ABN 20 009 454 111

Audit and Review Report

Emu Downs Wind Farm Electricity Generation Licence Performance Audit and Asset Management System Review

September 2015

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Executive Summary

Emu Downs Wind Farm Holdings 1 Pty Ltd and Emu Downs Wind Farm Holdings 2 Pty Ltd, trading as Emu Downs Wind Farm Joint Venture (EDWF or the licensee) hold an Electricity Generation Licence (EGL1) issued by the Economic Regulation Authority (the Authority) under Sections 7 and 15 of the Electricity Industry Act 2004 (WA) (the Act). The licence enables EDWF to construct and operate generating works or operate existing generating works in accordance with the licence conditions.

Sections 13 and 14 of the Act require EDWF to provide the Authority with a report by an independent expert on the measures taken by the licensee to meet the performance criteria specified in the licence and on the effectiveness of its Asset Management System. In April 2015 EDWF commissioned Qualeng to carry out the performance audit of their licence compliance and the Asset Management System review (the audit and review) for the period 1 July 2012 to 30 June 2015. The audit and review has been conducted and this report prepared in accordance with the "Authority's Audit and Review Guidelines: Electricity and Gas Licences (April 2014)" (the guidelines).

THE ASSETS

EDWF supplies electricity to the South West Interconnected System (SWIS) and has a nameplate capacity of 79.2 MW. EDWF's assets include 48 x 1.65MW wind turbine generators (WTGs), property leases, 22kV underground feeder cables, 22kV switchboards, a 132/22kV substation, SCADA, a site office and operating and maintenance (O&M) buildings. The WTGs are split into two groups, each of 24 units. Each group is capable of 40MW and is separately connected, through the 22kV underground feeder cables and circuit breakers to a 22kV switchboard at the EDWF substation. The substation connects to the SWIS through two 132kV transmission lines.

EDWF's owner is the APA Group. PowerPlan has been contracted to EDWF to provide the engineering services and act as the owner's representative.

The plant is operated and maintained by Vestas – Australian Wind Technology Pty Ltd (Vestas) under a five year Service and Availability Agreement (SAA). Vestas originally constructed the plant.

THE AUDIT AND REVIEW

The audit was conducted through document review and meetings at the PowerPlan office, remote meetings with the APA Group, site visits and meetings at the generating facility site near Cervantes, Western Australia.

The evaluation of the system effectiveness was carried out through an assessment of the control environment, information system, control procedures, supporting documentation and compliance attitude.

THE REPORT

The report includes:

(i) a summary of the objectives, the scope of the task and details of this audit and review,

(ii) key findings and recommendations from this audit and review; and

(iii) separately, a post audit and review implementation plan prepared by the licensee listing the audit and review recommendations and the responses and actions proposed by EDWF. The plan does not form part of the report and is provided separately to complete the documentation.

LICENSEE'S RESPONSE TO PREVIOUS AUDIT/REVIEW RECOMMENDATIONS

The audit and review considered the actions taken in response to the previous audit and review recommendations (for the period 1 July 2009 to 30 June 2012) and confirmed that of the previous three audit recommendations all actions had been completed.

Of the previous seven asset management system review recommendations all actions had been closed.

SUMMARY OF ISSUES AND RECOMMENDATIONS, PERFORMANCE AUDIT

Throughout the audit the licensee's attitude towards compliance was always positive and cooperative.

On completion of the performance audit, after assessment and testing of the licensee's control environment, risk assessment process, information system, control activities and monitoring, the auditor recorded the following non-compliance:

- there is currently no risk assessment for the substation plant.

AUDITOR'S OPINION, PERFORMANCE AUDIT

On completion of the performance audit, after assessment and testing of the licensee's control environment, risk assessment process, information system, control activities and monitoring, the auditor has formed the opinion that, during the audit period of 1 July 2012 to 30 June 2015, Emu Downs Wind Farm's operation was in compliance with the licence conditions.

SUMMARY OF ISSUES AND RECOMMENDATIONS, ASSET MANAGEMENT SYSTEM REVIEW

The review has found that Emu Downs Wind Farm has processes in place to manage the asset management system and is committed to regulatory compliance and continuous improvement.

The main deficiencies found in the review have been listed in Table 1 together with the review recommendations.

Table 1 – Review Asset System Deficiencies / Recommendations

Table of Current Review Asset System Deficiencies/ Recommendations			
Ref. (No/ 2015)	**EC Ref**	**Details of Deficiency**	**Auditors' Recommendation**
-	1.8 Likelihood and consequences of asset failure are predicted.	▸ There was insufficient evidence to show that the Substation plant is subject to annual risk assessments including likelihood and consequences of asset failures.	Recommendation 4/2015 addresses the finding.
1	5.3 Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical/structural condition and accounting data..	▸ Whilst plant list, drawings, maintenance plans and condition details were documented and available, during the Review it was not possible to access the Balance of Plant asset register.	**1/2015** Ensure that the Balance of Plant asset register is available.
2	7.1 Adequate system documentation for users and IT operators.	▸ While most documents viewed did have sufficient document control, there were some examples of appropriate document control missing, both with Vestas and EDWF: ▸ EDWF Business & Asset Risk Register 2015 (EDWF document) ▸ EDWF Fire Ban Procedure	**2/2015** Ensure documents are adequately controlled with removal and finalisation of draft issues, revision tracking and authorised approvals across Vestas and EDWF (APA Group).

		(Vestas document dated 23/07/15) ▸ Emu Down Wind Farm SRS (EDWF document in draft status) ▸ Linux Environment and Oracle Database SRD (EDWF document in draft status)		
3	7.7 Data backup procedures appear adequate and backups are tested.	▸ Compliance manual is out of date with respect to current timing of audit obligations – once every 36 months. ▸ Compliance manual is duplicated in parts with respect to actions required, possibly making it more difficult to use as a regular compliance tool.	**3/2015**	[**OFI**] Review Compliance Manual for accuracy and practicality. Consolidate actions to improve ease of use.
4	8.2 Risks are documented in a risk register and treatment plans are actioned and monitored.	▸ Asset related risks for substation plant fall outside of Vestas responsibility and are currently not covered by EDWF's risk management scope.	**4/2015**	Include substation plant as part of the Business & Asset Risk Register review process.

AUDITOR'S OPINION, ASSET MANAGEMENT SYSTEM REVIEW

On completion of the asset management system review, after assessment and testing of the licensee's control environment the auditor has formed the opinion that during the audit period of 1 July 2012 to 30 June 2015, Emu Downs Wind Farm's asset management system was operating effectively.

Of the 12 areas of the asset management system, process and policy were found to be adequately defined in all areas. For the performance rating 11 areas were found to be performing effectively, one area were rated as "opportunity for improvement". Of the individual Effectiveness Criteria, none was rated as requiring corrective action.

POST AUDIT AND REVIEW ACTION PLAN

The audit and review has resulted, where applicable, in findings and recommendations that require corrective actions by the Licensee.

The recommendations have been listed in the Post Audit And Review Implementation Plan 2015. Responses including actions, responsibilities and dates for completion have been completed by the Licensee.

This report is an accurate representation of the findings and opinions of the auditors following the audit and review of the client's conformance to nominated Licence conditions. The audit and review is reliant on evidence provided by other parties and is subject to limitations due to the nature of the evidence available to the auditor, the sampling process inherent in the audit and review process, the limitations of internal controls and the need to use judgement in the assessment of evidence. On this basis Qualeng shall not be liable for loss or damage to other parties due to their reliance on the information contained in this report or in its supporting documentation.

The Post Audit Implementation Plan is a document prepared by the licensee in response to the recommendations provided by the audit and review. As it represent the licensee's views and actions it does not form part of the audit and review.

Approvals

Representation	Name	Signature	Position	Date
Auditor:	M Zammit	[redacted]	Lead Auditor / Projects Director, Qualeng	16 October 2015

Ref:	62/2	
Issue Status		
Issue No	**Date**	**Description**
1	16 October 2015	First final issue

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1 OBJECTIVES AND SCOPE OF AUDIT AND REVIEW

1.1 BACKGROUND

Emu Downs Wind Farm Holdings 1 Pty Ltd and Emu Downs Wind Farm Holdings 2 Pty Ltd, trading as Emu Downs Wind Farm Joint Venture (EDWF or the licensee) jointly hold the EGL1 Electricity Generation licence (the licence) granted by the Economic Regulation Authority (the Authority) on 23 June 2005 (Licence was at Version 4, 13 January 2011 during the audit and review period and subsequently revised to Version 5 on 1 July 2015).

The licence has been issued under Sections 7 and 15 of the Electricity Industry Act 2004 (WA) (the Act) and enables the licensee to construct and operate generating works or operate existing generating works in accordance with the licence conditions.

EDWF Manager Pty Ltd is an entity which represents the owner of the asset and is the Market Participant. PowerPlan is the service provider contracted to EDWF Manager Pty Ltd to provide the engineering services and act as the owner's representative. The plant is operated and maintained by the company that constructed it, Vestas – Australian Wind Technology Pty. Ltd. (Vestas) under a five year Service And Availability Agreement (SAA).

EDWF supplies electricity to the South West Interconnected System (SWIS) and has a nameplate capacity of 79.2 MW. EDWF's assets include 48 x 1.65MW wind turbine generators (WTGs), property leases, 22kV underground feeder cables, 22kV switchboards, a 132/22kV substation, SCADA, a site office and operating and maintenance (O&M) buildings. The WTGs are split into two groups, each of 24 units. Each group is capable of 40MW and is separately connected, through the 22kV underground feeder cables and circuit breakers to a 22kV switchboard at the EDWF substation. The substation connects to the SWIS through two 132kV transmission lines.

EDWF has a connection agreement in place with Western Power (WP) for the supply of electricity.

Under sections 13 and 14 of the Act EDWF's systems are subject to independent performance audits and asset management system reviews at 24 month intervals or some other period as decided by the Authority which, at the last audit and review was set at 36 months. The performance audit is an audit of the effectiveness of measures taken by the licensee to meet the performance criteria specified in the licence. The asset management system review is to determine the effectiveness of the licensee's asset management system.

Qualeng has been engaged by EDWF to conduct the performance audit and the asset management system review (the audit and review) for the period 1 July 2012 to 30 June 2015.

The audit and review has been conducted and this report prepared in accordance with the "Authority's Audit and Review Guidelines: Electricity and Gas Licences (April 2014)" (the guidelines).

1.2 AUDIT AND REVIEW OBJECTIVES

The purpose of the performance audit is to:

- *Assess the effectiveness of measures taken by the licensee to meet the obligations of the performance and quality standards referred to in the licence.*

The purpose of the asset management system review is to:

- *Assess the effectiveness of the measures taken by the licensee for the proper management of assets used in the provision and operation of services and, where appropriate, for the construction or alteration of relevant assets.*

1.3 AUDIT AND REVIEW SCOPE

1.3.1 Scope of Performance Audit

The scope of the performance audit is to audit the systems and the processes to assess their effectiveness in ensuring compliance with the standards, outputs and outcomes required by the licence, in detail:

- Assess the effectiveness of systems and procedures and the adequacy of internal controls;
- Consider performance against standards prescribed in the licence;
- Provide assurance of compliance to systems and procedures, existence of control and system outputs / records;
- Verify completeness and accuracy of performance reporting to the Authority;
- Verify compliance with any individual licence conditions.

1.3.2 Scope of Asset Management System Review

The scope of the asset management system review includes the assessment of the adequacy and effectiveness of the licensee's asset management system by evaluating the key processes of:

- Asset planning
- Asset creation/acquisition
- Asset disposal
- Environmental analysis
- Asset operations
- Asset maintenance

- Asset management information system
- Risk management
- Contingency planning
- Financial planning
- Capital expenditure planning
- Review of the asset management system.

Each of the system processes was evaluated against effectiveness criteria defined in the guidelines.

Key documentation examined by the auditors is listed in Appendix A.

1.4 AUDIT AND REVIEW PERIOD

The audit and review covers the period 1 July 2012 to 30 June 2015. The audit and review was carried out between July and September 2015. The audit follows the previous audit carried out for the period 1 July 2009 to 30 June 2012.

1.5 AUDIT AND REVIEW METHODOLOGY

The audit and review followed the methodology defined in the Authority's guidelines including:

- Review of documentation;
- Preparation of the audit and review plan, risk assessment and system analysis;
- Fieldwork including the document review and meetings;
- Reporting.

These activities were supported by additional investigations to further clarify aspects of the procedures.

The audit and review plan was prepared which outlined the objectives, scope, risk assessment, system analysis, fieldwork plan, the report structure, key contacts and auditing staff.

The audit and review adopted a risk based approach where a preliminary risk and materiality assessment was carried out. The risks resulting from lack of controls (inherent risks) and the strength of existing controls to mitigate the inherent risks were rated and audit and review priority assigned based on the above. Tests were also defined for each licence condition to assess the compliance and effectiveness of the current process.

With specific regard to the Asset Management Review, the review followed the methodology outlined above and defined in the guidelines. The risk assessment was carried out on each asset management system (AMS) element to assess the effectiveness of the current asset management processes.

1.6 LICENSEE'S REPRESENTATION

Licensee representatives that participated in the audit and review meetings or were requested to clarify aspects of the licensee's operation were:

From APA group and Emu Downs Wind Farm:

- Paul McLagan, EDWF JV Manager
- Glen Thomsen, APA Group Finance
- Andrew Gribble, APA Group Information Technology, Perth.

From Vestas:

- Ian Manns, Vestas Site Manager
- Karina Cope, Vestas Site Administrator.

1.7 LOCATIONS VISITED

The following facilities were visited during the audit and review:

- EDWF Manager Pty Ltd office, Floreat;
- EDWF's site office and power generating facilities, Badgingarra.

1.8 AUDIT AND REVIEW TEAM

A summary of the auditing resources utilised in the performance of the audit and review is listed below.

Item	Resource	Description
1	M Zammit	Project Director and Lead Auditor
2	S Campbell	Senior Engineer / Auditor, Document Reviewer and Verifier
3	Support staff	Document control

1.9 KEY DOCUMENTS AND INFORMATION

Main documents accessed by the auditors are listed in Appendix A.

1.10 LIMITATIONS AND QUALIFICATIONS

An audit provides a reasonable level of assurance on the effectiveness of control procedures, however there are limitations due to the nature of the evidence available to the auditor, the sampling process inherent in checking the evidence, the limitations of internal controls and the need to use judgement in the assessment of evidence.

In regard to the review process, the reviewer relies on evidence coming to the reviewer's attention showing that the control procedures are not effective, when the initial process and procedures do not provide sufficient evidence to the level that would be required by a review.

As noted above, due to the sampling process, the nature of the evidence available to the auditor, the limitations of internal controls and the need to use judgement in the assessment of evidence there are limitations in the level of accuracy that can be obtained in the audit and in the review and errors and non-compliances may remain undetected.

The Post Audit And Review Implementation Plan (PAIP) is a document prepared by the licensee in response to the recommendations provided by the audit and review. As it represents the licensee's views and actions it does not form part of the audit and review and is provided separately in accordance with the guidelines.

1.11 ABBREVIATIONS

Act	Electricity Industry Act 2004 (WA)
AMIS	Asset Management Information System
AMP	Asset Management Plan
AMS	Asset Management System
APA	APA Group
AS	Australian Standard
Audit	The 2015 performance audit of Emu Downs Wind Farm
Authority	Economic Regulation Authority
BC	Business Case
BOP	Balance of Plant
BYOD	Bring Your Own Device
CAPEX	Capital Expenditure
CEO	Chief Executive Officer
CIR	Component Inspection Report
CMP	Crisis Management Plan
Code of Conduct	Code of Conduct for the Supply of Electricity to Small Use Customers
DB	Database
DMS	Document Management System
EC	Effectiveness Criteria
EGL1 (or licence)	Electricity Generation Licence 1

EDWF	Emu Down Wind Farm
EPC	Engineer, Procure & Construct
ERMP	Enterprise Risk Management Plan
ERP	Emergency Response Plan
ERP	Enterprise Resource Planning
FESA	Fire & Emergency Services Authority of WA
FY	Financial Year
guidelines	Authority's Audit and Review Guidelines: Electricity and Gas Licences (April 2014)
HR	Human Resources
HV	High Voltage
IMO	Independent Market Operator
JV	Joint Venture
KPI	Key Performance Indicator
LCC	Lifecyle Costs
LV	Low Voltage
MCM	Management Committee Meeting
MIS	Management Information System
NA	Not Applicable
NAA	Network Access Agreement
NP	Not Performed
NQRS	Network Quality and Reliability of Supply
NR	Not Rated
O&M	Operation and Maintenance
OFI	Opportunity for Improvement
OHSE	Occupational Health, Safety and Environmental
OLA	Operational Level Agreement
OPEX	Operating Expenditure
PAIP	Post Audit And Review Implementation Plan
PowerPlan	PowerPlan Engineers Pty Ltd
Review	The 2015 review of Emu Downs Wind Farm Asset Management System
SAA	Service and Availability Agreement

SAP	Systems, Applications & Products (in Data Processing)
SCADA	Supervisory Control and Data Acquisition
SEMP	Safety and Environment Management Plan
SLA	Service Level Agreement
SO	Service Order
SP	Strategic Plan
SS	spreadsheets
SVC	Static Var Compensator
SWIS	South West Interconnected System
SWOT	Strengths, Weaknesses, Opportunities and Threats
THD	Total Harmonic Distortion
TSS	Technical Support Services
VIS	Vestas Info Sheet
VTM	Vestas Turbine Monitoring
WP	Western Power
WTG	Wind Turbine Generator
YP	Year Plan
YTD	Year to Date

2 KEY FINDINGS AND RECOMMENDATIONS

2.1 LICENSEE'S RESPONSE TO PREVIOUS AUDIT RECOMMENDATIONS

Table 2 – Previous Audit Non-Compliances and Recommendations shows the previous review (2013) findings and recommendations, proposed actions by the licensee, dates and responsibility, updated status if available and verification of actions carried out in the current audit and review.

Table 2 – Previous Audit Non-Compliances and Recommendations

	Table of Previous Non Compliances and Audit Recommendations			
A	**Resolved before end of previous audit period**			
Reference (No./ year)	**Compliance rating/Legislative Obligation/details of the issue**	**Auditors' Recommendation**	**Date Resolved**	**Further action required (Yes/No/Not Applicable) & Details of further action required including current recommendation reference if applicable**
	Nil			
B	**Resolved during current audit period**			
Reference (No/ Year)	**(Compliance rating/ Legislative Obligation / Details of the issue)**	**Auditors' Recommendation or action taken**	**Date resolved**	**Further action required (Yes/No/Not Applicable) Details of further action required including current recommendation reference if applicable**
1/2012	**446** **Electricity Industry Metering Code** clause 6.1(2) A user must, in relation to a network on which it has an access contract, comply with the rules, procedures, agreements and criteria prescribed. Maintenance of compliance with all obligations would be improved if Compliance Manual were reviewed annually rather than over long intervals	Review of compliance with all obligations should be carried out yearly to ensure that all requirements are up to date and that they are not overlooked. This could take place through an annual check of the Compliance Manual. Action: Review compliance with the requirements of the Compliance Manual annually.	31/12/2012	No
2/2012	**448** **Generation Licence condition 5.1**	Western Power and EDWF communication details should be updated to reflect current	15/4/2015	No

	Code participants must use reasonable endeavours to ensure that they can send and receive a notice by post, facsimile and electronic communication and must notify the network operator of a telephone number for voice communication in connection with the Code. Current documented contact details are not in use as they have been superseded. The protocol may be updated to include a scope describing the function of the protocol. (**OFI**)	contact arrangements. Some of the telephone contact numbers are not in use and should be updated. (**OFI**) Action: Review the Emu Downs Wind Farm Operating Protocol for currency, update the contact details and add a section describing the scope and function of the protocol.		
3/2012	As above	The protocol could be updated to include a scope describing the function of the protocol. (**OFI**). Action: As above	15/4/2015	No
	Electricity Industry Metering Code clause 7.2(2) A network operator must notify each Code participant of its initial contact details and of any change to its contact details at least 3 business days before the change takes effect. Current documented contact details are not in use as they have been superseded.	As per Recommendation 2/2012 at item 448.		No
	Electricity Industry Metering Code clause 7.2(5) A Code participant must notify any affected network operator of any change to the contact details it notified to the network operator at least 3 business days before the change takes effect. Contact details in Operating Protocol" should be reviewed and updated	As per Recommendation 2/2012 at item 448.		No

C	Unresolved at end of current audit period		
Reference (No/ Year)	(Compliance rating/ Legislative Obligation / Details of the issue)	Auditors' Recommendation	Further action required (Yes/No/Not Applicable) Details of further action required including current recommendation reference if applicable
	Nil		

2.2 LICENSEE'S RESPONSE TO PREVIOUS REVIEW RECOMMENDATIONS

The previous review report covered the period 1 July 2009 to 30 June 2012. The report made two recommendations which have been closed in the current review period of 1 July 2012 to 30 June 2015.

Table 3 – Previous Review non-compliances and recommendations

	Table of Previous Review Ineffective Components Recommendations			
A	Resolved before end of previous review period			
Reference (No/ Year)	(Asset management effectiveness rating/ Asset Management System Component & Criteria / Details of the issue)	Auditors' recommendation or action taken	Date resolved	Further action required (Yes/No/Not Applicable) Details of further action required including current recommendation reference if applicable
	Nil			
B	Resolved during current review period			
Reference (No/ Year)	(Asset management effectiveness rating/ Asset Management System Component & Criteria / Details of the issue)	Auditors' Recommendation or action taken	Date resolved	Further action required (Yes/No/Not Applicable) Details of further action required including current recommendation reference if applicable
1/2012	*Rating: A2* **EC1.4** Lifecycle costs of owning and operating assets are assessed. The Whole of Lifecycle Model was updated on 2 June 2010 and brought up to date up to the FY 2008-09. The Whole of Lifecycle Model needs to be updated to include actual figures for FYs 2009-10 and 2010-11.	Update Whole of Lifecycle Model to include actual figures for FYs 2009-10 and 2010-11. Regular updates of Whole of Lifecycle model should be prompted by the review of the Compliance Manual. (Refer to recommendation for item 446 above in Performance Audit section) Action: Update Whole of Lifecycle Model to include actual figures for FYs 2009-10	31/12/ 2012	.No

		and 2010-11 and annually thereafter.		
2/2012	*Rating: B2* **EC2.1** Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions. Due to the small expenditure the purchase of a storage shed was made from an approved supplier, however there should be a more rigorous process for project justification for larger levels of expenditure. Documents such as purchasing specifications should be in use.	There should be a more rigorous process for project justification for larger levels of expenditure. Action: Develop a Project Development and Execution procedure.	31/12/ 2012	No
3/2012	**EC2.1 Continued**	Purchasing of assets should require the preparation of appropriate purchasing documentation such as specifications. Action: As above	31/12/ 2012	No
4/2012	*Rating: B2* **EC2.4** Commissioning tests are documented and completed. There is a procedure in the original EPC Contract, however no procedure is in place for future works. No formal procedure is in place to address commissioning tests.	Prepare a procedure to address commissioning and plant acceptance to define performance criteria for new or refurbished assets and record commissioning/acceptance data. Action: Review EPC Contract for plant commissioning and acceptance requirements, amend as appropriate and include details in the above Project Development and Execution Procedure.	31/12/ 2012	No
5/2012	*Rating: A1* **EC7.7** Management reports appear adequate for the licensee to monitor licence obligations. Compliance Manual was reviewed and updated last in 2009. There is a significant time interval between reviews of the	A recommendation has been made in the Performance Audit, item 446. Action: Action as per recommendation given in the Operational Performance Audit, item 446.		No

	"Emu Downs Wind Farm Compliance Manual".			
6/2012	*Rating: B1* **EC9.1** Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks. A "Crisis Management Plan (including Emergency Response)" (CMP) is available. The CMP last issue was June 2006 and has not been updated since. The CMP was prepared for the construction project and should be reviewed and, if required, updated to suit current operation.	The Crisis Management Plan was prepared for the construction project and should be reviewed and, if required, updated to suit current operation. The CMP should be implemented through dissemination and testing. Action: Review the Crisis Management Plan for relevance and currency and amend as appropriate.	31/12/ 2012	No
7/2012	*Rating: B2* **EC12.1** A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current. The AMP is reviewed at five year intervals.	(**OFI**) A methodology should be adopted for an annual check of the Asset management Plan to ensure that strategies and plans are still current. Results could be included in the Yearly Plans. Action: Review compliance with and currency of the Asset Management Pan annually.	31/12/ 2012	No
C	**Unresolved at end of current review period**			
Reference (No/ Year)	**(Asset management effectiveness rating/ Asset Management System Component & Criteria / Details of the issue)**	**Auditors' Recommendation**		**Further action required (Yes/No/Not Applicable) Details of further action required including current recommendation reference if applicable**
	Nil			

2.3 AUDIT AND REVIEW SUMMARY

Separate performance audit summary and asset management system review summary are provided in this section.

2.3.1 Performance Audit Compliance Summary

The performance audit is summarised below in Table 4. The table lists the compliance rating for each licence condition using the two-dimensional rating scale described in Table 5.

Each obligation is rated for both the adequacy of existing controls and the compliance with the relevant licence obligation.

Table 4: Audit Obligation Ratings

Compliance Licence Condition	Compliance Licence Condition	Audit Priority Applied (1=Highest 5-Lowest)	Adequacy of Controls Rating (Refer to the 4-point rating scale in Table 5 for details) (NP = Not Performed)					Compliance Rating (Refer to the 4-point rating scale in Table 5 for details)			
			A	B	C	D	NP	1	2	3	4
2	Grant of licence	5	✓					✓			
3	Term	5	✓					✓			
4	Fees	5	✓					✓			
5	Compliance	2	✓					✓			
6	Transfer of licence	5						NR			
7	Cancellation of licence	5						NR			
8	Surrender of licence	5						NR			
9	Renewal of licence	5						NR			
10	Amendment of licence (licensee)	5						NR			
11	Amendment of licence (Authority)	5						NR			
12	Accounting records	4	✓					✓			
13	Individual performance standards						NA				
14	Performance audit	4	✓					✓			

Compliance Licence Condition	Compliance Licence Condition	Audit Priority Applied (1=Highest 5-Lowest)	Adequacy of Controls Rating (Refer to the 4-point rating scale in Table 5 for details) (NP = Not Performed)					Compliance Rating (Refer to the 4-point rating scale in Table 5 for details)			
			A	B	C	D	NP	1	2	3	4
15	Reporting a change in circumstances	4						NR			
16	Provision of information	5	✓					✓			
17	Publishing information	5						NR			
18	Notices	5	✓					✓			
19	Review of the Authority's decisions							NR			
20	Asset Management System	2	✓					✓			

Note: Where obligations have not been rated (NR), reasons for the lack of rating are provided in Table 9 - Performance Audit Observations, Findings and Recommendations.

Table 5: Audit compliance and controls rating scales

Performance audit compliance and controls rating scales	
Adequacy of Controls Rating	
Rating	**Description**
A	Adequate controls – no improvement needed
B	Generally adequate controls - some improvement needed
C	Inadequate controls - significant improvement required
D	No control evident
Compliance Rating	
Rating	**Description**
1	Compliant
2	Non-compliant– minor impact on customers or third parties
3	Non-compliant – moderate impact on customers or third parties
4	Non-compliant – major impact on customers or third parties

2.3.2 Asset Management Review Effectiveness Summary

The review of the Asset Management System is summarised below in Table 6. The table lists each of the 12 key asset management processes together with the effectiveness criteria for each key component. Definition of the ratings is given in Table 7 (process and policy definition) and Table 8 (performance).

Table 6: Asset management effectiveness summary

ASSET MANAGEMENT SYSTEM COMPONENT & EFFECTIVENESS CRITERIA	Asset management process and policy definition adequacy ratings	Asset management performance ratings
1. Asset planning	**A**	**1**
1.1 Asset management plan covers key requirements.	**A**	**1**
1.2 Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning.	**A**	**1**
1.3 Service levels are defined.	**A**	**1**
1.4 Non-asset options (e.g. demand management) are considered.	**A**	**1**
1.5 Lifecycle costs of owning and operating assets are assessed. (also at 2.2)	**A**	**1**
1.6 Funding options are evaluated.	**A**	**1**
1.7 Costs are justified and cost drivers identified.	**A**	**1**
1.8 Likelihood and consequences of asset failure are predicted.	**B**	**2**
1.9 Plans are regularly reviewed and updated.	**A**	**1**
2. Asset creation/ acquisition	**A**	**1**
2.1 Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions.	**A**	**1**
2.2 Evaluations include all life-cycle costs.	**A**	**1**
2.3 Projects reflect sound engineering and business decisions.	**A**	**1**
2.4 Commissioning tests are documented and completed.	**B**	**1**
2.5 Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood.	**A**	**1**
3. Asset disposal	**A**	**1**

3.1 Under-utilised and under-performing assets are identified as part of a regular systematic review process.	**A**	**1**
3.2 The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken.	**A**	**1**
3.3 Disposal alternatives are evaluated.	**A**	**1**
3.4 There is a replacement strategy for assets.	**A**	**1**
4. Environmental analysis	**A**	**1**
4.1 Opportunities and threats in the system environment are assessed.	**A**	**1**
4.2 Performance standards (availability of service, capacity, continuity, emergency response, etc) are measured and achieved.	**A**	**1**
4.3 Compliance with statutory and regulatory requirements.	**A**	**1**
4.4 Achievement of customer service levels.	**A**	**1**
5. Asset operations	**A**	**1**
5.1 Operational policies and procedures are documented and linked to service levels required.	**A**	**1**
5.2 Risk management is applied to prioritise operations tasks.	**A**	**1**
5.3 Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical/structural condition and accounting data.	**B**	**2**
5.4 Operational costs are measured and monitored.	**A**	**1**
5.5 Staff resources are adequate and staff receive training commensurate with their responsibilities.	**A**	**1**
6. Asset maintenance	**A**	**1**
6.1 Maintenance policies and procedures are documented and linked to service levels required.	**A**	**1**
6.2 Regular inspections are undertaken of asset performance and condition.	**A**	**1**
6.3 Maintenance plans (emergency, corrective and preventative) are documented and completed on	**A**	**1**

schedule.		
6.4 Failures are analysed and operational/maintenance plans adjusted where necessary.	**A**	**1**
6.5 Risk management is applied to prioritise maintenance tasks.	**A**	**1**
6.6 Maintenance costs are measured and monitored.	**A**	**1**
7. Asset management information system	**A**	**1**
7.1 Adequate system documentation for users and IT operators.	**B**	**1**
7.2 Input controls include appropriate verification and validation of data entered into the system.	**A**	**1**
7.3 Logical security access controls appear adequate, such as passwords.	**A**	**1**
7.4 Physical security access controls appear adequate.	**A**	**1**
7.5 Data backup procedures appear adequate and backups are tested.	**A**	**1**
7.6 Key computations related to licensee performance reporting are materially accurate.	**A**	**1**
7.7 Management reports appear adequate for the licensee to monitor licence obligations.	**A**	**1**
8. Risk management	**A**	**1**
8.1 Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system.	**A**	**1**
8.2 Risks are documented in a risk register and treatment plans are actioned and monitored.	**B**	**1**
8.3 The probability and consequences of asset failure are regularly assessed.	**A**	**1**
9. Contingency planning	**A**	**1**
9.1 Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.	**A**	**1**
10. Financial planning	**A**	**1**
10.1 The financial plan states the financial objectives and strategies and actions to achieve the objectives.	**A**	**1**

10.2 The financial plan identifies the source of funds for capital expenditure and recurrent costs.	**A**	**1**
10.3 The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance sheets).	**A**	**1**
10.4 The financial plan provides firm predictions on income for the next five years and reasonable indicative predictions beyond this period.	**A**	**1**
10.5 The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services.	**A**	**1**
10.6 Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary.	**A**	**1**
11. Capital expenditure planning	**A**	**1**
11.1 There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates.	**A**	**1**
11.2 The plan provides reasons for capital expenditure and timing of expenditure.	**A**	**1**
11.3 The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan.	**A**	**1**
11.4 There is an adequate process to ensure that the capital expenditure plan is regularly updated and actioned.	**A**	**1**
12. Review of asset management system	**A**	**2**
12.1 A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current.	**A**	**2**
12.2 Independent reviews (e.g. internal audit) are performed of the asset management system.	**A**	**2**

Table 7: Asset management process and policy definition adequacy ratings

Rating	Description	Criteria
A	Adequately defined	• Processes and policies are documented. • Processes and policies adequately document the required performance of the assets. • Processes and policies are subject to regular reviews, and updated where necessary. • The asset management information system(s) are adequate in relation to the assets that are being managed.
B	Requires some improvement	• Process and policy documentation requires improvement. • Processes and policies do not adequately document the required performance of the assets. • Reviews of processes and policies are not conducted regularly enough. • The asset management information system(s) require minor improvements (taking into consideration the assets that are being managed).
C	Requires significant improvements	• Process and policy documentation is incomplete or requires significant improvement. • Processes and policies do not document the required performance of the assets. • Processes and policies are significantly out of date. • The asset management information system(s) require significant improvements (taking into consideration the assets that are being managed).
D	Inadequate	• Processes and policies are not documented. • The asset management information system(s) is not fit for purpose (taking into consideration the assets that are being managed).

Table 8: Asset management review performance rating scale

Rating	Description	Criteria
1	Performing effectively	• The performance of the process meets or exceeds the required levels of performance. • Process effectiveness is regularly assessed, and corrective action taken where necessary.
2	Opportunity for improvement	• The performance of the process requires some improvement to meet the required level. • Process effectiveness reviews are not performed regularly enough. • Process improvement opportunities are not actioned.
3	Corrective action required	• The performance of the process requires significant improvement to meet the required level. • Process effectiveness reviews are performed irregularly, or not at all. • Process improvement opportunities are not actioned.

Rating	Description	Criteria
4	Serious action required	• Process is not performed, or the performance is so poor that the process is considered to be ineffective.

2.4 OBSERVATIONS AND FINDINGS

The observations and findings of the performance audit and the asset management system review are reported in Table 9 and Table 10 respectively.

The tables include all findings, observations and recommendations and rate EDWF's overall compliance and adequacy of controls for each licence obligation and the asset management process and policy definition adequacy and performance in accordance with the Authority's requirements. The guidelines rating definitions are reproduced in Table 5 for the performance audit and in Table 7 and Table 8 for the asset management system review.

In regard to the performance audit, where appropriate or where the compliance obligation has been rated as C, D, 2, 3 or 4, recommendations are made to address the issue(s) that have resulted in that rating. Optionally, recommendations to address opportunities for improvement (for items rated A, B or 1) may also be included in the audit report.

In regard to the asset management system review, if process and policy definition is rated C or D, or the asset management performance is rated 3 or 4, recommendations are included to address the issue(s) that have resulted in those ratings.

The licensee's corrective actions are included in the separate Post Audit And Review Implementation Plan (PAIP).

2.5 PERFORMANCE AUDIT FINDINGS AND OBSERVATIONS

Key findings and recommendations arising from the performance audit are listed against their licence obligation in the following table.

KEY TO FINDINGS AND RECOMMENDATIONS

Key	Description
▸	Finding
1. Text	Recommendations
[**OFI**]	Opportunity for Improvement

Key	Applicable	Description
Licence Grant Date		The licence was granted on the 23 June 2005.
Start of operation		As above

Table 9 - Performance Audit Observations, Findings and Recommendations

Oblig	Lic ref	Licence Conditions	Findings	Audit Priority	Adequacy A,B = Y C,D = N	Compliance* 1=Y 2,3,4=N	Recommendations
L1	Cl 2	**Grant of Licence** Licensee is granted a licence for the licence area to construct and operate generating works or operate existing generating works in accordance with the terms and conditions of this licence.	The licensee has identified licence boundaries which correspond to licence information. There has been no change in licence boundaries during the audit period. The licensee is operating plant in accordance with the conditions of the licence.	5	A	1	
L2	Cl.2 (Sch1)	**Licence Area** The licence area is the area as set out in plan ERA-EL-006	The licensee has identified the licence area and the licence boundaries which correspond to the licence information.	5	A	1	
L3	Cl 3	**Term** Licence commences on the commencement date (23 June 2005) and continues until the earlier of: (a) the cancellation of the licence (clause 7) (b) surrender of licence (clause 8) (c) expiry (22 June 2035)	The licence has been maintained during the audit period. There have been no changes to the licence such as cancellation, surrender, expiry or amendment during the audit period.	5	A	1	
		Section 8 - Type 1 Reporting Obligations for all Licence Types	Not Applicable – Section 8 of the Electricity Compliance Reporting Manual contains Licence Conditions and Obligations relating to Distribution, Retail and Integrated Regional Licence holders only.				
		Section 9 - Electricity Industry Customer Transfer Code – Licence Conditions and Obligations	Not Applicable – Section 9 of the Electricity Compliance Reporting Manual contains Licence Conditions and Obligations relating to the Electricity Industry Customer Transfer Code. This section is not applicable to Generation Licence holders.				
		Section 10 - Electricity Industry (Obligation to Connect) Regulations – Licence Conditions and Obligations	Not Applicable – Section 10 of the Electricity Compliance Reporting Manual contains Licence Conditions and Obligations relating to Electricity Industry 'Obligation to Connect' Regulations. This section is not applicable to Generation Licence holders.				
		Section 11 - Electricity Industry (Customer Contracts) Regulations – Licence Conditions and Obligations	Not Applicable – Section 11 of the Electricity Compliance Reporting Manual contains Licence Conditions and Obligations relating to Electricity Industry 'Customer Contracts' Regulations. This section is not applicable to Generation Licence holders.				
		Section 12 - Electricity Industry Act – Licence Conditions and Obligations					

Oblig	Lic ref	Licence Conditions	Findings	Audit Priority	Adequacy A,B = Y C,D = N	Compliance* 1=Y 2,3,4=N	Recommendations
101	C14.1	**Electricity Industry Act section 13(1)** A licensee must, not less than once every 24 months, provide the Authority with a performance audit conducted by an independent expert acceptable to the Authority.	The licensee has commissioned an independent expert to provide the Authority with a performance audit and a report to cover the period of 36 months from 1 July 2012 to 30 June 2015. A report was provided in 2012. The Authority determined that the next audit should be due in 36 months. A performance audit has been initiated in accordance with the Authority's standard audit guidelines. The auditor was approved by the Authority. This obligation is captured as an annual obligation in the EDWF Compliance Manual: • "The EDWF Manager must conduct a performance audit on the effectiveness of measures taken by the EDWF JV (or the EDWF Manager) to meet the performance criteria in the licence. The EDWF Manager must provide the audit to the Authority… no later than 23 June 2007 and each 24 months thereafter." The obligation is also captured in each EDWF Year Plan: • "ERA generator licence and asset management audit" every 3 years.	4	A	1	
102	C20.1	**Electricity Industry Act section 14(1)(a)** A licensee must provide for an asset management system.	The licensee has in place an asset management system in respect of the licensee's assets. The licensee's Asset Management Plan (AMP) describes the main aspects of operation of the system. Evidence available of compliance, refer to section 3.3 of this report.	2	A	1	
103	C20.2,	**Electricity Industry Act section 14(1)(b)**	Not Rated – Details of the asset management system	5	NP	NR	

Oblig	Lic ref	Licence Conditions	Findings	Audit Priority	Adequacy A,B = Y C,D = N	Compliance* 1=Y 2,3,4=N	Recommendations
	C20.3	A licensee must notify details of the asset management system and any substantial changes to it to the Authority.	were advised to the Authority during the previous audit period. There have been no changes to the asset management system during the audit period.				
104	C20.4	**Electricity Industry Act section 14(1)(c)** A licensee must provide the Authority with a report by an independent expert as to the effectiveness of its asset management system every 24 months, or such longer period as determined by the Authority.	A report was provided in 2012. Licensee was allowed a period of 36 months between AMS reviews. A review leading to a report has been initiated in accordance with the Authority's standard audit guidelines. Independent expert was approved by the Authority.	4	A	1	
105	C4.1	**Electricity Industry Act section 17(1)** A licensee must pay to the Authority the prescribed licence fee within one month after the day of grant or renewal of the licence and within one month after each anniversary of that day during the term of the licence.	This obligation is captured as an annual obligation in the EDWF Compliance Manual: • "The EDWF Manager must pay its licence fee to the Authority…no later than 23 July each year." Evidence of payment has been viewed: • Payment by APA Group of PO250563 on 17 July 2013. • Payment by APA Group of PO322461 on 9 July 2014. • Payment by APA Group of PO326049 on 30 June 2015.	5	A	1	
106	C5.1	**Electricity Industry Act section 31(3)** A licensee must take reasonable steps to minimise the extent or duration of any interruption, suspension or restriction of the supply of electricity due to an accident, emergency, potential danger or other unavoidable cause.	There was evidence that the licensee has taken reasonable steps to minimise the extent or duration of any interruption, suspension or restriction of the supply of electricity. A Service and Availability Agreement (SAA) commit the O&M Contractor (Vestas) to having the turbine plant available for generation at least 97% of the time, below which penalties apply. There have been no	2	B	1	**1.** Complete and routinely update a risk assessment for the substation plant.

Oblig	Lic ref	Licence Conditions	Findings	Audit Priority	Adequacy A,B = Y C,D = N	Compliance* 1=Y 2,3,4=N	Recommendations
			penalties applied during the audit period. Vestas, using the operating and maintenance experience of the group globally for similar plant, minimise forced outages through: • a real time and prioritised alert system for each turbine reporting abnormalities detected via SCADA, • completion of all scheduled plant maintenance as required, • failure and investigation database (incorporating risk assessments), • weekly reporting to the EDWF Manager of any anomalies and suggestions for improvement; and • toolbox meetings incorporating tracking and discussion of all of the above. There also exists Year Plans and Annual Risk Summaries that identify risks and plans associated with electricity curtailment. As per annual plans "maximum availability of the entire wind farm plant is a key objective" and "all significant loss of production incidents shall be reported and recorded". Projects completed during the audit period to minimise loss of production include: • automated fire suppression of SVCs; and • fitting copper caps to turbine blades (lowering risk of lightning damage). ▸ Although Vestas are responsible for the maintenance of the substation, the risk of substation loss of availability remains with the owner, APA. There is currently no risk assessment				

Oblig	Lic ref	Licence Conditions	Findings	Audit Priority	Adequacy A,B = Y C,D = N	Compliance* 1=Y 2,3,4=N	Recommendations
			for the substation plant.				
107	C5.1	**Electricity Industry Act section 41(6)** A licensee must pay the costs of taking an interest in land or an easement over land.	A 25 year lease exists over the property, between EDWF Holdings 1 P/L and EDWF Holdings 2 P/L and Pegasus Corporation until 2031. Lease boundaries also extend 200m beyond that strictly required to operate the plant, as a precautionary measure and buffer for surrounding property owners and any potential impact associated with plant operation.	5	A	1	
		Section 13 - Electricity Licences – Licence Conditions and Obligations					
119	C12.1	**Accounting records:** Electricity Industry Act section 11 A licensee and any related body corporate must maintain accounting records that comply with the Australian Accounting Standards Board Standards or equivalent International Accounting Standards.	The licensee has provided evidence confirming that the financial reports as at 30 June 2013, 30 June 2014 and 31 December 2014 are in accordance with the Corporations Act 2001, Corporations Regulations 2001 and complies with Australian Accounting Standards and International Financial Reporting Standards. All audits were completed by Deloitte Touche Tohmatsu, with appropriate declarations of independence.	4	A	1	
120	C13.4	**Individual Performance Standards** Electricity Industry Act section 11 A licensee must comply with any individual performance standards prescribed by the Authority.	Not Applicable – Individual performance standards have not been prescribed by the Authority.	NA	NA	NA	
121	C14.2	A licensee must comply, and require its auditor to comply, with the Authority's standard audit	Authority's guidelines were part of specified auditor's requirements.	4	A	1	

Oblig	Lic ref	Licence Conditions	Findings	Audit Priority	Adequacy A,B = Y C,D = N	Compliance* 1=Y 2,3,4=N	Recommendations
		guidelines dealing with the performance audit.					
122	C20.5	A licensee must comply, and must require the licensee's expert to comply, with the relevant aspects of the Authority's standard guidelines dealing with the asset management system.	Authority's guidelines were part of specified auditor's requirements.	4	A	1	
123	C15.1	A licensee must report to the Authority, in the manner prescribed, if a licensee is under external administration or there is a significant change in the circumstances upon which the licence was granted which may affect a licensee's ability to meet its obligations.	There has been no material change to the corporate or financial circumstances upon which the licence was granted within the audit period.	4	NP	NR	
124	C16.1	A licensee must provide the Authority, in the manner prescribed, any information the Authority requires in connection with its functions under the Electricity Industry Act.	The licensee has provided reports required by the Act. There has been no requirement to provide the Authority other information in connection with its functions under the Electricity Industry Act during the audit period.	5	A	1	
125	C17.1 & 17.2	A licensee must publish any information it is directed by the Authority to publish, within the timeframes specified.	Not Rated during the audit period. There has been no direction from the Authority to publish information in connection with its functions under the Electricity Industry Act during the audit period.	5	NP	NR	
126	C18.1	Unless otherwise specified, all notices must be in writing.	It was confirmed with the EDWF that all notices are provided in writing. Notices viewed were in writing..	5	A	1	
		Section 14 - Code of Conduct – Licence Conditions and Obligations	Not Applicable – Section 14 of the Electricity Compliance Reporting Manual contains Licence Conditions and Obligations relating to the Code of Conduct. This section is not applicable to Generation Licence holders.				
		Section 15 - Electricity Industry Metering Code – Licence Conditions and Obligations					

Oblig	Lic ref	Licence Conditions	Findings	Audit Priority	Adequacy A,B = Y C,D = N	Compliance* 1=Y 2,3,4=N	Recommendations
324	C5.1	Electricity Industry Metering Code clause 3.3B A user who is aware of bi-directional flows at a metering point which was not previously subject to a bi-directional electricity flows or any changes in a customer's or user's circumstances in a metering point which will result in bi-directional electricity flows must notify the network operator within 2 business days.	Not Rated – There has been no change with respect to bi-directional flows during the audit period. EDWF continues to import power from Synergy as required. Under normal circumstances this only occurs when the plant is not generating sufficient electricity for site consumption.	5	NP	NR	
339	C5.1	Electricity Industry Metering Code clause 3.11(3) A Code participant who becomes aware of an outage or malfunction of a metering installation must advise the network operator as soon as practicable.	WP maintain their own main and check meter facilities. EDWF have access to this metering data through an online portal and use these readings for customer billing. In addition, EDWF maintain their own Ion metering for monitoring malfunction, calibration and drift across all meters. Not Rated - Based on monthly checks by the EDWF Manager, there were no outages or malfunctions across all metering installations during the audit period.	5	NP	NR	
364	C5.1	Electricity Industry Metering Code clause 3.27 A person must not install a metering installation on a network unless the person is the network operator or a registered metering installation provider for the network operator doing the type of work authorised by its registration.	Not Rated – There were no new metering installations during the audit period associated with EDWF. Any new metering installations would be installed by Vestas authorised personnel.	5	NP	NR	
371	C5.1	Electricity Industry Metering Code clause 4.4(1) If there is a discrepancy between energy data held in a metering installation and data held in the metering database, the affected Code participants and the network operator must liaise	Not Rated – There have been no instances of disagreement during the audit period.	5	NP	NR	

Oblig	Lic ref	Licence Conditions	Findings	Audit Priority	Adequacy A,B = Y C,D = N	Compliance* 1=Y 2,3,4=N	Recommendations
		together to determine the most appropriate way to resolve a discrepancy.					
372	C5.1	Electricity Industry Metering Code clause 4.5(1) A Code participant must not knowingly permit the registry to be materially inaccurate.	Meter readings are checked monthly by the EDWF Manager. No material inaccuracies were detected during the audit period.	5	A	1	
373	C5.1	Electricity Industry Metering Code clause 4.5(2) Subject to subclause 5.19(6), if a Code participant, other than a network operator, becomes aware of a change to, or an inaccuracy in, an item of standing data in the registry, then it must notify the network operator and provide details of the change or inaccuracy within the timeframes prescribed.	Not Rated – There were no inaccuracies associated with standing data in the registry during the audit period.	5	NP	NR	
388	C5.1	Electricity Industry Metering Code clause 5.4(2) A user must, when reasonably requested by a network operator, assist the network operator to comply with the network operator's obligation under subclause 5.4(1).	Not Rated – The network operator has not requested the assistance of EDWF or Vestas with respect to their metering installation during the audit period.	5	NP	NR	
401	C5.1	Electricity Industry Metering Code clause 5.16 If a user collects or receives energy data from a metering installation then the user must provide the network operator with the energy data (in accordance with the communication rules) within the timeframes prescribed.	Not Applicable – The network operator collects the energy data.	NA	NA	NA	
402	C5.1	Electricity Industry Metering Code clause 5.17(1) A user must provide standing data and validated, and where necessary substituted or estimated, energy data to the user's customer to which that	EDWF have submitted all metering data associated with the billing of their customers as required during the audit period – this data is obtained from WP's metering facility via an online web portal.	5	A	1	

Oblig	Lic ref	Licence Conditions	Findings	Audit Priority	Adequacy A,B = Y C,D = N	Compliance* 1=Y 2,3,4=N	Recommendations
		information relates where the user is required by an enactment or an agreement to do so for billing purposes or for the purpose of providing metering services to the customer.					
405	C5.1	Electricity Industry Metering Code clause 5.18 If a user collects or receives information regarding a change in the energisation status of a metering point then the user must provide the network operator with the prescribed information, including the stated attributes, within the timeframes prescribed.	Not Applicable – The network operator has access to their own tariff meters.	NA	NA	NA	
406	C5.1	Electricity Industry Metering Code clause 5.19(1) A user must, when requested by the network operator acting in accordance with good electricity industry practice, use reasonable endeavours to collect information from customers, if any, that assists the network operator in meeting its obligations described in the Code and elsewhere, and provide that information to the network operator.	Not Rated – There have been no requests by the network operator to collect information from customers during the audit period.	5	NP	NR	
407	C5.1	Electricity Industry Metering Code clause 5.19(2) A user must, to the extent that it is able, collect and maintain a record of the prescribed information in relation to the site of each connection point with which the user is associated.	Not Applicable – The connection point is with the network operator.	NA	NA	NA	
408	C5.1	Electricity Industry Metering Code clause 5.19(3) Subject to subclauses 5.19(3A) and 5.19(6), the user must, within 1 business day after becoming	Not Applicable – The connection point is with the network operator.	NA	NA	NA	

Oblig	Lic ref	Licence Conditions	Findings	Audit Priority	Adequacy A,B = Y C,D = N	Compliance* 1=Y 2,3,4=N	Recommendations
		aware of any change in an attribute described in subclause 5.19(2), notify the network operator of the change.					
410	C5.1	Electricity Industry Metering Code clause 5.19(6) The user must use reasonable endeavours to ensure that it does not notify the network operator of a change in an attribute described in subclause 5.19(2) that results from the provision of standing data by the network operator to the user.	Not Rated – There has been no provision of standing data by the network operator to the user that resulted in the user notifying the network operator of a change in attributes specified in subclause 5.19(2). Refer Obligation 408.	5	NP	NR	
416	C5.1	Electricity Industry Metering Code clause 5.21(5) A Code participant must not request a test or audit under subclause 5.21(1) unless the Code participant is a user and the test or audit relates to a time or times at which the user was the current user or the Code participant is the IMO.	Not Rated – No tests have been requested during the audit period.	5	NP	NR	
417	C5.1	Electricity Industry Metering Code clause 5.21(6) A Code participant must not make a request under subclause 5.21(1) that is inconsistent with any access arrangement or agreement.	Not Rated – No tests have been requested during the audit period.	5	NP	NR	
435	C5.1	Electricity Industry Metering Code clause 5.27 Upon request from a network operator, the current user for a connection point must provide the network operator with customer attribute information that it reasonably believes are missing or incorrect within the timeframes prescribed.	Not Rated – the network operator did not make any requests for customer attributes during the audit period.	5	NP	NR	
448	C5.1	Electricity Industry Metering Code clause 6.1(2) A user must, in relation to a network on which it	There have been no breaches of the rules, procedures, agreements and criteria during the audit	5	NP	1	

Oblig	Lic ref	Licence Conditions	Findings	Audit Priority	Adequacy A,B = Y C,D = N	Compliance* 1=Y 2,3,4=N	Recommendations
		has an access contract, comply with the rules, procedures, agreements and criteria prescribed.	period.				
451	C5.1	Electricity Industry Metering Code clause 7.2(1) Code participants must use reasonable endeavours to ensure that they can send and receive a notice by post, facsimile and electronic communication and must notify the network operator of a telephone number for voice communication in connection with the Code.	The EDWF site has a main telephone line, mobile telephone coverage and wireless internet access. Site planned outages are entered into WP's web portal. A written protocol provides communication details. There have been no communication difficulties during the audit period.	5	A	1	
453	C5.1	Electricity Industry Metering Code clause 7.2(4) If requested by a network operator with whom it has entered into an access contract, the Code participant must notify its contact details to a network operator within 3 business days after the request.	Western Power's "Operating Protocol" has EDWFs contact details, recently updated as per recommendations of the previous audit. EVIDENCE: Operating Agreement for Emu Downs Wind Farm, Version 1, dated 15/04/2015.	5	A	1	
454	C5.1	Electricity Industry Metering Code clause 7.2(5) A Code participant must notify any affected network operator of any change to the contact details it notified to the network operator under subclause 7.2(4) at least 3 business days before the change takes effect.	Not Rated - There has been no change in contact details during the audit period. Changes in contact details occurred in the previous audit period and updated as per Obligation 453 during this audit period.	5	NP	NR	
455	C5.1	Electricity Industry Metering Code clause 7.5 A Code participant must subject to subclauses 5.17A and 7.6 not disclose, or permit the disclosure of, confidential information provided to it under or in connection with the Code and may only use or reproduce confidential information for the purpose for which it was disclosed or another purpose contemplated by the Code.	The network access agreement (NAA) dated 22/08/05 identifies confidential information. Confidentiality Agreements are in place for personnel that will be privy to confidential information. Metering information is treated as confidential information. There have been no breaches of confidentiality during	5	A	1	

Oblig	Lic ref	Licence Conditions	Findings	Audit Priority	Adequacy A,B = Y C,D = N	Compliance* 1=Y 2,3,4=N	Recommendations
			the audit period.				
456	C5.1	Electricity Industry Metering Code clause 7.6(1) A Code participant must disclose or permit the disclosure of confidential information that is required to be disclosed by the Code.	Confidential information is disclosed on an as required basis by EDWF.	5	A	1	
457	C5.1	Electricity Industry Metering Code clause 8.1(1) If any dispute arises between any Code participants then (subject to subclause 8.2(3)) representatives of disputing parties must meet within 5 business days after a notice given by a disputing party to the other disputing parties and attempt to resolve the dispute by negotiations in good faith.	Not Rated – there have been no disputes during the audit period.	5	NP	NR	
458	C5.1	Electricity Industry Metering Code clause 8.1(2) If a dispute is not resolved within 10 business days after the dispute is referred to representative negotiations, the disputing parties must refer the dispute to a senior management officer of each disputing party who must meet and attempt to resolve the dispute by negotiations in good faith.	Not Rated – there have been no disputes during the audit period.	5	NP	NR	
459	C5.1	Electricity Industry Metering Code clause 8.1(3) If the dispute is not resolved within 10 business days after the dispute is referred to senior management negotiations, the disputing parties must refer the dispute to the senior executive officer of each disputing party who must meet and attempt to resolve the dispute by negotiations in good faith.	Not Rated – there have been no disputes during the audit period.	5	NP	NR	

Oblig	Lic ref	Licence Conditions	Findings	Audit Priority	Adequacy A,B = Y C,D = N	Compliance* 1=Y 2,3,4=N	Recommendations
460	C5.1	Electricity Industry Metering Code clause 8.1(4) If the dispute is resolved by representative negotiations, senior management negotiations or CEO negotiations, the disputing parties must prepare a written and signed record of the resolution and adhere to the resolution.	Not Rated – there have been no disputes during the audit period.	5	NP	NR	
461	C5.1	Electricity Industry Metering Code clause 8.3(2) The disputing parties must at all times conduct themselves in a manner which is directed towards achieving the objective in subclause 8.3(1).	Not Rated – there have been no disputes during the audit period.	5	NP	NR	
		Section 16 - Electricity Industry (Network Quality and Reliability of Supply) Code 2005	Not Applicable – Section 16 of the Electricity Compliance Reporting Manual contains Licence Conditions and Obligations relating to the Electricity Industry 'Network Quality and Reliability of Supply' Code. This section is not applicable to Generation Licence holders.				
		Section 17 - Electricity Licences - Licensee Specific Conditions and Obligations	Not Applicable – Section 17 of the Electricity Compliance Reporting Manual contains obligations which only apply to Horizon Power, Western Power, Synergy and Clear Energy.				
		Electricity Licences - Licensee Specific Conditions and Obligations ** Obligations 486 to 496 apply only to Horizon, Western Power, Synergy and Clean Energy and other suppliers	Not Applicable	NA	NA	NA	

2.6 ASSET MANAGEMENT REVIEW FINDINGS AND OBSERVATIONS

Key findings and recommendations arising from the Asset Management System Review are listed against their Effectiveness Criteria (EC) in the following table.

LEGEND

Key	Description
▸	Finding
1. Text	Recommendations
[**OFI**]	Opportunity for Improvement

Table 10 - Asset Management System Review

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
1	**Asset Planning**	Integration of asset strategies into operational or business plans will establish a framework for existing and new assets to be effectively utilised and their service potential optimised.	
	Asset Management Structure	EDWF Holdings 1 Pty Ltd and EDWF Holdings 2 Pty Ltd, trading as Emu Downs Wind Farm Joint Venture (**EDWF** or the licensee) generate and supply electricity to West Australia's South West Interconnected System (SWIS), under the Electricity Generation Licence EGL1 (the **licence**). The APA Group (**APA**) own EDWF. EDWF has contracted Vestas – Australian Wind Technology Pty Ltd (**Vestas**) to provide the day to day operation and management of the generating assets under the licence through Service And Availability Agreement (**SAA**).	

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
1.1	Asset management plan covers key requirements.	The "EDWF Asset Management Plan" (**AMP**) is a five year document which was last revised in June 2010 and provides the strategies for the management of the plant, evaluates the risks, the plant performance, plant conditions and the asset life plan. The AMP includes: • the asset management objectives and strategy • the suite of assets • compliance requirements both statutory and contractual • the external factors impacting on the assets operation through the life of the plant, threats and opportunities • performance indicators through the life of the plant and minimum standards • key risks • plant performance, Operations and Maintenance (**O&M**) costs, net cash flow, actual and expected over the life of the plant • events and known issues affecting the plant, current and future improvement strategies leading to life plan summaries. The AMP is supported by annual Year Plans which provide the updated plan for the forthcoming year, including objectives, risks and expenditure program. The AMP is a very sound document. It is now due for review and could be improved through a new review and update, particularly to reflect changes in operation and technology, bring up to date the historical and financial data and adapt future plans as affected by plant performance and changing external conditions.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
1.2	Planning process and objectives reflect the needs of all stakeholders and is integrated with business planning.	The planning process has been documented in the AMP which has also identified the business stakeholders. The AMP has identified the objectives of the business. The annual Year Plans (**YP**) have been used to document the review of the performance of the plant and to revisit the objectives and activities that will be the focus of the forthcoming year. The process is started by the requirements identified by the facility operator, Vestas, following EDWF's request. Vestas proposes projects for the forthcoming year around	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		November/December. The operator proposed projects and the asset operational and capital plans identified by EDWF are combined in the annual YP which is submitted to the owners, APA Group's management and the Board for review/approval in January. This process results in a list of approved projects which is finalised in April/May and the entire process is then summarised in Capital expenditure (**CAPEX**) and Operating Expenditure (**OPEX**) plans and in the plant "Whole of Life Plan". The Review viewed a number of YPs, from 2013 to 2016, CAPEX and OPEX Plans and the Whole of Life Plan.	
1.3	Service levels are defined.	The entire output of the EDWF is purchased by third parties. EDWF's obligation is to deliver as much energy as the plant can produce. The plant delivery obligations are for compliance with the network operator technical rules. These are complex and detailed and subject to review and variations. Generally the plant is subject to tests to prove that it complies with the requirement of the "Operation Protocol" and the "Connection Agreement" with the network operator.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
1.4	Non-asset options (e.g. demand management) are considered.	Non asset options are not applicable to this licence operation as there are no obligations on the delivery of the output of the plant to customers. Revenue is based on generation; while there are no penalties for lack of supply to customers, that translates to no revenue.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
1.5	Lifecycle costs of owning and operating assets are assessed. (also at 2.2)	Examination of documents, discussion with the EDWF Manager and enquiries on the APA Group Finance Manager have shown that: • life cycle costs of owning and operating the assets have been documented in the "Whole of Life Model" which forecasts both capital and operating expenses. The model is kept up to date through annual updates showing actual costs for the current period and budgeted costs going forward.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		• in addition the AMP has charted life cycle costs, including risk costs. • the Project Development and Execution Form is filled for new projects, it includes costing and is subject to review and approval; • sample Project Development & Execution Forms were examined for: ◦ Static Var Compensator (**SVC**) Panel Fire Suppression; ◦ SVC Transformer; ◦ 22k Cable Termination Covers.	
1.6	Funding options are evaluated.	Generally revenue funds expenditure. However the APA Group has demonstrated the capability to raise funds through other avenues if required. As EDWF represents a small portion of APA's operation, its funding options are not specifically considered due to the size of EDWF relative to APA. The Whole of Life Model" forecasts costs and revenue over the life of the plant, while the "Year Plan" includes more detailed analysis of revenue and costs on a yearly basis.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
1.7	Costs are justified and cost drivers identified.	The "Whole of Life Model" provides costs and revenue over the life of the plant, while the Year Plan includes more detailed analysis of revenue and costs on a yearly basis. Capital expenditure is subject to justification and approval and reviewed monthly through a documented process. Cost drivers are identified by APA in financial plans and reviewed monthly. O&M costs are the main drivers at present.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
1.8	Likelihood and consequences of asset failure are predicted.	Likelihood and consequences of asset failure are reported and reviewed in a number of documents: • the Vestas Standard Risk Register; • the local site specific risk register; • the Year Plans, which include a yearly review of risks;	ADEQUACY OF CONTROLS: B Documentation requires some improvement. Likelihood and consequences of substation plant failures have not been brought up to date. Refer to note below for

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		• assets are also assessed for risk whenever a new project is evaluated. ▸ There was insufficient evidence to show that the Substation plant is subject to annual risk assessments including likelihood and consequences of asset failures.	recommendation. PERFORMANCE: 2 Performance requires some improvement Refer to Recommendation 4 at EC8.2.
1.9	Plans are regularly reviewed and updated.	The AMP is reviewed every five years and is due for review in 2015. The Yearly Plans provide an annual update of the asset management plan. Financial plans are reviewed both monthly and yearly.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
2	**Asset Creation and acquisition**	A more economic, efficient and cost-effective asset acquisition framework which will reduce demand for new assets, lower service costs and improve service delivery.	
2.1	Full project evaluations are undertaken for new assets, including comparative assessment of non-asset solutions.	A process is in place which is started by Vestas which, following EDWF's annual request, identifies requirements for new projects. Vestas projects proposed for the forthcoming year are combined with the asset operational and capital plans identified by EDWF in the annual YP which is submitted to the owners, APA's management and the Board, for review/approval. This process results in a list of approved projects which is finalised in April/May and the projects are then summarised in CAPEX and OPEX plans and in the plant Whole of Life Plan. The process documentation includes: • the "EDWF Project Development Procedure" includes the general requirements and guidance for the development and execution of projects; • individual projects proposals are submitted in "Authority for Expenditure" forms or	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		"Project Development and Execution Forms" which require formal approval. The following documents were examined: • the Project Development & Execution Form for: ◦ "Fire Suppression SVC Room"; ◦ SVC Transformer; ◦ 22k Cable Termination Covers. • the "Authority for Expenditure" for "Replacement of Substation Transformer 2". Small acquisitions are performed by Vestas and are funded by the owner.	
2.2	Evaluations include all life-cycle costs.	Project evaluations include the asset costs and life-cycle costs and are included in the " Whole of Life Model". The Review sighted: • "Fire Suppression SVC Room" Project Development & Execution Form; • the "Authority for Expenditure" for "Replacement of Substation Transformer 2".	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
2.3	Projects reflect sound engineering and business decisions.	Justification for projects is provided by investigative reports, inspections or advice from Vestas' global operational network. The Review noted: • the process is documented in the "EDWF Project Development Procedure"; • project information is reported monthly, discussed at "Management Committee" monthly meetings and minuted in ""Management Committee Meeting Notes"; • sample investigation was examined ("EDWF SVC Failure Report 19-6-13"); • a "Project Development and Execution Form" is completed for each project sowing the design basis, costs, business case and cost benefit analysis, schedule of works and risk assessment; • the completed Project Development & Execution Forms for: ◦ "Fire Suppression SVC Room"; ◦ "Manufacture and Installation of Covers for 22 kV Cable Terminations".	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
2.4	Commissioning tests are documented and completed.	Work Instruction control return to service, including tests and checks to get equipment in operational order. The Review examined: • the Generator Manufacturer final test report: MIN No 1588, 13/1/2015. MIN No 1589, 20/1/15. • Commissioning documentation for any assets kept in Vestas "Standard Documentation". During the Review period, a new SCADA server was commissioned – as part of this commissioning data was successfully restored from tape. ▸ Not all installations had commissioning records, as some of the assets are capable of continuous self-tests and other assets (e.g. generators) are installed under supplier warranty and any malfunction would be covered by the supplier's warranty.	ADEQUACY OF CONTROLS: B Documentation requires some improvements as not all installations have commissioning records due to asset self-testing regime or suppliers warranty. In accordance with section 11.4.2 of the guidelines, no recommendation is considered to be necessary. PERFORMANCE: 1 Performing effectively
2.5	Ongoing legal/environmental/safety obligations of the asset owner are assigned and understood. (also at EC4.3)	A process is in place for managing the legal/environmental/safety compliance of the asset operation. The responsibilities for managing compliance rests with the APA Group, the EDWF Manager and Vestas. APA manages corporate legal and financial obligation. A "Contractor Agreement" is in place between APA and PowerPlan Engineers Pty Ltd (**PowerPlan**) for PowerPlan to provide key services, including among others, the function of the EDWF Manager and the management of compliance obligations. Statutory and regulatory requirements are identified and managed by the EDWF Manager through the AMP and the "Compliance Manual" (30 September 2009). Under the SAA Vestas maintains a "Safety and Environment Management Plan" (**SEMP**) identifying the requirements, systems and processes to manage the safety, environmental and quality obligations of the operation.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
3	**Asset Disposal**	Effective management of the disposal process will minimise holdings of surplus and under-performing assets and will lower service costs.	
3.1	Under-utilised and under-performing assets are identified as part of a regular systematic review process.	There is regular reporting and continuous review of EDWF's operation. The Review examined: • "EDWF O&M Monthly Report", monthly Operations and Maintenance (**O&M**) reports which include Vestas' "Maintenance and Service Monthly Report"; • the Vestas report above includes: ◦ "Current Outstanding Issues Register" which lists all current issues and actions including projects, replacements, reviews etc; ◦ "Outstanding Defects Register", listing defects and investigations; ◦ Wind Turbine Generators (**WTGs**) performance and availability; ◦ asset inspection results; • the "Management Committee" monthly meeting, minuted in "Management Committee Meeting Notes", which discusses and incorporates reports on performance and issues. • investigations carried out on behalf of the EDWF Manager; • the Copper caps investigation for lightning protection initiated by Vestas.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
3.2	The reasons for under-utilisation or poor performance are critically examined and corrective action or disposal undertaken.	Reasons for poor performance or under-utilisation are examined through a variety of means: • "EDWF O&M Monthly Report"; • Vestas' "Maintenance and Service Monthly Report" which includes the " Current Outstanding Issues & Defect Lists"; • systematic asset inspections; • investigations such as: ◦ the "EDWF SVC Failure Report 19-6-13; • technical reports from Vestas' global operations arm such as "0014-9903_V00 -	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		Technical report 1806 - Copper Caps"; • Vestas' procedure for the assessment of component defects, "PRD-CIM-CIR Component Inspection Reporting". The Review also examined evidence of corrective actions: • installation of Copper Caps for lightning protection, reported in annual "EDWF O&M Report - July 2014 to June 2015"; • installation of SVC fire suppression system, reported in the annual "EDWF O&M Report - July 2013 to June 2014".	
3.3	Disposal alternatives are evaluated.	Disposal alternatives are evaluated through the Vestas Component Inspection Report (**CIR**). First the CIR is prepared by a Service Technician and provides the issue details, then Engineering and the Supply Chain will advise if the replaced item is a repairable item and classify it in four categories, (Cat 1 - 4) from high value to no return value. Return value has to be compared to transport costs. Ultimately components which have little or no repair value are scrapped, based on the final decision of Vestas Site Manager and his management.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
3.4	There is a replacement strategy for assets.	There is a replacement strategy for the assets which, at a high level is documented in the "Whole of Life Model". Vestas also drive the replacement strategy through their Engineering recommendations which stem from the plant global operational experience. WTGs are driven by their planned 25 year life, while the replacement strategy for components like generators, gearboxes, blades, transformers, main bearings etc is driven by engineering (Vestas Technical Support Services or TSS).	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
4	**Environmental Analysis**	The asset management system regularly assesses external opportunities and threats and takes corrective action to maintain requirements.	
4.1	Opportunities and threats in the system environment are assessed.	Each year, EDWF prepares a Year Plan as part of their asset management planning processes. All year plans over the Review period comprised a strength, weakness, opportunity and threat (**SWOT**) analysis against EDWF Capability and Stakeholder Relationships and Asset Management and Performance. Opportunities and threats are also more frequently assessed via weekly, monthly and annual reports prepared by Vestas for EDWF. These reports comprise: • production and availability, • safety and environmental considerations, • community expectations and feedback, • land owner expectations; and • weather events and wind availability. ▸ Year Plans reviewed over the period 2012 – 2015 showed negligible change and could better incorporate opportunities and threats identified in monthly / annual reports prepared by Vesta's for EDWF.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
4.2	Performance standards (availability of service, capacity, continuity, emergency response, etc) are measured and achieved.	Vestas are contractually obligated to report performance at least monthly to EDWF, however, weekly as well as monthly / annual reports are prepared covering: • lost time injuries, • environmental incidents, • energy sent out, • availability, • forced outage factor, • maintenance outage factor, • capacity factor; and	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		• average wind speed. With respect to turbine availability, Vestas achieved the performance standard during the Review period. Vestas maintain the "Emu Downs Wind Farm Emergency Response Plan" (Document No. ASP/AUSNZ-HB-0032) – this is covered as part of site induction and tested monthly across a wide range of scenarios such as: • broken leg, • rope rescue, • broken arm in turbine, • snake bite, • unconscious technician; and • critically injured person. Reminders are sent as the drills are due and the Emergency Response Exercise Register records the outcome of these monthly drills. Each drill is documented detailing what was simulated and any recommendations arising. Recommendations are then tracked through toolbox meeting minutes until closure.	
4.3	Compliance with statutory and regulatory requirements.	Statutory and regulatory requirements are identified through the AMP (2/6/10) and the "Compliance Manual" (30/9/09) and include: • compliance, audits and review requirements, • minimum standards tables for mechanical, electrical, control and civil plant, • generation licence obligations, • wholesale electricity market rules, • obligations in relation to RECs, • metering obligations, • WP agreements, • Vestas agreements, • National Greenhouse and Energy Reporting Act 2007; and	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		• ERA obligations. ▸ While the Compliance Manual is reviewed as part of the preparation of annual plans, the Asset Management Plan is now due for review –this document is due to be reviewed at least once every 5 years, the next review date is 2015.	
4.4	Achievement of customer service levels.	EDWF's two customers agree to take all of EDWF's generated output in agreed proportions. Given the reliance on wind, there is no minimum amount of generation contracted. As all of EDWF's generation is transported over Western Power's (**WP**) network, EDWF is obligated to abide by WP's technical rules which require that EDWF maintain an agreed Power Factor and at no time exceed the maximum generation set by WP (as per "Operating Agreement for EDWF", dated 15/04/2015). These are contractual requirements of the connection agreement. Neither customer is directly involved in setting the service levels, as these are governed by actual power generated and WP's network requirements. Accordingly, the operation of EDWF follows WP's network requirements with little involvement of EDWF, Vestas or the customers, ensuring that customer service levels are achieved and maintained by design. There have been no breaches of WP's technical rules by EDWF during the Review period.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
5	**Asset Operations**	Operations plans adequately document the processes and knowledge of staff in the operation of assets so that service levels can be consistently achieved.	
5.1	Operational policies and procedures are documented and linked to service levels required.	Operational and maintenance policies are documented in the AMP. The licensee has a service agreement in place, the "Services and Availability Agreement - Active Output Management" (**SAA**) between EDWF and Vestas for the Wind Turbines, extended in 2013 for a further five years, where Vestas provides the operational services and certain warranties about the availability of the equipment. The agreement details extensively the range of operational services and maintenance	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		programs that the operator, Vestas, will have to deliver. The operation is based on monitoring systems and assets through SAP (Systems, Applications & Products in Data Processing). A further agreement is in place for Vestas to service the Balance of Plant (**BOP**). In addition, the "Emu Downs Windfarm Operating Protocol-12052015" between EDWF and System Management sets the mode of operation of the wind farm with respect to the network. The owner has also an agreement with PowerPlan to provide the function of the EDWF Manager. Operational procedures are documented by Vestas and are extensive. The Review examined samples of procedures: • "EDWF HV Equipment Operating Procedures Rev 1", which includes 32 individual procedures; • "EDWF HV Switching Instructions V6B 15-7-14"; • "EDWF Internal Procedures", controlled by Vestas Site Manager and the Site Administrator. ▸ The "EDWF Fire Ban Procedure" had no formal approval on document - Finding is replicated in section 7.1.	
5.2	Risk management is applied to prioritise operations tasks.	Risk management is applied at several levels to the operation of the plant. Risk analysis is strategically applied to planning operational tasks and, tactically, to performing those tasks. • Operational risks are analysed in the AMP and in the "EDWF Risk Summary" which is updated annually and attached to the EDWF Year Plan; • plant performance, availability and site conditions are continually monitored in monthly and annual reports; • alarms from SCADA are displayed in real time and colour coded for criticality. Alarms are prioritised through four categories ranging from "immediate" response to	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		"next visit"; higher risk alarms are monitored and reviewed by Vestas' Global Technical Department; • alarms which require immediate response are reported weekly to the EDWF Manager.	
5.3	Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical/structural condition and accounting data.	The asset register for the wind farm is held in Vestas' asset management system (**SAP**) and contains asset information, serial numbers, maintenance and inspection data including maintenance costs. SAP automatically notifies the operator of scheduled services, supplying a list of parts normally required. The Review sighted SAP history for turbine 23163; this included scheduled and unscheduled work recorded in Service Orders (**SO**). Quantity of materials used is monitored to determine unusual operation and any need for checking. Information on SAP is complemented by VIS (Vestas Info Sheet) which contains more detailed information as well as SOs or jobs that need to be completed, historical information including asset physical/structural condition and past SOs. Asset accounting data such as asset valuation and depreciation is held in a separate financial register. There is no default link between the two registers. ▸ Whilst plant list, drawings, maintenance plans and condition details were documented and available, during the Review it was not possible to access the overall Balance of Plant asset register.	ADEQUACY OF CONTROLS: B Documentation requires improvements PERFORMANCE: 2 Performance of the process requires improvement. **1.** Ensure that the Balance of Plant asset register is available.
5.4	Operational costs are measured and monitored.	The SAA defines specific formulas for payment of the operational services, including incentives and penalties for the achievement/or lack of, service level. This entails that operational expenditure is well controlled as it is based on well defined and measured data. As far as the operator, operational costs are tracked in SAP for labour cost and	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		parts/consumables costs. Every three months costs and maintenance activities are compared by the operator, in a meeting, to other sites. At the end of the year reports are submitted to and reviewed by higher management and new plans made. BOP costs are also tracked by Vestas in SAP, however as these are not part of the fixed operational fees, costs are charged back to the licensee on a monthly basis. Both EDWF and APA monitor these costs.	Performing effectively
5.5	Staff resources are adequate and staff receive training commensurate with their responsibilities.	The review examined the process and documentation related to staff resources and training: • staff levels appeared to be satisfactory; when additional staff is required assistance is provided by Vestas Global services through 'mobile' staff; • Vesta's has joined Global Wind Optimisation, which makes training compulsory, rather than just best practice. Training appeared to be thorough with employees first trained off-site, then on site and later through regular operational meetings: • training records are maintained through Litmos which includes a training register; ◦ each technician has a profile and the list showed compliance with requirements; ◦ course requirements are entered by corporate office together with requirements for mandatory courses, renewal of training and expiry dates; ◦ certificates are scanned into the system but also kept in paper form; certificates for sample staff were examined and records were found to be satisfactory. Prior to the above system, an earlier spreadsheet based system was in use. Compliance was checked manually each six months, using a colour key that colour coded any overdue compliance training / refresher. Records from the earlier, now superseded, system were also examined.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
6	**Asset Maintenance**	Maintenance plans cover the scheduling and resourcing of the maintenance tasks so that work can be done on time and on cost.	
6.1	Maintenance policies and procedures are documented and linked to service levels required.	The Review found evidence of documented maintenance policies, plans and procedures linked to documented service levels: • current and future maintenance strategies are listed in the AMP together with a plan of action for implementing the whole of life plan; the plans are also updated in the annual Year Plans and optimised to achieve and better the service levels; • The AMP also lists (both for the wind turbine plant and the BOP): ◦ the expected life sustaining and improvement actions; ◦ risk based failures, overhauls and replacements including assets such as turbine blades, bearings, generators and ring gear; ◦ minimum standards of maintenance for the equipment; • Service levels are defined in terms of availability, outages, both planned and forced. The maintenance regime relies on the regular servicing of the WTGs and the BOP. Services are arranged in an automotive style (e.g. six monthly 'A', 'B' services and major and less frequent 'C' services) so that six monthly services are carried out on all WTGs twice a year. WTGs are bundled in groups to improve efficiency and reduce disruption. Services on the BOP vary in frequency from monthly to quarterly, six monthly and up to five yearly.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
6.2	Regular inspections are undertaken of asset performance and condition.	The AMP and the Year Plans provide plans for asset inspection. Plant performance is continually monitored to verify achievement of service levels. The Review examined: • the "EDWF Substation Scheduled Maintenance - Rev 1 - 10-9-13", a schedule of inspection, testing and maintenance for the substation equipment;	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		• the annual "EDWF Year Plan 2014-2015" showing the maintenance plan for the period; • the annual "EDWF O&M Report - July 2014 to June 2015" including the service plan performed in the year; • records for six monthly planned inspections on turbine blades and generators.	
6.3	Maintenance plans (emergency, corrective and preventative) are documented and completed on schedule.	The Review examined documentation on maintenance plans: • Maintenance actions for sustaining the asset life plan are shown in the AMP; • planned maintenance schedules are included in the Year Plans and completed maintenance is reported in monthly and annual operating reports; • routine preventative maintenance, such as the 'A', 'B' and 'C' WTG services are set up in SAP. The tasks appear on Service Orders six months before they are due. Service reports were available to monitor the progress of preventative maintenance such as routine A, B and C services: • Vestas monthly "Maintenance and Service Monthly Report", attached to the "EDWF O&M Monthly Report", provides a "Service Status" report in section 13, showing the progress of services against the plan by individual month and cumulative; months reviewed showed overall compliance of actual services with planned. Corrective and emergency maintenance are documented in Section 14 of the report which lists "Current Outstanding Issues and Defects Lists": • both the "Outstanding Issues Register" and the "Outstanding Defect Register" show required maintenance due to failures, with planned and actual completion dates; • the Review sighted records such as replacement of generator on WTG05 due to winding failure which was completed in 11 days. Unscheduled maintenance is assisted by Vesta's "Global Advisor" – a group knowledgebase to assist with actions related to specific and common alerts / notifications.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
6.4	Failures are analysed and operational/maintenance plans adjusted where necessary.	Condition monitoring through SCADA allows close awareness of plant performance. Corrective and emergency maintenance are documented in Section 14 of the Vestas monthly "Maintenance and Service Monthly Report", attached to the "EDWF O&M Monthly Report", which includes "Current Outstanding Issues and Defects Lists": • both the "Outstanding Issues Register" and the "Outstanding Defect Register" show required maintenance due to failures, with planned and actual completion dates; • Vestas VTM (Vestas Turbine Monitoring) system supervises each WTG; most conditions are highlighted by alarms with colour coding to represent the criticality of the condition; each alarm creates a notification in SAP; site staff make allowance for local operation such as site temperature higher than global park. Notifications prompt continuous reminders until resolution; • the Review sighted records such as the breakdown of a generator on WTG05 due to winding failure and the modification of maintenance plans to include its replacement; • lightning damage on turbine blades and evidence from global operation (which has produced various reports) has prompted the introduction of a new maintenance program to add copper caps to the tips of the blades. The Review sighted the following reports analysing the damage: ◦ "0014-9903_V00 - Technical Report on Lightning Protection Upgrade"; ◦ "Addendum to Technical Report - Lightning Protection Upgrade Copper Cap for 44 m Blade"; ◦ "D4000175_V04 - TD Lightning Protection"; ◦ "Component Inspection Report for Blade 6072"; ◦ "Project Development and Execution Form for Copper Caps for WTG Blade Tips", including risk analysis;	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
6.5	Risk management is applied to prioritise maintenance tasks.	Risk management is applied at several levels to the maintenance of the plant: • plant performance and availability is monitored in monthly and annual reports; • alarms from SCADA alarms are displayed in real time and colour coded for	ADEQUACY OF CONTROLS: A Adequately defined

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		criticality. Vestas prioritises alarms through four categories ranging from "immediate" response to "next visit"; higher risk alarms are monitored and reviewed by Vestas' Global Technical Department; alarms are persistent and create notifications which in turn create reminders until approved work is completed; • alarms which require immediate response are reported weekly to the EDWF Manager; faults result in changes in maintenance plans and in maintenance priorities; it was noted that the "Service Plan and Checklist" document had been revised 23 times since in operation to account for faults arising in the field; • faults are highlighted in monthly reports, in the "Outstanding Issues Register" and the "Outstanding Defect Register" which show maintenance required due to failures, with planned and actual completion dates;	PERFORMANCE: 1 Performing effectively
6.6	Maintenance costs are measured and monitored.	Under the SAA maintenance costs are made up of components: • a calculated amount that is dependent on power production in accordance with the SAA; • BOP maintenance (including substation maintenance) is planned by EDWF directly and Vestas costs are monitored through the SAP asset management system and reports; • unscheduled maintenance such as corrective and emergency maintenance, where the costs are quoted by the operator Vestas and subject to the approval of the licensee. All costs are routed through the Project Manager, to the Financial Manager and then submitted to the APA Group Management Committee for final approval. Ultimately costs are summarised in APA's monthly "DIVA Financial Reports", with commentary on variations.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
7	**Asset Management Information System (MIS)**	The asset management information system provides authorised, complete and accurate information for the day-to-date running of the asset management system. The focus of the review is the accuracy of performance information used by the licensee to monitor and report on service standards.	
7.1	Adequate system documentation for users and IT operators.	Vestas and EDWF maintain separate IT systems that do not directly interface with one another. While access to each other's IT systems is available, this is always restricted to read only privileges. Information transfer and document sharing is largely done via email. Vestas is principally responsible for preparing performance information and reporting this to EDWF, facilitating the monitoring of service standards. While Vestas retain full control over SCADA, EDWF have visibility through read only authorisation maintained by Vestas, which facilitates both real time and historic visibility into performance. Vestas also provide EDWF data from Vestas Weather, to forecast generation capability as part of their submission tool. Vestas Weather is considered more accurate than the previously used BOM data source. Vesta's IT systems comprise SAP and numerous other systems largely accessible via "The Hub" (or corporate intranet). These systems include the "Incident Management System", SCADA, turbine monitoring and reporting, technical documentation and human resources. The Hub is personalised to users and from what was witnessed during the Review appears user friendly and comprehensive. The Hub also serves as a document management system. System documentation for EDWF and Vestas users and IT operators is adequately available through: • generic training during employee induction; and • training specific to job functions and requirements. ▸ While most documents viewed did have sufficient document control, there were some examples of appropriate document control missing, both with Vestas and EDWF: ◦ EDWF Business & Asset Risk Register 2015 (EDWF document) ◦ EDWF Fire Ban Procedure (Vestas document dated 23/07/15)	ADEQUACY OF CONTROLS: B Documentation requires some improvements. Refer to recommendation 2 below. PERFORMANCE: 1 Performing effectively **2.** Ensure documents are adequately controlled with removal and finalisation of draft issues, revision tracking and authorised approvals across Vestas and EDWF (APA Group).

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		◦ Emu Down Wind Farm SRS (EDWF document in draft status) ◦ Linux Environment and Oracle Database SRD (EDWF document in draft status) EDWF (via the APA Group) currently use SharePoint as the DMS for IT system documentation. A more enterprise wide DMS is currently being planned, to better control documents.	
7.2	Input controls include appropriate verification and validation of data entered into the system.	Processes are in place to provide appropriate verification and validation of data entered into the system. A large part of the data used for routine reporting is provided via SCADA, which can be independently checked against data stored by the wind turbines directly. Raw SCADA data is manually reviewed each Monday prior to the preparation of weekly reports by Vestas for EDWF. Corrections are made based on the experience of the Site Manager and known events, particularly with respect to SCADA communication failures. Vestas perform further monthly checks on the data and the EDWF Manager reviews data as reports are received. As reporting is done on the basis of templates and standard charts, this also assists to highlight data anomalies as they arise. The EDWF Manager also checks WP metering values against EDWF's own metering on a monthly basis, as a minimum requirement for invoicing purposes.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
7.3	Logical security access controls appear adequate, such as passwords.	Security of the asset management information system for both Vestas and EDWF is adequately controlled via: • standard practice password policies with respect to age, length, history, lockout and complexity, • permissions appropriate to role and job function; and • location based access and auto lock out after periods of inactivity. "Vestas Wind Systems A/S Information Security Statement" (4/3/15) outlines Access Control Management as based on the concepts of least-privilege and need-to-know basis. User, role and rule based access control is used. EDWF (via APA Group) require new users to go through an on-boarding process, via HR then a service desk using the "ServiceNow" application. The ServiceNow system is	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		used for compliance purposes and maintains records of user request forms. Outside of general basic system access, more substantial access must be approved by the business owner of the application. Two factor authentication is required for all external access with remote swipe enabled on mobile devices (including BYOD).	
7.4	Physical security access controls appear adequate.	EDWF (via APA Group) have two externally located server locations in Melbourne servicing the EDWF site. Vestas have their main servers in Denmark, replicated to Melbourne and Singapore servicing the EDWF site. Both EDWF and Vestas servers have data centre grade physical security access controls in place. The only server located on site relates to the SCADA system, protected by lock and key. Only authorised users (technicians) are allowed to enter the substation, where the SCADA server resides. Lock and key also physically protect all site buildings, including the offices. There have been no physical security issues on site during the Review period – although an alarm system was installed at time of plant commissioning, it has never been used and is currently not operational. Tamper proof windows and steel doors protect the site office. All plant (including turbines and substation) are lock and key protected. There is also a close relationship with the farmer who monitors and reports suspicious activity at all times. Offsite, the APA Group generally have swipe cards protecting all facilities, with contractors locked out by default outside of business hours. A "Failure to Manage Physical Security of Assets" risk is noted in the "EDWF Risk Summary 2013-2014". While it notes the potential risk as significant, considering the above controls, the residual risk is moderate with no further controls required/planned.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
7.5	Data backup procedures appear adequate and backups are tested.	Both EDWF and Vestas remote servers are replicated across multiple locations for real time backup and failover redundancy. APA Group use "CommVault" (combined with offsite tape storage) and recently tested their backup / restore process during the Review period, where servers were relocated from Dandenong to Melbourne data centres. This confirmed the disaster recovery process was adequate. All computer systems operated, managed and/or supported by APA Group IT are covered under an "Operational Level Agreement" (**OLA**). The OLA	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		contains a proviso for the client's computer system – ensuring continuity of data access and protecting the client from data loss due to systems failure, virus, vandalism, operator error or accidental erasure. The onsite SCADA server, is backed up to tape locally, but also automatically backed up to Denmark remotely. An automated reminder to rotate tapes is sent by email to the relevant personnel. In addition, each individual wind turbine stores up to two weeks of data locally, which can be used to reload the SCADA if required. In summary, a loss of data in the SCADA system locally would be restored from the wind turbines, then tape and lastly Denmark depending on data loss duration. During the Review period, a new SCADA server was commissioned – as part of this commissioning data was successfully restored from tape. APA Group and Vestas backup policy is covered by the "IT Backup Standard" (17/04/15) and Vestas Wind Systems A/S Information Security Statement respectively. "Inappropriate Information Management" is noted as a risk in the "EDWF Risk Summary 2013-2014". While it notes the potential risk as moderate, considering the above controls, the residual risk is low with no further controls required/planned. Remote communications to the site is generally by Satellite, with 3G and NextG providing a fallback for Vestas and EDWF respectively.	
7.6	Key computations related to licensee performance reporting are materially accurate.	As per Review summary of 7.2, the combination of automated data from SCADA with independent manual review and oversight by Vestas and EDWF ensure key computations related to licensee performance reporting are materially accurate. Efficiency and accuracy should be further improved as Vestas replace their current manual inspection forms with electronic versions towards the later part of 2015.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
7.7	Management reports appear adequate for the licensee to monitor licence obligations.	The following management reports appear adequate for the licensee to monitor licence obligations: • Vestas weekly reports (this is not a contractual requirement, but currently being provided by Vestas to EDWF each Monday); • Vestas monthly reports (normally provided to EDWF in the first week of each new month);	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		• Vestas six monthly and annual reports; • EDWF monthly management committee notes; • "EDWF O&M Monthly Reports"; • annual "EDWF O&M Reports". In addition, Vestas have internal toolbox meetings that serve as a means of tracking open actions and their due dates. Licence obligations are captured in the "EDWF Compliance Manual" and "EDWF Year Plans". ▸ Compliance manual is out of date with respect to current timing of audit obligations - once every 36 months. ▸ Compliance manual is duplicated in parts with respect to actions required, possibly making it more difficult to use as a regular compliance tool. As per the Year Plans, the following meetings take place on a monthly basis to assist in meeting stakeholder expectations and requirements: • EDWF Management Committee Meeting (MCM): Discuss safety, environmental issues, production, performance and stakeholder expectations. • O&M Contractor Meeting: Discuss safety, environmental issues, production, performance, stock holdings and land owner or community complaints. • APA DIVA Meeting: Discuss production, performance and finances. EVIDENCE: EDWF MCM Notes for September 2013, September 2014 and June 2015. EVIDENCE: EDWF O&M Monthly Reports for September 2013, September 2014 and May 2015. EVIDENCE: EDWF O&M Reports for July 2012 to June 2013, July 2013 to June 2014 and July to December 2014.	**3.** [**OFI**] Review Compliance Manual for accuracy and practicality. Consolidate actions to improve ease of use.

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
8	**Risk Management**	An effective risk management framework is applied to manage risks related to the maintenance of service standards.	
8.1	Risk management policies and procedures exist and are being applied to minimise internal and external risks associated with the asset management system.	There exist two branches of risk management associated with the internal and external risks of the asset management system. Vestas risk management is covered by the "Site Risk Register" (predominantly health, safety and environment related), also known as the "Risk Assessment and Control Matrix for EDWF" (Document Number: 016666-SMP) and "Safety Alerts" (asset related risks) for the turbine plant. The Site Risk Register is part of Vestas broader "Safety and Environment Management Plan" (SC--016666). Higher level business risks are covered by EDWF directly and encompass the: • "EDWF Risk Management Strategy" (29/06/2010), • "EDWF Business & Asset Risk Register" (2015); and • "EDWF Risk Summaries" – included as Appendices to each Year Plan (2013-2016). The "EDWF Risk Management Strategy" document provides guidance for the identification and management of risks associated with EDWF and is the principal policy / procedural document for risk management throughout EDWF, where these risks fall outside of Vestas responsibility.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
8.2	Risks are documented in a risk register and treatment plans are actioned and monitored.	Vestas maintains a "Site Risk Register" which includes information on: • site area; • weather conditions; • installation and servicing of transformers and switchgear; • installation / maintenance of HV & communications cables in tower; • general turbine servicing; and • work on low-voltage electrical installations. Site Risk Register elements are tested via "Emergency Response Plan" monthly drills, reinforced during inductions / formal training with actions monitored via toolbox meeting minutes.	ADEQUACY OF CONTROLS: B Documentation requires some improvements PERFORMANCE: 1 Performing effectively **4.** Include substation plant as part of the Business & Asset Risk Register review process.

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		Risks specifically related to turbine plant availability are addressed both from bottom-up (incident management system) and top-down (group wide safety alert) approaches. "Vestas Incident Management System" allows all site incidents (health, safety, environment and plant) to be logged, assessed and monitored until closure. It is reviewed annually for impact on the Site Risk Register and on an ongoing basis by Vestas group engineering for wider impact on plant elsewhere. Following engineering and risk assessment, any systemic plant related incidents are identified and fed back down to relevant sites as Safety Alerts for possible action and remediation at local site levels. In this way, EDWF is not only reliant on a site specific risk register, but draws from a global group wide risk register with respect to turbine plant performance. The broadcast of Safety Alerts can be filtered by validity, park location and links through to more detailed customer information sheets. The park site manager has ultimate responsibility for accepting / rejecting all safety alerts issued. Accepted Safety Alerts are monitored to completion via updates and also tracked through toolbox meeting minutes. The "EDWF Business & Asset Risk Register" includes an overview of risks considered in more detail by the Year Plans. Each year the Year Plan reviews: • legal and regulatory compliance, • information management, • physical security, • procurement, • trading operations; and • reputation. Responsibilities are assigned in the annual risk summaries and through the process of annual planning treatment plans are actioned and monitored. ▸ Asset related risks for substation plant fall outside of Vestas responsibility and are currently not covered by EDWF's risk management scope.	

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
8.3	The probability and consequences of asset failure are regularly assessed.	The probability and consequences of asset failure are formally and regularly assessed through: • Vesta's Incident Management System, • Vesta's Safety Alerts; and • EDWF's annual Risk Summaries. Asset failure is also informally assessed via weekly, monthly and annual reporting to EDWF as well as Vestas internal toolbox meetings. Evidence was viewed as follows to confirm the operation of risk assessment via the Safety Alerts system: • Risk of cracks in rear part of nacelle frame of V82-1.65MW and NM72/NM82-1.65MW, discovered 8 January 2015, closed 30 June 2015. "SA140 has now expired as the corrective actions agreed upon have been implemented." The Safety Alert describes the issue, with photos and recommends corrective action, including due date.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
9	**Contingency Planning**	Contingency plans have been developed and tested to minimise any significant disruptions to service standards.	
9.1	Contingency plans are documented, understood and tested to confirm their operability and to cover higher risks.	Documentation and discussion with the EDWF Manager, the Site Manager and the Site Administrator demonstrated that a system is in place to respond to contingencies: • Vestas' "EDWF Emergency Response Plan" (**ERP**) provides a guidance on how to respond to various emergencies, including contact information, response organisation, training requirements, drills and exercises with local emergency services; • staff are trained at inductions and through exercises; • emergency response exercises were carried out during the Review period; • an exercise on 13 May 2015 tested the response to a fall of a person while performing duties at a WTG. A briefing after the test showed that improvement	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		actions were required in areas such as use of descender gear, use of high visibility vests etc; a further exercise was carried out on the same day to provide more practice on the use of descender gear and rope rescue; further training on "Work Safety at Heights" was provided on 16 June.	
10	**Financial Planning**	A financial plan that is reliable and provides for the long-term financial viability of the services.	
10.1	The financial plan states the financial objectives and strategies and actions to achieve the objectives.	Through review of documentation, enquiries and discussions with the EDWF Manager and APA Group Finance Manager the Review found: • the AMP provides the overall financial objectives both short term and long term and strategies, the annual Year Plans include financial objectives on a year by year basis. • financial strategies and actions are included in the AMP and revisited and updated in the YPs; • EDWF financial performance is monitored and reported on a monthly basis within the APA Group	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
10.2	The financial plan identifies the source of funds for capital expenditure and recurrent costs.	While revenue funds costs, APA has demonstrated the capability to raise funds through other avenues if required. Budgeted and actual CAPEX are compared regularly and documentation is available to confirm control. A whole of life model is kept up to date showing updated costs and revenue for the current period and budgeted costs going forward.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
10.3	The financial plan provides projections of operating statements (profit and loss) and statement of financial position (balance	A "Whole of Life Model" is kept up to date showing updated costs and revenue for the current period and budgeted costs going forward. Projections of the operating position are available in the whole of life model.	ADEQUACY OF CONTROLS: A Adequately defined

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
	sheets).		PERFORMANCE: 1 Performing effectively
10.4	The financial plan provides firm predictions on income for the next five years and reasonable indicative predictions beyond this period.	The whole of life model predicts income up to 2031. Actuals are entered in the model on a yearly basis. Actual and planned income are subject to review.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
10.5	The financial plan provides for the operations and maintenance, administration and capital expenditure requirements of the services.	The whole of life model includes provision for: • operations and maintenance for both the generating plant and the substation; • miscellaneous costs such as administration, insurance, consultancy services ; • capital costs for improvement, replacement, decommissioning.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
10.6	Significant variances in actual/budget income and expenses are identified and corrective action taken where necessary.	Monthly reports (**DIVA**) summarise and monitor monthly production performance, as well as analyse revenue and costs by month and YTD. Variations between actual and budget are analysed. End of year DIVA reports with analysis of the financial year were viewed for each year of the review period (2013-2015). Major significant variations were due to: • lower wind speed for some of the periods outside of operator control; • in 2013 outages due to SVC failures reported in maintenance section.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
11	**Capital Expenditure Planning**	A capital expenditure plan that provides reliable forward estimates of capital expenditure and asset disposal income, supported by documentation of the reasons for the decisions and evaluation of alternatives and options..	
11.1	There is a capital expenditure plan that covers issues to be addressed, actions proposed, responsibilities and dates.	EDWF prepares an annual Year Plan (**YP**) which includes plans for operating and capital expenditure. Major predictable and risk based capital expenditure is identified in the AMP. Analysis of the plant in the AMP has identified and costed the assets main risks of failure, overhauls and replacements over their life. Those costs have been included in the "Whole of Life Model" which extends to 2030, both as improvement, sustaining, replacement, decommissioning and risk costs. The YPs include annual planning for both those costs and costs arising from unplanned corrective actions.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
11.2	The plan provide reasons for capital expenditure and timing of expenditure.	Analysis of plant in the AMP has identified and costed the plant main risks of failures, overhauls and replacements over the life of the plant. Those costs have been included in the "Whole of Life Model" both as improvement, sustaining, replacement, decommissioning and risk costs. Capital expenditure is subject to justification and approval and reviewed monthly through a documented process.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
11.3	The capital expenditure plan is consistent with the asset life and condition identified in the asset management plan.	The CAPEX is consistent with the information identified in the AMP and the Year Plans. Provision is made in the plan for expenditure for main items of plant.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 1 Performing effectively
11.4	There is an adequate process to ensure	A documented process is in place to review the progress of capital expenditure	ADEQUACY OF CONTROLS: A

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
	that the capital expenditure plan is regularly updated and actioned.	projects; this is supported by reconciliation of actual capital expenditure to the CAPEX plan at the end of the financial year (FY). The "Planned and Actual CAPEX" report shows the conformance on planned budgets and actual expenditure over three years. The Review noted: • Project to "Install 8 X SVC transformer termination covers", identified in the Year Plan 2014-15 and the CAPEX due October 2014 and carried out on time and within planned budget; • Substation Transformer no 2 (TX2) procurement; not originally in the YP2014-15; expenditure authorised through the "Authority for Expenditure" for replacement due in October 2014. CAPEX Actual vs Planned shows: ◦ Project to install SVC2 (TX2) Replacement Transformer, planned and actual costs, with actual costs meeting budget.	Adequately defined PERFORMANCE: 1 Performing effectively
12	**Review of AMS**	Review of the Asset Management System to ensure the effectiveness of the integration of its components and their currency.	
12.1	A review process is in place to ensure that the asset management plan and the asset management system described therein are kept current.	The need for review of the AMP has been documented by APA. A review is due in 2015 however it has been postponed past this Review period. There has been no internal or independent review of the AMP, however the annual Year Plans provide the means to review the status of the assets and future plans.	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 2 Performance requires some improvement
12.2	Independent reviews (e.g. internal audit) are performed of the asset management system.	Plans, documentation and information provided by the EDWF Manager, Vestas Site Manager and APA Group Financial Manager show: • there are internal (and also external) audits. The last was an HSE Audit in mid 2014. An APA Site Audit was carried out in late 2014 covering the assets and the physical condition of the plant; • Vestas' annual audit plans are documented in the "Safety and Environmental Management Plan", e.g. Addendum 5 - Audit Plan 2013 - 2014 - HSE Quality; an	ADEQUACY OF CONTROLS: A Adequately defined PERFORMANCE: 2 Performance requires some improvement

EC No.	AMS Element / Criteria	Review summary (▸ Findings)	Recommendations
		audit spreadsheet contains the actions resulting from the audits which are updated and checked monthly by the Site Administrator; ◦ "the "Audit Spreadsheet - July 2015" was sighted containing all actions from the audit and progress with actions, due dates for completion and responsible party. • the site has been audited for asset insurance purposes in 2104: the "EDWF Management Committee Meeting Notes - September 2014" showed that "FM Global (Insurer) visited EDWF on 4 September 2014 resulting in a positive outcome for the EDWF insurance policy". Apart from the electricity licence asset management system review of 2012 there is no evidence of other formal independent internal or external review of the asset management system.	

3 CHANGES TO THE LICENCE

No changes to the licence conditions are recommended.

4 RECOMMENDATIONS

4.1 CURRENT AUDIT NON-COMPLIANCES AND RECOMMENDATIONS

Recommendations on the actions to be taken by the licensee to address performance audit non-compliances are listed in Table 11 and Table 12.

Table 11 - Current audit non-compliances and recommendations (Resolved)

Table of Current Audit Non Compliances/Recommendations (Resolved)			
	A. Resolved during current Audit period		
Manual Ref	**Non Compliance/Controls Improvement (Rating / Legislative Obligation / Details of Non Compliance or inadequacy of controls)**	**Date Resolved (& management action taken)**	**Auditors Comments**
	No actions resolved during current Audit period.		

Table 12 - Current audit non-compliances and recommendations (Unresolved)

Table of Current Audit Non Compliances/Recommendations (Unresolved)				
		B. Unresolved during current Audit period		
Ref no/ 2015	**Obl**	**Non Compliance/Controls Improvement (Rating / Legislative Obligation / ▶Details of Non Compliance or inadequacy of controls)**	**Auditors' Recommendation**	**Management action taken by end of Review period**
1	106	Rating: B1 Lic Ref:C5.1, Electricity Industry Act section 31(3) A licensee must take reasonable steps to minimise the extent or duration of any interruption, suspension or restriction of the supply of electricity due to an accident, emergency, potential danger or other unavoidable cause. ▶ Although Vestas are responsible for the maintenance of the substation, the risk of	**1/2015** Complete and routinely update a risk assessment for the substation plant.	

		substation loss of availability remains with the owner, APA. There is currently no risk assessment for the substation plant.		

4.2 CURRENT REVIEW ASSET SYSTEM DEFICIENCIES/ RECOMMENDATIONS

Recommendations on the actions to be taken by the licensee to address process deficiencies are listed in Table 13 and Table 14.

Table 13 - Current Review Asset System Deficiencies / Recommendations (Resolved)

Table of Current Review Asset System Deficiencies/ Recommendations				
A. Resolved during current Review period				
Item No	**EC Ref**	**Rating / AMS Component Effectiveness Criteria / Details of Deficiency**	**Date Resolved (& management action taken)**	**Auditors Comments**
		No actions resolved during current review period.		

Table 14 - Current Review Asset System Deficiencies / Recommendations (Unresolved)

Table of Current Review Asset System Deficiencies/ Recommendations				
B. Unresolved during current Review period				
Ref. (No/ 2015)	**EC Ref**	**Rating / AMS Component Effectiveness Criteria / Details of Deficiency**	**Auditors' Recommendation**	**Management action taken by end of Review period**
-	1.8	B2 Likelihood and consequences of asset failure are predicted. ▸ There was insufficient evidence to show that the Substation plant is subject to annual risk assessments including likelihood and consequences of asset failures.	Refer to Recommendation 4/2015 at EC8.2.	
1	5.3	B2 Assets are documented in an Asset Register including asset type, location, material, plans of components, an assessment of assets' physical/structural condition and accounting data. ▸ Whilst plant list, drawings, maintenance plans and condition details were documented and available, during the Review it was not possible to access the Balance	**1/2015** Ensure that the Balance of Plant asset register is available.	

Table of Current Review Asset System Deficiencies/ Recommendations				
		B. Unresolved during current Review period		
Ref. (No/ 2015)	**EC Ref**	**Rating / AMS Component Effectiveness Criteria / Details of Deficiency**	**Auditors' Recommendation**	**Management action taken by end of Review period**
		of Plant asset register.		
2	7.1	B1 Adequate system documentation for users and IT operators. ▸ While most documents viewed did have sufficient document control, there were some examples of appropriate document control missing, both with Vestas and EDWF: ▸ EDWF Business & Asset Risk Register 2015 (EDWF document) ▸ EDWF Fire Ban Procedure (Vestas document dated 23/07/15) ▸ Emu Down Wind Farm SRS (EDWF document in draft status) ▸ Linux Environment and Oracle Database SRD (EDWF document in draft status).	**2/2015** Ensure documents are adequately controlled with removal and finalisation of draft issues, revision tracking and authorised approvals across Vestas and EDWF (APA Group).	
3	7.7	A1 Data backup procedures appear adequate and backups are tested. ▸ Compliance manual is out of date with respect to current timing of audit obligations – once every 36 months. ▸ Compliance manual is duplicated in parts with respect to actions required, possibly making it more difficult to use as a regular compliance tool.	**3/2015** [**OFI**] Review Compliance Manual for accuracy and practicality. Consolidate actions to improve ease of use.	
4	8.2	B1 Risks are documented in a risk register and treatment plans are actioned and monitored. ▸ Asset related risks for substation plant fall outside of Vestas responsibility and are currently not	**4/2015** Include substation plant as part of the Business & Asset Risk Register review process.	

Table of Current Review Asset System Deficiencies/ Recommendations				
B. Unresolved during current Review period				
Ref. (No/ 2015)	**EC Ref**	**Rating / AMS Component Effectiveness Criteria / Details of Deficiency**	**Auditors' Recommendation**	**Management action taken by end of Review period**
		covered by EDWF's risk management scope.		

5 POST AUDIT AND REVIEW IMPLEMENTATION PLAN

The Post Audit And Review Implementation Plan (PAIP) is a separate document prepared by the licensee in response to the recommendations made in the audit and review. As it represents the licensee's views and actions it does not form part of the audit and review report, however it includes all key audit and review findings and recommendations that have been made in the audit and review. For each recommendation the licensee has recorded responses and corrective actions, responsibility for the actions and a proposed date for completion.

Appendix A - Documentation Reviewed

Key Documentation Reviewed

Performance Audit

1. Electricity Generation Licence , EGL1
2. Vestas - EDWF SAA (Executed Copy)
3. Post Audit Implementation Plan 2012
4. Company Structure
5. EDWF Compliance Manual - Revision 1
6. EDWF Compliance Register 2015
7. EDWF - 220715-01 - ERA Compliance Report July 2014 to June 2015
8. EDWF - 070714-01 - ERA Compliance Report July 2013 To June 2014
9. EDWF - 150713-01 - ERA Compliance Report July 2012 To June 2013
10. Emu Downs Wind Farm Licence Map
11. Deloitte Independent Auditor Reports for 2013, 2014 & 2015
12. WP - Network Access Agreement Conformed Copy
13. EDWF Operating Protocol
14. EDWF Year Plans for 2012-2013, 2013-2014 and 2014-2015
15. EDWF Asset Management Plan (Rev 2)
16. ERA Licence Payments Jun 2013, Jun 2014 and Jun 2015

Asset Management System Review

1. Asset Planning
    - 1.1. EDWF Asset Management Plan Rev 2
    - 1.2. EDWF Year Plan 2012-2013
    - 1.3. EDWF Year Plan 2013-2014
    - 1.4. EDWF Year Plan 2014-2015
    - 1.5. EDWF Year Plan 2015-2016
    - 1.6. EDWF Management Committee Meeting Notes
2. Asset Creation & Acquisition
    - 2.1. EDWF Project Development Procedure
    - 2.2. Project Development and Execution Forms for various project
    - 2.3. Authority for Expenditure" for "Replacement of Substation Transformer 2
    - 2.4. Management Committee Meeting Notes

2.5. EDWF SVC Failure Report 19-6-13

2.6. Contractor Agreement

2.7. Compliance Manual

2.8. Safety and Environment Management Plan

3. Asset Disposal

3.1. Authority for Expenditure" for "Replacement of Substation Transformer 2

3.2. EDWF O&M Monthly Reports

3.3. Maintenance and Service Monthly Reports

3.4. EDWF SVC Failure Report 19-6-13

3.5. 0014-9903_V00 - Technical report 1806 - Copper Caps

3.6. PRD-CIM-CIR Component Inspection Reporting

3.7. EDWF O&M Report - July 2014 to June 2015

3.8. EDWF O&M Report - July 2013 to June 2014

3.9. Whole of Life Model

4. Environmental Analysis

4.1. EDWF Year Plans for 2012-2013, 2013-2014 and 2014-2015

4.2. EDWF O&M Monthly Reports for September 2013, September 2014 and May 2015

4.3. EDWF O&M Reports for July 2012 to June 2013, July 2013 to June 2014 and July to December 2014

4.4. Emu Downs Wind Farm Emergency Response Plan (Document No. ASP/AUSNZ-HB-0032)

4.5. EDWF Asset Management Plan (2/6/10)

4.6. Compliance Manual (30/9/09)

4.7. Operating Agreement for EDWF, dated 15/04/2015

5. Asset Operations

5.1. Vestas - EDWF SAA (Executed Copy)

5.2. EDWF SAA Deed of Amendment

5.3. emu downs windfarm operating protocol-12052015

5.4. Environmental Policy Statement

5.5. OH&S Policy Statement

5.6. Monthly Operating Reports

5.7. Priority Restoration Register

5.8. Vestas-V82 Wind Turbine

5.9. Appendix 1 - Production Graphs

5.10. Graph - Voltage

5.11. Graph - Power and Wind

5.12. Calc - Energy

5.13. Calc - Service Report

5.14. EDWF - Sent Out Energy

5.15. Power Losses

5.16. WTG Availability

5.17. EDWF - Vestas - HV Switching Authorisation

5.18. EDWF HV Equipment Operating Procedures Rev 1

5.19. EDWF HV Safety Procedures Rev 1

5.20. EDWF HV Switching Instructions V6B 15-7-14

6. Asset Maintenance

6.1. Asset Management Plan & Procedures

6.2. Monthly Operating Reports

6.3. EDWF Operation & Maintenance Monthly Reports

6.4. Appendix 2 - Schedule Maintenance Services

6.5. Vestas EDWF Maintenance and Services Reports

6.6. EDWF Operations and Maintenance Calendar

6.7. EDWF Substation Scheduled Maintenance - Rev 1 - 10-9-13

6.8. EDWF - 40914-01 - Maintenance Schedules (HV Plant)

7. Asset Management Information System

7.1. EDWF Business & Asset Risk Register 2015

7.2. EDWF Fire Ban Procedure (23/07/15)

7.3. Emu Down Wind Farm SRS

7.4. Linux Environment and Oracle Database SRD

7.5. Vestas Wind Systems A/S Information Security Statement (4/3/15)

7.6. EDWF Risk Summary 2013-2014

7.7. IT Backup Standard (17/04/15)

7.8. Compliance Manual (30/9/09)

7.9. EDWF Year Plans for 2012-2013, 2013-2014 and 2014-2015

7.10. EDWF MCM Notes for September 2013, September 2014 and June 2015

7.11. EDWF O&M Monthly Reports for September 2013, September 2014 and May 2015

7.12. EDWF O&M Reports for July 2012 to June 2013, July 2013 to June 2014 and July to December 2014

8. Risk Management
    8.1. Risk Assessment and Control Matrix for EDWF (Document Number: 016666-SMP)
    8.2. Safety and Environment Management Plan (SC--016666)
    8.3. EDWF Risk Management Strategy (29/06/2010)
    8.4. EDWF Business & Asset Risk Register (2015)
    8.5. EDWF Risk Summary 2013-2014, 2014-2015 and 2015-2016
    8.6. EDWF Year Plans for 2012-2013, 2013-2014 and 2014-2015
9. Contingency Planning
    9.1. EDWF Emergency Response Plan
    9.2. Emergency response exercise 13 may 2015
10. Financial Planning
    10.1. EDWF Asset Management Plan
    10.2. Whole of Life Model
    10.3. Year Plans
    10.4. Monthly DIVA Financial Reports
11. Capital Expenditure Planning
    11.1. EDWF Asset Management Plan
    11.2. Whole of Life Model
    11.3. Year Plans
    11.4. Monthly DIVA Financial Reports
    11.5. Planned and Actual CAPEX
12. AMS Review
    12.1. Year Plans
    12.2. Safety and Environmental Management Plan, Addendum 5 - Audit Plan 2013 - 2014
    12.3. Audit Spreadsheet - July 2015
    12.4. EDWF Management Committee Meeting Notes - September 2014