

Australian Energy  
Market Operator  
Annual Report 2017

# Change

Matching the pace of transformation

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## Contents

<b>Message from AEMO Chairman</b>	<b>4</b>
<b>The Changing Generation mix</b>	<b>6</b>
<b>Message from AEMO CEO</b>	<b>8</b>
<b>Our Executive Team</b>	<b>10</b>
<b>Our Business</b>	<b>14</b>
<b>Security &amp; Reliability</b>	<b>16</b>
<b>Forecasting &amp; Planning</b>	<b>21</b>
<b>Markets</b>	<b>24</b>
<b>Prudentials &amp; Settlements</b>	<b>26</b>
<b>People &amp; Culture</b>	<b>28</b>
<b>Corporate governance</b>	<b>32</b>
<b>Board Committees</b>	<b>34</b>
<b>Board Committee Focus Areas</b>	<b>36</b>
<b>AEMO Members</b>	<b>40</b>
<b>Financial Statements</b>	<b>42</b>

# Message from AEMO Chairman



*2016-17 was filled with challenges for AEMO and for Australia's energy sector more generally. The year brought an unprecedented level of interest and scrutiny of our operations.*

We welcome this and continue to engage in the public energy debate as an opportunity to work more closely with all our stakeholders. Our goal remains to improve the level of shared understanding of the challenges and opportunities offered by our industry's transformation so we can deliver solutions that benefit Australia's businesses and households.

The transformation of the energy sector I described in our last Annual Report has rapidly gathered pace, here and all over the world. System operators like AEMO face new challenges to maintain reliable, secure supply of energy and run competitive energy markets as energy consumption patterns change dramatically and the presence of distributed and variable renewable energy resources grows to unprecedented levels.

Energy technologies transforming our sector and the lives of Australian energy consumers are having an ever-greater impact as their cost continues to fall. Last year I mentioned battery storage as an emerging technology. This year it is firmly established as a key plank of energy plans in several National Electricity Market (NEM) regions. Our world of energy is changing faster than ever, and AEMO has worked hard this year to play a fully constructive role to promote solutions that will benefit consumers.

As an organisation, our year began very sadly with the sudden death of our founding CEO, Matt Zema, in July 2016. This tragic loss left a huge gap for Matt's family, friends and colleagues, and the global energy industry. I would like to pay tribute to Karen Olesnicki who agreed to step in as Acting CEO, to AEMO's executives, and the whole AEMO team, for the way in which they responded, both immediately and in the following

months through some of the most turbulent events of the NEM's history.

During the year we delivered many milestones in the strategic initiatives set out in our Statement of Corporate Intent. We launched an internal transformation program to evolve our energy forecasting and planning to be as reliable and agile as possible. We also delivered deeper market and supply insights, more frequently, through a range of publications, presentations and forums, to meet the information needs of stakeholders in this fast-changing environment.

Our Future Power System Security program stepped up its work in earnest during 2016-17, producing a large number and wide range of technical and progress reports, presentations across the NEM, submissions and advice to inform government and regulatory processes, and public information factsheets. We established a collaboration initiative with Ireland's transmission system operator, EirGrid to enrich this work.

2016-17 was a year of constant change in our operating environment. AEMO responded not just to the broad transformation of the energy sector, but also to many significant government and market decisions. These included the Victorian Government's Renewable Energy Target; the South Australian Government's Energy Plan (including battery storage and diesel-and gas-fired generation); the Queensland Government's Powering Queensland plan to support its renewable energy target (including announcing the 2018 reopening of the Swanbank E Power Station); the Western Australian Government's plan to increase competition in the electricity market; the reports of energy taskforces in Tasmania, New South Wales and Queensland; Engie's retirement of its Hazelwood Power

Station; and a range of other market actions to reopen mothballed plants or connect new generation capacity.

*I am proud of what AEMO has achieved in my time as a Director and Chair, and confident that our AEMO team will continue to engage openly on the challenges and deliver exemplary operations, advice and support in the best interests of energy consumers nationally.*

The summer of 2016-17 saw the NEM power system tested by high energy demand, especially during sustained hot weather in mid-February across South Australia, New South Wales, Victoria and Queensland. AEMO has worked with governments and industry to apply lessons from this period to improve planning and risk management for the summer ahead.

The most dramatic system event during the year was the Black System in South Australia on 28 September 2016. The state lost all power after a sequence of events led to South Australia separating from the rest of the NEM. While many customers were back online within hours, it was not until 11 October, as fallen transmission lines were bypassed, that all load was finally restored.

This event generated a wide range of political, regulatory and market responses across the NEM, including COAG's commissioning of the Finkel Review. AEMO has been closely and supportively involved at every stage,

providing technical information and advice, and has also taken a larger public role in the media to clearly report the facts of what happened and outline technical facets of the power system that played a role.

The increased integration of gas and electricity markets, the continued ramp up of Queensland liquefied natural gas export projects, and AEMO's projections of tight gas supply,

contributed to a major political and public debate leading, in June 2017, to the introduction of the Australian Domestic Gas Supply Mechanism.

On the West Coast, AEMO continued to canvass for much needed market reform in the Wholesale Electricity Market during a change in state government. We are working closely with the new WA Government to pursue our vision of delivering energy security at the lowest possible cost.

It is no coincidence that this year of challenges and increased public engagement and scrutiny was also the year the Board and the whole AEMO team, together with our government and industry stakeholders, welcomed Audrey Zibelman as our CEO and Managing Director.

Since her arrival in March 2017, Audrey has lifted AEMO's contribution to debate – in the industry, in government, among stakeholders and in the wider public – to a new level. Audrey's immediate grasp of the complex challenges in

Australia, her ability to explore issues and potential solutions in ways everyone can understand, and particularly her familiarity with fields like demand side response that have previously had limited exposure here, have quickly moved AEMO and the national energy discussion into new, exciting areas.

We ended the 2016-17 year with the launch of the Finkel Review report. This comprehensive investigation and blueprint for the future of energy in Australia has been widely welcomed, including by AEMO. We were pleased to see 49 of the 50 recommendations quickly accepted by COAG energy ministers. While the debate about the 50th recommendation has continued, AEMO immediately got to work, collaborating with stakeholders to get the endorsed initiatives rolling as soon as possible.

The 2017-18 year, and the years to come, will be just as demanding as 2016-17 for AEMO and for our sector. The energy transformation will continue and working with our stakeholders and the other market bodies, we will keep developing rule changes, market design changes and technical solutions designed to make the system more reliable and secure to deliver greater value to consumers.

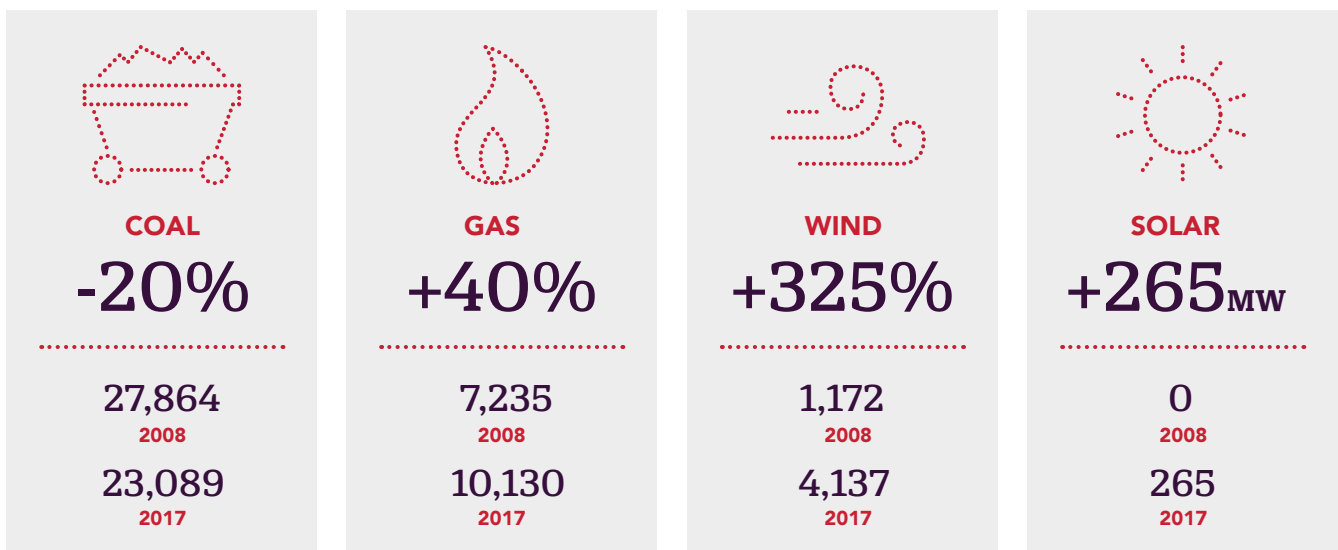
I am proud of what AEMO has achieved in my time as a Director and Chair and confident, as I stand down and hand the reins to the incoming Chair, that our AEMO team under Audrey's leadership will continue to engage openly on the challenges and deliver exemplary operations, advice and support in the best interests of energy consumers nationally.



**Dr Anthony Marxsen,**  
Chairman

# The Changing Generation Mix

*The Australian energy landscape is shifting towards renewable power*



## The rise of the renewable generation

### Wind

Small wind units in 2008

43

Small wind units in 2017

412

Large scale wind in 2016

4,035

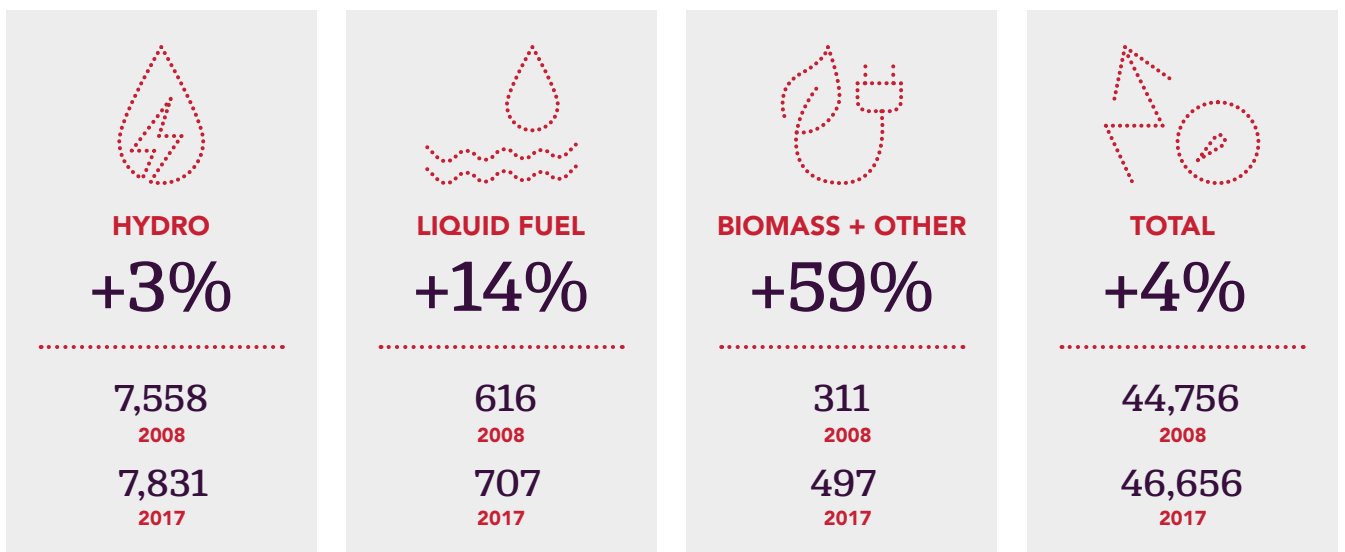
Megawatts

Large scale wind in 2020

10,678

Megawatts





Megawatts of coal, gas, hydro and other resources in the NEM from 2008–2017.

## Solar

Small solar PV units in 2008

14,064

Small solar PV units in 2017

1,691,840

Large scale solar in 2016

233

Megawatts

Large scale solar in 2020

11,043

Megawatts

# Message from AEMO CEO



*Since I arrived in March 2017, I've been asked how I'm finding Australia. I've also been informed on more than one occasion that I've arrived at an interesting time for the energy sector.*

My response to this has not changed in the eight months I've been here – I am loving Australia and notwithstanding the challenges, I cannot imagine a better place to lead the discussion on transitioning the energy industry towards a secure, reliable, affordable and low emission future.

***Australia is well-positioned to lead the charge in the global transition to greater renewable energy penetration, given our quality resources, experience and technical knowhow.***

Australia's energy transition is well underway. Variable energy, storage, the penetration of distributed energy resources and load shifting capability, together with the general digitalisation of the economy and greater consumer choice, are fundamentally altering how we think about, produce, and use energy.

Intel founder Gordon Moore observed in 1965 that, "change has never been this fast, and will never be this slow again" – an appropriate quote to describe the energy transition that we are now in.

The electricity grids built in the 20th century, together with markets established to take advantage of the economies of scale offered by large generators, need to evolve to continue

meeting the naturally occurring challenges that arise.

These changes present us with real challenges. How can we keep the lights on all day, every day, including on those few extreme days each year? How can we encourage and maintain investment

in sourcing, developing, producing, transmitting and transporting gas and electricity?

What development options will be most efficient and deliver the best long-term outcomes for all Australians?

Having spent a good portion of a year here in Australia, I also see that the issues we face are no different to those that other developed nations around the world are grappling with. However, while system operators around the world are working to plan for the challenges of the future, for AEMO, these challenges are in the here and now. But with great change comes great opportunity.

Australia is well-positioned to lead the charge in the global transition to greater renewable energy penetration, given our quality resources, experience and technical knowhow.

Our success begins with our people. Here at AEMO we have undergone a robust restructuring process to ensure



we have the right skills mix that will enable us to meet the reliability and security standards that all Australians now expect. Recognition of our success will be through a factual and evidentiary approach to how we manage the system.

We have a clear understanding of the changes that are occurring and are putting in place elements that will encourage an efficient, truly vertically integrated system that is more productive. We are also acting with a forward-looking holistic approach, grounded in economic and technology reality, to future-proof our energy system.

We want to evolve the power system with a focus on pursuing solutions to changes before they become problems in ways that do not compromise on security, ultimately delivering reliable and affordable energy to all Australians.

This work is well underway. Following the South Australian Black System event in September 2016, AEMO made 19 recommendations, some of which focused on amendments to generator performance standards and AEMO's operational forecasting. All recommendations are due for implementation and completion by early 2018, with actions designed to better position the power system to meet current and future needs.

Throughout 2017, AEMO has also investigated frequency and inertia requirements across the National Electricity Market, worked with stakeholders to develop proof of

concept trials to enable new technology, provided advice to the Commonwealth government and stakeholders on the need for strategic reserves and flexibility within the system, and facilitated the registration and connection of new technology, such as battery storage. Together with the Australian Renewable Energy Agency (ARENA), we announced plans to pilot a demand response initiative to help free up temporary supply during extreme weather and unplanned outages, enabling us to better manage electricity supply during extreme peaks.

Looking short-term to summer 2017–18, we have put together an aggressive plan to tackle the challenges of high temperatures and peak demand, taking all the actions that are necessary and appropriate to restore and build confidence in our energy markets.

AEMO has been collaborating closely with governments and market participants to develop capacity within the power system to meet peak demand during this critical summer period. I am optimistic that we have done all that we can – and then some – to make sure we are ready.

Beyond this summer, we will work with our market body counterparts – the Australian Energy Regulator and the Australian Energy Market Commission – to work collaboratively and agitate for market and regulatory structures and mechanisms that will evolve the

energy market, meet consumer needs and restore and build consumer and investor confidence.

My conversations with stakeholders throughout the industry continue to provide me with confidence and clear signals that the industry is willing to evolve.

AEMO will continue to work closely with the COAG Energy Council, the newly established Energy Security Board and our Expert Panel, together with our stakeholder groups, to develop and deliver solutions that will enable efficient, reliable and secure energy now, and for future generations of Australians.

There is no better time to be in the energy industry or at AEMO and I look forward to a successful year ahead.



**Audrey Zibelman,**  
Managing Director and CEO

# Our Executive Team



## Audrey Zibelman

### Chief Executive Officer and Managing Director

Audrey joined AEMO as Chief Executive Officer on 20 March 2017. Audrey has extensive international experience in the public, private and not-for profit energy sectors, most recently having held the position of Chair of the New York State Public Service Commission (NYPSC), where she was responsible for overseeing the regulation and safety of New York's electricity, gas, telephone, cable, water and steam utilities.

Prior to joining NYPSC, Audrey was the Executive Vice President and Chief Operating Officer of GO15 member organisation, PJM, a system operator organisation responsible for operating the power grid and wholesale power market which serves 14 states across the eastern United States. She has also held legal and executive positions at Xcel Energy and served as General Counsel to the New Hampshire Public Utilities Commission, and was Special Assistant Attorney General in the Minnesota Attorney General's Office.

Audrey is also a Founder and past President and Chief Executive Officer of Viridity Energy, Inc., which she formed after more than 25 years of electricity utility industry leadership experience in both the public and private sectors.



## David Swift

### Advisor to the CEO

David Swift has accrued a wealth of energy industry experience from having worked in the sector for the last 30 years. Prior to his current role, David led the Corporate Development department which focussed on regulatory policy, retail market strategy, and market policy development for AEMO.

In his most recent position prior to joining AEMO, David provided expert electricity advice to the South Australian Government as the Chief Executive of the Electricity Supply Industry Planning Council of South Australia (ESIPC).

David's current role has responsibility for providing advice to the CEO on local and international markets and context, and undertakes specialist activities by direction from the CEO.



## Cameron Parrotte

### Executive General Manager, Strategy and Innovation

Cameron is the Executive General Manager (EGM) – Strategy and Innovation.

Cameron began acting in the AEMO Executive General Manager Western Australia role from April 2016 following a secondment from Western Power in January 2016. He was formally appointed to the role in July 2016. In this role Cameron provided leadership to the WA market operations, implementation of Electricity Market Review initiatives and accountability for system management. Prior to his role at AEMO, Cameron held various leadership roles in Western Power.

Cameron was then appointed as EGM of Strategy and Innovation in June 2017 following the creation of AEMO's Strategy and Innovation department.

The team will focus on the transformative changes occurring throughout the energy sector and lead AEMO's work to ensure that the integrated energy systems remain secure, affordable and accomplish Australia's clean energy policies.



## Peter Geers

### Executive General Manager, Markets

Peter is the Executive General Manager (EGM) of Markets, a department that looks at the financial operation of, and transactions across, Australia's gas and electricity markets.

The Markets team continues to ensure the market operates efficiently and effectively and will design and implement market reforms that are fit for purpose for our rapidly changing environment. In June 2017, the Markets department took carriage of the Stakeholder Engagement team, and is now the primary department for engagement with market participants.

Peter is passionate about ensuring AEMO adapts to changes in the energy industry, and is keen to use his experience in people management to progress work that helps AEMO remain agile and responsive.



## Damien Sanford

### Executive General Manager, Operations

Damien Sanford is the Executive General Manager (EGM), Operations, with responsibilities for AEMO's electricity and gas system operations and engineering teams.

Damien's team is responsible for ensuring short term energy security and reliability of the National Electricity Market and works to identify developing system needs as an information source for the Strategy and Innovation team.

Damien has extensive experience honed through a variety of operational and advisory roles in energy markets, energy grid operations, emergency and risk management and the armed forces.

Prior to his current role, Damien led various operational functions within AEMO over the past eight years, including most recently senior management roles in real-time electricity and gas operations.





## Jo Witters

### Executive General Manager, Centre for Innovation

Jo is the Executive General Manager of AEMO's Centre for Innovation, where she is working with industry stakeholders to trial proof of concepts and new technologies for market and system operation.

Prior to her current role, Jo was leading the People and Culture team for two years until March 2017, developing work force plans and people related strategy and has led development of Corporate Strategy within the CEO Office and Regulatory Policy within AEMO's Corporate Development team.

Jo has over 18 years' experience working in the energy sector, in Australia and internationally, with roles covering a range of strategy, market development, corporate and regulatory matters.

Before joining AEMO, Jo held a number of roles at the Office of Gas and Electricity Markets (Ofgem), the British energy regulator, in the UK, and before that at Transpower and in consultancy in her native New Zealand.



## Brett Hausler

### Company Secretary and General Counsel

Brett is AEMO's Company Secretary and General Counsel, and heads up the Governance department, which manages corporate governance, legal, risk, audit, compliance, procurement and cyber security across AEMO.

Brett has worked in the energy industry since 1994 and, before joining AEMO, was the General Manager, Corporate Services, at the National Electricity Market Management Company (NEMMCO). Before this, he worked in various corporate roles and in private practice.



## Karen Olesnicky

### Interim Executive General Manager, Technology

Karen served as the Acting Chief Executive Officer (CEO) of AEMO from 1 September 2016 until March 2017, after the sudden passing of former Chief Executive Officer, Matt Zema last July. She then served as Special Advisor to the CEO and Interim Executive General Manager of Technology until 1 September 2017.

Karen served as the Chief Financial Officer (CFO) for the first five years of AEMO's operations, and has also led significant changes in other senior executive roles, including the Chief Information Officer (CIO), People and Culture and Stakeholder and Information functions.

Before joining AEMO, Karen worked at VENCORP as the General Manager of Corporate, where she was responsible for Finance, Corporate Governance, Compliance, Human Resources, Communications, Risk Management, Legal, and Administrative Services.



## Jack Fitcher

### Chief Financial Officer

Jack is the Chief Financial Officer (CFO) of AEMO and leads the Corporate Services department which incorporates commercial services and the program management office.

Jack's team enables AEMO's development and manages business risks through provision of corporate services, including PMO, finance and procurement.

Before his appointment to the position of CFO, Jack was AEMO's Group Manager of Commercial Services, with responsibility for AEMO's finance, property, and insurance functions. Before joining AEMO, Jack was the Finance and Risk Manager at VENCORP.

Jack has also held finance roles in the tourism and retail industries.



## Joe Adamo

### Executive General Manager, Public Affairs

Joe Adamo is the Executive General Manager (EGM) of Public Affairs, after leading the Stakeholders and Information function since mid-2016.

AEMO's Public Affairs function supports the organisation's interaction with governments and the public, with primary responsibility for navigating and supporting public policy formation by government entities. The team is also responsible for AEMO media communications, emergency management and plays a critical role in advising AEMO management and Board of public policy developments.

Joe has more than 15 years of experience working in the corporate and public affairs sector, occupying various consulting and in-house corporate roles, with more than half his career centred within the energy sector.

## EGM People & Culture

**This role is currently vacant at the time of this report's development.**

AEMO is in the process of recruiting for this role.

# Our Business

*AEMO is the independent grid and market operator, with primary responsibility of managing and maintaining energy system security for all Australians.*

*We are committed to leading the way in securing and shaping Australia's energy future.*

AEMO was established in 2009 to operate wholesale and retail gas and electricity markets across eastern and south-eastern Australia with a vision to deliver Energy Security for all Australians. AEMO undertook the role of independent energy market operator and power system operations in Western Australia from November 2015.

AEMO also oversees the vital system operations and security of the National Electricity Market (NEM) power system, the South West Interconnected System in WA and the Victorian Gas Declared Transmission System.

Other systems we also have responsibility for include:

- Victorian Declared Wholesale Gas Market (DWGM).
- Wholesale gas Short Term Trading Market hubs in Adelaide, Sydney, and Brisbane.
- Gas Supply Hub – including Wallumbilla and Moomba supply hubs.
- Natural Gas Services Bulletin Board.
- Western Australia Gas Bulletin Board.

AEMO is a public private partnership between government, which owns 60% and industry members (including generators, transmission companies, retail and distribution businesses, resource companies, and investment companies) who own 40%.

AEMO operates on a cost recovery basis as a company limited by guarantee under the *Corporations Act (2001)*. AEMO fully recovers its operating costs through fees paid by participants.

**AEMO is a  
public private  
partnership:**

**60%**

**Government owned**



**40%**

**Industry members**





# Security & Reliability

## Electricity

*Operational characteristics of the power system continue to change at a rapid pace as synchronous generation is progressively displaced by non-synchronous generation.*

The advent of new technologies and the proliferation in the market of distributed generation and energy storage, both grid-connected and behind-the-meter, further adds to the increasing complexities of system operations.

AEMO acknowledges that it has been a challenging year from a security and reliability standpoint, and continues to identify the impacts that the changing dynamics have on power system security, whilst working on maintaining security in Australia's power system.

On 28 September 2016, a severe storm passed through South Australia and triggered a series of events which ultimately resulted in the state going black. The System Black event highlighted the requirement for better information on how new technology responds in extreme circumstances. Since the event, AEMO, together with the industry has undertaken a number of actions to reduce the likelihood of similar events in future.

The last summer also saw a number of operational challenges which resulted in load shedding, both voluntary and directed.

***AEMO has undertaken various initiatives to mitigate the immediate challenges of the upcoming summer.***

We have since learnt from the lessons arising from the System Black event and over the recent summer, and designed specific strategies to bolster

grid resilience in time for next summer within the constraints of the existing Rules. Our final report outlines a total of 19 recommendations, most of which will be implemented by the end of 2017. These recommendations included advice provided to the Essential Services Commission of South Australia which led to an AEMC rule change for the National Electricity Market. The rest of the recommendations are on track, and AEMO is working with all relevant stakeholders to progress those remaining in preparation for summer.

AEMO has undertaken various initiatives to mitigate the immediate challenges of the upcoming summer. These initiatives focus on ensuring generation and generation fuel availability, completion of generation and transmission maintenance prior to summer, the facilitation of new generation and storage, greater utilisation of consumer owned energy resources, and ensuring sufficient gas supply to meet both domestic gas consumption and electricity generation.

Looking ahead to the long-term, AEMO's Strategy and Innovation team will continue

collaborating with key stakeholders on frequency management, system strength, availability of information, and ways to manage extreme power system conditions to maintain power system security during this period of transition.

### **System Black**

On 28 September 2016, a storm passed through the state of South

Australia causing major damage to the transmission system. This resulted in five faults in very quick succession on the transmission grid in the northern part of the state. Some wind generators reduced output after experiencing a number of voltage disturbances caused by these faults, as protection systems were triggered at pre-set limits. The Heywood interconnector immediately picked up the reduction in output, but this tripped when it exceeded its safety limits, causing the state to go black.

AEMO's final report on this event illustrates the complexities and challenges of managing sudden and unexpected generation capacity reductions following significant faults on the power grid.

It details immediate actions AEMO took to reduce the likelihood of a similar event in future. AEMO has produced a set of recommendations, some of which have already implemented in preparation for the upcoming summer. AEMO continues to work with all relevant stakeholders to progress the remaining recommendations which will require industry buy in, and major policy and rules reform, which will be progressed over the medium term.

### **1 December 2016 South Australia separation**

On 1 December at 01:16 AEDT, the South Australian power system separated from Victoria, resulting in localised outages in the state for up to an hour, together with the disconnection of the Portland smelter in Victoria. The separation was due to an issue on the Victorian transmission network impacting the flow via the Heywood Interconnector

to South Australia. Approximately 220 megawatts was lost in South Australia due to the need to balance the frequency of the network. Power was restored to customers by 02:45 AEDT while the Portland smelter's power supply was restored from 04:30 AEDT. At 05:41 AEDT, the South Australian power network was reconnected to the national grid.

### 8–10 February 2017 heatwave

#### South Australia

On Wednesday 8 February at 19:33 AEDT, 100 megawatts of local load shedding was instructed in South Australia, to maintain the security of the power system over the state's evening peak demand. A number of factors including higher than forecast demand, lower than forecast wind generation and reduced thermal generation capacity due to forced outages contributed to the supply/demand imbalance in the system. At 20:00 AEDT as the evening peak subsided, AEMO gave permission to restore the load as the threat of damage to network assets had reduced. At approximately 20:10 AEDT electricity supply had been restored. The load shedding instruction was a decision of last resort and was meant to impact approximately 40,000 customers in South Australia. However, due to

an error at the distribution level, up to 90,000 customers were without power supply for about 40 minutes.

#### New South Wales

Further extreme weather conditions led to an extreme tightening of the supply and demand balance in New South Wales on Friday 10 February and Saturday 11 February. Despite issuing several market notices to all generators and working in close consultation with industry stakeholders, AEMO did not receive sufficient bids into the market to maintain the supply and demand balance in the state.

On Friday 10 February, coincident with the evening peak demand and due to the loss of multiple generating units in New South Wales in quick succession, AEMO issued a direction at 17:58 AEDT which resulted in an industrial customer reducing its load at approximately 18:00 AEDT to return the power system to a secure operating state. The instruction was issued to restore the load one hour later.

New South Wales operational demand on 10 February (energy demand provided from the grid) peaked at 14,181 megawatts (MW), not including the load reduced by the industrial customer, or load reduced as a result of the New South Wales government calling for voluntary demand reductions from the community.

*AEMO's Summer Readiness plan includes a total of 830 MW of market generation capacity and about 1000 MW of non-market capacity such as demand response and temporary generation.*

### AEMO's Summer Readiness plan



#### Supply availability –

limiting scheduled summer maintenance of generators and requiring all mothballed fleet be made available from October 2017.



#### Fuel supply – ensuring

generators have enough fuel available to generate electricity at peak times.



#### Transmission Network availability and capacity and contingency planning

– ensuring required

transmission network capacity is available and scheduled maintenance during summer is minimised.



#### South Australian Energy Policy – enabling the

connection of the SA battery, providing advice to ESCOSA

on generator licensing arrangements



#### SA Black System Report recommendations – 13 of

the 19 recommendations

are complete with another 5 slated for completion at the end of this year and the last by May 2018.



#### Peak demand response

– through the Reliability and Emergency Reserve

Trader provisions accessing embedded generation and incentivising large consumers to reduce peak demand by load shifting. 670-900 MW of demand response.



#### Training and communication

– ensuring the industry

is prepared and ready to respond should there be a supply and demand imbalance.



# 19 Recommendations from AEMO's System Black Final Report

*AEMO has learnt from the lessons of the System Black event and since designed specific strategies to bolster grid resilience in time for next summer.*

## 1. COMPLETED ✓

AEMO to propose to ESCOSA changes to generator licensing conditions, and also to request similar changes to the NER, to address deficiencies in performance standards identified through this investigation.

## 2. COMPLETED ✓

AEMO to put in place more rigorous processes to monitor weather warnings for changes to forecasts, to trigger reassessment of reclassification decisions where relevant.

## 3. COMPLETED ✓

AEMO to review and implement, following consultation, a more structured process for reclassification decisions when faced with power system risks due to extreme wind speeds.

## 4. COMPLETED ✓

AEMO to assess options for improved forecasting of when wind speeds will exceed protection settings on wind turbines, which would lead to 'over-speed cut-outs'.

## 5. WILL BE COMPLETE BY DEC 2017

AEMO to consider development of a new generator reclassification process to manage generator 'type' risks, including how information about potential risks will be sought, and the most appropriate methods to manage power system security during such a generator reclassification.

## 6. WILL BE COMPLETE BY DEC 2017

AEMO to work with ElectraNet to determine the feasibility of developing a special protection scheme to operate in response to sudden excessive flows on the Heywood Interconnector, and to initiate load shedding with a response time fast enough to prevent separation.

## 7. COMPLETED ✓

AEMO to modify existing transfer limits on the Heywood Interconnector to take into account the fact that the largest credible generator contingency under conditions of high wind generation is greater than previously assumed.

## 8. COMPLETED ✓

AEMO to modify operational procedures for SA island operation to:

- Take into account the fact that, under islanded conditions, system strength may fall to a level where some wind farms might not be able to ride through credible voltage disturbances.
- Ensure that maintenance of adequate system strength is incorporated into the transmission planning process in a more systematic manner.

## 9. WILL BE COMPLETE BY DEC 2017

AEMO to support ElectraNet to identify and address any specific risks to the operation of protection systems due to the low levels of system strength that may be experienced if SA is islanded.

## 10. WILL BE COMPLETE BY DEC 2017

AEMO to support ElectraNet in reassessing control strategies to achieve very rapid switching of reactive plant to manage the risk of severe over voltages in SA that might occur due to large levels of under frequency load shedding following separation.

## 11. COMPLETED ✓

AEMO to review its reclassification procedures to address any remaining material risk due to multiple voltage disturbances, and to approach relevant Generators to review the feasibility of increasing plant limits for the maximum number of multiple voltage disturbances that can be tolerated over a 30-minute period.

## 12. COMPLETED ✓

AEMO, together with the South Australian System Restart Working Group, to review the system restart process in detail to determine efficiencies and to implement relevant recommendations from the Reliability Panel. The lessons learnt will be shared across all Australian jurisdictions.

## 13. COMPLETED ✓

Any differences between SRAS test plans and the restart process set out in a system restart plan and associated local black system procedures to be identified and explained by AEMO, to ensure the test simulates, as far as practicable, the conditions that will be encountered in a real restart situation.

## 14. COMPLETED ✓

Similarly, where the restart procedure depends initially on starting a low voltage generator, the start of this generator alone to be tested on a regular basis, in addition to the annual test of the entire SRAS source.

## 15. COMPLETED ✓

AEMO to develop detailed procedures for power system operations during periods of market suspension, and identify if any NER changes are desirable to improve the process.

## 16. COMPLETED ✓

AEMO to investigate a better approach to ensuring that the minimum stable operating levels of generating units are taken into account in the dispatch process.

## 17. COMPLETED ✓

AEMO to review market processes and systems, in collaboration with participants, to identify improvements and any associated NER or procedure changes that may be necessary to implement those improvements.

## 18. WILL BE COMPLETE BY DEC 2017

AEMO to develop a more structured process in consultation with participants to source and capture data after a major event in a timely manner and to co-ordinate data requests.

## 19. ON TRACK FOR COMPLETION BY MAY 2018

AEMO to investigate with participants the possibility of introducing a process to synchronise all high speed recorders to a common time standard.



*13 of the 19 recommendations from AEMO's System Black Final Report are complete with another 5 on track for completion by end 2017 and the last recommendation to be completed by May 2018.*

# Gas

*As a major source of energy, natural gas continues to play an essential role in the lives of all Australians.*

## Government intervention and response

The convergence of the gas and electricity sectors has never been more prominent as illustrated in our March 2017 Gas Statement of Opportunities and subsequent advice to government and industry, which resulted in the implementation of the Federal Government's Domestic Gas Security Mechanism.

It was pleasing to note that a coordinated effort between government and industry based on independent information to the market which highlighted the risk of potential shortfalls resulted in guaranteed gas supply for the east coast gas market for 2018.

## Longford gas production facility trip

A six hour unplanned total outage of the Longford Gas Plant occurred on 1 October 2016 following the loss of electricity supply within the plant.

*It was pleasing to note that a coordinated effort between government and industry based on independent information to the market which highlighted the risk of potential shortfalls resulted in guaranteed gas supply for the east coast gas market for 2018.*

AEMO intervened in the Victorian Declared Wholesale Gas Market and issued a Notice of Threat to System Security and an 'ad hoc' schedule at 09:00 that day.

The ad hoc schedule triggered a series of operational responses, enabling the conservation of system pressures in the Longford to Melbourne Pipeline, ultimately mitigating potential impacts on the Victorian community.

The contractual minimum operating pressures at the Sale, Edithvale and Peninsula connection points were breached during this outage (in consultation with the distribution network owners), although no customers lost supply.

The Longford outage also resulted in a Contingency Gas Trigger Event in the Sydney Short Term Trading Market hub. This shortfall was managed through the re-nomination of gas flows into the Sydney hub, preventing the need to schedule Contingency Gas.

This outage is the second major outage of the Longford Gas Plant since the two-week outage in 1998 that resulted in most of Victoria's gas use being curtailed due to a fire at the Longford plant. A similar six hour unplanned total outage occurred in April 2004.

## Victorian Northern Interconnect (VNI) Expansion Project

The VNI Expansion Project was developed to increase the gas transportation capacity from Victoria to New South Wales. The project involved constructing a new 260 km, 400 mm, higher pressure pipeline in parallel to the existing smaller pipeline. The VNI Expansion, which runs from Wollert, north of Melbourne to Barnawartha, south of the New South Wales border, has progressively increased the VNI northbound capacity from 46 terajoules per day in 2014 (prior to the start of the project) to 201 terajoules per day following the completion of the final stages during 2017. The expanded VNI was also used to supply gas into Victoria from Queensland during the 2017 winter high demand period.

AEMO worked closely with the pipeline owner, APA Group, providing technical input on the design and operability of the new pipeline, including modifications at Wollert to enable increased flow from New South Wales into the Melbourne network.



## Increased pipeline capacity for underground gas storage refilling

AEMO's 2017 Victorian Gas Planning Report identified the inability to refill the Iona underground gas storage facility in Port Campbell prior to winter 2018 as a Threat to System Security. This is the first time that AEMO has identified a threat to system security in a gas planning review.

AEMO identified how the South West Pipeline transportation capacity towards Port Campbell could be increased and is now working closely with the pipeline owner, APA Group, to implement this.

In its submission to the Australian Energy Regulator for the APA 2018–22 Access Arrangement, AEMO also called for the construction of the Western Outer Ring Main. This pipeline will further increase South West Pipeline transportation capacity and will increase system security, including the capability to manage increasing levels of gas fired power generation and unplanned outages of the Longford Gas Plant.

The Australian Energy Regulator approved \$127 million for the construction of the Western Outer Ring Main in its 6 July 2017 draft decision.



# Forecasting & Planning

*AEMO recognises that forecasting accuracy is crucial to effective grid management as we undergo this energy transition. We are developing more advanced tools that will enable us to keep pace with the rapidly evolving energy market.*

The independent review into the National Electricity Market by Australia's Chief Scientist Dr Alan Finkel highlighted the need for strategic national energy planning of Australia's evolving energy sector.

AEMO supports the view that designing the grid of the future must be fit-for-purpose and take into account three core considerations: cost, reliability and security.

Modelling and monitoring customer behavior, and providing forecasting and planning information that guides the efficient development of energy supply and transmission to meet Australia's future energy needs, continues to be paramount in this changing environment.

## **Forecasting and Planning related strategic initiatives for FY16/17**

We are investing in technologies and solutions that help us deliver more accurate and responsive insights.

In 2016, AEMO embarked on an Insights Transformation Program which aims to ensure current forecasting and planning publications continue to meet stakeholder needs, but with more speed and accuracy and in an accessible format. The program's key objectives include:

- Responding more efficiently to changing dynamics in the energy industry and providing greater insights and analysis in a more responsive timeframe.
- Creating seamlessly integrated forecasting and planning models to provide an end to end energy view.
- Providing multi-channel delivery of information and insights to stakeholders through AEMO's website.

AEMO also embedded an expert from the Bureau of Meteorology into our forecasting team, as part of an inter-organisation collaborative initiative.

Looking ahead, AEMO's Forecasting and Planning teams will be focussing on providing data analysis and insights that will help steer the development of the Strategic Energy Plan recommended by the Finkel Review.



# Forecasting & Planning

## Calendar of reports



### AUGUST 2016

The annual **Electricity Statement Of Opportunities (ESOO)** continued to provide technical and market data to the decision-making processes of market participants, new investors, and jurisdictional bodies as they assessed opportunities in the NEM over a 10-year period. This report highlighted the importance for both network and non-network developments to securely manage an evolving, lower carbon electricity generation future.

### DECEMBER 2016

The **West Australia Gas Statement of Opportunities (WA GSOO)** is AEMO's independent assessment of the WA domestic gas market for the outlook period 2017 to 2026. It presents forecasts of WA gas demand and potential supply, including an overview of gas infrastructure and emerging issues affecting the gas industry. The 2016 WA GSOO projected a well-supplied Western Australia gas market for the next decade, assuming the continued development of gas reserves.



### MARCH 2017

The annual **Gas Statement of Opportunities (GSOO)** report emphasised the increasing interdependencies between gas and electricity and supply and demand, calling for a holistic "single energy view" of the Australian energy industry. Stemming from the results of the Gas Statement of Opportunities, the federal government responded to the GSOO's forecast and findings, establishing the Australian Domestic Gas Security Mechanism, to ensure sufficient supply of gas to meet the needs of Australian consumers.



*AEMO's forecasting and planning publications have shifted to a focus on providing 'insights' to support major reports and to produce high quality forecasts and planning information to a frequency and quality that meets stakeholder needs.*

**DECEMBER 2016**

AEMO's third **National Gas Forecasting Report (NGFR)** emphasised uncertainties and highlighted challenges facing policy-makers, infrastructure planners and asset operators over the next 20 years. The report provides forecasts of annual gas consumption and maximum gas demand across eastern and south-eastern Australia's interconnected gas markets over a 20-year outlook period.

**DECEMBER 2016**

The 2016 **National Transmission Network Development Plan (NTNDP)** illustrated the need for transmission networks to evolve to maintain a reliable, secure power system for the future. The annual document provides an independent, strategic view of the efficient transmission grid development in the NEM over a 20-year planning horizon, balancing reliability and cost while meeting carbon emission reduction targets for the long-term interests of consumers.

**JUNE 2017**

The 2017 **Electricity Forecasting Insights (EFI)** report, previously named the National Electricity Forecasting Report, continues to independently forecast electricity consumption and demand over the five NEM regions over a 20-year outlook period. This year's EFI found that the continued uptake in distributed solar generation and use of energy efficient appliances will keep grid-supplied electricity consumption stable for the next 20 years, despite a projected increase in population and anticipated growth in the Australian economy.

**JUNE 2017**

AEMO's inaugural **Energy Supply Outlook** highlighted requirements for a secure power system over the next two years under extreme summer conditions. The report is the first integrated assessment of gas and electricity supply adequacy for eastern and south-eastern Australia and looks specifically at the next two years and identifies what is required to maintain power system security in extreme summer conditions.

**JUNE 2017**

The **Wholesale Electricity Market (WEM) Electricity Statement of Opportunities (ESOO)** report found the uptake of rooftop solar continues to impact operational and peak demand, accelerating a paradigm shift for the energy industry. The report presents AEMO's electricity peak demand and operational consumption outlook for the South West interconnected system (SWIS) in Western Australia for a 10-year period.

# Markets

*To maintain reliability and security standards that the Australian community now expects, both the grid and energy markets need to evolve as Australia continues to move through the inevitable energy transition.*

## Electricity

*AEMO continues to work with government stakeholders and regulators to advise on and implement new market mechanisms and frameworks that deliver efficiencies and benefit to consumers.*

### Power of Choice gets underway

Work on AEMO's Power of Choice (PoC) program progressed steadily throughout the 2016-17 financial year. The PoC Implementation Program follows completion of a number of Australian Energy Market Commission (AEMC) rule changes between late-2015 and mid-2016 aimed at enhancing consumer choice.

More specifically, PoC seeks to provide households, businesses and industry with more opportunities to make informed choices about the way they use electricity and manage expenditure, through rule changes that will take effect from 1 December 2017.

The reforms resulting from these initiatives aim to support the National Electricity Market (NEM) in meeting consumer needs over the next 15-20 years and further facilitate consumer choice.

AEMO's role in PoC is to develop industry procedure and system changes and deliver an efficient and effective implementation program that best meets the needs of both consumers and industry ahead of the 1 December 2017 go-live date.

Key milestones for the 2016-17 financial year include the establishment of the Information Exchange Committee, procedure changes, and readiness.

AEMO looks forward to continued engagement with market participants as we work together

to implement PoC and deliver better outcomes for Australian consumers.

### Collaborating with ARENA

In May 2017, AEMO and the Australian Renewable Energy Agency (ARENA) signed a memorandum of understanding (MOU) to facilitate collaboration around the organisations' areas of mutual interest relating to ensuring electricity system security and reliability.

The shared program of work will focus on ARENA and AEMO's common interests to:

- Demonstrate innovative ways of maintaining system security and reliability as the share of renewable energy grows.
- Promote the development and improve the effectiveness of the operation and maintenance of the wholesale exchange.
- Bring a specific focus to allow new and emerging technologies to be deployed into the market, e.g. 'proof of concept' projects.

The shared work program will comprise a combination of existing projects leveraged to help achieve the desired outcomes, and new projects in these areas. 'Proof-of-concept' projects will be

emphasised in the joint program – being projects that can demonstrate how new and emerging technologies can be adopted in the market.

AEMO and ARENA will continue to work closely to support and drive scalable, relevant initiatives that can be integrated with the system and brought to market.

The first major element of shared program of work under the MOU involves a demand response funding round intended to contribute to preparedness for the coming summer, test innovative approaches to demand response, and inform the benefits of a standing reserve type arrangement.

Other initiatives underway, such as the Hornsdale Wind Farm Frequency Control Ancillary Services trial, also serve as useful projects to test and gain insights that will improve the viability of integrating new technologies into both the grid and energy market.

### Market Insights

AEMO's Market Insights team continues to deliver value through comprehensive analysis and insights on energy-related announcements and events as they occur, and the potential implications these events have for the markets in which AEMO operates.

This includes the regular deep dive into analysis of trends in domestic markets as well as international developments, helping us fulfil our vision of operating the Australian markets efficiently and securely.

This year, the team has worked to deliver concise, time-sensitive summaries of key events which have helped to inform and shape AEMO's thinking around industry developments. Future initiatives include the delivery of quarterly, independent insights for the energy industry.

# Gas

## Council of Australian Governments (COAG) Energy Council Gas Market Reform Group (GMRG)

The COAG Energy Council's Gas Market Reform Group, led by Dr Michael Vertigan, was created to lead the design, development and implementation of the Energy Council's gas market reform package.

AEMO nominated a number of market specialists who were accepted into the Vertigan (GMRG) working groups. Those working groups kicked off in February 2017, with AEMO providing insights through participation into these working groups.

On 14 July 2017, Energy Ministers agreed to task AEMO with operation of the capacity trading platform and day-ahead auction as part of the east coast gas market reform program.

Work on the design, development and implementation of the two mechanisms will continue to be progressed over the next financial year.

## Gas Bulletin Board

This year, AEMO has made several enhancements to the Gas Bulletin Board in response to rule changes and market reviews.

Following recommendations made in the Australian Energy Market Commission's East Coast Wholesale Gas Market and Pipeline Frameworks Review, AEMO implemented a new market prices page and adopted a fixed and consistent standard for the assumed direction of bidirectional pipelines.

In addition, the implementation of the Enhanced Information for Gas Transmission Pipeline Capacity Trading Rule Change in October 2016 saw several significant improvements to gas bulletin board data including the publication of gas storage levels. These enhancements to the Gas Bulletin Board have improved the transparency and accessibility of information in the gas market.

## Gas Supply Hub

On 28 March 2017, AEMO implemented the Wallumbilla single product for the gas supply hub following a recommendation made by the COAG Energy Council in 2015. The Wallumbilla single product was delivered through the Optional Hub Services framework.

*The framework facilitates trading across the multiple pipelines that connect at Wallumbilla and was developed in consultation with industry.*

The Wallumbilla single product is a significant enhancement to the gas supply hub's trading arrangements enabling participants operating across Wallumbilla to trade in a single market.



# Prudentials & Settlements

*AEMO is responsible for settlement, prudential monitoring, and clearing of trades in the National Electricity Market, Wholesale Electricity Market, Victorian Declared Wholesale Gas Market, Gas Short Term Trading Market and Gas Supply Hub.*

## Value of energy traded in each market for FY2016-17:



### National Electricity Market

**\$16.6 billion**



### Wholesale Electricity Market

**\$1.9 billion** (This is an estimate of the transactional value of the WEM assuming all energy and capacity is traded at market prices as the WEM is net-settlement)



### Gas Supply Hub

**\$74.5 million** (market value traded – energy purchase value)



### Victorian Declared Wholesale Gas Market

**\$2.3 billion** (market value traded – energy purchase value)



### Gas Short Term Trading Market

**\$1.25 billion** (market value traded at ex-ante-energy purchase value)

The 2016-17 financial year continued to see evolving price dynamics in the National Electricity Market, leading to increased electricity prices in all regions as rising demand and reduction in supply continued contributing to tight market conditions.

Drivers such as the closure of the Hazelwood Power Station led to escalating electricity futures prices, as the market factored in reduced supply on top of already tight market conditions.

The sustained higher prices have required increased scrutiny of participant prudential risk, particularly within the National Electricity Market.

During the 2016-17 financial year, AEMO managed one suspension event, which required the transfer of customers from a defaulting participant to the relevant Retailer of Last Resort (RoLR) in the NEM with no financial impact to the market.

As a prudent measure, AEMO increased its interaction with existing participants to ensure risks were managed appropriately during this period of continued volatility.

We have also taken measures to review the appropriateness of prudential methodologies to ensure they adapt and respond to the changing risk landscape and manage prudential risk appropriately and have completed consultations to make changes to the Credit Limit Procedures.

*AEMO continues to work with stakeholders to manage the markets amid changing market forces.*



### Market suspension on 28 September 2016

The National Electricity Market was declared suspended in South Australia minutes after the System Black event on 28 September 2016. The market suspension was not immediately lifted when the Black System ended, due to continuing uncertainties in power system operations.

While suspension was in effect, all normal market settlement and prudential processes continued, using the market suspension pricing schedule and revised market prices as official price outcomes. AEMO calculated and uploaded all revised prices into its market systems to ensure there was no impact on settlement processes. Preliminary and final settlement statements for all Market Participants will reflect the final market suspension prices.

Twelve days later, on 11 October 2016, the SA government advised AEMO at 5.48pm that its direction for suspension of the market had been revoked, and AEMO lifted the suspension at 10.30pm.

# People & Culture

*AEMO, supported by its People and Culture team, continues to develop a highly capable, agile and engaged workforce that supports AEMO's vision to deliver energy security to all Australians.*

The Financial Year 2016/17 saw an increased focus on developing a framework to enable AEMO to understand and plan for its future workforce capability needs in order to better identify and fill current and future skills and knowledge gaps.

Strategic highlights for AEMO's People and Culture team in FY2016/17 include:

## **Organisational development**

AEMO's Executive Leadership Team have assessed the talent of leaders throughout the organisation and developed succession and development plans aligned to AEMO's future leadership needs.

These include the establishment of internal programs and a partnership with the Melbourne Business School to build greater leadership capability.

AEMO's High Performance Behaviours, aligned to AEMO's values were also developed. These behaviours have been integrated into our performance development framework and aim to embed behaviours that support a high performance culture.

## **West Australian integration**

AEMO took over the role of systems operator for the Wholesale Electricity Market from Western Power in 2016, completing the evolution of taking responsibility as both grid and market operator on the West Coast, a process initiated by the West Australian state government in November 2015.

Twenty-two additional employees including power system controllers and security planning engineers were recruited into the WA System Management team as part of the integration process.

## **Employee Engagement Survey**

AEMO ran an employee engagement survey in September 2016, which saw a staff participation rate of 88% and an overall staff engagement level of 64%. A number of areas were identified as opportunities for improvement including greater celebration of our successes, fostering a culture of innovation and improved speed to business through better streamlining of processes.

In response to the survey results, employee forums were run at all sites to provide opportunities for staff to provide feedback and input into how AEMO can be a great place to work. The forums proved popular and will continue to be used as a way of gaining employee input on a range of topics.





### Workplace Health, Safety and Environment (WHSE)

AEMO's Workplace Health, Safety and Environment team continued to focus on its three core areas: Healthy Minds and Bodies, Safe Workplaces and Sustainable programs.

- AEMO engaged a new health and wellbeing provider. The key objectives of the health and wellbeing program are reducing health risks and preventative injury management.
- Following extensive consultation with employees, a revised Drug and Alcohol Policy was introduced on 1 July 2016, which included pre-employment testing, and in March 2017 random drug and alcohol testing was introduced.
- AEMO's Employee Assistance Program (EAP) has a 9.8% utilisation rate compared to the 4.1% industry standard. Due to the success of the on-site counselling service, this service has now been extended to all sites.



A new health and wellbeing provider engaged



## Healthy Communities

*Our Healthy community programs focus on sustainability and corporate social responsibility and provides AEMO and employees avenues to make a positive impact on the world we live in.*

### Key sustainability related highlights for the year were:

- Paper usage per person – down from an average of 2,819 to 2,594 pages in 2016-17 = reduction of 8%.
- Energy usage per person – down from 8,077 kWh to 6,129 kWh in 2016-17 = reduction of 24%.
- In modernising our Sydney datacentre to a contemporary private cloud platform, AEMO has reduced its physical technology footprint by 70%, realising further associated benefits in power and cooling.
- Volunteering in our communities – up from 285 to 411 hours in 2016-17 = an increase of 30%.
- For a third year in a row we participated in Clean up Australia day, this year we collected a record amount of rubbish in our local community.
- Inspiring the next generation of engineers – AEMO's Community Partnership with Power of Engineering continued its success with 7 events held reaching 402 Year 9-12 students within our communities.

### Looking ahead to the next year, AEMO's People and Culture team will be focussing on:

- Finalisation of an organisational design that positions AEMO to successfully deliver on our strategic objectives and drive organisational performance. This new structure is anticipated to be in place in September 2017.
- Shaping a culture of exceptional performance, problem solving and innovation.
- Defining and delivering an engaging employment experience for all.
- Developing and enhancing a framework that continues to build people management capability and empowers managers to deliver on the employment experience.
- Preparations for next round of enterprise bargaining.



**8% reduction  
of paper usage  
per person**



**24% reduction  
of energy usage  
per person**



**30% increase  
in community  
volunteering**

## Graduate program

AEMO expanded its graduate skillset to include electrical engineers with a focus on Power Systems, econometricians, scientists, mathematicians and statisticians – to ensure AEMO has the right future skills for transformations taking place in our industry.

**Our 2017 Graduate program attracted almost:**

# 1,000

Applications for nine positions across Australia



# TOP 100

AEMO secured a spot on the AFR's top Graduate Employers list for the 3rd year running, joining the likes of Origin, Woodside and Telstra who are also on the list.

**In February AEMO invited nine of the best and the brightest applicants to join our 3 year program, taking the total number of graduates currently participating in the program to 23 individuals.**

*“My experience as a graduate at AEMO has given me the opportunity to contribute to the National Gas Forecasting Report (NGFR) and National Electricity Forecasting report (NEFR). This has allowed me to apply my technical skills in economic modelling and econometrics to develop innovative models that address the challenges of forecasting demand in the rapidly changing energy markets.”*

– Ruchira Ray, Economist, Strategy and Innovation  
(2014 Graduate cohort)

*“AEMO’s Graduate Development Program has allowed me to evolve my skills alongside some of the brightest minds in the energy industry. To answer current and future energy challenges, AEMO needs to use a lot of data and use it well. Working in AEMO’s Data Management team, I help implement the latest data technology so AEMO can answer these questions with confidence.”*

– Stephan Jacobs, Analyst, Strategy and Innovation  
(2015 Graduate cohort)

# Corporate Governance

## Corporate governance principles

Good corporate governance arrangements encourage the Board and management to pursue objectives that are in the interests of the company and its members and stakeholders. AEMO believes there is a clear correlation between a culture focused on achieving and maintaining high standards of corporate governance, and creating value for our members and the broader community.

AEMO has used a range of sources to develop our approach to corporate governance, including the ASX Corporate Governance Principles and Recommendations and overseas examples, where consistent with our corporate structure and Constitution.

As part of our corporate governance framework, the Board has established corporate governance related policies and charters, which are published on AEMO's website. Key points are outlined within this section.

## Composition of the Board

The Board, with the assistance of Board Committees, oversees AEMO's business affairs to meet the company's objectives and responsibilities under relevant law and regulatory regimes. It also monitors the performance and cost-effectiveness of AEMO's operations and systems. As at 30 June 2017, AEMO had nine Board members: an independent Chairman and eight non-executive directors. Collectively the Board possesses the core skills and experience prescribed in the AEMO Constitution.

The selection process for new chair or directors is overseen by the Nomination Committee with the interview process and recommendations for appointment being made by the independent COAG

Energy Council Appointments Selection Panel. In addition to the required core skills and experience as set out in the Constitution, other factors such as independence, diversity, and succession planning are considered as part of the selection process.

AEMO's members (government and industry) approve the Appointment Selection Panel's recommendations before they are submitted for approval by the COAG Energy Council. The Chairman reviews all directors whose term of appointment is due to expire and who are eligible for reappointment and then compiles a list of those directors whom the Chairman recommends for reappointment.

AEMO's members approve the submission of the list to the COAG Energy Council for approval. Following the modifications to the Constitution in June 2016, directors are eligible under the Constitution for appointment of a term of up to four years.

## Director induction and continuing education

Prior to appointment, each director receives a letter of appointment and corporate governance documentation including the AEMO Constitution, Board Charter, Board Committee Charters, key corporate policies, and an overview of AEMO's strategic objectives and operations. An induction program is conducted including briefing sessions with executives and managers on key aspects of AEMO's operations.

Directors are encouraged to continue their education by attending training and education relevant to their role. Briefings and workshops are also regularly held in conjunction with Board meetings.

## Review of the Board, Chief Executive Officer, and Executive Leadership Team

The Board has delegated day-to-day management of the company to the Chief Executive Officer, assisted by the Executive Leadership Team. Each executive has a formal position description and their performance is monitored and measured in accordance with the performance management process. The Board, assisted by the People and Remuneration Committee, assesses the performance of the Chief Executive Officer and the Executive Leadership Team.

The Board is committed to the ongoing development of individual directors and the Board as a whole. The Board regularly undertakes an assessment of its performance. This assessment can be:

- Qualitative, quantitative or both.
- Informal or formal.
- A whole of Board review, or individual directors.
- Self-administered, administered by the Chairman, or administered by an independent expert.
- Focused internally on the directors or involving the wider body of corporate stakeholders including, but not limited to, AEMO members.

## Director independence

The Constitution requires a majority of directors, including the Chair, to be independent, and includes a definition of independence. As a general principle, a director is considered independent if he or she is not a member of management and is free of any business or other relationship that could materially interfere with exercising unfettered

and independent judgement, or could reasonably be perceived to do so.

The independent directors during 2016–17 were Dr. Marxsen, Mr Hubbard, Ms Krieger, Mr Pittard and Ms Tongs.

The Board regularly reviews the status of director's independence criteria set out in the Constitution.

### Responsibilities

The Board acts in the best interests of the company and is accountable to the members for the overall direction, management, and corporate governance of the company.

The Board's responsibilities include:

- Overseeing the company's activities to achieve the objectives set out in the Constitution.
  - Ensuring that induction procedures are in place to allow new senior executives to participate fully and actively in management decision-making at the earliest opportunity.
  - Setting the company's goals and strategy.
  - Determining the financial, operational, human, technological, and administrative resources required by AEMO to meet our objectives and goals.
  - Establishing and maintaining adequate and effective reporting lines and procedures that enable all material matters and information to be identified and reported to the Board.
  - Approving company budgets and monitoring compliance with financial reporting obligations.
- Appointing the Chief Executive Officer.
  - Reviewing and assessing the performance of AEMO's management.
  - Establishing and approving the charters of the Board committees.
  - Establishing effective controls and procedures to enable risks to AEMO to be identified, assessed, and managed.
  - Monitoring compliance with ethical, legislative, and regulatory requirements including occupational health and safety, equal opportunity, environmental, corporate governance, and reporting obligations.
  - Reporting to company stakeholders.
  - Regularly reviewing the performance of senior executives against measurable and qualitative indicators as decided by the Board.

These responsibilities are set out in the Board Charter.

### Directors' access to information and advice

The directors have unrestricted access to all company records required to fulfil their responsibilities.

They have access to the Company Secretary with regard to any matter related to their role as director, and can seek information and opinion from any employee.

The directors also have the right to seek independent professional advice at AEMO's expense to help them carry out their duties.



### Conflicts of interest

Directors are required to avoid conflicts of interest and breaches of duty. Specifically, they must act in good faith in the best interests of the company. Directors must not use their positions for personal benefit or the advantage of another person or organisation at AEMO's expense or use AEMO property inappropriately or place themselves in positions where they owe a duty to a third party that conflicts with their duty to AEMO.

Directors are required to immediately declare any interest or duty that conflicts with their duties to AEMO, or that might lead to or be perceived as a conflict of interest. Conflicts of interest are managed in accordance with the Directors' Interests Protocol.

No director has received or become entitled to receive a benefit because of contractual arrangements between AEMO and the director other than as declared in the Annual Report or through their contract of employment or engagement with AEMO.



# Board Committees

*The Board seeks assistance and support from a number of Board committees to discharge its duties effectively.*

Each Board committee has a formal charter that outlines its responsibilities. Board committees have access to internal and external resources, including access to advice from consultants and specialists, as required. The Chair of each Board committee briefs the Board on the outcomes of each committee meeting.

## Board committee membership 2016–17

	Risk and Audit	People and Remuneration	Technical and Regulatory
Dr Anthony Marxsen		Member	Chair
Mr Frank Calabria*	Member		Member
Mr Tony Concannon*		Member	Member
Dr Peter Davis		Member	Member
Ms Betsy Donaghey	Member	Member	Member
Mr Jon Hubbard	Chair		Member
Ms Sibylle Krieger	Member	Chair	
Mr John Pittard		Member	Member
Mr Stephen Orr	Member		Member
Ms Jane Tongs	Member	Member	

*\*Mr Calabria resigned from the Board effective 1 May 2017*

*\*Mr Concannon was appointed to the Board on 4 May 2017 and Ms Donaghey on 1 May 2017. Both directors were appointed to Board committees effective 1 July 2017.*

Mr John Pittard has also been appointed by the Board as the independent Chair of the new Information Exchange Committee, which is established under the National Electricity Rules.



**Dr Anthony Marxsen**



**Dr Peter Davis**



**Mr Frank Calabria\***  
*Resigned effective 1 May 2017*



**Ms Jane Tongs**



**Mr Jon Hubbard**



**Mr John Pittard**



**Ms Sibylle Krieger**



**Mr Stephen Orr**



**Mr Tony Concannon\***  
*Appointed 4 May 2017*



**Ms Betsy Donaghey\***  
*Appointed 1 May 2017*

# Board Committee Focus Areas

*The purpose of each Board committee and some of their respective focus areas during 2016–17 are described below.*

## Risk and Audit Committee

This committee assists the Board to fulfil its responsibilities for oversight and governance of financial, risk, audit, corporate governance, and compliance matters.

The Committee met four times during 2016–17. Its activities included:

- Risk management strategy and reporting, including reviewing AEMO's strategic risks, the system of identifying, assessing, monitoring, and managing material risk throughout the company.
- Review of the Annual Financial Report and the appropriateness of AEMO's material accounting policies and procedures, significant estimates, judgements, and notes to the financial statements.
- Approval of the audit plan for the internal auditor, considering the findings of the internal auditor and the effectiveness of the internal audit function.
- The approach for the market audits, findings of the market auditors for gas and electricity, and the effectiveness of the market audit functions.
- Compliance reporting and analysis, including the development and ongoing review of appropriate regulatory compliance programs.
- Consideration of reports on capital expenditure and projects undertaken by the organisation.

## People and Remuneration Committee

This committee assists the Board to fulfil its responsibilities in the management of its people and their remuneration.

This Committee met three times during 2016–17. Its activities included:

- Review of strategies for resourcing, the recruitment and retention of people, including their health, safety and wellbeing.
- Consideration of succession planning.
- Review of remuneration strategies, including performance payments and other monetary and non-monetary benefits, and the Enterprise Agreement.
- Monitoring people-related performance targets.
- Monitoring AEMO's compliance with workplace health and safety obligations.
- Evaluating the performance of AEMO's people, including that of the Chief Executive Officer and the Executive Leadership Team, as well as company performance.

Consideration of people-related matters such as workforce diversity.

## Technical and Regulatory Committee

This committee assists the Board to fulfil its responsibilities for the oversight and governance of technical matters, including information technology, technical publications, emergency preparedness, and regulatory matters.

This committee met four times during 2016–17.

Its activities included:

- Review of information technology blueprint and system performance.
- Oversight of the strategic direction and high level structure and content of key AEMO forecasting and planning publications.
- Implications for future power system operations.
- Improvements to technical functions such as forecasting.
- Reviewing energy market performance.
- Reviewing datacentre transfer and recovery.



### Nomination committee

This committee assists the Board in relation to the process for appointing a new CEO, chairman or directors to the Board.

During 2016–17, the committee met ten times due to the significant workload associated with finding a new chairman and two additional directors and the appointment of a new Chief Executive Officer.

This involves identifying the skills to be targeted through a search, the appointment of a search firm to undertake the search, and assessing the suitability of potential candidates.

### Risk management

AEMO faces a variety of risks given the nature of its operations. These include industry transformation market, cybersecurity, regulatory, compliance, financial, prudential, reputational, people and operational risks. At AEMO, risk management includes the culture, processes, and structures that are directed to taking advantage of potential opportunities and managing potential threats or adverse consequences.

AEMO is committed to a comprehensive and integrated risk management framework that has the effect of embedding risk identification, treatment, and review into every business activity, function, and process. This enables AEMO to identify and manage risks that may have a material adverse impact, including strategic

and emerging risks. AEMO's objective is to achieve a high performing, continually improving risk management function, aligned to the International Risk Management Standard ISO 31000:2009.

During 2016–17, improvements were made to the processes and systems that support risk management, including reporting to the Risk and Audit Committee and the Executive Leadership Team, what if scenarios, benchmarking and various initiatives to improve risk culture across AEMO.

In addition to its overarching risk management policy, supported by internal procedures and control systems, AEMO has several other policies and procedures that directly or indirectly serve to reduce, manage, or mitigate risk. These cover matters including:

- IT security.
- Site security.
- Regulatory compliance.
- Financial compliance.
- Financial information management.
- Privacy.
- Competition and Consumer Law.
- Workplace Health Safety and Environment Policy.
- Fraud and corruption prevention.
- Whistleblower Protection.
- Respect for policy, law, and government.
- Diversity.

### Ethical standards and Code of Conduct

AEMO is committed to sound and ethical corporate practices and decision-making. This entails not only complying with legal obligations, but also considering the reasonable expectations of stakeholders including members, market participants, employees, energy market governance bodies, consumers, and the broader community.

AEMO has a Code of Conduct which sets out the required standards of behaviour and legal, ethical and other obligations applicable to employees and contractors. Each employee and contractor is given a copy of the Code of Conduct when joining AEMO. The Code of Conduct provides guidance on the following:

- Honesty and integrity.
- Respect for people.
- Responsibility and accountability.
- Efficiency and economy.

Employees are encouraged to report known or suspected inappropriate conduct either to management or an independent whistleblower hotline service that reports directly to the Company Secretary and the Chair of the Risk and Audit Committee.

### **Financial reporting**

The Risk and Audit Committee, which includes non-executive directors with finance experience, oversees accounting and reporting practices and reviews AEMO's financial statements. The committee is responsible for the performance and objectivity of the internal auditor and the performance and independence of the market auditors.

The external auditor is not permitted to provide any services to AEMO that might compromise its independence or give rise to an actual or perceived conflict with assurance and compliance roles.

### **Timely and balanced disclosure**

AEMO endeavours to ensure that all company announcements are factual and balanced, and that timely access to material is given to stakeholders and to the market where possible. All non-confidential reports are published in PDF format and available on the company's website. AEMO is committed to maintaining transparency on matters related to the operation and administration of its markets.

### **Respect the rights of members and stakeholders**

Efficient and effective outcomes are the result of teamwork and contributions from a range of different sources, including all of AEMO's varied stakeholders. AEMO's corporate governance framework recognises that its interests and those of its stakeholders are served by fostering co-operation and interaction.

AEMO's industry and government members have rights and obligations under the AEMO Constitution. Annual General Meetings are held in accordance with the Corporations Act. At these meetings all members are able to participate in the decision-making process in accordance with their voting rights under the Constitution.

AEMO's Strategic Initiatives sets out the company's policy and strategic direction on stakeholder communications and engagement at all levels of AEMO. AEMO aims to give all relevant stakeholders a fair and full opportunity to participate in the ongoing operation, development, and planning of Australian energy markets. AEMO strives to be a constructive facilitator, bringing stakeholders together so that all viewpoints are heard and considered, building consensus on the right way forward where possible.

AEMO fulfils this role by providing and disseminating information and market data and by facilitating processes, programs, committees, and other consultative forums for stakeholders to provide input on emerging energy market issues and opportunities, and to provide feedback on AEMO's proposals and operational performance.

These consultation processes are vital to maintaining effective day-to-day operations, developing and refining effective new market mechanisms, and the integrity of AEMO's long-term planning.





### Remunerate fairly and responsibly

Non-executive directors were remunerated for fulfilling both their Board and Board committee duties in accordance with relevant industry benchmarks. At AEMO's Annual General Meeting on 6 November 2014, the members approved an annual remuneration pool to be applied for three years. The remuneration pool was determined on the advice of an independent Board remuneration adviser.



# AEMO Members

## Government members

As at 30 June 2017, AEMO's government members are:

- Commonwealth of Australia
- Australian Capital Territory
- New South Wales
- South Australia
- Tasmania
- Queensland
- Victoria
- Western Australia

## Industry members

As at 30 June 2017, AEMO's industry members are:

- Advanced Energy Resources
- AETV Pty Ltd
- AER Retail Pty Ltd
- A-Star Electricity Ptd Ltd
- AGL Energy Ltd
- AGL Loy Yang Marketing Pty Ltd
- AGL Macquarie
- Agora Retail Pty Ltd
- Allgas Energy Pty Ltd
- APA EE Holdings Pty Ltd
- APA GasNet Australia (Operations) Pty Ltd
- Alinta Sales Pty Ltd
- Alinta Energy Retail Sales Pty Ltd
- Amanda Energy PL
- APT Facility Management Pty Ltd
- APT Petroleum Pipelines Pty Ltd
- APT Pipelines (NSW) Pty Ltd
- Ararat Wind Farm Pty Ltd
- Attunga Capital Pty Ltd
- Aurora Energy Pty Ltd
- Australian Gas Networks Limited
- Australian Pipeline Trust
- Aus Gas Trading Pty Ltd
- Ausgrid
- Bluewaters Power 1 Pty Ltd
- Bluewaters Power 2 Pty Ltd
- Central Ranges Pipeline Pty Ltd
- CitiPower Pty Ltd
- Click Energy Pty Ltd
- Collgar Wind Farm Pty Ltd
- Covau Pty Ltd
- Delta Electricity
- Denmark Community Windfarm Ltd
- Diamond Energy Pty Ltd
- Directlink Joint Venture (ABN 16 779 340 889)
- (Directlink (No. 1) Pty Limited ABN 85 085 123 468, Directlink (No. 2) Pty Limited ABN 87 095 439 222, and Directlink (No. 3) Pty Limited ABN 86 095 449 817 trading as Directlink Joint Venture)
- Dodo Power & Gas Pty Ltd
- East Australian Pipeline Pty Ltd
- EDL Group Operations Pty Ltd
- ElectrAg Pty Ltd
- ElectraNet Pty Ltd
- Endeavour Energy
- Energex Limited
- EnergyAustralia Gas Storage Pty Ltd
- EnergyAustralia Pty Ltd
- EnergyAustralia Yallourn Pty Ltd
- Energy Pacific (Vic) Pty Ltd
- EnerNOC Pty Ltd
- Enova Energy Pty Ltd

- Epic Energy South Australia Pty Ltd
- ERM Power Ltd
- ERM Power Retail Pty Ltd
- Essential Energy
- Flinders Operating Services Pty Ltd
- FPC 30 Ltd
- GSP Energy Pty Ltd
- Hydro-Electric Corporation
- Hydro Power Pty Ltd
- ICAP Australia Pty Ltd
- Infigen Energy Markets Pty Ltd
- Infratil Energy Australia Pty Ltd
- Jemena Ltd
- LMS Energy Pty Ltd
- Marubeni Australia Power Services Pty Ltd
- Millmerran Energy Trader Pty Ltd
- Murraylink Transmission Company Pty Ltd
- Newcrest Mining Limited
- NewGen Power Kwinana Pty Ltd
- New Gullen Range Wind Farm Pty Ltd
- N. P. Power Pty Ltd
- OneSteel Manufacturing Pty Ltd
- Onsite Energy Solutions Pty Ltd
- Origin Energy Electricity Ltd
- Origin Energy Eraring
- Overland Sun Farming Company Pty Ltd
- Pacific Hydro Challicum Hills Pty Ltd
- Pacific Hydro Clements Gap Pty Ltd
- Pacific Hydro Portland Wind Farm Pty Ltd
- Pacific Hydro Retail Pty Ltd
- Perth Energy
- Phoenix Energy Australia Pty Ltd
- Pooled Energy Pty Ltd
- Powercor Australia Pty Ltd
- Queensland Electricity Transmission Corporation Limited (trading as Powerlink Queensland)
- Reach Solar Energy Management Co Pty Ltd
- RE Oakey Pty Ltd
- Santos Ltd
- Simcoa Operations Pty Ltd
- South East Australia Gas Pty Ltd
- Snowtown Wind Farm Pty Ltd
- Snowtown Wind Farm Stage 2 Pty Ltd
- Snowy Hydro Pty Ltd
- SPI Electricity Pty Ltd
- Strategic Gas Market Trading Pty Ltd
- Tasmanian Gas Pipeline Pty Ltd
- TasNetworks Pty Ltd
- TransGrid
- Vicpower Trading (State Electricity Commission of Victoria trading as Vicpower Trading)
- Water Corporation
- Wesfarmers Kleenheat Gas Pty Ltd
- Westpac Banking Corporation
- WINconnect Pty Ltd

Australian Energy Market Operator Limited  
 ABN 94 072 010 327

# Financial Statements

For the year ended 30 June 2017

## Contents

<b>Directors' Report</b>	<b>43</b>	11. Other Liabilities	65
<b>Auditor's Independence Declaration</b>	<b>47</b>	12. Defined Benefit Superannuation Plan	66
<b>Statement of Profit or Loss and Other Comprehensive Income</b>	<b>48</b>	13. Reserves	71
<b>Statement of Financial Position</b>	<b>49</b>	14. Key Management Personnel Disclosures	72
<b>Statement of Changes in Equity</b>	<b>50</b>	15. Remuneration of Auditors	74
<b>Statement of Cash Flows</b>	<b>51</b>	16. Contingent Liabilities	74
<b>Notes to the Financial Statements</b>	<b>52</b>	17. Commitments	74
1. Introduction	52	18. Accumulated surplus / (Deficit)	76
2. Revenue	54	19. Business Combination	77
3. Expenses	56	20. Events Occurring after Balance Sheet date	78
4. Cash and Cash Equivalents	57	21. Reconciliation of Surplus / (Deficit) to Net Cash Inflow / (Outflow) from Operating Activities	78
5. Trade and Other Receivables	57	22. Related party transactions	78
6. Property, Plant and Equipment	58	<b>Directors' declaration</b>	<b>79</b>
7. Intangibles	60	<b>Independent auditor's report</b>	<b>80</b>
8. Trade and Other Payables	63		
9. Borrowings	63		
10. Provisions	65		

The aim of the text in the "in summary" boxes is to explain more complex sections in plain English.



# Directors' Report

*Your directors present their report on the Australian Energy Market Operator Limited (AEMO) for the year ended 30 June 2017.*

## Directors

The following persons were directors for the full financial year and up to the date of this report, with the exception of Mr Frank Calabria who resigned effective 1 May 2017, Mr Tony Concannon who was appointed to the Board effective 4 May 2017 and Ms Betsy Donaghey who was appointed to the Board effective 1 May 2017, and Mr Matt Zema, who sadly passed away on 23 July 2016. Ms Audrey Zibelman was appointed as Chief Executive Officer on 20 March 2017 and subsequently appointed Managing Director and Chief Executive Officer on 1 July 2017.

- Dr. A.L. Marxsen
- F.G. Calabria (resigned 1 May 2017)
- A.P. Concannon (appointed 4 May 2017)
- Dr. P.L. Davis
- E.A Donaghey (appointed 1 May 2017)
- J.G. Hubbard
- S. Krieger
- S.C. Orr
- J. Pittard
- J.A. Tongs
- M. Zema (passed away 23 July 2016)
- A. Zibelman (appointed as Chief Executive Officer on 20 March 2017 and subsequently appointed as Managing Director and Chief Executive Officer on 1 July 2017)

## Principal Activities

AEMO's principal activities over the 2016–17 year comprised the following:

- Market operation of the National Electricity Market (NEM) and the Wholesale Electricity Market (WEM).
- System operation and security of the NEM interconnected grid, Western Australia's South West Interconnected System (SWIS) and the Victorian Gas Declared Transmission System (DTS).
- Victorian electricity Transmission Network Service Provider (TNSP) responsibilities (including transmission network connections and procurement services).
- Operation of the Victorian Declared Wholesale Gas Market (DWGM).
- Facilitation of Full Retail Contestability (FRC) for electricity and gas in eastern and south-eastern Australia.
- Operation of the Short Term Trading Market (STTM) for gas at the Adelaide, Sydney and Brisbane hubs.
- Operation of the Wallumbilla and Moomba Gas Supply Hubs.
- Management of the National Gas Bulletin Board (NGBB) and the West Australian Gas Bulletin Board.
- National transmission planning.
- Independent electricity and gas demand and supply forecasting.
- Emergency management responsibilities for electricity and gas and the National Gas Emergency Response Advisory Committee (NGERAC).

AEMO assumed responsibility for the Western Australian Systems Management (SM) function previously performed by Western Power on 1 July 2016 and for the Western Australian Gas Full Retail Contestability function (WA Gas FRC) previously performed by the Retail Energy Market Company (REMCo) on 31 October 2016.

## Corporate Strategy

It is AEMO's vision to deliver energy security for all Australians. Our strategy is to operate our energy markets reliably and securely, while supporting efficient investment for Australian industry and consumers through proactive policy and market development improvements.

The challenges facing us in delivering this strategy were particularly evident in the past year. The black system event in South Australia in September 2016 highlighted both the urgency and potential repercussions of the power system security issues we have been exploring with industry, while load shedding events in the February 2017 heatwave reinforced the message of our Electricity Statement of Opportunities (ESOO) reports that the supply-demand balance in parts of the NEM is now tight enough to challenge reliable, uninterrupted supply to consumers in some conditions.

AEMO will act to meet the urgent challenges of the coming summer, and, with the recently established Expert Advisory Panel, will work to deliver key initiatives and implement the recently endorsed Finkel recommendations to facilitate a pathway forward to an efficient and secure Australian energy market for future generations.

Along with carrying out its principal activities, AEMO also committed to deliver other initiatives in 2016–17.

Activities include:

### Forecasting and planning

AEMO's forecasting and planning publications have shifted to a focus on providing 'insights' to support the detailed analysis within major reports and to produce high quality forecasts and planning information to a frequency and quality that meets stakeholder needs. AEMO has lifted its focus on communicating these reports more broadly to the Australian community, highlighting information required by stakeholders to meet Australia's future energy needs.

In addition to releasing reports to support this focus, AEMO also provided a range of advice to government advisors and jurisdictions.

### Gas markets

Stemming from the results of the Gas Statement of Opportunities (GSOO) report published by AEMO on 9 March 2017, the federal government responded to the GSOO's forecast and findings, establishing the Australian Domestic Gas Security Mechanism, to ensure sufficient supply of gas to meet the needs of Australian consumers.

AEMO continues to contribute to the Gas Market Reform Group led by Dr Michael Vertigan by nominating a number of market specialists who were accepted into the Vertigan working groups. Those working groups commenced towards the end of February 2017. On 14 July 2017, Energy Ministers agreed to task AEMO with operation of the capacity trading platform and day-ahead auction as part of the east coast gas market reform program.

### Information

AEMO continued to provide quality, up-to-date data and information for market participants and stakeholders.

To better meet their information needs, AEMO began a website redevelopment project in August 2015, with collaboration both across the organisation and with AEMO's key external stakeholders. The project worked to a principle of providing simple, intuitive, clear, easy-to-use and easy-to-access information. AEMO's new website launched in late July 2016.

In June 2017, further aligning with the principle of providing simple and easy-to-access information, AEMO began work on an online energy literacy hub, designed for a broader community and media audience to demystify the industry, educate consumers on the complexities of energy, and evolve AEMO's public profile. The aim is to launch this new section of the website later in the year.

### Emerging technologies and developments

To ensure AEMO is able to maintain its obligations for system security and reliability into the future, an AEMO work program was developed to identify and manage risks and opportunities associated with the rapidly changing generation and technology mix.

The work is divided into two broad areas:

- Short-term: 3-year outlook
- Long-term: 10-year outlook

The program has a strong focus on South Australia due to the advanced changes in the generation mix in that state, but covers the entire NEM. Western Australia will be progressively incorporated.

With input from a stakeholder technical advisory group, AEMO finalised an initial list of technical challenges including identifying those that are of a high priority for consideration now.

The work program has now moved to the analysis stage to identify the risk posed by the challenges and the inter-linkages of these challenges.

Some of the actions AEMO is progressing include:

- A revised framework for emergency frequency control with clear roles, responsibilities and processes for designing and implementing these schemes.
- A framework so that AEMO has access to necessary information from distributed energy resources.

### Review of operations

AEMO is a not-for-profit public company limited by guarantee incorporated under the Corporations Act 2001. The Company membership comprises government and industry members with government owning 60% and industry 40%. Government members are the Commonwealth, New South Wales, Victoria, Queensland, South Australia, Western Australia, Tasmania and the Australian Capital Territory.

Registered market participants are eligible to become members of AEMO.

AEMO has statutory powers to recover all costs including under- and over-recoveries in any of its functions in the next or subsequent financial years. This is achieved by including surpluses or deficits in future budgets for specific AEMO functions.

## Directors' qualifications and experience

Name, qualifications and responsibilities	Age	Current Board appointments
<b>Dr. Anthony L. Marxsen</b> <i>PhD BEng(Hons)</i> <ul style="list-style-type: none"> <li>Chairman</li> <li>Independent Director</li> </ul>	71	Director, Marxsen Consulting Pty Ltd; Director, Jancomax Pty Ltd; Chairman, IND Technology Pty Ltd.
<b>Mr Anthony P. Concannon</b> <i>BSc(Hons), FAICD, FIMechE, MIET</i> <ul style="list-style-type: none"> <li>Non-executive Director</li> </ul>	53	Director, Reach Solar; Member, Tasmanian Energy Security Taskforce.
<b>Dr. Peter L. Davis</b> <i>BSc(Hons), BEd, MBA, PhD, FAICD, FIEAust</i> <ul style="list-style-type: none"> <li>Non-executive Director</li> <li>Independent Director</li> </ul>	57	Director, University of Tasmania; Member, Clean Energy Regulator.
<b>Ms Elizabeth A. Donaghey</b> <i>BSc, MSor</i> <ul style="list-style-type: none"> <li>Non-executive Director</li> </ul>	59	Nil
<b>Mr Jon G. Hubbard</b> <i>BCom, CA, GAICD</i> <ul style="list-style-type: none"> <li>Non-executive Director</li> <li>Independent Director</li> </ul>	53	Non-executive Director, Infocus Wealth Management Ltd (and related companies); Non-executive Director, Power Generation Corporation (trading as Territory Generation).
<b>Ms Sibylle Krieger</b> <i>LLB (Hons), LLM, MBA, FAICD</i> <ul style="list-style-type: none"> <li>Non-executive Director</li> <li>Independent Director</li> </ul>	60	Non-executive Director, Tasmanian Water and Sewerage Corporation Pty Ltd (Trading as TasWater); Non-executive Director, Sydney Grammar School Foundation Ltd; Trustee, Sydney Grammar School; Chair, Xenith IP Group Ltd (ASX: XIP); Director, MyState Limited (ASX: MYS) and its subsidiaries MyState Bank Limited and Tasmanian Perpetual Trustees Limited; Member, Tasmanian Energy Security Taskforce.
<b>Mr Stephen C. Orr</b> <i>BEng (Mech)</i> <ul style="list-style-type: none"> <li>Non-executive Director</li> <li>Independent Director</li> </ul>	65	Nil
<b>Mr. John Pittard</b> <i>BSc</i> <ul style="list-style-type: none"> <li>Non-executive Director</li> <li>Independent Director</li> </ul>	64	Chair, RXP Services Ltd (ASX: RXP); Non-executive Director, Barnardos Australia.
<b>Ms Jane A. Tongs</b> <i>EMBA, B.Bus (Acc), FACA, FCPA, MAICD</i> <ul style="list-style-type: none"> <li>Non-executive Director</li> <li>Independent Director</li> </ul>	57	Chair, Netwealth Holdings Ltd (and related companies); Chair, Australian Prime Property Fund Investor Committees – Retail, Commercial and Industrial; Non-executive Director, Catholic Church Insurances Ltd (and related companies); Non-executive Director, Warakirri Holdings Pty Ltd (and related companies); Non-executive Director, Brighton Grammar School; Non-executive Director, Cromwell Property Group.
<b>Ms Audrey Zibelman</b> <i>BA, J.D.</i> <ul style="list-style-type: none"> <li>Managing Director and Chief Executive Officer</li> </ul>	60	Nil

A majority of Directors, including the Chair, must be independent Directors.

The AEMO Constitution defines the independence requirements for Directors.

Information pertaining to directors' benefits is detailed in Note 14 – Key Management Personnel Disclosures.

## Company secretary

The company secretary is Mr Brett Hausler. Mr Hausler has previously been a company secretary for a number of energy companies and prior to this worked as a lawyer in private and corporate practice.

## Meetings of directors

The number of meetings of the Company's Board of Directors and of each Board committee held during the year ended 30 June 2017, and the number of meetings attended by each director, were:

	Full meetings of directors		People and Remuneration		Risk and Audit		Technical and Regulatory		Nomination	
	A	B	A	B	A	B	A	B	A	B
<b>Dr. A. L. Marxsen</b>	10	10	2	3	-	-	4	4	9	9
<b>F. G. Calabria</b>	5	6	-	-	1	2	2	3	5	5
<b>A. P. Concannon</b>	2	2	-	-	-	-	-	-	-	-
<b>Dr. P. L. Davis</b>	8	8	3	3	-	-	4	3	4	4
<b>E. A. Donaghey</b>	2	2	-	-	-	-	-	-	-	-
<b>J. G. Hubbard</b>	9	10	-	-	4	4	3	4	-	-
<b>S. Krieger</b>	9	10	3	3	4	4	-	-	4	4
<b>S.C. Orr</b>	7	8	-	-	3	4	4	4	3	3
<b>J. Pittard</b>	8	9	2	3	-	-	4	4	5	6
<b>J. A. Tongs</b>	8	9	3	3	4	4	-	-	5	5
<b>M. Zema</b>	-	-	-	-	-	-	1	1	1	1

A = Number of meetings attended

B = Number of meetings held during the time the director held office or was a member of the committee during the year which they were eligible to attend.

The Managing Director attends all committee meetings. All directors are eligible to attend committee meetings. Where a director is not a committee member, their attendance at meetings is not reflected in the table above. When a director is unable to attend a meeting they have endeavoured to provide written comments prior to the meeting.

## Contributions on winding up

The Company is incorporated under the Corporations Act 2001 and is a company limited by guarantee. The Constitution states that each Member undertakes to contribute to the Company's property if the Company is wound up during, or within one year after the cessation of, the Member's membership on account of:

- Payment of the Company's debts and liabilities contracted before they ceased to be a Member;
- The costs of winding up; and
- Adjustment of the rights of the contributories among themselves, an amount not to exceed \$1.00.

At 30 June 2017, the total maximum amount that members of the Company are liable to contribute under the Constitution if the Company is wound up is \$103 (2016: \$93).

## Rounding

The amounts contained in the financial report have been rounded to the nearest \$1,000 (where rounding is applicable and where noted (\$'000)) under the option available to the Company under ASIC Corporations (Rounding in Financial/Directors' Reports) Instrument 2016/191. The Company is an entity to which the Instrument applies.

## Auditor's Independence Declaration

A copy of the Auditor's Independence Declaration as required under Section 307C of the *Corporations Act 2001* is set out on page 47.

## Auditor

Grant Thornton continues in office in accordance with Section 327 of the *Corporations Act 2001*.

## Resolution

This report is made in accordance with a resolution of directors.



**Dr. A. L. Marxsen**  
Chairman

**Melbourne 7 September 2017**





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## Auditor's Independence Declaration To the Directors of Australian Energy Market Operator Limited

In accordance with the requirements of section 307C of the Corporations Act 2001, as lead auditor for the audit of Australian Energy Market Operator Limited for the year ended 30 June 2017, I declare that, to the best of my knowledge and belief, there have been:

- a no contraventions of the auditor independence requirements of the Corporations Act 2001 in relation to the audit; and
- b no contraventions of any applicable code of professional conduct in relation to the audit.

*Grant Thornton*

GRANT THORNTON AUDIT PTY LTD  
Chartered Accountants

M J Climpson  
Partner

Melbourne, 7 September 2017

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## Statement of Profit or Loss and Other Comprehensive Income

Year ended 30 June 2017

	Notes	2017 \$'000	2016 \$'000
<b>Revenue</b>			
Transmission income	2	518,799	535,529
Settlement residue	2	67,609	27,269
Electricity market income	2	113,842	88,657
Gas market income	2	47,953	43,711
Other revenue	2	9,998	7,645
	2	<b>758,201</b>	<b>702,811</b>
<b>Expenses</b>			
Network charges	3	(549,442)	(550,241)
Employee benefits	3	(100,577)	(89,767)
Depreciation	6	(4,515)	(4,698)
Amortisation	7	(13,863)	(12,118)
Consulting, contracting and outsourcing		(22,445)	(8,647)
Information technology		(19,114)	(17,045)
Insurance		(2,428)	(2,423)
Finance costs	3	(1,705)	(1,576)
Travel and accommodation		(2,504)	(1,820)
Participant Compensation Fund expenses (PCF)		(5,529)	-
Asset write-off		-	(1,220)
Other expenses		(13,639)	(11,311)
		<b>(735,761)</b>	<b>(700,866)</b>
<b>Surplus/ (Deficit) before income tax</b>		<b>22,440</b>	<b>1,945</b>
Income tax expense	3	-	-
<b>Surplus / (Deficit)</b>		<b>22,440</b>	<b>1,945</b>
<b>Other comprehensive income</b>			
Items that will not be reclassified subsequently to profit and loss:			
Gain on Acquisition of Western Australian functions	19	-	206
Re-measurement of net defined benefit superannuation liability	12	4,355	(4,136)
<b>Total comprehensive surplus / (Deficit)</b>		<b>26,795</b>	<b>(1,985)</b>

The Statement of Profit or Loss and Other Comprehensive Income should be read in conjunction with the accompanying notes.

## Statement of Financial Position

As at 30 June 2017

	Notes	2017 \$'000	2016 \$'000
<b>Assets</b>			
<b>Current assets</b>			
Cash and cash equivalents	4	62,463	119,187
Trade and other receivables	5	82,878	85,335
<b>Total current assets</b>		<b>145,341</b>	<b>204,522</b>
<b>Non-current assets</b>			
Property, plant and equipment	6	30,500	28,024
Intangible assets	7	37,747	31,775
<b>Total non-current assets</b>		<b>68,247</b>	<b>59,799</b>
<b>Total assets</b>		<b>213,588</b>	<b>264,321</b>
<b>Liabilities</b>			
<b>Current liabilities</b>			
Trade and other payables	8	94,790	155,092
Borrowings	9	3,226	31,100
Provisions	10	22,307	19,480
Other liabilities	11	9,732	10,449
Defined benefit superannuation	12	1,640	5,515
<b>Total current liabilities</b>		<b>131,695</b>	<b>221,636</b>
<b>Non-current liabilities</b>			
Other liabilities non current	11	3,760	5,324
Borrowings non-current	9	13,022	-
Provisions non-current	10	1,496	1,692
<b>Total non-current liabilities</b>		<b>18,278</b>	<b>7,016</b>
<b>Total liabilities</b>		<b>149,973</b>	<b>228,652</b>
<b>Net assets</b>		<b>63,615</b>	<b>35,669</b>
<b>Equity</b>			
Capital contribution of members		7,093	7,093
Participant Compensation Fund reserve	13	5,235	10,557
Land reserve	13	2,493	2,266
Accumulated surplus	18	48,794	15,753
<b>Total equity</b>		<b>63,615</b>	<b>35,669</b>

The Statement of Financial Position should be read in conjunction with the accompanying notes.

## Statement of Changes in Equity

Year ended 30 June 2017

	Capital contribution of members \$'000	PCF reserve \$'000	Land reserve \$'000	Accumulated surplus/ (deficit) \$'000	Total equity \$'000
<b>At 1 July 2015</b>	<b>7,093</b>	<b>10,270</b>	<b>2,039</b>	<b>18,252</b>	<b>37,654</b>
Surplus for the year	-	-	-	1,945	1,945
Other comprehensive income	-	-	-	(3,930)	(3,930)
Total comprehensive deficit	-	-	-	(1,985)	(1,985)
Transfer to/(from) reserves:					
- PCF reserve	-	287	-	(287)	-
- AWEFS reserve	-	-	-	-	-
- Land reserve	-	-	227	(227)	-
<b>As at 30 June 2016</b>	<b>7,093</b>	<b>10,557</b>	<b>2,266</b>	<b>15,753</b>	<b>35,669</b>
<b>At 1 July 2016</b>	<b>7,093</b>	<b>10,557</b>	<b>2,266</b>	<b>15,753</b>	<b>35,669</b>
Surplus for the year	-	-	-	22,440	22,440
Other comprehensive income	-	-	-	4,355	4,355
Total comprehensive surplus	-	-	-	26,795	26,795
Acquired surpluses	-	-	-	1,151	1,151
Transfer to/(from) reserves:					
- PCF reserve	-	(5,322)	-	5,322	-
- AWEFS reserve	-	-	-	-	-
- Land reserve	-	-	227	(227)	-
<b>As at 30 June 2017</b>	<b>7,093</b>	<b>5,235</b>	<b>2,493</b>	<b>48,794</b>	<b>63,615</b>

The Statement of Changes in Equity should be read in conjunction with the accompanying notes.



## Statement of Cash Flows

Year ended 30 June 2017

	Notes	2017 \$'000	2016 \$'000
<b>Cash flows from operating activities</b>			
Receipts from customers		838,918	766,353
Payments to suppliers and employees		(801,095)	(729,402)
Payment of claims from the PCF		(5,529)	-
		<b>32,294</b>	<b>36,951</b>
Interest received		1,520	1,544
Interest and other finance costs paid		(1,894)	(1,925)
<b>Net cash inflow from operating activities before movements in security deposits</b>		<b>31,920</b>	<b>36,570</b>
Receipts of participant security deposits		1,680,465	557,541
Repayment of participant security deposits		(1,726,934)	(495,881)
<b>Net cash (outflow) / inflow from operating activities</b>	21	<b>(14,549)</b>	<b>98,230</b>
<b>Cash flows from investing activities</b>			
Payment for acquisition, net of cash acquired	19	(497)	(427)
Payments for plant and equipment and intangible assets		(26,826)	(11,543)
<b>Net cash outflow from investing activities</b>		<b>(27,323)</b>	<b>(11,970)</b>
<b>Cash flows from financing activities</b>			
Proceeds from borrowings		27,743	10,992
Repayment of borrowings		(42,595)	(18,742)
<b>Net cash outflow from financing activities</b>		<b>(14,852)</b>	<b>(7,750)</b>
<b>Net (decrease) / increase in cash and cash equivalents</b>		<b>(56,724)</b>	<b>78,510</b>
Cash and cash equivalents at the beginning of the financial year		119,187	40,677
<b>Cash and cash equivalents at end of the financial year</b>	4	<b>62,463</b>	<b>119,187</b>

The Statement of Cash Flows should be read in conjunction with the accompanying notes.

# Notes to the Financial Statements

Year ended 30 June 2017

## 1. Introduction

This financial report covers the Australian Energy Market Operator Limited (AEMO). AEMO is a not-for-profit public company limited by guarantee, incorporated and domiciled in Australia. Its registered office and principal place of business is:

**Level 22, 530 Collins Street  
Melbourne, Victoria, 3000**

The financial report was authorised for issue by the directors on the date of the directors' declaration.

The principal accounting policies adopted in the preparation of the financial statements are set out below. These policies have been consistently applied to all the years presented, unless otherwise stated.

### a) Basis of preparation

The financial statements are general purpose financial statements which have been prepared in accordance with Australian Accounting Standards, other authoritative pronouncements of the Australian Accounting Standards Board and the *Corporations Act 2001*.

The company complies with International Financial Reporting Standards (IFRS).

The financial statements are presented in Australian Dollars and all values are rounded to the nearest thousand dollars ('000) unless otherwise stated.

### Historical cost convention

These financial statements have been prepared under the historical cost convention, as modified by the revaluation of financial assets and liabilities (including derivative instruments) at fair value through profit or loss.

### Critical accounting estimates

Preparation of financial statements that conform with the Australian Accounting Standards requires the use of certain critical accounting estimates. It also requires management to exercise judgement in the process of applying the company's accounting policies. Areas involving a higher degree of judgement or complexity, or areas where assumptions and estimates are significant to the financial statements, are tabled below:

Area	Estimate assumption
<b>Defined benefit superannuation</b>	Actuarial assumptions used in determining the defined benefit obligations and the related carrying amounts are discussed in Note 12.
<b>Depreciation and amortisation</b>	The estimation of the useful lives of assets has been based on historical experience as well as manufacturers' warranties (for plant and equipment) and lease terms. In addition, the condition of the assets is assessed at least once per year and considered against the remaining useful life. Adjustments to useful lives are made when considered necessary.
<b>Use of assets for network services</b>	<p>AEMO has ongoing Transmission Network Service Provider Agreements under which AusNet Services and Murraylink provide network services to AEMO in relation to the Victorian electricity transmission network. The charges levied on AEMO by AusNet Services and Murraylink for the provision of transmission services under the agreements are regulated by the Australian Energy Regulator (AER). AEMO incorporates these charges into its fees to network users.</p> <p>AEMO has determined that these arrangements are not, and do not contain, a lease in accordance with AASB Interpretation 4 Determining whether an Arrangement contains a Lease.</p>

## b. Currency

### Functional and presentation currency

The financial statements are presented in Australian Dollars, which is AEMO's functional and presentation currency.

### c. Goods and Services Tax (GST)

Revenues, expenses and assets are recognised net of the amount of associated GST, unless the GST incurred is not recoverable from the taxation authority. In this case it is recognised as part of the cost of acquisition of the asset or as part of the expense. Receivables and payables are stated inclusive of the amount of GST receivable or payable. The net amount of GST recoverable from, or payable to, the taxation authority is included within other receivables or payables in the Statement of Financial Position. Cash flows are presented on a gross basis. The GST components of cash flows arising from investing or financing activities that are recoverable from, or payable to, the taxation authority, are presented as an operating cash flow.

### d. New accounting standards and interpretations

#### Accounting standards and interpretations issued but not yet effective

Australian Accounting Standards and Interpretations that have recently been issued or amended but are not yet effective and have not been adopted by the company for the annual reporting period ending 30 June 2017 are outlined below:

### Details of new standard/ amendment/interpretation

#### AASB 9 – Financial Instruments (Effective date: 1 July 2018)

AASB 9 introduces new requirements for the classification and measurement of financial assets and liabilities. These requirements improve and simplify the approach for classification and measurement of financial assets compared with the requirements of AASB 139. The main changes are:

- d. Financial assets that are debt instruments will be classified based on:
  1. the objective of the entity's business model for managing the financial assets; and
  2. the characteristics of the contractual cash flows.
- e. Allows an irrevocable election on initial recognition to present gains and losses on investments in equity instruments that are not held for trading in other comprehensive income (instead of in profit or loss). Dividends in respect of these investments that are a return on investment can be recognised in profit or loss and there is no impairment or recycling on disposal of the instrument.
- f. Financial assets can be designated and measured at fair value through profit or loss at initial recognition if doing so eliminates or significantly reduces a measurement or recognition inconsistency that would arise from measuring assets or liabilities, or recognising the gains and losses on them, on different bases.

g. Where the fair value option is used for financial liabilities the change in fair value is to be accounted for as follows:

1. The change attributable to changes in credit risk are presented in other comprehensive income (OCI); and
2. The remaining change is presented in profit or loss.

If this approach creates or enlarges an accounting mismatch in the profit or loss, the effect of the changes in credit risk are also presented in profit or loss.

Otherwise, the following requirements have generally been carried forward unchanged from AASB 139 into AASB 9:

- 1) Classification and measurement of financial liabilities; and
- 2) Derecognition requirements for financial assets and liabilities.

AASB 9 requirements regarding hedge accounting represent a substantial overhaul to hedge accounting that will enable entities to better reflect their risk management activities in the financial statements.

Consequential amendments arising from AASB 9 are also contained in various other accounting standards.

Furthermore, AASB9 introduces a new impairment model based on expected credit losses. This model makes use of more forward-looking information and applies impairment accounting.

When this standard is first adopted for the year ending 30 June 2019, there will be no material impact on the transactions and balances recognised in the financial statements.

### AASB 15 Revenue from Contracts with Customers (Effective Date: 1 January 2018)

Replaces AASB 118 Revenue, AASB 111 Construction Contracts and some revenue-related interpretations:

- establishes a new revenue recognition model
- changes the basis for deciding whether revenue is to be recognised over time or at a point in time
- provides new and more detailed guidance on specific topics (e.g., multiple element arrangements, variable pricing, rights of return, warranties and licensing)
- expands and improves disclosures about revenue

When this standard is first adopted for the year ending 30 June 2019, there will be no material impact on the transactions and balances recognised in the financial statements.

### AASB 16 Leases (Effective Date: 1 January 2019)

Replaces AASB 117 Leases and some revenue-related Interpretations:

requires all leases to be accounted for 'on-balance sheet' by lessees, other than short-term and low value asset leases

- provides new guidance on the application of the definition of lease and on sale and lease back accounting
- largely retains the existing lessor accounting requirements in AASB 117
- requires new and different disclosures about leases

AEMO is yet to undertake a detailed assessment of the impact of AASB 16. However, based on AEMO's preliminary assessment, the likely impact on the first time adoption of the Standard for the year ending 30 June 2020 includes:

- there will be a significant increase in lease assets and financial liabilities recognised on the balance sheet that relate to AEMO's office leases.
- the reported equity will reduce as the carrying amount of lease assets will reduce more quickly than the carrying amount of lease liabilities

- EBIT in the statement of profit or loss and other comprehensive income will be higher as the implicit interest in lease payments for former off balance sheet leases will be presented as part of finance costs rather than being included in operating expenses
- operating cash outflows will be lower and financing cash flows will be higher in the statement of cash flows as principal repayments on all lease liabilities will now be included in financing activities rather than operating activities. Interest can also be included within financing activities

## 2. Revenue

### In summary

This section provides detail on the services that AEMO provides and the revenue received to recover the costs of providing those services.

Electricity transmission income is received in our role as the Victorian Electricity Transmission Network Service Provider. This income represents greater than 60% of our total revenue and primarily relates to the recovery of network asset charges paid to the transmission network asset owners.

AEMO assessed the impact of the revenue recognition changes under the Australian Accounting Standards, effective 1 January 2018. This standard AASB 15 Revenue from Contracts with Customers, has been discussed earlier on this page. AEMO reviewed its current revenue recognition practice i.e. revenue recognised in the period when services are rendered, and compared it with the new standard. The current recognition is aligned with the new standard. Therefore, there will likely be no material impact to AEMO's revenue recognition when this standard becomes effective.

Revenue comprises fees charged for the recovery of expenditure incurred primarily in relation to providing the following services:

- Victorian Electricity Transmission Network Service Provider (TNSP) responsibilities.
- National Electricity Market (NEM).
- Electricity Full Retail Contestability (FRC).
- Victorian Declared Wholesale Gas Market (DWGM).
- Gas FRC in Victoria, South Australia, New South Wales and Queensland.
- Short Term Trading Market (STTM).
- National Transmission Planning.
- South Australian Planning Function.
- Western Australia Wholesale Electricity Market (WEM).
- Western Australia Gas Services Information (GSI).
- Western Australia Systems Management (SM).
- Western Australia FRC gas.
- Gas Supply Hub.
- Gas Statement of Opportunities (GSOO).
- Gas Business to Business (B2B).
- Gas Bulletin Board.
- Settlement Residue Auctions.

Revenue is recognised as the services are provided.

The National Electricity Rules and National Gas Rules each require AEMO to establish and maintain a Participant Compensation Fund. Note 13 provides further details of AEMO's participant compensation funds. Contributions to the funds and interest earned on fund investments are recognised as revenue and transferred to the Participant Compensation Fund Reserve.

Interest revenue is recognised as earned at the effective interest rate.



	2017 \$'000	2016 \$'000
<b>Revenue from continuing operations</b>		
<b>Electricity transmission income</b>	<b>518,799</b>	<b>535,529</b>
Settlement residue – intra-regional (TNSP)	64,178	27,074
Settlement residue auctions (TNSP)	3,431	195
<b>Settlement residue</b>	<b>67,609</b>	<b>27,269</b>
NEM fees	69,515	67,453
FRC electricity fees	10,289	6,703
Registration fees	834	491
National transmission planner fees	2,901	3,713
WEM fees	16,754	10,297
WA System Management Fees	13,549	-
<b>Electricity market income</b>	<b>113,842</b>	<b>88,657</b>
DWGM fees	22,968	21,480
FRC gas fees	9,284	7,049
STTM fees	10,776	11,087
Gas SOO fees	1,610	1,392
Registration fees	348	336
GSI fees	1,818	1,212
Other gas revenues	1,149	1,155
<b>Gas market income</b>	<b>47,953</b>	<b>43,711</b>
PCF interest	206	287
PCF contributions received	-	-
Bank interest revenue	1,228	994
Other (includes work for Governments)	8,564	6,364
<b>Other revenue</b>	<b>9,998</b>	<b>7,645</b>
	<b>758,201</b>	<b>702,811</b>

### 3. Expenses

#### In summary

This section provides detail on the key expenditure items of the company.

Network charges represent a large portion of AEMO expenses. These are charges paid to transmission network asset owners for use of the transmission network.

Wages and salaries reflect the largest controllable cost component of our expenses to operate the functions under our remit. Amortisation and depreciation expenditure mainly reflects improvements to our electricity and gas wholesale and retail market systems for operations, metering and settlements and long-term energy forecasting tools.

AEMO is income tax exempt on the basis that it qualifies as a public authority constituted under an Australian law. This exemption currently applies to 30 June 2018 at which time it is due for review.

	2017 \$'000	2016 \$'000
<b>Surplus/(deficit) before income tax includes:</b>		
<b>Network Charges</b>	<b>549,442</b>	<b>550,241</b>
<b>Amortisation expense</b>	<b>13,863</b>	<b>12,118</b>
<b>Depreciation expense</b>	<b>4,515</b>	<b>4,698</b>
Wages and salaries	76,210	68,962
Defined contribution superannuation expense	8,047	7,090
Defined benefits superannuation expense	480	491
Other employee benefits expense	15,840	13,224
<b>Employee benefits</b>	<b>100,577</b>	<b>89,767</b>
<b>Employee benefits above exclude capitalised employee costs of:</b>	<b>6,085</b>	<b>1,797</b>
Bank fees	263	191
Interest expense	1,442	1,385
<b>Finance costs</b>	<b>1,705</b>	<b>1,576</b>
<b>Foreign exchange loss</b>	<b>-</b>	<b>65</b>
<b>Rental expenses related to operating leases</b>	<b>5,126</b>	<b>4,521</b>

## 4. Cash and Cash Equivalents

### In summary

AEMO's cash and cash equivalents is segregated into three different categories which determine the purpose and availability for company use.

- Cash at bank and on hand is the company's operating funds
- Security deposits and early settlement proceeds are funds received from market participants, that are not available for AEMO's operational use, and are held on behalf of participants in accordance with the National Electricity Rules. These funds were lower in 2017 compared to 2016 due to the timing of the NEM market settlement occurring on balance date 30 June 2017, compared to the market settlement occurring on 1 July 2016 in the prior year, that resulted in a number of security deposits and early settlement proceeds being held at balance date on 30 June 2016.
- Participant compensation funds are collected and held for participants under the NEM, DWGM and STTM for compensation as a result of scheduling errors. These funds are not available for AEMO's operational use.

	2017 \$'000	2016 \$'000
Cash at bank and on hand	31,785	40,881
Security deposits and early settlement proceeds not available for use	25,449	67,809
Participant Compensation Fund (PCF)	5,229	10,497
	<b>62,463</b>	<b>119,187</b>

For Statement of Cash Flows presentation purposes, cash and cash equivalents include cash on hand; and deposits held at call with financial institutions that are readily convertible to cash on hand and are subject to an insignificant risk of a change in value.

## 5. Trade and Other Receivables

### In summary

Trade and other receivables largely comprise wholesale market settlement transactions that have occurred but are yet to be settled and transmission use of system (TUOS) fees which are billed to transmission network users one month in arrears.

AEMO's credit risk for trade and other receivables is low.

	2017 \$'000	2016 \$'000
<b>Current</b>		
Participant fees receivable	22,781	21,087
TUOS revenue receivable	50,367	50,749
Other receivables	5,402	9,300
Prepayments	4,328	4,199
	<b>82,878</b>	<b>85,335</b>

### Financial risk management – credit risk

Credit risk arises where one party to a financial instrument will cause financial loss to the other party by failing to discharge an obligation. AEMO has exposure to credit risk on cash and cash equivalents, prepaid expenses, and receivables.

Exposure to credit risk is mitigated by a rigorous market prudential regime that requires credit support from either a bank guarantee or deposit equivalent to the level required by the National Electricity Rules and National Gas Rules.

Guarantees will only be accepted from banks that have a credit rating which is either:

1. A rating of A-1 or higher for short-term unsecured counterparty obligations of the entity, as rated by Standard and Poor's (Australia) Pty Ltd, or
2. A rating of P-1 or higher for short-term unsecured counterparty obligations of the entity, as rated by Moody's Investor Service Pty Ltd.

If there is to be a change to the credit support (expiry or termination) then at least 10 business days prior to the time at which the existing credit support is due to expire or terminate, the market participant must procure a replacement.

Prepayments represent payments made for services to be provided or consumed over future months. Insurance agreements represent a large proportion of these, with the remainder comprised mostly of IT support. These prepayments are supported by underlying service agreements which would be legally enforceable in the event of default of service. In many instances the services are the result of a competitive process where the financial viability of the vendor has been examined.

## 6. Property, Plant and Equipment

### In summary

This section represents capitalised assets for our wholesale and retail market systems and our corporate systems. Land and buildings reflect the fitout of our offices along with the site at Norwest in Sydney that AEMO owns and occupies.



	Electricity Systems (NEM, FRC and WEM) \$'000	Gas Systems (DWGM, GSH and FRC) \$'000	Short-term Trading Market Systems \$'000	Plant and Equipment \$'000	Land and Buildings \$'000	Total \$'000
<b>At 30 June 2016</b>						
Cost	16,332	3,309	525	21,147	38,862	80,175
Accumulated depreciation	(15,500)	(3,128)	(501)	(17,528)	(15,494)	(52,151)
<b>Net book value at 30 June 2016</b>	<b>832</b>	<b>181</b>	<b>24</b>	<b>3,619</b>	<b>23,368</b>	<b>28,024</b>
<b>Reconciliation of carrying amount: Year ended 30 June 2016</b>						
Carrying amount at 1 July 2015	892	242	81	3,970	21,234	26,419
Additions	194	17	-	1,400	3,815	5,426
Acquisition through business combination	372	-	-	-	514	886
Transfers	-	-	-	-	-	-
Disposals	-	-	-	(9)	-	(9)
Depreciation	(626)	(78)	(57)	(1,742)	(2,195)	(4,698)
<b>Carrying amount at 30 June 2016</b>	<b>832</b>	<b>181</b>	<b>24</b>	<b>3,619</b>	<b>23,368</b>	<b>28,024</b>
<b>Reconciliation of cost:</b>						
Cost amount at 1 July 2015	16,226	3,292	525	20,140	35,827	76,010
Additions	194	17	-	1,400	3,815	5,426
Acquisition through business combination	372	-	-	-	514	886
Transfers	-	-	-	-	-	-
Disposals	(460)	-	-	(393)	(1,294)	(2,147)
<b>Cost amount at 30 June 2016</b>	<b>16,332</b>	<b>3,309</b>	<b>525</b>	<b>21,147</b>	<b>38,862</b>	<b>80,175</b>
<b>At 30 June 2017</b>						
Cost	17,644	3,309	525	24,391	41,013	86,882
Accumulated depreciation	(15,523)	(3,221)	(525)	(19,427)	(17,686)	(56,382)
<b>Net book value at 30 June 2017</b>	<b>2,121</b>	<b>88</b>	<b>-</b>	<b>4,964</b>	<b>23,327</b>	<b>30,500</b>
<b>Reconciliation of carrying amount: Year ended 30 June 2017</b>						
Carrying amount at 1 July 2016	832	181	24	3,619	23,368	28,024
Additions	1,590	-	-	3,250	2,151	6,991
Transfers	-	-	-	-	-	-
Disposals	-	-	-	-	-	-
Depreciation	(301)	(93)	(24)	(1,905)	(2,192)	(4,515)
<b>Carrying amount at 30 June 2017</b>	<b>2,121</b>	<b>88</b>	<b>0</b>	<b>4,964</b>	<b>23,327</b>	<b>30,500</b>
<b>Reconciliation of cost:</b>						
Cost amount at 1 July 2016	16,332	3,309	525	21,147	38,862	80,175
Additions	1,590	-	-	3,250	2,151	6,991
Transfers	-	-	-	-	-	-
Disposals	(278)	-	-	(6)	-	(284)
<b>Cost amount at 30 June 2017</b>	<b>17,644</b>	<b>3,309</b>	<b>525</b>	<b>24,391</b>	<b>41,013</b>	<b>86,882</b>

## Property plant and equipment

AEMO initially recognises items of property, plant and equipment that qualify for recognition as an asset at cost.

After initial recognition as an asset, an item of property, plant and equipment is carried at its cost less any accumulated depreciation and any accumulated impairment losses. This methodology is applied to each class of property, plant and equipment.

Depreciation of assets is calculated on a straight-line basis to write off the net cost of each item of property, plant and equipment (excluding land) over its expected useful life. Estimates of remaining useful life are made on a regular basis for all assets, with annual reassessments for major items. Land is not depreciated.

Depreciation is charged from the month the asset commences service.

Expected useful life periods are as follows:

- IT systems hardware **3–5 years**
- Furniture and equipment **3–5 years**
- Office and technology infrastructure **7–10 years**
- Building fitout **10–15 years**
- Buildings – Norwest **30 years**

## 7. Intangibles

### In summary

This section represents costs to establish our markets and enhancements to software to run those markets, along with corporate software costs.

The additions in 2016-17 include a project to automate the volt-ampere reactive dispatch in the real-time electricity control rooms and a project to provide more opportunities for consumers to make informed choices about the way they use electricity.

	NEM Establishment costs \$'000	FRC Establishment costs \$'000	Software - Electricity (NEM, FRC and WEM) \$'000	Software - Gas (DWGM, GSH and FRC) \$'000	Software - Short-term Trading Market \$'000	Other \$'000	Total \$'000
<b>At 30 June 2016</b>							
Cost	44,473	27,330	97,155	18,156	21,377	8,013	216,504
Accumulated amortisation	(44,473)	(27,330)	(82,124)	(8,192)	(16,861)	(5,749)	(184,729)
<b>Net book value at 30 June 2016</b>	<b>-</b>	<b>-</b>	<b>15,031</b>	<b>9,964</b>	<b>4,516</b>	<b>2,264</b>	<b>31,775</b>
<b>Reconciliation of carrying amount: Year ended 30 June 2016</b>							
Carrying amount at 1 July 2015	-	-	11,695	7,968	7,646	1,426	28,735
Additions	-	-	2,019	2,470	2	1,625	6,116
Asset write-off	-	-	(1,220)	-	-	-	(1,220)
Acquisition through business combination	-	-	8,586	1,676	-	-	10,262
Transfers	-	-	-	-	-	-	-
Amortisation	-	-	(6,049)	(2,150)	(3,132)	(787)	(12,118)
<b>Carrying amount at 30 June 2016</b>	<b>-</b>	<b>-</b>	<b>15,031</b>	<b>9,964</b>	<b>4,516</b>	<b>2,264</b>	<b>31,775</b>
<b>Reconciliation of cost:</b>							
Cost amount at 1 July 2015	44,473	27,330	87,770	14,010	21,375	6,435	201,393
Additions	-	-	2,019	2,470	2	1,625	6,116
Asset write-off	-	-	(1,220)	-	-	-	(1,220)
Acquisition through business combination	-	-	8,586	1,676	-	-	10,262
Transfers	-	-	-	-	-	-	-
Disposals	-	-	-	-	-	(47)	(47)
<b>Cost amount at 30 June 2016</b>	<b>44,473</b>	<b>27,330</b>	<b>97,155</b>	<b>18,156</b>	<b>21,377</b>	<b>8,013</b>	<b>216,504</b>
<b>At 30 June 2017</b>							
Cost	44,473	27,330	113,692	19,177	21,502	10,137	236,311
Accumulated amortisation	(44,473)	(27,330)	(89,262)	(10,976)	(19,922)	(6,601)	(198,564)
<b>Net book value at 30 June 2017</b>	<b>-</b>	<b>-</b>	<b>24,430</b>	<b>8,201</b>	<b>1,580</b>	<b>3,536</b>	<b>37,747</b>
<b>Reconciliation of carrying amount: Year ended 30 June 2017</b>							
Carrying amount at 1 July 2016	-	-	15,031	9,964	4,516	2,264	31,775
Additions	-	-	16,536	1,021	125	2,153	19,835
Amortisation	-	-	(7,137)	(2,784)	(3,061)	(881)	(13,863)
<b>Carrying amount at 30 June 2017</b>	<b>-</b>	<b>-</b>	<b>24,430</b>	<b>8,201</b>	<b>1,580</b>	<b>3,536</b>	<b>37,747</b>
<b>Reconciliation of cost:</b>							
Cost amount at 1 July 2016	44,473	27,330	97,155	18,156	21,377	8,013	216,504
Additions	-	-	16,537	1,021	125	2,153	19,835
Disposals	-	-	-	-	-	(29)	(29)
<b>Cost amount at 30 June 2017</b>	<b>44,473</b>	<b>27,330</b>	<b>113,692</b>	<b>19,177</b>	<b>21,502</b>	<b>10,137</b>	<b>236,311</b>

## Intangibles

AEMO's intangible assets have finite useful lives, are amortised on a straight-line basis over their useful life, and are carried at cost less accumulated amortisation and impairment losses.

### i. NEM establishment costs

NEM establishment costs represent the expenditure incurred to establish the NEM. These costs were recovered from registered participants over a 10-year period commencing 13 December 1998 and ending 31 December 2008.

The straight-line method of amortisation was used and the asset is now fully amortised.

### ii. Electricity FRC costs

Electricity FRC costs represent the expenditure incurred during the period January 2002 to June 2003 to develop and implement the electricity FRC market. These costs were recovered from FRC market participants over a 10-year period commencing 1 July 2003 and ending 30 June 2013. The straight-line method of amortisation was used and the asset is now fully amortised.

### iii. STTM establishment costs

The STTM establishment costs represent the expenditure incurred to develop and implement the gas short term trading market during the period September 2008 to September 2010 for the Sydney and Adelaide market and to December 2011 for the Brisbane market. Costs are recovered over a 7-year period from September 2010 to September 2017.

### iv. Software

#### Acquired software

Acquired computer software licences are capitalised on the basis of the costs incurred to acquire and install the specific software.

## Internally developed software

Expenditure on the research phase of the projects to develop new customised software for IT and telecommunication systems is recognised as an expense as incurred.

Costs that are directly attributable to a project's development phase are recognised as intangible assets, provided they meet the recognition requirements of AASB138. Development costs not meeting these criteria for capitalisation are expensed as incurred.

Directly attributable costs include costs incurred on software development along with an appropriate portion of relevant overheads.

Subsequent expenditure on computer software maintenance is expensed as incurred. Software asset useful lives vary according to the type of asset.

Assets are amortised over their estimated useful lives as follows:

- NEM and FRC market management systems software: 5 years.
- DWGM and FRC Gas IT system software: 5 years.
- STTM system software: 5 years.
- Business applications software: 3-5 years.
- WEM software: 5 years.
- GSI software: 5 years.

## Additions of assets

The purchase cost method of accounting is used for all acquisitions. Cost is determined as the fair value of the assets at the date of acquisition plus costs directly attributable to the acquisition. Subsequent costs are included in the asset's carrying amount or are recognised as a separate asset, as appropriate, only when it is probable that future economic benefits associated with the item will flow to AEMO and the cost can be reliably measured.

All other repairs and maintenance are charged as expenses during the financial period in which they are incurred.

An asset is capitalised if AEMO has control over the asset and will gain future economic benefit. Expenditure directly incurred in making the asset operational is also capitalised. All other expenditure is treated as operating expenditure.

## Impairment of assets

Intangible assets that have an indefinite useful life are not subject to amortisation and are tested annually for impairment, or more frequently if events or changes in circumstances indicate that they might be impaired. Other assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount may not be recoverable. An impairment loss is recognised for the amount by which the asset's carrying amount exceeds its recoverable amount. The recoverable amount is the higher of an asset's fair value less costs to sell and value in use.

For the purpose of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash inflows that are largely independent of the cash inflows from other assets or groups of assets (cash generating units). Non-financial assets that suffer impairment are reviewed for possible reversal of the impairment at each reporting date.



## 8. Trade and Other Payables

### In summary

Trade and other payables represent liabilities for goods and services provided to the company prior to the end of the financial year that remain unpaid. The amounts are unsecured and are usually paid within 30 days of recognition.

Participant security deposits relate to the NEM and are monies held by AEMO (in cash and cash equivalents) and are held on behalf of the registered market customers for prudential requirements. Electricity settlement prepayments are early NEM settlement proceeds received ahead of settlement date.

	2017 \$'000	2016 \$'000
<b>Current</b>		
Accounts payable and accrued network charges	50,656	54,910
Finance costs payable	115	304
Participant security deposits	26,362	72,592
Electricity settlement prepayments	-	15,173
Other creditors and accruals	17,657	12,113
	<b>94,790</b>	<b>155,092</b>

## 9. Borrowings

### In summary

AEMO's loans relate to the Norwest land and building and major capital expenses to maintain the market systems in the WEM and are for a fixed term to align with the life of the asset being depreciated.

In August 2016, AEMO executed a new debt facility with a five year facility term with the Commonwealth Bank of Australia.

	2017 \$'000	2016 \$'000
<b>Current</b>		
<b>Bank loans</b>		
Norwest	700	17,886
STTM	-	4,743
WEM	2,526	8,471
	<b>3,226</b>	<b>31,100</b>
<b>Non-current</b>		
<b>Bank loans</b>		
Norwest	11,900	-
WEM	1,122	-
	<b>13,022</b>	-
<b>Total</b>	<b>16,248</b>	<b>31,100</b>

The above borrowings are unsecured.

## Borrowing Costs

Borrowing costs are recognised as expenses in the period in which they are incurred, except where they are included in the costs of qualifying assets.

## Financial risk management – Market risk

Market risk is the risk that the fair value or future cash flows of a financial instrument will fluctuate because of changes in market prices. It comprises three types of risk: interest rate risk, currency risk, and other price risk. In AEMO's case only interest rate risk and currency risk are relevant.

Interest rate risk arises from long-term borrowings issued at variable rates.

On occasions AEMO enters into contracts denominated in foreign currency.

## Financial risk management – Liquidity risk

Liquidity risk arises where there is a possibility that AEMO will encounter difficulty in meeting obligations relating to financial liabilities and will not have sufficient funds to settle a transaction on the due date.

To manage this risk AEMO continually forecasts and monitors cash flow and invests surplus funds in highly liquid markets. To mitigate this risk AEMO has a revolving cash advance facility and trade finance working capital facility provided by Commonwealth Bank of Australia.

## Undrawn borrowing facilities

30 June 2017	Limit \$ '000	Balance \$'000	Undrawn \$'000
<b>Total facility available</b>	<b>65,905</b>	<b>16,248</b>	<b>49,657</b>

30 June 2016	Limit \$ '000	Balance \$'000	Undrawn \$'000
<b>Total facility available</b>	<b>75,000</b>	<b>31,100</b>	<b>43,900</b>

## Loan repayment commitments

Total loan repayment (combining both principal and interest) commitments are as follows:

### 30 June 2017

Institution	Loan name	< 1 year \$'000	1–5 years \$'000	> 5 years \$'000	Total \$'000
CBA	Norwest land and buildings	922	3,564	10,174	14,660
	WEM	2,566	1,126	-	3,692
<b>Total commitments</b>		<b>3,488</b>	<b>4,690</b>	<b>10,174</b>	<b>18,352</b>

### 30 June 2016

Institution	Loan name	< 1 year \$'000	1–5 years \$'000	> 5 years \$'000	Total \$'000
NAB	Norwest land and buildings	18,381	-	-	18,381
	STTM establishment costs	5,061	-	-	5,061
	WEM	8,632	-	-	8,632
<b>Total commitments</b>		<b>32,074</b>	<b>-</b>	<b>-</b>	<b>32,074</b>

## 10. Provisions

### In summary

The company provisions relate to employee benefits (annual leave and long service leave).

**'Current' liability – Short-term employee benefits including annual leave** – Current liabilities include long service leave estimated to be payable within 12 months and the total annual leave liability.

**'Non-current' liability – Long service leave** – Long service leave not payable for more than 12 months from the reporting date is recognised as a non-current liability measured at the present value of expected future payments. Consideration is given to expected future wage and salary levels, experience of employee departures, and periods of service.

	2017 \$'000	2016 \$'000
<b>Current</b>		
Provision for employee entitlements	22,307	19,480
	<b>22,307</b>	<b>19,480</b>
<b>Non-current</b>		
Provision for employee entitlements	1,496	1,692
	<b>1,496</b>	<b>1,692</b>
<b>Total</b>	<b>23,803</b>	<b>21,172</b>

## 11. Other Liabilities

### In summary

Prepaid revenue is revenue received in advance from DWGM and STTM market participants who are close to their credit limits, to enable them to continue trading in their respective markets in accordance with the National Gas Rules. Other current liabilities are primarily office lease incentive benefits to be amortised within the twelve months after balance date.

The non-current liability of lease incentive relates to office lease benefits (i.e. cash incentives or rent free periods) which are amortised over the course of the lease to the profit and loss statement beyond twelve months from balance date.

	2017 \$'000	2016 \$'000
<b>Current</b>		
Prepaid revenue	8,203	9,287
Other liabilities	1,529	1,162
	<b>9,732</b>	<b>10,449</b>
<b>Non-current</b>		
Lease incentive	3,760	5,324
	<b>3,760</b>	<b>5,324</b>

## 12. Defined Benefit Superannuation Plan

### In summary

This plan was transferred to AEMO as part of the business combination with VENCORP on 1 July 2009. The plan is closed to new members.

The defined benefit superannuation obligation to its members is required to be revalued at fair value annually in accordance with the Australian Accounting Standards and presented as an asset or liability on the balance sheet. The company uses an actuarial expert annually for this revaluation.

The plan comprises 12 employees and 6 pension members at 30 June 2017.

Defined benefit members receive either lump sum benefits or pension benefits on retirement, death, disablement or withdrawal.

The defined benefit superannuation liability at 30 June 2017 is \$1.640m. This liability has decreased from \$5.515m from the prior year primarily due to stronger investment returns, departing fund members taking a lump sum superannuation payment, and the increase in the discount rate used in the revaluation calculation.

### i. Defined contribution plans

AEMO's default employee superannuation fund is an accumulation benefit fund. Employees have the choice of joining the AEMO-nominated fund or another superannuation fund of their choice. Superannuation contributions are included within expenses for the year.

### ii. Defined benefit plans

Through the business combination that occurred on 1 July 2009 AEMO acquired responsibility for the defined benefit superannuation plan from VENCORP. No new members are permitted to join the plan; however, it is continuing for the benefit of existing members. The defined benefit plan comprises 12 employees and 6 pension members.

The liability recognised in the statement of financial position for defined benefit plan is the present value of the Defined Benefit Obligation ('DBO') at the reporting date less the fair value of plan assets.

The Company calculates the DBO annually with the assistance of an independent actuary. This is based on assumptions and estimates as disclosed below.

Re-measurement gains and losses arising from experience adjustments and changes in actuarial assumptions are recognised directly in other comprehensive income.

Service cost on the net defined benefit liability is included in employee benefits expense.



### Reconciliation of the assets and liabilities recognised in the statement of financial position

	2017 \$'000	2016 \$'000
Defined Benefit Obligation	21,713	27,795
Fair value of plan assets	(20,073)	(22,280)
<b>Net defined benefit superannuation liability</b>	<b>1,640</b>	<b>5,515</b>

### Reconciliation of the Net Defined Benefit Liability

Financial year	2017 \$'000	2016 \$'000
Net defined benefit liability at start of the year	5,515	1,187
Current service cost	511	455
Net Interest	144	36
Actual return on plan assets less interest income	(1,718)	226
Actuarial losses arising from changes in demographic assumptions	2	-
Actuarial (gains)/losses arising from changes in financial assumptions	(961)	2,988
Actuarial (gains)/losses arising from liability experience	(1,678)	922
Net actuarial (gains)/losses on re-measurement of net defined benefit superannuation liability	(4,355)	4,136
Employer contributions	(175)	(299)
<b>Net defined benefit liability at end of the year</b>	<b>1,640</b>	<b>5,515</b>

### Reconciliation of the present value of the defined benefit obligation

Financial year	2017 \$'000	2016 \$'000
Present value of defined benefit obligations at beginning of the year	27,795	23,853
Current service cost	511	455
Interest cost	813	947
Contributions by plan participants	106	121
Actuarial losses arising from changes in demographic assumptions	2	-
Actuarial (gains)/losses arising from changes in financial assumptions	(961)	2,988
Actuarial (gains)/losses arising from liability experience	(1,678)	922
Benefits paid	(4,747)	(1,349)
Taxes, premiums and expenses paid	(128)	(142)
<b>Present value of defined benefit obligations at end of the year</b>	<b>21,713</b>	<b>27,795</b>

## Reconciliation of the fair value of plan assets

Financial year	2017 \$'000	2016 \$'000
Fair value of plan assets at beginning of the year	22,280	22,666
Interest income	669	911
Actual return on plan assets less Interest income	1,718	(226)
Employer contributions	175	299
Contributions by plan participants	106	121
Benefits paid	(4,747)	(1,349)
Taxes, premiums and expenses paid	(128)	(142)
<b>Fair value of plan assets at end of the year</b>	<b>20,073</b>	<b>22,280</b>

## Fair value of plan assets

Financial assets and financial liabilities measured at fair value in the statement of financial position are grouped into three (3) levels of a fair value hierarchy.

The three (3) levels are defined based on the observability of significant inputs to the measurement, as follows:

- Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities
- Level 2: inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly
- Level 3: unobservable inputs for the asset or liability

Financial year ended 30 June 2017	Total \$'000	Quoted prices in active markets for identical assets – Level \$'000	Significant observable inputs – Level 2 \$'000	Unobservable inputs – Level 3 \$'000
Investment funds	20,073	-	20,073	-
<b>Total</b>	<b>20,073</b>	<b>-</b>	<b>20,073</b>	<b>-</b>

**The percentage invested in each asset class at the reporting date is:**

<b>As at 30 June</b>	<b>2017 %</b>	<b>2016 %</b>
Australian equity	24	30
International equity	19	21
Fixed income	11	13
Property	9	9
Growth alternatives	15	9
Defensive alternatives	11	11
Cash	11	7

**Fair value of plan assets**

The fair value of plan assets does not include any amounts relating to:

- Any of the company's own financial instruments.
- Any property occupied by, or other assets used by, the Company.

**Principal actuarial assumptions at the balance sheet date**

<b>Assumptions to determine defined benefit superannuation cost</b>	<b>2017 % p.a.</b>	<b>2016 % p.a.</b>
Discount rate (active members)	3.2	4.2
Discount rate (pensioners)	3.2	4.2
Expected salary increase rate	2.9	2.9
Expected pension increase rate	2.5	2.9

These rates are used to calculate the expected defined benefit cost for the year.

<b>Assumptions to determine defined benefit obligation</b>	<b>2017 % p.a.</b>	<b>2016 % p.a.</b>
Discount rate* (active members)	3.6	3.2
Discount rate (pensioners)	3.6	3.2
Expected salary increase rate	2.9	2.9
Expected pension increase rate	2.5	2.5

\* The discount rate used is based on a Corporate bond yield of 7 years duration.

These rates are used to calculate the defined benefit obligation (future obligation) at year end.

## Sensitivity Analysis

The defined benefit obligation as at 30 June 2017 under several scenarios is presented below.

Scenario A and B relate to discount rate sensitivity. Scenario C and D relate to salary increase rate sensitivity. Scenario E and F relate to pension indexation rate sensitivity.

	Base Case	Scenario A	Scenario B	Scenario C	Scenario D	Scenario E	Scenario F
		-0.5% pa discount rate	+0.5% pa discount rate	-0.5% pa Salary increase rate	+0.5% pa Salary increase rate	-0.5% pa Pension indexation	+0.5% pa Pension indexation
<b>Discount rate</b>	3.6% pa	3.1% pa	4.1% pa	3.6% pa	3.6% pa	3.6% pa	3.6% pa
<b>Salary increase rate</b>	2.9% pa	2.9% pa	2.9% pa	2.4% pa	3.4% pa	2.9% pa	2.9% pa
<b>Pension increase rate</b>	2.5% pa	2.5% pa	2.5% pa	2.5% pa	2.5% pa	2.0% pa	3.0% pa
<b>Defined benefit obligation (\$'000)</b>	21,713	22,925	20,593	21,415	22,021	20,926	22,561

The defined benefit obligation has been recalculated by changing the assumptions as outlined above, whilst retaining all other assumptions.

## Asset-Liability matching strategies

No asset and liability matching strategies have been adopted by the plan.

## Funding arrangements

The Equipsuper Contribution and Funding Policy provides for a review of the financial position of the Plan each six months, as at 30 June and 31 December, with the Company contribution rate comprising a long term contribution rate and an adjustment to meet the financing objective of a Target Funding Ratio of 105%.

The Target Funding Ratio reflects the proportion of salary related benefits and the allocation to "growth" assets for the Plan. The Funding Ratio is the ratio of assets to accrued liabilities, being the greater of vested benefits and the present value of past membership benefits.

Where the Funding Ratio is greater than 100% the financing objective is to achieve the Target Funding Ratio over five years. Where the Funding Ratio is less than 100% the primary financing objective is to achieve 100% over three years and Target Funding Ratio over five years.

In the most recent review of the financial position as at 31 December 2016 the actuary recommended a Company contribution rate of Nil. The next review of the financial position and Company contribution rate is due in September 2017.

The Company continues to contribute salary sacrifice contributions and at the required rates for accumulation members.

## Expected contributions

Financial year	\$'000
Expected employer contributions	-



## Maturity profile of defined benefit obligation

The weighted average duration of the defined benefit obligation as at 30 June 2017 is 7 years.

Expected benefit payments for the financial year ending on	\$'000
30 June 2018	1,168
30 June 2019	1,403
30 June 2020	1,642
30 June 2021	1,485
30 June 2022	1,562
Following 5 years	7,801

The weighted average duration of the defined benefit obligation at 30 June 2016 was 8 years.

## 13. Reserves

### Nature and purpose of reserves

#### Participant Compensation Fund Reserve

AEMO maintains the following participant compensation funds:

##### National Electricity Market

Established under the National Electricity Rules, the purpose of this fund is to pay compensation to certain types of participants for scheduling errors as determined by the Dispute Resolution Panel. The funding requirement for each financial year is the lesser of \$1,000k and \$5,000k minus the amount which AEMO reasonably estimates will be the balance of the PCF at the end of the relevant financial year.

In May 2017, claim payments of \$5,412k were made to applicants as a result of scheduling errors.

Due to the payment of claims this year, the National Electricity Market PCF has fallen below the funding requirement and therefore PCF fees of \$1m will be charged in the 2017-18 financial year in line with the National Electricity Rules.

##### Victorian Declared Wholesale Gas Market

Established under the National Gas Rules, the purpose of this fund is to pay compensation to market participants for unintended scheduling results as determined by the dispute resolution process. The funding requirement for each financial year is the lesser of \$500k and \$1,000k minus the amount AEMO reasonably expects to be the balance of the fund at the end of the financial year.

In June 2017, claim payments of \$116k were made to applicants as a result of a scheduling error which occurred in October 2016.

##### Short Term Trading Market

Established under the National Gas Rules, the purpose of these funds is to pay compensation to market participants for unintended scheduling results as determined by the dispute resolution process. The funding requirement for each financial year is:

- i. **Sydney hub:** The lesser of \$335k and \$670k minus the amount AEMO reasonably expects to be the balance of the fund at the end of the financial year.
- ii. **Adelaide hub:** The lesser of \$115k and \$330k minus the amount AEMO reasonably expects to be the balance of the fund at the end of the financial year.
- iii. **Brisbane hub:** The lesser of \$225k and \$450k minus the amount AEMO reasonably expects to be the balance of the fund at the end of the financial year.

The balances for all PCFs, except the National Electricity Market PCF, have reached the funding requirements under the Rules. No further PCF fees will be charged for these markets unless there is a claim against the funds, however interest will continue to be earned on these funds.

The balance of each of the Participant Compensation Fund reserves at 30 June are:

	PCF NEM \$'000	PCF Vic Wholesale Gas \$'000	PCF STTM Sydney hub \$'000	PCF STTM Adelaide hub \$'000	PCF STTM Brisbane hub \$'000	Total \$'000
<b>2016</b>						
Balance 1 July 2015	5,183	3,480	769	386	452	10,270
Contributions during the year	-	-	-	-	-	-
Interest earned during the year	147	99	22	11	8	287
Claim payments made from the PCF during the year	-	-	-	-	-	-
<b>30 June 2016</b>	<b>5,330</b>	<b>3,579</b>	<b>791</b>	<b>397</b>	<b>460</b>	<b>10,557</b>
<b>2017</b>						
Balance 1 July 2016	5,330	3,579	791	397	460	10,557
Contributions during the year	-	-	-	-	-	-
Interest earned during the year	83	84	19	10	11	207
Claim payments made from the PCF during the year	(5,412)	(116)	-	-	-	(5,528)
<b>30 June 2017</b>	<b>-</b>	<b>3,547</b>	<b>810</b>	<b>407</b>	<b>471</b>	<b>5,235</b>

### Land Reserve

AEMO has established the Land Reserve to recover the cost of the purchase of land at Norwest from participants.

## 14. Key Management Personnel Disclosures

### Directors

The following persons were directors of AEMO during the financial year:

#### Chairman – non-executive

- Dr. A. L. Marxsen

#### Managing Director and Chief Executive Officer

- M. Zema (passed away 23 July 2016)
- A. Zibelman (appointed as Chief Executive Officer on 20 March 2017 and subsequently appointed as Managing Director and Chief Executive Officer on 1 July 2017)

### Non-executive directors

- F.G. Calabria (resigned 1 May 2017)
- A.P. Concannon (appointed 4 May 2017)
- Dr. P.L. Davis
- E.A. Donaghey (appointed 1 May 2017)
- J.G. Hubbard
- S. Krieger
- S.C. Orr
- J. Pittard
- J. A. Tongs

All of the above persons were directors for the full financial year and up to the date of this report, with the exception of Mr Frank Calabria who resigned effective 1 May 2017, Mr Tony Concannon who was appointed to the Board effective 4 May 2017 and Ms Betsy Donaghey who was appointed to the Board effective 1 May 2017, and Mr Matt Zema, who sadly passed away on 23 July 2016. Ms Audrey Zibelman was appointed as Chief Executive Officer on 20 March 2017 and subsequently appointed Managing Director and Chief Executive Officer on 1 July 2017.

## Key management personnel compensation

	2017 \$'000	2016 \$'000
<b>Directors' compensation</b>		
Short-term employee benefits	1,250	2,001
Post-employee benefits	125	204
Other long-term and termination benefits	110	36
	<b>1,485</b>	<b>2,241</b>
<b>Other key management personnel</b>		
Short-term employee benefits	3,909	2,786
Post-employee benefits	220	195
Other long-term and termination benefits	670	120
	<b>4,799</b>	<b>3,101</b>
	<b>6,284</b>	<b>5,342</b>

Post-employee benefits exclude any payments from the defined benefit superannuation fund, however the annual amounts contributed to the fund are reflected in the table above.

### Directors' compensation

#### Chairman and the Board members:

The remuneration of the Chairman and the Board members was initially determined by the Ministerial Council on Energy based on advice received from an external consultant. At the Annual General Meeting on 6 November 2014, the AEMO members considered a report from AON Hewitt on the review of non-executive director remuneration against market and approved an annual remuneration pool of up to \$1.2 million for the next three years. In considering the matter, the members noted that the Board would have discretion to determine the annual increases in remuneration and that this would be disclosed as part of the budget process.

The remuneration of the Chairman and the Board in 2016-17 was within the pool approved by the AEMO members.

#### Managing Director and Chief Executive Officer:

The position of the Managing Director and Chief Executive Officer is evaluated based on advice received from a number of remuneration and benefits specialists. The Board approves the Total Employment Cost based on this advice. The Board approves any increase to be applied based on both market movement and individual performance.

#### Other key management personnel

All positions have a job profile that is evaluated using the Hay Group evaluation methodology. This determines their Total Employment Cost. Each year AEMO seeks remuneration advice from Hay Group regarding market movements for this group. Any movements are approved by the Board.

## 15. Remuneration of Auditors

During the year the following fees were paid or payable for services provided by the auditor of the entity, its related practices and non-related audit firms:

	2017 \$'000	2016 \$'000
<b>Statutory financial audit services</b>		
<b>Services provided by the financial auditor Grant Thornton</b>		
Statutory audit of the financial statements of the company	124	131
<b>Other services</b>		
Other audit services not provided by AEMO's financial auditor *	1,585	1,737

\* Other audit activities include gas and electricity market audit services, which include the review of AEMO's control procedures and its compliance with the Rules. A significant portion of these services are on behalf of registered participants and the review reports are distributed to them. This balance also includes internal audits of the company, review and accreditations, and other advisory services. None of these services were performed by the external auditor during the year.

## 16. Contingent Liabilities

### In summary

A contingent liability is a liability that may be incurred but is dependant on an uncertain future event.

From time to time AEMO may be involved in disputes with registered participants. As referred to in Note 13 Reserves, AEMO maintains PCFs for payment of compensation to market participants for unintended scheduling results and scheduling errors as determined under various dispute resolution processes. Where the probable outcome against the company can be measured, an appropriate liability is recognised in the financial statements. Where the outcome is unknown and the company is defending the action, or it is unlikely that any significant liability will arise, an amount is not recognised in the financial statements. Disclosure of details of claims are not provided where the directors consider that this would be prejudicial to AEMO in resolving the disputes. Payment of claims are capped to the extent of the funds available in the applicable PCF.

## 17. Commitments

### Capital commitments

	2017 \$'000	2016 \$'000
Not later than one year	4,290	522
Later than one year but not later than five years	791	-
Later than five years	-	-
	<b>5,081</b>	<b>522</b>

## Operating lease commitments

### In summary

This section details operating lease commitments which are mainly office leases contracted for at balance date but not recognised as liabilities.

The leases relate to the following:

- Melbourne CBD premises – lease agreement to 31 October 2018. At 30 June 2017 management had confirmed their intention to extend this lease to 31 October 2023 and the contract was being finalised.
- Sydney CBD premises – lease agreement to 28 February 2021
- Brisbane CBD premises – lease agreement to 31 January 2026
- Adelaide CBD premises – lease agreement to 15 July 2019
- Perth CBD premises – AEMO's WA based employees are currently located in two different sites. Employees are being relocated to a single CBD site. The lease agreement for the site is from 1 September 2017 to 31 August 2027. AEMO has a current lease agreement for a Perth site and exercised a termination clause with effect from 30 September 2017.

	<b>2017</b> <b>\$'000</b>	<b>2016</b> <b>\$'000</b>
Not later than one year	6,011	5,936
Later than one year but not later than five years	14,085	15,176
Later than five years	7,658	5,781
	<b>27,754</b>	<b>26,893</b>

Lease commitments payable are based on AEMO's current lease rates and include agreed future increments. Operating lease payments are charged on a basis which is representative of the pattern of benefits derived from the leased property.

Incentives received under non-cancellable operating leases in the form of rent free periods and contributions to fit-out costs are recognised as a liability. The liability is reduced by allocating lease rental payments between rental expense and reduction of the liability on a straight-line basis over the remaining term of the lease.



## 18. Accumulated surplus / (Deficit)

The accumulated surplus / (Deficit) attributable to AEMO's functions is detailed below:

	<b>2017 \$'000</b>	<b>2016 \$'000</b>
NEM	(1,267)	2,363
Electricity FRC	359	354
Victorian TNSP	30,141	(814)
DWGM – capital contribution	8,704	8,704
DWGM	5,732	1,273
Gas FRC (excluding WA)	2,743	2,538
WA Gas FRC	1,614	-
STTM	930	(1,162)
NTP	634	1,485
WEM	1,704	1,191
GSI	733	863
Systems Management	(1,452)	-
Other functions	(1,782)	(1,042)
	<b>48,794</b>	<b>15,753</b>

AEMO has statutory powers to recover all costs as well as under and over recoveries in any of the specific functions in the next financial year or subsequent financial years. It does this by including surpluses or deficits in future budgets and applying these to future fee recoveries for specific AEMO functions. Accordingly, the accumulated surplus / (deficit) attributable to each of AEMO's functions is reconciled and managed on an ongoing basis.

The DWGM – capital contribution amount relates to VENCORP contributed capital that was required to be treated as an accumulated surplus at the commencement of AEMO.

## 19. Business Combination

### a. Summary of acquisition

#### For the year ended 30 June 2017

AEMO assumed responsibility for:

- Western Australian Systems Management function previously performed by Western Power on 1 July 2016; and
- Western Australian Gas Retail Market (WA FRC Gas) previously performed by the Retail Energy Market Operator Ltd (REMCo) on 31 October 2016.

The details of the business combination are:

	Systems Management	WA FRC Gas	Total
<b>Fair value of consideration transferred</b>			
Amount settled in cash	1,359	-	1,359
<b>Total</b>	<b>1,359</b>	<b>-</b>	<b>1,359</b>
<b>Fair value assets and liabilities acquired</b>			
Cash and cash equivalents	-	862	862
Trade and other receivables	2,333	-	2,333
<b>Total Current Assets</b>	<b>2,333</b>	<b>862</b>	<b>3,195</b>
<b>TOTAL ASSETS</b>	<b>2,333</b>	<b>862</b>	<b>3,195</b>
Current provisions	335	-	335
<b>Current Liabilities</b>	<b>335</b>	<b>-</b>	<b>335</b>
Non-current provisions	350	-	350
<b>Non-current Liabilities</b>	<b>350</b>	<b>-</b>	<b>350</b>
<b>TOTAL LIABILITIES</b>	<b>685</b>	<b>-</b>	<b>685</b>
<b>Identifiable Net Assets</b>	<b>1,648</b>	<b>862</b>	<b>2,510</b>
<b>Accumulated surplus acquired*</b>	<b>289</b>	<b>862</b>	<b>1,151</b>

\* The accumulated surplus acquired represents the identifiable net assets for the Systems Management and WA FRC Gas functions, net of consideration transferred, and has been recognised directly in equity.

### b. Purchase consideration – cash outflow

	2017 \$'000
<b>Outflow of cash to acquire, net of cash acquired</b>	
Cash consideration	1,359
Less: balance cash acquired	(862)
<b>Net outflow of cash – investing activities</b>	<b>497</b>

## 20. Events Occurring after Balance Sheet date

There are no significant events occurring after balance sheet date.

## 21. Reconciliation of Surplus / (Deficit) to Net Cash Inflow / (Outflow) from Operating Activities

	2017 \$'000	2016 \$'000
Surplus	22,440	1,945
Depreciation and amortisation	18,377	16,816
Non-cash defined benefit expense	480	192
Write-off intangible assets	-	1,220
Unrealised foreign exchange gain	(32)	(17)
Profit on sale of investments	-	9
<b>Change in operating assets and liabilities</b>		
Decrease / (increase) in trade and other receivables	4,790	(18,604)
(Decrease) / increase in creditors and accruals	(16,081)	33,907
(Decrease) / increase in participant security deposits	(46,469)	61,660
Increase in provisions	1,946	1,102
<b>Net cash (outflow) / inflow provided by operating activities</b>	<b>(14,549)</b>	<b>98,230</b>

## 22. Related party transactions

All directors comply with the Directors Interests Protocol adopted by the Board, which abides by the Corporations Act 2001 provisions and sets out the policy for each director's responsibility to disclose conflicts of interest, declaration of interests, and management of conflicts.

There were two directors that occupied roles in other energy companies which pay fees to AEMO. All related party transactions for the year ended 30 June 2017 were transacted at arms-length.

These transactions are not considered related-party transactions as defined by accounting standards and are therefore not disclosed in this note, as the relevant directors of AEMO is not considered to have significant control over any of the entities with which AEMO transacts.

## Directors' declaration

The directors of Australian Energy Market Operator Limited declare that:

The financial statements, comprising the statement of profit or loss and other comprehensive income, statement of financial position, statement of changes in equity, statement of cash flows, and accompanying notes, are in accordance with the *Corporations Act 2001* and:

- a. comply with Accounting Standards as described in Note 1 to the financial statements and the *Corporations Regulations 2001*; and
- b. give a true and fair view of the company's financial position as at 30 June 2017 and of its performance for the year ended on that date in accordance with the accounting policies described in Note 1 to the financial statements.

In the directors' opinion, there are reasonable grounds to believe that the company will be able to pay its debts as and when they become due and payable.

This declaration is made in accordance with a resolution of the Board of Directors and is signed for and on behalf of the directors by:



**Dr. A. L. Marxsen**  
Chairman

**Melbourne 7 September 2017**



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## Independent Auditor's Report To The Members Of Australian Energy Market Operator Limited

### Auditor's Opinion

We have audited the financial report of Australian Energy Market Operator Limited (the Company), which comprises the statement of financial position as at 30 June 2017, the statement of profit or loss and other comprehensive income, statement of changes in equity and statement of cash flows for the year then ended, and notes to the financial statements, including a summary of significant accounting policies, and the directors' declaration.

In our opinion, the accompanying financial report of Australian Energy Market Operator Limited is in accordance with the *Corporations Act 2001*, including:

- i giving a true and fair view of the Company's financial position as at 30 June 2017 and of its performance for the year ended on that date; and
- ii complying with Australian Accounting Standards and the *Corporations Regulations 2001*.

### Basis for Opinion

We conducted our audit in accordance with Australian Auditing Standards. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Report* section of our report. We are independent of the Company in accordance with the *Corporations Act 2001* and the ethical requirements of the Accounting Professional and Ethical Standards Board's APES 110 *Code of Ethics for Professional Accountants* (the Code) that are relevant to our audit of the financial report in Australia. We have also fulfilled our other ethical responsibilities in accordance with the Code.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

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### Information Other than the Financial Report and Auditor's Report

The Directors are responsible for the other information. The other information comprises the information included in the Company's Directors' report for the year ended 30 June 2017, but does not include the financial report and our auditor's report thereon.

Our opinion on the financial report does not cover the other information and accordingly we do not express any form of assurance conclusion thereon.

In connection with our audit of the financial report, our responsibility is to read the other information and, in doing so, consider whether the other information is materially inconsistent with the financial report or our knowledge obtained in the audit or otherwise appears to be materially misstated.

If, based on the work we have performed, we conclude that there is a material misstatement of this other information, we are required to report that fact. We have nothing to report in this regard.

### Responsibility of the Directors for the Financial Report

The Directors of the Company are responsible for the preparation of the financial report that gives a true and fair view in accordance with Australian Accounting Standards and the *Corporations Act 2001*. The Directors responsibility also includes such internal control as the Directors determine is necessary to enable the preparation of the financial report that gives a true and fair view and is free from material misstatement, whether due to fraud or error.

In preparing the financial report, the Directors are responsible for assessing the Company's ability to continue as a going concern, disclosing, as applicable, matters related to going concern and using the going concern basis of accounting unless management either intends to liquidate the Company or to cease operations, or has no realistic alternative but to do so.

### Auditor's Responsibilities for the Audit of the Financial Report

Our objectives are to obtain reasonable assurance about whether the financial report as a whole is free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with the Australian Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of this financial report.

A further description of our responsibilities for the audit of the financial report is located at the Auditing and Assurance Standards Board website at: [http://www.auasb.gov.au/auditors\\_files/ar4.pdf](http://www.auasb.gov.au/auditors_files/ar4.pdf). This description forms part of our auditor's report.



GRANT THORNTON AUDIT PTY LTD  
Chartered Accountants

  
M J Climpson  
Partner

Melbourne, 7 September 2017

Australian Energy  
Market Operator Limited

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