain tracks and carrying equipment	Medical expenses only
8	21/11/17	Puncture wound right palm	Tripped and fell sharp stick puncturing right palm	30.4
9	9/1/18	Jarred right shoulder and cervical spine	Slipped on boardwalk near conference room at Board's offices	Medical expenses only

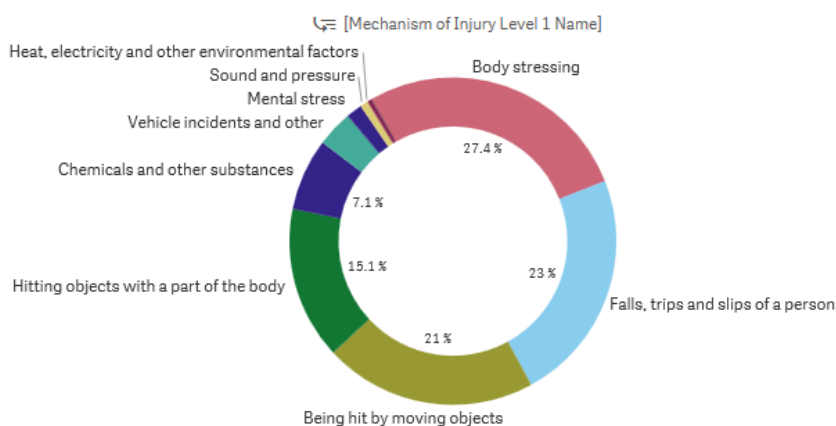
Workers compensation statistics for the last five years:

4. Claims Table Summary (Reportable and non-Reportable Claims)

Last 5 FY Reported	Number of Claims #	Avg Net Incurred Cost	Net Incurred Cost \$	Total Amount Paid \$	Latest Estimate \$	Amount Recovered \$
Totals	252	\$8,374.73	\$2,110,432.12	\$1,607,964.71	\$502,467.41	\$0.00
Before	194	\$8,909.10	\$1,728,365.74	\$1,352,653.78	\$375,711.96	\$0.00
FY 13-14	14	\$4,182.97	\$58,561.60	\$58,561.60	\$0.00	\$0.00
FY 14-15	8	\$969.57	\$7,756.58	\$7,756.58	\$0.00	\$0.00
FY 15-16	9	\$4,356.44	\$39,208.00	\$39,208.00	\$0.00	\$0.00
FY 16-17	18	\$10,809.05	\$194,562.92	\$138,335.50	\$56,227.42	\$0.00
FY 17-18	9	\$9,108.59	\$81,977.28	\$11,449.25	\$70,528.03	\$0.00

3. Mechanism of Injury

(Reportable and non-Reportable Claims)



*Pre 2011/2012 data is not as reliable as they were either not a requirement or not populated back then. Hence some data shows as Not Found and Unknown.*The default presentation of this chart is all historical claims unless filtered by time selection*

Actions taken to address the incidence of injury include Workplace WH&S matters being discussed and addressed at monthly staff meetings, including reviews of Job Safety Analysis and Hazard Identification.

In December 2017, WHS training was provided for Supervisors and Managers. Training was two days for field-based staff and one day for office based staff. The training covered:

- Outline of the current WHS Legislation,
- WHS Risk Management principles,
- Responsibilities and the LHIB WHS Risk Management System, and
- Practical implementation of the LHIB WHS Risk Management System including Job Safety Analysis.

Public Risk Management

On the 24 November 2018, the Bureau of Meteorology, in conjunction with the LHI Local Emergency Management Committee (LEMC), presented the 2017/2018 Tropical Cyclone briefing to LHIB Management, LHI Sea Freight Management, and members of the community.

RECOMMENDATION

It is recommended that the Board note the information provided on WH&S and Public Risk matters.

Prepared: Lynda Shick, A/Manager Administration

Endorsed: Penny Holloway, Chief Executive Officer