Lord Howe Island Hybrid Renewable Energy Project

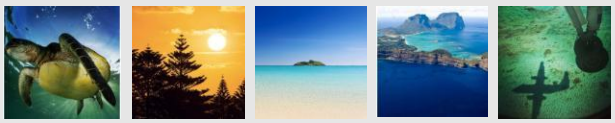
LORD HOWE ISLAND BOARD

Community Submissions Report:

Wind Turbine Development Application

November 2016

JACOBS



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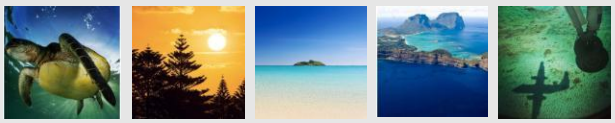


1. Executive summary

This Community Submissions Report provides a summary of the community consultation carried out by the Lord Howe Island Board (the Board) for the exhibition of the wind turbine development application in September and October 2016 as part of the hybrid renewable energy project. The solar, battery and control system elements were approved by the Board in late 2015 and are going ahead regardless of whether the wind turbines are approved or not.

The wind turbine development application (DA) was displayed for community feedback for six weeks between 16 September and 28 October 2016. Due to significant community interest in the proposal, the original 28 day exhibition period was extended by two weeks to give people more time to prepare their submissions.

During the exhibition period, we received submissions from 213 people, including residents on and off the Island, local businesses, members of the community-led Sustainable Energy Working Group (SEWG) and tourists. The high level of submissions is reflective of the importance of the proposal to the community and the extensive consultation activities that actively encouraged people to make submissions.

In order, the most commonly raised issues and topics include:

- Infrasound and potential health impacts
- Visual impacts
- Audible noise
- Financial considerations of loan repayments
- Impact on birds and bats.

This report will be provided to the independent planners reviewing the DA, RPS. This report will be considered as another and important piece of information for RPS to consider when preparing their report for consideration by the Board at the November 2016 Board meeting. This report and the submissions database will also be provided directly to the Board members to enable them to take the community submissions into account when determining the wind turbine development application for the hybrid renewable energy project.

2. Introduction

2.1 Background

The Board is implementing a hybrid renewable energy system to reduce the Island's reliance on imported diesel for electricity generation. In 2012, the Board adopted the Energy Supply Road Map which was developed with the assistance of the community-led Sustainable Energy Working Group (SEWG) and set an ambitious target for 63% of the Island's electricity to be generated from renewable sources by 2017.

Jacobs has been engaged by the Board since 2014 to lead the technical elements of the project, and to design and deliver the community consultation programme. The Technical Feasibility Study produced by Jacobs in December 2015 found that to maximise the reduction in diesel fuel consumption, a combination of wind and solar is needed, supported by a battery. The following configuration would provide the greatest diesel fuel savings within the available budget:

- 450 kW of solar panels (around 2,000 panels)
- 400 kW / 400 kWh battery
- Two mid-sized 200 kW wind turbines.

This preferred combination of renewable energy technology is expected to reduce the Island's diesel fuel consumption from 540,000 litres per year to around 180,000 litres per year, a 67% reduction, which exceeds the target in the Road Map. The total estimated cost of the hybrid renewable energy system is $10.35 million. Funding is provided through a $4 million grant from the Federal Government via the Australian Renewable Energy Agency (ARENA), a $5.9 million loan from the NSW Government and $450,000 from the Board.

The solar, battery and control system elements of the project were approved by the Board in late 2015 and are going ahead regardless of whether the wind turbines are approved or not. Work on the ground to install the solar panels, battery and control system is expected to start in the first half of 2017.

Whilst the proposed wind turbines would maximise the reduction in diesel fuel consumption for the Island and are a key component of the hybrid renewable energy system, no decision has been made. The public exhibition period for the wind turbine development application is the subject of this Community Submissions Report. If approved, the wind turbines would be installed in late 2017. The hybrid renewable energy system would be fully commissioned and operational by early 2018.

2.2 Project objectives

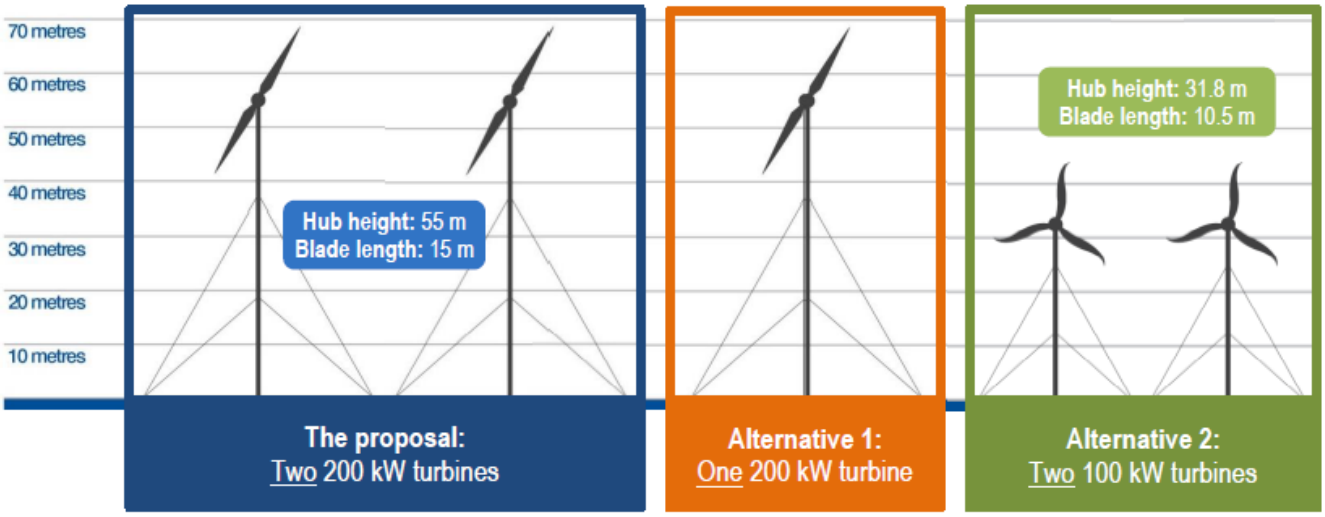
The objectives of the project are to:

1. Implement more environmentally sustainable electricity generation whilst maintaining high quality of supply.
2. Improve Island's self-sufficiency by reducing reliance on imported diesel and NSW Government funding used for electricity supply.
3. Protect World Heritage and tourism values by reducing environmental impacts of powerhouse and risk of fuel spills.
4. Seek lowest long term cost of energy production and reduce potential for 'diesel price shock' (increased energy costs if diesel fuel price escalates significantly).
5. Build on community support and provide pathway for other technologies (e.g. electric vehicles).
6. Ensure system can still be maintained and operated by the Board electricity generation team with minimal external input for regular operation and maintenance.
7. Showcase what is possible in a remote community when wind, solar and battery storage are integrated.

2.3 Wind turbine proposal

An Environmental Report was prepared to assess the environmental impacts of the proposed wind turbines. The proposal is for two 200 kW wind turbines however there are alternatives, as shown in the diagram below. The assessment in the Environmental Report focuses on the two 200 kW turbine proposal, but also considers the differences in impacts of the other two options.

Vergnet (200 kW) and XANT (100 kW) turbine models have been used as the basis for the assessment. However, if the wind turbines are approved, the turbine model would be selected following a competitive tender process and could be a different model altogether.



2.4 Comparison of options

The table below compares the proposal with the alternative wind turbine options, as well as a solar only option and the status quo (the current situation of diesel generation and some private solar). The proposal (highlighted in blue in the table below) provides substantially better fuel savings than the alternatives. The costs indicated are 2015 budget estimates.

Option	Fuel savings (litres)	Fuel savings (%)	Diesel usage (hours)	Cost (AUD millions)
Diesel and 120 kW private solar (status quo)	32,118	6%	12,798	-
Solar only (550 kW)	192,512	36%	8,670	6.60
One 200 kW turbine	284,652	53%	7,065	8.28
Two 200 kW turbines	359,895	66%	5,000	9.21
Two 100 kW turbines	281,029	52%	7,185	7.55

3. Consultation approach

An extensive community consultation program has been undertaken since late 2014, to involve people who live and work on, and visit the Island, in the development of the hybrid renewable energy project.

The Community Engagement Plan was developed to guide the communications and engagement process, taking into account the community profile and community concerns, and setting out key messages and engagement tools, methods and timeframes. The development of the plan was informed by community surveys undertaken in 2011 and 2014 and a consultation visit held in December 2014. A Community Issues Report was produced following the 2014 consultation visit, and is summarised in the plan.

3.1 Consultation objectives

The plan identifies the following communications and engagement objectives:

- Avoid 'reinventing the wheel' by building upon learnings from previous consultation activity
- Empower the Sustainable Energy Working Group (SEWG) to continue their valuable advocacy role for the implementation of renewable energy
- Keep the community informed of project progress and ensure that target audience understands key messages
- Focus communications around the community's key issues
- Provide ample opportunity for the community to learn about the project and provide feedback to the Board
- Consider all community feedback when making project design decisions
- Respond to all feedback appropriately and in a timely and respectful manner
- Establish and maintain a 'social licence to operate' in the local community, to build support and reduce opposition
- Enhance the sustainability profile of the Island
- Leave a positive legacy within the community to enhance the Board's reputation and relationship with the community.

3.2 How consultation was done

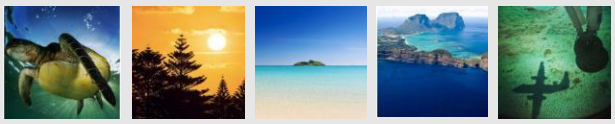
Community members were encouraged to provide their feedback and make submissions via submission form, letter, email or phone contact with the project team. Our key consultation tools are listed below.

Consultation visit	Materials and activities	Purpose
December 2014	• Infographic postcard • Question and Answer (Q&A) booklet • Stall at Community Markets	Community research exercise to understand community concerns to produce a Community Issues Report and inform the development of the Community Engagement Plan.
May 2015	• Postcard • Noise factsheet • Q&A booklet (updated) • Stall at Community Markets • Individual meetings	Continuation of ongoing engagement to present noise assessment results and continue to gather community feedback.

Consultation visit	Materials and activities	Purpose
December 2015	• Postcard • Visitor survey • Stall at Community Markets • Tour guide information sheet • Community investment discussion paper • Museum display poster	Continuation of ongoing engagement to provide update on status of project, launch visitor survey, advise of second noise assessment (undertaken at request of community) and continue to gather community feedback.
February 2016	• Postcard • Noise factsheet (updated) • Visual factsheet • Q&A booklet (updated) • Stall at Community Markets • Individual meetings • Museum drop-in sessions	Continuation of ongoing engagement to advise about approval of solar element of project, present updated noise results and visual impact assessment, feedback results of the visitor survey and continue to gather community feedback.
May 2016	• Postcard • Q&A booklet (updated) • Community meeting (Samoan circle)	Continuation of ongoing engagement to hold community meeting (as requested by the community) to allow discussion with project team and noise expert about key issues, and continue to gather community feedback.
September 2016	• Postcards ***(see Appendix A)*** • Posters ***(see Appendix B)*** • Q&A booklet (updated) • Environmental Report summary booklet ***(see Appendix C)*** • Submission forms ***(see Appendix D)*** • Stall at Community Markets • Individual meetings • Noise talks at Museum ***(see Appendix E)*** • Social media (project Facebook page)	**Continuation of ongoing engagement to launch public exhibition period and encourage submissions on the wind turbine development application.**

3.3 Managing submissions

A standard approach to data input and analysis was used, whereby all submissions received from the community were compiled verbatim into a central submissions database in Excel. Various identification numbers, counts and issues/topics categories were then assigned to assist with analysis and reporting. All original submissions are available to the Board members in addition to this Consultation Submissions Report and the submissions database.



4. Consultation summary

4.1 Overview of submissions

The proposal was displayed for community feedback for six weeks between 16 September and 28 October 2016. Due to significant community interest in the proposal, the original 28 day exhibition period was extended by two weeks to give people more time to prepare their submissions. The normal public exhibition period for proposals on the Island is two weeks.

During the exhibition we received submissions from 213 people, including residents on and off the Island, local businesses, members of the community-led Sustainable Energy Working Group (SEWG) and tourists. The high level of submissions is reflective of the importance of the proposal to the community and the extensive consultation activities that actively encouraged people to make submissions.

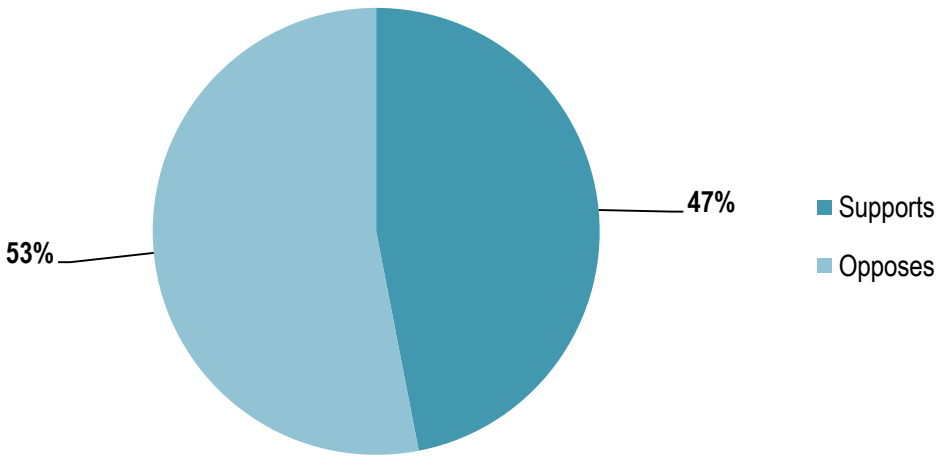
A total of 1,094 issues were raised in submissions received. Some submissions contained multiple comments and raised multiple issues. Some people provided more than one submission or signed more than one form letter.

In order, the most commonly raised issues and topics include:

- Infrasound and potential health impacts
- Visual impacts
- Audible noise
- Financial considerations of loan repayments
- Impact on birds and bats.

4.2 Breakdown of submissions

The graph below shows the number of submissions received for and against the proposed wind turbines. Of the 213 people who provided a submission, 100 people (47%) support the wind turbines and 113 people (53%) are opposed to the wind turbines.



Submissions were received in the following formats:

- 82 **submission forms** from 93 people (received by post and email)
- 20 **individual letters** (received by post or hand delivered to the Board Administration Office)
- 10 different **form letters** signed by 102 people in total
- 1 **form email** from 6 people
- 2 **posters** with handwritten comments.

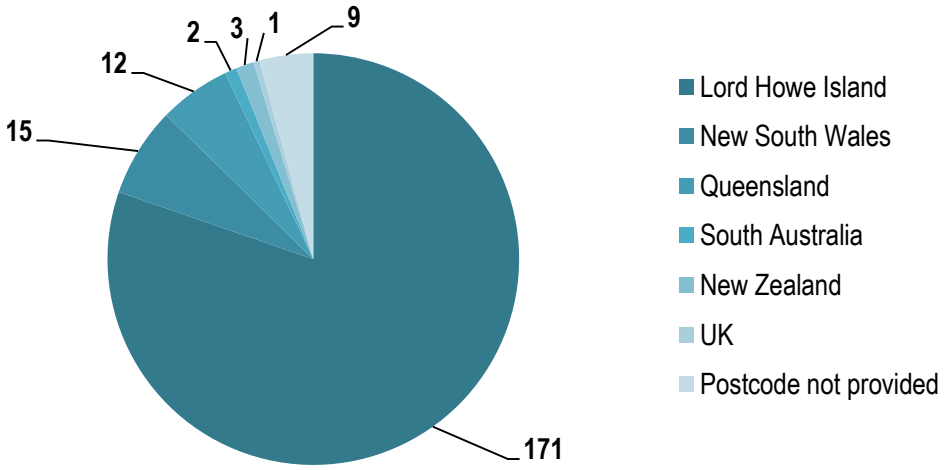
The majority of submissions opposing the wind turbines were received as form letters signed by multiple people.

Of the 213 people who provided a submission:

- 171 were from Lord Howe Island
- 15 people were from elsewhere in New South Wales
- 12 from Queensland
- 2 from South Australia
- 3 from New Zealand
- 1 from the UK
- 9 people did not provide a postcode with their submission.

Of the 171 people from the Island, 62 people made positive submissions in support of the wind turbines, and 109 people made negative submissions opposing the wind turbines. 944 of the total 1,094 issues and topics raised were made by people from Lord Howe Island.

This is a significant proportion and demonstrates that the submissions received are largely representative of Island residents or people who provided a Lord Howe Island postcode with their submissions.

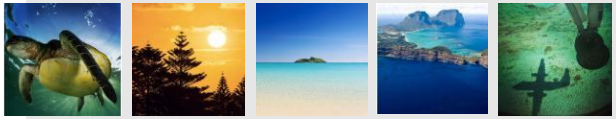


The independent planners reviewing the proposal will take the community submissions into account when preparing their report for consideration by the Board members. This report and the submissions database will also be provided to the Board members, allowing them to take the community submissions into account when determining the wind turbine development application for the hybrid renewable energy project. Issues and topics raised will inform the decision making process and although preferences and opinions will be noted, we examine issues raised during the exhibition period using a fact based assessment process.

4.3 Issues and topics raised

The table below lists the number of comments that mentioned each of the issues and topics.

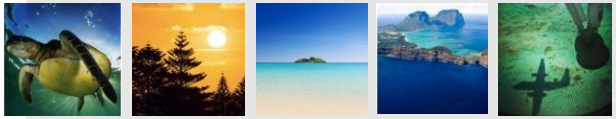
Issue or topic	Number of comments	Issue or topic	Number of comments
Adaptive management and ongoing monitoring	5	Infrasound - health impacts	143
Airservices Australia assets	1	Island self sufficiency	17
Alternative options	7	Magnetic fields	1
Alternative options - private solar	5	Maintenance and operation	22
Alternative options - solar only	19	Noise assessment - NSW guidelines	10
Audible noise	119	Noise assessment – process	10
Biodiversity – bats	23	Other uses - electric cars	15
Biodiversity – birds	58	Oppose the wind turbines	17
Biodiversity - flora and fauna	37	Planning approval process	27
Biodiversity assessment	3	Shadow flicker	5
Construction impacts	2	Site location and setback distance	20
Consultation	11	Socio-economic impacts	24
Diesel still required	8	Support for the wind turbines	76
Environmental - greenhouse gas emissions	31	Tourism - ecotourism opportunities	22
Environmental - risk of diesel spillage	16	Tourism - negative impacts	14
Experimental for the Island	3	Traffic impacts	6
Financial - diesel prices	12	Turbine model	11
Financial - economic benefit	5	Vibration impacts	3
Financial - electricity prices	5	Visual impacts	120
Financial - loan repayments	75	Visual impacts - planning controls	9
Financial - NSW subsidies	4	Visual impact assessment	3
Financial - sea freight	12	World Heritage values	58



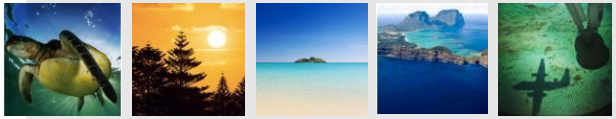
4.4 Responses to submissions

The table below provides the Board's responses to each of the 44 issues and topics raised in community submissions. Issues raised by the community have been summarised, with positive comments in support of the wind turbines highlighted in **green** and negative comments opposing the wind turbines highlighted in **red**.

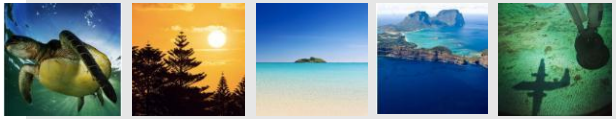
Issue or topic	Number of comments	Summary of issues raised by the community	Board response
Adaptive management and ongoing monitoring	5	• Board has a vested interest in maximising revenue but would also be responsible for determining appropriate action to complaints. Concern that the Board may not be able to manage complaints promptly and impartially. • Proposed mitigation measures to turn the turbines off at key times to minimise impacts defeats the purpose of the project and increases the financial risks of loan repayments if operating hours are reduced. • Impacts on birds and bats appear to be inconclusive, and the bat surveys suggest ongoing bat assessment 12 months after turbine installation. • The community must be consulted thoroughly when creating the Adaptive Management Plan, and have a say in what happens when noise levels are louder than predicted or if complaints are made. A community committee should be formed to bring concerns of the residents to the Board and assist in developing the plan. • Concern about noise impacts, but confident that a management plan to shut down the turbines could be successful with community involvement and approval.	The Board has listened to the feedback from the community and recognised this perception as an issue to be addressed. The project is being assessed by the Commonwealth Environment Department to address the World Heritage matters, thus providing a second opinion on the visual landscape and biodiversity matters. Secondly, NSW government agencies such as the Environment Protection Authority (EPA) and Office of Environment and Heritage (OEH) are providing a review of the Environmental Report for their areas of expertise. If the project is approved, the Board would use a panel consisting of technical experts and community representatives to set up and implement an Adaptive Management Plan (AMP), so that the conditions of consent are carried out. The implementation of the AMP during the turbine operation phase would be managed by a wider community based group. The terms of reference of that community group for the implementation of the AMP would be thoroughly defined prior to its development. The development of the AMP will include clear guidelines for managing the noise from the wind turbines in respect to impact on sleep of visitors and residents. The shutdown of the turbines during the period 10pm to 7am for particular wind speeds and directions has been modelled and has the impact of increasing the diesel consumption per annum from the base case scenario of 183,000 litres to 254,000 litres. There is an impact to the diesel savings of turning the turbines off or restricting their operation. This has been calculated based on the Island's wind conditions. The effect of this on the loan repayment will be minimal as the arrangements are that the loan is repaid using diesel savings. If the diesel savings are not achieved, or the price of diesel continues to drop and the amount of money saved is not as predicted, the Board will not be penalised. The assessment of impact on birds and bats acknowledges that decisions based on impact prediction and modelling inevitably involve a degree of uncertainty. The



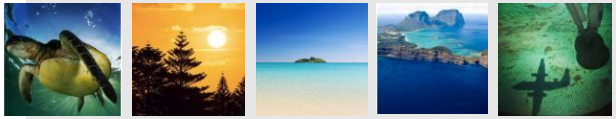
			Environmental Report is based on best practice assessment methods and conclusions drawn by independent experts. The assessments apply the precautionary principle through a series of impact mitigation measures to provide greater certainty regarding impact significance. While the impacts of the proposal are not considered likely to be significant, the report identifies contingency measures that would be implemented if impacts are greater than predicted. An AMP with a set of identified impact triggers and responses would be used to ensure that impacts to threatened species including birds would not be significant.
Airservices Australia assets	**1**	• Concern about proximity of turbines and associated infrastructure to Air services Australia assets, and potential impact on navigational equipment.	An Aviation Impact Statement was completed to assess potential impacts of the wind turbines on aviation activities, using Airservices Australia criteria. It found that the proposed turbines do not intrude upon any instrument flight procedure or military operations. There are no safety issues as minimum lowest safe altitudes are well above the height of the turbines and wind monitoring mast. A detailed electromagnetic study was also completed by IDS (specialists in aerospace technology) to assess whether the proposed wind turbines would have an impact on Airservices Australia's communication, navigation and surveillance equipment on the Island. The study found that the turbines would not affect the line of sight, coverage or precision of this specialised equipment.
Alternative options	7	• Although technology for tidal/wave energy is not advanced enough yet, recent media suggests that tidal energy has 'enormous potential' - are there alternatives to turbines that merit further consideration at this stage? • Support renewable energy but wind turbines are too dangerous for the Island and there are better alternatives. • Consider offshore wind turbines where impacts on the community will be less. • As we are an Island, is there not an option to use water for energy generation? • Consider using the Island's grazing land for biofuel.	One of the criteria for LHI is proven equipment with a track record. Tidal and wave power are still largely experimental systems and there are not manufacturers with a track record of supplying and installing their plant for many years. Part of the earlier work by the Board to develop the Sustainable Energy Roadmap was to examine options for power supply with no limitation on technology other than it must be environmentally acceptable, proven, low maintenance easily maintained by the Board staff and actually would lead to significant fuel savings. Tidal and wave power were considered but did not meet many of these criteria. There is also a significant issue associated with the connection of these systems to the local electrical network which would require long cables or transmission lines which would be difficult to install and maintain and would likely create unacceptable environmental impacts. In more recent times, members of the community have suggested several alternative wind turbine models which have been investigated by the project team. None are considered suitable in terms of proven track record, ease of installation and maintenance, flexibility in extreme weather conditions, nor are they of an appropriate



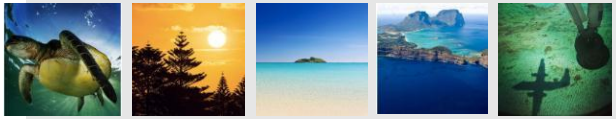
			size to produce meaningful amounts of power and hence diesel savings. Offshore wind turbines are not a realistic option in terms of the environmental impacts associated with installing them and connecting the cable to the Island's electricity network, it would be very expensive to install and connect to the grid, operations and maintenance would be far more expensive and problematic and the facility to lay them down during periods of extreme winds would be hard if not impossible to achieve. Proposals have previously been considered for biofuel options for the food, timber and green waste delivered to the Waste Management Facility to be used as a biofuel. However, the small volumes do not make it feasible. It would be a similar story for the biofuel generated from the grazing land. In addition, the use of the grazing land for biofuel would remove it as a source of grazing for the Island's dairy and beef cattle.
Alternative options - private solar	**5**	• Board should have encouraged more people to take up private solar and should make the application process easier by providing financial support and stopping the delays. • Consider expanding private solar capacity and introducing electric vehicles to move the Island towards 100% renewable energy in the long term. • What efforts are being made to equip residents with off-grid alternatives? • The Board should allow more private solar and invest in a community owned solar project before wind power is pursued. • Other measures should be used in conjunction with the hybrid system to further reduce diesel consumption, including subsidising private solar, incentivising the switch to LED lighting and restricting number and engine size of vehicles on the Island.	Currently there is 104 kW of private solar panels fitted and a further 16 kW has been approved or allocated to be installed on the Island. It produces around 5% of the annual energy consumed on the Island. But it can at times exceed 40% of the Island's instantaneous load, typically in the middle of the day. This is an important issue as this generation is completely uncontrolled and it requires the diesel generators to control the voltage and frequency on the system. Without the diesel generators running, the rooftop solar cannot function at all. Increasing the amount of private grid connected solar can cause problems with the control of the electricity network, resulting in unacceptable fluctuations in voltage and potentially power outages. The solar and wind resources have been measured at the site for more than one year and have been correlated to other satellite and ground based data sources that spanned longer periods. The results of these measurements are detailed in the technical feasibility report and demonstrate that existing rooftop solar installations perform well below what would be expected, mainly due to poor orientation and shading issues. If residents wish to go offgrid that is a personal choice. However anyone contemplating doing this should investigate the costs and limitations of a private power generation system. There is also the consideration that individuals removing themselves from the grid will increase the cost to all others on the Island as the cost of the electricity assets is then shared amongst a smaller group of people.
Alternative options - solar only	**19**	• Strong support for the solar element of the project but not the wind turbines. Board should consider a solar only proposal. • Supportive of renewable energy, but preference is for solar rather than	The solar and wind resources have been measured at the site for more than one year and have been correlated to other satellite and ground based data sources that spanned longer periods. The results of these measurements are detailed in the



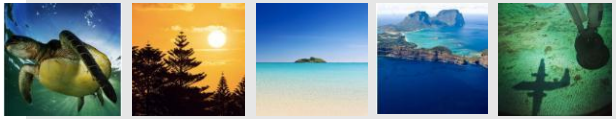
		wind turbines. • Solar is more suited to the Island's unique environment instead of installing wind turbines. • Wind turbines are unnecessary when solar panels are less visible, easy to maintain and there is plenty of sunshine in all seasons to generate solar power. • Support for two 200 kW turbines, which will be more efficient in reducing diesel consumption than a solar only system. • A solar only scheme would cost significantly more than the current budget and would require significantly more land area for the extra solar panels, which would displace farming on the most productive agricultural land on the Island. • The proposed combination of wind, solar and battery should not be varied - a solar only option is not financially viable. • Wind turbines provide an impressive diversity of energy sources in conjunction with solar, battery and diesel. Solar only is an inappropriate alternative due to higher cost and larger land area required.	technical feasibility report and show that wind resource was good and provides a more cost effective way of reducing diesel consumption on the Island than solar. The technical feasibility report also demonstrated that the existing rooftop solar installations perform well below what would be expected, mostly due to poor orientation and shading. The Board has investigated many renewable energy technologies to get to the current position. The hybrid system was the only practical cost effective way of significantly reducing the diesel consumption. The project was based on significant technical investigation and community consultation over a period of many years. The funding that has been granted is based on a hybrid scheme of wind solar and battery being installed and showcasing what can be achieved to enable other communities to learn from the Island and achieve or exceed these fuel savings. To achieve the same level of fuel reduction using only solar panels requires a very large installation and a much larger battery to capture the energy from the solar panels and provide power in the early mornings late afternoon and through the night. The system would be more expensive, less efficient and impractical to build. The wind turbines will still allow grazing and cropping activities to continue in parallel. The solar panels will stop all grazing and cropping activities in the land that is occupied by the solar panels. The footprint of the proposed hybrid system consisting of 450 kW of solar (about 2,000 panels), a 400 kWh battery and two mid-sized 200 kW wind turbines is about 5,500m^2 for the solar panels. The land occupied by the battery at the powerhouse is around 18m^2 and the wind turbines occupy around 100m^2 which cattle can continue to graze on freely. The footprint that would be required to generate the same amount of renewable energy with solar and battery only – if the wind turbines were not installed - is about 43,000m^2 for the solar panels and around 40m^2 for the battery. This would require vegetation clearing so is not considered an acceptable option environmentally. In addition to a costly much larger battery at 4 times larger (instead of the proposed 400 kWh), a significantly larger area of agricultural land would be required for the additional solar panels.



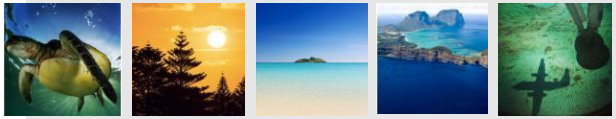
Audible noise	**119**	• Concern about audible noise impacts on residents and visitors, especially residents living close to the turbines. • Concern about audible noise impacts causing annoyance to residents and tourists which is detrimental to health. • Changes in noise levels are important even if they are within the acceptable standards and are not linked with identifiable health impacts. This impacts the acceptance from residents and support of wind turbines. • Concern about conflict of interest when a Board employee was sent to Coral Bay to observe the operating Vergnet wind turbines, and lack of report that resulted from that visit. • Concern about low level sound from the turbines. • Concern that whilst the turbines may be masked by the background noise it is another man-made noise we don't need. Diesel generators will still be required so the noise is additional to that, not instead of it. • Concern about noise impacts, particularly as other communities living in close proximity to wind turbines have raised warning bells in this regard. • Concern about the repeated 'swoosh-swoosh' sound preventing residents from sleeping, especially as it has been proven that noise from turbines and the background noise operate on different frequencies making it impossible for them to mix or be masked. • Noise impacts resulting from the turbines are obviously not well understood. • Peer reviewed analysis of 180 published papers from both sides of the wind turbine argument ('A Four-Decade History of Evidence that Wind Turbines Pose Risks', by Jerry L. Punch and Richard R. James) is starting to be recognised around the world and concludes that there are links between wind turbines and ill health. It concludes that Dr Renzo Tonin's research into infrasound was flawed. This raises concerns about the quality and validity of the research currently underway due in 2020 (that Dr Tonin is involved in), and also Dr Tonin's credibility as the independent acoustician for the project.	Extensive noise assessments have been carried out by acoustic experts and independently reviewed by Dr Renzo Tonin. Results show that firstly, predicted noise levels from both the Vergnet 200 kW and XANT 100 kW turbines (the models proposed for the Island) would be well below the acceptable noise level set in the NSW guidelines. The guidelines say that any noise from wind turbines should not be any louder than 5 decibels above the background noise. This is the level at which most people would not be annoyed by the sound - anything above that level could be classified as annoying. On Lord Howe Island, the background noise is high from wind in the trees and ocean waves, so noise from the turbine is well below the level that would annoy most people. Secondly, the turbines would only be audible for up to 30-40% of the time - for most of the time you wouldn't be able to hear the turbines above the background noise. The times you are more likely to hear the turbines above the background noise are those moments when the breeze drops, the trees are still, and the ocean is calm. This may be for just a few seconds or a more prolonged period of time, but regardless, this moment will be part of an overall longer term experience of what you can hear, and the turbine noise will not be noticeable. For those properties to the north of the turbines, closest to the site, there is more chance that the wind turbines will be audible for a greater proportion of the time depending upon wind strength and direction. But noise from the turbines would still be well below the level deemed to cause annoyance. As a consequence of the turbines being audible, there will understandably be a reaction by some to the audible noise. The NSW guidelines adopted in the noise assessment are intended to protect 90% of the population. Therefore, there will be a percentage of residents who will find the noise unacceptable. In respect of those time periods when noise from the turbines will be audible, there are tools available to the Board to curtail the extent of the times of audible sound. The monitoring of noise levels should be a requirement in the conditions of consent should the proposal be approved, and measures developed within the AMP so as to balance the audibility of the turbines against the benefits of providing sustainable power generation for the Island. The swish-swish sound emitted by the turbines would blend into the background noise and is not of a tone or frequency to stand out from the existing sound of the wind in the trees or the ocean waves. There are a range of factors that contribute to how wind turbine noise affects people living nearby. Topography, ground surface, wind direction, proximity of properties and



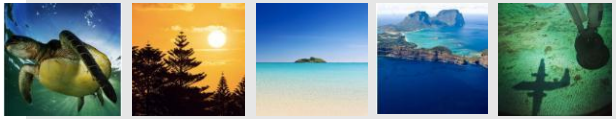
		• Predicted noise levels are unacceptable, and the wind turbines would only be acceptable if the noise was guaranteed to be zero at all times. • Predicted noise levels from the two proposed 200 kW turbines will disturb Pinetrees guests and staff at night and be audible for most of January, February and March (peak season) when the easterly winds blow noise towards Pinetrees to the west. Any noise from wind turbines while guests and staff are sleeping is unacceptable, and guests paying $700 per night for a room would rightly expect not to be disturbed. • Comprehensive noise assessment shows that the background noise on the Island will mask the sound of the wind turbines for most of the time, even at those dwellings closest to the site. • Comprehensive noise assessment shows that the predicted noise from the wind turbines will be well below the Government guidelines. • Comprehensive noise assessments undertaken on similar turbines that are operational show that while some noise is a possibility, there are options to significantly reduce noise impacts. • Over time people will become used to the noise impacts of the wind turbines, as they have with the runway and planes that use it. • After spending time under wind turbines in Tasmania, noise is not a problem. • Benefits far outweigh the slight risk that we will occasionally be aware of the sound of the turbines, and that sound would be 'music to my ears' knowing that less carbon is being released into the atmosphere. • Ensure ongoing compliance monitoring of noise impacts during turbine operations. • Initial concerns about noise impacts have gone after reviewing noise assessment results and listening to an 'out-of-context' recording of actual turbine sound. Turbines will only be slightly audible on really still days when there is wind at higher elevations. • Noise assessment shows that noise impacts will be minimal, and that turbines of varying sizes cannot be compared as equal but should be assessed on their merits for each individual location.	sources of background noise all play a part. Every wind farm is different with specific site characteristics and turbines of various sizes and number. Therefore, every community will have a unique experience. The best way to determine what the experience would be like for the Island, is to accurately measure and assess using best practice methodologies to understand what the impacts would be. This is what the NSW guidelines require and this is what we've done on this project. Regarding the visit to observe operational Vergnet turbines in Coral Bay, the person travelled to Coral Bay on their own time, taking leave from their Board position. At the time of the trip, this person spoke to a number of other interested parties, and it was agreed between them that he could represent them on the trip. The person's views on the trip have been stated publicly in a number of forums, so the lack of a formal report from what is effectively, a member of the community, shouldn't be seen as a negative. The comment about the importance of changes in noise levels, even if they are within the acceptable standards and are not linked with identifiable health impacts, is pertinent. It is for this reason that the acoustic report also discusses audibility of the noise from the wind turbines and information about the times at which sound from the wind turbines will be audible above the background noise level. This information can be used to guide the LHIB in making decisions about managing audible noise. The extensive noise assessments undertaken for the project have given us an extremely detailed understanding of what the noise impacts would be. Additionally, the independent review undertaken by Dr Renzo Tonin can provide more confidence that the results are accurate, robust and paint a realistic picture of what the turbines would sound like. The majority of peer reviewed evidence supports the hypothesis that infrasound produced by wind turbines is not associated with adverse health effects. Potential noise impacts from the turbines have been widely discussed with and communicated to the community in the form of factsheets, community meetings and 'noise talks' throughout the noise assessment process. Studies around the world have shown that the level to which people find wind turbines annoying, is directly linked to their prior expectations. The noise impact report provides information on the audibility of the wind turbines which will inform the LHIB on noise management techniques to minimise audibility. However, based on the monitoring and modelling completed, it is not possible to guarantee that all residents on the Island will not hear the turbines all the time.



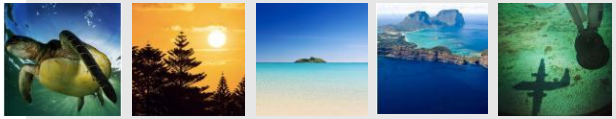
		• Noise from the wind turbines will be generally low, especially in relation to the background noise. The noise assessment concludes that noise will not be a problem, although noise should be assessed based on the context that the loud diesel generators will be running for less time. • Position of the turbines on the south west of the Island means noise impacts will be minimised as sound is blown out to sea. • Potential noise impacts have been openly discussed within the community and thoroughly investigated by the project team. Background noise on the Island is high and noise from the turbines would be inaudible most of the time. • Satisfied that the noise impacts from the wind turbines will be effectively masked by the background noise. • The wind itself is noisier than the noise impacts from wind turbines. • There is much talk in the community about noise and health impacts but studies conducted all over the world show that wind turbines are not health hazards and only some people find them annoying. • Unsure about noise impacts but having seen multiple wind farms in UK and Europe the benefits of having two installed on the Island outweigh the risks.	Regarding the comments quoting Dr Tonin's work, he states that, prior to the journal publishing his paper, it arranged for no less than seven peer reviewers. In respect of criticisms by Punch about the length of time of the noise exposure used in the study, the paper itself acknowledges this fact and so the criticism is unfounded. In respect of the comments made about the independence of Dr Tonin, the concerns expressed are unfounded and therefore rejected.
Biodiversity - bats	**23**	• Concern about the impact of wind turbines on bats, in particular the declining populations of endemic species. • Potential impacts on bats have been openly discussed within the community and thoroughly investigated by the project team - impacts of the turbines on bats would be negligible. • Impacts on bats will be negligible, particularly when compared to other man made hazards such as vehicles and barbed wire.	Bats flying close to wind turbines may be killed or injured via interaction with the turbine blades. The only bat species on Lord Howe Island is the Large Forest Bat, which is found widely in south eastern Australia. These bats forage at and below forest canopy level. Specialist studies carried out by Fly By Night Bat Surveys found that bats are unlikely to be significantly impacted by the operating turbines because the likelihood of them flying through the area where the blades would be turning is very low. In the studies, bat activity levels were monitored in three areas - in the paddock where the turbines would be located, at the edge of the forest and in the forest itself. Most of the bat activity was within and near the forest edge, with no bats foraging or flying through the paddock at the height of the turbines. The low level of bat activity occurring in the paddock was mostly at ground level. While activity was low even at 2 metres, activity at 20 metres height was negligible and no activity was recorded at 40 metres height.



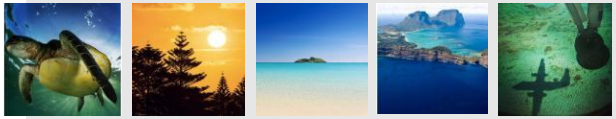
Biodiversity - birds	**58**	• Concern about the impact of wind turbines on birds, in particular the declining populations of endemic bird species. • Concern about impacts on birds, especially Flesh-footed Shearwaters, which would need to be closely monitored with mitigation measures in place. • Bird impact assessments confirm that an evening shutdown (or even overnight) is required between 15 September and 15 May to minimise impacts to Flesh-footed Shearwaters, however this year they arrived as early as 8 September • Although birds have sophisticated sensory capabilities which are not fully understood, it is too big a risk to install the wind turbines on such an ecologically sensitive Island. • Need for additional surveys should be undertaken to record flight patterns of seabirds early in their breeding season (September to December). • Would like to see more information about birds living and breeding near wind turbines in other parts of the world. • Who would be responsible for shutting down the turbines before and after sunset every day for half the year, and will it also extend to the early morning period before sunrise? • Concern about the 25% predicted blade strike rate for Red Tailed Tropicbirds as they are on the IUCN Red List of Threatened Species. • Concern that the proposal is going ahead, even though the environmental assessment found that there would be an impact on birds and bats. • Impacts on birds will be negligible, particularly when compared to other man made hazards such as vehicles and barbed wire. • Bird strike is a commonly quoted issue with wind turbines but birds also die by flying into windows. • Birds use their sensory capabilities and become used to avoiding objects, such as turbines.	An assessment of impact on birds has been undertaken, based on best practice assessment methods and conclusions drawn by independent experts. Further, the assessments apply the precautionary principle through a series of impact mitigation measures to provide greater certainty regarding impact to birds. The assessment has identified that while birds and to a lesser extent, bats may be impacted, the level of impact would not be significant, and is of an acceptable level. The numbers of 'predicted collisions' stated in the biodiversity assessment would be the worst case scenario. In reality, birds detect the presence of structures and it is expected that they would avoid the turbines. The evening shutdown will be automated and applied for the duration of the Flesh-footed Shearwater breeding season. Specialist bird assessments have concluded that the proposal, subject to identified mitigation measures, would not be likely to significantly impact this species. If impacts are greater than anticipated, there is capacity for the turbines to be shut-down every night for the Flesh-footed Shearwater breeding season, eliminating bladestrike risk to this species. This contingency would be incorporated into the AMP for the project. Conclusions in the biodiversity assessment regarding impact significance are based on the best available information, including specialist field surveys. A range of mitigation measures are incorporated in the proposal to account for any unforeseen impacts. The uncertainty involved in the assessment, and the residual risk of significant impact, has been handled through the AMP and proposed monitoring of impacts; if impacts exceed thresholds which may cause significant impact, responses would be triggered which would ensure impacts are not significant. The most powerful of these responses is the capacity to shut the turbines down from dusk till dawn for the entire Flesh-footed Shearwater breeding season. Bird specialists have confirmed that this would eliminate bladestrike risks to this species. Some relevant experiences at other turbine developments overseas and elsewhere in Australia are reviewed in the Biodiversity Assessment and specialist bird assessments. A number of safeguards will be implemented to minimise impacts on birds. Automated periodic turbine shutdown is a mitigation measure identified in the Environmental Report which can be used to reduce visual, noise and biodiversity impacts. This measure is incorporated into the safeguards in the Environmental Report designed to ensure impacts to birds are not significant. Of the turbine options, the 200 kW Vergnet wind turbines are preferred over the 100 kW



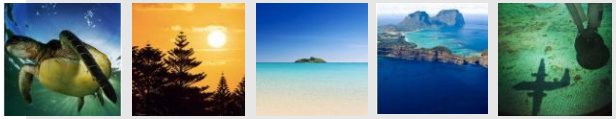
		• Monitoring shows that most terrestrial birds and bats fly below the height of the proposed Vergnet 200 kW turbines, so are unlikely to be injured by the blade. • Potential impacts on birds have been openly discussed within the community and thoroughly investigated by the project team - impacts of the turbines on birds would be negligible. • Concern about the impact of wind turbines on birds, but confident that impacts can be minimised through the proposed mitigation measures. • Ensure turbine shutdown period is observed during the peak daily exit and return period of the Flesh-footed Shearwater during breeding season to mitigate impact on this species. • Support for turning the wind turbines off at certain times to minimise environmental impact. • Support the wind turbines providing the impacts on seabirds can be mitigated. • Impact on fauna has been assessed to be insignificant and the turbines are easily reversible if impacts are not as predicted. • The two 100 kW turbines have a greater impact on birds, but this could be tested. • Concern that turbine models have been selected for best environmental outcomes, not for the best visual or noise outcomes. • Judgement about impacts on birds comes down to a risk/benefit analysis. • Support for the turbines as they have no significant impacts on birds in New Zealand.	XANT turbines, to minimise impacts on birds, because the Vergnet turbines operate higher off the ground and represent a lower risk for bird strike. Key findings in the bird impact assessments found that terrestrial birds and bats would not be likely to be significantly impacted due to the height of the turbines, and that an evening shutdown during the breeding season is an important mitigation measure to protect the Flesh-footed Shearwater. Turbine options that meet the requirements of the Island are limited, so both the Vergnet and XANT were assessed. The taller of the two options (Vergnet), would have a lesser impact on birds. In relation to comparison of visual impact, the visual assessment undertook a comparative assessment of the two turbines and found that the visual effect does not vary greatly between the options (see section 6.2.3 of Environmental Report). While the smaller XANT turbines would have lower visual effect than the proposed Vergnet option, the difference would be small, close range and localised, and there would be no discernible difference from high vantage points. Noise emissions would be greater from the larger Vergnet. An Adaptive Management Plan with a set of identified impact triggers for contingency measures are also identified for noise and visual impacts to ensure that residents and visitors are not significantly affected. The reference to 25% bladestrike rate among the Red-tailed Tropicbirds is a likely reference to Tables 7, 8 and 9 of the specialist bird report (Appendix B of Biodiversity Assessment). There were 16 observed Red-tailed Tropicbird flights over the site during the survey periods. Four of these could have potentially collided with a turbine located at WTG1 if it was a XANT turbine with a hub height of 23 m (Table 7), 31.8 m (Table 8) and 38 m (Table 9). None of the Red-tailed Tropicbird flights observed over the site would have potentially resulted in a collision with a Vergnet turbine with a hub height of 55 m (Table 6). The assessment identified that: • the numbers of observed Red-tailed Tropicbird flights over the site were very low (16 flights) in 40 hours of survey time when the species was present on the Island (February and March 2016); • a 25% potential collision rate with a XANT turbine (any height) amounts to only 4 potential collisions in that 40 hour survey period, with no potential collisions if Vergnet turbines were used on the site; • this is a worst-case scenario, assuming that Red-tailed Tropicbirds would not learn to avoid turbine collisions. Other studies have shown some bird species resident to areas where there are wind turbines learn to avoid collisions with them.



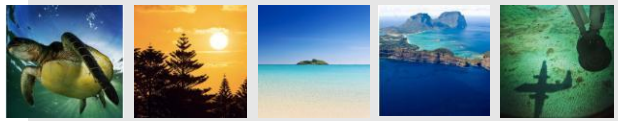
			The bird impact assessment does not recommend that additional surveys are required for seabirds early in their breeding season (September to December). The specialist report prepared in relation to the Flesh-footed Shearwaters by Nicholas Carlile and Lisa O'Neil (see Appendix B of Biodiversity Assessment). Made observations of use of the airspace by seabirds in each month from October 2014 to April 2015. Monitoring data was collected in 2014 from 2-4 October, 17-19 November and 11-13 December, and in 2015 from 28-30 January, 12 February, 25-27 February, 8-10 March, 10 April and 27-29 April.
Biodiversity - flora and fauna	**37**	• Concern about impact on Island's flora and fauna. • Concern about the impact of wind turbines on endemic flora and fauna species, in particular those listed on the IUCN Red List of Threatened Species. • Concern that endemic species will be further endangered by implementing wind turbines. • Concern that clearing of native vegetation is required for construction of the access road. • Satisfied that the biodiversity impacts are not significant.	The impact assessment in relation to threatened species is based on national and state listings, which provide a more locally-accurate representation of conservation status than the global IUCN Red List. For example, the Flesh-footed Shearwater is listed at Least Concern at the global scale under the Red List. There are unlikely to be species listed under the threatened categories in the Red List which have not been included in the impact assessment for the proposal. Endemic flora and fauna species have also been addressed in the assessment. Vegetation clearing is needed to straighten the road within the paddock to allow long wind turbine components to pass. The clearing area would be minimised. The area of clearing is very small, affecting a common vegetation community, and the clearing would be offset by the re-establishment of a much larger area or native forest. For this reason, the clearing impacts are not considered likely to be significant.
Biodiversity assessment	**3**	• Concern about low level of birds predicted to fly through the impact zone in the biodiversity assessment, as this number would be in the thousands if the assessment was done in spring when the Flesh-footed Shearwaters are most active. • Concern at the amount of collateral damage to flora and fauna that the biodiversity assessment classifies as non-significant, and that the Island's strict regulations for fauna conservation seem to be disregarded when projects are important or expensive. • Impact on birds has been thoroughly investigated and shows that risks are minimal with suggested operational measures to mostly eliminate impacts. Birds are more likely to be impacted by road traffic than the proposed turbines.	The biodiversity assessment identifies the nature and extent of potential impacts of the proposal, including impact significance. 'Significant impact' is defined in Commonwealth and State assessment criteria, which include the potential to result in population decline, the loss of important habitat or exacerbation of a threatening process. Assessments of significance have been undertaken for each species which may be affected by the proposal. The assessments conclude that the proposal would not be likely to significantly impact threatened species, subject to a range of identified mitigation measures. The conclusions are based on the best available information, including specialist field surveys. The assessment of impact to birds is based on best practice assessment methods and conclusions drawn by independent experts. The assessments apply the precautionary principle through a series of impact mitigation measures to provide greater certainty regarding impact significance. The assessment has identified that the proposal is not considered likely to be significant and the report identifies contingency measures that



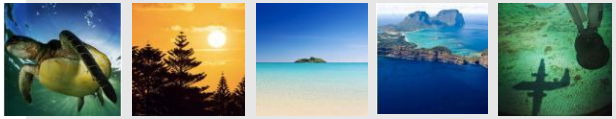
			would be implemented if impacts are greater than predicted. An AMP with a set of identified impact triggers and responses would be used to ensure that impacts to threatened species including birds would not be significant.
Construction impacts	**2**	• Will explosives be used in this development and have the impacts of this on birds and bats been considered in the environmental assessment? • Concern about construction impacts and the environmental cost of manufacturing, transporting and installing the wind turbines.	Yes it is possible that explosives could be used to assist with the excavation of the wind turbine footings. It will be similar in scale to that used for the monitoring mast construction in late 2014, from which there were no observed impacts on birds, bats or the community. It is difficult to quantify the carbon footprint of the turbine manufacturing and transport process. However, it would be less than the carbon footprint of the drilling, refining and transportation of the diesel to the Island.
Consultation	**11**	• Concern that the closest residents have not been adequately consulted regarding the selection of the site. • Life-long/lineal descent residents should be listened to most as they have the greatest stake in the proposal, not the "fly-by-nighters". • Concern that the Q&A booklet is one-sided and incorrect, and that the Board is hiding something behind the false facts. • Q&A booklet overstates visitor and local support for the wind turbines, and to suggest that only 7% of the community opposes them is false. • There is a high level of opposition within the community and a lack of attention towards the views of residents. • SEWG does not properly represent the Island or act in the best interests of the residents, and as no meeting minutes have been prepared since 2010 it is not an open or transparent working group. • More work required to find out what the community sees its future as. • Social media and video content should be used for future projects to enable residents both on and off the Island to continue to be part of communication and consultation. • Community has been kept well informed as the project has developed, via householders, online information and dialogue with the project team. • Community concerns about human health, noise and wildlife impacts are	The extensive community consultation process undertaken over the last two years has been integral to the development of the proposal. The views and concerns of residents and visitors have driven the environmental assessment process and led to additional work being undertaken to satisfy community concerns. The high level of community interest in the proposed wind turbines has led to the provision of highly detailed information and numerous ongoing ways to engage with the project team and provide feedback to influence the development of the project. The public exhibition period was also extended by two weeks to allow people more time to submit their feedback. The DA process is not a vote. The public exhibition period allows feedback from the community on the development, and ensures that the project team has addressed all of the issues raised, either through the existing documents, or through additional information. The DA is independently assessed by a consultant, a report provided to the Board CEO for concurrence or not, and then the report and project is considered by the Board at a public meeting. As part of the ongoing community consultation program, residents living closest to the site have been offered individual meetings on numerous occasions, in addition to the rest of the community-wide consultation activities and materials that have been made available. The project team have been aware of community concerns regarding noise, visual, health and biodiversity impacts from the wind turbines and the Board has undertaken extensive consultation to ensure that the community are kept informed. The community surveys undertaken in 2014 showed that 93% of the community supported the installation of wind turbines and 100% supported a solar farm on the



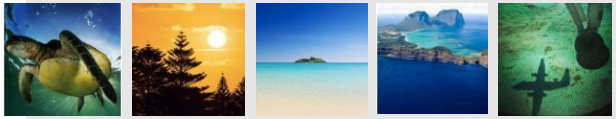
		largely based on misinformation, and people should pay more consideration to the assessments done for the project that show the impacts to be non-existent or not significant.	Island. Levels of support for any development can change as the proposal progresses and as new concerns or interests emerge. The community will have an important role moving forwards in shaping how the AMP for the wind turbines would be developed and implemented. The wider issue how the community see its Island future beyond the renewable energy project is not part of this development proposal. The Sustainable Energy Working Group (SEWG) was setup in late 2010, following a public advertisement for Expressions of Interests and a public meeting. There were nine nominations, and seven members were placed on the SEWG. Their role was to advocate for renewable energy in the community and support the Board in the development of the Roadmap, upon which this project is now based.
Diesel still required	**8**	• Diesel will still be required to run the generators. • Concern that the project is based on two systems - wind and diesel, with solar 'thrown in for good measure'.	Diesel is one of the components of the hybrid wind, solar, battery and diesel system - but only 180,000 litres will be used a year instead of 560,000 litres. The generators will still be required to meet the Island's energy needs and ensure a smooth reliable power supply. It is expected that for periods of time, the system won't require a diesel generator to run, as there will be sufficient energy available from the wind and solar. On a windy day, extra energy generated from the wind turbines would mean the diesel generators wouldn't need to operate at all. The sophisticated control system will continually monitor the energy demand on the Island and automatically control the supply of energy to meet those needs. It will determine how much wind and solar power is needed, when to charge the battery and when to turn on the diesel generators. If there is not enough energy being generated by the solar panels and wind turbines, the existing diesel generators will make up the difference. Prior to the battery going flat, diesel generators will be switched on to make sure there is no interruption in power supply to the community. There will only be one power system with one control system. All components of the hybrid system are equally important and work together to maximise diesel savings. The diversity that comes from using both wind and solar provides a natural smoothing of the renewable energy supply by providing renewable energy throughout the night, on overcast days or during winter months when solar production is low or non-existent. The control system will operate the diesel generators as required and will ensure as far as is possible that the operation of the diesels in the most fuel efficient mode of operation. This may mean that the diesel generators will charge the battery before being switched off.



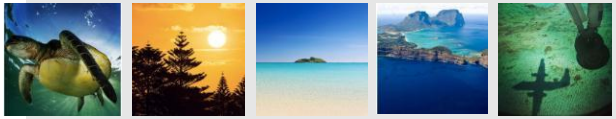
			Regardless of the outcome of this proposal for the wind turbines, the solar panels, battery and control system elements of the project are going ahead. The solar development application was approved by the Board in late 2015 and work on the ground to install the solar panels, battery and control system is expected to start in the first half of 2017.
Environmental - greenhouse gas emissions	**31**	• Reducing diesel consumption to achieve a more environmentally sustainable electricity supply and reduced carbon emissions for the Island is not needed as the generation of CO2 does not influence global climate change. • The proposed fuel savings of 360,000 litres a year is the equivalent to the amount of fuel used by a large aircraft in one long haul flight - our contribution to global sustainability would be insignificant. • Support for the wind turbines, and reducing the amount of diesel consumption and greenhouse gas emissions. • Renewable energy is healthier - pollutants from fossil fuels cause harm to human health. • The Island is in a strong position to make a visible public statement, and inaction on the wind turbines would send a statement of denial. • The Island's renewable energy system will be an important demonstration to the rest of Australia for what is required to meet our national commitments for reducing greenhouse gas emissions. • Continuing to burn fossil fuels contributes to climate change, which is the greatest threat to the Island's iconic coral reef and cloud forest. • Great opportunity to reduce effects of climate change and carbon emissions, by thinking globally and acting locally. • Surprising that the Island runs solely on diesel. We must do anything we can to stop burning fossil fuels, and even little steps on our Island makes a big difference. • Wind turbines provide an opportunity to maximise the reduction in greenhouse gas emissions compared to solar alone. • Renewable energy is safer - international research shows that renewable energy facilities are safer than fossil fuel facilities. • Support from young community members for investment in wind and	The reduction in greenhouse gas emissions and achieving more environmentally sustainable electricity generation is a key objective and benefit of the proposal. The project is consistent with the principles of Ecologically Sustainable Development in part because it aims to reduce the costs of climate change that will be imposed on future generations. The project reflects adaptability and self-reliance in the Island population, and the technology and environmental imperatives that characterise the early 21st century. Public responses are likely to be influenced by an acceptance of human presence on the island and an understanding of the need for sustainable energy production. The proposal would result in reduced generator emissions at the powerhouse. If air quality at adjacent properties is currently affected by the powerhouse, the proposal would ameliorate these impacts by reducing generator running time. The vast majority of climate scientists consider that human carbon emissions are altering the climate, based on a growing body of evidence from a wide range of sources. All Australian governments accept the need to mitigate climate change by reducing carbon emissions, and policies and action plans have been developed at Commonwealth, State and Board levels. The existence of a larger problem does not remove the need to deal with smaller problems. Action to reduce carbon emissions is required at all levels, particularly when additional benefits can be achieved, such as reduced diesel fuel costs.



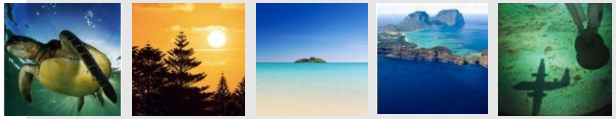
		solar instead of coal and diesel, to protect the environment from climate change into the future.	
Environmental - risk of diesel spillage	**16**	• Reduced risk of diesel spill is of minimal benefit. • There are risks associated with the current shipping of diesel but no fuel spill has occurred in at least the last 25 years. • Wind turbines will reduce risk of diesel spillage. • Diesel generators will become obsolete and the Island can recover from their destructive influence. • Environmental and economic benefits of reducing the risk of a large scale fuel spillage, especially considering the impact of a diesel spill on the Island's tourism industry. • No solution is 100% perfect; however the environmental impact of one or two wind turbines is far less serious than the consequences of a fuel spill in the lagoon or the powerhouse. • Reduced noise from diesel generators. • The diesel generators currently use around 500,000 litres of fuel a year which is about 2,500 drums. How are the empty drums disposed of?	The reduced risk of diesel spillage into the Lagoon and on land during unloading and deliveries to the powerhouse due to the reduced volumes of fuel is one of the key objectives and benefits of the proposal identified in the Environmental Report. The reduction in spill risk is a significant step in improving the security of the World Heritage values of the island. Fuel is delivered via the *Island Trader's* fuel tanks, and decanted into portable 1,100 litre stainless steel tanks. The portable tanks are transported to the powerhouse and fuel is transferred into the above ground fuel storage. The portable tanks are reusable.
Experimental for the Island	**3**	• To some extent the installation of wind turbines on the Island is experimental, but given the proposed safeguards and ongoing monitoring it is not an irresponsible experiment. We will learn how to adjust our experiments to give better outcomes. • Project is an experiment for the Island but initial concerns about noise and visual impacts have been satisfied by the results of the environmental assessments. • Nowadays, wind turbine and solar panel technology is tried, tested and proven so there is nothing experimental about the proposal.	One of the objectives of the project is to showcase what is possible in a remote community when wind, solar and battery storage are integrated. However, the equipment that would be installed on the Island is proven technology, and is commercially available from well-established suppliers in the industry. The proposed Vergnet wind turbines are currently operating at Coral Bay in Western Australia, and have been since 2008.



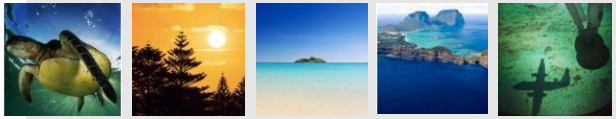
Financial - diesel prices	**12**	• Benefits to the community are questionable, especially given that electricity prices will continue to rise but diesel prices remain low. Predictions that diesel prices will rise in the future are based on guestimates. • Rigorous cost benefit analysis is missing from the proposal and the simplistic assumption that diesel prices will continue to increase as predicted over the next 10 years does not reflect the reality of the last few years. Wind power is likely to cost more than diesel power in the short to medium term which is a bad outcome for the community. • Diesel prices are currently low and unlikely to increase in the next few years due to reducing global demand for oil as technology becomes more fuel efficient. • Q&A booklet is spin and hyperbole, with estimated diesel savings for 330,000 quoted as $500,000, however given current diesel prices that saving would only be $300,000. • Decision about the wind turbines shouldn't be made for today, but for 10-20 years from now when diesel will be expensive and considered unacceptable due to pollution. • Rising costs associated with diesel fuel, including freight prices, is unsustainable in the long term. • Need to consider the price of diesel in 10 years' time and the amount of government subsidies we might receive when thinking about our future energy needs. • The project will reduce the impact of 'diesel price shock' on the community if and when diesel prices rise. • Wind turbines will reduce the cost of diesel expenditure on the Island.	The US Energy Information Administration publishes projections of prices under a range of scenarios. Their outlook published in 2016, shows an increase in oil prices from 2017, under all scenarios. This is of course a prediction, and is subject to many variables that cannot be forecast. The project lowers the cost of running the electricity network which provides a community benefit, but also provides insurance against likely future diesel price spikes, which also cannot be predicted. Over the 20 year life of the project, the financial model shows that the Island would be almost $1.5 million better off with a combined wind and solar solution, when compared to maintaining the diesel generators. Diesel prices are expected to rise between 23% and 260% in 2026, depending on the actual path that oil prices take. The Board's Financial Sustainability Review in 2013 showed that it needed to increase revenue and decrease costs so that its reliance on NSW Government subsidies reduced as much as possible, as Government funding is continually shrinking. This project will reduce the impact of the potential diesel price increases and reduce the electricity system operating costs. The project is designed to reduce the costs of operating the electricity network and also insulate the community against diesel fuel price spikes. The project will mean that the future increase in electricity tariffs will not be as much as they would be under a diesel only scenario. Electricity tariffs are priced on a full cost recovery basis. The Board has made the decision to not pass the full cost of the electricity network onto the community. The project is designed to reduce the costs of operating the electricity network and also insulate the community against diesel fuel price spikes. The project will not deliver cheaper electricity to the community because the community is not paying the full cost at present. The project will mean that the future increase in electricity tariffs will not be as much as they would be under a diesel only scenario.



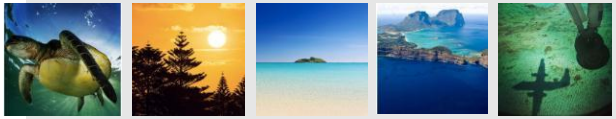
Financial - economic benefit	**5**	• Consider community investment in solar that benefits all the community, not just the Board. • Economic benefit of the project to the community. • Cost/benefit of the project is strong, but only if the wind turbines are included. • Does the price difference between achieving 60% renewable energy and 100% renewable energy increase exponentially? If it is a linear increase would we not invest more to get closer to 100% renewable energy generation? • Makes economic sense.	The economic benefit to the community has two aspects. The first is the insurance against future diesel price spikes, which would flow onto the community through increased electricity tariffs. The second is the increased self-sufficiency of the Island, which demonstrates to the NSW Government, that the Island is serious about improving its financial sustainability, and may influence their decisions regarding future funding. The costs associated with reducing diesel consumption do not increase linearly as the amount of diesel is reduced. The cost is more akin to an exponential curve due to: 1. Complexities within the control system 2. Wind and solar (in this case) installed generation needs to be progressively larger and larger to produce enough energy not only to meet the current system demands but also to store enough for periods of no generation. This is in part why a combined wind solar system as proposed for the Island is a more effective solution than just solar as the wind is on average available through the night; and 3. The size of storage is much larger than is needed on average to ensure that periods of low wind and low sunlight are covered. The system that the Board is seeking to install will operate at times with no diesel generators (so 100% renewables for some periods) so we are making great progress towards the ultimate goal of 100% renewables, however there are constraints on funding and on land availability that limit reducing the fuel consumption at this time. As our knowledge of the system and with technology improvements it is hoped to increase the fuel savings.
Financial - electricity prices	**5**	• Concerns about blowout of the immediate project costs and ongoing electricity charges. • Danish communities are paying 33% more for electricity than the rest of Europe, and given the Island's isolation and small scale of the project the increase in electricity costs for us could be more than this. • Electricity prices are high for the community and the fact they will continue to rise is alarming. • Not reducing electricity prices makes it look like economic benefits to the Board are more important than the wider benefits of reducing diesel. • $50,000 annual savings in electricity prices over 15 years does not	The community pays comparable electricity tariffs to regional NSW mainland communities, but this does not cover the true cost of operating the Island's electricity network. In conjunction with the solar panels and battery, the wind turbines provide an opportunity to reduce the cost of providing electricity on the Island, so that the revenue generated from users is closer to the costs of running the system, and therefore the NSW Government does not have to subsidise Island's electricity network. Electricity tariffs are priced on a full cost recovery basis. The Board has made the decision to not pass the full cost of the electricity network onto the community. The project is designed to reduce the costs of operating the electricity network and also insulate the community against diesel fuel price spikes. The project will not deliver cheaper electricity to the community because the community is not paying the full cost at present. The project will mean that the future increase in electricity tariffs will not be



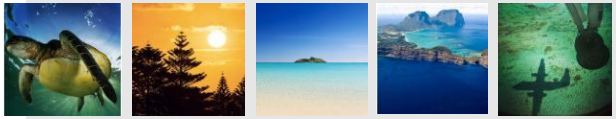
		justify the loss of millions of dollars in revenue from damage to the Island's tourism industry.	as much as they would be under a diesel only scenario. The impact on tourism is not expected to be negative. The AMP has been proposed to manage unexpected impacts and benefits form the project during its construction and operation. For example, if guests of lodges or nearby residents have their overnight sleep affected by the sound of the wind turbines, then the community based group implementing the AMP can respond quickly to limit the turbines' overnight operation so that noise levels do not affect sleep. There will be people, both visitors and residents who do not like how the wind turbines look, and equally there will be those who see the message that the turbines are sending about the community's commitment to the Island and the environment.
Financial - loan repayments	**75**	• Concern about loan repayments and the Island getting into long-term debt. • Concern that the financial burden will be large, despite positive spin from the Board based on optimistic loan repayments and high diesel prices. • Concern that the loan will be a long term financial burden for future generations, especially as there doesn't seem to be any net gain throughout the project and the interest rate and repayment arrangements have not been confirmed. • Concern that the project isn't a wise long term investment given the 20 year life of the wind turbines - what happens after 20 years? • Financial model does not show any surplus cash flows that could be used to reduce electricity charges, so energy prices on the Island would remain the same. • Financial model includes no contingency funds to cover any compensation claims that may arise from lodges as a result of loss of tourist income or from the community to cover reductions in property values as a result of the wind turbines. • Financial model shows a negative Net Present Value, unrealistic assumptions about interest rates over the 20 year life of the wind turbines and a number of terms that need to be properly negotiated with the NSW Government. • High cost of equipment and installation of the turbines is being thrust	$5.9 million of the $10.35 total project cost has been provided by NSW Treasury as a loan, with the repayments to be made from savings in diesel consumption. The project is a significant undertaking both logistically and financially for the community. The cost of carrying out projects on the Island is escalated above a similar project on the mainland because of the high costs of travel and accommodation for the contractors, and the sea freight costs to the Island. The $8 million runway project completed in 2015 represented a $2 million project on the mainland. The installation is able to be maintained by existing staff on the Island. The project's financial model shows a cash positive position of around $1.5 million over the 20 year life of the project, compared to the status quo. The benefit of the project would be realised when diesel prices escalate, and electricity tariffs for the community, increase at a similar rate. There is no guarantee that the NSW Government's recurrent funding will continue to be there if the Board does not attempt to reduce the costs of providing its services. All assets have a design or useful life. The turbines would be maintained throughout their 20 year life with the intention of continuing to operate them, if economical, beyond the 20 years. It is possible that the turbines could be refurbished to allow them to continue to operate, or new turbines installed on the existing towers or concrete footings. The project's financial model does show a negative Net Present Value. This is due to the loan repayments being recognised in the model, when in reality the repayment of the loan is being funded from recurrent funding from the NSW Government and the diesel savings that reduce our electricity operating costs. The Board will attempt to secure a fixed interest rate for the 20 year period.



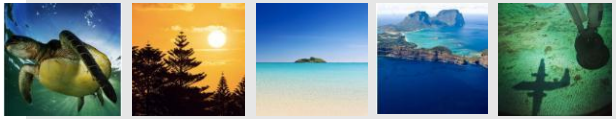
		upon the community. • High economic risk with potential for negative impacts on tourist industry. • How do the expected savings compare to the cost of debt incurred, additional maintenance costs and damage done to Transit Hill by constructing the access road? • Opposed to the wind turbines due to concern about financial burden they will place on the community. • Project update circulated to residents stated that debt would not be passed on to the community, but this was contradicted in the public meeting with Minister Speakman. • Funding has been clearly identified and the proposal costed - the longer the planning process goes on the more expensive it will be. • Board has publically stated that there will be no additional cost to the community for loan repayments, this will come from savings in diesel	The aim of the AMP is to avoid any need for compensation by managing people's concerns. The loan facility with the NSW Government is already in place for the solar component of the project. Over the 20 year life of the project, the financial model shows that the Island would be almost $1.5 million better off with a combined wind and solar solution, when compared to maintaining the diesel generators. The loan repayments (interest and principal) are repaid using the income generated through the project, and the savings in diesel consumption. If the diesel savings are not achieved or diesel prices continue to decrease, the loan won't be able to be repaid and the Board would negotiate with the NSW Government to ensure the Island does not suffer negatively. The financial model for the project demonstrates that when the loan repayments and operating costs such as maintenance are included, the financial benefit of the project to the Island is clear, close to $1.5 million over the 20 year life. The access road to the site will be sealed with bitumen so that the erosion potential is eliminated. There is a small amount of vegetation to be removed for the road which will be replaced with other revegetation in the area. Regarding the discussion about loan repayments with Minister Speakman, the meeting was not recorded therefore this cannot be verified.
Financial - NSW subsidies	**4**	• Cost savings to NSW ratepayers who subsidise the high cost of electricity generation on the Island so residents can pay standard mainland retail power rates. • Reducing our diesel consumption and reliance on Government subsidies for our electricity is socially and environmentally responsible. • The Island will have stable electricity prices and be less dependent on Government subsidies. • Reduced cost of electricity generation which is currently heavily subsidised.	Funding from the NSW Government is not expected to change significantly, with the savings from the reduced diesel consumption being used to pay back the NSW Treasury loan.



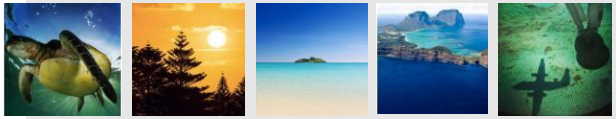
Financial - sea freight	**12**	• Concern about increased freight charges by shipping company and overall higher cost of living on the Island as a result. • Concern about changes to shipping schedule and frequency of ships to the Island. • Maintaining a viable and regular shipping service to the Island is critical, and reducing the frequency of ships to monthly is not realistic. • Using wind power to decrease diesel consumption on the Island will increase costs for local businesses through increased air and sea freight costs. A less regular shipping service will impact the quality of restaurants on the Island as it will be harder to import high quality fresh produce.	The current contract with Lord Howe Island Sea Freight Pty Ltd, owner and operator of the *Island Trader,* ends in February 2017. The new contract for the next five to ten years will be based on a reduced amount of diesel delivery for the Board. This will still be the case even if the wind turbines are not approved because the solar component of the renewable energy project has already been approved. Diesel is delivered in the ship's tanks and then transferred into drums, This means that any reduction in diesel fuel will have no effect on the available space in the hold of the ship for groceries, post or building materials. Therefore, the major difference between Sea Freight's current operation and a future operation, will be a reduction in the revenue generated from the supply of diesel to the Board. It is difficult to predict what the impact on frequency of voyages and freight prices will be as a result of this drop in supply of diesel. However, under a new contract with the Board, the company will be aware of the minimum amount of diesel to be purchased by the Board, and be able to factor this into their prices and voyages to the Island. It is not expected that the reduction in diesel delivered to the Island by sea will result in a reduction in frequency of trips. It is possible that sea freight prices will increase across the community and businesses to cover the loss of revenue, but this will be hard to measure as a new contract for the service will be awarded in late 2016.
Infrasound - health impacts	**143**	• Concern about impact of infrasound on health, particularly for residents in close proximity to wind turbines • Concern about health impacts, particularly sleep disruption and lifestyle discomfort • Concern about health impacts, particularly as the National Health and Medical Research Council has commissioned further research into the adverse health effects caused by wind turbines • Concern about long term impacts on health for future generations • Research shows that wind turbine exposure is not associated with self-reported sleep disturbance and illness, however the psychosocial components and mental wellbeing of living near wind turbines cannot be ignored • Peer reviewed analysis of 180 published papers from both sides of the wind turbine argument ('A Four-Decade History of Evidence that Wind Turbines Pose Risks', by Jerry L. Punch and Richard R. James) is	The majority of peer reviewed evidence supports the hypothesis that infrasound produced by wind turbines is not associated with adverse health effects. The policy of the NSW government in response to health impacts from wind farms is addressed in its Wind Energy Noise Assessment Bulletin dated August 2016 where it states: "High levels of noise are associated with adverse health outcomes. To examine this potential relationship the National Health and Medical Research Council (NHMRC) undertook a comprehensive assessment of the scientific evidence on wind farms and human health. In 2015 the NHMRC concluded that "there is no direct evidence that exposure to wind farm noise affects physical or mental health". More specifically, they stated that, "while exposure to environmental noise is associated with health effects, these effects occur at much higher levels of noise than are likely to be perceived by people living in close proximity to wind farms in Australia". The NSW Government's position on potential health impacts of wind energy developments continues to be informed by the scientific findings of the NHMRC and the advice of NSW Health. In addition, a National Wind Farm Commissioner has been appointed and an Independent Scientific Committee on Wind Turbines established by the federal government to provide advice on the science and monitoring of potential impacts of wind turbine sound



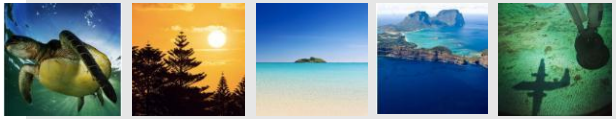
		starting to be recognised around the world and concludes that there are links between wind turbines and ill health • Wait until the current studies into health impacts from infrasound are completed in 2020 so we can base our decision on the results • Two high profile Ministers have publically stated their concerns with health impacts from wind turbines and that there should be a moratorium on wind turbine • Two high profile Ministers have publically stated their concerns with health impacts from wind turbines and the need for residents to be 5 kilometres away from turbines • The Senate Enquiry report published in 2012 recommended further studies into the health impacts of infrasound - are the outcomes of these studies available yet? • Insufficient scientific evidence available to prove that wind turbines do not cause negative health impacts • Detailed scientific evidence exists to prove that the nocebo effect is responsible for genuine health impacts • To discount health issues caused by low frequency noise is 'nonsense' is not acceptable • The noise talk by Dr Renzo Tonin addressed most concerns, but still find the wider information on health impacts of infrasound is conflicting • No guarantee that turbine generated infrasound won't cause health impacts. We are relying on Dr Renzo Tonin's involvement in the current study that will not produce results for 4 years. • What will happen if results from future studies prove that health impacts are cause by infrasound and the Board ignored these concerns in the decision making process? • Concern that anti-wind farm lobby groups such as the Waubra Foundation are assisting the spread of misleading information by creating unfounded anxiety within communities regarding health impacts from turbines. People should be referring to the large body of scientific evidence and statements from peak medical bodies.	on health and the environment." The National Health and Medic al Research Centre (NHMRC) study recommended by the Senate Enquiry in 2015 was based on a political decision, not a recommendation by scientific experts. It is important to note that a Dissenting Report was also prepared in August 2015 following the Senate Enquiry. Labour Senators strongly disagreed with most of the recommendations in the majority report and presented a set of alternative recommendations. They acknowledge that a number of witnesses provided evidence at the inquiry attributing a wide variety of health symptoms to the operation of wind farms. Whilst they do not question the fact that these witnesses have experienced such symptoms, they emphasise that there was no credible scientific evidence presented at the inquiry to establish that these symptoms were directly caused by wind farms. The comments made by Ms Goward are similar to comments made by Mr Abbott and Mr Hockey about wind turbines. The comments are political in nature and not based on any science. The environmental assessment conducted by the experts concludes that noise from the wind turbines will be audible on some occasions depending upon wind strength and direction. As a consequence of the turbines being audible, there will understandably be a reaction by some to the audible noise. The NSW guidelines adopted in the environmental assessment are intended to protect 90% of the population. Therefore, there will be a percentage of residences who will find the noise unacceptable. In respect of those time periods when noise from the turbines will be audible, there are tools available to the Board to curtail the extent of the times of audible sound. These are matters to be assessed when the turbines are operational so as to balance the audibility of the turbines against the benefits of providing sustainable power generation for the island. The phrase "wind turbine syndrome" was coined by Nina Pierpont in 2009. There have been no peer reviewed studies to support the existence of this purported medical condition. The nocebo effect has been found in three peer reviewed studies to be an explanation for negative health effects. The health related issues provided by residents living within close proximity to wind turbines around the world as published on web sites is not supported by peer reviewed literature. The extensive studies presently being conducted in Canada, for example, are concluding that there is no link between adverse impacts on health by wind turbines. The suggestion to wait until the outcomes of the NHMRC study are available in 2020



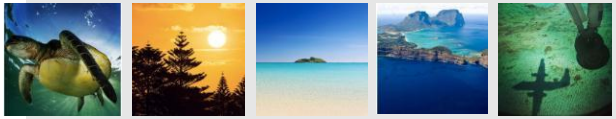
		• People may be genuinely concerned after being influenced by media or stories on the internet, but this anecdotal evidence is not an accurate way to make judgements about the safety of wind power. Policymakers should base decisions on scientific studies and objective measurements. • Examples around the world of rapid renewable energy development with few complaints about health impacts. • Health impacts have been widely discussed on the Island, prompting a personal review of the studies and the evidence is overwhelming in that there is no ill effect on human health and wellbeing. • Impacts on health have been addressed in the environmental assessment. • Infrasound is well below levels that would cause a physical effect on health, however the nocebo effect is a factor that can be mitigated by sympathetic discussion with people fearing that they may be affected. • Board should feel confident in approving the proposed wind turbines, and not allow misinformation about health impacts spread by anti-wind activists such as the Waubra Foundation to impede the development of wind energy. • Comprehensive noise assessments undertaken on similar turbines that are operational show that any infrasound generated is far below the world's most stringent criteria for what is acceptable and is less than the infrasound generated from natural sources. Community has been subject to natural and manmade infrasound 24 hours a day for decades. • Lots of reputable scientific evidence over past 20 years shows that infrasound does not cause health impacts. • Only low levels of infrasound are produced by the proposed turbines so it is a non-issue, and health impacts caused by infrasound are hard to prove either way. • Much misinformation based on unsubstantiated evidence is being used to discredit wind turbines on the Island, even though ironically the turbines would improve human health in the long term by replacing fossil fuels.	would be valid if there was a lack of evidence regarding health impacts caused by infrasound. However, as previously mentioned, this is not the case. The concern that low frequency sound can travel many kilometres and affect the middle ear has been addressed in the Coral Bay infrasound assessment undertaken for the project. It concluded that the level of infrasound generated by the turbines proposed for the Island is below the threshold of perception of the outer hair cells in the middle ear. Dr Tonin states that, prior to the journal publishing his paper, it arranged for no less than seven peer reviewers. In respect of criticisms by Punch about the length of time of the noise exposure used in the study, the paper itself acknowledges this fact and so the criticism is unfounded. In respect of the comments made about the independence of Dr Tonin, the concerns expressed are unfounded and therefore rejected. There is no scientific evidence to suggest that people who benefit financially from wind turbines have decreased risk of annoyance.



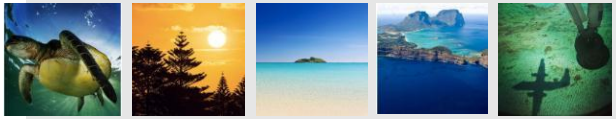
		• Results presented from the noise assessment are very effective in demonstrating that infrasound levels will be well below required standards and unlikely to cause any health impacts. • Studies show that people who benefit financially from wind turbines have decreased risk of annoyance despite exposure to the same noise levels. Board should consider transferring some of the diesel subsidy funding to enable reduction in electricity bills for the community. • Support for the turbines as they have no health impacts on humans • Support the wind turbines, and the work of Dr Fiona Crichton of the University of Auckland that shows health complaints tend to occur where there has been negative publicity or exposure to negative information - expectation influences response. • The Climate & Health Alliance's position statement says there is no credible peer reviewed scientific literature that suggests there are any adverse physiological health effects from exposure to wind turbine generated infrasound, shadow flicker or electromagnetic frequency. • There has been much unrest and debate within the community about the negative health impacts of wind turbines, however we cannot see into the future and must listen to the science at this point in time, and give it a go. • Understand some residents are concerned about alleged health impacts based on information from the Waubra Foundation, however there is high confidence in the National Health and Medical Research Council's position that there is no health impact from wind turbines. • Waiting for the results of ongoing research studies into health impacts of infrasound will cause unnecessary delays and result in lost savings both financially and environmentally. • Wind turbine sickness is a myth based on negative propaganda about health impacts. Despite the lack of evidence of negative health impacts, the funding directed towards further research highlights the importance of wind energy in Australia in the future.	



Island self sufficiency	**17**	• Ability to generate bulk of our power in-situ in our small isolated community is 'incredible'. • Australian Wind Alliance (community advocacy group, independent of the wind industry) supports the proposed two 200 kW wind turbines, as the Island has much to gain from increased self-sufficiency and reduced exposure to diesel price shock. • Economic benefits will enable the Island to be less dependent on Government subsidies - it is unfair to expect NSW ratepayers to subsidise the Island's electricity generation indefinitely. • Great opportunity for the Island that not many other communities get, especially as it can be easily reversed in future. • Great opportunity to increase the Island's self-sufficiency with a reduced dependence on fossil fuels. • Island is vulnerable relying on Government subsidies for something as important as power supply. • Minor implications for wildlife and landscape but benefits moving towards self-sufficiency far outweigh the negative impacts. • Project would increase the Island's self-sufficiency by reducing dependence on fortnightly shipments of diesel and government subsidies that keeps the cost of electricity down for residents. • The Island should use the elements to its advantage, the positives far outweigh the negatives. • The Island's isolation is what makes it special but also the need to be self-sufficient. • Wind turbines present a great opportunity to build self-sufficiency for the Island, and for our special place to be an example to the rest of the world. • Wind turbines will complement the solar panels and enable energy generation during times of no or low light, to provide an economically and electrically stable power supply to the community into the future.	The Island community pays comparable electricity tariffs to regional NSW mainland communities, but this does not cover the true cost of operating Island's electricity network. In conjunction with the solar panels and battery, the wind turbines provide an opportunity to reduce the cost of providing electricity on the Island, so that the revenue generated from users is closer to the costs of running the system, and therefore the NSW Government does not have to subsidise Island's electricity network. Reducing diesel consumption by up to 67% will be a positive benefit for the Island, and with other sources of electricity generation available, if there are fuel supplies problems, the electricity network will be more robust in dealing with this. The increased self-sufficiency of the Island demonstrates to the NSW Government, that the Island is serious about improving its financial sustainability, and may influence their decisions regarding future funding.

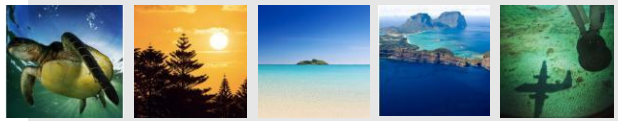


Magnetic fields	**1**	• People's concerns about impacts from magnetic fields are unfounded.	The wind turbines do not create magnetic fields of any intensity that would be a concern. The equipment is shielded by metallic boxes or located in the nacelle 55 metres above the ground, so people cannot be inadvertently exposed to it. This is in the same way that they are not affected by the green electricity reticulation kiosks that are dotted around the Island.
Maintenance and operation	**22**	• Concern about ongoing maintenance requirements and ultimate replacement of the turbines. • Concern about emergency maintenance, particularly as nobody in the Island has wind turbine knowledge or experience. • Concern about salt corrosion and impact on maintenance costs for the turbines, as per the increasingly frequent repairs required on the Air services Australia towers due to salt corrosion. • Diesel still required so we will be paying for maintenance on the wind turbines as well as the generators, so maintenance costs will be significantly increased. • What happens when the wind doesn't blow or if there is too much wind that the turbines collapse? • Wind turbines generate more electricity than the Island requires - what will happen to the surplus and where will it be stored? • Day-to-day operation and maintenance will be managed using on-Island expertise with limited reliance on external parties, which reiterates how self-sufficient the Island will be with this system • How much will it cost the community when the turbines must be shutdown at sunset to minimise impacts on birds? • In future, the hybrid system can be expanded by increasing the battery capacity and a 100% renewable energy goal would be achievable. The wind turbines are unique in that they come with an 'escape clause'. For whatever reason, the decision could be reversed and the turbines removed with very little evidence of their existence • Reduced maintenance costs for diesel generators.	The Board's two current electrical officers, Greg and Peter Higgins will continue to have responsibility for operating and maintaining the electricity generation system, which will include the wind turbines, solar panel, battery and control system elements. Once commissioned, it is anticipated that minimal maintenance will be required, typically requiring lowering of the turbines twice per year, for a period of 2 to 3 days each occasion. Relevant training on the new technology will be provided during construction of the system, including embedding Greg and Peter in the construction teams. Additional training will be provided by the manufacturers of all of the equipment on completion so that Greg and Peter can complete the majority of the work required to maintain the new system. Maintenance of the wind turbines would be carried out as part of Greg and Peter's existing role. It is not expected that additional resources from off the Island will be required for routine maintenance. Specialist technical expertise may be sought from off the Island for any complex issues or repairs, however this is unlikely to be required on a frequent basis. The operators of the wind turbines in Coral Bay have provided us with their maintenance regime for the first seven years of operation, which indicates around 4-6 days per year per turbine for planned maintenance. Vergnet, the wind turbine suppliers attended the Coral Bay site once per year for the first five years. The operational life of the hybrid system is expected to be 20 years at a minimum. Battery replacement is planned to occur once during this period. After 20 years, components would either be refurbished to extend their operational life, or removed and replaced with new technology in the same way the current powerhouse is managed. Depending on the nature of the refurbishment and the consent conditions, the refurbished wind turbines may be covered by the original development approval, or require further assessment and approval. The installation of the wind turbine infrastructure would be easily reversible and far less onerous than the works necessary to rehabilitate a powerhouse site. Decommissioning would be likely to involve the disconnection and removal of all generation components,



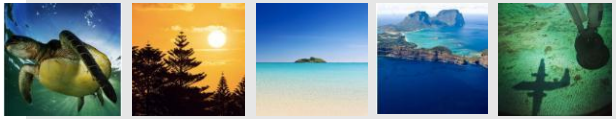
			the removal of turbine fencing, the covering over or removal of turbine footings and the reinstatement of the original soil profile. The materials and components removed from the site would be reused or recycled wherever possible. Onshore and offshore wind turbines are designed to withstand harsh weather conditions, including salt laden air in coastal locations. Turbines are typically protected from corrosion with specialised protective coating systems. The local situation and conditions will be part of any specification that Wind turbine suppliers would respond to just as it has been for the solar and battery system tender that has recently been run. The shutdown of the turbines to mitigate impacts on birds, in particular the Flesh-footed Shearwater, was modelled to understand the impact on energy production. The technical feasibility study by Jacobs in 2015 modelled the effects of turbine shutdown between 15 September and 15 May from 15 minutes prior to sunset to 60 minutes after sunset. The actual shutdown period may be varied depending on bird monitoring results and the measured impact of the operating turbines. The shutdown would result in a 11.7% increase in diesel fuel use, compared to the turbines not being shut down at all. During these times, the battery would be used to supply energy to the Island, and when the battery went flat the diesel generators would be used. There would be no additional cost to the community or the project for this shutdown - the impact would be on the amount of diesel that could be saved. Diesel engine maintenance is tied to the number of run hours of the engine, with maintenance activities occurring to varying levels at 300, 600, 900 and 1,200 hours (costing $1,000-$2,000 each time), and then a full rebuild at around 20,000 hours (costing $50,000). The less that the diesel engines run, the less maintenance required, and the more time that the electrical officers will have available to manage the new renewable energy assets. The control system will continually monitor the energy demand on the Island and automatically control the supply of energy to meet those needs. It will determine how much wind and solar power is needed, when to charge the battery and when to turn on the diesel generators. In the event that the wind turbines and solar panels are producing more energy than is needed to power the Island's needs and the battery is 'full', the control system will reduce the amount of wind and/or solar generation. If there is not enough energy being generated by the solar panels and wind turbines, the diesel generators will make up the difference. The wind turbines operate in wind speeds between 3 m/s and 25 m/s. The Vergnet wind turbines shut themselves down for protection when the average wind speed exceeds 25 m/s (about 90 km/hr or 49 knots). The wind turbines are designed to

			survive wind gusts in the order of 52.5 m/s (189 km/hr or 102 knots) when erected and category 4 hurricane force (300 km/hr or 162 knots) when lowered and secured. As an example the Coral Bay wind turbines are typically lowered when winds speeds are predicted to be in excess of 100 km/hr (28 m/s or 54 knots) as a company policy. They were successfully lowered during a tropical cyclone in March 2015 and no damage was sustained." One of the key aspects of the project is a 400/400 kW/kWh battery at the powerhouse which will store energy for use at a later time. If more wind and solar energy is being generated than is being used by the community at any one time, this will be stored in the battery. The battery is expected to be a large battery made up of a lot of smaller batteries, and is likely to be inside a small building about the size of a 20 foot shipping container.
Noise assessment - NSW guidelines	**10**	• Concern about audible noise impacts because only the extremities of the Island's residential areas are more than 2km from the wind turbine site. • Concern that the capital value of the wind turbine proposal is less than $10 million so the gateway process in the NSW guidelines (that requires written permission from all residents within 2 kilometres of the turbines or a Site Compatibility Certificate) would not be triggered. • Concern that the Government guidelines on assessing noise impacts are designed to satisfy only 90% of the population - even if 2% of the Island is impacted by noise that is unacceptable. • Concern that the South Australian and NSW guidelines are the weakest in the country, and the LEP should be followed instead of these guidelines. • Most wind farms are located considerably further away from residential property than is the case on the Island, and it has been proposed that anyone living within 3.3 kilometres will suffer from noise impacts and sleep disturbance. • Recognition that the proposed wind turbines meet the required standard set in NSW guidelines. • Comprehensive noise assessment shows that the predicted noise from the wind turbines will be well below the Government guidelines, and an	The Draft NSW Planning Guidelines for Wind Farms (December 2011) contained a provision requiring that any wind farm proposal seeking to place turbines within 2km of existing residences required consent from those residences or if that consent was not secured, a Site Compatibility Certificate. However, this requirement has been abandoned not only in NSW but in most jurisdictions in Australia. The current NSW government policy is the Wind Energy Noise Assessment Bulletin (August 2016), which requires an assessment of noise impacts on a case-by-case basis. The Local Environmental Plan (LEP) contains no acoustic provisions. State Significant Development is defined under the State Environmental Planning Policy (State and Regional development 2011) and the Island would be defined as an Environmentally sensitive area of State significance. However, this SEPP, and almost every other SEPP in NSW, does not apply to Lord Howe Island, because environmental planning on the Island is covered under the LEP 2010. The LEP states this under Clause 8. Even if the SEPP did apply, it would not meet the definition of State Significant Development because the capital value of the wind turbines, the subject of this DA, is $3.6 million. Whilst it is NSW government policy to set noise limits to protect 90% of the population, it is also NSW government policy to ensure that all reasonable and feasible measures are undertaken to reduce noise impacts. Lord Howe Island is a special place that requires community involvement in balancing the audible noise from the wind turbines against the objectives for self-sufficient power generation.

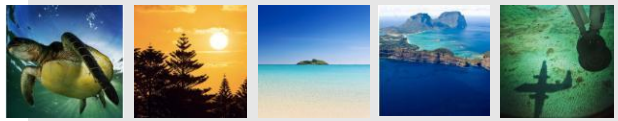


		improvement on the old diesel generators that were tolerated in the centre of town for a generation.	
Noise assessment - process	**10**	• Concern that any independent expert can find evidence to support the hypothesis of the person paying them. • Criticism of the infrasound assessment process based on independent expert advice from Professor Colin Hansen: o Infrasound generated by random sources is not the same in terms of annoyance and perception to humans as the tonal infrasound produced by wind turbines. Publications by Salt and Bell show that people can sense infrasound well below hearing thresholds. o The report's conclusion that turbine noise is acceptable is based on an invalid assumption that background noise will mask the turbine noise. The low frequency nature of the turbine noise makes it more easily heard above noise from wind in trees and surf, and that it will transmit more readily into residences than higher frequency surf noise and wind in trees noise, thus making it even more apparent when residents are trying to sleep o A proper tonality assessment as described in Section 9.3 of IEC 61400-11, 3rd edition (2012) was not undertaken, and assessing tonality by comparing differences in adjacent 1/3 octave band levels is flawed o Estimated confidence levels of this method are 85% that noise levels in practice would not exceed the calculated level by more than 1 dB{A), however this contravenes ISO standard 9613-2 and the use of 85% expanded uncertainty limits is unusual and not justified o Graphs show background noise vs wind speed do not account for the low frequency nature of the turbine noise so the turbines will be audible and it is likely that many people will be annoyed by the noise o The only acceptable data is that for which insect noise was not	The health related issues provided by residents living within close proximity to wind turbines around the world as published on websites is not supported by peer reviewed literature. The extensive studies presently being conducted in Canada, for example, are concluding that there is no link between adverse impacts on health by wind turbines. In response to comments from Professor Colin Hansen's review of the noise assessments: • The background noise measurements show that the Island cannot be classified as a 'quiet' location which have background LA90 noise levels of 30dB(A) and below. The noise level predictions are based on internationally accepted noise models and have been shown to be reliable for predicting noise from wind turbines. • Insect noise was not a contributor to noise levels at Coral Bay. • Low frequency noise is discussed in the acoustic report and found not to be an issue. • The infrasound acoustic report adopts the hypothetical outer hair cell threshold developed by Salt (which is not agreed to by the general scientific community). Therefore, even adopting the Salt criteria, infrasound noise levels are shown to be below that threshold and therefore acceptable. • The use of hub height wind speeds avoids the problem of lower wind speeds at ground level. This was one of the changes made in the revised 2009 version of the SA Wind Farm Guidelines which are adopted in the acoustic report. • The use of hard ground correction in the model, in accordance with internationally accepted practice, makes the prediction overly conservative to account for the 3dBA tolerance. • The third-octave band assessment is in accordance with ISO 1996. The more extensive narrow band assessment was not provided by the manufacturer. However, in respect of the Vergnet turbines investigated at Coral Bay, these id not exhibit any audible tones. • Audibility is discussed in the report. The fact that background noise levels do not increase substantially with wind speed is a feature of the island and is due to the

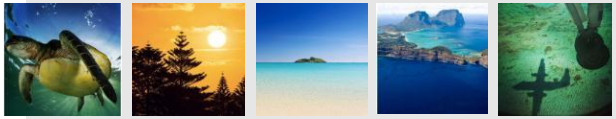
		a contributor as insects are not active for most of the year ○ There is no information about the expected frequency of wind turbine noise - if it is dominated by low frequency noise then sound from the surf and wind in trees is unlikely to mask the turbines ○ Wind speed at residences is not correlated with wind speed at hub height, suggesting that higher wind speeds will raise turbine noise levels without necessarily raising background noise levels • Criticism of the noise assessment process being based on inaccurate predictions, and how the background noise measurements did not account for the ongoing peace and quiet that comes between the occasional bird and insect noise.	significant contribution from wave noise. • Disagree that the recommended criterion is 35dBA. The recommended criterion is background plus five with a lower limit of 35dBA. The report discusses audibility of the noise.
Oppose the wind turbines	**17**	• Supports renewable energy in general, but is opposed to the wind turbines on the Island due to close proximity to properties. • Supports the solar element of the project but not the wind turbines, mainly due to the financial arrangements relating to the loan and the fact that residents have no choice to relocate if affected by noise impacts. • A trial wind turbine constructed years ago did not work as wind was either too strong or too light - what has changed to make it viable now? • Extensive personal research has revealed many concerns, especially about health impacts from turbines, which should be enough to stop the proposal for that reason alone. Concern is for the health of the whole community, not merely a personal issue regarding visual impacts from our property. • Extensive personal research has revealed many concerns, especially about impacts on health, World Heritage values, flora and fauna and noise impacts. The Island does not want the wind turbines, and 18 out of 20 lodges are opposed to the proposal. • Government supports solar and other emerging renewable energy technologies, but understands the concerns of communities about impacts from wind turbines.	Technology has changed, enabling wind turbines to become more efficient at operating in lower wind speeds, and more robust to operate in higher wind speeds. The proposed site has had monitoring in place for almost two years, allowing wind turbine manufacturers to review real data for the site and understand the wind strength and characteristics. Two wind turbine manufacturers, capable of meeting the requirements of the project, have indicated they can provide turbines that will operate safely and reliably on the Island.



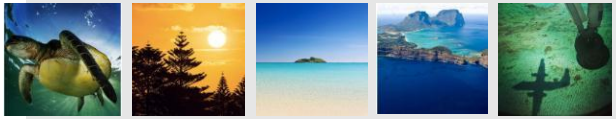
		• Board should consider people being affected rather than cost savings. • Opposed to turbines and support the "Stop wind turbines on World Heritage listed Lord Howe Island" petition. • Opposed to the wind turbines based on an example whereby the motion of a wind turbine powering a lighthouse in New Caledonia forced the relocation of the family. • Opposed to the wind turbines, and grateful to those in the community who have done so much research into the issues.	
Other uses - electric cars	**15**	• Consider going standalone and using electric cars to reduce diesel and the amount of traffic on the Island. • Electric bus to shuttle passengers around the Island would improve road safety for cyclists and pedestrians, bring environmental benefits and enhance the Island's reputation. • Electric vehicles would be a drawcard for visitors. • Future opportunities for electric vehicles on the Island will enhance the attractiveness of the Island as a clean energy destination to tourists. • Opportunities for electric vehicles and benefits of reducing the number of motor vehicles on the Islands roads. • Research program in 1990s investigated the benefits of operating electric vehicles on the Island and found that a substantial proportion of electricity from renewable sources was required to achieve the benefits. • Wind energy will enable us to cheaply run electric vehicles, which are smaller, quieter, cleaner and generally better suited to the narrow roads and 25 km/hr speed limit on the Island. • Wind turbines will put the Island at the forefront of advancing technology in electric vehicles, which themselves present benefits as additional battery storage capacity at a household level.	The hybrid renewable energy project is considered to be a pathway through which other technologies such as electric vehicles can be introduced on the Island. Recently, local member Leslie Williams MP announced a new conditional registration scheme for golf buggy style electric vehicles on the Island, to be rolled out in conjunction with the hybrid renewable energy project. The wind turbines will significantly contribute to the generation of electricity for the charging of electric vehicles particularly overnight when there is no contribution from solar. Small electric vehicles are part of the solution for the Island's sustainability future. A tariff arrangement has not been established for excess renewable energy and the potential to use this to charge electric vehicles. The electric vehicles would be able to be charged using a solar only solution, but the amount of excess or spilled energy with wind turbines would be greater, potentially allowing more opportunity for charging of the electric vehicles at a different tariff. The provision of an electric shuttle bus service could be considered by the Board separately, but the idea of utilising excess or spilled energy from the wind turbines at a lower cost could make the service more economical, and deliver these benefits to the economy, visitors and residents.



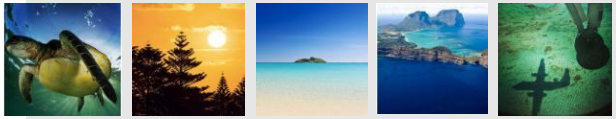
Planning approval process	**27**	• Board is forcing the project onto the community despite huge opposition, and concern that community views won't influence the decision which has already been made. • Board is the proponent, determining authority and regulator of the proposed wind turbines which presents a serious conflict of interest in the ability to operate the system without the risk of corruption and abuse of power. • Concern as to how the Board is permitted to submit a development application with three separate options. • Concern that studies undertaken to assess impacts on noise, infrasound, health and biodiversity are mostly incomplete, and there is a time pressure to move the project forwards. • Concern that the project is being rushed without taking community concerns into account. • Concern that the wind turbines are not consistent with the Local Environment Plan (LEP). • Concerns about visual, health, noise and environmental impacts have been overstated in the community and potential impacts have been thoroughly investigated. • Councils elsewhere in Australia would not consider this proposal. The loophole in the LHI Act and LEP that allows this development to be considered should not be exploited. • Development application should contain specific details of the proposal, not various options of turbine types, which suggests that any approval of the proposal would not be sufficiently detailed in terms of the number of turbines to be installed. • Proposal is based on out-dated theory, and increasingly in the UK plans for new wind farms are being rejected based on opposition from residents living nearby, on the grounds of visual impact, noise, shadow flicker and health impacts. • Public servants who live on the Island temporarily should not be allowed to vote. The decision should be made by 10 year Islanders and long	The DA process is not a vote. The public exhibition period allows feedback from the community on the development, and ensures that the project team has addressed all of the issues raised, either through the existing documents, or through additional information. The DA is independently assessed by a consultant, a report provided to the Board CEO for concurrence or not, and then the report and project is considered by the Board at a public meeting. The development application is for two 200 kW turbines, which would allow us to achieve maximum diesel savings. Two alternative options were also assessed - one 200 kW turbine or two 100 kW turbines. No turbine model has been selected, but the Vergnet and XANT models were chosen as candidate models for the purposes of assessing potential impacts. This approach is standard practice and allows a realistic assessment to take place but leaves the selection of the supplier and model to the competitive tender process. The removal of wind turbines or lack of approval for new turbines in the UK is related to a removal of subsidies for their construction. The issues of visual impact, noise, shadow flicker and health impacts have all been addressed to satisfaction in the reports. The opinions of tourists have been sought through a five week survey in 2015. There was significant support for wind turbines, although less than solar, but no different to the general community on the mainland. One of the key findings from the survey was the value of a good nights sleep. Based on this information, we have provided a mitigation for the wind turbines which allows for them to be turned off under certain wind conditions between 10pm and 7am. There is no peer reviewed scientific evidence of health impacts from the wind turbines. The noise impacts have been assessed in a very thorough manner and there are no additional facts or data that can be presented. The noise levels at the nearest residences are below the criteria for the project. The turbines will be audible for a period of time at some locations, depending on weather conditions. The use of the word 'likely' reflects the language used in the NSW Threatened Species Conservation Act and Assessment of Significance Guidelines, and the Commonwealth EPBC Act and NES guidelines. It acknowledges that decisions based on impact prediction and modelling inevitably involve a degree of uncertainty. The Environmental Report is based on best practice assessment methods and conclusions drawn by independent experts. The assessments apply the precautionary principle through a series of impact mitigation measures to provide greater certainty regarding impact significance. The Island's LEP permits public utility undertakings to be installed on this land zoning,



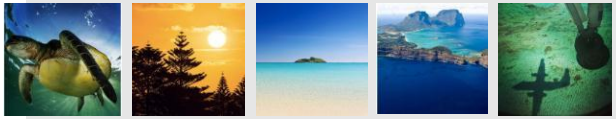
		term residents of over five years. • Request that determination of the wind turbine development application is deferred until further certainty can be provided regarding impacts on tourism, health, noise and the economy. • The environmental report states that impacts on the \World Heritage, National Heritage or state and locally significant cultural heritage values are 'unlikely' to be significant, but this does not give us definitive assurance that impacts won't occur, and it is not worth the risk. • Years ago it was decided that no development would be permitted at the site on Transit Hill - what has changed? • The environmental report states that impacts on the environment and community are unlikely to be significant, but unless it can be proven that the proposal would have no significant detrimental impact the wind turbines should not go ahead. • The Statement of Environmental Effects has various omissions and errors. • Trust in the specialists that have been engaged on the project and the expertise they have provided to help develop an option for our sustainable future. • Work undertaken for this project is thorough and professional, and support afforded by external bodies such as ARENA reflects the quality and value of the proposed project. • Benefits and impacts of proposed project have been thoroughly assessed, however objection to the wind turbines from some people is inevitable. • Science supports the project and confirms its compliance with NSW guidelines for environment and public health – let's take a positive step to make the Island cleaner, greener and more sustainable. • Full support for the project based on thorough technical planning and environmental assessment undertaken by industry experts.	in a similar way to how the Airservices Australia towers were constructed in the area. There are some errors in the Environmental Report, which is difficult to avoid in such a large amount of text. Many of the errors are related to cross-referencing links which failed during the final publication. This does not reflect on the thoroughness or correctness of the document and its contents.



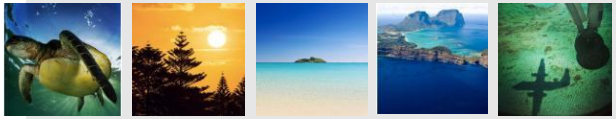
Shadow flicker	**5**	• Concern about shadow flicker. • Concern about overshadowing and shadow flicker issues and that they have not been addressed in the assessment.	Shadowing impacts have been addressed in the specialist shadow flicker assessment attached to the Environmental Report. The assessment found that in the worst case scenario, no dwelling would be affected by shadow flicker more than the accepted limit of 30 hours per year. The assessment notes that shadow flicker is likely to be insignificant beyond 500 metres from a turbine (based on large turbines). Given the limited tube diameter and the distance from receivers, the shadowing caused by the turbine towers is not considered likely to significantly affect residents or visitors.
Site location and setback distance	**20**	• Wind turbines are too close to residential properties and businesses. • Concern that the site is too close to residential properties, and would prefer turbines to be located behind either the northern or southern mountains. • Concern that site selection process did not consider audible noise impacts, and that this could not have been known at that stage as a turbine model had not been selected. • Concern that the selected site is not the best location for the project. Previous community consultation to select a preferred site based on a range of potential locations did not properly explain the potential for noise impacts. • Concern that the wind turbines would be closer to residents than anywhere else in Australia, and that we should wait until NSW guidelines are implemented and the setback distance is determined for our State. • The majority of Australian States require a 2 kilometre setback distance, which can be waived with written approval from affected residents. Concerned that the Island seems to be exempt from this requirement based on the noise assessment results. • Supportive of renewable energy in general, but concerned about the proximity of the proposed wind turbines to nearby properties. • Supportive of the project, assuming Gower is happy to use his grazing land as the wind turbine site.	The site of the wind turbines is the preferred site because it is an elevated position with good access to wind from the majority of directions, is a cleared paddock, is close to the powerhouse and is one of the least visible sites from the majority of the Island. It is in relatively close proximity to the residences and lodges, which has driven the close attention to the noise assessment as part of the investigations for the project. The other sites considered by the community would have been much more visible and had more difficult issues relating to aircraft operations, and the effective transfer of power back to the grid. Gower Wilson has indicated his agreement for the project to proceed on his Special Lease, provided his cattle can continue to graze the majority of the lease, and any loss of grazing land results in compensation being provided to him. The turbines are relatively close to houses and accommodation lodges. The closest houses do not have line of sight to the turbines. The proposed turbines generate infrasound at levels well below natural sources such as wind and waves. The turbines may be audible at some locations under certain wind conditions, for a period of time, but at levels well below NSW noise guidelines for this development. One of the members of the SEWG does live within about 650m of the turbines. The extensive consultation with the community over several years has intended to obtain the opinions and input form the wider community, including those living closest to the location. Other than Queensland, there are no Australian States or Territories where setbacks are required. Many of these jurisdictions have moved to remove the arbitrary nature of setbacks, and focus on local conditions and context. Within the Island's context, background noise is higher than other mainland rural areas where large turbines are installed, and the assessment of this background noise against the predicted noise levels from the turbines shows an acceptable level of noise at all residences and



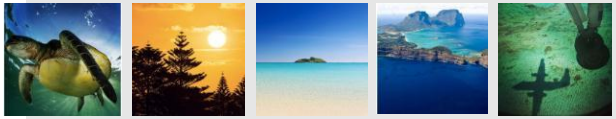
		• According to the Australian Wind Alliance (community advocacy group, independent of the wind industry) residents should have no concerns about living in close proximity to wind turbines. The experience of people located within 2 kilometres of turbines all over Australia and suffering no health issues or discomfort should be a valuable indicator for Island residents. • Concern that none of the SEWG live within close proximity to the wind turbine site, and suggestion that a southern location should be considered.	accommodation lodges, notwithstanding that some locations will hear the turbines under certain wind conditions for periods of time. Victoria does have a requirement that properties within 1km of a turbine provide written consent.
Socio-economic impacts	**24**	• Assurance that an air service has been secured beyond 2018 should be provided before the wind turbine development application is determined. • Concern about economic impacts, especially for those living closest to the turbines. • Concern about impact on property values. • Concerned that the proximity of the turbines may contribute to technical interference with the satellite internet facility, which is important for our livelihood. • Development application has divided the community and should the wind turbines be approved there will be a lasting negativity on the Island, which will be picked up by tourists. • Influx of workers quoted in the Q&A booklet as a positive would benefit very few in the community. • More permanent staff may be required and Island is already struggling with population pressures. • New dwellings would not be allowed within 1-2 kilometres of the turbine site in the cleared special lease, which could deprive future generations of the ability to construct new dwellings if the long-standing tradition of families handing over areas of cleared special leases cannot be continued. • Research shows that local concerns about wind turbines can be considered a form of 'place-protection action' whereby perceived threats from changes to place can impact people's sense of identify and what	The socio-economic impacts are expected to be positive, with improved tourism marketing potential for the Island through the green energy message and reducing the Island's reliance on fossil fuels and improving its self-sufficiency. A community representation group would be setup to ensure that the conditions of consent for the DA are carried out during construction and operation, allowing it to also respond to unexpected impacts and benefits, and modify the system's operation accordingly. The proposed turbines are one tenth the generating size of the 2-3 megawatt turbines typically installed in large scaled mainland projects. Their height is 40% less than these turbines and their blades are more than 30% smaller in length. The project has investigated the potential impacts as far as practicable at this time to determine and communicate the facts. Where there are unknowns, the project has proposed an AMP to address these issues during operation. Satellite internet and TV receivers face north from houses on the Island, and those residences closest to the turbines are on the northern or western sides of the turbines, so they would not be affected by the turbine operation. The South Australian situation cannot be compared to the Island's electricity network. With or without turbines, the diesel generators will always be maintained and available for service when the demand on the network cannot be met by the hybrid solar, wind and battery system. The proposed wind turbines have operated successfully in Coral Bay since 2008. There will be times when the wind is too strong for the wind turbines, and they will either turn themselves off or in rare cases, have to be lowered to protect them from damage. There is no requirement for a setback of new residences from the turbines if they are installed. The air service provided by QantasLink to the Island is not entirely reliant on the licence



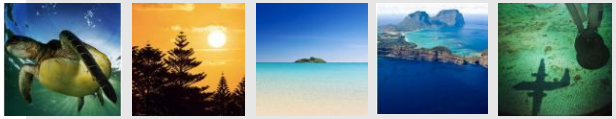
		they value in a place. • Strong support for the solar element of the project and the 35% renewable energy contribution this brings should be seen a win for the Island, without the need to push for an additional 30% that the wind turbines would deliver. • Invest as much in solar and battery as possible to achieve diesel reduction, instead of wind turbines. • Island should consider a solar only proposal instead of wind turbines. • Solar is more suited to the Island's unique environment instead of installing wind turbines. • Wind turbines are unnecessary when solar panels are less visible, easy to maintain and there is plenty of sunshine in all seasons to generate solar power. • Strong support for the solar element of the project but not the wind turbines. • We should learn our lesson from recent events in South Australia, and acknowledge that wind power is unreliable, high cost generation and has negative visual impacts on the landscape. • What measures have been taken to communicate with local businesses regarding management of any potential economic shortfall as a result of the project? • Supportive of renewable energy, but preference is for solar rather than wind turbines. • Solar only is an inappropriate alternative due to higher cost and larger land area required. • The proposed combination of wind, solar and battery should not be varied - a solar only option is not financially viable. • Support for the Board to adopt the full hybrid system and consider community ownership models to share financial benefits. Studies show that people who benefit financially from wind turbines have decreased risk of annoyance despite exposure to the same noise levels.	from Transport for NSW. It relies on the carrier returning a profit on the route, and if this does not occur, the existence of the licence will not protect the community from the loss of the service. Therefore, the new licence period to commence in 2018 is unlikely to have a large bearing on a carrier's decision regarding the provision of a service to the Island, and the project should not be deferred on this basis. The Board's Project Manager has spoken to the LHI Sea Freight on a number of occasions regarding the potential impact of the loss of revenue from less diesel being shipped to the Island. Quantifying the potential cost increases for sea freight from the reduction in diesel delivered is difficult because of the new contract being advertised for the shipping service. There are not expected to be any other negative economic impacts from the project if the mitigation measures are implemented as proposed. The potential economic benefits of reduced exposure to diesel price spikes are more likely than negative impacts. Community ownership of some of the renewable energy system is being considered, as part of the roll-out of the project. However, there will be direct economic benefits to all electricity consumers through more stable and lower electricity tariffs into the future. Property valuations are influenced by many factors, including people's willingness to buy, demand and the subjective views of the valuer. The Board does not intend to undertake valuations before the project commences, if approved. The intention of the AMP and a new representative community group is to manage the potential impacts so that there is no need for residents to feel they need to move. The less that the diesel engines run, the less maintenance required, and the more time that the two current electrical officers will have available to manage the new renewable energy assets. The operators of the Vergnet wind turbines in Coral Bay have provided us with their maintenance regime for the first seven years of operation, which indicates around 4-6 days per year per turbine for planned maintenance. There will be no new permanent staff required to operate and maintain the renewable energy project. It is agreed that the small influx of workers associated with the project would benefit only a few, however this is not claimed to be the main objective of the project.



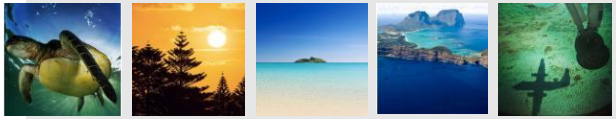
		• Support for two 200 kW turbines, which will be more efficient in reducing diesel consumption than a solar only system. • Internet is a source of good and bad information - the bad information being circulated in the community relates to turbines that are two, three or four times the size of those being proposed on the Island. • People are scared of the unknown, but the decision should be based on fact and with the future of not only the Island's but the world's climate at heart.	
Support for the wind turbines	**76**	• Everything needs to be done to install clean natural energy, reduce diesel consumption and limit rising costs of electricity for the future. • Support for the wind turbines, for reducing diesel consumption and meeting the conservation needs of the World Heritage location with no risk to residents. • Support for using natural resources to meet the Island's power needs. • Investing in renewable energy to provide energy security for the Island and reduce reliance on polluting and expensive diesel for power will reduce greenhouse gases and contribute to improved public health. • Island should take advantage of the available technology and funding to address the energy issues. • Save the planet. • Island should think about long term ramifications of this decision and not allow misinformation or short-term gain to stand in the way of long term sustainability. • Great to see the Island being a leader in positive environmental action to reduce dependence on diesel. • The world will love the Island for installing renewable energy. • Lord Howe Island is a very windy place so is in an ideal position to be a leader in this field. • Moral obligation at a global level to install renewable energy. • Our World Heritage status gives us a high profile platform to promote	No response required.



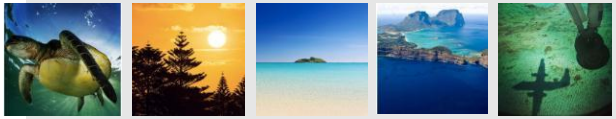
		sustainability and we have the opportunity to demonstrate our commitment to our local environment. • Support for the wind turbines and the marketing opportunities they will present to promote the Island as clean, green and pristine. • Passion for seeing the Island prove that change can start in small communities is greater than any concerns about the wind turbines. • Support for reducing the consumption of diesel given the abundant solar and wind resource available on the Island, so fully support the wind turbines and this progressive project. • Project objectives are to be commended and has my full support, however my support for the wind turbines in 'in principle' at this stage. • Support for the combination of wind turbines and solar panels as that provides the most balanced and cost effective solution. • Support for the hybrid system of wind turbines, solar panels and battery, which has been cleverly designed to manage all potential concerns the community might have. • Support for the two 200 kW turbines to enable the Island to complement the solar element of the project. • Support for the wind turbines in addition to solar to maximise the reduction in diesel consumption. Board should make decision about wind turbines based on facts not scaremongering by anti-wind lobby groups. • Support for the wind turbines instead of solar only, as the positives far outweigh the negatives. • Preference for wind turbines over continuing to rely on diesel. • We should be open, flexible and welcoming to these essential and necessary changes, and support the wind industry so they can continue to develop turbines that look and sound better into the future. • Impressed with the Island's approach to sustainable waste management and species conservation, and strongly support the wind turbines for a move towards clean energy independence.	



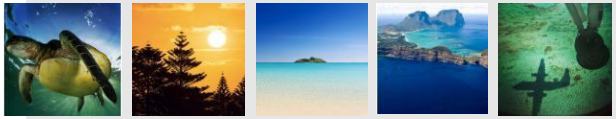
		• Wind generation is a well proven source of renewable energy, and to not accept the turbines would be a negative move for the Island's future power needs. • Wind turbines will enable the Island to achieve 70% renewable electricity generation by 2019.	
Tourism - ecotourism opportunities	**22**	• Concern about negative impacts on tourism industry. • Disagree with claims that the turbines will be a new selling point for environmentally aware tourists. • Destinations with wind farms have experienced positive feedback from visitors and created 'wind farm tourists'. • Economic benefits to the Island are likely to be greater than predicted, as the attraction of a clean energy Island will be compelling to visitors and the media. • Failure to do the obvious to protect the environment will have negative impacts on tourism. • Hybrid system will be a flagship project demonstrating what is possible, and increase the Island's appeal to its environmentally conscious visitors. • Invest in as much renewable energy as possible as it will add to the Island's reputation as a pristine holiday destination. • Opportunities for ecotourism and branding to promote the Island's sustainability credentials. • The Island has an international reputation for ecotourism, and the hybrid system would be a drawcard for visitors. Wind turbines would increase the appeal. • The visitor surveys show that renewable energy generation would enhance the Island's attractiveness as a holiday destination. • The wind turbines and solar panels will demonstrate that the Island is actively embracing renewable technology to maintain and enhance the quality of the pristine natural environment.	The project is not expected to negatively impact tourism or cause any inconvenience to visitors. The results from our visitor survey in 2015 were positive, with over 200 surveys completed in five weeks. About 90% of visitors said that renewable energy on the Island would impact positively on their decision to visit again. 91% of visitors surveyed were supportive of solar panels on the Island and 68% were supportive of wind turbines on the Island – this is reflective of the national averages in terms of levels of community support for wind turbines. The hybrid renewable energy system can represent sustainable human occupation on a remote island with high environmental value. Branding opportunities for the island in terms of sustainability credentials and ecotourism are identified as a key project benefit. The Environmental Report acknowledges and documents the outstanding environmental values of the Island. The assessment identifies potential impacts and details measures required to ensure that the environment would be adequately protected. Subject to these measures, the assessment concludes that the proposal would not be likely to significantly affect the environmental values of the Island, or the tourism industry which is based on those values.



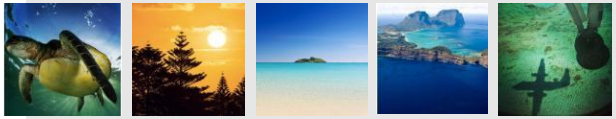
		• Tourists are for renewable energy and question why the Island doesn't have solar and wind power. • Tourists that visit the Island are generally wealthy so let's set an example and we might encourage them to make positive changes in their own communities when they go home. • Wind turbines enhance tourism value and demonstrate a commitment to environmental excellence. • Wind turbines have global acceptance as an environmentally friendly source of power generation, and the project will be a major factor in attracting environmentally conscious tourists from around the world. • Wind turbines would add to the visitor experience and encourage tourists to keep visiting.	
Tourism – negative impacts	**14**	• Concern about negative impact on tourism and associated impacts across the Island. • Concern about negative impacts on tourism, and potential for bad reviews on Trip Advisor which could create ongoing issues for the Island's tourism industry. • Bad reviews on TripAdvisor about sleep disturbance from the wind turbines will reduce bookings and profit margins at Pinetrees and other lodges on the Island. • Concern that the turbines will jeopardise the future of the Island as a tourist destination. 18 of the 20 lodges are opposed to the wind turbines due to potential negative impacts on guests. • Concern about negative impacts on tourism to the 3 lodges within 500 metres of the turbine sites. • Concern about negative impacts on tourism, and dismissive of notion that the Island's image as an ecotourism destination will be enhanced. • Criticism that visitor surveys and quick polls undertaken in 2014 did not properly explain the noise or visual impacts to tourists. • Concern that the visitor survey showed people come to the Island for its	The likely effect on tourism has been carefully evaluated using visitor surveys and assessment of visual and noise impacts. These studies have indicated that wind turbines are likely to be readily accepted by the majority of visitors as evidence of sustainable, low impact settlement on the island. Several visitors were concerned about the negative visual impact of the wind turbines, although visitors valued the ability to have a good night's sleep above views from the accommodation. The visual assessment and noise assessment conclude that these impacts would not significantly affect visitor experiences and negative reactions to the turbines are not anticipated. The visual and noise impact assessments conclude that the proposal would not significantly affect the amenity values of the island. Visitor survey responses suggest that the turbines will be accepted as representing sustainable human occupation on a remote island with high environmental value. Rather than negative tourism impacts, branding opportunities for the island in terms of sustainability credentials and ecotourism are identified as a key project benefit in the Environmental Report. Visitor survey responses suggest that the turbines will be accepted as representing sustainable human occupation on a remote island with high environmental value. The visitor surveys left at the airport were accompanied by additional information about the project including the Q&A booklet and photomontages showing visual impacts. Surveys and quick polls done in person at the market stall and museum were accompanied by a discussion with a member of the project team where the impacts were explained.



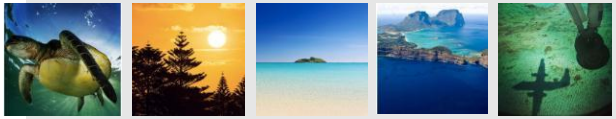
		natural beauty and a good night's sleep, both of which would be negatively impacted by the wind turbines. • Should the wind turbines be approved there will be a lasting negativity on the Island that will affect tourists negatively.	
Traffic impacts	**6**	• Reduced number of diesel deliveries to the powerhouse means fewer vehicle movements down Anderson Road, less heavy traffic on the Island roads in general and less traffic noise.	Reduced volumes of diesel will result in fewer fuel deliveries and a reduced number of vehicle movements to the powerhouse. This will likely reduce existing noise impacts associated with road traffic.
Turbine model	**11**	• Concern that the preferred turbine model has been selected as it has the least impact on birds but the most significant noise and visual impacts for humans. • Impressed with the success and local support for the wind turbines at Coral Bay. • Preference for two 100 kW turbines due to minimal noise and visual impacts based on observations of this sized turbine in operation. Also supportive of two 200 kW turbines if that was preferred by the majority. • Preference for two 100 kW XANT turbines. • Support for two 200 kW turbines\ to ensure maximum reduction in diesel consumption. • Support for two 200 kW Vergnet turbines, and only accept alternatives (one 200 kW Vergnet turbine or two 100 kW XANT turbines) if the proposed two 200 kW Vergnet turbines are not approved. • The positives of the two 200 kW turbines outweigh the negatives and is therefore the preferred option, however either of the alternatives would also be supported if required for mitigating impacts on wildlife.	The development application is for two 200 kW turbines, which would allow us to achieve maximum diesel savings. Two alternative options were also assessed - one 200 kW turbine or two 100 kW turbines. No turbine model has been selected, but the Vergnet and XANT models were chosen as candidate models for the purposes of assessing potential impacts. This approach is standard practice and allows a realistic assessment to take place but leaves the selection of the supplier and model to the competitive tender process.
Vibration impacts	**3**	• Concern about ground vibrations from wind turbines and impact on underground Flesh-footed Shearwater nests. • Concern about ground vibrations from wind turbines and impact on health.	There is no evidence in any peer reviewed literature that ground vibration generated by wind turbines is discernible to humans or is a cause of adverse health effects. The Environmental Report identifies that intermittent vibration would result during construction, and that impacts would be temporary. Safeguards relating to blasting have been identified during the nesting season of the Flesh-footed Shearwaters in order to minimise risk of impact from vibration. There is no evidence in any peer



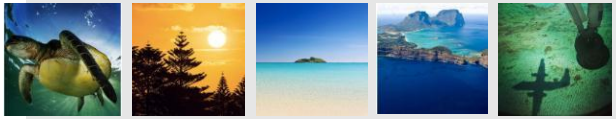
			reviewed literature that ground vibration generated by wind turbines is discernible to humans or is a cause of adverse health effects.
Visual impact assessment	**3**	• Criticism of the photomontages in the visual impact assessment, in regards to the viewpoints that were chosen and omissions from the final images. This destroys the credibility of the photomontages and creates distrust • Concern about the qualitative nature of the visual impact assessment and lack of consideration given to adverse economic impacts associated with the perceived negative visual impacts of the turbines • The wide-angle panoramic photomontages in the Landscape and Visual Impact Assessment are deceptive with the aim of reducing the visual impact. The zoomed in cropped images are more accurate representation of what people will see at each location.	The visual assessment acknowledges that visual quality is subjective, but applies established methods and criteria to conclude that the risk of significant impact is low. The visual impact assessment concluded that while the wind turbines would cause some alteration of the visual character of the area, the unique visual features which characterise Lord Howe Island would remain dominant. The turbines would be located out of the immediate settlement area but would be likely to become a dominant feature when viewed from close proximity, particularly from the northern settlement area. Elevated views are available from the southern and northern hills, although due to the expansive views and distance from the proposal in these locations, the turbines are likely to be a minor element in the landscape. On this basis, overall visual impacts are considered unlikely to be significant. Photomontages are visual representations of the proposed infrastructure. To achieve this representation, turbines are superimposed onto a photograph (or a series of merged photographs) of the site from sensitive viewpoints. Locations were chosen by the visual assessor as those identified as being representative of the visual impact to each receiver. Turbines are accurately scaled into the photomontage using terrain modelling. The zoomed out images are intended to be representative of the actual view of the turbines perceived by the eye at each viewpoint in terms of scale. Regarding comments about the wind monitoring mast being purposefully removed from photomontages, this is not the case. The lower section of the mast and proposed turbines may be partially obscured by vegetation but the wind monitoring mast is present (to the left of the turbine), but is hard to see due to its slender nature. The mast may have been partially removed in the process of merging several photos together to create a panoramic viewpoint, however this was not done intentionally.
Visual impacts	**120**	• Concern about visual impacts, and doubt whether the Island is ready for this kind of visual impact. • Concern about visual impacts and the scale of the turbines in the landscape. • Concern about visual impacts causing annoyance to residents and tourists which is detrimental to health.	A comprehensive assessment of visual impact has been undertaken. This is summarised in the Environmental Report , and the specialist visual impact assessment, prepared in accordance with relevant guidelines and recommendations contained in the Draft NSW Planning Guidelines (2011 and 2016). The visual assessment concluded that the wind turbines could produce a strong contrast in the landscape as a result of their vertical scale and lack of visual integration. The proposed turbines will most likely become a dominant feature of the landscape



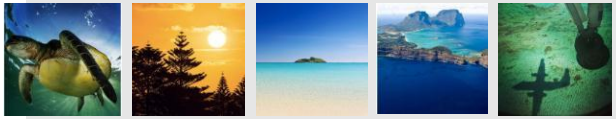
		• Concern about visual impacts of the turbines, and the impacts on the natural beauty of the World Heritage listed Island. • Concern that the wind turbines will dominate the skyline from Pinetrees lodge and the Island's famous lookout points, particularly as they will be higher than any other development and elevated on the Transit Hill ridgeline. • Power poles and overhead cabling were removed 40 years ago to provide a more reliable electricity supply and reduce environmental impact. Undergrounding the services was seen as a visual improvement by residents and visitors. • The Board has an obligation to maintain the natural beauty of the Island to ensure the ongoing World Heritage status, however the wind turbines would be visible from most parts of the Island and would contravene that obligation. • The landscape and visual impact assessment concludes that the proposed wind turbines would have a significant visual impact, which cannot be acceptable in this World Heritage location. • Turbines are described as being similar scale to the Air services towers, but these are static structures - the spinning blades of the turbines will attract the eye and have more of a visual impact. • Visual qualities of the turbines are underestimated, in particular their representation of a commitment to maintaining the Island's pristine environment. • Installing the wind turbines will result in little loss of visual amenity. • There will be visual impacts from the wind turbines, but there also were with the airstrip and the benefits now outweigh the impacts. • Visual impacts are subjective and you cannot change personal opinions. • The proposed turbines are much smaller and less visually intrusive than those turbines normally associated with wind farm installations. • Wind turbines will be visible but not offensive in size and less obvious than the old navigational towers near Ned's Beach that were there for	when viewed from close proximity, particularly from the northern settlement area. From elevated views from the southern and northern hills, the turbines are likely to be a minor element in the overall landscape. From these more distance views, the spinning blades are unlikely to be obvious, based on the photomontages included in the visual assessment report. In addition to the Airservices Australia, the report pointed to a number of existing infrastructure elements located close to the proposal site, including the airstrip the south of Transit Hill. When viewed in conjunction, the wind turbines would be comparatively small in scale. As noted in the Environmental Report, any localised visual impacts at residences or accommodation caused by the turbines could be addressed using a range of mitigation measures including screen planting. Turbine colour has been considered in the visual assessment report. The report recommends the use of simple muted colours and non-reflective materials, and that blades, nacelle and tower should appear as the same colour. The NSW Draft Guidelines recommends off-white or grey colours for turbines. If the turbines are approved, the decision of turbine colour could be determined in consultation with the community. The idea that people will get used to the visual impact over time is consistent with experiences elsewhere in Australia and documented in overseas studies which find increasing acceptance of turbines in the years following construction. All cabling associated with the proposal would be installed underground. An objective of the environmental assessment is to undertake an objective assessment of impacts to environmental factors, and assess negative impacts against gains associated with development of the turbines. It has identified that while there will be some negative impact, these would be offset by environmental, social and economic gains associated with the proposal. The Environmental Report concludes that the proposal would not significantly affect the visual or acoustic environment of the island, and would not be incongruous with the existing modified landscape.



		years, or the old noisy generators. • Visitor surveys show solid majority acceptance of turbines in the landscape and nobody has had concerns about the visual impact of the Air services towers past and present over the past 30 years. • Wind turbines highlight the Island's desire for sustainable practices and a greener future. • Consider grey coloured turbine masts and off-white/pale blue coloured blades to minimise visual impacts from the turbines. • Initial concerns about visual impacts have gone, as the wind turbines visually represent financial wealth, initiative and cleanliness and will become normalised after a few months. • Judgement about the visual impacts comes down to a risk/benefit analysis. • Preference for the Island's skyline to remain natural but visual impacts would not be enough to oppose the proposed wind turbines. • Support for the proposal even though the turbines will be visually intrusive, because we have no choice but to react to climate change. • Over time people will become used to the visual impacts of the wind turbines, as they have with other structures. • Potential visual impacts have been openly discussed within the community and thoroughly investigated by the project team - visual impacts of the turbines are purely subjective but there is something 'beautifully functional' about them.	
Visual impacts - planning controls	**9**	• Building height is restricted to two storeys to retain the Island's views and character, but the two proposed turbines are 70 metres (20 storeys) and 50 metres (15 storeys) to the tip of the blade. • Concern about visual impacts, particularly in the context of the Island's strict planning controls that require dwellings and signage to be discrete and adequately screened. • Concern about visual impacts, particularly in the context of the Island's strict planning controls that intend to protect the shoreline from visually intrusive development.	The wind turbines will be the highest built structures on the Island. However, they are not alone with the Airservices Australia towers nearby to the site, standing around 25m above ground level and visible from many vantage points on the Island. Equally, the former Airservices towers closer to Neds Beach stood for decades and were red and white in colour, and very prominent in photos of the time. Clause 29 of the Lord Howe Island LEP exempts public utility undertakings from the planning control requirements, in a similar way that the Airservices Australia towers have been exempted. The turbines will be located outside of the Foreshore Management zone. The World



		• Concern about visual impact, especially as development on the Island is supposed to be minimised and screened. If a realistic image was provided showing what the turbines look like nobody would support them. • Wind turbines are inappropriate for the context of the Island. • The wind turbines are incompatible with the decades of regulation that has successfully limited the visual impacts of intrusive development on the Island.	Heritage values related to the landscape character of the Island are also being assessed by the Federal Department of Environment - they have yet to prepare their report.
World Heritage values	**58**	• Concern about impact on World Heritage values, and to say the project protects them is a lie. • Concern about impacts on the Island's World Heritage values and status, including its natural beauty and simplicity that would threaten tourism and the Island's economy. • The Board will be in breach of its duty to maintain the visual quality and character of the Island if the wind turbines are approved. • In 2014, UNESCO reportedly found that a proposed wind farm in Dorset (UK) would significantly impact the natural setting and the visitor's experience of the property, and any potential impacts on the natural property contradict the World Heritage convention. • Concern that the visual impact of the wind turbines would compromise the Island's World Heritage status. • Concern that the wind turbines will undermine the visual appeal and natural beauty of the Island, and that the Victorian guidelines are much better at acknowledging and protecting World Heritage values. • Increased protection of World Heritage values and status through sustainable energy production. • Protection of World Heritage values. • Project will decrease the Island's environmental footprint which will enhance its image as a pristine World Heritage location. • Wind turbines are in line with the Island's status as a pristine	The potential impacts to the World Heritage values of the island have been assessed against each of the listing criteria in the Environmental Report. The proposal is unlikely to significantly affect these values, taking into account the results of specialist biodiversity, noise and visual assessments conducted for the project. The assessment notes that the proposal site is set within a landscape context that contains significant human structures and modifications, including the Airservices Australia towers, cleared farmland and the airport. Sustainable energy production is likely to be viewed as consistent with the need to minimise human environmental impacts at the local and global scales. The Environmental Report notes that the project is consistent with the adaptability and self-reliance shown by the Island population, and environmental imperatives such as the need for sustainable energy production and reduction in carbon emissions. A key benefit of the proposal is identified as branding opportunities for the Island in terms of sustainability credentials and ecotourism. The visual impact assessment has been carried out using relevant guidelines and recommendations contained in the Draft NSW Planning Guidelines (2011 and 2016). The assessment acknowledges and assesses the World Heritage listing criteria for the LHIG item (vii) - Refer section 6.2.3 of Environmental Report.



		environment with strong ecological and heritage values. • Wind turbines complement the World Heritage values and are symbolic of the Island's commitment to protecting the local ecosystem from the threats of climate change. • As a World Heritage location, the Island should use renewable energy instead of diesel fuel. • Complements the World Heritage values and shows a commitment to protecting the local environment from the threats of climate change.	

4.5 Next steps

We have considered all submissions and are aware of concerns raised by the community. We have ensured that issues highlighted by the community are able to be considered by the independent planners, RPS, and the Board members, and appropriately addressed when determining the wind turbine development application.

During the next phase of the project we will continue to consult with residents on and off the Island, the community-led Sustainable Energy Working Group, local businesses and other impacted stakeholders. We promise to:

- Keep the community informed of the decision regarding the wind turbines and, if approved, what the next steps are for further planning, construction, operation and ongoing monitoring
- Continue to keep the community informed as planning progresses for the solar, battery and control element of the project, which was approved by the Board in late 2015 and is going ahead
- Provide ongoing communication about the hybrid renewable energy project through the Board website, project Facebook page, project updates and postcards, and face-to-face consultation as required
- Develop ways to involve the community in the ongoing monitoring during operation of the wind turbines if approved, e.g. a new Community Reference Group
- Investigate community ownership models for the Island to allow the community to own part of the hybrid renewable energy system.