

# COVERSHEET



THE UNIVERSITY OF  
WESTERN  
AUSTRALIA

## Faculty of Engineering and Mathematical Sciences

Assignment, Report & Laboratory Coversheet for Individual & Group Assignment

SUBMITTING STUDENT		
<b>SURNAME</b> Castafaro	<b>GIVEN NAMES</b> Kaitlyn	<b>STUDENT NUMBER</b> 22727309
<b>UNIT NAME</b> Project Management and Engineering Practice		<b>UNIT CODE</b> GENG5505
<b>TITLE/TOPIC OF ASSIGNMENT</b> Major Group Project - Written Report		<b>NAME OF LECTURER/TUTOR</b> Cosimo Faiello
<b>DATE/TIME DUE</b> Monday 11 April 1700	<b>DATE/TIME SUBMITTED</b> Monday 11 April 1600	

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FOR GROUP ASSIGNMENTS ONLY	STUDENT NUMBER
NAME	
1. Emily Roberts	22385258
2. Rashi Nitin Kansara	23017256
3. Jakub Wysocki	22716248
4. Xiaofan Wang	22940276
5. Gaoyuan Zhang	22994257
6. Kaitlyn Castafaro	22727309
7.	
8.	
Unless other arrangements have been made it will be assumed that all group members have contributed equally to group assignments/laboratory reports	

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SIGN: <i>Emily Roberts</i>	SIGN: <i>Gaoyuan Zhang</i>
SIGN: <i>[Signature]</i>	SIGN: <i>KC</i>
SIGN: <i>Jakub Wysocki</i>	SIGN:
SIGN: <i>Xiaofan Wang</i>	SIGN:

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# **Mount Emerald Wind Farm**

# **Project Management Case Study**

Group 3 Friday 11am

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## GENG5505 (Sem1, 2022) - Major Group Project Marking Guide

<b>Group Name:</b>	Friday 11am Practical Class, Group C					
<b>Project Name:</b>	Project Management Case Study Report					
<b>Tutorial class attended:</b>	Friday 11am					
<b>Student Name</b>	Emily Roberts		<b>Student ID</b>	22385258		
<b>Student Name</b>	Rashi Nitin Kansara		<b>Student ID</b>	23017256		
<b>Student Name</b>	Jakub Wysocki		<b>Student ID</b>	22716248		
<b>Student Name</b>	Xiaofan Wang		<b>Student ID</b>	22940276		
<b>Student Name</b>	Gaoyuan Zhang		<b>Student ID</b>	22994257		
<b>Student Name</b>	Kaitlyn Castafaro		<b>Student ID</b>	22727309		
<b>Student Name</b>			<b>Student ID</b>			

### CONTENT ASSESSMENT CRITERIA

Marking	Very Poor	Fair	Good	Excellent	
<b>Executive Summary (Maximum 1 page)</b>					
Clarity & conciseness	0-1.5	2	2.5	3	3.5
<b>Executive Summary - Total</b>					
					/5
<b>Section A: Case study writing (Approx. 1,500 words)</b>					
Clarity & conciseness of project background	0	4	5	6	7
Quality & relevance of research material (i.e. info/facts)	0	4	5	6	7
<b>Total Section A</b>					
					/20
<b>Section B: Case Study Analysis (Approx. 2,500 words)</b>					
Introduction (clarity of purpose & conciseness)	0-1.5	2	2.5	3	3.5
Use & relevance of theories, models & frameworks	0	4	5	6	7
Depth of analysis, clear & logical argument	0	4	5	6	7
<b>Total Section B</b>					
					/25
<b>Section C: Recommendations to the case (Approx. 2,000 words)</b>					
Use & relevance of theories, models & frameworks	0	4	5	6	7
Relevance & justification of recommendations	0-2.5	3	3.5	4	5
Insight & synthesis, clear & logical argument	0-2.5	3	3.5	4	5
<b>Total Section C</b>					
					/25
<b>Conclusion (Maximum 1 page)</b>					
Logical summary	0-1.5	2	2.5	3	3.5
<b>Conclusion - Total</b>					
					/5
<b>Table of contents (compulsory), references &amp; appendices</b>					
Appropriate table of contents, appendices & references	0-1.5	2	2.5	3	3.5
<b>Table of contents, references &amp; appendices - Total</b>					
					/5
<b>Group meetings (agenda &amp; minutes)</b>					
Relevance & consistency of issues & outcome	0	4	5	6	7
Clarity, conciseness, team reflections and leadership	0-1.5	2	2.5	3	3.5
<b>Group meetings (agenda &amp; minutes) - Total</b>					
					/15

**Word Count** - Word count must be 6000 +/- 5% (exclude figure labels/references/appendices)

Section	Word Count	Recommended
Introduction	122	-
Part A	1426	1500
Part B	2484	2500
Part C	1941	2000
Conclusion	321	-
Total Word Count	6296	6300

## **1. Executive Summary**

This report has provided a project management case study analysis for the Mount Emerald Wind Farm, situated in the Tableland region of Far North Queensland. The project was developed by Mount Emerald Wind Farm Pty Ltd.

Whilst initial feasibility studies were based on plans for 70-80 wind turbines (210MW), conditional approvals limited the project to 63 turbines. The scope was refined during development with 53 turbines installed, given an increase in blade size (to optimise capacity) and environmental concerns regarding habitat destruction. Key stakeholders were identified early in the project. The local community were a key interest group and communication management plans were created, with initiatives including a ‘Community Consultative Committee’ developed to increase community participation. Traditional Owners formed another stakeholder and through consultation, the project progressed sustainably.

The project management lifecycle stages are conceptualisation, planning, development, and finalisation. Issues were experienced in all stages, and section B has outlined their impact and the resulting response. Key issues during planning included determining the appropriateness of the site and economic feasibility. These affected the project scope, influencing project success. Documentation of stakeholders, developing communication strategies and feasibility studies (including risk/economic assessments) were effective in responding to these issues. Community concerns in the planning phase, led to the establishment of the Community Consultative Committee. Other issues, including organisational and scope changes, placed pressure on the schedule. The development stage saw continued community concerns, due to poor communication with stakeholders during construction. Finally, during the finalisation stage, the continued issue of protecting endangered species, was effectively dealt with through monitoring. System outage potential was also a concern, given potential schedule delays.

Whilst some issues were appropriately managed, others could have been resolved through more effective practices. Section C presents these recommendations, with the most important relating to improving the management and representation on the Community Consultative Committee. It is recommended to establish this group earlier in the project lifecycle, to provide a formal mechanism for stakeholders to engage in discussions with company representatives. Other recommendations presented in the report relate to better human resource management, schedule management, procurement management cost/scope management and communication/stakeholder management.

## **2. Introduction**

This report aims to discuss and analyse the project management of a real-world project. The chosen focus is the Mount Emerald Wind Farm (MEWF), developed by MEWF Ltd. Pty. Section A of this report will provide a project overview considering the project management competencies.

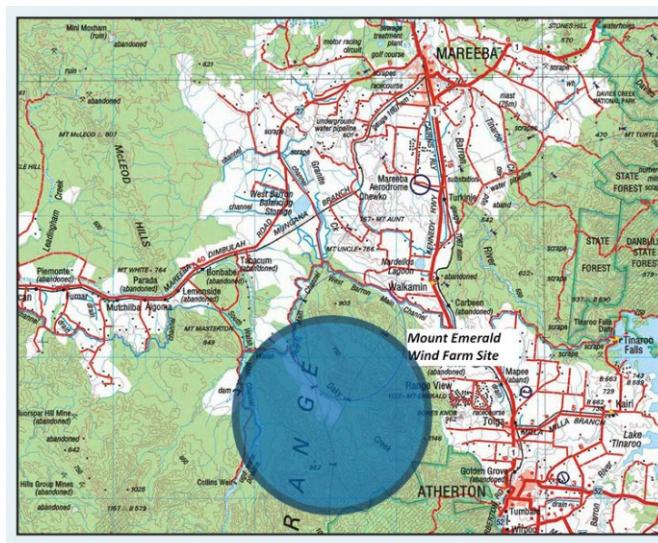
The project faced many challenges throughout its lifecycle, which were largely influenced by the project site and key stakeholders. These include assessing the viability of the site, organisational change, and cost/scope changes from external stakeholder pressures. These facets have been explored in Section B through the lens of project management stages. Many aspects of the project could have been influenced to provide better outcomes through improved project management, hence recommendations have been presented in Section C.

## **3. Section A - Project Overview**

### **3.1 Background**

The MEWF is located 2km from Mount Emerald, in the Tableland region of Far North Queensland (FNQLD). The farm has been operational since 2018 and consists of 53 turbines with a capacity of 180.5MW. It will produce enough electricity to power ~75,000 homes in surrounding remote communities and has an expected operational life of 25 years (Ratch-Australia-Corporation, 2022).

The site for the wind farm was chosen based on strong prevailing winds in the area and a pre-existing 275kW transmission line (reducing infrastructure costs). The decision to develop the wind farm was motivated by the remoteness of communities in FNQLD, and hence difficulties in transporting electricity from traditional fossil fuel sources along transmission lines. It was favoured given the Australian Government had a vision for 20% renewable energy by 2020 (Cummings-Economic, 2013).



*Figure 1 Mount Emerald Wind Farm Site (MEWF-Pty-Ltd, 2011a)*

### 3.2 Project Scope

The initial project scope was to construct 75 turbines, with a capacity of 210MW, however, the Department of Environment only approved the installation of 63 turbines (*Appendix 1*) (Trad MP, 2015).

During the development stage, the scope was refined. Only 53 turbines were installed, with a total capacity of 180.5MW, to minimise land clearing and disruption of habitats. Consequently, the turbines were resized to 3.3MW and 3.45MW to optimise energy production. The larger blades required that the turbine layout be refined to prevent interference between neighbouring towers. The project was also responsible for the construction of 35km of roads, control rooms and new substations. The final site/road plan is shown in *Appendix 2* and *Appendix 3* (MEWF-Pty-Ltd, 2022).

### 3.3 Organisational Structure

The project was developed by MEWF Ltd. Pty., a joint venture formed in 2011, with equal shares held between Port Bajool, a developmental company based in Queensland, and Transfield Services, an Australian owned company specialising in providing/maintaining assets and project management (MEWF Pty Ltd, 2011a). Ratch Australia, a branch of Thai owned ‘Ratch group’, acquired Transfield Service’s share in 2011, and became sole developers when they acquired Port Bajool’s share in 2016 (MEWF-Pty-Ltd, 2011a (MEWF-Pty-Ltd,

2016f). The project construction contractors are Vestas/CPP/Catcon, which specialise in wind energy technology and electrical/civil engineering respectively.

### 3.4 Stakeholders

Key groups affected by the project included the local community and councils, traditional owners, and state/federal governments (Figure 1). A detailed stakeholder consultation/communications report was created in 2013 to identify key groups and determine methods to incorporate these groups into the project development (*Appendix 4*) (RACL, 2013).

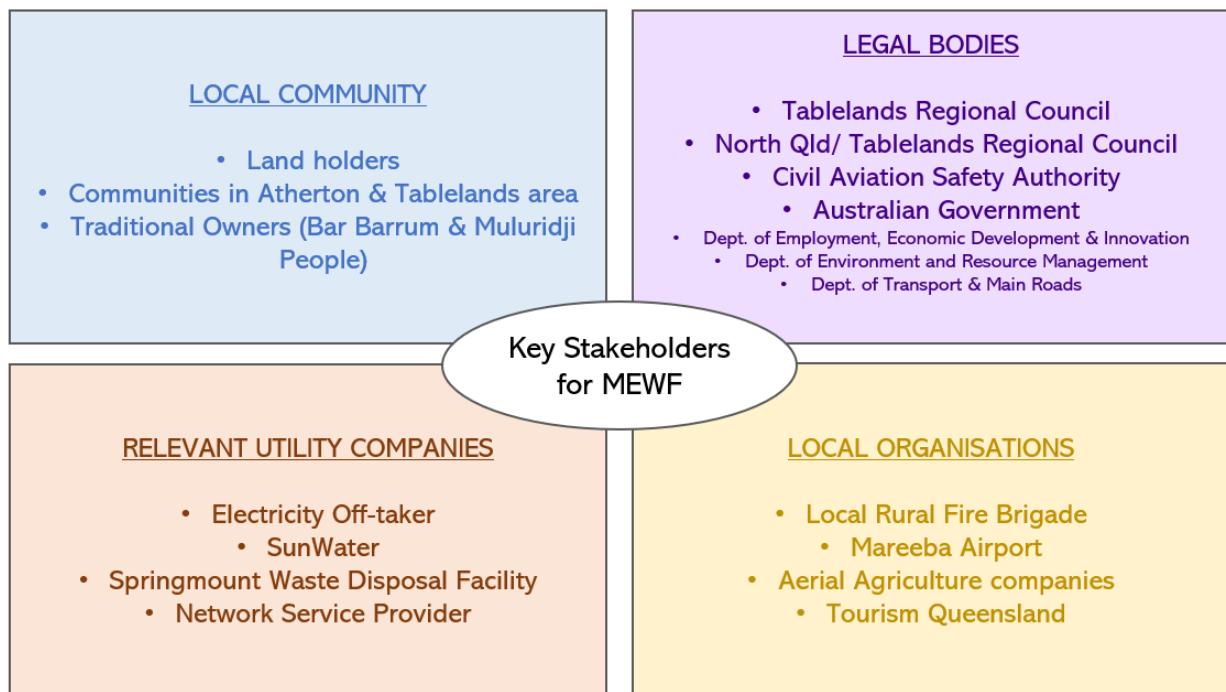


Figure 2 Key stakeholders for Mount Emerald Wind Farm. Figure adapted from (RACL, 2013)

#### 3.4.1 Local Community

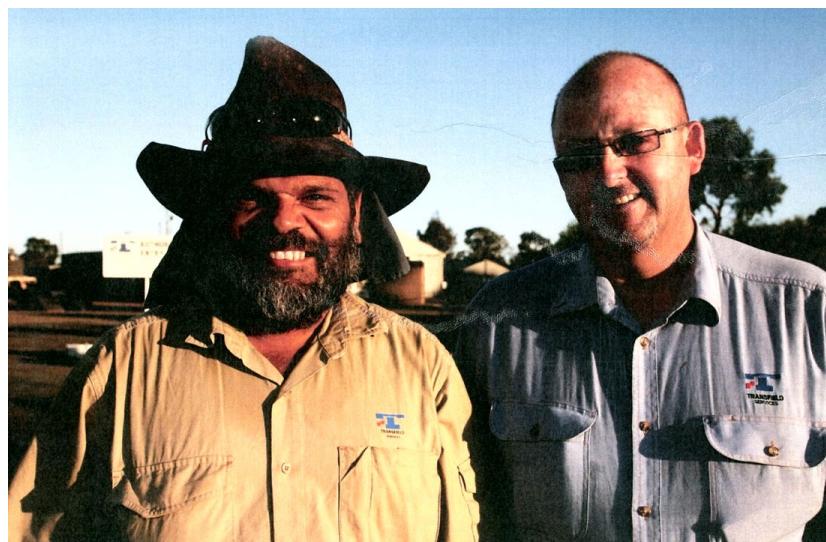
The local community were a large and influential stakeholder group. MEWF Pty Ltd. provided many avenues to include community members in decisions. The ‘Community Consultative Committee’ (CCC), (Figure 3), was established in 2016. Members met throughout the year to discuss progress and file complaints on behalf of the community. The committee consisted of representatives from various interest groups, and was chaired by Professor Steve Turton, a geography and environmental professor (MEWF-Pty-Ltd, 2022).



*Figure 3 MEWF Community Consultative Committee. Available from MEWF-Pty-Ltd, 2022*

### **3.4.2 Traditional Owners**

The site chosen for the MEWF was culturally significant for Indigenous groups. A cultural heritage assessment was prepared by ‘Converge’ in 2013 to effectively manage this stakeholder. Active consultation occurred with the Traditional Custodians of the land, the ‘Bar Barrum’ and ‘Muluridji’ people (Figure 4). Plans were developed to conduct surveys for/remove any culturally significant artefacts from site before construction activities (RPS Australia East Pty Ltd, 2014a).



*Figure 4 Consultation with Traditional Owners. Available from MEWF-Pty-Ltd, 2012*

### 3.5 Project Budget

Early feasibility studies conducted in 2013 proposed that the wind farm would cost ~\$382 million (*Figure 5*). After initial planning and early scope changes, the budget was revised to \$426 million (*Appendix 5*) (Cummings-Economic, 2013), (RPS-Australia-East Pty Ltd, 2014a).

**Table 1: Estimated Capital Costs & Estimated Amount Initially Spent Within the Region**

	<u>Capital cost</u> \$m	<u>Initial expenditure</u> within the FNQ region \$m	<u>Initial expenditure</u> within the Tablelands \$m
<b>Roadworks</b>	<b>\$6.72</b>	<b>\$6.72</b>	<b>\$3.36</b>
<b>Infrastructure</b>	<b>\$0.66</b>	<b>\$0.66</b>	<b>\$0.44</b>
Hardstand	\$0.10	\$0.10	\$0.10
Maintenance building	\$0.15	\$0.15	\$0.15
Fenced storage compound & fuel store	\$0.06	\$0.06	\$0.06
Landscaping	\$0.02	\$0.02	\$0.02
External communications	\$0.33	\$0.33	\$0.11
<b>EPC contract</b>	<b>\$374.70</b>	<b>\$62.90</b>	<b>\$26.95</b>
Wind turbines	\$256.70	-	-
Transport	\$31.80	\$6.00	\$1.50
Electrical works (substation etc.)	\$39.22	\$10.00	\$2.00
Civil works & allowance for ground conditions	\$46.90	\$46.90	\$23.45
<b>Network Service Provider</b>	<b>\$0.28</b>	<b>\$0.28</b>	<b>\$0.28</b>
<b>Total</b>	<b>\$382.36</b>	<b>\$70.56</b>	<b>\$31.03</b>

*Figure 5 Initial estimations for project expenditure (Cummings-Economic, 2013)*

Final project statistics suggest a net expenditure of \$380 million, with \$111 million into the FNQLD regional economy and 200 jobs created during construction. Following the development of the wind farm, a community benefit fund, valued at \$200,000 p.a. was established to support regional not-for-profit groups for the working life of the wind farm (MEWF-Pty-Ltd, 2022).

### 3.6 Project Schedule

Throughout the project lifecycle, the schedule was controlled. A critical path was developed in the conceptualisation stage to identify focus areas required to prove feasibility (*Figure 6*).



*Figure 6 Critical path identified in conceptualisation stage. Available from (MEWF, 2011a)*

During the planning phase, a project schedule was developed which listed all tasks. An expected completion date was given for each milestone (*Appendix 6*).

Aside from delays to the beginning of construction (due to factors such as conflict between contractors and organisational change), the schedule was followed well throughout the project (MEWF-Pty-Ltd, 2018a).

### 3.7 Project Timeline

Discussions regarding developing the MEWF were in effect from 2008, however feasibility studies did not begin until the formation of MEWF Ltd Pty in 2011. Initial studies included, economic impact, wind/noise monitoring, visual impact, adjacent land use and traffic/risk/environmental/cultural heritage assessments (MEWF-Pty-Ltd, 2011a).

Following a ‘community open-house’ in March 2011, the development application was lodged with the Tablelands Regional Council in August. In April 2015, the Queensland Government approved the application and in November 2015 the Commonwealth Department of Environment also approved it. Intense planning took place throughout 2016, including turbine layout plans, and organising contractors. The power purchase agreement was signed by EROGON in May 2016, allowing financial close in November 2016 (*Appendix 9*) (MEWF-Pty-Ltd, 2016b).

In preparation for construction, a 'Construction Environment Management Plan' was developed, including management plans for:

- Threatened species
- Rehabilitation
- Cultural Heritage
- Traffic
- Bushfire
- Emergency Evacuation
- Construction Waste

Early construction works began in late 2016. In January 2017, variations to turbine locations/development were approved (*Appendix 8*) and safety clearances/surveys occurred. Intense construction began in April 2017, including substation earthworks and roads. Site clearance of plants, heritage items and endangered species took place in June 2017. Foundations were poured in August 2017 and the first tower was erected in November (MEWF-Pty-Ltd, 2017b). Commissioning of the turbines occurred in August/September 2018 which was followed by final noise monitoring. Maximum output was achieved by January 2019 (Ratch-Australia-Corporation, 2019),(RPS-Australia-East Pty Ltd, 2014a). A detailed timeline is presented in *Figure 7*.



Figure 7 Timeline for MEWF Project

## **3.8 Risks and Challenges**

### **3.8.1 Noise Monitoring**

Background noise assessment studies were conducted early in the project lifecycle at local residences. The minimum legal requirement was that noise during operation could not exceed 40dB/ 5dB + background level. A noise impact assessment was produced to document findings (Marshall-Day Acoustics, 2014).

### **3.8.2 Endangered Species**

The site chosen for MEWF provided a habitat for endangered species, including the northern quoll and *Dasyurus hallucatus* plant. To comply with regulations, MEWF Pty Ltd. created monitoring plans which were submitted to the Department of Environment for approval (*Appendix 10*). The proposed site had over 200 cameras installed to record the animals' behaviour. Before construction, quolls were captured and transported to a neighbouring offset area, chosen to have similar vegetation/habitats (Figure 8). Endangered plants were transported to a greenhouse (Figure 8). Detailed monitoring reports were compiled for all endangered species throughout the project lifecycle and years following completion (Scott et al, 2019).



*Figure 8: Left - Greenhouse used to protect endangered plants during construction. Right - capturing quolls for transportation to offset site (MEWF-Pty-Ltd, 2017c)*

### **3.8.3 Unexploded Ordnance (UXO) Surveys**

The site for MEWF was formally a WWII training ground, leading to a hazard of UXO, including mortars and grenades. Development plans were created in conjunction with the Department of Defence to determine appropriate protocols to remove objects (Geoffrey, 2012).



*Figure 9 4.2-inch mortar fragments found during UXO clearance works (MEWF-Pty-Ltd, 2017c)*

#### **3.8.4 Other Risks**

Other risks included potential turbine collision with small planes used in agriculture. Birdlife also posed a hazard, and data was collected to record birdlife activity, allowing informed predictions of the likelihood of collision. Fire hazards were investigated, and appropriate management plans were created (*Appendix 11*). It was noted that the introduction of a road network throughout the plateau would be beneficial during a fire given increased accessibility (MEWF-Pty-Ltd, 2011b).

### **3.9 Sustainability - Triple Bottom Line**

#### **3.9.1 Environment**

The construction of the wind farm reduced reliance on traditional fossil fuel sources, reducing greenhouse gas emissions. Whilst a negative side effect was the destruction of local habitats, the project team showed responsible monitoring practices of endangered species.

#### **3.9.2 Social**

Consultation with stakeholders and community engagement throughout the project lifecycle empowered the local community and ensured social benefits. Where possible, complaints and concerns were addressed, and community feedback helped to guide the direction of the project. Furthermore, the community benefit fund was created to support local initiatives and create a sense of belonging in the community (MEWF-Pty-Ltd, 2022).

### **3.9.3      Economic**

As described in section 3.5, the project had many positive economic repercussions, including investment into the industry, flow on effects, the creation of local jobs and potential for increased tourism (Cummings-Economics, 2013).

### **3.10      Life Cycle Analysis**

A detailed life cycle analysis was conducted in 2016 to account for emissions released in the various stages of construction of the wind farm, including mining materials, manufacturing components and construction works (*Appendix 12*).

## **4. Part B – Key Issues throughout Project Lifecycle**

### **4.1. Overview**

The project can be divided into four project management stages. During conceptualisation, the project idea is conceived. Basic goals, potential risks, advantages, and the economic feasibility are discussed, which for this project included assessing the appropriateness of the wind farm site and identifying stakeholder concerns.

The planning stage follows approval for the project and incorporates all administrative activities, such as the creation of the budget and schedule. The project scope is optimized, management plans are established to guide development, site layouts are finalized and funding is sourced.

In the development stage, attention shifts to monitoring actual progress against planned progress. If necessary, the planned schedule and budget are revised to incorporate real changes. For this project, activities such as managing procurement/construction contractors became a focus.

During the finalization stage, reports/documentation are completed, contracts are terminated, and deliverables are handed over to the client. In this project, the wind farm was commissioned, and operators took over the site. Ongoing monitoring (e.g. environmental monitoring) may continue to comply with regulations and agreements (Hartley, 2018).

This section of the report will analyse issues which arose in each of the four stages, the impact these had on the project and the resulting response.

### **4.2. Conceptualisation Stage**

#### **4.2.1. Choosing Appropriate Site**

环境：选址

Although initial wind assessments suggested there was a sufficient resource on the Mount Emerald Plateau to justify development, additional feasibility studies were required to ensure appropriateness. It was necessary to investigate cultural heritage, environmental concerns, and adjacent land use before the project scope could be created (MEWF-Pty-Ltd, 2011a).

Consultation with Traditional Owners and protection of the environment was prioritised. Surveys of the area were conducted to investigate the presence of culturally significant objects

and predict populations of endangered species. Furthermore, surrounding areas were investigated to determine land use conflicts leading to the development of an ‘adjacent land use assessment’ (*Appendix 13*). Discussions were organised with nearby farmers and residents to gain an understanding of their concerns (*Appendix 14*) (RPS-Australia-East Pty Ltd, 2014a).

The time taken to consult local groups created cost/time pressures, especially as funding had not yet been acquired. However, by practicing excellent communication and stakeholder management and carrying out detailed studies, the project site could be justified and approved.

#### 4.2.2. Determining Economic Feasibility

经济：可行  
性分析

Before development applications could be lodged, it was necessary to determine that the project was economically feasible. The incentive to develop a wind farm was motivated by push factors (difficulties transporting electricity to remote areas and dissatisfaction for fossil fuels) and pull factors (positive economic repercussions). An economic impact report was produced by ‘Cummings Economics’ in 2013 to determine the economic feasibility.

The assessment concluded that the wind farm would be economically viable if the cost of energy was cheaper than relying on traditional fossil fuels (*Appendix 15*). Given the remoteness of the location, long transmission lines (subject to disruptions) were required to provide electricity from the closest coal power plants. Other renewable sources were also considered in the study, such as biomass and hydroelectricity, however, the limitation of resources and high capital expenditure respectively suggested that wind energy was more viable (Cummings-Economics, 2013). Whilst the process of completing economic assessments would have incurred costs, it was necessary to ensure that continuing the project was worthwhile.

#### 4.2.3. Community Concerns

社会：社区利  
益相关

Community concerns included the noise and visual impact of the proposed wind turbines. Residents were concerned that the introduction of the wind farm would change the ‘character’ of the tranquil surrounding neighbourhoods, and could lead to medical side effects, such as a loss of sleep from excessive noise (MEWF-Pty-Ltd, 2011). These concerns had the potential to impact project acceptance.

In response, noise assessment studies were carried out as well as a visual impact survey to assess how the wind turbines would affect the appearance of the landscape. Protocols were established to provide avenues to respond to ongoing community concerns and inform the community of the project. A community open house was called in 2011 to provide a platform for residents to raise concerns. Furthermore, a newsletter was established for project updates (MEWF-Pty-Ltd, 2011a).

Responding to concerns impacted the project schedule and incurred costs, as well as placing constraints on the proposed turbine layout/project feasibility, hence influencing project scope.



*Figure 10 Photomontage of 'Location M16' prepared for visual impact analysis studies  
(Green Bean Design, 2013)*

#### 4.2.4. Organisational Change

例子：组织变化/一个新团队形成

In 2013, Ratch Australia acquired Transfield Service's share of MEWF Pty Ltd (MEWF-Pty-Ltd, 2014). Such large-scale organisational change had the potential to lead to a change of vision for the project, and project schedule delays.

The transition would have resulted in changes to team dynamics/development (*Figure 11*). Given that the project was already underway, it is likely established teams were at the ‘performing’ stage of development, however with the change in workforce, there would be a new ‘forming’ stage. Hence there would have been conflicting interest areas, and evidence of ‘storming’. Resolving these conflicts may have caused schedule delays and changes to the scope (Hartley, 2018).

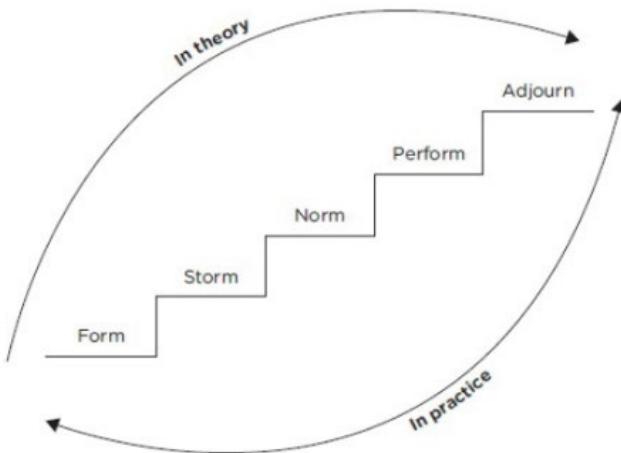


Figure 11 Five stages of team development  
(Hartley, 2018)

#### 4.2.5. Identification of risks

例子：识别风险

MEWF faced many risks and challenges, summarised in Section 3.9. These had the ability to prevent the project from progressing if not identified and managed appropriately. This led to the production of a ‘statement of commitments’ to outline all risk and how these would be managed throughout the project lifecycle (*Appendix 16*).

### 4.3. Planning Stage

#### 4.3.1. Gaining Funding/Power Purchase Agreement

经济：获得资金/电力购买协议

An issue which was faced during the planning phase involved finding a company to purchase the wind farm’s power output. This issue related to both cost and scope management, as without an appropriate investor, the energy generated by the wind farm would be irrelevant.

To secure a partnership, in depth discussions occurred with ERGON Energy, which resulted in the company signing a power purchase agreement until 2030 in May 2016 (*Figure* ). The Queensland Energy Minister, Mark Bailey was involved in these discussions, suggesting the recognition of the government as a key stakeholder (*Appendix 9*) (MEWF-Pty-Ltd, 2016b).

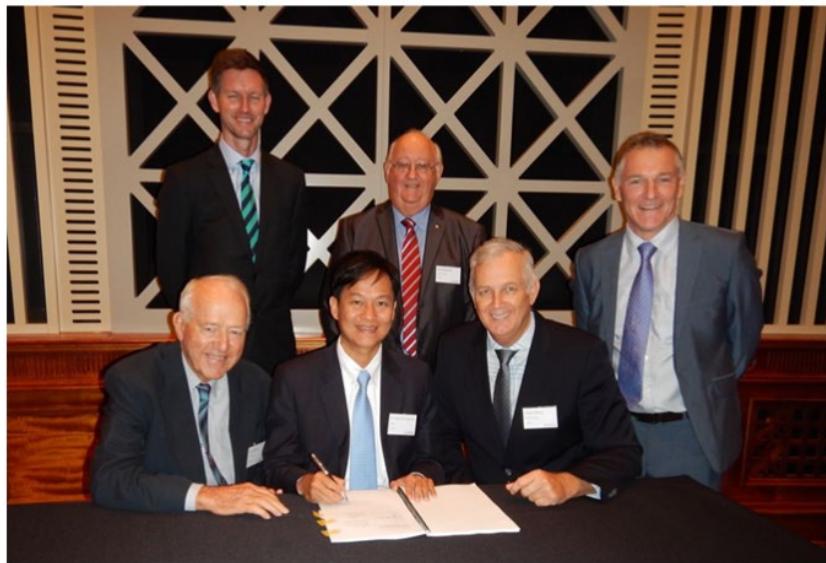


Figure 12 ERGON Energy & MEWF Pty Ltd signing 'Power purchase agreement' (MEWF-Pty-Ltd, 2016b).

#### 4.3.2. Scope Changes

例子：范围变更/项目监控

A highlighted in Section 3.2, scope changes occurred during the planning phase regarding the number of wind turbines and their layout. Changes impacted the project schedule and cost management as any change led to time being diverted away from other activities to investigate options, create new layout plans, and document decisions.

Scope changes also affect cost reporting. To effectively communicate project success, cost-to-date should not only be compared to initial estimates, but rather progression should be measured in terms of earned value. In this case, whilst the initial wind farm concept was for a 210MW farm, the final decision to only install 53 turbines lowered the power output to 180.5MW (MEWF-Pty-Ltd, 2022). Therefore, it is insufficient to report costs-to-date solely against the proposed budget, as the value has decreased (Hartley, 2018).

#### 4.3.3. Ongoing Community Concerns

社会：社区关注

Throughout the planning stage, community members continued to voice their concerns, hence MEWF Pty Ltd. established more protocols to address concerns and provide improved avenues to take on community feedback. Several commendable strategies were developed to assist in engaging, communicating, and consulting with the local community including the development

of a detailed ‘Community Stakeholder Plan’ and ‘Community Engagement Strategy’ (MEWF-Pty-Ltd, 2022) (*Appendix 17*).

The objective of this strategy was to ‘inform’, ‘interact’, ‘involve’, ‘influence’ and ‘incorporate’ the community throughout the project. Project complaints could be lodged using a 24-hour phone line/project email/mail address. Alternatively, a website feedback form and complaints/incident form were available, with complaints recorded on a register. Other new initiatives included ‘one-on-one’ meetings, school visits and the formation of the Community Consultative Committee (CCC). However, the CCC had issues of representation as it can be noted from *Figure 3* that the group has a narrow age range, no Indigenous members and only two females, as well as a single chair (*Appendix 18*).

Implemented strategies served to include the community in the planning phase of the project, hence empowering them and highlighting effective stakeholder and communication management.

#### 4.3.4. Organisational Change

例子：组织变革/新团队形成

Organisational change was experienced in the planning phase as the construction director, Rene Kuypers only joined Ratch Australia in 2016 for the role (*Appendix 21*). Although Kuypers had significant experience in the renewable energy development space, given that he was new to the company, it would have taken time for him to settle in and for other team members to adjust to his leadership style. This had the potential to cause schedule delays and/or create additional pressures during the planning stage.

It is likely that many of the team members working under Kuypers had been working with Ratch Australia (and MEWF Pty Ltd) for an extended period, hence were likely at the ‘performing’ stage of team development. However, the introduction of a new manager/leader probably disrupted the cohesiveness of the team, and in practice would have resulted in a shift of the team development back to the forming stage as each team member adjusted to a new leadership style (Figure 11) (Hartley, 2018).

Another human resource issue was encountered when the two preferred contractors, Vestas and Downer Group were not willing to work together (*Appendix 28*). Ultimately a new major subcontractor was approved, CPP/Catcon, however it is likely that the time taken to manage

potential conflict arising between potential contractors, reassess potential applicants and making a final decision led to pressures on the project schedule.

It is known that delays were experienced leading into the beginning of construction, with the handover of the site to construction managers/preliminary construction work/road upgrades/site office erecting being pushed back from a planned start date in December 2016 to an actual date of February 2017 (*Appendix 19*). It is possible that the human resource challenges discussed contributed to this delay and impacted the project schedule.

#### 4.3.5. Schedule Delays

例子：范围变更/项目监控在时间管理的影响

Schedule delays were experienced leading into the beginning of construction with organisation and scope changes, as discussed above.

Although approval was sought on 17<sup>th</sup> October 2016 to change the plans, these were not approved until 18<sup>th</sup> January 2017. Analysis of correspondence between the Department of Environment and MEWF Pty Ltd. suggested that the submission was missing a link to the turbine layout plan, which had to be followed up and was sent on 4<sup>th</sup> January 2017 (*Appendix 8*). Furthermore, correspondence with Queensland government was sent on 9<sup>th</sup> December and followed up on 9<sup>th</sup> January, with approvals not received until 31<sup>st</sup> January (*Appendix 7*). Given that this correspondence occurred over a holiday period, it is likely that the long turn-around was influenced by members taking leave over Christmas. This may have influenced why the project experienced schedule delays and turbine construction works were unable to start until 2017 (MEWF-Pty-Ltd, 2017).

### 4.4. Development Stage

#### 4.4.1. Protection of Endangered Species

环境：保护野生动物

A key concern during the development stage related to ensuring that construction works did not impact populations of endangered species, including northern quolls. Given their environmental significance, poor management plans would lead to development approvals being withdrawn by the Department of Environment, with obvious cost repercussions for the company (given that there would be no return on investment). Furthermore, the company's reputation would be affected by these unethical practices.

In response, MEWF Pty Ltd carried out careful monitoring prior to, and during construction, using the monitoring plans developed in the planning stage. All plans and reports were publicly available (RPS-Australia-East Pty Ltd, 2014a).

#### 4.4.2. Ongoing Community Concerns

社会：回应社区关注

An example of poor stakeholder management seen in the development stage was highlighted when members of the local community filed a noise complaint (*Appendix 24*). There was a concern that noise levels were higher than promised, leading to a request for additional monitoring by a third party, which was denied by developers. Although MEWF Pty Ltd had already undertaken two separate noise surveys by independent companies, and hence did not deem the extra monitoring necessary, there is no evidence that they had conveyed this to the local community prior to the concern being raised. This poor communication management likely damaged relationships between MEWF Pty Ltd. and the community.

Furthermore, to meet noise regulations and satisfy legal requirements, MEWF Pty Ltd promised that the wind turbines would be no closer than 1.5km from the nearest residence. Although this condition was satisfied when development applications were lodged, in the years following a resident built a house inside this minimum distance. The issue was raised in the CCC meeting in April 2018 (*Appendix 26*) and was the result of poor communication. This dissatisfaction likely damaged MEWF's reputation amongst stakeholders. Although the project proceeded, communication/stakeholder management should have been improved.

Finally, there was public concern during the development phase that nearby house prices were dropping. This led to public demand for a land valuer to determine how the development had affected real estate prices, and whilst this issue was raised in countless CCC meetings, a land valuer was never found (*Appendix 22*). This conflict suggests a degree of poor stakeholder management and oversight by MEWF Pty Ltd., as such studies should have been conducted in the conceptualisation stage.

#### 4.4.3. Effective Management of Construction and Procurement

例子：采购管理/沟通管理（反面）

An issue which was faced during the development stage was the effective management of procurement from local businesses. Throughout the project, emphasis was placed on procuring from local companies, however it appeared that contact with companies was not proactive, and

instead in most cases MEWF Pty Ltd. waited for local companies to submit EOI's rather than actively sending out RFTs (*Appendix 27*). This had potential implications for both communication and cost management, as it is possible that some local companies were unaware of jobs required. Hence, there may have been a reduced number of EOI's and the price of goods and services may have been driven up.

#### 4.4.4. Delivery of Information during Construction

例子：沟通管理/干系人管理  
(反面)

Another issue faced during development was poor communication management during construction. Firstly, there was inadequate signage on the route leading to the project site which caused trucks and other vehicles to take incorrect turns into resident's driveways, and hence were unable to easily turn around without damaging the road (*Appendix 23*). Furthermore, a complaint was raised by a neighbour that there had been no communication regarding upcoming construction/roadworks in his neighbourhood, which led to a request for a personal visit (*Appendix 25*). These instances of poor communication during construction resulted in public dissatisfaction, schedule delays and additional costs incurred.

### 4.5.Finalisation Stage

#### 4.5.1. Ongoing Protection of Endangered Species

环境：保护濒危物种

By the finalisation stage it was still necessary to continue monitoring, to ensure that populations of endangered species had not been adversely affected. This was important to protect MEWF Pty Ltd's reputation as being environmentally responsible. To respond to this issue, ongoing monitoring practices were carried out (MEWF, 2022).

#### 4.5.2. System Outage Issues

例子：风险管理 (反面)

The end of the project encountered issues with the realisation that newly discovered "system strength" issues had the potential to cut the electrical output to zero, limiting return on investment for the wind farm and impacting cost management (*Appendix 20*). Although the system strength was not within the project scope, this highlights a risk management issue as clearly this should have been identified during conceptualisation.

## 5. Section C - Recommendations

Section C of this report will outline some key recommendations for the project which may have been useful to more effectively overcome issues faced.

社会

更早地建立社区代表  
委员会

### 5.1.Recommendation 1 – Stakeholder and Communication Management

*Establish Community Representative Council earlier in lifecycle and provide virtual option to join*

Given that the CCC played a key role in raising concerns and supplying information to the wider community, establishing the committee earlier in the project lifecycle may have reduced conflicts.

The council was not established until late in the planning phase (leading up to construction), however by this time, many aspects of the project scope had been finalised. Whilst other avenues were available earlier in the project for community members to raise concerns (eg. community phone line), the CCC meetings provided a formal avenue of communication between both parties, giving developers an insight into why issues were important to residents. It would have been useful for meetings to have begun either during the conceptualisation phase (if funding allowed) or following development approvals, to improve communication and stakeholder management.

Establishing the council earlier would result in two benefits. The first of these is that the developers would have been aware of community concerns in a timely manner and could have adjusted the scope. For example, after the first CCC meetings, it was obvious that there had been a general community dissatisfaction regarding a lack of land evaluation, as housing prices had dropped (Section 4.4.2). Had the council been established earlier, it is possible that the issue would have been raised and a land valuer could have been requested.

A second benefit of establishing the council earlier is that it would have provided a formal mechanism for the developers to communicate information back to a wider community network. Prior to the establishment of the council, communicating information was conducted through media releases/the website/newsletters or through organising community visits. The first of these strategies relied on community members being proactive, hence may not always be successful. Alternatively, organising community visits can be costly and affect the schedule. However, through the CCC, information can be conveyed to a small group, who can then pass it on to the interest groups they represent.

An example of where this may have been beneficial relates to the example presented in Section 4.4.2 where misinterpretation of protocols led a house being built 1.3km from the nearest turbine, hence noise levels were not guaranteed to be below legal limits. Although MEWF Pty Ltd. had previously announced that new housing developments would not be subject to the same constraints, it is possible that this was not communicated to the new buyer. The earlier establishment of the CCC could have meant that key project facts were communicated to such members of the public.

Furthermore, the council also faced issues relating to a lack of attendance at meetings (eg. due to sickness or travel) (MEWF-Pty, 2016c). This issue could have been alleviated by providing a virtual option where members could attend online if they absolutely had to.

## 5.2.Recommendation 2 – Stakeholder Management

承接上一节

*Increase representation on CCC through an election system/introduce quota/ adopt dual chair strategy*

Another recommendation that relates to the CCC and hence stakeholder management is a suggestion to ensure that the community is adequately represented by the council. There was a lack of female and indigenous representation on the committee, a narrow age range and finally the council was chaired by a single person (MEWF-Pty-Ltd, 2022).

Whilst it can be difficult to select a balanced and representative committee, one way that this could have been achieved is by holding a small ‘election’ where the local community elects those members that they feel would best represent them. Quotas could also have been used to ensure that there was enough age/ gender representation amongst the group, and a dual chair approach could have been adopted to ensure a more balanced governance.

## 5.3. Recommendation 3 – Human Resource Management

例子：人力资源管理（优秀员工/经理的品质/重要性）

*Develop thoughtful approach to onboarding/inducting new staff members*

Managing human resources is critical for any project. If key relationships or organisational structures breakdown, projects are likely to fail no matter how promising (Hartley, 2018). As discussed in section 4.3.4, the candidate chosen as the project construction director, Rene Kuypers, only joined Ratch Australia in 2016 specifically for the role. Given that Kuypers had

no experience working at Ratch, and was hired in a leadership role, it is possible that the four-month delay to beginning construction could be attributed to this organisation change. Hence recommendations can be discussed to better manage introducing new team members/managers into a team to reduce impact on project schedule.

The first aspect of this recommendation includes the approach taken to hiring new staff, particularly those in a leadership role. It is important that the manager chosen will not ‘clash’ with other team members, but instead will contribute to the ultimate success of the project. As well as considering technical skillset and experience, personality and behavioural types should be studied. A useful approach is to conduct personality testing of the entire team and candidates. For example, the Myers-Briggs personality assessment could be used to identify each team member’s personality. The candidate chosen should then be such that they had a personality that complemented other team members to increase team cohesiveness (Amirhosseini, MH & Kazemian, H, 2020).

Following from this, it would be useful if Ratch Australia developed/improved their induction process to allow the new team member to integrate more seamlessly into the company. As discussed in Pernille’s article, this induction process could include “standard and formalised mentoring” from leaders within the company, “superior briefs on project status” and site tours. All team members should be aware of this new employee and time should be taken for everyone to network and for team building to take place (Pernille, 2005). Whilst initially this may take time away from the project, forming strong relationships is critical to ensuring long term success and preventing delays later in the project due to conflict (Hartley, 2018).

#### 5.4. Recommendation 4 – Schedule Management

*Improve identification of the critical path*

续4.5.2，时间管理/风险管理的例子

As discussed, in the early operating life of the wind farm, system strength issues were identified (*Appendix* ). This had the potential to limit electricity export, and hence impact the return on investment for the company (Hartley, 2018).

To prevent such effects, the critical path would need to be more thoroughly determined, by taking precautions to check that no activity is excluded. For example, informative studies into the network operation should have been conducted during the conceptualisation stage. The project schedule should have been adjusted to allocate time/resources to possibly improving

any network issues or putting pressure on governmental/utility representatives to address this issue. To prevent oversites, the team members involved in preparing the schedule could have consulted key stakeholders, such as electricity network providers to identify all critical tasks.

## 5.5.Recommendation 5 – Communication Management

例子：沟通管理/项目干系人管理

*Develop detailed communication management plans for construction phase*

Another key issue which was noted during analysis was that there appeared to be a lack of communication during construction. Specifically, there were instances where residents were unaware of upcoming road works (leading to dissatisfaction and requests for personal visits) (Section 4.4.4) (*Appendix 25*) and issues with a lack of signage resulting in project delays as trucks ended up on a resident's driveway (*Appendix 23*).

Whilst it is noted that construction was a joint operation between developers and contractors, these two issues could have easily been resolved if both the developers and contractors met together for the sole purpose of developing simple communication protocols. For example, a database could have been constructed where key construction activities and their respective dates were noted (and updated where required) and a protocol could then be followed as to how early community members were notified of changes. Signage could also have been installed along roads to prevent confusion.

## 5.6.Recommendation 6 – Procurement Management

例子：采购管理

*Adopt a more active approach to local procurement*

Another recommendation relates to the mechanisms developers used to procure goods and services from the local community. There was a great emphasis placed on the importance of sourcing work locally, however it appeared that for a local company to receive work, they were required to submit an EOI via a link from the newsletter, which did not appear until the beginning of the construction phase (Section 4.4.3)(*Appendix 27*). Consequently, it is likely that some local companies were unaware of work opportunities or found out about these too late.

A recommendation to address this issue would be to develop a register of all relevant local companies (possibly in conjunction with the CCC) and actively advertise jobs/ provide RFT

forms. By being more active in communicating with local companies, it is hoped that there would be a greater satisfaction for the project amongst the local community. Furthermore, costs and life cycle emissions for the project may be less, given greater competition for work driving down prices, and locally sourced work reducing emissions and costs associated with transporting goods and services (Hartley, 2018).

## 5.7.Recommendation 7 – Cost and Scope Management

例子：范围变更/项目监控  
在成本管理方面的影响

*Conduct earned value analysis rather than constantly reporting progress against a planned estimate*

On paper, the project team appeared to be exceptional in cost management, and even had budget left to create a community benefit fund to support local community groups following project finalisation. However, given that the scope changed considerably throughout the project timeline, recommendations can be made to ensure that costs are reported in a meaningful way.

As was discussed in section B, the scope of the project changed considerably throughout the project lifecycle, from an estimated 70-80 turbines in the conceptualisation phase, to 53 turbines being installed. Early feasibility studies predicted an expenditure of \$382 million, however given that this was based on an initial power estimate of 210MW, it is unreasonable to compare final expenditure to this amount given that the final output was only 180MW (RPS-Australia-East Pty Ltd, 2014a). Therefore, a key recommendation for the project is to update stakeholders on the earned value, rather than consistently referring to the project based on initial cost estimates/original budgeted figures.

## 5.8.Recommendation 8 – Schedule Management

例子：范围变更/项目控制在时间管理的影响（续4.3.5）

*Schedule project such that developmental approvals are not requested over busy periods (eg. Christmas)*

Slight delays were experienced to the beginning of construction. As discussed in Section 4.3.5, it is possible that this can be partially attributed to the project team waiting for developmental approvals, which took longer than anticipated to receive. This was likely because they were submitted leading up to holiday periods, where institutions would be affected by personal leave and public holidays. Therefore, it is recommended that the project team carefully create their

schedule to avoid these time periods where possible. This could be achieved by using a Gantt chart and including relevant public holidays.

### 5.9.Recommendation 9 – Stakeholder Management

环境

*Conduct life cycle analysis to keep stakeholders informed*

A recommendation is to improve communication of the project's life cycle emissions to give stakeholders a more well-rounded understanding of the project impact. The website states that in its operational lifetime, the carbon emissions saved by the 180.5MW wind farm (450,000 Tonnes CO<sub>2</sub> emissions a year) will be equivalent to taking 100,000 cars off the road (MEWF-Pty-Ltd, 2022). However, this statistic fails to consider the emissions produced by the wind farm during the developmental stage, from activities including mining/processing minerals for turbine parts, transportation of components, construction operations (eg. blasting).

Although a life cycle analysis was prepared for the project, by presenting these results to the public, stakeholders will be kept informed and have a good understanding as to how 'green' their energy is. This accountability may encourage company representatives to be more sustainable in their approach.

## 6. Conclusion

This report has provided a project management case study of the Mount Emerald Wind Farm, which is situated in the Tablelands region of Far North Queensland. The project cost a total of \$380 million and created 200 jobs. Whilst initial feasibility for the project were based on the installation of 70-80 turbines (210MW), conditions in the environmental approvals limited the scope to 63 turbines. The final site has 53 turbines with an installed capacity of 180.5MW. Key stakeholders in the project include local communities and councils, traditional owners, and state/federal governments.

范围和干系人总结

This report has analysed the MEWF through a project management lens and has broken the project timeline into four stages: conceptualisation, planning, development, and finalisation. Key issues and the impact these had on the project were provided in section B. Several of these issues span across multiple project management stages (including ongoing community concerns, protection of endangered species and organisational change) however, the impact of

these on the project, and consequently the response observed differed between lifecycle stages. Other issues were only relevant to one specific life-cycle stage, and included determining site/economic feasibility, finding investors, and procuring goods and services. b部分总结

For the most part, the project responded well to issues, which can be attributed to an effective recognition of and communication with key stakeholders, effective schedules and appropriate budgeting. However, there were instances where the response to issues was not optimal or where proactive strategies may have been more effective. Therefore, several key recommendations have been provided in section C of this report. The most important of these relates to initiating the ‘Community Consultative Committee’ earlier within the project lifecycle, to provide a formal mechanism for communication between the developers and community. Other recommendations have been broadly categorised into improvements in human resource management, procurement management, scope/cost management and schedule management. It is the intention that such strategies would guide the management of similar future projects to facilitate greater success. c部分总结

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## 8. Appendices

### Appendix 1: (Section of) EPBC Approval – Decision Notice 26th November 2016

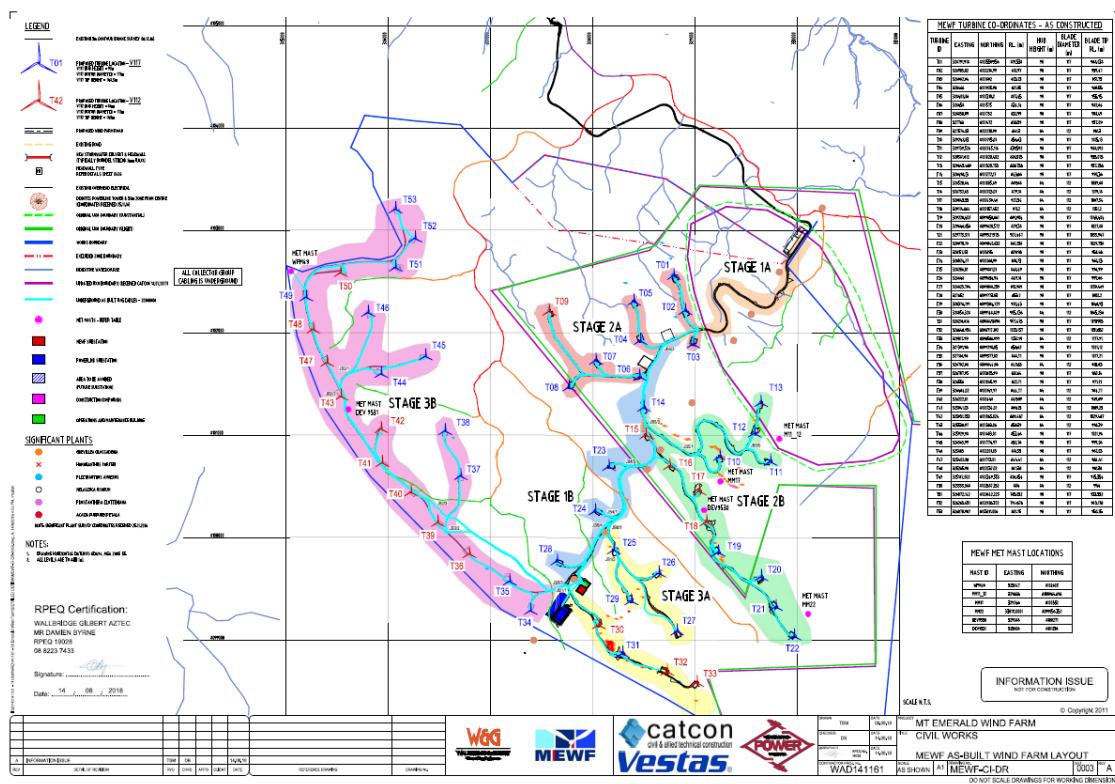
*Trad MP, J. (2015). Decision Notice : Ministerial Call In of Development Application Mount Emerald Wind Farm, Arriga. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 04 Apr. 2022].*

		Conditions of approval			
		General			
<b>Approval</b>					
Mount Emerald Wind Farm Proposal, Queensland (EPBC 2011/628)					
Proposed action		The decision is made under sections 130(1) and 133 of the Environment Protection and Biodiversity Conservation Act 1999.			
person to whom the approval is granted	RATCH – Australia Corporation Limited				
proponent's ACN	106 617 332				
proposed action	To develop a wind farm within the Springmount Station, on the Atherton Tablelands, in North Queensland [See EPBC Act referral 2011/628].				
<b>Approval decision</b>					
Controlling Provision		Decision			
World Heritage properties (sections 12 & 15A)		Approved			
National Heritage places (sections 15B & 15C)		Approved			
Listed threatened species and communities (sections 18 & 18A)		Approved			
Listed migratory species (sections 20 & 20A)		Approved			
conditions of approval This approval is subject to the conditions specified below.					
<b>expiry date of approval</b> This approval has effect until 31 July 2045					
<b>Decision-maker</b>					
name and position	Deb Callister Assistant Secretary Assessments and Policy Implementation Branch				
signature					
date of decision	26 November 2015				

1. The action is limited to the construction of a maximum of 53 wind turbines and associated infrastructure on the wind farm site.
2. To minimise impacts to EPBC Act listed threatened species, the approval holder must not disturb more than 56 ha of habitat for EPBC Act listed threatened species on the wind farm site.
3. Prior to commencement of the action, the approval holder must submit a Turbine Location and Development Footprint Plan identifying the final position of all proposed turbines, access roads and associated operational and maintenance infrastructure, for the written approval of the Minister.
- Note: The approval holder may undertake micro-siting of turbines.
4. The Turbine Location and Development Footprint Plan must demonstrate how the approval holder has avoided and minimised disturbance to denning habitat for the Northern Quoll (*Dasyurus hallucatus*) and to *Grevillea glossadenia* and *Homoranthus porteri*.
5. The approval holder must not commence the action until the Turbine Location and Development Footprint Plan has been approved by the Minister in writing.
6. The Turbine Location and Development Footprint Plan must be implemented.
- Northern Quoll Management**
7. For the protection of the Northern Quoll, the approval holder must maintain a viable population of Northern Quoll on the wind farm site.
8. The approval holder must prepare and submit an Outcomes Strategy for the Minister's written approval which describes a monitoring program to inform adaptive management and determine whether the outcome required under condition 7 is being or has been met. The Outcomes Strategy must:
- (a) be prepared by a suitably qualified expert;
  - (b) identify and justify performance measures, which are capable of accurate and reliable measurement, and will be used to measure the outcome required under condition 7;
  - (c) include a monitoring program to detect changes in the performance measures. The monitoring must include baseline surveys, control sites and experimental design (to test the effectiveness of different management measures); and
  - (d) describe how the baseline and monitoring data will be adequate to inform adaptive management; enable an objective decision to be made on whether the outcome described in condition 7 has been met.
9. The approval holder must not commence construction until the Minister has approved the Outcomes Strategy in writing.
10. The approved Outcomes Strategy must be implemented.
11. If the Minister is not satisfied that either the outcomes required under condition 7 are likely to be achieved, or there is insufficient evidence that the outcomes required under

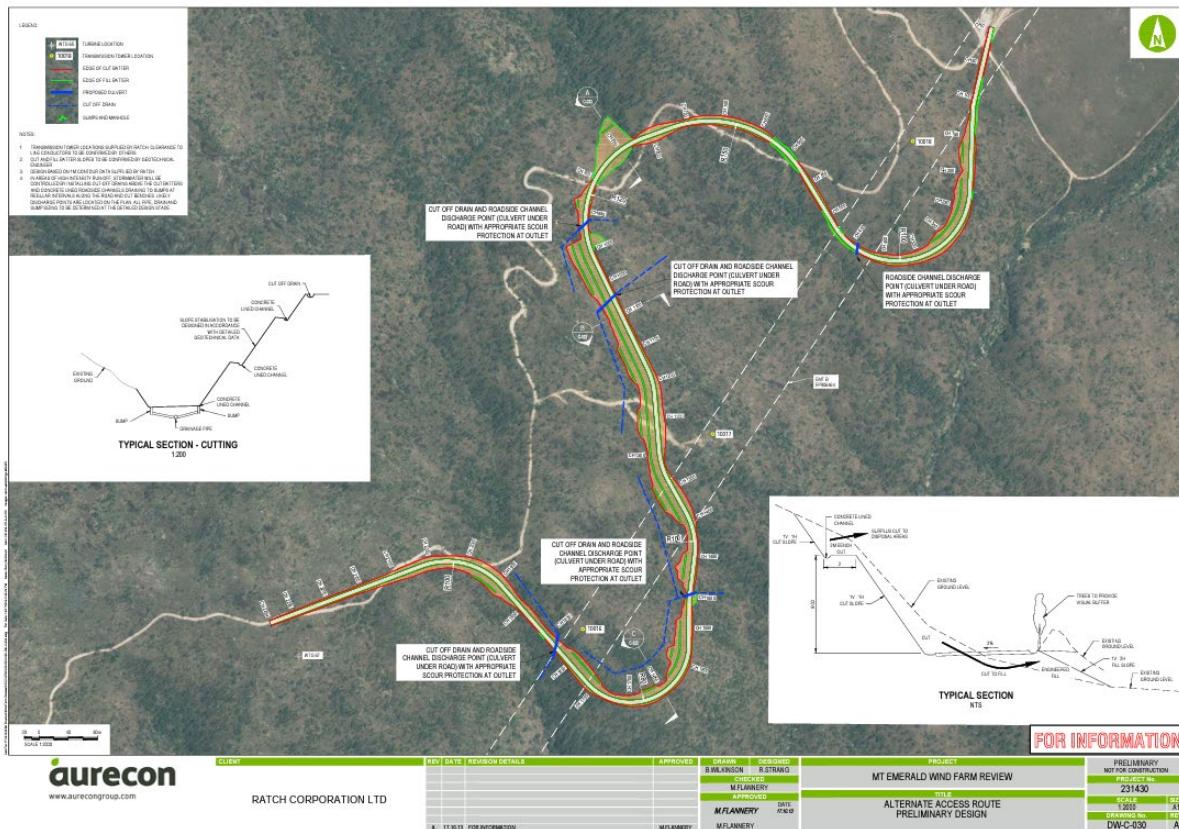
## **Appendix 2: Final turbine layout (as built)**

RATCH-Australia Corporation (2018c). Mt Emerald Wind Farm – Final turbine layout (as built). Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 03 Apr. 2022].



### **Appendix 3: Access road design**

*Aurecon (2013). Access Road Design. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 5 Apr. 2022].*



## Appendix 4: Section of Stakeholder Consultation Report

*RACL (2013). Appendix 9 - Stakeholder Consultation Program. [online] Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 26 Mar. 2022].*

### 1. INTRODUCTION

#### 1.1 Description of Site

Mount Emerald Wind Farm (MEWF) is a "greenfield" wind farm development being pursued as a partnership between RATCH Australia and Port Bajool. The site for MEWF is located on the Atherton Tablelands in Queensland, approximately 20km to the south of the town of Mareeba and 15km north-west of the town of Atherton. The site is approximately 47km north of the operating Windy Hill wind farm.

The estimated generating capacity of the project is approximately 180-210MW. The final configuration for the site will involve between 60 and 70 turbines depending on the WIG manufacturer and the site of the turbine ultimately selected, and on the optimisation of the site layout and configuration which is yet to be finalised.

#### 1.2 Consultation Methodology

The objectives of the community engagement program were to ensure that the community and stakeholders were:

- Informed about the Proposal, through an ongoing commitment by the Proponent to provide information, allowing a good understanding of the proposed development and the likely impacts;
- Actively engaged on issues of concern to them, to identify and consider options for eliminating or reducing impacts; and
- Given ample opportunity to provide views on the proposal.

#### 2. PRELIMINARY CONSULTATION

The landowner, Port Bajool approached Transfield Services to discuss the possibilities of positioning a Wind farm at this location in March 2009.

Preliminary consultation meetings were held with local and state government agencies to identify potential opportunities and constraints associated with locating a wind farm in this locality during the period from July to December 2009.

Additional briefings and meetings were held with Tablelands Regional Council and their Planning Group Team, with an application to install monitoring equipment on-site approved in November 2009.

Potentially impacted neighbouring landholders were contacted and informed of the potential project, with some taking the opportunity for a meeting with project developers in the period from May – August 2009.

Further notification to the surrounding region was undertaken through the release of a media statement to the local newspapers in August 2009.

#### 3. STAKEHOLDER IDENTIFICATION AND CONSULTATION

The following organisations have been identified as having a vested interest in the outcome of the proposed MEWF:

- Tablelands Regional Council
- Landholders
- Communities in Atherton Tablelands area, most notably Mareeba, Atherton and Tolga
- Bar Barrum and Mulumidji People

North Queensland Land Council
Near neighbours
Department of Employment, Economic Development and Innovation (DEEDI) includes Mines and Energy
Department of Environment and Resource Management (DERM) includes Environment Protection Authority (EPA)
Civil Aviation Safety Authority, Mareeba Airport and Aerial Agriculture companies
Tourism Queensland
Department of Transport and Main Roads
Network Service Provider ("NSP") operating in the region of the proposed project area - Powerlink
Electricity Off-taker
SunWater
Springmount Waste Disposal Facility

#### 4. CONSULTATION ACTIVITIES

A summary of key stakeholder engagement and consultation activities undertaken throughout the course of the development is outlined in the sections below, with a list of the consultation activities is included as Appendix A – Stakeholder Consultation Program.

A summary of some of the key activities is shown in the table below.

Date	Stakeholder	Description
May 2009	Various neighbouring landowners	Introductory meeting with discussion on general project concept
July 2009	TRC Mayor and planning staff	Introductory meeting with discussion on general project concept
September 2009	TRC planning staff	Wind monitoring tower application
January 2011	Landowners meeting Oaly Valley residents	Project information and questions
March 2011	Public Open Day	Public meeting with approx. 60 attendees; also involved media release and advertisement; newsletter #1, information booklet
March 2011	Traditional Owners	Preliminary meeting and discussion with group representatives
July 2011	TRC councillors, planners and media	Site inspection
July 2012	TRC (Mayor, CEO, Planners)	Submissions received on project; Key issues – noise, crop dusting, shadow
September 2012	Public Open Day	Public meeting with approx. 150 attendees; also involved media release and advertisement; newsletter #5
September 2012	Public Site Inspection	Guided trips of the actual wind farm site

## Appendix 5: Section from Executive Summary – final summary of expected costs

*RPS Australia East Pty Ltd (2014a). Mount Emerald Wind Farm, Herberton Range North Queensland: Environmental Impact Statement - Executive Summary. [online] Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 8 Apr. 2022].*



### 2.3 Justification of the Project

The site has been selected as it displays an excellent wind resource and is well placed in terms of access to existing electricity transmission infrastructure. Monitoring of the wind resource at this location has been undertaken at two sites within the project area. Each monitoring tower measures wind speed and direction at various heights above ground, as well as recording other standard weather observations.

Two monitoring towers (ID 9530 & 9531) were approved by Council in November 2009 and subsequently established on site in May 2010 and are located approximately 3.6 km apart, at heights of 80m and 50m respectively. Each monitoring tower includes instruments, at varying heights, to obtain representative wind data across the site.

Tower 9530 recorded an average wind speed of 10.03 m/s and tower 9531 recorded 8.1 m/s (correlated) and long term adjusted average of 9.7 m/s and 7.9 m/s respectively. These records and long-term assessments suggest an excellent wind resource is available at this location.

#### 2.3.1 Economic Assessment

Expenditure required for construction and operation of the Mt Emerald Wind Farm would have a positive economic contribution to output, value added, employment and household income in the local and regional study areas and the broader Queensland and domestic economy. The magnitude of these impacts was estimated using Jacobs' (2014) in-house regional Input-Output (IO) model. Overall, the impact assessment found:

- Total domestic expenditure for construction is anticipated to be around \$188.7 million, 60 percent of which would be spent in the Far North Queensland region.
- Total expenditure (for the entire project life cycle) in the regional area would be around \$426.2 million, with a resultant total output impact of around \$939.7 million.
- This would have an associated direct value-added impact of around \$161.5M for Far North Queensland and a total value-added impact of around \$386.7 million.
- The total household income impact is estimated to be around \$177.2 million for the entire project life cycle, for the regional study area.
- The direct average annual employment impact expected in the construction phase is around 51 FTEs for Far North Queensland.
- Peak employment during the Construction Phase can be expected to rise to 155 jobs for all of Queensland.
- The 25 year operational phase would result in an average of 11 direct annual jobs to the regional study area. The total employment impact for the region during the operations phase is estimated to be 19 FTEs. RATCH-Australia is committed to maximising local employment opportunities and a significant proportion of operational positions are expected to be by local residents.

Direct job creation in geographically diverse areas, such as Mareeba, contributes to the development of skills and expertise in a growing industry and thereby stimulates rural economies generally.

There will be economic efficiency gains in meeting government objectives, by replacing fossil fuel electricity supply in areas where long transmission distances from generation sources lead to extra costs due to transmission loss and susceptibility to power disruptions.

## **Appendix 6: Project schedule as presented in Communications Engagement Strategy**

*RATCH-Australia Corporation (2016a). Mount Emerald Wind Farm Community Engagement Strategy. [online] Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 2 Apr. 2022].*

Task	Estimated Timing
Environmental Approval (Federal EPBC)	Now complete (November 2015)
Development Approval (State and Local)	Now complete (December 2015)
Turbine Supply/Construction Contracts (EPC)	July 2016
O & M Contracts (WOM)	July 2016
Grid Connection (Powerlink)	August 2016
Prepare Due Diligence Reporting	August 2016
Finalise Financing	September/October 2016
Construction commence on site	November 2016
First Turbines delivered to site	August 2017
Substation energisation	March 2018
First Turbine Group Commissioned	April 2018
All Turbine Groups Commissioned	September 2018
Practical Completion/Commence Full Operation	November 2018

## **Appendix 7: Development Approval – Queensland Minister for Infrastructure, Local Government and Planning & Minister for Trade and Investment - Updated Decision Notice – MEWF (31.01.2017)**

*Trad MP, J. (2017). Notice of Decision: Request to changed approval under section 369 of the sustainable Planning Act 2009. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 04 Apr. 2022].*



**Deputy Premier  
Minister for Infrastructure, Local Government and Planning  
and Minister for Trade and Investment**

Our ref: MC16/5324

31 JAN 2017

1 William Street  
PO Box 15009 City East  
Queensland 4002 Australia  
Telephone +61 7 3759 7100  
Email [deputy.premier@ministerial.qld.gov.au](mailto:deputy.premier@ministerial.qld.gov.au)

ABN 90 856 020 239

Mr Anthony Yeates and Mr Terry Johannesen  
Mount Emerald Wind Farm Pty Ltd  
c/- Ratch-Australia Corporation  
Level 4, 231 George Street  
BRISBANE QLD 4000  
[anthony.yeates@ratchaustralia.com](mailto:anthony.yeates@ratchaustralia.com)  
[terry.johannesen@ratchaustralia.com](mailto:terry.johannesen@ratchaustralia.com)

Dear Mr Yeates and Mr Johannesen

**Notice of Decision  
Request to changed approval under Section 369 of the  
Sustainable Planning Act 2009**

Thank you for your letter of 9 December 2016, and for your email correspondence dated 9 January 2017, on behalf of the applicant Mount Emerald Wind Farm Pty Ltd, requesting to change a development approval, subject of a previous ministerial call in for the Mount Emerald Wind Farm at Arriga.

I am pleased to advise that I have approved the requested changes. The approved changes are shown in bold in the enclosed decision notice for the original application dated 24 April 2015.

**Applicant details**

Applicant name: Mount Emerald Wind Farm Pty Ltd  
Applicant contact details: c/- Ratch-Australia Corporation  
Level 4, 231 George Street  
BRISBANE QLD 4000

**Application details**

Original assessment manager: Mareeba Shire Council  
Date application properly made: 29 March 2012  
Original approval sought: Development permit for a material change of use for a wind farm comprising a maximum of 75 turbines  
Description of development: Wind farm  
Category of development: Code assessment

**Property details**

Real property description: Lot 7 on SP235244, part of Lot 905 on CP896501 and Easement A in Lot 1, Easement C in Lot 2 and Easement E in Lot 3 on SP231871  
Address of property: Springmount Road and Kippin Drive, Arriga

## **Appendix 8: Updated environment development approval**

*Collins, M. (2017). Mount Emerald Wind Farm Proposal, Queensland - Variation of condition 2 and approval of the Turbine Location and Development Footprint Plan. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 03 Apr. 2022].*



Our reference: 2011/6228

Mr Terry Johannesen  
Project Manager  
RATCH-Australia Corporation Limited  
Level 7, 111 Pacific Highway  
PO BOX 1058  
SYDNEY NSW 2059

Dear Mr Johannesen

**EPBC 2011/6228: Mount Emerald Wind Farm Proposal, Queensland - Variation of condition 2 and approval of the Turbine Location and Development Footprint Plan**

Thank you for your letter of 17 October 2016, on behalf of Mt Emerald Wind Farm Pty Ltd, seeking variation of condition 2 of EPBC approval decision 2011/6228 dated 26 November 2015, and your email of 4 January 2017, on behalf of Mt Emerald Wind Farm Pty Ltd, seeking approval of the Turbine Location and Development Footprint Plan submitted as required under condition 3 of EPBC approval decision 2011/6228 dated 26 November 2015.

**Variation of Condition 2**

Officers of this Department have reviewed your request for variation of Condition 2, to increase vegetation removal from 58 to 73 hectares. As a delegate of the Minister for Environment and Energy, I have agreed to vary condition 2 under section 143(1)(c) of the *Environment Protection and Biodiversity Conservation Act 1999* to enable the clearing, for turbine footprints and associated infrastructure, of 73 ha of habitat for EPBC Act listed threatened species. Condition 2 must now be undertaken in accordance with the varied condition specified in the variation notification, which has been attached for your information.

**Approval of Turbine Location and Development Footprint Plan (Condition 3-6)**  
Officers of this Department have reviewed the *Turbine Location and Development Footprint Plan, January 2017*. As a delegate of the Minister, I have agreed to approve the *Turbine Location and Development Footprint Plan, January 2017* as meeting the requirements of conditions 3 and 4 of EPBC Approval 2011/6228.

EPBC 2011/6228 condition 29 allows you (under certain circumstances) to implement revised plans without seeking the Minister's approval. However, condition 31 precludes this option in relation to the Offset Area Management Plan. If you require any advice on whether or not to submit a revised plan for approval, please contact the officer below. When submitting any revised plan to the Minister under condition 29, please provide a 'tracked changes' version of the plan. I also attach a fact sheet providing guidance on 'new or increased impact' relating to changes to approved management plans under EPBC Act environmental approvals.

As you are aware, the Department has an active monitoring program which includes monitoring inspections, desk top document reviews and audits. Please ensure that you maintain accurate records of all activities associated with, or relevant to, the

**Appendix 9: Snippet from newsletter dated May 2016 announcing that ERGON Energy had purchased power output until 2030**

*MEWF Pty Ltd (2016b). Mount Emerald Wind Farm Development Update. [online] May. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 31 Mar. 2022].*

**Mount Emerald Wind Farm Development  
U P D A T E**

MAY 2016

**RECENT ACHIEVEMENTS**

April 2015  
Queensland Government approves the Development Application

November 2015  
Commonwealth Dept of Environment provides environmental approval for the project



**TARGET CONSTRUCTION START?**

Providing the remaining aspects of the development can be completed as per schedule the project is on target to commence construction **BEFORE THE END OF THIS YEAR.**

**ERGON ENERGY BUYS POWER OUTPUT**

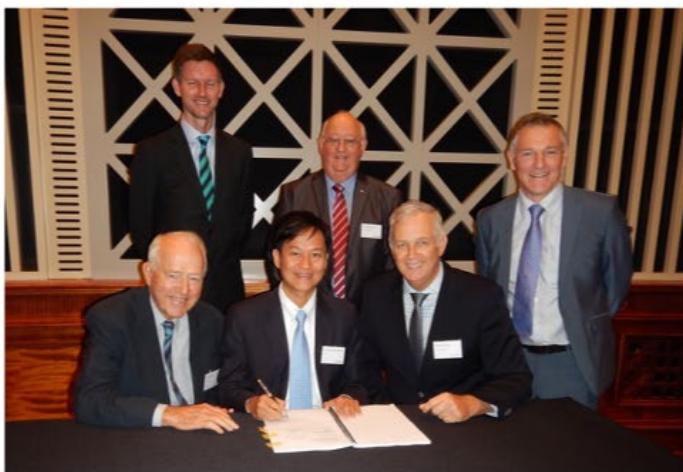
On the 26th May 2016, Queensland Premier Annastacia Palaszczuk, announced in parliament that ERGON Energy has offered to purchase the full output of the Mount Emerald wind farm under a power purchase agreement.

The agreement was signed by executives of ERGON Energy and Mount Emerald on the 27th May 2016.

This agreement includes the purchase of all of the electricity and green energy certificates produced by the wind farm through to the end of 2030.

This is a major milestone for the project as the power purchase agreement provides the revenue stream which underpins the financial case for the project.

Ergon Energy is the dominant electricity retailer in regional Queensland, with over 730,000 customers. This agreement will supply these customers with electricity sourced from renewable energy produced locally within the region.



Queensland Energy Minister, Mark Bailey (standing left) along with Senior Executives of Ergon Energy and Mount Emerald Wind Farm signing the Power Purchase Agreement.

**FORT BAJOOL**  
**RAC**  
RATCH Australia Corporation

## Appendix 10: Example of quoll monitoring program

*MEWF Pty Ltd (2017a). Mount Emerald Wind Farm - Northern Quoll Monitoring Program. [online] Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 26 Mar. 2022].*

### MOUNT EMERALD WIND FARM – NORTHERN QUOLL MONITORING PROGRAM



#### SUMMARY OF RESULTS: JULY 2017

Monitoring Grid (refer to Fig. 1)	No. survey points	Survey Occasion	No. individual quolls detected	Quoll population estimate (se) <sup>1</sup>	Quoll occupancy (se) <sup>2</sup>	Quoll detection probability (se) <sup>3</sup>
Mt Emerald Site 1	35	July 2017	9	32.6 (17.9)	0.7319 (0.2628)	0.0523 (0.0215)
Mt Emerald Site 2	36	July 2017	8	Insufficient spatial recapture data	0.4841 (0.1591)	0.0739 (0.0269)
Davies Ck Site, Davies Ck NP	36	July 2017	22	Insufficient spatial recapture data	0.8164 (0.2212)	0.0619 (0.0199)
Tinaroo Ck Site, Dinden NP	36	July 2017	26	62 (18.06)	0.6295 (0.0992)	0.1418 (0.0235)
Upper Walsh River Site	36	July 2017	1	Insufficient spatial recapture data	Naïve occupancy 0.02* Insufficient detections for modelling	Insufficient detections for modelling
Brooklyn Sanctuary <sup>4</sup>	36	July 2017	17	60.5 (25.02)	0.4625 (0.1304)	0.0903 (0.0278)

Table 1. Three metrics of quoll abundance and detection probability values for six quoll monitoring sites monitored during July 2017.

#### NOTES

<sup>1</sup>population estimated using spatially explicit capture-recapture modelling (Efford 2016);

<sup>2</sup> Occupancy is the proportion of sites (in this case the 36 trail camera monitoring points within each monitoring grid), at which quolls are estimated to occur, given the modelled uncertainty in detecting quolls when they occur at a point. Modelled using Presence software (Hines 2006);

<sup>3</sup> Detection probability is the modelled probability of detecting a quoll on each detection opportunity when it is present at a site. Modelled using Presence software (Hines 2006);

<sup>4</sup> The Brooklyn site replaced the Biboorah site from July 2017 onwards;

\* Naïve occupancy used in this case as insufficient detections were made.

## Appendix 11: Snippet of fire management plan

RATCH-Australia Corporation Limited (2013). Appendix 29 - Mount Emerald Wind Farm Fire Management Plan. [online] Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 22 Mar. 2022]



### MOUNT EMERALD WIND FARM FIRE MANAGEMENT PLAN

- Accessible sources of water.
- Adequate fire fighting facilities.

#### 1.5 MANAGEMENT PLANS

The Health and Safety Management Plan and the Emergency Response Plan will be developed and will be ready for implementation during the Construction Phase.

#### 2 DESIGN PHASE

The Design Phase of the wind farm will initially involve siting the wind turbine generators (WTGs) and other associated infrastructure. WTGs will generally be placed in cleared areas on ridge lines and spurs. A network of high quality gravel roads suitable for larger truck movements will interconnect the WTGs. The design of this road network will occur during the Design Phase.

Since the WTGs, roads and hardstands are located on cleared portions of the site, there is minimal fuel to feed a fire. The site road network does provide some form of fire break.

Road designs (generally 10m wide) will be suitable for regular large and heavy loads, travelling in both directions at the same time. Road gradients and cross falls will be suitable for large loads.

Site plans will locate water troughs, tanks, dams, and any other sources of water. A copy of the interim Site plan is included in Appendix 1.

#### 3 CONSTRUCTION PHASE

##### 3.1 INDUCTIONS AND TRAINING

All personnel and visitors onto the site will be required to attend an induction when they first arrive on site. Part of this induction will include aspects of the Fire Management Plan.

The District Fire Warden will be invited to attend a Toolbox talk at the beginning of the dry season (April/May) with follow up "refreshers" presentations conducted throughout the construction of the Project.

Representatives from each major contractor will be shown how to use the fire fighting equipment on the back of project vehicles.

Inductions will also address the smoking policy on site, emergency phone numbers, aspects of the Crisis Management Plan and the muster area.

##### 3.2 SITE LAYOUT

The District Fire Warden will be taken on regular site tours and provided with site plans showing the project infrastructure such as WTGs, roads, main compound and substation. GPS locations will be provided for all WTGs and water sources such as troughs, dams and tanks.

The major road in the area is the Kennedy Highway which links the towns of Mareeba, Walkamin, Tolga and Atherton. Road access to site from the Kennedy Highway will be via Hansen Road - Springmount Road - Kippin Drive.

The project area is contained within Rural Fire Brigade zone of the Springmount District Fire Warden, and shares boundaries with Atherton (east), Walkamin (north-east), Narcotic Creek (north) and Arriga (north-west).

The site is located within the following road distances to local fire and rescue services;

- Mareeba 28km
- Atherton 30km
- Dimbulah 48km

All site roads and hardstands will be maintained in good condition and can act as firebreaks.

##### 3.3 VEHICLES

Diesel powered vehicles shall be used on site and petrol driven vehicles shall only be used if fitted with spark arrestors.

Vehicles shall be driven on formed roads and surfaces wherever possible to avoid the collection of debris under the vehicle that may cause a fire to start.

All project vehicles will contain a fire extinguisher and CB radios. The two project utilities from the Contractors will be fitted with a water tank, diesel pump, 30m fire hose and a knapsack spray.

##### 3.4 FIRE FIGHTING FACILITIES

The main compound will contain a water tank (approx. 50,000 litres capacity) collecting water from the buildings in the compound. The tank will be fitted with outlets allowing fire trucks to connect to the tank. Should the water level drop below a set point a water truck will deliver water to the tank.

Adjacent to the water tank will be a fire hose reel (30m) and a diesel pump to provide coverage in and around the buildings. All buildings will be fitted with smoke detectors and contain portable fire extinguishers. All fire extinguishers will be checked on a 12 monthly basis.

Any landscaping around the buildings will include native plants with fire retardant characteristics.

Access to water troughs, dams and tanks throughout the properties will provide alternative sources of water should they be required.

Each WTG contains a fire extinguisher in the base of the tower and up in the nacelle.

## Appendix 12: Life cycle analysis- table provided in Executive Summary

*RPS Australia East Pty Ltd (2014a). Mount Emerald Wind Farm, Herberton Range North Queensland: Environmental Impact Statement - Executive Summary. [online] Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 8 Apr. 2022].*



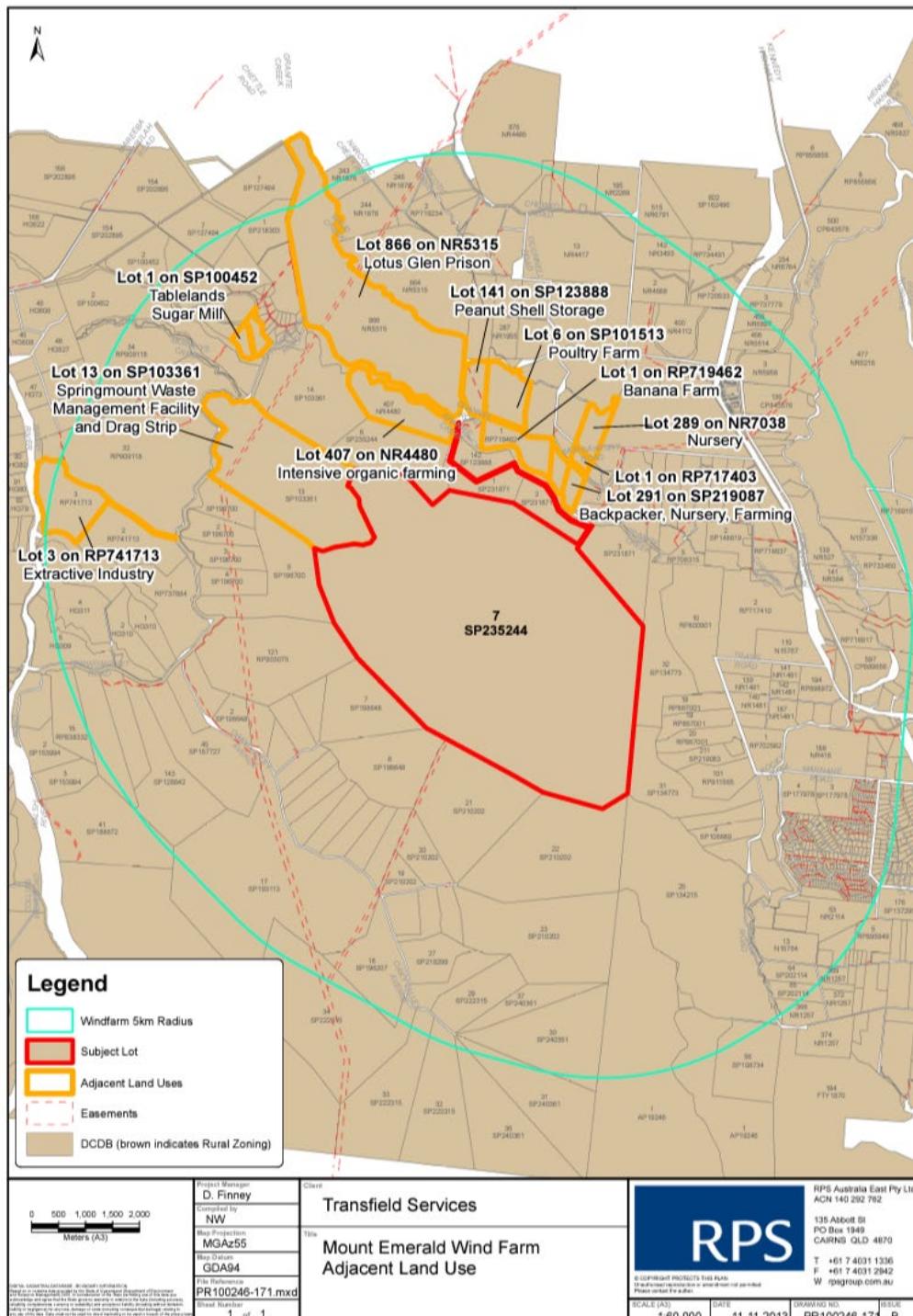
Mount Emerald Wind Farm, Herberton Range North Queensland  
Environmental Impact Statement - Executive Summary

Table 1 Carbon Abatement

ACTIVITY	ENERGY USE (MWh)	ACTIVITY	ENERGY USE (MWh)
<b>Manufacturing WTG</b>		<b>Transport</b>	
Steel	131,597	Blades and rotor	15,485
Stainless Steel	9,001	Tower	848
Cast Iron	19,579	Nacelle	1,538
Copper	6,176	Machining	2
Aluminium	20,958	Control System	18
Carbon Fibre	60,378	<b>Sub-total</b>	<b>17,891</b>
Epoxy	24,703	<b>Operation and Maintenance</b>	
Plastic	7,424	Vehicle	1,996
Oil	854	Refurbish	1,603
<b>Sub-total</b>	<b>280,670</b>	Lubrication	8,921
<b>Manufacturing Foundation</b>		<b>Sub-total</b>	<b>12,520</b>
Concrete	43,851	<b>Dismantling and Scrapping</b>	
Reinforcing Bar	49,758	Dismantle turbines	665
Excavator	2	Transport	529
Small truck	179	<b>Sub-total</b>	<b>1,194</b>
Dump truck	5,513	<b>Recycling</b>	
Semi-trailer	170	Steel	-5,657
Concrete truck	447	Stainless Steel	1,336
Pump	134	Cast Iron	5,059
Front-end Loader	89	Copper	-869
Truck for Crane	103	Aluminium	-6,735
Crane	13	Carbon Fibre	-2,709
<b>Sub-total</b>	<b>100,259</b>	Epoxy	-1,544
<b>Preparatory Works</b>		Plastic	-599
Road construction	21,622	Oil	-189
Level hardstand areas	8,649	<b>Sub-total</b>	<b>-11,907</b>
Excavation for cables	295		
Cables/Connection	95,725		
<b>Sub-total</b>	<b>126,291</b>		
<b>Total MEWF Energy Usage (MWh)</b>			<b>526,918</b>
<b>MEWF 1 Year Energy Production (MWh)</b>			<b>579,870</b>

## Appendix 13: Adjacent land use assessment

RPS Australia East Pty Ltd (2013). Mount Emerald Wind Farm Adjacent Land Use. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 31 Mar. 2022].



## Appendix 14: Discussions with MSF Sugar

*Dalton, O. (2014). Mt Emerald Wind Farm - Discussions with MSF Sugar. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 06 Apr. 2022].*

### **Terry Johannesen**

---

**From:** Owen Dalton <owen.dalton@rpsgroup.com.au>  
**Sent:** Wednesday, 9 April 2014 3:26 PM  
**To:** Duncan Mortimer  
**Subject:** Mt Emerald Wind Farm - Discussions with MSF Sugar

Duncan,

I confirm that, in response to Item 50 of TRC's Information request, I have initiated discussions with MSF Sugar Limited (who now own the sugar mill formerly operated by Bundaberg Sugar), regarding any issues or concerns they may have regarding traffic impacts associated with the proposed Mt Emerald Wind Farm project. Whilst awaiting the opportunity to sit down "face to face" with MSF representatives, their feedback to date has been to confirm that the only real concerns they have relate to potential conflicts between cane haul traffic, using Hansen Road and Springmount Road during the crushing season, and heavy vehicle traffic using the same roads during the construction phase of the proposed development. However, it is their view that these potential conflicts can be appropriately managed and mitigated by establishing a communication protocol between the construction contractors and the operations management at the Mill, such that the mill is given appropriate advanced warning (nominally 24 hours) of scheduled heavy vehicle movements upon Hansen and/or Springmount Roads. With such advanced warning, the Mill would be able to notify cane haul drivers (who are in constant communication with the haulage operations centre at the mill) of expected heavy vehicle movement times, whilst also allowing the mill to opportunity to reschedule cane deliveries so as to minimise haul traffic movements during potential conflict periods. I would suggest that it would be acceptable if Council were requested or sought to impose as a condition of approval a requirement to ensure that the project's construction contractors, once appointed, establish an appropriate communications protocol with MSF Sugar so as to provide adequate advanced warning of pending heavy vehicle movements upon the local road network. To ensure the achievement of this outcome, perhaps it would be appropriate that this requirement be embedded within the proposed/required Construction Management Plan, which I suggest would need to be reviewed/approved by Council.

Should my further discussions with MSF highlight any additional issues or concerns, I will advise accordingly.

Regards

Owen



**Owen Dalton**  
**Principal - Planning**  
**RPS Australia Asia Pacific**  
135 Abbott Street, Cairns, QLD, Australia, 4870  
PO Box 1949, Cairns, QLD 4870.  
**Tel:** +61 7 4031 1336  
**Fax:** +61 7 4031 2942  
**Email:** [owen.dalton@rpsgroup.com.au](mailto:owen.dalton@rpsgroup.com.au)  
**www:** <http://rpsgroup.com.au>

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## **Appendix 15: Snippet from Economic report justifying economic feasibility for a wind farm**

*Cummings Economics (2013). Appendix 4 - Economic Impact Report. [online] Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 26 Mar. 2022].*

### **MOUNT EMERALD WINDFARM Economic Impact**

#### **4. ECONOMIC EFFICIENCY**

There are a number of aspects that make a location of a wind farm on the Tablelands more economically efficient.

Government policy, through the carbon tax and through the mandated non fossil fuel supply requirements, means that a proportion of generated electricity supply will be from non fossil fuel sources regardless of location.

It is more efficient if the non-fossil fuel sources replace more expensive fossil fuel sources.

Fossil fuel sources are most expensive in real terms in those remote areas not in a grid and those areas furthest removed from fossil fuel generation sources that experience transmission losses. The electricity grid in the Far North Queensland region is among those areas furthest removed from fossil fuel generation sources. The closest coal fired base load generation at Collinsville is comparatively inefficient with high carbon emissions and has been subject to negotiations to close it down. The base load power stations from which most of the region's power is derived are located in Central Queensland over 1000km away. Substantial transmission losses are involved and the economic cost of replacing this power with a non fossil source are lower.

The second economic efficiency is related. Long transmission lines are more prone to being affected by disruptions. The whole area from Central Queensland to the Far North is cyclone prone with the area of highest cyclone frequency along the coast from Bowen to Townsville is in the middle of transmission routes.

Local sources of generation enhance power security in the Far North Queensland region.

In relation to various forms of non-fossil fuel power generation, the indications from the information available are that wind power in suitable locations is generally cheaper than solar power.

Existing hydro electricity generated in the region at the long established Barron Falls and Kareeya Power Stations can be expected to be cheaper. Expansion of hydro electricity through the proposed Tully Millstream scheme could bring a large block of additional power on stream but the capital investment needed to develop the scheme is very large. There were also substantial environmental issues involved and potential impacts on white water rafting tourism operations.

Biomass generation from sugar mills is also likely to produce relatively cheap non fossil fuel power, but apart from limited amounts of source fuel from bagasse by-product, there is little available resource that would not have environmental implications.

Although Pongamia plantings are likely to be the cheapest alternative for liquid biofuel production and could be used for electricity production, there are currently very limited plantings.

For the Far North Queensland region, wind power is a favourable option.



Ref: J2592  
April 2013

10/18

## Appendix 16: Selection of risks identified in ‘Statement of Commitments’

*RPS Australia East Pty Ltd (2014b). RATCH-Australia Corporation Ltd Statement of Commitments. [online] Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 22 Mar. 2022].*

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
					PC	C	O	D
<b>1.0 Visual &amp; Landscape</b>								
1.01	Visual impact from contrast between turbines and rural landscape	Reduce visual contrast	An off-white or grey colour for the structures will be considered to reduce visual contrast between turbines and the viewing background (this is subject to final turbine selection).	Proponent			✓	
1.02	Visual impact	Provide through planting screening landscape	The Proponent will undertake landscape planting where screening is deemed appropriate and in accordance with the outcomes of the assessment process and in consultation with landowners, taking into consideration that the location and design of screen planting used as a mitigation measure is very site specific and requires detailed analysis of potential views.	Proponent			✓	
1.03	Visual impact from scarring of landscape	Reduce occurrences and extent of landscape scarring	<ul style="list-style-type: none"> <li>▪ Disturbed soil areas will be reinstated immediately after completion of construction, including re-contouring and re-seeding with appropriate plant species.</li> <li>▪ Tracks have been designed to follow contour lines and existing roads will be used as much as possible, which will minimise cut-and-fill and the potential landscape scarring.</li> <li>▪ Revegetation and offset planting will be undertaken on site in consultation and agreement with landholders.</li> </ul>	Contractor and Proponent	✓	✓	✓	
1.04	Visual impact from construction activities	Reduce visibility of construction activities from outside the site.	<ul style="list-style-type: none"> <li>▪ Safeguards will be enforced to minimise dust emissions during construction.</li> <li>▪ Height of stockpiles will be restricted.</li> </ul>	Contractor	✓	✓		
1.05	Visual impact from night-time lighting	Minimise light spill from project site	Activities (such as aviation lighting) that may require night-time lighting will be minimised and, if necessary, low lux (intensity) lighting designed to be mounted with the light inwards to the site will be used to minimise glare.	Proponent	✓	✓	✓	
1.06	Visual impact from contrast between site infrastructure and the rural landscape	Site infrastructure sympathetically with the nature of the locality	<p>Substation and other ancillary infrastructure will be sited sympathetically with the nature of the locality and away from major roads and residences where possible to mitigate visual impact.</p> <p>The majority of electrical connections within the site (i.e. cables between the turbines) have been designed to be located underground (where possible), in order to further reduce potential visual impacts.</p>	Proponent	✓	✓	✓	

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase			
					PC	C	O	D
<b>2.0 Noise</b>								
1.07	Visual impact from contrast between site infrastructure and the rural landscape	Select appropriate materials and colours	Appropriate materials and colours, together with consideration of their reflective properties, will be selected for ancillary structures and built elements associated with the Proposal.	Proponent	✓	✓		
2.01	Construction Noise	Minimise noise impact on receivers	<p>Construction and decommissioning activities will be carried out within the following periods only:</p> <ul style="list-style-type: none"> <li>▪ Monday – Saturday- 6am to 6pm,</li> <li>▪ No work or deliveries will be carried out on Sundays and public holidays, except for the following activities, associated with the construction and decommissioning, which may need to occur outside standard working hours such as: <ul style="list-style-type: none"> <li>- delivery of oversize loads or materials as requested by Police or other authorities for safety reasons;</li> <li>- completion of concrete pouring past the standard hours of work due to climatic considerations;</li> <li>- Any works that do not cause a noise nuisance at nearby dwellings;</li> <li>- Emergency work to avoid injury, property damage and/or to prevent environmental harm.</li> </ul> </li> </ul>	Contractor	✓	✓		✓
2.02	Construction Noise	Minimise noise impact on receivers	In accordance with the, <i>Environmental Protection Policy (Noise) 2008</i> and relevant Local Laws; all the feasible and reasonable standard work practices would be employed to minimise construction noise impacts	Contractor	✓	✓		✓
2.03	Construction Noise	Minimise noise impact on receivers	Notification and ongoing consultation with potentially affected receivers will be carried out, especially where potentially noisy works are anticipated.	Proponent and Contractor	✓	✓		✓
2.04	Noise from Construction Traffic	Minimise noise impact on receivers	The timing of deliveries will be regulated and notification to residents carried out when deliveries of large loads are scheduled.	Proponent and Contractor	✓	✓		✓
2.05	Construction Noise	Minimise risk	Construction plant will be selected on the basis of low inherent potential to generate noise and vibration. Regular and ongoing maintenance of plant equipment and machinery will be undertaken to ensure operational noise do not exceed typical levels.	Contractor	✓	✓		✓

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase		
3.0	Flora and Fauna						
3.01	Bare – rumbed Sheathtail bat Turbine Collision & Barotrauma	Turbine operation curtailment (increased cut-in speed & targeted turbine shut-down during high risk conditions or detected collision mortality)	1) Continue and expand ultrasonic call surveys; sample within Rotor Swept Area (RSA) (higher towers & balloons) 2) Collect weather and insect abundance/height data 3) Identify high-risk conditions/times and seasons 4) Conduct radar utilisation at call survey locations sampling at RSA; quantify abundance and flight heights 5) Conduct numerical risk modelling (for <i>S. saccolaimus</i> only or for entire microchiropteran bat community – depending on radar data quality) <b>Output: Microchiropteran Bat Management Plan.</b>	External Ecologist / Specialist (inc. Biostatistician)	x		
3.02	Spectacled Flying-fox / Grey-headed Flying Fox - Turbine Collision	Turbine curtailment during high-risk conditions (active) or excessive mortality events (reactive)	1) Conduct radar utilisation surveys 2) Support CSIRO researchers to conduct satellite telemetry of more individuals from nearest colonies to site (Mareeba and Tolga Scrub) 3) Conduct numerical collision risk modelling (using radar/telemetry data) <b>Output: Flying Fox Management Plan</b>	External Ecological Specialist	/	✓	
3.03	Northern Quoll Habitat Loss	Avoid clearing high-quality denning and foraging habitats	1) Undertake additional telemetry studies on the project site to determine whether proposed turbine ridge habitats are used preferentially, particularly females with young; and offsite, to collect data on dispersion rates and refine the PVA (to assess the significance of potential impacts) 2) Redesign infrastructure layout to avoid high quality foraging or maternal denning habitat and/or inform <b>Quoll Management Plan</b>	External Ecological Specialist	/	✓	
3.04	Northern Quoll Habitat Degradation (late dry season wild fires and weed invasion)	1) Weed monitoring and control 2) Implementation of Ecological Fire Management (to avoid extensive wild fire in late dry season)	1) Fire-scale mapping using Landsat imagery 2) Control of existing weed infestations (especially invasive grasses along Kippen Drive and access tracks) <b>Output: Weed Management Plan and Fire Management Plan</b>	External Ecological/Specialist		✓	

Item	Impact	Objectives	Mitigation Task	Responsibility	Project Phase		
4.0	Indigenous Heritage						
4.01	Damage or disturbance to sites or items of Indigenous heritage significance	Minimisation of potential impacts on sites or items of potential Indigenous heritage significance	While no sites have been found to occur to date within the project area, the assessment of likely occurrence is moderate and as such, a strategy of avoidance of impacts will be adopted. In regard to the previously recorded Aboriginal objects identified in previous studies which are located within the study area, but outside areas of proposed impact, these areas will be avoided during construction, operation and decommissioning of the wind farm. Steps will be taken to ensure that inadvertent impacts to these locales do not occur.	Proponent and contractor in consultation with technical specialists and the local Aboriginal Community		✓	
4.02	Damage or disturbance to sites or items of Indigenous heritage significance	Minimisation of potential impacts on sites or items of potential Indigenous heritage significance	Ground disturbance impacts associated with the Proposal will be kept to a minimum and that areas of work will be defined so as to ensure as little impact as possible to objects of Aboriginal cultural and heritage value which may occur on site.	Proponent and Contractor	✓	✓	
4.03	Damage or disturbance to sites or items of Indigenous heritage significance	Assess the potential Indigenous heritage impacts in development areas which have not been previously assessed	Additional archaeological assessment will be conducted in any areas proposed to be disturbed which have not been surveyed during the assessment completed to date prior to work commencing.	Proponent in consultation with Technical Specialists	✓	✓	
4.04	Damage or disturbance to sites or items of Indigenous heritage significance	Minimisation of potential impacts on sites or items of potential Indigenous heritage significance	In consultation with an archaeologist, the relevant Aboriginal communities, an Indigenous Heritage Management Plan (IHMP) will be prepared as a component of the CHMP to document the procedures to be followed for impact avoidance or mitigation to ensure that all recorded Aboriginal objects identified in previous studies, which are located in the development envelope, but outside areas of proposed impact, are avoided during construction and operation of the wind farm.	Proponent in consultation with Technical Specialists	✓	✓	✓
4.05	Damage or disturb areas/items of Indigenous Heritage	Management of undiscovered items of Aboriginal and/or archaeological significance	If during the course of the construction works any items of aboriginal cultural heritage or significance (i.e. archaeological items) are uncovered, works shall cease (within vicinity to the item) and DERM notified of the findings. An appropriate assessment and salvage strategy will be determined and implemented prior to the recommencement of construction works within the area. Should human remains be found during the proposed earthworks works will cease and the police notified immediately.	Contractor in consultation with the Proponent and DECCW	✓	✓	✓

## Appendix 17: “Major Communication Activities to date” (as of July 2016) - Snippet from Communication Engagement Strategy

*RATCH-Australia Corporation (2016a). Mount Emerald Wind Farm Community Engagement Strategy. [online] Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 2 Apr. 2022].*

### 1.8 Major communications activity to date

Date	Stakeholder	Description
May 2009	Various neighbouring landowners	Introductory meeting with discussion on general project concept
July 2009	Tablelands Regional Council mayor and planning staff	Introductory meeting with discussion on general project concept
September 2009	TRC planning staff	Wind monitoring tower application
January 2011	Landowners meeting Oaky Valley residents	Project information and questions
March 2011	Public Open Day	Public meeting with approx. 60 attendees; also involved media release and advertisement, newsletter #1, information booklet
March 2011	Traditional Owners	Preliminary meeting and discussion with group representatives
July 2011	TRC councilors, planners and media	Site inspection

Date	Stakeholder	Description
September 2012	Public Open Day	Public meeting with approx. 150 attendees; also involved media release and advertisement, newsletter #5
September 2012	Public Site Inspection	Guided trips of the actual wind farm site
Sep/Oct 2012	Media releases	Addressing issues and questions raised at the September 2012 Open Day
November 2012	Website	Launch of dedicated website <a href="http://www.mtemeraldwindfarm.com.au">www.mtemeraldwindfarm.com.au</a>
February 2013	Traditional owners	Initial meeting in respect of cultural heritage management plan
June 2013	Landowners	Meeting to discuss visual photographs.
September 2013	Springmount Waste Facility	Discussion about alternative site access.
November 2013	Powerlink	Site visit to identify connection point
January 2014	Mareeba Shire Council	General project update
March 2014	Mareeba Shire Council Dept. State Development, Infrastructure and Planning	Transfer of relevant authority for Development Application under a “Call-in”
May 2014	Public Notice	EPBC – Draft Environmental Impact Statement issued for Public Comment
December 2014	Public Notice	EPBC - Environmental Impact Statement – final documentation accepted for publication
April 2015	Public Notice  Dept. State Development, Infrastructure and Planning	Development Approval granted
May 2015	Senate Select Committee on Wind Turbines	Provided evidence to the committee meeting in Cairns
November 2015	Public Notice  Dept. of the Environment	Environmental Approval (EPBC) granted

## **Appendix 18: “Communication tools and activities” - Snippet from Communication Engagement Strategy**

*RATCH-Australia Corporation (2016a). Mount Emerald Wind Farm Community Engagement Strategy. [online] Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 2 Apr. 2022].*

### **6.2 Communication tools and activities**

The table below lists the spectrum of engagement mediums and activities that would be applicable for the MEWF project:

Tool	Purpose	Actions
<b>INFORM</b>		
Corporate branding	<ul style="list-style-type: none"><li>• Ensure communications are bound by corporate design guidelines to ensure consistency.</li><li>• Use as a means to communicate professionalism.</li></ul>	<ul style="list-style-type: none"><li>• Audit communications collateral and provide feedback as required.</li></ul>
Positioning Strategy/key messages	<ul style="list-style-type: none"><li>• To provide a “key issues sheet” for MEWF staff.</li><li>• To mitigate negative issues or circulation of misinformation.</li></ul>	<ul style="list-style-type: none"><li>• Develop positioning statement</li><li>• Develop key messages</li><li>• Develop Q&amp;As</li></ul>
Fact sheets	<ul style="list-style-type: none"><li>• Use as a means of providing general information about the project</li><li>• Address misinformation or negative issues.</li></ul>	<ul style="list-style-type: none"><li>• Review current library and update as required according to agreed positioning.</li><li>• Develop new sheets as required.</li></ul>
Public displays	<ul style="list-style-type: none"><li>• To inform stakeholders about the project status.</li><li>• To identify potential risks and issues associated with the project’s construction or operation.</li><li>• To mitigate negative issues or circulation of misinformation.</li></ul>	<ul style="list-style-type: none"><li>• Investigate opportunities to erect posters or temporary displays; e.g. shopping centre, regional council offices.</li><li>• Produce communications collateral as required.</li></ul>
Media releases	<ul style="list-style-type: none"><li>• To ensure public are advised about the MEWF project status</li></ul>	<ul style="list-style-type: none"><li>• Media releases ideas/plan</li><li>• Q&amp;As</li></ul>

## INTERACT

Project hotline, email address and contact cards	<ul style="list-style-type: none"> <li>To provide contact points for stakeholders wanting to learn more about the project or raise matters of interest or concern.</li> </ul>	<ul style="list-style-type: none"> <li>Setup 1800 hotline and email address to be maintained during all phases and print contact cards.</li> </ul>
Community meetings (Community Consultative Committee)	<ul style="list-style-type: none"> <li>To inform stakeholders about the project status.</li> <li>To identify potential risks and issues associated with the project's construction or operation.</li> <li>To mitigate negative issues or circulation of misinformation.</li> <li>To provide a mechanism for feedback</li> </ul>	<ul style="list-style-type: none"> <li>Develop program of meetings</li> <li>Develop public display collateral e.g. pull up banners, maps, visual communications as required.</li> <li>Produce corporate merchandise for distribution to attendees.</li> <li>Thank you letters/emails to those who register for more information.</li> </ul>
Regional shows	<ul style="list-style-type: none"> <li>To inform stakeholders about the project status.</li> <li>To identify potential risks and issues associated with the project's construction or operation.</li> <li>To mitigate negative issues or circulation of misinformation.</li> <li>To provide a mechanism for feedback.</li> <li>Use as a means to promote MEWF PL's commitment to being a community minded organisation.</li> </ul>	<ul style="list-style-type: none"> <li>Develop exhibition display.</li> <li>Develop public display collateral e.g. pull up banners, maps, visual communications as required.</li> <li>Produce corporate merchandise for distribution to attendees.</li> </ul>

## INFLUENCE

Corporate event e.g. lawn bowls day, soccer carnival	<ul style="list-style-type: none"> <li>Use as a means to promote MEWF PL's commitment to being a community minded organisation.</li> <li>Promote engagement with local business, and community organisations.</li> <li>Build staff morale.</li> </ul>	<ul style="list-style-type: none"> <li>Proposal to be discussed.</li> </ul>
Schools program	<ul style="list-style-type: none"> <li>To raise MEWF PL's visibility in the community as well as present the company as a company committed to sustainable principles.</li> </ul>	<ul style="list-style-type: none"> <li>Develop a one hour roadshow to be conducted throughout high schools in Cairns and Atherton Tablelands.</li> <li>Develop collateral as required.</li> </ul>
Advertising: - Advertise support for project and MEWF PL's track record - Call for sponsorship applications	<ul style="list-style-type: none"> <li>Use as a means to promote MEWF PL's commitment to being a community minded organisation.</li> <li>Use as a means to promote MEWF PL's commitment to sustainable principles.</li> </ul>	<ul style="list-style-type: none"> <li>Assemble media plan across press, television, outdoor and radio.</li> <li>Develop budget.</li> <li>Create advertisements – copy and design.</li> </ul>
Sponsorship program	<ul style="list-style-type: none"> <li>Use as a means to promote MEWF PL's commitment to being a community minded organisation.</li> <li>To support MEWF PL's commitment to improving the quality of life for host communities.</li> </ul>	<ul style="list-style-type: none"> <li>Set up Community Benefits Funds Committee.</li> <li>Develop a meetings program.</li> <li>Develop sponsorship policy.</li> <li>Develop advertisements and campaign calling for applications.</li> </ul>

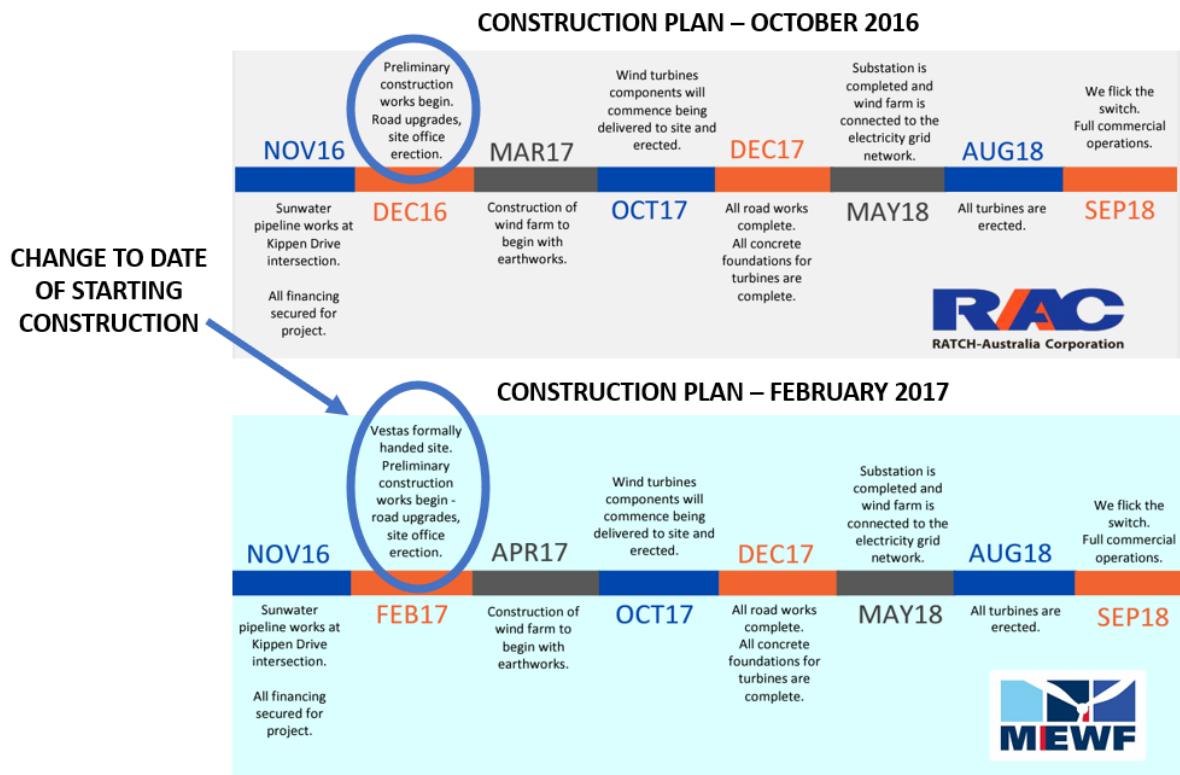
## INDEX & INCORPORATE

Communication protocols	<ul style="list-style-type: none"><li>• Ensure timely and accurate response.</li></ul>	<ul style="list-style-type: none"><li>• Develop communication protocols for staff, media, feedback</li></ul>
Stakeholder and issues register	<ul style="list-style-type: none"><li>• To ensure all stakeholders are captured and current.</li></ul>	<ul style="list-style-type: none"><li>• Establish Consultation database system.</li><li>• Detailed stakeholder list.</li><li>• Monthly contact reports</li></ul>
Website	<ul style="list-style-type: none"><li>• To provide a mechanism for feedback</li></ul>	<ul style="list-style-type: none"><li>• Develop a dedicated "leave your feedback" button as well as other contact information.</li></ul>
Supplier register	<ul style="list-style-type: none"><li>• Educate local suppliers about supply processes to enable them the best opportunity to benefit from the project.</li></ul>	<ul style="list-style-type: none"><li>• Maintain expressions of interest portal on website.</li><li>• Establish processes for managing business enquiries.</li><li>• Promote use of local, regional, or Australian suppliers where appropriate.</li></ul>

## Appendix 19: Evidence of schedule changes – from newsletters

MEWF Pty Ltd (2016a). Mount Emerald Wind Farm - Community Newsletter. [online] Oct. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 1 Apr. 2022].

MEWF Pty Limited (2017). Mount Emerald Wind Farm Update - Community Newsletter. [online] Feb. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 1 Apr. 2022].



## Appendix 20: Article describing system strength issues

Parkinson, G. (2020). Two solar farms, one wind farm in Queensland hit by ‘system strength’ issues. [online] Renew Economy. Available at: <https://reneweconomy.com.au/two-solar-farms-one-wind-farm-in-queensland-hit-by-system-strength-issues-71822/> [Accessed 25 Mar. 2022].

# Two solar farms, one wind farm in Queensland hit by “system strength” issues

Giles Parkinson

19 March 2020

58

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Two solar farms and one wind farm in north Queensland face major constraints due to newly discovered “system strength” issues and their output could be curtailed to zero under certain conditions.

The generators affected are the Haughton and Sun Metals solar farm near Townsville, and the newly commissioned Mt Emerald wind farm, according to a market notice issued by the Australian Energy Market Operator.

The system strength issues are similar to those that have seen the [output of five solar farms in Victoria and NSW cut in half](#), and many other projects in that area [warned of significant delays to connections and commissioning](#).

Both situations have emerged after new and detailed modelling which found that in certain “contingencies” i.e. when a major network link failed, there was a risk of uncontrolled “oscillations” caused by the nature of the inverter technology.

The situation seems to be caused by the fact that most inverters installed in Australia are “grid following”, and what AEMO is now looking for is more “grid forming” inverters, which can correct frequency and voltage issues. Trials, including at the newly expanded Tesla big battery in South Australia, and Dalrymple North, will help inform the grid operator how these perform in contingency situations.

The issue in north Queensland has been identified by the new modelling conducted by the transmission company Powerlink and AEMO, although the situation is not considered as dire as the West Murray region of Victoria and NSW because there is not a big queue of new projects to join the grid.

Nevertheless, the three solar and wind projects face significant cuts to their output. Sun Metals is a 125MW solar farm owned by the Korean-owned zinc refinery of the same name, and accounts for one third of its power needs. It has been operating for two years.

Haughton is a 100MW solar plant owned by Pacific Hydro, and has been operating for six months and has plans to grow to up to 500MW, while Mt Emerald is a newly commissioned 180MW wind farm owned by Ratch Australia.

## Appendix 21: Evidence of new project construction director joining in 2016- snippet from Feb 2017 newsletter

MEWF Pty Limited (2017). Mount Emerald Wind Farm Update - Community Newsletter. [online] Feb. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 1 Apr. 2022].

### Vestas turbines set new technological benchmarks

The Mt Emerald Wind Farm will feature two types of wind turbines from Vestas' 3 MW platform, Vestas V112 and V117 models, to take advantage of the site's specific characteristics.

Vestas' 3 MW platform is designed for a range of wind conditions, and is highly regarded for delivering industry-leading reliability, serviceability and exceptional energy capture.

Each turbine features a three-blade rotor controlled by a microprocessor pitch control system.

Based on the prevailing wind conditions, the blades are continuously positioned to optimise the pitch angle.

The blades are made of carbon and fibre-glass and consist of two airfoil shells bonded to a supporting beam.

All turbines of the 3 MW platform have an increased nominal power and advanced sound reduction modes to ensure noise is kept to a minimum and well below the government mandated limits.



### Ratch team profile



Rene Kuypers – Project Construction Director, Ratch Australia Corporation.

Rene joined Ratch in August 2016 to take the lead for the construction of the Mt Emerald Wind Farm.

Rene has vast experience in the Australian renewable energy industry and a strong track record for delivering major projects on time and on budget.

Prior to joining Ratch, Rene was AGL's Wind Operations Manager in South Australia where he was responsible for the management of four separate wind farms that make up the Hallett Wind Farm group.

Before this time, he spent seven years as National Construction Manager with Infigen Energy delivering over \$500 million worth of wind farm projects including Lake Bonney Stage 3 Wind Farm, Woodlawn Wind Farm, and Capital Wind Farm.

**Appendix 22: Evidence of community discussion/feedback regarding lack of land-valuer/ falling land values**

*RATCH-Australia Corporation (2018c). Mt Emerald Wind Farm – Final turbine layout (as built). Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 03 Apr. 2022].*



RATCH-Australia Corporation

CCC meeting Nov 2018

	<ul style="list-style-type: none"> <li>• Awaiting final acknowledgement of successful outcomes from Mareeba Football club on completion of disabled access to grandstand.</li> <li>• Atherton Ambulance has ordered trailer - should be completed just after Christmas</li> </ul>	media once successfully completed.	
8	<p>Group Discussion – identify issues/ Requests for information/briefings</p> <p>Valuer briefing request – conditions proposed by Valuer were unacceptable to some members of the CCC, and therefore, initial valuer not invited to attend.</p> <ul style="list-style-type: none"> <li>• RI – Land values have gone down at Oaky Ck by approx \$70K to sell them. Approx 38 blocks have been sold in 12 yrs.</li> <li>• DR – land valuation – the MEWF area is a unique site, with lost of private residences at Rangeview as well as rural properties.</li> <li>• SM – be careful there aren't other influences for the drop/increase in price. 2008 GFC caused significant drop in urban prices.</li> <li>• Proposal KF to see whether a Qld Govt land valuer would be available / suitable to come and speak to the group. Group accepted suggestion</li> </ul>	<p>All</p> <p>KF to contact DNRW to see if someone will attend a QA session at CCC meeting in 2018. (not meeting with site visit)</p>	

### **Appendix 23: Evidence of issues during construction**

RATCH-Australia Corporation (2017d). Mt Emerald Wind Farm - Community Consultative Committee Agenda/Meeting Minutes - 5. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 03 Apr. 2022].

#### **CCC Meeting Nov 2017**

##### **Signage at MEWF entrance – Kippen Drive**

RI – suggestion to put a sign at the Kippen Dr intersection to show truck drivers / delivery vehicles where to turn into the site. RI has had approx 6 vehicles turn up to his farm on Oaky Ck Rd in the last few months, who have missed the turn off to deliver to MEWF. They have great difficulty turning around. Is it possible to put in a large sign or to better brief suppliers on where to turn into the site for delivery?

KF to ask RK

## Appendix 24: Evidence of concern regarding noise monitoring/ call for additional private monitoring

*RATCH-Australia Corporation (2017b). Mt Emerald Wind Farm - Community Consultative Committee Agenda/Meeting Minutes-4. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 03 Apr. 2022].*

### *CCC meeting May 2017*

 <b>RATCH-Australia Corporation</b>			
	<p>available. This CCC meeting is first since all have been finalised to inform the CCC.</p> <ul style="list-style-type: none"> <li>○ SM Observation – this application of best practice and such high standards could have implications for all other contractors in the region, being required to lift their standards to meet these.</li> <li>○ JP – concern of ‘changing goal posts’ and that commitments to date may change over time resulting in community having to accept lower /different standards. Example of community concern re recent changes to Windy Hill WF conditions. JP feedback of community concerns re ‘sneaky behaviour’ – perception that TRC decision to change approved noise levels without sufficient / any consultation with affected landowner. Potential that RAC could apply for changes at MEWF should conditions change future. <ul style="list-style-type: none"> <li>▪ Discussion – coverage / community concern as voiced in local newspapers comments sections.</li> </ul> </li> <li>● Independent Noise Monitoring Equipment Installation and Monitoring Prior To Construction and Operation Commencing – discussion proposal for CCC To Give Support and Request For Funding Out Of Community Benefit Fund</li> </ul>	<p>CCC to be informed of any future changes in conditions ASAP / when going up on website</p>	<ul style="list-style-type: none"> <li>● Independent Noise Monitoring Equipment Installation and Monitoring Prior To Construction and Operation Commencing – discussion proposal for CCC To Give Support and Request For Funding Out Of Community Benefit Fund <ul style="list-style-type: none"> <li>○ SL – why wasn’t noise monitoring conducted for 12 months?</li> <li>○ His group (TWAG) has requested that monitoring independent of RAC be undertaken to determine baseline levels over time. <ul style="list-style-type: none"> <li>▪ Discussion – all – meeting supports that if a community group wishes to undertake independent monitoring it should be allowed to do so.</li> <li>● KF mentioned need to address privacy and safety issues; also that 2 lots of baseline monitoring had already been conducted around MEWF – according to AS/NZ standard – and deemed acceptable to all approving authorities and a background/ and operational noise limits</li> </ul> </li> </ul> </li> </ul>

## **Appendix 25 Evidence of dissatisfaction regarding uncertainty for pending roadworks - request for team member to visit personal residence**

*RATCH-Australia Corporation (2016). Mt Emerald Wind Farm - Community Consultative Committee Agenda/Meeting Minutes - 3. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 03 Apr. 2022].*

### ***CCC Meeting November 2016***

<p><b>Complaints Policy provided to all CCC members at the meeting.</b></p> <p><b>Discussion:</b></p> <p><i>KF – from TI: Complaints Management is part of RAC Communication Strategy. Complaints mechanism has been provided to the state government as part of permit process. Complaints are received and recorded in official record sheets or complaints forms. Contact is made with the complainant within 48 hours to acknowledge receipt and to explain the investigation process. Once a resolution is reached the complaint record is amended and the Complaints Management Register is updated accordingly. This register is routinely provided to the relevant approval authority – Dept. Infrastructure, Local Government and Planning.</i></p> <p><i>Should the Committee identify areas where the Complaints Management process can be improved, then these will be considered by RAC, and amendments made as appropriate.</i></p> <p><i>RI: confirming Complaints Management is part of normal operations for business. Not the role of the CCC to develop or approve; and definitely not manage. CCC has no role in site operations.</i></p> <p><b>KIPPEN ROAD WORKS</b></p> <ul style="list-style-type: none"><li>Not all Kippin Drive residents have been advised of the pending roadworks. One resident has requested a personal visit from a Ratch representative as no one has been in touch with him.</li></ul> <p><i>Resident identified prior to meeting and KF attended his home on Mon 20<sup>th</sup> Nov to discuss his concerns and answer questions raised.</i></p>		
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## **Appendix 26 Evidence of residence being built within minimum distance to wind turbine**

*RATCH-Australia Corporation (2018a). Mt Emerald Wind Farm - Community Consultative Committee Agenda/Meeting Minutes - 9. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 03 Apr. 2022].*

### ***CCC Meeting April 2018***

7	<p><b>Group Discussion</b> – identify issues/ Requests for information/briefings</p> <p>Land Valuation:</p> <ul style="list-style-type: none"><li>• RI observation – some Oaky Creek land values have dropped dramatically. Some over \$70K: 2010-2013</li><li>• JH – approached Grant Maloney DNR – re presentation on Land Valuation. No permission to present. KF had similar response from her discussions with DNR.</li><li>• Group – ongoing request to get valuer in to speak to group. <i>see note of Responsibility and Action above – KF</i></li></ul> <p>RI – Facebook comment of dwelling on Oaky Creek Rd is only 1.3km from nearest turbine. Potential to build closer to their back fence. KF: location of legal residences at date of approval determines noise monitoring and visual amenity considerations and permit conditions. For any residences constructed after approval of MEWF, impact strategies are not retroactive.</p>	All   KF to continue to seek expert advisor to present to CCC
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**Appendix 27: Evidence of Ratch Australia seeking EOI for procurement through newsletter (however no evidence to suggest RFT's sent etc).**

*MEWF Pty Ltd (2016). Mt Emerald Wind Farm Community Newsletter Issue 10. [online] Nov. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 22 Mar. 2022].*

Community Newsletter | November 2016 1

## Mount Emerald Wind Farm Update



Ratch encourages local companies to participate in Mt Emerald's construction.

On November 2, Ratch announced the company had signed an engineering, procurement and construction (EPC) contract with wind turbine supplier Vestas. Vestas will be responsible for construction of the project with major subcontractors Consolidated Power Projects (CPP) and Civil & Allied Technical Construction (Catcon).

Vestas shares Ratch's commitment to provide clear pathways for local people to participate in the project. Potential suppliers that wish to provide materials or services should register their interest by directing enquiries to:

For Wind Turbine erection, testing etc.; For earthworks, concrete, building or other general activities;

*Vestas Australian Wind Technology*  
*Sefa Izzet*  
Project Manager – Construction  
*seizz@vestas.com*  
*03 8698 7359*

*Catcon*  
*David Baker*  
Construction Manager  
*davidb@catcon.com.au*  
*08 8347 1888*

Expressions of Interest (EOI) that have previously been submitted have been passed on to Vestas for consideration. Suppliers do not need to register twice.

Please note an EOI to supply goods or services does not constitute any status of approval. A pre-qualification process will also be undertaken prior to, or as part of any evaluation.

Early Works to Start

Before construction can commence on the wind farm itself, there are a number of other jobs that need to be completed first.

One of these jobs is the protection of the irrigation pipeline which lies under Kippen Drive. This pipeline runs underneath Granite Creek and connects the open channels on either side.

Starting in late November, a number of concrete slabs will be placed over the pipeline to act like a bridge and remove any of the current or future traffic loads.

This early work should be completed before the end of December.

For more information, please visit [ratchaustralia.com](http://ratchaustralia.com) or [mtemeraldwindfarm.com.au](http://mtemeraldwindfarm.com.au)

**RAC**  
RATCH-Australia Corporation

## Appendix 28: Evidence that two preferred contractors did not want to work together

*MEWF Pty Ltd (2016a). Mount Emerald Wind Farm - Community Newsletter. [online] Oct. Available at: <https://mtemeraldwindfarm.com.au/> [Accessed 1 Apr. 2022].*

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# Mount Emerald Wind Farm



L-R: Terry Johannesen; Sam Musumeci; Dave Reynolds; Bronwyn Dwyer; John Parmenter; Prof Steve Turton (Chair); John Hardy; Jim Carey; Kim Forde and Steve Lavis. Absent: Ross Iraci; Albi Homann

### Ratch forms Community Consultation Committee

Ahead of breaking ground on the Mount Emerald Wind Farm at Walkamin later this year, Ratch Australia Corporation has set up a Community Consultation Committee to promote local feedback and ensure the project's long term success.

Ratch formed the 10-member committee in September after receiving 20 applications. It comprises a Chair and Project Secretariat, and eight community representatives. It should be noted participation in the committee does not reflect an individual's support for the project, but rather their ability to represent the surrounding community.

The Committee held its first meeting on September 29 at the Mareeba RSL Club, with a site visit conducted on October 14.

According to Ratch Business Development Manager, Anthony Yeates, the purpose of the Committee is to provide a forum for open discussion between Ratch and the community on issues directly relating to the construction and operation of the wind farm, of its environmental performance and community relations.

"We believe we have assembled a balanced mix of people who have a strong record of civic service and are representative of the wider community and can provide feedback of value to this project", Mr Yeates said.

The community is encouraged to pass their questions or requests for briefings and more information to their community representatives or directly to Ratch-Australia via email: [info@mtemeraldwindfarm.com.au](mailto:info@mtemeraldwindfarm.com.au).

### Vestas wind turbines selected

Subject to completion of the necessary contracting agreements and project financing arrangements, construction of the Mount Emerald wind farm will be undertaken by Vestas, Consolidated Power Projects (CPP) and Catcon.

RATCH had previously announced the construction company Downer would partner Vestas to be the main construction contractor on the site. However, Vestas ultimately elected not to partner with Downer but rather selected an alternate subcontractor.

Vestas is a global leader in wind energy technology and service solutions, while CPP and Catcon provide the electrical and civil engineering components respectively. All companies have substantial experience in wind farm project delivery. Vestas has installed more than 50,000 turbines across 75 countries.

Vestas/Catcon/CPP will share responsibility for the entire project including the supply and construction of 53 wind turbines, access roads, substation, internal cabling, civil and electrical works and wind monitoring equipment. As such, they will be responsible for the majority of employment, subcontract and supply contract opportunities. RATCH will be working with Vestas, CPP and Catcon during November and December to ensure local contractors or suppliers have the chance to be involved.

VESTAS – [www.vestas.com](http://www.vestas.com)

CATCON – [www.catcon.com.au](http://www.catcon.com.au)

CPP – [www.conpower.com.au](http://www.conpower.com.au)



For more information, please visit [ratchaustralia.com](http://ratchaustralia.com) or [mtemeraldwindfarm.com.au](http://mtemeraldwindfarm.com.au)

## 9. Meeting Minutes and Reflections

### 9.1. Reflection on Project

This section will provide an overview of our own team's performance in preparing this case study.

Our first meeting occurred on the 8th March (week 2) and had an online format. Many of our team members found this challenging, as given that we were in the '**forming**' stage of team development, and had never met each other before, it was challenging to interact with each other and build relationships. We therefore attempted to resolve this issue by using the chat function in Microsoft teams to further introduce ourselves and decided to organise an in-person meeting for those on campus for our second meeting, to allow us to put 'a face to a name' and build a more cohesive (and hence successful) group.

Another challenge which we faced early in the project was deciding upon which project to pursue. Leading up to our first meeting, we each had gone away and researched projects we would be interested in undertaking for the case study. We then compiled all projects and started refining our list to reflect what our top six preferences were. We encountered conflict here (and hence the first '**storming**' stage) as given that each team member had a different engineering specialisation/interest area, we each were drawn to different styles of project. To deal appropriately with this conflict, we adopted a '**collaborating**' approach, in which each team member had a chance to present their first preference for the project, and the reasons they liked this choice. We chatted about the 'pros' and 'cons' of each project and looked for opportunities where we may be able to incorporate multiple team member's personal interests in the case study.

Following from this collaboration, we were able to limit our project lists to six key projects. To choose the project order to submit to Cosimo for review, we developed a voting system. Each team member went away and briefly researched the six chosen projects, then using an excel spreadsheet ranked their preferred order of selection. We combined results and decided on the BHP haulage truck project as our first choice. Each team member believed this approach was fair, hence was willing to **compromise** when their project was not selected.

As mentioned, our next meeting was both in-person and online, providing on-campus students an opportunity to meet each other in person. Whilst this worked well for those on campus, we found it challenging to host a dual-mode meeting. Therefore, we decided to adopt an online

format for meetings going forward. A regular meeting time (Tuesday 4pm) was also established, demonstrating that our team was reaching the ‘**norming**’ stage of team development. At this meeting, we also attempted to get in contact with Kaitlyn’s boss at BHP regarding our chosen project (which had been approved by Cosimo). We broke up research work to **optimise our resources** and **set deadlines** for when the work should be completed by (hence evidence of **scheduling**).

Between our next meetings, we encountered an issue when we found out that our chosen first project, the BHP haulage truck operation, was not a ‘site’ project, but rather an BHP asset, hence it was going to be difficult to get information regarding the project. To address this issue, each team member went away to look through other projects and determine if these had more information. Emily’s project, the Mount Emerald Wind Farm, appeared to have a lot of information available, and when she presented this case at a short meeting following our practical class, all team members were very **accommodating** and decided that this would be the best project for us to analyse. This is an example of **scope change** in our project, which resulted in us needing to prepare a **new schedule**.

For the next few meetings, we conducted research, presented findings back to the group and set deadlines for work to be completed by. We split the project up into section A and B and formed ‘sub-teams’ based on this division to allow us to optimise our time. This is an example of us identifying the ‘**critical path**’ for our personal project, as obviously section A and B are separate parts of the report, therefore once all team members are on the ‘same page’ regarding the background of the project, these sections can easily be written in parallel with each other.

A conflict within our team (and hence evidence of **storming**) arose when different members of the section B team had different perspectives of how to go about identifying issues for the section. Hence our team demonstrated the dynamic nature of team development. Some team members believed the issues we would need to identify referred to any ‘challenge’ experienced by the project, (eg. issue of managing endangered species) whilst other team members believed that the issues referred to ‘issues with project management approaches’ – for example an issue with the procurement management for the project. To address these concerns, the section B team had a spontaneous online meeting where we debated our different perspectives. We decided to email our Project Management Tutor, Kelly, who was able to clear up this concern. Although waiting for a reply meant a short-term delay, this saved us time in the ‘long run’ as

we were able to progress with the project in the correct way. Hence this is an example of how we effectively **managed our schedule**.

We also encountered issues around this time with **meeting deadlines**, as several students had tests/other commitments and so were unable to finish parts on time. To address this, we granted these students extra time and asked that they let us know (via our teams chat) when they had a chance to complete this work. There were no issues following this, suggesting our team had reached a ‘**performing**’ stage of team development, where we were accommodating of each other’s individual needs and flexible. This worked as we each showed accountability and completed tasks as quickly as possible for each other.

Finally, another issue which we faced throughout our project was that some members of our team had been struggling to understand other members during meetings, due to barriers with the English language. To address these issues, other team members adopted a very accommodating approach where they arranged personal calls with relevant team members to give them an opportunity to ask any questions/have any information repeated.

Following our completed drafts for section A and B, we decided to break up the work in a different way to ensure that each team member was playing to their **strengths** (hence an example of us **performing** as a team). Emily, Kaitlyn and Rashi teamed up to write section C, given that they had a good understanding of the issues that the project had faced (from section B). Kuba was recognised as having great software skills (given he studies software engineering), hence was tasked with creating a timeline for the report and writing the introduction. Gaoyuan and Xiaofang were both good at providing high level overviews, so wrote the executive summary, conclusion and section B overview. Kaitlyn and Emily edited the report, Kaitlyn structured the report, Emily prepared the team reflection, Rashi prepared references and all team members contributed to appendices.

By applying the principles of project management in our own project and focussing on **strengthening team dynamics** and **responding to conflict in a respectful way**, we believe that we have excelled as a team and delivered a high-quality report.

## 9.2. Meeting Minutes

### 9.2.1. Meeting 1: 8 March 2022

<b>Location:</b>	Online (Teams Call)
<b>Date:</b>	8 March 2022
<b>Time:</b>	4:00pm
<b>Attendees:</b>	Kaitlyn Castafaro (KC), Rashi Kansara (RK), Emily Roberts (ER), Xiaofan Wang (XW), Kuba Wysocki (KW) and Gaoyuan Zhang (GZ)
<b>Absent:</b>	N/A
<b>Minutes taken by:</b>	Emily Roberts (ER)
<b>Chair</b>	Kaitlyn Castafaro (KC)

#### Agenda items

1. Introduce ourselves to the group
2. Decide upon a regular meeting time
3. Present ideas for projects to the group
4. Decide on top six projects

#### Meeting Minutes

Activity	Notes	Action Items
Accept minutes from last meeting	N/A as this is first meeting	
Introductions	<p>All team members introduce themselves to the group</p> <p>Discussion of mode of study (online or in person), location of study, field of study etc.</p>	N/A
Presenting Ideas	<p>Prior to meeting, KC created one drive/ team's links</p> <p>All team members have had access to a document (via teams) to list down any projects which they believed were interesting/ relevant for the unit</p> <p>All members took turns presenting a few of their key ideas</p>	

<p>KC – presents Autonomous Haulage Trucks – Jimblebar BHP project; Changi/ Dubai airport expansions and Tennessee power plant</p> <ul style="list-style-type: none"> <li>- Autonomous Haulage Truck project seems to have a lot of information and includes both a primary project (2017) and an expansion phase (2023), which the group feels would give the case study depth. KC also worked at BHP and so would be able to speak directly with people at the company</li> <li>- Changi/Dubai airport expansions have a lot of information</li> <li>- Tennessee power plant project has a lot of information and would be very topical and interesting to study</li> </ul>	
<p>KW – presents Toyota Mirai (Hydrogen Fueled) project and Boston Dynamics Spot (Robot Dog) project</p> <ul style="list-style-type: none"> <li>- Team decides that both projects are very interesting. Issue is that the Boston Dynamics Sport project is not a public company (may be issues with finding information). The Toyota project is very relevant</li> </ul>	
<p>RK – presents Aviemore garden project</p> <ul style="list-style-type: none"> <li>- Team decides project sounds very interesting and is unique compared to typical project</li> <li>- Rashi will research this project in more depth</li> </ul>	RK to investigate Aviemore garden project in more detail to determine if there is enough information to conduct assignment
<p>ER – presents Mount Emerald Wind Farm and Kids bridge</p> <ul style="list-style-type: none"> <li>- Mount Emerald Wind Farm is very relevant and it appears that there is enough information available online</li> </ul>	

	<p>XW – presents Mandurah Station Multi-storey car park project.</p> <ul style="list-style-type: none"> <li>- Seems to be good amount of information and has been completed</li> </ul>	
<b>Decide on top six projects</b>	<p>General group discussion to decide upon six projects to submit for case summary</p> <p>Based upon information available/group interest, the following six projects were chosen (in no particular order)</p> <ul style="list-style-type: none"> <li>- Nuclear power plant – 2016 Tennessee</li> <li>- Autonomous Haulage Trucks – Jimblebar BHP – 2017 – Further Expansion to South Flank – 2023</li> <li>- Mount Emerald Wind Farm</li> <li>- Toyota Mirai (Hydrogen Fuelled)</li> <li>- Mandurah Station Multi-story car park</li> <li>- Aviemore garden project</li> </ul> <p>Following the meeting, each group member will look through each project and then rank their top three preferences. This will inform our decision as to the project order we submit for our case overview</p>	All team member to look through project descriptions and rank projects 1-3
<b>Discussion of regular team meetings</b>	<p>Regular team meeting time chosen for <b>Tuesday 4pm</b></p> <p>KW to create a recurring Microsoft team meeting for this time</p> <p>Minute taking will rotate between team members</p>	

#### Summary of action items

Action items	Owner(s)	Deadline	Status
Further investigate Aviemore garden project	Rashi	9 March 2022	In progress
Look over projects and rank top three projects	All	9 March 2022 5pm	In progress
Create recurring team meeting	Kuba	13 <sup>th</sup> March 2022	Complete

**Next meeting:** 4pm 15<sup>th</sup> March 2022

**Meeting Closed:** 4:35pm

### 9.2.2. Meeting 2: 15<sup>th</sup> March 2022

<b>Location:</b>	Online (Teams Call) and in person (Rm 204 Ezone)
<b>Date:</b>	15 March 2022
<b>Time:</b>	4:00pm
<b>Attendees:</b>	Kaitlyn Castafaro (KC), Rashi Kansara (RK), Emily Roberts (ER), Xiaofan Wang (XW), Kuba Wysocki (KW) and Gaoyuan Zhang (GZ)
<b>Absent:</b>	N/A
<b>Minutes taken by:</b>	Kaitlyn Castafaro
<b>Chair</b>	Rashi Kansara

#### Agenda items

1. Decide what information we need to request from BHP to complete the project
2. Draft email to BHP representative
3. Decide how to break up project report (eg. Which people to assign to each section)

#### Previous Action Items

Action items	Owner(s)	Deadline	Status
Further investigate Aviemore garden project	Rashi	9 March 2022	Complete
Look over projects and rank top three projects	All	9 March 2022 5pm	Complete
Create recurring team meeting	Kuba	13 <sup>th</sup> March 2022	Complete

#### Meeting Minutes

Activity	Notes	Action Items
Accept minutes from last meeting	All members accepted meeting minutes	
Recap from last meeting	Update – we have been assigned our first preference project! (Automation of haulage trucks at Jimblebar)	

<b>Decide on information to request from BHP representative</b>	Decided on what to include in email to company representative (contact of Kaitlyn). The following list was formulated: <ul style="list-style-type: none"> <li>- Expected budget</li> <li>- Final cost</li> <li>- Project delivery date: expected v reality</li> <li>- Team members working on the project <ul style="list-style-type: none"> <li>o Roles each member was assigned/ number in each sub team for the project</li> </ul> </li> </ul>	
<b>Draft email</b>	Email was drafted. Kaitlyn will send this email to her old boss who works at BHP and may have access to the project/ know who to ask	Kaitlyn to send email by 6pm 15/3/22
<b>Start brainstorming potential stakeholders for the project</b>	The following list was made: <ul style="list-style-type: none"> <li>- Those who were previously truck drivers <ul style="list-style-type: none"> <li>– need to upskill/ fear of redundancy</li> </ul> </li> <li>- Financial department at BHP</li> <li>- Companies developing automation technology</li> <li>- Truck companies</li> <li>- Those responsible for training on how to use trucks and those responsible for upskilling new workers</li> <li>- Traditional owners (land rights for mine site)</li> </ul>	
<b>Break up project research</b>	This week:  Kaitlyn, Xiaofan and Gaoyuan to conduct background research on the project  Emily, Kuba and Rashi to explore principles of project management and start thinking about how we can relate these to our case study project	All Next meeting Tuesday 22/3/22

### Summary of action items

Action items	Owner(s)	Deadline	Status
Send email to BHP representative	Kaitlyn	15/3/22	Complete

Conduct general research on project	Kaitlyn, Xiaofan and Gaoyuan	22/3/22	In progress
Conduct research on project management principles	Emily, Kuba and Rashi	22/3/22	In progress

**Next meeting:** 4pm 22<sup>nd</sup> March 2022

**Meeting Closed:** 4:45pm

### 9.2.3. Meeting 3: 18<sup>th</sup> March 2022

<b>Location:</b>	Online (Teams Call)
<b>Date:</b>	18 March 2022
<b>Time:</b>	12 pm
<b>Attendees:</b>	Kaitlyn Castafaro (KC), Rashi Kansara (RK), Emily Roberts (ER), Xiaofan Wang (XW), Kuba Wysocki (KW) and Gaoyuan Zhang (GZ)
<b>Absent:</b>	N/A
<b>Minutes taken by:</b>	Rashi Kansara
<b>Chair</b>	Emily Roberts

#### Agenda items

1. Update on communication regarding BHP project
2. Decision if team should change project

#### Previous Action Items

Action items	Owner(s)	Deadline	Status
Send email to BHP representative	Kaitlyn	15/3/22	Complete – but no response
Conduct general research on project	Kaitlyn, Xiaofan and Gaoyuan	22/3/22	Complete – but may be unused
Conduct research on project management principles	Emily, Kuba and Rashi	22/3/22	Complete

#### Meeting Minutes

Activity	Notes	Action Items
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<b>Accept minutes from last meeting</b>	All members accepted meeting minutes	
Update on BHP communication	<ul style="list-style-type: none"> <li>- KC sent email to BHP boss</li> <li>- Received reply stating that the project was an asset project (and not local) hence confidentiality requirements</li> <li>- KC boss is in process of communicating with someone involved in the project to see if they can help at all</li> <li>- Otherwise suggestion that there may be another BHP project</li>   <li>- Team discussion regarding information</li> <li>- ER concerned BHP would not prioritise university project therefore it may be wise to switch projects – team agrees</li> </ul>	
Discussion of alternative projects	<ul style="list-style-type: none"> <li>- Team members observe other projects on submitted list</li> <li>- Second project looks good but not much information</li> <li>- Third project (Mount Emerald Wind Farm) has a lot of information on website – ER shows team all documentation</li>   <li>- Decision made to try and switch to wind farm project</li>   <li>- KC to contact Cosimo to request change</li> </ul>	<ul style="list-style-type: none"> <li>- KC to email Cosimo</li> <li>- All group members research project</li> </ul>

### Summary of action items

Action items	Owner(s)	Deadline	Status
Send email to Cosimo to request change	Kaitlyn	18/3/22	Complete
Conduct general research on project	All	22/3/22	In progress

**Next meeting:** 4pm 22<sup>nd</sup> March 2022

**Meeting Closed:** 4:45pm

#### 9.2.4. Meeting 4: 22<sup>nd</sup> March 2022

<b>Location:</b>	Online (Teams Call)
<b>Date:</b>	22 March 2022
<b>Time:</b>	4:00pm
<b>Attendees:</b>	Kaitlyn Castafaro (KC), Emily Roberts (ER), Xiaofan Wang (XW), Kuba Wysocki (KW) and Gaoyuan Zhang (GZ)
<b>Absent:</b>	Rashi Kansara (RK)
<b>Minutes taken by:</b>	Xiaofan Wang
<b>Chair</b>	Kuba Wysocki

#### Agenda items

1. Organise and use OneDrive share folder
2. Complete summary for the WK3 practical
3. Go over notes for the project that we have each made
4. Assign further work

#### Previous Action Items

Action items	Owner(s)	Deadline	Status
Send email to Cosimo to request change	Kaitlyn	18/3/22	Complete
Conduct general research on project	All	22/3/22	Complete

#### Meeting Minutes

Activity	Notes	Action Items
Accept previous meeting minutes/review action items	Accepted by all	
Project Update	Cosimo has approved decision to change project to MEWF	

<b>OneDrive</b>	All team members decided project needed better organisation by using OneDrive instead of Microsoft Teams for document storage	Reshare link
<b>Go through project notes</b>	All team members talked about the information they found/researched	All
<b>Talk about further project work and split up</b>	Go through what is needed for Sections A, B and C and the 4 life cycle stages and the 10 knowledge areas  Kuba and Gerry – Section A Emily, Rashi, Xiaofan, Kaitlyn – Section B - Split up in terms of project lifecycle	All  ER, RK, XW, KC – Catch up to further split up section B
<b>Practical summary</b>	Complete questions for the second case study for week 3 (case study of Chapter 5) - Email to Kelly	Completed

### Summary of action items

Action items	Owner(s)	Deadline	Status
Resend OneDrive link and organise folder	Kaitlyn	24 March 2022	In progress
Split up Section B	Kaitlyn, Emily	24 March 2022	In Progress
Notes for designated sections	All	29 March 2022	In Progress

**Next meeting:** 4pm 29<sup>th</sup> March 2022

**Meeting Closed:** 4:35pm

### 9.2.5. Meeting 5

<b>Location:</b>	Online (Teams Call)
<b>Date:</b>	29 March 2022
<b>Time:</b>	4:00pm

<b>Attendees:</b>	Emily Roberts (ER), Xiaofan Wang (XW), Kuba Wysocki (KW) and Gaoyuan Zhang (GZ), Rashi Kansara (RK)
<b>Absent:</b>	Kaitlyn Castafaro (KC),
<b>Minutes taken by:</b>	`Gaoyuan Zhang
<b>Chair</b>	Xiaofan Wang

### *Agenda items*

1. Discuss research conducted
2. Decide on deadline to submit draft summaries by
3. Update on interview with company representatives

### *Previous action items*

Action items	Owner(s)	Deadline	Status
Resend OneDrive link and organise folder	Kaitlyn	24 March 2022	Complete
Split up Section B	Kaitlyn, Emily	24 March 2022	Complete
Notes for designated sections	All	29 March 2022	Complete

### *Meeting Minutes*

Activity	Notes	Action Items
Accept previous meeting minutes/review action items	- Accepted by all	
Discussion of research	<ul style="list-style-type: none"> <li>- All team members discuss research to date</li> <li>- Discussion of key points to include in each section</li> </ul> <p>Report breakdown:            Section A: KW &amp; GZ            Section B:  <ul style="list-style-type: none"> <li>- Conceptualisation – RK</li> <li>- Planning – ER</li> <li>- Development – KC</li> <li>- Finalisation - XW</li> </ul> </p>	All: Continue researching and create drafts for each section

	<ul style="list-style-type: none"> <li>- KW &amp; GZ – working on section A. Have been reading project newsletters to determine key points.</li> <li>- Decided to write section A and then will edit to remove/add extra information based on what is deemed important when section B is written</li> <li>- RK – has been researching the conceptualisation phase. Has found good documents on the MEWF project website which are relevant.</li> <li>- ER – has been researching the planning stage. Has also created a document to outline key points to discuss in each section</li> <li>- All team members reviewed this document to determine if they agreed with what was included in each stage --&gt; have decided this information is relevant</li> </ul>	
<b>Discussion of project timeline</b>	<p>All team members decide that the section A and B drafts should be completed by Monday morning (Wk 6) to give one week to complete section C and edit the report</p> <p>Weekly meeting will be brought forward to Monday morning week</p>	Decide on meeting time for Monday
<b>Interview with company representative</b>	<ul style="list-style-type: none"> <li>- Emily emailed Ratch Australia (owner of MEWF) on Wednesday 23<sup>rd</sup> April to discuss a meeting.</li> <li>- Have not heard back from the company.</li> <li>- At this stage will proceed without the interview, however Emily will try to get in touch with MEWF</li> </ul>	N/A

### *Summary of action items*

Action items	Owner(s)	Deadline	Status
Continue researching (Section A & B) and draft sections	All	Monday 4 <sup>th</sup> April 9am	In progress
Call MEWF	ER	2 <sup>nd</sup> April	In progress

**Next meeting:** 9am 4<sup>th</sup> April 202

**Meeting Closed:** 4:30pm

#### 9.2.6. Meeting 6: 2<sup>nd</sup> April 2022 (Group members for Part B)

<b>Location:</b>	Online (Teams Call)
<b>Date:</b>	2 April 2022
<b>Time:</b>	4:00pm
<b>Required</b>	Emily Roberts (ER), Rashi Kansara (RK), Kaitlyn Catafaro, Xiaofan Wang (XW)
<b>Minutes taken by:</b>	Emily Roberts
<b>Chair</b>	Kaitlyn Castafaro

#### Agenda items

1. Discuss how to approach section B
2. Discuss key issues encountered in each lifecycle stage
3. Brainstorm recommendations for section C

#### Meeting Minutes

Activity	Notes	Action Items
<b>Discuss how to approach section B</b>	<ul style="list-style-type: none"><li>- Following practical class on Friday (Wk 5), team members realised that they were approaching section B incorrectly and were ‘restating facts’, rather than focussing on key issues</li><li>- Decision by all team members to redirect approach to be more issue-based</li></ul>	All members working on section B to rewrite sections with new focus
<b>Brainstorming issues</b>	Key issues occurring during each lifecycle phase were brainstormed and collected on a file now saved on one drive	Rewrite section B based on key issues discussed  ER to upload document summarising issues on one drive

<b>Brainstorm recommendations for section C</b>	<ul style="list-style-type: none"> <li>- Discussions of key recommendations to give in Section C</li> <li>- Recommendations broken up into the following categories: stakeholder management issues, communication management issues, cost/scope management issues, human resource management issues, schedule management issues</li> </ul>	N/A
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### Summary of action items

Action items	Owner(s)	Deadline	Status
Rewrite section B	ER, KC, RK, XW	Monday 4 <sup>th</sup> April 2022	In progress
Upload issue document to one drive	ER	Saturday 2 <sup>nd</sup> April 2022	Done

**Next meeting:** 9am 4<sup>th</sup> April 2022

**Meeting Closed:** 5:15pm

### 9.2.7. Meeting 7: 9<sup>th</sup> April 2022

<b>Location:</b>	Online (Teams Call)
<b>Date:</b>	9th April 2022
<b>Time:</b>	4:00pm
<b>Required</b>	Emily Roberts (ER), Xiaofan Wang (XW), Kuba Wysocki (KW) and Gaoyuan Zhang (GZ), Rashi Kansara (RK)
<b>Minutes taken by:</b>	Kuba Wysocki
<b>Chair</b>	Gaoyuan Zhang

### Agenda items

1. Review draft of sections A and B
2. Decide on recommendations for Section C
3. Update on correspondence with company

### *Previous Action Items*

Action items	Owner(s)	Deadline	Status
Continue researching (Section A & B) and draft sections	All	Monday 4 <sup>th</sup> April 9am	Done & uploaded
Call MEWF	ER	2 <sup>nd</sup> April	Unable to get in contact

### *Meeting Minutes*

Activity	Notes	Action Items
Accept previous meeting minutes/review action items	- Accepted by all	
Review draft of sections A and B	<ul style="list-style-type: none"> <li>- All team members have uploaded drafts and have read each other's sections</li> <li>- Agreement that whilst there is excellent information, there is no flow of information</li> <li>- ER and KC to edit sections to try and increase flow</li> </ul>	KC and ER to edit sections A and B to ensure consistency
Decide on recommendations for Section C	<ul style="list-style-type: none"> <li>- KC, ER, RK &amp; XW have developed a list of key recommendations for Section C</li> <li>- Run these past group and other suggestions taken (eg. suggestion to include recommendation to increase representation on CCC through quotas)</li> <li>- ER, KC and RK to write up section C.</li> <li>- All team members to edit this and work through figure captions/references/appendices</li> </ul>	<p>ER, KC and RK to write up section C.</p> <p>All team members to edit this and work through figure captions/references/appendices</p>
Update on correspondence	<ul style="list-style-type: none"> <li>- ER has emailed company and has tried to call but has not been able to get in touch</li> <li>- Will try to call again but otherwise will have to rely on information from the website</li> </ul>	<ul style="list-style-type: none"> <li>- ER to try and call company again</li> </ul>

## Summary of action items

Action items	Owner(s)	Deadline	Status
Write section C	ER, KC, RK	Friday 8 <sup>th</sup> April 2022	In progress
Editing/ Appendices/ Figures/ References	All	Friday 8 <sup>th</sup> April 2022	In progress

**Next meeting:** 12pm 8<sup>th</sup> April 2022

**Meeting Closed:** 5:15pm

### 9.2.8. Meeting 8: 8<sup>th</sup> April 2022

<b>Location:</b>	Online (Teams Call)
<b>Date:</b>	2 April 2022
<b>Time:</b>	4:00pm
<b>Required</b>	Emily Roberts (ER), Rashi Kansara (RK), Kaitlyn Catafaro, Xiaofan Wang (XW)
<b>Minutes taken by:</b>	Emily Roberts
<b>Chair</b>	Kaitlyn Castafaro

## Agenda items

4. Discuss how to approach section B
5. Discuss key issues encountered in each lifecycle stage
6. Brainstorm recommendations for section C

## Meeting Minutes

Activity	Notes	Action Items
<b>Discuss how to approach section B</b>	<ul style="list-style-type: none"> <li>- Following practical class on Friday (Wk 5), team members realised that they were approaching section B incorrectly and were ‘restating facts’, rather than focussing on key issues</li> <li>- Decision by all team members to redirect approach to be more issue-based</li> </ul>	All members working on section B to rewrite sections with new focus

<b>Brainstorming issues</b>	Key issues occurring during each lifecycle phase were brainstormed and collected on a file now saved on one drive	Rewrite section B based on key issues discussed  ER to upload document summarising issues on one drive
<b>Brainstorm recommendations for section C</b>	<ul style="list-style-type: none"> <li>- Discussions of key recommendations to give in Section C</li> <li>- Recommendations broken up into the following categories: stakeholder management issues, communication management issues, cost/scope management issues, human resource management issues, schedule management issues</li> </ul>	N/A

### Summary of action items

Action items	Owner(s)	Deadline	Status
Write section C	ER, KC, RK	Friday 8 <sup>th</sup> April 2022	In progress
Editing/ Appendices/ Figures/ References	All	Friday 8 <sup>th</sup> April 2022	In progress
Contact company	ER	Wednesday 8 <sup>th</sup> April 2022	In progress

**Next meeting:** 12pm 8 April 2022

**Meeting Closed:** 5:15pm

### 9.2.9. Meeting 9: 9<sup>th</sup> April 2022

<b>Location:</b>	Online (Teams Call)
<b>Date:</b>	9th April 2022
<b>Time:</b>	4:00pm
<b>Required</b>	Emily Roberts (ER), Xiaofan Wang (XW), Kuba Wysocki (KW) and Gaoyuan Zhang (GZ), Rashi Kansara (RK)
<b>Minutes taken by:</b>	Emily Roberts

<b>Chair</b>	Kaitlyn Castafaro
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### Agenda items

- Review Section C
- Review entire document
- Update on correspondence

### Previous Action Items

Action items	Owner(s)	Deadline	Status
Write section C	ER, KC, RK	Friday 8 <sup>th</sup> April 2022	Complete
Editing/ Appendices/ Figures/ References	All	Friday 8 <sup>th</sup> April 2022	Complete
Contact company	ER	Wednesday 8 <sup>th</sup> April 2022	Unable to contact

### Meeting Minutes

Activity	Notes	Action Items
Accept previous meeting minutes/review action items	- Accepted by all	
Review draft of section C and document	<ul style="list-style-type: none"> <li>- Team members happy with draft of section C</li> <li>- Recognition that document will still require a lot of editing</li> <li>- This will be conducted in team members own time, and communication will be through Teams chat</li> <li>- KW to create timeline and</li> <li>- RK to complete references</li> <li>- ER &amp; KC to ensure general document flow</li> <li>- GZ to write section B overview</li> <li>- XW to format and write conclusion</li> <li>- ER to write executive summary</li> <li>- KC to write reflections</li> </ul>	All to continue editing/ completing relevant tasks

Update correspondence on	<ul style="list-style-type: none"> <li>- ER tried to contact company again but no luck</li> <li>- Will progress with report with documentation from website</li> </ul>	
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## Summary of action items

Action items	Owner(s)	Deadline	Status
Editing/ individual tasks (as summarised in minutes)	All	Sunday 10 <sup>th</sup> April 2022	In progress

**Next meeting:** Only if necessary (posted on Teams chat)

**Meeting Closed:** 5pm

## 9.3. Evidence of attempted email correspondence with Ratch Australia (operators of MEWF)

Emily Roberts (22385258) Fri 1/04/2022 12:19 PM To: terry.johannesen@ratchaustralia.com

GENG5505 letter for research... ▾ 112 KB

Hello,

My name is Emily Roberts and I am a student at the University of Western Australia studying a Masters of Professional Engineering (Mechanical Engineering). This semester I am taking a 'project management' unit and am currently working on a group assignment where we are required to analyse a 'real world' project and present a case study on key project management principles which were applied throughout the project's lifecycle (conceptualisation, planning, development, and finalisation).

Our group has decided to focus on your '**Mount Emerald Wind Farm**' project for this case study. We've found investigating this project very exciting and have really appreciated the depth of information your company has provided on your website. Being a student hoping to enter the renewable energy space, I've also found it fascinating to gain a perspective on the challenges you faced in the project and how your company managed and overcame these.

Having read through these documents/newsletters, we have formed a good understanding of the project planning/construction and delivery, however we have a few more specific questions. Therefore, I was wondering if you would be happy to speak with us, potentially early next week, and share your thoughts and experiences, particular in relation to the organisation/project management behind this project. We would only need 15-20 minutes of your time and could undertake the interview online. Alternatively, if organising an interview is not possible, I was wondering if we would be able to send through a short list of questions?

I have an official letter from my unit coordinator with a bit of background on the purpose of this assignment and have attached this to my email for your information.

Please feel free to give me a call on [REDACTED] if you have any other questions!

Thank you so much for your help.

Kind regards,

Emily [REDACTED]  
Masters of Professional Engineering Student, UWA  
[REDACTED]@students.uwa.edu.au  
[REDACTED]