

Please note that the information presented in this document were developed to enable discussion at the Financial Consultation Committee and are draft only and subject to change.

# Financial Update 2020/21

Finance Consultation Committee  
14 May 2021

# Welcome

Julie Williams, Chief Financial Officer

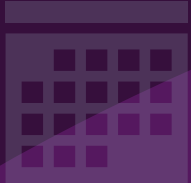


# Review of Minutes of Previous Meeting and Action Items

Julie Williams, Chief Financial Officer

# Review of Corporate Plan Priorities 2021/22

Tony Chappel, Chief External Affairs Officer



# Australia's Energy Landscape

- Australia's energy transition continues to accelerate, driven by consumer preferences, technological change and government policy.
- Distributed energy resources (DER) integration is occurring here at a pace unseen around the world: we have moved from 100,000 distributed solar installations in 2010 to more than 2.5 million today.
- The volume of renewable connections now and into the future remains unprecedented.
- In parallel, significant reform is ahead to transition market frameworks into the future.
- The changing technology mix means:
  - An increased reliance on weather dependent power generation.
  - Large volumes of new renewable generation are connecting to fringes of the grid, often electrically weak.
  - There is expanded complexity and variability in operating the grid due to millions of distributed power systems.

# AEMO Landscape

- The accelerating transition has implications for AEMO, our costs and our functions.
- With policy and regulatory frameworks adapting to keep up, the Finkel Review recommended that AEMO take on 9 direct actions and contribute to 13 further joint actions.
- The pace of regulatory change is visible through the dramatic increase in AEMC rule changes over the past few years. In the four years since 2016/17 we have seen a 75% increase including:
  - AEMC initiating 128 rule changes with 134 completed.
  - AEMC commenced 62 reviews and advices with 76 completed.
  - ESB initiating 17 major projects.
- New mandated workstreams include the Integrated System Plan, Regulatory Investment Tests for Transmission (RIT-T), Power of Choice, five-minute and global settlements, customer switching, increased Generator Technical Standards, Retailer Reliability Obligation, DER Register, Consumer Data Right, Wholesale Demand Response.

# AEMO Landscape

- The complexity of our work also continues to increase:
  - The amount of pure data AEMO now processes daily is growing exponentially, requiring computing power and programs to harness, store and share – there are now more than 100,000 data points per customer compared to just six in 2010.
  - This has necessitated new forecasting, planning, engineering, engagement and technology capabilities to deliver our core functions.
- Meanwhile, operational complexity continues – implications for the grid include low inertia, weak system strength and deviation in frequency and voltage – as we learn to manage minimum demand.
- Directions to maintain a secure operating state increased from just 6 in 2016 to more than 321 in 2020 and 149 so far in 2021.
- The diversity of market participants grows each year. AEMO's NEM registrations have effectively doubled from 234 in 2016 to more than 445 per year.
- In addition to the above, AEMO has had to take a leadership role to protect the energy sector from cyber threats, strengthening our systems and response capability.

# Embracing the future: Corporate Plan 2021/22

AEMO's strategic response to embrace the challenges and opportunities of the advancing energy system is focused on the following priorities:

- 1 Energy System and Market Operations:** AEMO is committed to maintaining secure and reliable operation of energy systems and markets, while maximising benefits in the interest of consumers.
- 2 Energy Transformation:** identify emerging issues, provide technical and economic expertise and support new and ongoing reforms.
- 3 Customers, Stakeholders and Members:** to be more transparent, efficient and customer focused.
- 4 Organisational Excellence:** to become a more efficient, leaner, stakeholder and customer-focused business with clear accountabilities.



# 2021/22 Corporate Portfolio of Work

## ① Energy System and Market Operations

### Top projects for FY2021/22

- **Power system resilience** – better understand, manage and measure power system resilience.
  - High Speed Monitoring Upgrade
- **Grid and market technologies** – further invest in the replacement and/or upgrade of critical legacy grid and market systems.
  - E.g. Settlement systems and SCADA upgrades
- **Forecasting and real-time operations** – streamline control room decision-making tools and processes.
  - e.g. ST PASA replacement
- **Cyber security** – continue to mature cyber security capabilities

## ② Energy Transformation

Australian energy industry reforms form a significant portion of AEMO's portfolio of work for FY2022.

The majority of this work is mandated through the various decision-making bodies.

### Top projects for FY2021/22

- ESB – NEM Post 2025
- AEMC - 5 Minute and Global Settlements
- AEMC - Customer Switching
- AEMC - Wholesale Demand Response
- AEMC - Gas Reform (DWCM)
- WA Govt – WEM Reform
- AER – Actionable ISP projects
- AER - ISP 2022 (supported by AEMO's NEM Engineering Framework)

# 2021/22 Corporate Portfolio of Work

## 3 Customers, Stakeholders and Members

Significant progress has been achieved over the past year to adopt a new model of collaborative engagement and enhanced transparency.

### Top projects for FY2021/22

- **Service excellence** – ensure AEMO is responsive, adaptive and supportive in our interactions, motivated by a strong stakeholder focus and underpinned by effective systems, processes and clear mutual obligations.
- **Grid Connections** - develop and implement a streamlined end-to-end account lifecycle and Grid Connections process and deliver phase 1 of the connections digitalisation project.

## 4 Organisational Excellence

AEMO will constantly evaluate how we can be a more efficient, leaner operation with clear accountabilities, while improving our service delivery, external engagement, and customer and commercial focus.

### Top projects for FY2021/22

- **Brilliant basics** - Increase capability and improve business foundations e.g. HR system and Finance system replacement and process improvements
- **Digital program** - deliver our IT platform and services that provide a cost effective, frictionless, secure, and scalable digital experience for members, employees, and consumers.
- **Financial sustainability** – develop and engage on funding reform options that support delivery of large scale energy transition.

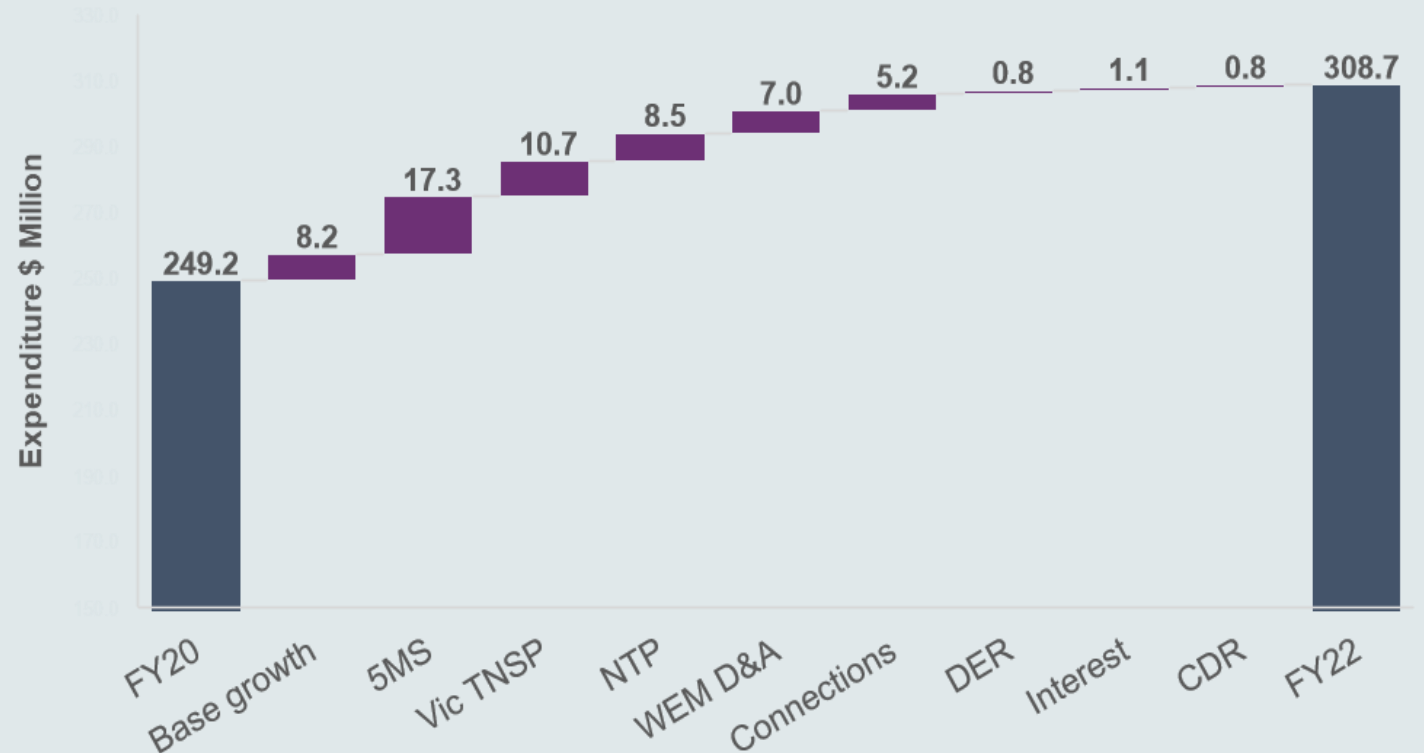
# Review of Draft 2021/22 Budget

Julie Williams, Chief Financial Officer



# 2021-22 Draft Budget Context

- The financial profile reflects market reform that is underway. ESB Post 2025 NEM reforms are not captured in the 2021-22 draft budget or financial forecasts.
- Cost increases over recent years are largely driven by core programs.
- Cost escalation of 2% is applied across the Budget and forward years. All financials are shown in nominal dollars unless otherwise stated.
- Consistent with AEMO's governance model, investments are debt funded upfront and debt is repaid over the life of the asset through the depreciation & amortisation recovery.



# AEMO Financial Summary

AEMO Financial Overview (\$Million)	Actual 2019-20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24	2021-22 Growth (Real \$M)
<b>REVENUE</b>						
Fees and Tariffs	187.6	197.4	244.7	253.0	269.3	43.4
Other Revenue	37.1	54.8	47.6	57.6	59.4	(8.2)
<b>NET REVENUE</b>	<b>224.7</b>	<b>252.1</b>	<b>292.3</b>	<b>310.7</b>	<b>328.6</b>	<b>35.2</b>
<b>OPERATING EXPENDITURE</b>						
Expenditure	225.7	238.3	262.7	269.9	280.1	19.7
Depreciation and Amortisation	22.5	27.1	43.8	60.4	64.3	16.2
Borrowing costs	1.0	1.1	2.1	3.1	4.0	1.0
<b>TOTAL OPERATING EXPENDITURE</b>	<b>249.2</b>	<b>266.5</b>	<b>308.7</b>	<b>333.3</b>	<b>348.5</b>	<b>36.9</b>
<b>ANNUAL SURPLUS / (DEFICIT)</b>	<b>(24.5)</b>	<b>(14.4)</b>	<b>(16.3)</b>	<b>(22.7)</b>	<b>(19.8)</b>	<b>(1.7)</b>
Accumulated Surplus / (Deficit)	(31.6)	(47.0)	(64.3)	(87.0)	(106.8)	
Net Capital Expenditure	129.8	156.9	128.9	66.7	42.1	(31.2)
Borrowing	238.2	373.8	475.4	508.4	511.3	94.1

- Revenue and expenditure continue to grow as AEMO delivers against energy market transition reforms
- As the reform programs are implemented market participants and consumers benefit from the industry reform
- AEMO investments are also establishing platforms to support future energy market transition activities

# AEMO Entity Financial Contributions

Surplus / (Deficit) by Entity	Actual 2019-20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24
NEM Core	(24.2)	(18.7)	(14.9)	(15.0)	(13.1)
FRC - Electricity	0.6	0.0	(1.0)	0.2	0.9
VIC TNSP	(3.8)	9.4	(8.2)	(0.0)	(0.0)
DER	(0.8)	(0.0)	4.1	0.4	(1.3)
5MS	(0.0)	-	1.7	(0.8)	(0.6)
VIC Wholesale Gas	1.6	(1.3)	(1.1)	(2.2)	(3.7)
Gas FRC	(0.5)	0.6	0.4	(0.1)	(0.4)
Gas Trading & Other	1.8	0.2	0.5	(0.2)	(0.3)
National Transmission Planner	(3.0)	(3.0)	6.0	(0.0)	(0.0)
WEM	4.0	(0.8)	(4.3)	(5.1)	(1.5)
WA GSI	0.2	(0.5)	-	(0.0)	(0.0)
WA Gas FRC	(0.4)	(0.1)	(0.2)	0.2	0.1
Other entities	0.0	(0.3)	0.7	0.0	0.2
<b>AEMO</b>	<b>(24.5)</b>	<b>(14.4)</b>	<b>(16.3)</b>	<b>(22.7)</b>	<b>(19.8)</b>

- NEM Core's under recovery is the main contributor to the AEMO annual deficit
- VIC TNSP 2021-22 deficit reflects an over recovery in 2020-21 largely due to lower network payments and higher connections revenue
- National Transmission Planner surplus in 2021-22 includes recovery of the 2020-21 under recovery arising from a transitional rule change that has resulted in a deferred recovery of some fees from TNSP's (excluding Vic TNSP) until FY22

# AEMO Revenue

AEMO Revenue (\$Million)	Actual 2019-20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24	2021-22 Growth (Real \$M)
<b>FEES AND TARIFFS</b>						
NEM Fees	91.8	97.6	103.4	111.3	120.1	3.8
NEM DER	-	-	5.6	5.8	6.0	5.6
5MS	-	-	20.2	20.3	20.6	20.2
FRC Tariffs	13.6	13.8	14.1	14.4	14.7	0.0
Gas Tariffs	41.1	38.5	40.7	41.5	42.4	1.5
WA Tariffs	34.0	33.6	34.8	39.1	43.5	0.5
Other Tariffs	7.2	13.8	26.0	20.6	21.9	11.9
<b>Total Fees and Tariffs</b>	<b>187.6</b>	<b>197.4</b>	<b>244.7</b>	<b>253.0</b>	<b>269.3</b>	<b>43.4</b>
<b>OTHER REVENUE</b>						
TUOS	549.6	591.5	603.4	625.7	638.8	0.1
Settlement Residue	59.4	53.3	43.5	44.3	45.2	(10.9)
Negotiated Services	46.4	50.2	49.1	50.0	51.0	(2.1)
Connections	16.5	19.1	24.7	25.2	25.7	5.2
Other revenue	11.4	8.6	5.2	4.2	4.3	(3.5)
Network Charges	(646.0)	(667.9)	(678.2)	(691.8)	(705.6)	3.0
<b>Total - Other</b>	<b>37.1</b>	<b>54.8</b>	<b>47.6</b>	<b>57.6</b>	<b>59.4</b>	<b>(8.2)</b>
<b>TOTAL REVENUE</b>	<b>224.7</b>	<b>252.1</b>	<b>292.3</b>	<b>310.7</b>	<b>328.6</b>	<b>35.2</b>
Change	41.9%	12.2%	16.0%	6.3%	5.8%	14.0%

- AEMO's revenue requirement continues to grow largely reflected in increased fees and tariffs revenue
- 59% of growth in real 2021-22 Fees and Tariffs revenue results from 5MS and NEM DER projects going live in the financial year
- This new revenue requirement includes recovery of operating costs that include the recovery of the capital investment – recovered via depreciation & amortisation

# AEMO Expenditure

AEMO Expenditure (\$Million)	Actual 2019-20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24	2021-22 Growth (Real \$M)
Labour	192.6	209.1	202.9	189.5	189.5	(10.3)
Capex Labour	(38.9)	(49.6)	(35.8)	(19.7)	(12.5)	14.9
<b>Net Labour</b>	<b>153.7</b>	<b>159.5</b>	<b>167.2</b>	<b>169.8</b>	<b>176.9</b>	<b>4.5</b>
Consulting	16.8	17.4	19.6	20.0	20.4	1.9
Financing Costs	1.0	1.1	2.1	3.1	4.0	1.0
IT & Telecommunications	26.3	31.9	47.0	50.7	54.4	14.5
Occupancy	7.9	8.1	7.7	7.6	5.8	(0.5)
Insurance	1.9	2.9	3.0	3.1	3.1	(0.0)
Recoveries	6.1	7.5	5.5	6.0	6.5	(2.2)
Training & Education	1.7	1.4	2.6	2.3	2.3	1.2
Travel & Accommodation	2.4	1.1	1.9	1.5	1.5	0.8
Other Expense	8.8	8.5	8.3	9.0	9.2	(0.4)
<b>Cash Non-Labour</b>	<b>72.9</b>	<b>79.9</b>	<b>97.7</b>	<b>103.2</b>	<b>107.2</b>	<b>16.2</b>
Depreciation & Amortisation	22.5	27.1	43.8	60.4	64.3	16.2
<b>TOTAL EXPENDITURE</b>	<b>249.2</b>	<b>266.5</b>	<b>308.7</b>	<b>333.3</b>	<b>348.5</b>	<b>36.9</b>
<i>Change</i>	11.2%	7.0%	15.8%	8.0%	4.5%	13.8%

- 83% of growth in AEMO's real 2021-22 expenditure relates to higher IT & Telco costs and depreciation & amortisation expense, both reflecting increased digital and market reform assets in service
- Gross Labour expense incorporates ~\$8m of delivered/identified OEP saving and assumes a further ~\$10m reduction in 2021-22 to be delivered under Phase 3 of the OEP program



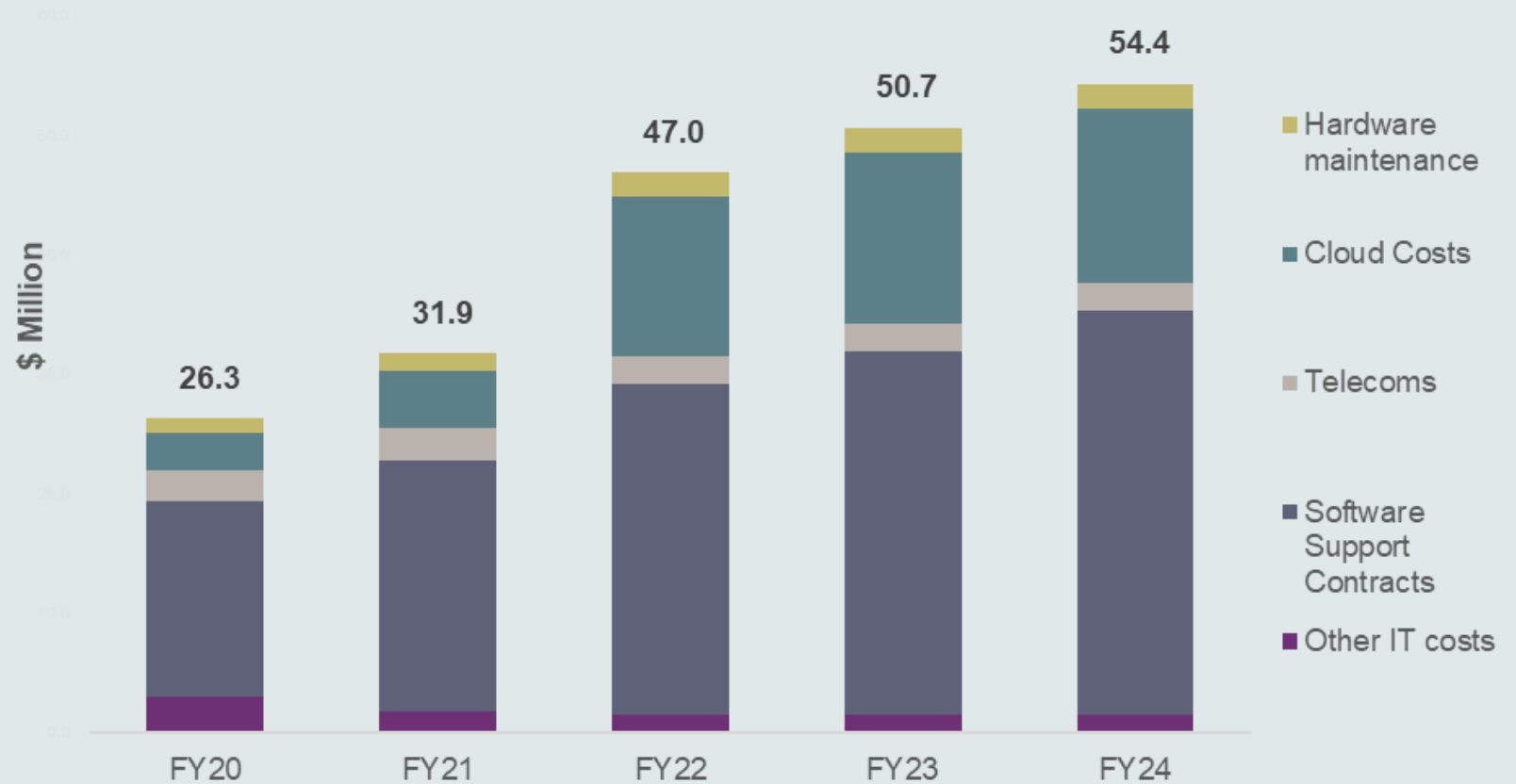
# Change in AEMO Expenditure

AEMO Expenditure (\$Million)	Actual 2019-20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24	2021-22 Growth (Real \$M)
<b>Growth in Deliverables Expenditure</b>						
VIC TNSP	15.7	19.5	26.4	28.4	29.5	6.5
Distributed Energy Resources	1.4	0.3	2.3	5.6	8.1	2.0
5 Minute Settlements	0.2	(0.0)	17.6	19.6	19.9	17.6
Connections	12.3	14.2	17.5	18.1	18.6	3.0
<b>TOTAL GROWTH EXPENDITURE</b>	<b>29.7</b>	<b>33.9</b>	<b>63.7</b>	<b>71.8</b>	<b>76.1</b>	<b>29.1</b>
Change	9.6	4.2	29.8	8.1	4.3	
<b>Underlying Business Expenditure</b>						
NEM Core	123.7	124.8	128.9	136.0	143.2	1.7
WA - excl WA DER	30.8	35.1	39.4	44.0	45.0	3.7
Other	65.0	72.8	76.7	81.5	84.2	2.4
<b>TOTAL UNDERLYING EXPENDITURE</b>	<b>219.5</b>	<b>232.6</b>	<b>245.0</b>	<b>261.5</b>	<b>272.4</b>	<b>7.7</b>
Change	15.6	13.1	12.4	16.5	10.9	
<b>TOTAL EXPENDITURE</b>	<b>249.2</b>	<b>266.5</b>	<b>308.7</b>	<b>333.3</b>	<b>348.5</b>	<b>36.9</b>
Change in total expenditure	25.2	17.3	42.2	24.7	15.1	

- 78% of real growth in expenditure relates to reform projects going into service as mentioned in earlier slides, as well as growth in business activity recovered through non tariff revenue – connections and Vic TNSP
- While OEP program cost reduction activity benefits entities across all markets and regions, NEM Core is expected to receive the largest component of the cost reduction benefits both via lower direct expenditure and through its allocation of corporate overheads

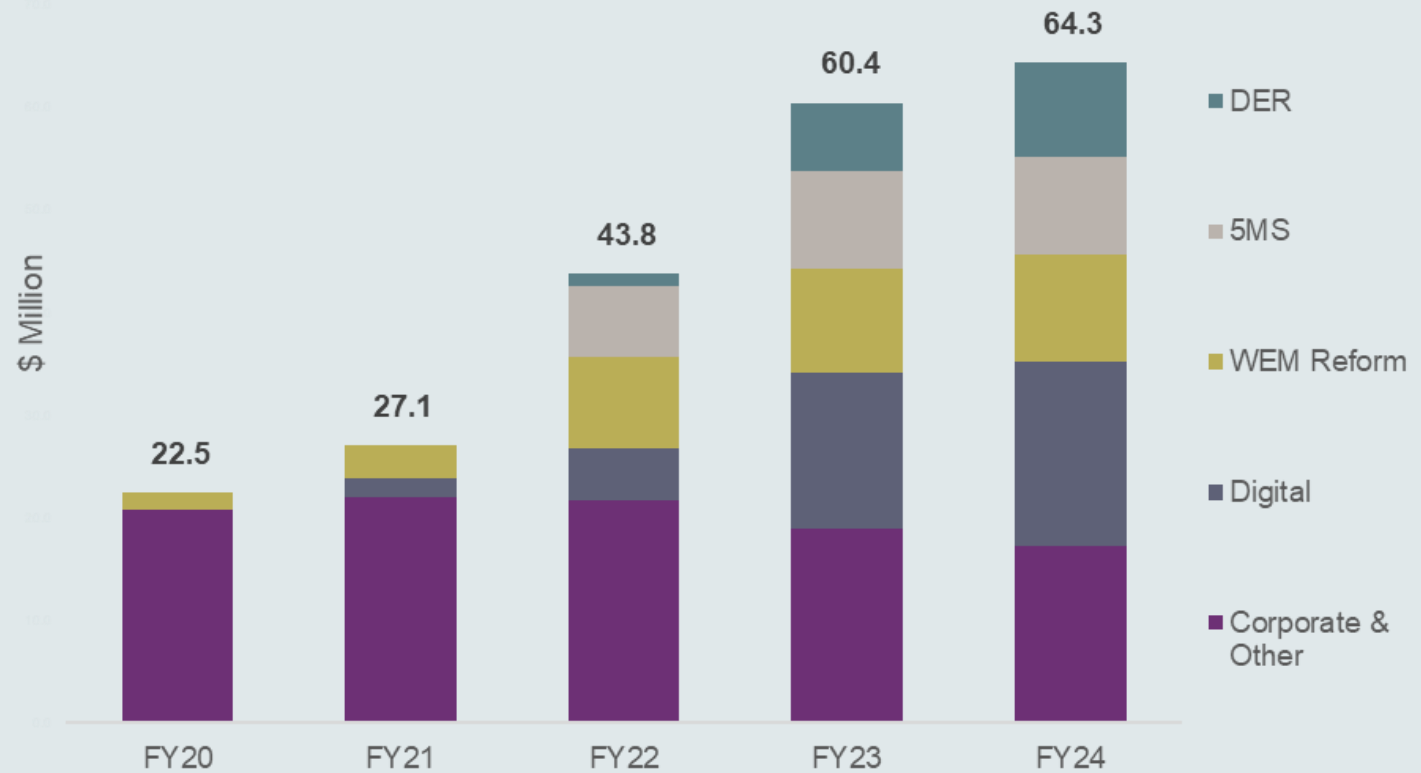
# Operating expenditure IT & Telecommunications

- The shift to cloud based platforms is driving the increase in related cloud costs. This cost increase is more than offset by lower on premise asset and storage costs
- Growth in software support contracts costs includes support for business operational systems as well as Technical Infrastructure & Operations, Cyber and Enterprise Applications



# Operating cost Depreciation & Amortisation

- Depreciation & amortisation expense reflects the recovery of debt funded investment across capital expenditure programs and projects
- Large reform programs such as 5MS and WA reform are recovered over an assumed life of 10 years
- All investments are impairment tested on an annual basis

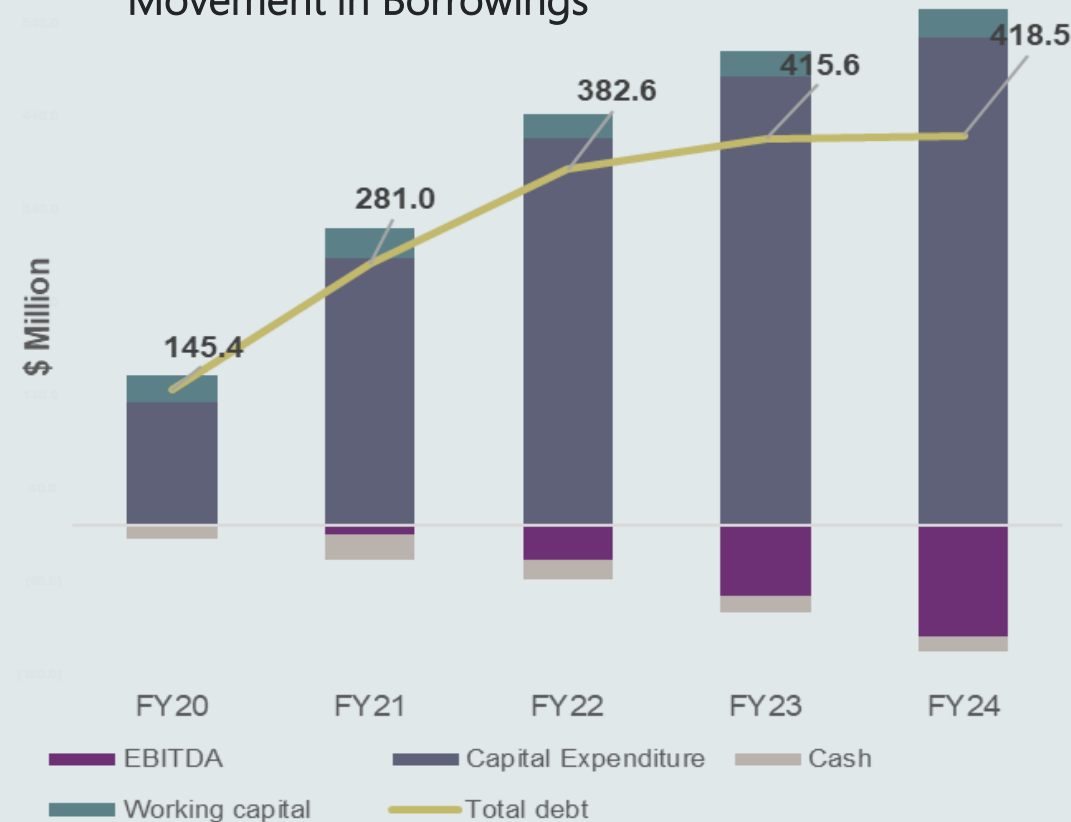


# Balance sheet

AEMO Balance Sheet (\$Million)	Actual 2019-20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24
<b>ASSETS</b>					
Cash	25.5	10.0	10.0	10.0	10.0
Security Deposits and PCF	37.3	41.8	47.9	50.2	52.5
Trade and other receivables	102.8	114.0	131.9	139.9	147.4
PPE & Intangibles	234.5	358.9	428.6	430.9	408.3
Other Assets	27.1	21.0	15.2	9.9	6.2
<b>TOTAL ASSETS</b>	<b>427.1</b>	<b>545.7</b>	<b>633.6</b>	<b>640.9</b>	<b>624.5</b>
<b>LIABILITIES</b>					
Borrowing	238.2	373.8	475.4	508.4	511.3
Other liabilities	201.6	199.0	201.7	198.7	199.2
<b>TOTAL LIABILITIES</b>	<b>439.8</b>	<b>572.9</b>	<b>677.2</b>	<b>707.1</b>	<b>710.5</b>
<b>NET ASSETS</b>	<b>(12.7)</b>	<b>(27.2)</b>	<b>(43.5)</b>	<b>(66.2)</b>	<b>(86.0)</b>
Borrowings / Assets	56%	69%	75%	79%	82%

- AEMO's governance model requires debt funding of investments with debt recovered over the life of the investment. Debt funding is also used to manage working capital balances and to fund an income deficit
- AEMO's debt funding is a syndicated bank facility of \$500m consisting of a 2 year and 4 year tranche, and a 365 working capital tranche

## Movement in Borrowings



# Capital expenditure

AEMO Capital Investment (\$Million)	Actual FY19- FY20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24	2021-22 Growth (Real \$M)
<b>National Market and Corporate</b>						
Digital	54.0	47.8	34.8	32.9	28.9	(14.0)
NEM 5 Minute / Global Settlements	42.9	42.1	9.2	1.5	-	(33.8)
DER	10.4	12.2	10.2	3.2	-	(2.3)
Other Projects	8.2	19.7	22.0	12.3	12.3	1.8
<b>Total</b>	<b>115.5</b>	<b>121.8</b>	<b>76.1</b>	<b>49.8</b>	<b>41.2</b>	<b>(48.2)</b>
<b>Western Australia</b>						
WEM Reform	4.5	16.8	28.5	12.6	0.3	11.3
WA DER	0.3	6.5	7.6	(0.2)	0.0	0.9
Other WA Projects	10.8	6.3	1.3	0.4	0.2	(5.2)
<b>Total</b>	<b>15.7</b>	<b>29.7</b>	<b>37.4</b>	<b>12.8</b>	<b>0.6</b>	<b>7.1</b>
<b>AEMO Total</b>						
Net Capex	<b>131.2</b>	<b>151.5</b>	<b>113.5</b>	<b>62.6</b>	<b>41.8</b>	<b>(41.1)</b>
Grants	10.0	5.4	15.4	4.1	0.3	9.9
Gross Expenditure	141.1	156.9	128.9	66.7	42.1	(31.2)

- Investment expenditure has been prioritised and largely reflects energy reform programs and supporting/dependent digital programs
- Other projects includes various investments including the Real-time simulator, ST PASA Replacement and uplift in operations modelling and tools
- Forward year estimates exclude new reform activity and focus primarily on lifecycle renewal

# NEM Core Financial Summary

NEM Core (\$Million)	Actual 2019-20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24	2021-22 Growth (Real \$M)
<b>REVENUE</b>						
Fees and Tariffs	91.8	97.6	103.4	111.3	120.1	3.8
Other Revenue	14.3	16.3	19.2	18.6	18.9	2.6
<b>NET REVENUE</b>	<b>106.0</b>	<b>113.9</b>	<b>122.6</b>	<b>129.8</b>	<b>139.0</b>	<b>6.4</b>
<b>OPERATING EXPENDITURE</b>						
Net Labour	84.3	83.8	84.4	84.8	88.9	(1.2)
Consulting	6.5	5.5	4.2	4.3	4.4	(1.4)
IT & Telecommunications	12.9	15.6	18.7	20.2	22.2	2.8
Depreciation and Amortisation	9.2	11.0	14.7	19.5	20.1	3.5
Other expenses	17.3	16.7	15.4	16.1	16.6	(1.6)
<b>TOTAL OPERATING EXPENDITURE</b>	<b>130.2</b>	<b>132.6</b>	<b>137.5</b>	<b>144.8</b>	<b>152.1</b>	<b>2.2</b>
<b>ANNUAL SURPLUS / (DEFICIT)</b>	<b>(24.2)</b>	<b>(18.7)</b>	<b>(14.9)</b>	<b>(15.0)</b>	<b>(13.1)</b>	<b>4.2</b>
Accumulated Surplus / (Deficit)	(62.3)	(82.0)	(97.9)	(112.8)	(125.9)	(14.2)

- Revenue reflects an 8.3% p.a. price path from 2021-22
- NEM Core cost increases support operational delivery against a background of increasing operations complexity and security and cyber risk, new demands for data/information and an need for digital asset renewal
- The accumulated deficit continues to grow and peak in 2025-26
- Phase 3 of the OEP program incorporates an assessment of AEMO's efficient cost base and will identify opportunities to reduce expenditure
- A review of AEMO's governance model is also underway to assess funding models that support large transitional reform programs while ensuring AEMO's ongoing financial sustainability

# NEM Core Revenue

NEM Fes (\$Million)	Actual 2019-20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24	2021-22 Growth (Real \$M)
<b>Market Customers</b>						
General Fees (MWh consumption)	26.8	28.3	30.2	32.5	17.5	1.3
General Fees (Connection)	-	-	-	-	17.8	-
Allocated Fees (MWh consumption)	33.8	35.7	38.0	41.0	10.9	1.6
Allocated Fees (Connection)	-	-	-	-	11.1	-
<b>Total</b>	<b>60.6</b>	<b>64.0</b>	<b>68.2</b>	<b>73.5</b>	<b>57.3</b>	<b>2.9</b>
<b>Generators</b>						
Allocated Fees (MWh consumption)	28.8	30.8	16.2	17.5	22.8	(15.2)
Allocated Fees (Capacity)	-	-	16.2	17.5	22.8	16.2
<b>Total</b>	<b>28.8</b>	<b>30.8</b>	<b>32.4</b>	<b>34.9</b>	<b>45.7</b>	<b>1.0</b>
TNSPs MWh	-	-	-	-	14.3	-
Registration Fees	2.3	2.8	2.8	2.8	2.8	(0.1)
<b>TOTAL FEES AND TARIFFS</b>	<b>91.8</b>	<b>97.6</b>	<b>103.4</b>	<b>111.3</b>	<b>120.1</b>	<b>3.8</b>

- NEM Core's budget and forward revenue estimates are based on the Fee Structure Determination released in March 2021
- The revenue allocations reflect transitional changes in the fee structure

# NEM Pricing

AEMO Revenue (\$Million)	Actual 2019-20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24	2021-22 Growth (Real \$M)
<b>NEM Components (\$Million)</b>						
<b>Electricity - excl Vic TNSP</b>	<b>120.5</b>	<b>128.9</b>	<b>164.6</b>	<b>172.1</b>	<b>182.7</b>	<b>33.1</b>
NEM Core	106.0	113.9	122.6	129.8	139.0	6.4
FRC	13.6	13.8	14.1	14.4	14.7	0.0
DER	-	-	5.6	5.8	6.0	5.6
5MS	-	-	20.2	20.3	20.6	20.2
Other	0.9	1.2	2.1	1.8	2.4	0.9
<b>Price Path (% nominal change p.a.)</b>						
NEM Core	12.0%	9.0%	8.3%	8.3%	8.3%	
FRC	3.0%	0.0%	0.9%	0.9%	0.9%	
DER			-	3.0%	3.0%	
5MS			-	1.1%	1.1%	
<b>NEM Components (per customer)</b>						
<b>Electricity - excl Vic TNSP</b>	<b>\$11.79</b>	<b>\$12.44</b>	<b>\$15.70</b>	<b>\$16.20</b>	<b>\$16.97</b>	<b>\$3.01</b>
NEM Core	\$10.37	\$11.00	\$11.69	\$12.22	\$12.91	\$0.48
FRC	\$1.33	\$1.33	\$1.34	\$1.35	\$1.37	(\$0.01)
DER	-	-	\$0.54	\$0.54	\$0.55	\$0.54
5MS	-	-	\$1.93	\$1.91	\$1.92	\$1.93
Other	\$0.09	\$0.12	\$0.20	\$0.17	\$0.22	\$0.08

- 5MS and NEM DER revenue allocations and associated charges reflect these projects going live in 2021-22
- NEM Core pricing seeks to balance increases in consumer prices while delivering a declining trend in the annual deficit
- NEM Core price path incorporates declining assumed GWh volumes: 2021-22 decline of 2%
- FRC price path reflects 1.4% annual increase in connection points from 2020-21



# WA Entities

Western Australia (\$Million)	Actual 2019-20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24	2021-22 Growth (Real \$M)
<b>WEM (Market Operation &amp; System Management)</b>						
<b>REVENUE</b>	<b>31.2</b>	<b>31.1</b>	<b>31.3</b>	<b>35.5</b>	<b>40.1</b>	<b>(0.4)</b>
<b>OPERATING EXPENDITURE</b>						
Net Labour	16.7	18.3	18.0	18.6	19.3	(0.8)
Depreciation and Amortisation	3.6	6.1	10.9	13.6	13.7	4.6
Other expenses	6.9	7.4	6.8	8.4	8.6	(0.8)
<b>TOTAL OPERATING EXPENDITURE</b>	<b>27.2</b>	<b>31.9</b>	<b>35.6</b>	<b>40.6</b>	<b>41.6</b>	<b>3.1</b>
<b>ANNUAL SURPLUS / (DEFICIT)</b>	<b>4.0</b>	<b>(0.8)</b>	<b>(4.3)</b>	<b>(5.1)</b>	<b>(1.5)</b>	<b>(3.5)</b>
<b>Gas Services Information</b>						
<b>REVENUE</b>	<b>1.7</b>	<b>1.1</b>	<b>1.8</b>	<b>1.9</b>	<b>1.7</b>	<b>0.6</b>
<b>OPERATING EXPENDITURE</b>						
Net Labour	0.9	1.0	1.1	1.1	1.1	0.1
Depreciation and Amortisation	0.3	0.1	0.1	0.3	0.1	(0.0)
Other expenses	0.4	0.5	0.5	0.5	0.5	0.0
<b>TOTAL OPERATING EXPENDITURE</b>	<b>1.5</b>	<b>1.6</b>	<b>1.8</b>	<b>1.9</b>	<b>1.7</b>	<b>0.1</b>
<b>ANNUAL SURPLUS / (DEFICIT)</b>	<b>0.2</b>	<b>(0.5)</b>	<b>-</b>	<b>(0.0)</b>	<b>(0.0)</b>	<b>0.5</b>
<b>Gas FRC</b>						
<b>REVENUE</b>	<b>1.3</b>	<b>1.5</b>	<b>1.4</b>	<b>1.3</b>	<b>1.3</b>	<b>(0.1)</b>
<b>OPERATING EXPENDITURE</b>						
Net Labour	0.5	0.5	0.5	0.3	0.3	0.0
Depreciation and Amortisation	0.3	0.2	0.1	0.0	0.0	(0.1)
Other expenses	0.9	0.9	1.0	0.8	0.9	0.1
<b>TOTAL OPERATING EXPENDITURE</b>	<b>1.7</b>	<b>1.5</b>	<b>1.6</b>	<b>1.1</b>	<b>1.2</b>	<b>(0.0)</b>
<b>ANNUAL SURPLUS / (DEFICIT)</b>	<b>(0.4)</b>	<b>(0.1)</b>	<b>(0.2)</b>	<b>0.2</b>	<b>0.1</b>	<b>(0.1)</b>

- Consistent with AEMO's expenditure profile, depreciation and amortisation expense is a key driver in operational cost growth
- Asset renewal and ongoing energy transition reform activities are contributing to an increase in assets and a resulting increase in depreciation and amortisation expense

# Vic TNSP

Vic TNSP (\$Million)	Actual 2019-20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24	2021-22 Growth (Real \$M)
<b>REVENUE</b>						
TUoS Income	549.6	591.5	603.4	625.7	638.8	0.1
Settlement Residue	59.4	53.3	43.5	44.3	45.2	(10.9)
Other Revenue	54.8	58.3	58.4	59.6	60.8	(1.0)
Network Charges	(646.0)	(667.9)	(678.2)	(691.8)	(705.6)	3.0
<b>NET REVENUE</b>	<b>17.7</b>	<b>35.2</b>	<b>27.1</b>	<b>37.8</b>	<b>39.2</b>	<b>(8.8)</b>
<b>OPERATING EXPENDITURE</b>						
Net Labour	12.2	13.6	17.1	17.7	18.2	3.3
Consulting	4.4	5.3	10.6	10.8	11.0	5.2
IT & Telecommunications	1.3	1.8	2.5	3.0	3.3	0.7
Depreciation and Amortisation	0.4	0.6	1.0	2.2	2.5	0.4
Other expenses	3.2	4.5	4.1	4.1	4.1	(0.5)
<b>TOTAL OPERATING EXPENDITURE</b>	<b>21.5</b>	<b>25.8</b>	<b>35.3</b>	<b>37.8</b>	<b>39.2</b>	<b>9.0</b>
<b>ANNUAL SURPLUS / (DEFICIT)</b>	<b>(3.8)</b>	<b>9.4</b>	<b>(8.2)</b>	<b>(0.0)</b>	<b>(0.0)</b>	<b>(17.8)</b>

# AEMO excluding Vic TNSP

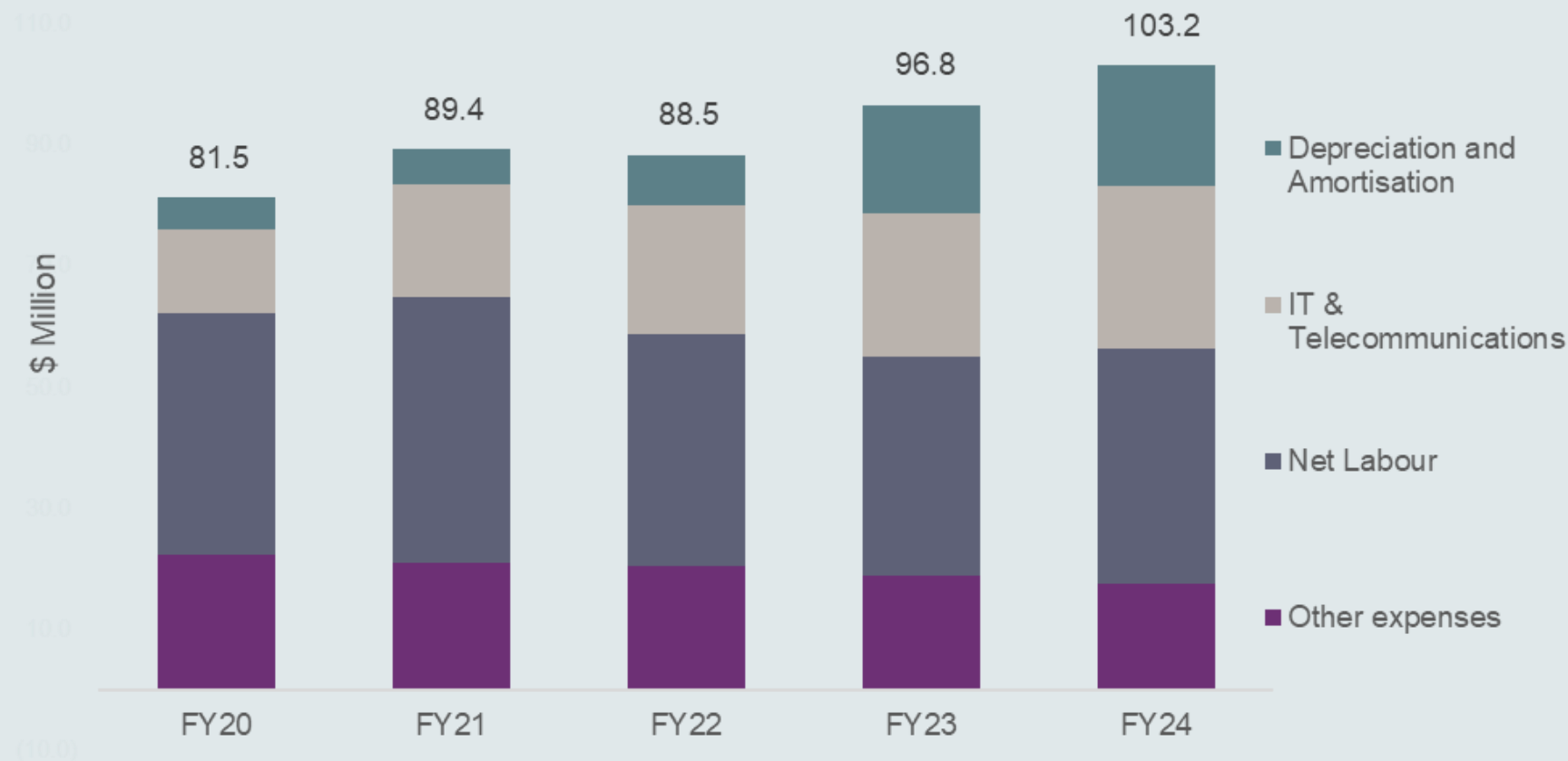
AEMO excluding Vic TNSP (\$Million)	Actual 2019-20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24	2021-22 Growth (Real \$M)
<b>REVENUE</b>						
Fees and Tariffs	187.6	197.4	244.7	253.0	269.3	43.4
Other Revenue	19.4	19.6	20.5	19.8	20.2	0.6
<b>TOTAL REVENUE</b>	<b>207.0</b>	<b>216.9</b>	<b>265.2</b>	<b>272.9</b>	<b>289.5</b>	<b>44.0</b>
<b>OPERATING EXPENDITURE</b>						
Net Labour	141.6	145.9	150.1	152.1	158.7	1.2
Consulting	12.4	12.1	9.0	9.1	9.3	(3.3)
IT & Telecommunications	25.0	30.1	44.5	47.7	51.1	13.8
Depreciation and Amortisation	22.0	26.5	42.8	58.2	61.8	15.8
Other expenses	26.7	26.2	27.0	28.4	28.3	0.4
<b>TOTAL OPERATING EXPENDITURE</b>	<b>227.7</b>	<b>240.7</b>	<b>273.4</b>	<b>295.5</b>	<b>309.3</b>	<b>27.9</b>
<b>ANNUAL SURPLUS / (DEFICIT)</b>	<b>(20.7)</b>	<b>(23.8)</b>	<b>(8.1)</b>	<b>(22.6)</b>	<b>(19.8)</b>	<b>16.1</b>
Accumulated Surplus / (Deficit)	(31.6)	(56.4)	(65.5)	(88.2)	(108.0)	

# 5 Minute Settlements

5 Minute Settlement (\$Million)	Actual 2019-20	Forecast 2020-21	Budget 2021-22	Estimate 2022-23	Estimate 2023-24	2021-22 Growth (Real \$M)
<b>REVENUE</b>						
Fees and Tariffs	-	-	20.2	20.3	20.6	20.2
Other Revenue	-	-	-	-	-	-
<b>TOTAL REVENUE</b>	-	-	<b>20.2</b>	<b>20.3</b>	<b>20.6</b>	<b>20.2</b>
<b>OPERATING EXPENDITURE</b>						
Net Labour	-	-	1.4	1.5	1.5	1.4
Consulting	-	-	0.7	0.8	0.8	0.7
IT & Telecommunications	-	-	8.2	8.2	8.1	8.2
Depreciation and Amortisation	-	-	7.1	9.7	9.8	7.1
Other expenses	-	-	1.1	0.9	0.9	1.1
<b>TOTAL OPERATING EXPENDITURE</b>	-	-	<b>18.5</b>	<b>21.1</b>	<b>21.2</b>	<b>18.5</b>
<b>ANNUAL SURPLUS / (DEFICIT)</b>	-	-	<b>1.7</b>	<b>(0.8)</b>	<b>(0.6)</b>	<b>1.7</b>
Accumulated Surplus / (Deficit)	-	-	1.7	0.9	0.4	1.7

- The 5MS project is forecast to go live in October 2021
- Operational costs commence from the go live date, other than system training costs which commence prior to the project going live
- The actual depreciation and amortisation expense will reflect the full investment value at the date of go live and assumes a 10 year recovery period

# Corporate Expenditure Profile



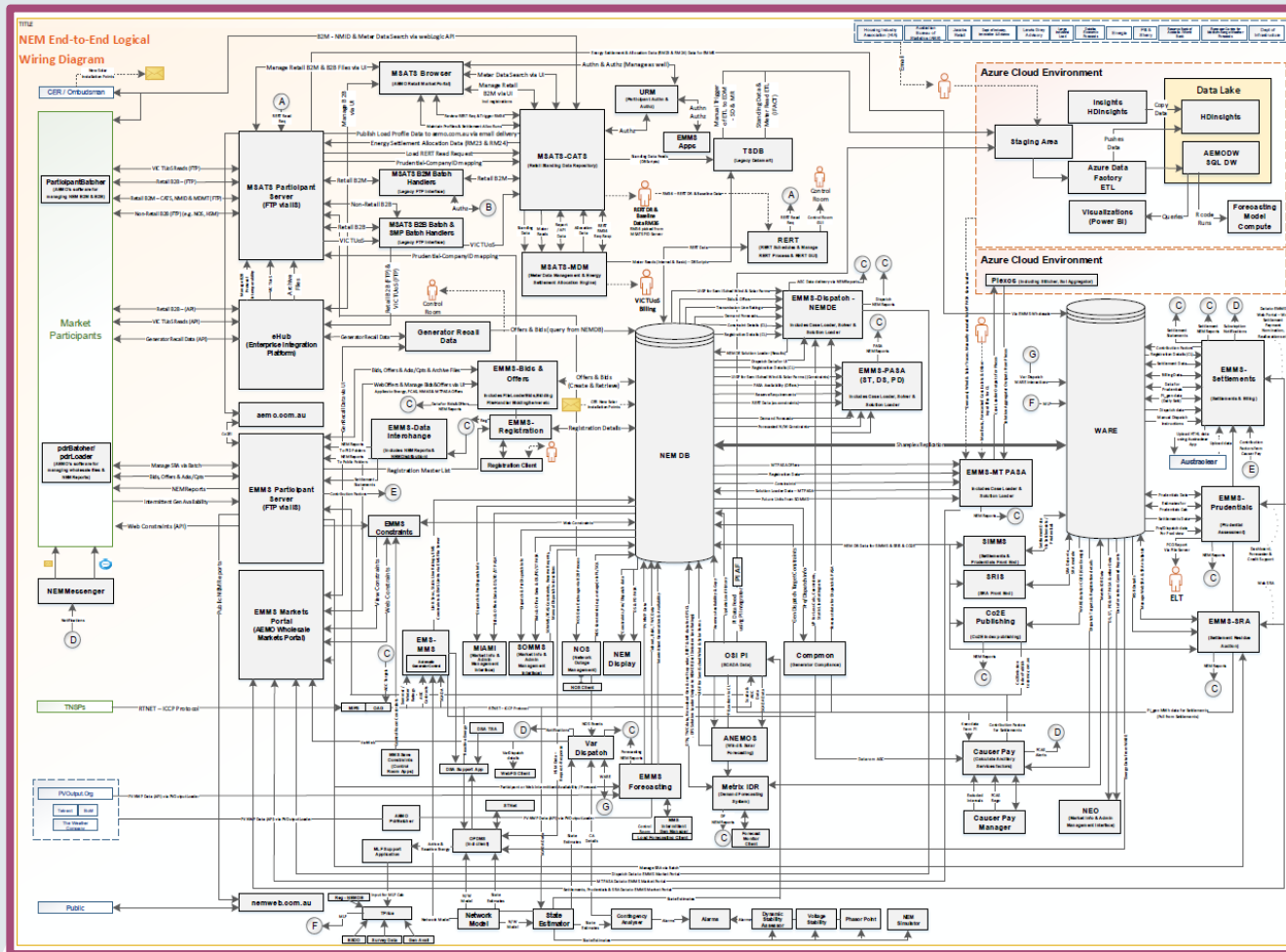
- Consistent with AEMO's expenditure profile, depreciation and amortisation expense is a key driver in corporate expenditure cost growth reflecting renewal of core support systems and shared assets
- The decline net corporate labour reflects a combination management of a lower capital investment program in future years and productivity benefits arising from digital investments and streamlined business processes

# AEMO Enterprise Capital Program – Digital Program

Joe Locandro, Chief Digital and Technology Officer

# History of tactical delivery has led to significant technical complexity and cost as at Nov 2019

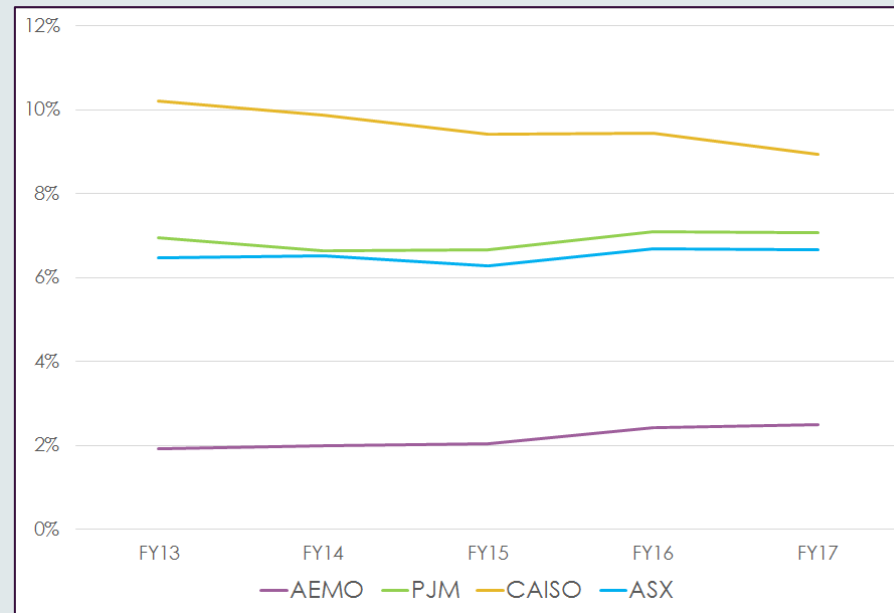
## AEMO TECHNOLOGY ESTATE



- **Complex** and **costly** mix of infrastructure and systems. 80% is legacy.
- Fragmentation and duplication leads to high cost licencing and support.
- Old bespoke systems do not support the change of pace of change required.
- Legacy systems were not designed with Cyber Security in mind.
- Legacy systems will lead to performance and reliability issues in the future.
- Old systems do not scale well.

# AEMO spending significantly less than peers on IT Capex

- As **energy markets were relatively stable**, additional investment in technology was not required
- Investment was focussed on **compliance** to regulations
- This resulted in **bespoke, tactical** solutions which over the years has led to **technical complexity** and increased effort and cost to build, test, deploy and maintain technology implementations
- However, the **rate of change** is increasing and the current technology environment will not support enabling and innovation opportunities



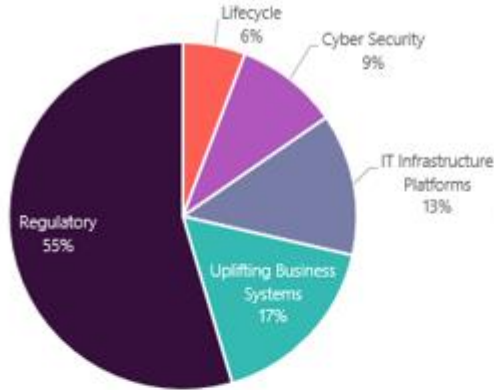
***AEMO's investment in technology as a percentage of revenue** is significantly under when benchmarked to comparable international energy market operators (e.g. PJM and CAISO) or against a similar local market operator, the ASX* \*1



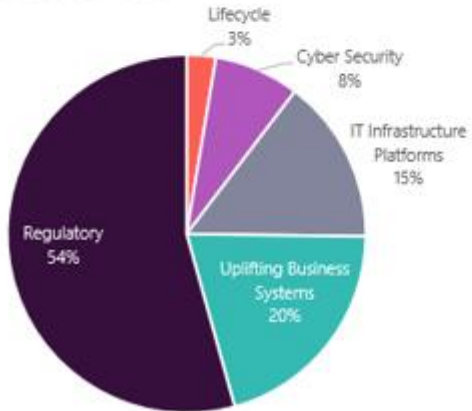
# AEMO Capital Investment

## 54% is focussed on meeting regulatory requirements

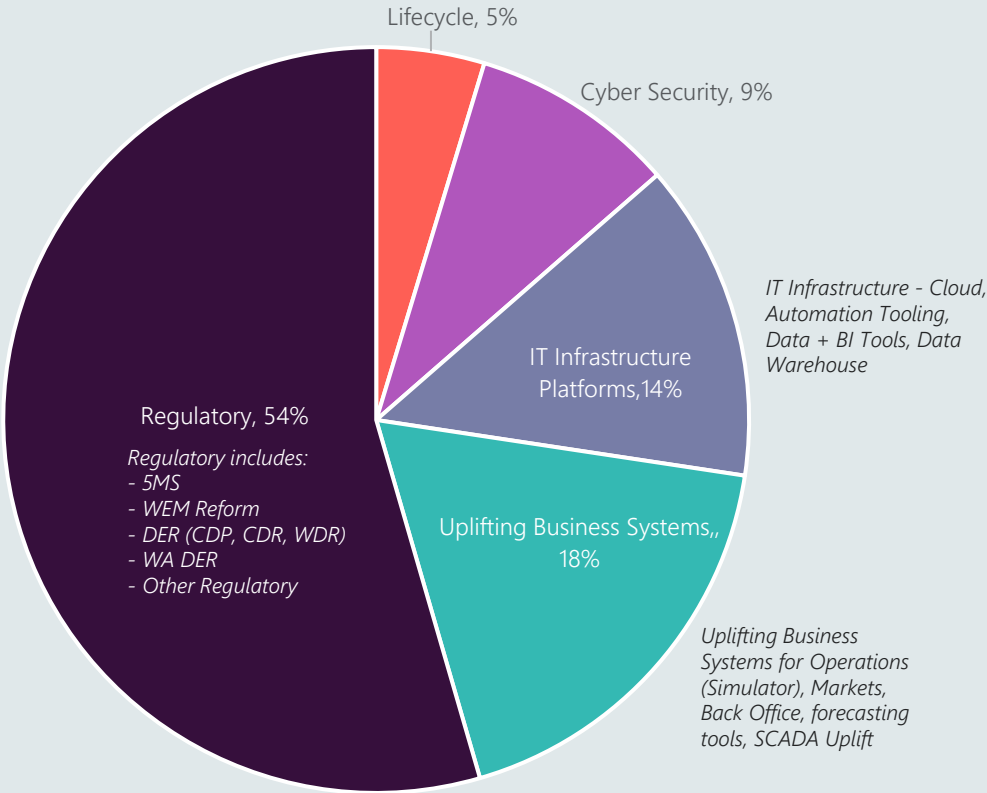
Delivered to date  
FY20 to FY21



Forecast  
FY22 to FY24



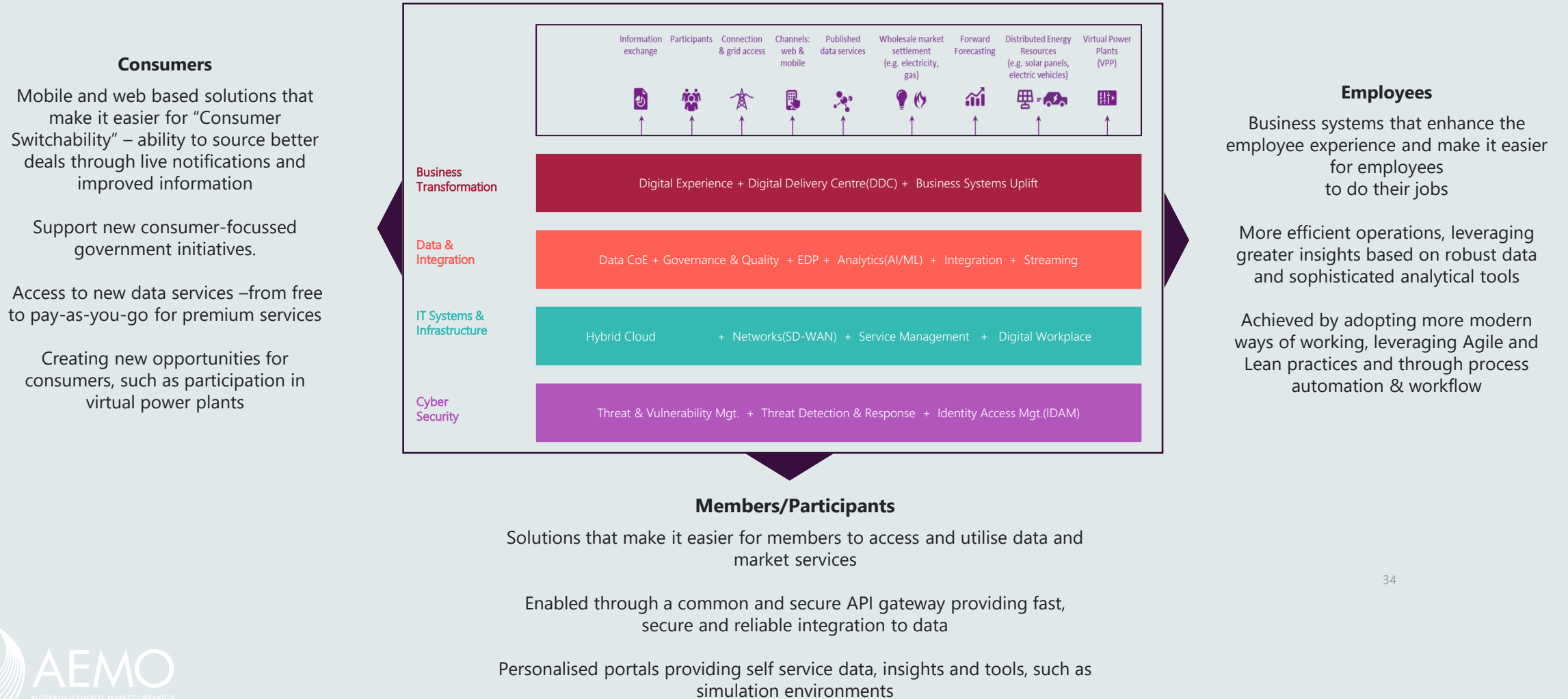
Total FY20 to FY24



# Digital Strategy

We will deliver a new platform and services that will provide a frictionless, secure and scalable digital experience for members, employees and consumers

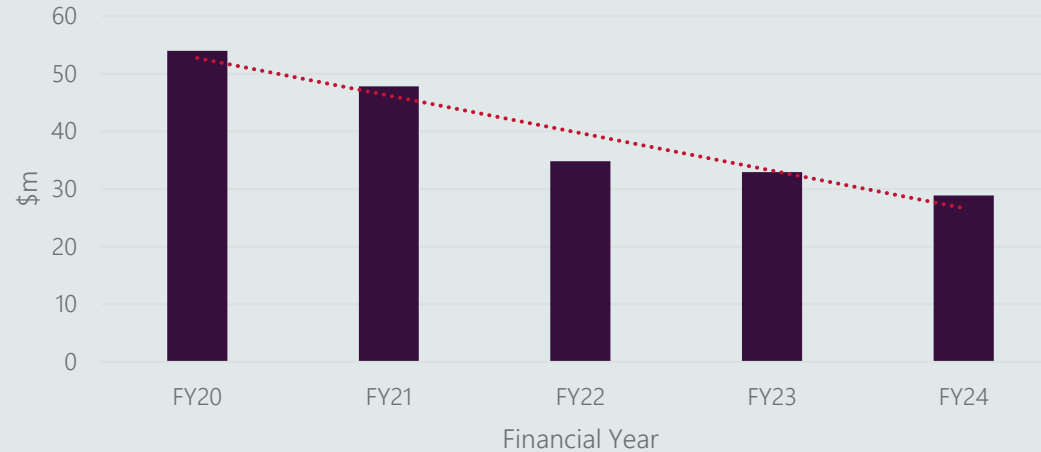
## Digital Strategy Benefits



# Digital program Budget and Key Metrics

Uplift of our legacy systems and infrastructure to a contemporary platform

Digital Program FY20 - FY24

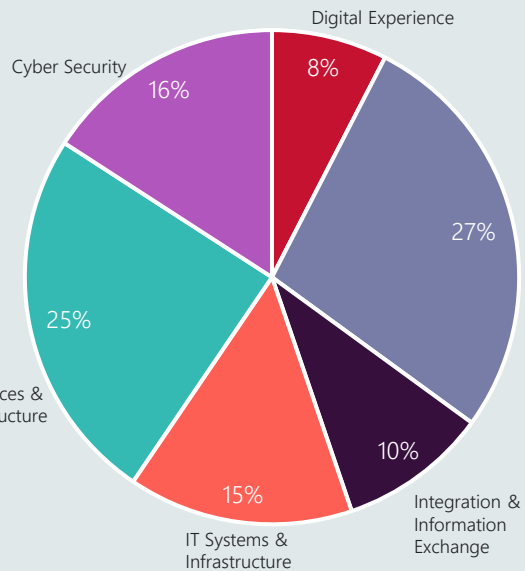


- Lower unit costs quicker to deploy
- More secure for Cyber
- Simpler landscape

Digital Program Measures KPI's – on track

	FY19 Baseline	FY20	FY21	FY22	FY23	FY24
Efficiency → 25% reduction in time to market	11.2 months	10.5 months (6%)	9.8 months (12%)	9 months (12%)	8.4 months (25%)	
Simplify → 30% reduction in IT application landscape	430 applications	409 apps (5%)	387 apps (10%)	357 apps (17%)	323 apps (25%)	301 apps (30%)
Speed of business → 80% increase in speed of IT provisioning	16.5 days	14 days (15%)	10 days (60%)	3.3 days (80%)		
Cost → 30% reduction in IT Unit cost	0.33 cents	0% (4%)	0% (0%)	3%	12%	0.22 cents (30%)
Secure → Level 4 NIST Security Maturity Level	2.0 NIST Level	3.3 NIST Level	3.8 NIST Level	4.0 NIST Level		

# Digital Program – What has been delivered so far



## Cyber Security

- Cyber Security maturity posture has improved from NIST 2.0 (FY19) to 3.7 (FY21) – Target 4.0 (FY22)
- Improved **Threat Detection & Mgt** -AEMO is now able to automatically investigate and analyse ~1 million cyber events per month. The advanced analytics is then able to distil the ~1 million events down to 30 for targeted detailed investigation.
- Rationalised & simplifying the **cyber controls & Identity Access Mgt.** ecosystem
- **Security baked into design**, reducing risk, potential impact of cyber events and enhanced ability to recover from attacks

## Digital Experience

- AEMO's new **Website** is more accessible receiving ~1500 more visitors/day & 10% more by mobile
- New NEM data dashboard – **200% uplift** in view with ~4k viewers/day
- **Digital Delivery**: Standard Agile tools, processes and systems implemented to deliver repeatable, fast, application development and support – helping projects like 5MS, CDP

## Business Systems

- AEMO has a complex IT ecosystem that has been built on legacy systems that lack coordination and cohesion.
- The application landscape modernisation has been explored and assessed with a ~10% **landscape reduction/ simplification (FY21)**
- **To prepare for the future, focus has been on developing roadmaps** to transition important Operational, Markets and Engineering application to cloud environment F22-FY24.

## Integration & Information Exchange

- Enabled new digital API capability, **lower participant barriers & reduce cost** by providing a frictionless web/mobile experience to participants /stakeholders
- Built and **operationalised over 80 API's** for strategic in-flight programs such as CDR, VPP, DERR and 5MS. This capability is saving on average a few months effort for any new business initiative
- Moving beyond static spreadsheets, **reporting Automation** with live Power BI dashboards that have **drill-down analytics** have been leveraged for CDR, VPP, Gas Market Monitoring & others

## IT Systems & Infrastructure

- New Enterprise Data Platform **helps to save up to 65% of time**, business programs (e.g.5MS, CDR, VPP and DERR) now with a reduced overheads of data wrangling / pre-processing
- Transformed **Meter and Standing data** structures for CDR, 5MS and VPP enabling daily data refreshes - first time ever
- **AI / ML** foundation capability to enable faster & more complex modelling than possible today
- **Saving ~25% of effort** previously required to locate data across the company, the new **centralised data** catalog and data governance framework now has enterprise-wide visibility of data across the business, how its connected and ownership

## IT Systems & Infrastructure

- **Hybrid Cloud (Enterprise Azure environment)** has been established enabling 5MS, WEM Reform, Enterprise Data Platform (EDP), Data Centralisation & Extract Transfer Load (ETL -> the way we batch data between files and systems).
- **Automation** of infrastructure, provisioning and configuration **reduced speed of provisioning by 22.5% & time to market by 3-5 times**
- **Now able to deliver on-demand scale-out & auto scale-up/down** capability enabling cost optimisation
- **Enhanced Cost Mgt.** - accountability, visibility, governance and optimisation
- AEMO's **Service Mgt. Transformation** provides a single view of IT events across the technology eco-system with proactive AI driven event management. AEMO can expect ~50% reduction of IT event resolution times

# Digital Program

## Improving the user experience “Data & Dashboards and upgrading Cyber Security”- Real Examples in action

### Interactive Data Dashboards for external stakeholders

The South Australian Electricity Report is now leveraging the enterprise Power BI platform. A shift from numerous static spreadsheets and yearly data dumps, the report is now a dynamic interactive dashboard providing up-to-date data and information.

AEMO's approach to centralizing and automating data into the secure AEMO Enterprise Data Platform (EDP) has also created an easily repeatable template that can be duplicated for other regions across the NEM and WEM in a cost-effective way.

*“The ability to drill down and then back up into a graph is excellent. The ‘Analyse Function’ (used to explain increases/decreases) is fabulous and will make it much easier to explain the variations in the data.” - S.A. Government*

### Information / User Experience

The refreshed AEMO website launched in January 2020 to provide a simple, efficient and logical way for stakeholders to find the information they need and its working:

- Site visits have increased by 32% from 507k in 2019 to 673k in 2020.
- Searchability and site functionality has improved. In 2016, 55-60% of all users arrived via search engines, but that has dropped to 33% with Google accounting for only 25% of the website traffic in total.
- Efficiency and continuity gains have been achieved with WA Market Data, NEMWEB, Markets Portal, AEMO Developer Portal Refreshed portals refreshed and embedded into AEMO.com.au.

### Cyber - Secure

Increased our Cyber posture from NIST rating 2.0 (immature) to 3.07 (mature).

Deploying our threat detection and prevention to ensure real time visibility of AEMO systems.

- AEMO has onboarded 24x365 Cyber monitoring of systems
- Implement identity and access management to critical systems

# Questions & Comments

Tony Chappel, Chief External Affairs Officer



# Next meeting and any other business

Julie Williams, Chief Financial Officer





**AEMO**

AUSTRALIAN ENERGY MARKET OPERATOR