Business case: Fleet

2025-30 Regulatory Proposal

Supporting document 5.10.1

January 2024

SA Power Networks

Empowering South Australia

Contents

Glossary

Acronym / term	Definition
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
CAB	Community Advisory Board
CAM	Cost Allocation Method
Capex	Capital expenditure
CPI	Consumer Price Index
DER	Distributed energy resources
DNSP	Distribution Network Service Provider
EV	Electric vehicle
EWP	Elevated work platform
HPM	Hours per month
HVNL	Heavy Vehicle National Law and Regulations
ICE	Internal combustion engine
ICT	Information and communication technology
KPM	Kilometres per month
LV	Low voltage
NEM	National Electricity Market
NEO	National Electricity Objective
NER	National Electricity Rules
NPV	Net present value
NSP	Network Service Providers
Opex	Operating expenditure
PTO	Power take off
RCP	Regulatory Control Period
RIN	Regulatory Information Notice
SCS	Standard Control Services
TCO	Total cost of ownership
VER	Value of emissions reduction
ZEV	Zero emission vehicles

1 About this document

1.1 Purpose

This document provides a business case to support forecast expenditure for the 2025-30 Regulatory Control Period (**RCP**) on SA Power Networks' vehicle fleet assets.

1.2 Expenditure category

- Non-network capex: Fleet

1.3 Related documents

Table 1: Related documents

Ref	Title	Author	Version / date
[1]	SA Power Networks Strategic Fleet Plan 2025-30	SA Power Networks	1.1
[2]	Fleet EV Transition Plan	EVEnergi	3.0
[3]	5.10.3 – Fleet EV Transition Model	EVEnergi	3.0
[4]	5.10.4 – Capital Vehicle Expenditure Model	SA Power Networks	1.0
[5]	5.10.5 – Fleet Expenditure Forecasting Approach	SA Power Networks	1.0
[6]	5.2.5 - Resourcing Plan for Delivering the Network Program	SA Power Networks	1.0
[7]	5.2.6 – Network Program Resourcing Model	SA Power Networks	4.2
[8]	NPV Spreadsheet – BAU	SA Power Networks	1.0
[9]	NPV Spreadsheet – EV Scenario 1	SA Power Networks	1.0
[10]	NPV Spreadsheet – EV Scenario 2	SA Power Networks	1.0
[11]	NPV Spreadsheet – EV Scenario 3	SA Power Networks	1.0

2 Executive summary

The proposed capital expenditure (**capex**) on fleet assets in the 2025-30 RCP achieves three core objectives:

1. replacement and refurbishment of the existing fleet assets: the allocated capex will address the need to replace and refurbish our current fleet assets, ensuring they remain efficient and reliable in supporting field operations;
2. provision of the appropriate fleet assets to support our network capex program: the investment in fleet assets will be strategically aligned with the network capex program, ensuring the right resources are in place to effectively execute and support network initiatives; and
3. an efficient investment in Electric Vehicles (**EV**s): recognising the importance of sustainability, a portion of the capex will be dedicated to acquiring and integrating EVs into the fleet where it is cost efficient.

To address these objectives, this business case recommends $133.6 million ($June 2022) in total non-network, fleet capex, which is offset by a negative operating expenditure (**opex**) step change of $1.2 million ($June 2022).

The recommended expenditure is separately justified according to three distinct components aligning to the 'base-trend-step' approach favoured by the AER[1], as outlined in the following sections 2.1– 2.3 below.

2.1 Base

The recommended base capex of $108.5 million ($June 2022) addresses the business-as-usual requirements to replace and refurbish our fleet assets to maintain current capabilities and service levels of the network business. This ensures that assets are 'fit for purpose' and available when crews require them to undertake scheduled work or respond to an unscheduled event.

This level of expenditure is appropriate as it addresses the cyclic replacement requirements of an efficient fleet management program. This expenditure represents the volumes required by the current fleet operating model, at the Consumer Price Index (**CPI**) adjusted unit rates and asset replacement cycles consistent with the AER's Final Determination for the 2020-25 period.

2.2 Trend

The recommended capex in the Trend component of the business case is $22.6 million ($June 2022). This represents $2.6 million ($June 2022) to escalate the input costs, over and above the impact of CPI, in line with observed market trends since 2020 through to 2025. This section also represents $20.0 million related to changes in volumes required to support the network capex program of work over the 2025-30 RCP.

These escalations in rates and quantities are appropriate as they represent genuine asset volume changes to support the network capex program as well as changes to the underlying costs we will incur in the 2025-30 RCP. Current forecasts suggest that there will be no real price escalation required during the 2025-30 period.

2.3 Step

The Step component recommends $2.5 million ($June 2022) capex, offset by a negative opex step change of $1.2 million ($June 2022) to transition to EVs where it is efficient to do so, on a total cost of ownership (**TCO**) basis. This represents option 1 of the analysis later in this document. We consider this expenditure is efficient and prudent as it lowers our TCO whilst also reducing our emissions profile.

[1] AER, *Position Paper – Review of incentive schemes: options for the Capital Expenditure Sharing Scheme*, August 2022.

We considered several options, including an option to do nothing, and ultimately chose option 1 as it offered the least negative Net Present Value (**NPV**) result and therefore the best outcome for consumers.

3 Background

We operate a varied fleet of vehicles comprising Elevated Work Platforms (**EWPs**), Crane Borers, Heavy Commercial Trucks, Passenger, and Light Commercial vehicles. Collectively, fleet assets travel an average of approximately 18.1 million kilometres a year supporting the operation of our state-wide electricity distribution network. These vehicles are utilised to support the program of capital works, maintenance on the network, and to enable restoration of supply when an outage occurs.

Figure 1: SA Power Networks fleet composition

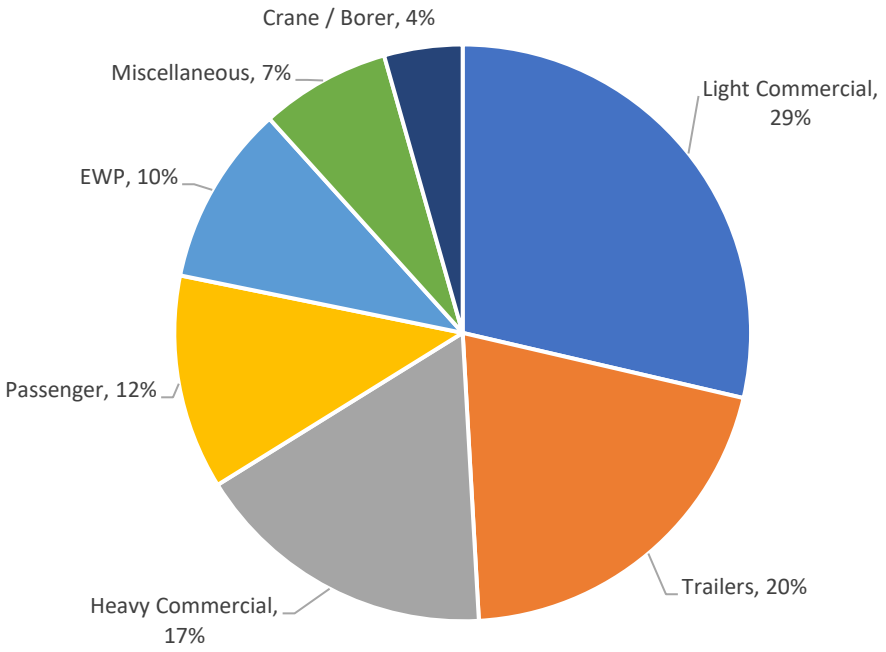
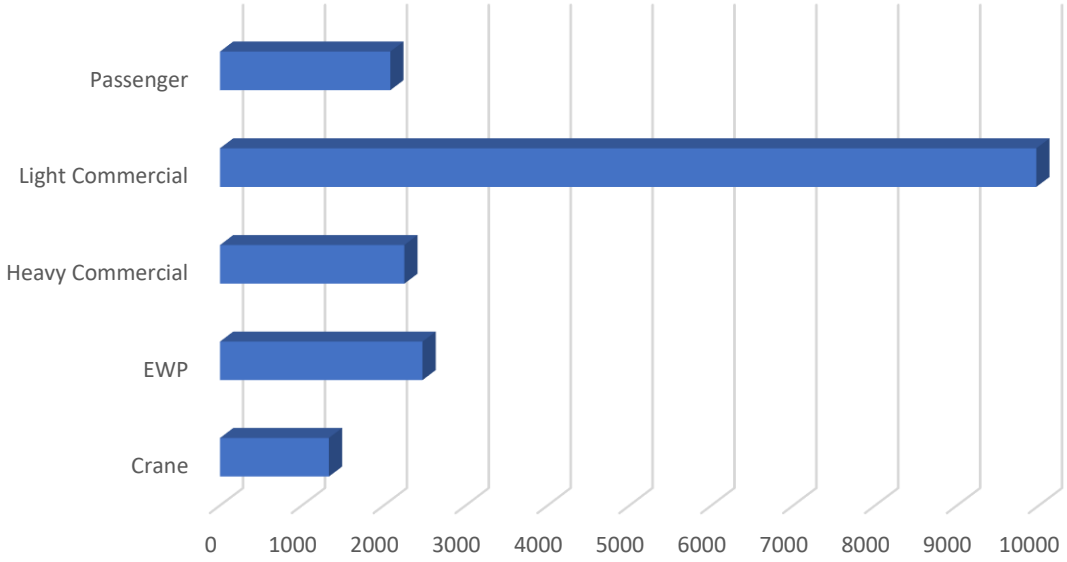


Figure 2: Vehicle kilometres ('000kms) travelled



Our fleet assets are maintained and replaced based on defined replacement criteria (Table 2). Asset lives range from 5 years, for Light Commercial and Passenger vehicles, through to 15 or 20 years for EWPs and other heavy plant. The replacement cycles have been chosen based on historic performance and consideration of the optimal time to replace assets, minimising operating costs and maximising the resale value, while recognising improvements in functionality and safety as newer models are integrated into the fleet.

Table 2: Asset Replacement Criteria

Asset Class	Replacement criteria	Notes
Commercial Vans	5 years or 150,000km	
Commercial Trucks	15 years	
Cranes	15 years	
EWPs	10 years	for EWPs <14 metres
	15 years (rebuild after 10 years)	for EWPs >14 metres
Forklifts	20 years	
Light Commercial	5 years or 150,000km	
Other	Miscellaneous - 20 years	
Passenger	5 years or 150,000km	
Trailers	15 years	

Fleet expenditure is cyclic in nature noting that the key fleet replacement criteria is based on the age of individual fleet assets. This results in some regulatory years having a higher number of replacements than others.

3.1 Industry practice

Our replacement cycles have been relatively stable for the last several RCPs. They were explicitly reviewed by the AER in arriving at its fleet capex forecast and its total capex allowance as part of the 2020-25 Distribution Determination. In that Determination, the AER made a small amendment to our replacement cycles, deciding on a 15-year replacement cycle for EWPs greater than 14 metres. Our replacement criteria continue to align to the AER's Determination.

As can be seen in Table 3, these lifecycles are also consistent with those of the majority of other Distribution Network Service Providers (**DNSPs**) in the National Electricity Market (**NEM**).

Table 3: Replacement criteria of peer networks[2]

DNSP	Passenger	Light Commercial	Heavy Commercial
SA Power Networks	5 years/150,000km	5 years/150,000km	10-15 years
Essential	5 years/150,000km	5 years/150,000km	10-15 years
Jemena	5 years/150,000km	5 years/150,000km	10-15 years
Powercor	5 years/150,000km	5 years/150,000km	10-15 years
Ausgrid	5 years/150,000km	6 years/150,000km	15 years
Ergon	4 years	150,000km	10-15 years
Energex	3-5 years	5 years	10-15 years

[2] Ausgrid, *Attachment 5.10 – Fleet strategy*, January 2023

3.2 The scope of this business case

This business case covers all of our proposed capex on fleet assets in the 2025-30 RCP. It also details the negative opex step change relating to expected efficiencies resulting from a transition to EVs.

Table 4 shows the fleet capex programs within the Capex Model.

Table 4: Fleet Capex Programs

Capex Program	Program description	Notes
FLP001	Heavy Vehicle Fleet - 15yrs	Base plus unit rate trend
FLP002	Heavy Vehicle Fleet - 10yrs	Base plus unit rate trend
FLP003	Light Vehicle Fleet	Base plus unit rate trend
FLP005	Car	Base plus unit rate trend
FLP006	Elevated work platform (HCV)	Base plus unit rate trend
FLP007	TEC	Base plus unit rate trend
FLP008	Cranes	Base plus unit rate trend
FLP009	Other	Base plus unit rate trend
FLP010	Trailer	Base plus unit rate trend
FLP015	EV Uplift - TEC & Passenger	Step
FLP016	EV Uplift - Light Commercial	Step
FLP017	Network Uplift - EWP	Network uplift trend
FLP018	Network Uplift - Cranes - Borers & Flatbed Tadano	Network uplift trend
FLP019	Network Uplift - LVs	Network uplift trend
FLP020	Network Uplift - Trailers	Network uplift trend
FLP021	Network Uplift - Tipper Trucks	Network uplift trend
FLP028	EV Uplift - EWP	Step
FLP030	Elevated Work Platform (HCV) Rebuilds	Base plus unit rate trend

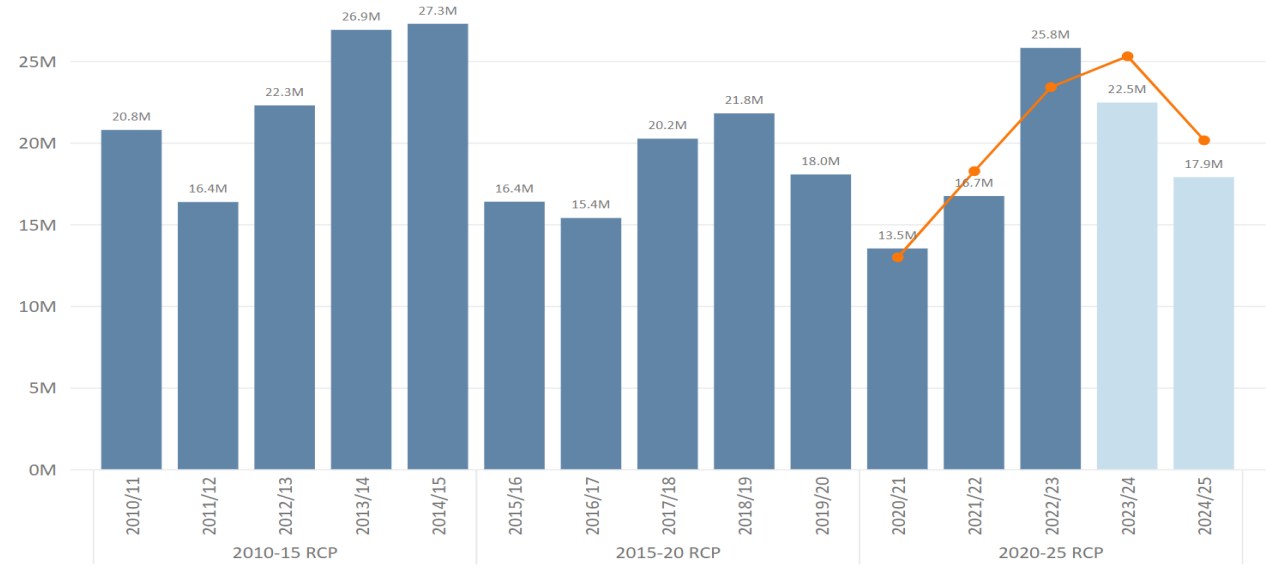
This business case does not seek to justify changes in the nature and volume of the total network capex program. These will be described in the appropriate business cases within the other capex categories (i.e. the business cases for the areas of: network asset replacement expenditure; Customer Energy Resources Integration expenditure; network asset augmentation expenditure; and our resourcing plan for the network program)[3].

3.3 Our performance to date

Our fleet expenditure is expected to be closely aligned to the AER's forecast for 2020-25, and will be only circa $5.9 million below (refer to Figure 3 below).

[3] 5.2.5 - Resourcing Plan for Delivering the Network Program

Figure 3: Actual and Forecast Fleet Expenditure ($June 2022)



We have delivered strong results in terms of the assets procured and replaced in the 2020-25 RCP. As can be seen in Table 5, we have procured 107% of the vehicles that were planned for the 2020-25 RCP. This has been driven through efficiencies in the choice of vehicle to be procured and the accessories included, as well as some more expensive single units not procured being offset by several less expensive ones, e.g. a single Crane against several Light Commercial Vehicles.

The majority of the uplift in vehicle volumes has been in the Passenger, Light Commercial and Commercial Vans categories, offset by slight decreases for Commercial Trucks and Cranes. Fourteen additional EWPs were procured in the period, which is balanced against a corresponding decrease in the number of rebuilt units. We note that purchase orders had been raised for several of the units prior to AER's Distribution Determination. Others were inspected and deemed not suitable to be rebuilt.

Table 5: Replacement Volumes vs Proposal

Asset Class	2020-25 Final Determination	2020-25 Actuals and Forecast	Variance
Passenger	147	141	96%
TEC	92	106	115%
Light Commercial	400	432	108%
Commercial Trucks	36	33	92%
Commercial Vans	48	56	117%
Cranes	37	34	92%
EWPs	65	79	122%
Forklifts	0	6	-%
Trailers	87	95	109%
Misc./Other	0	13	-%
Total	**912**	**995**	**107%**
EWP rebuilds	33	14	42%

3.4 Key Drivers

We have identified four key drivers influencing proposed expenditure on fleet assets for the 2025-30 RCP:

- maintaining a safe operating environment;
- maintaining current service levels;
- supporting changes in the network capex program; and
- transitioning to low and zero emission vehicles.

3.4.1 Maintaining a safe operating environment

Driving is one of our key safety risks, with our vehicles travelling approximately 18.1 million kilometres each year. Over 80% of the distribution network is located in regional South Australia. These geographical realities require our vehicles to cover long distances increasing risks of fatigue and, with the higher average speed on regional highways, consequences of an incident if it was to occur.

In line with the Heavy Vehicle National Law and Regulations (**HVNL**)[4][5], we must ensure that our vehicles are well maintained, in good condition, and equipped with up-to-date safety features ensuring that our employees, and the public are kept as safe as possible.

Requirements are also detailed in our Chain of Responsibility procedure.[6] This procedure has two key principles which influence fleet expenditure;

1. **Equipment Suitability:** All the equipment and heavy vehicles used in the loading, transporting and unloading of goods are 'fit for purpose' for their intended use; and
2. **Maintenance and Management Standards:** All the equipment and heavy vehicles used in the loading, transporting and unloading of goods are subject to regular inspection, review and maintenance, in line with manufacturer specifications, to ensure that they remain in effective working order.

3.4.2 Maintaining current service levels

Fleet assets perform a supporting function for SA Power Networks in the delivery of electricity distribution services to its 920,000 customers. We maintain a fleet of specialised vehicles that enable field crews to work at height and on live components of the network, reducing customer power outages and restoring power quickly and safely. With over 90,000km of powerlines, more than 73,000 street transformers, and a service area of 178,000 square kilometres, we require a fleet that can access all of the assets that service our customers across our vast state.

Our workforce responds to damaged equipment brought down by storms, fallen trees, vehicular impacts and other events. Availability of suitable vehicles is critical in enabling us to minimise supply restoration times and reconnect a customers' supply as safely and efficiently as possible.

Over the 2020-25 RCP, we have seen our reliability performance deteriorate as we have responded to a range of weather events, equipment failure and other damage causes; and supply restoration time performance in rural areas continue to deteriorate.

We expect to need to continue to respond to these challenges over the 2025-30 RCP, as set out in our respective business cases for network asset augmentation and replacement expenditure.

[4] Heavy Vehicle National Law (South Australia) Act 2013

[5] Heavy Vehicle National Law (South Australia) (Expiation Fees) Regulations 2013

[6] SA Power Networks, *Chain of Responsibility procedure*, September 2022

3.4.3 Changes in the Network Capex program

Section 3.4.2 highlights the crucial role of fleet assets in facilitating the delivery of distribution services to our customers. As the demands placed on the network shift with each RCP, it becomes imperative for the fleet to adapt and align with the evolving needs of the network business.

Looking ahead, we have forecast a significant uplift in network related workload during the 2025-30 RCP. In line with this, an uplift in vehicle fleet will be required to enable this program of work.

3.4.4 Low and Zero Emission Vehicles

As the automotive industry evolves, we are continuing to assess the feasibility of transitioning from Internal Combustion Engine (**ICE**) vehicles to EVs. The drivers behind this transition for us are both economic and environmental.

We continue to assess the most efficient use of fleet assets in order to meet the demand for Standard Control Services (**SCS**) during the 2025-30 RCP. We propose to transition to EVs where, on a TCO basis, an EV represents the lowest overall cost when compared to an ICE vehicle and is therefore a more cost-efficient choice of vehicle.

We also acknowledge the environmental impacts of transitioning away from ICE vehicles to EVs, including the associated reduction in emissions that this would allow. During our consumer and stakeholder engagement program, we also undertook a Customer Values Research study, via consultants Marsden Jacobs, as another means to gain insights into customers' willingness to pay for specific elements of our proposal, including the question of emissions reductions relating to EVs. This study used an online poll of a demographically representative sample of 1,400 South Australians and used a 'discrete choice' methodology that exposed respondents to a broad range of hypothetical bill impacts associated with different service levels in each area. A statistical analysis was then undertaken to estimate customers' overall average willingness to pay for different service outcomes. The study found that the sampled customers were willing to pay at or above the forecast level of bill impact arising from the investments required to undertake an economic transition to EVs.

We believe that the outcomes of our Customer Values Research study indicate that assessing the efficiency of transitioning ICE vehicles to EVs purely on a TCO basis as we have done in this business case, is likely to undervalue the benefits that customers perceive in emissions reduction. This is noting that:

- in this business case we have not factored into our analysis a Value of Emissions Reduction (**VER**) to value in monetary terms the benefit of contributing to emissions reduction targets of participating jurisdictions – option 2 of the EV transition step change in this business case considered one view of a potential price on carbon abatement, but this would need to be reconsidered and remodelled once the official VER is published;
- at the time of preparing this business case, the VER has not been published and come into effect, following changes to the National Electricity Rules (**NER**) to give effect to the changes to the National Electricity Objective (**NEO**) to reflect an emissions reduction objective – as such, while we consider that there are further benefits to consumers in transitioning to EVs beyond just capex / opex cost efficiencies, we have been unable to include these in our analysis at this point in time; and
- this will need to be considered by the AER in arriving at its Draft Decision (as the party that will publish the VER) and potentially as part of a Revised Proposal should one be required, once the associated emissions reforms have been fully enacted by market bodies.

4 The identified need

Expenditure on fleet assets is required to ensure that these assets can effectively and efficiently support the delivery of SCS to customers by supporting work on the distribution network - enabling field crews to access the network, to work at height and on live components, and to reduce customer power outages and restore power quickly and safely. Fleet expenditure therefore provides a supporting function to our network expenditure in our delivery of SCS to customers – the network expenditure itself is forecast to comply with the capex objectives in section 6.5.7 of the NER.

In supporting the delivery of SCS to customers, the identified need for fleet expenditure is to ensure that:

- fleet assets are replaced as they approach the end of their expected economic service life, consistent with established replacement cycles used by DNSPs in the NEM;
- additional vehicles are acquired so that the total fleet portfolio can meet the increases in network related work volumes that we have forecast for the 2025-30 RCP;
- we are taking advantage of the potential for EVs to lower the costs of fleet expenditure to customers; and
- the expenditure provides a reasonable opportunity to recover at least efficient costs by considering reasonably expected changes in input costs.

5 Proposed expenditure building blocks

5.1 Base

The ‘base’ level of capex requires us to invest $108.5 million ($June 2022). There is no opex associated with this recommendation.

For the 2025-30 RCP, ‘base’ expenditure has been forecast, without any deviation, on the basis of the asset replacement criteria that was explicitly considered and reflected in the 2020-25 AER Distribution Determination. As seen in section 3.1, these criteria are consistent with the replacement practices of most other distributors in the NEM.

Table 6 compares our actual / forecast replacements for the current RCP and the proposed volumes for 2025-30, offering a comprehensive overview of the fleet renewal plan. While for most items, the 2025-30 forecast remains similar to the 2020-25 RCP, the cyclical nature of fleet replacements mean some variations in volumes will occur when comparing one RCP to another. This is driven by historical procurement patterns which can be seen in Figure 4.

Figure 4: Fleet Asset Age Profile

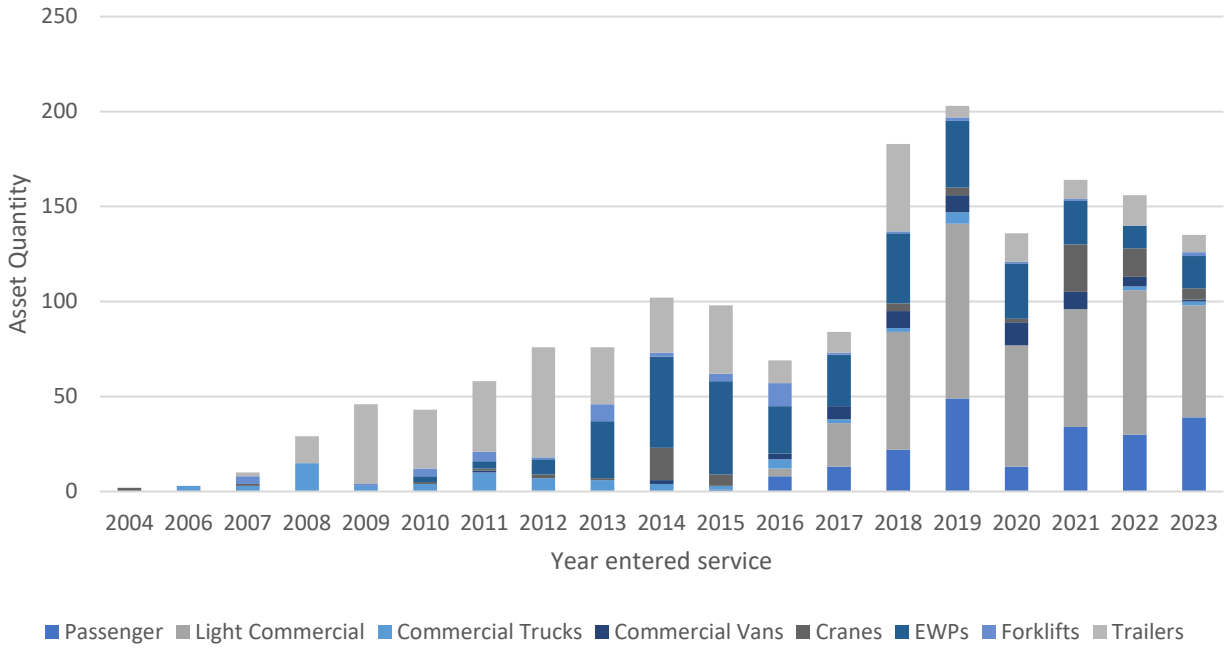
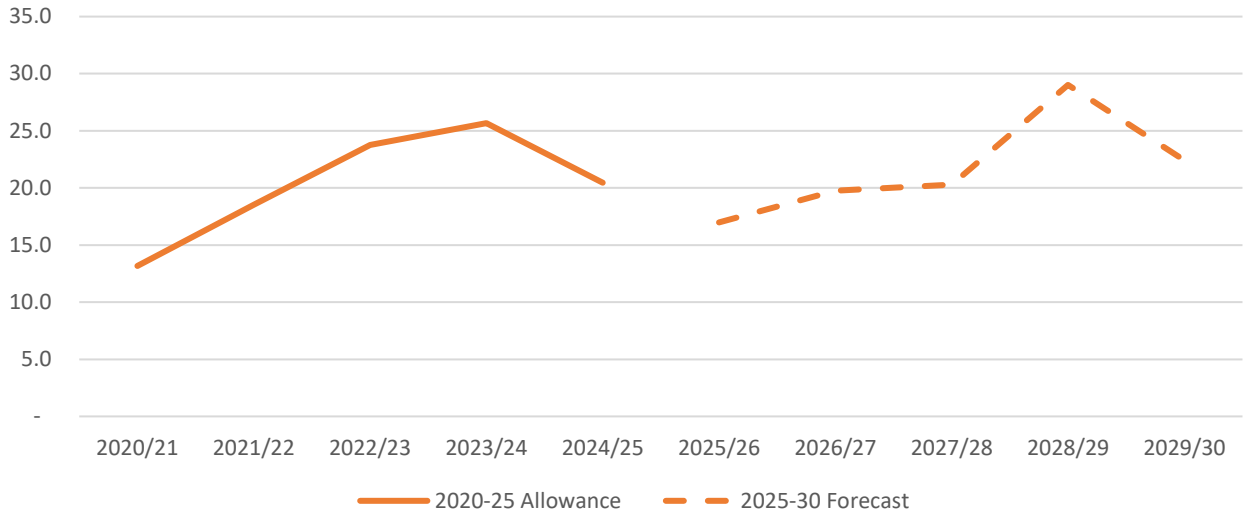


Table 6: 2020-25 RCP vs 2025-30 RCP Replacement Volumes

Asset Class	2020-25 (Actual / Forecast)	2025-30 (Proposed)
Passenger	141	123
TEC	106	78
Light Commercial	432	477
Trucks	33	34
Vans	56	56
Cranes	34	40
EWPs	79	80
Rebuilds	14	11
Forklifts	6	8
Trailers	95	182
Misc./Other	13	13
Total	**1,009**	**1,102**

To derive the forecast base expenditure, the forecast quantities have been multiplied by the escalated unit rates established in the AER's 2020-25 Final Determination. As can be seen in Figure 5, the base expenditure for 2025-30 remains reasonably consistent to the expenditure approved by the AER in our 2020-25 RCP.

Figure 5: 2020-25 AER forecast vs 2025-30 forecast ($m June 2022)

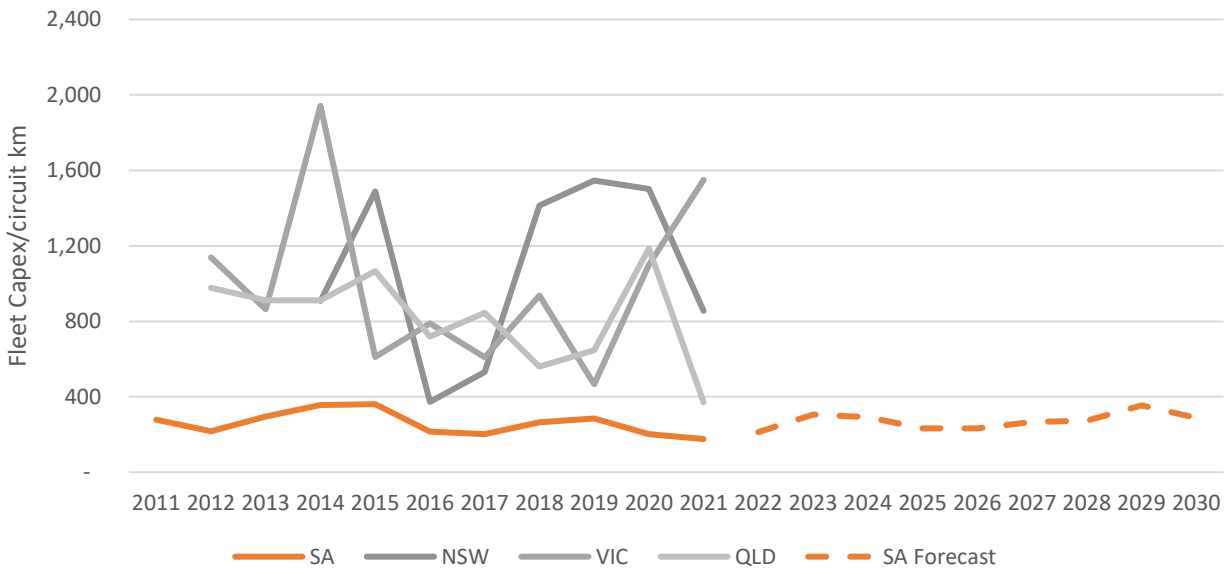


Note, no opex is required as part of this Base level of expenditure. Operational costs for fleet (fuel, registration, insurance, fleet management, maintenance, repair, etc.) are directly attributed to work undertaken by way of a standard hourly vehicle rate in accordance with the AER approved Cost Allocation Method (**CAM**)[7].

In assessing the efficiency of our base fleet expenditure, we compared our historical fleet data against that of other DNSPs in the NEM across a number of different measures, including capex by circuit kilometres, number of assets by line length, and staff by fleet volumes. The outcome of this analysis is provided below.

Figure 6 below compares fleet capex against circuit kilometres, with SA Power Networks the most efficient in the NEM on a state-by-state basis[8]. This is consistent with the AER's recent capital multilateral partial factor productivity benchmarking rankings[9] which places us as the most efficient distributor in the NEM.

Figure 6: Fleet capex by circuit kilometres – state-based comparison ($m June 2022)



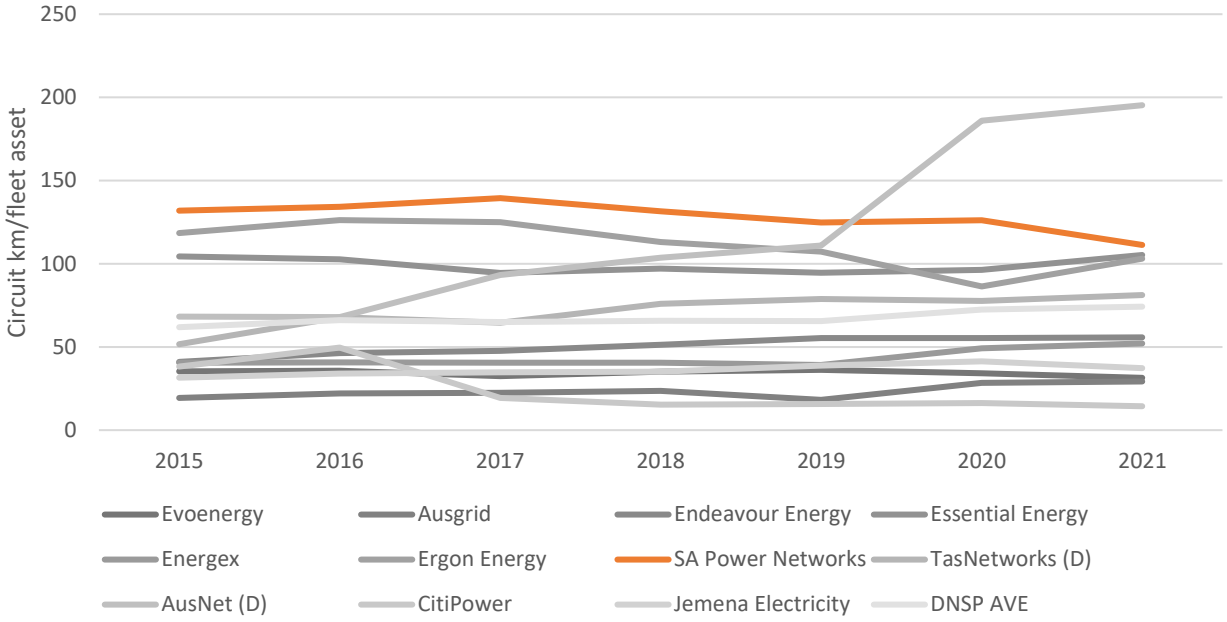
[7] SA Power Networks, *Cost Allocation Method,* July 2020

[8] Data has been sourced from publicly available RIN data as available on the AER website. [https://www.aer.gov.au/]

[9] AER, *2022 Annual Benchmarking Reports,* November 2022.

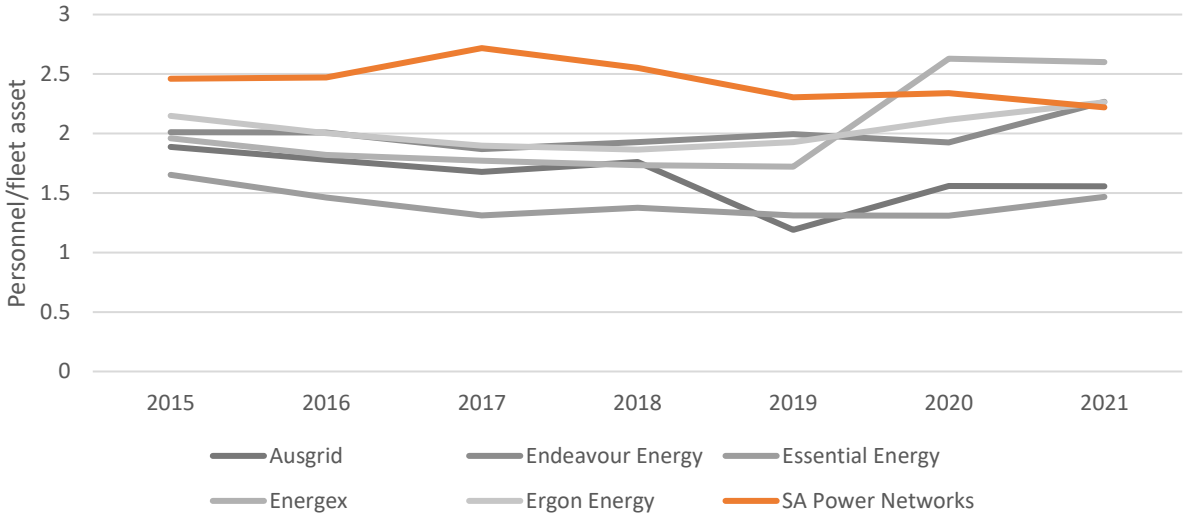
We also examined the relationship between the number of fleet assets against the total line length of the network. This can be seen in Figure 7 showing that we benchmark second based on the available Regulatory Information Notice (**RIN**) data[10].

Figure 7: Network line length by volume of fleet assets



In addition, as fleet are required to allow our employees to access the network, we evaluated the relationship between the number of employees per vehicle to provide a useful point of comparison of SA Power Networks' current fleet operating model. This can be seen Figure 8 where we are very comparable to most other distributors at the efficient frontier[11][12].

Figure 8: Personnel per fleet asset



[10] Data has been sourced from publicly available RIN data as available on the AER website. [https://www.aer.gov.au/]

[11] Data has been sourced from publicly available RIN data as available on the AER website. [https://www.aer.gov.au/]

[12] Several DNSPs currently, or for some years historically, do not report personnel numbers publicly and as such these have been excluded from the analysis.

As is seen in the charts above, we benchmark well against other DNSPs in terms of our base fleet volumes and expenditure. We consider our current use of fleet is efficient and is supporting SA Power Networks to deliver electricity distribution services in South Australia efficiently compared to our industry peers.

As provided above, the proposed base fleet capex aligns with underlying inputs approved in the 2020-25 Distribution Determination. We note that over recent years there have been changes in market purchasing rates which will impact on our ability to maintain our existing fleet within this base expenditure forecast. We are also forecasting an increased workload which will drive the need for additional fleet volumes. We have considered these to be 'Trend' factors, which are further detailed in section 5.2 below.

5.2 Trend

This section recommends $22.6 million ($June 2022) to 'trend' the 'base' fleet capex forward for the 2025-30 RCP. $2.6 million ($June 2022) accounts for real price growth forecasts, whilst $20.0 million ($June 2022) represents a volume trend.

5.2.1 Price Trend – Real Price Growth

As the 'base' expenditure uses the rates from the AER's 2020-25 Determination escalated by CPI, the 'price trend' represents the reasonable increase observed over the 2020-25 period over and above the impact of inflation.

In recent years, lead times for certain assets have extended significantly, often spanning up to two to three years ahead of their anticipated delivery dates. We have taken proactive measures by issuing numerous purchase orders for vehicle deliveries within the 2025-30 RCP. It is important to note that these purchase orders will not translate into actual expenditure until the next period. By leveraging current procurement data, we can confidently assert the determined unit rates accurately mirror the actual costs we will incur during the 2025-30 RCP. In cases where assets lack recent purchase orders, we have secured updated quotations from vendors.

We would speculate that the upward pressure in rates and lead times has likely arisen due to the volatile procurement environment experienced during the 2020-25 RCP. This period was marked by significant global events, such as the onset and recovery from the COVID-19 pandemic and the Ukraine conflict. Furthermore, these trends might also stem from external influences, such as the global semiconductor shortage and various supply chain challenges within the automotive industry.

Current forecasts suggest that vehicle pricing will remain relatively stable during the 2025-30 RCP and so we are not proposing any real escalations over that period.

Table 7: 2020-25 RCP vs 2025-30 Real Price Growth forecast ($M June 2022)

SAPN Category	Un-escalated	Real Price Growth	Escalated
Passenger	5.0	0.3	5.3
TEC	3.7	0.3	4.1
Light Commercial	27.3	1.9	29.2
Trucks	7.4	-0.2	7.2
Vans	4.7	-0.6	4.0
Cranes	14.2	-1.2	13.0
EWP's	36.2	0.2	36.4
EWP's Rebuilds	1.7	-0.3	1.4
Forklifts	0.5	-0.1	0.4
Trailers	7.3	1.9	9.2
Misc./Other	0.5	0.3	0.8
Total	**108.5**	**2.6**	**111.1**

5.2.2 Network Capex Uplift

The primary function of our fleet assets is to support the needs of the network business in the delivery of SCS, therefore the quantity and blend of fleet assets must evolve as the needs of the network evolve.

We are forecasting a significant uplift in the network capex program (the total sum of work reflected in our network related expenditure included in our Regulatory Proposal) in 2025-30, with an associated uplift in fleet required to deliver this program of work. In assessing the quantum of this uplift, we conducted a broad review of the current workforce operating model to determine what additional fleet will be required across the work program.

This review firstly examined the historical relationship between work undertaken and the field crews who performed each piece of work considering both the volume and type of work being performed. The second stage of the review was to examine the relationship between the field crews performing the work and the supporting non-network expenditure required to enable their activities. This non-network expenditure covered fleet, IT, and property.

This two-stage review essentially establishes the relationship between the activities required by the network capex program and the resources required to meet it. Most of this recommendation will be detailed in the 'Resourcing plan for delivering the network program' document[13], with only the fleet capex component described as part of the 'trend' recommendation here.
As part of the evaluation of the requirements of this uplift, we reviewed EWP utilisation within the current fleet. EWPs are critical assets for any work on the network, forming the backbone of the fleet. Efficient deployment of EWPs allows field crews to undertake much of the work on the network. This is revealed in the fact that additional EWPs represents more than 60% of the expenditure associated with the uplift so it is essential to ensure that this expenditure is as efficient as possible.

The review of utilisation was performed using benchmarking data supplied by our external Fleet Management Partner, SG Fleet. This benchmarking data is based on all the comparable organisations, other

[13] SA Power Networks, Document 5.2.5, *Resourcing Plan for Delivering the Network Program*, August 2023

network service providers (**NSPs**), for whom SG Fleet provide fleet management services[14]. As can be seen in the charts (Figure 9 and Figure 10) below, the utilisation of our EWPs benchmarks well against our peers.

Figure 9 shows the average power take-off (**PTO**) hours for EWPs within each of our regions based on the depot they are assigned to. PTO hours reflects time where the vehicle is stationary however the engine is running to operate the boom. This can be taken to mean that the vehicle is operational at a job site.

Figure 9: EWP active hours per month

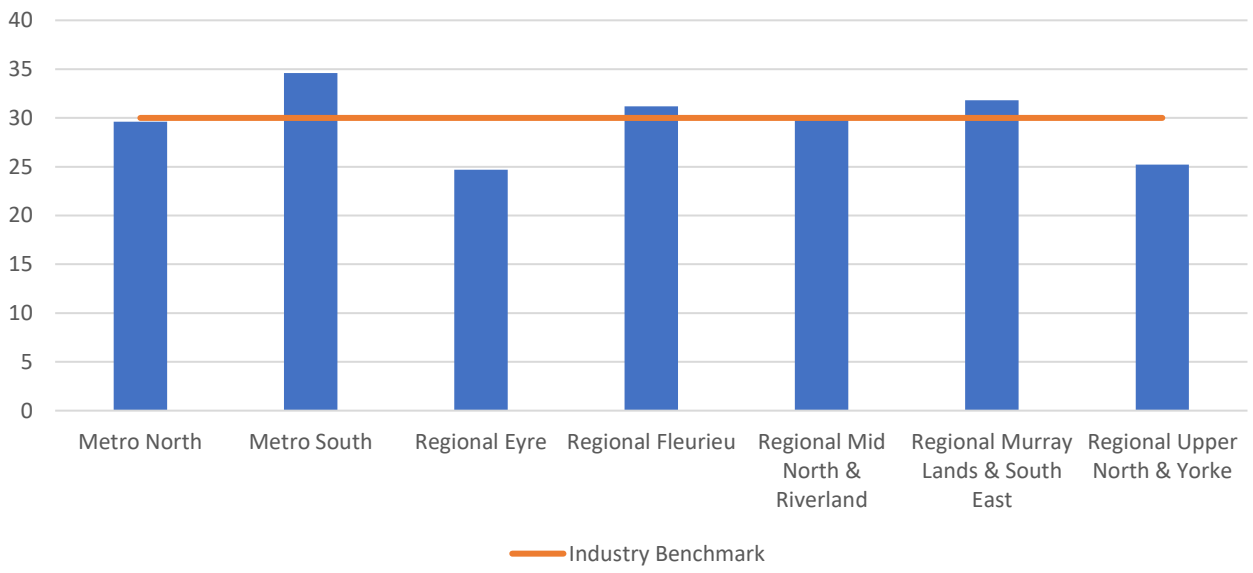
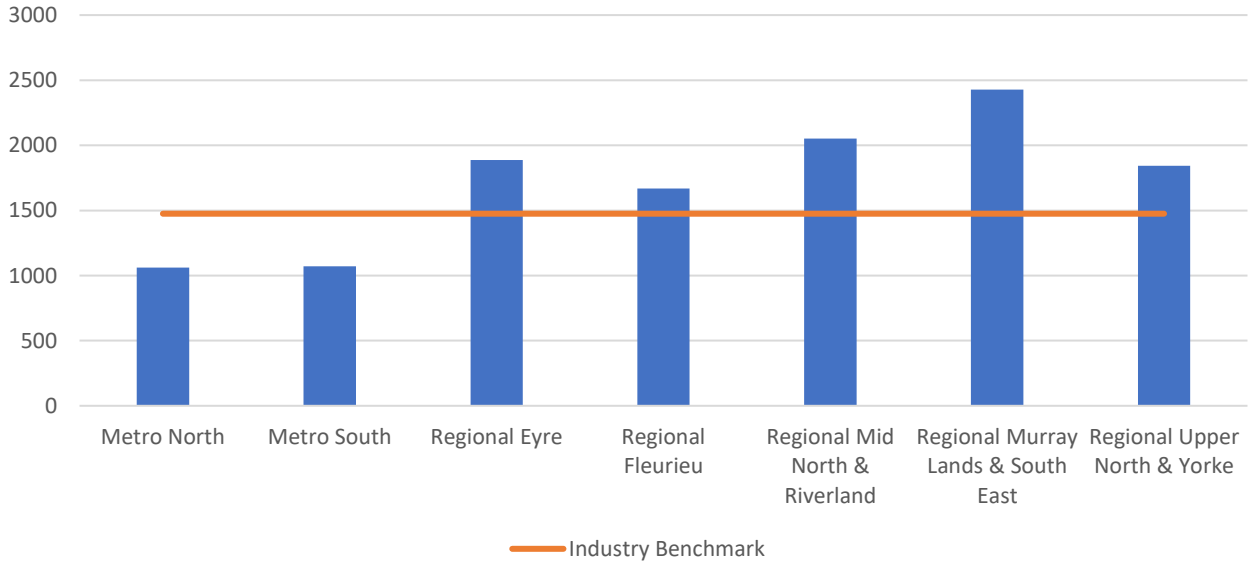


Figure 10 shows the average kilometres travelled by EWPs within each of our regions based on the depot they are assigned to. Kilometres travelled reflects operational time where vehicles are travelling to the job site.

Figure 10: EWP average active kilometres per month



[14] SA Power Networks utilisation data has been benchmarked against data from the following organisations, Energy Queensland (Ergon & Energex), Powerlink, Jemena, Ausgrid and Transgrid.

On average, metropolitan based assets do slightly more hours per month (**HPM**), reflecting the shorter distance to job sites. Regional units do more kilometres per month (**KPM**) reflecting the larger distances in regional South Australia.

The analysis includes vehicles which are placed in strategic areas for supply restoration purposes, which are unsuitable or of low utility for the network capex program requirements of their local area. These vehicles could, theoretically, be moved to allow them to undertake work elsewhere on the network, however this may have adverse impacts on customer service levels should an outage occur at the time.

Corporate and Finance vehicles have been removed from the data as these are vehicles which are not part of the network capex program and are instead in place for specific, non-network related functions, such as those based at the Training Centre.

With these factors in mind, we note that there is limited spare capacity to absorb the uplift in network capex with the current fleet. The total volumes required to support this uplift can be seen in Table 8: Fleet volumes required to support the network uplift below.

Table 8: Fleet volumes required to support the network uplift

Asset Class	Network Uplift Volumes
Passenger	3
Light Commercial	74
Trucks	16
Vans	7
EWPs	24
Total	**124**

5.3 Step

The ‘step’ component considers the opportunity to transition from ICE vehicles to EVs, where it is cost efficient do so. The recommended approach, Option 1, results in a proposed increase of $2.5 million ($June 2022) for fleet capex, offset by a negative opex step change of $1.2 million ($June 2022) in total over the RCP.

This expenditure is reasonable as it represents the least negative NPV result of the options considered. Vehicles will only be transitioned at the point where it becomes, on a TCO basis, cost efficient to do so.

5.3.1 The options considered

Table 9 details the various strategies investigated as part of the EV transition.

Table 9: Summary of options considered

Option	Description
Option 0 - The 'base'	This represents a scenario where no fleet assets are transitioned to EVs and is consistent with the 'base' established in section 5.1 of this document. The inputs to this analysis are the forecast capex and opex costs over the period as well as the forecast residual benefit for disposing of the asset at the end of the economic life.
Alternative options	
Option 1 – Economic Transition	In this option, the fleet transition process involves a comprehensive assessment for each vehicle at the point of forecast purchase. The evaluation considers the availability of a suitable EV as well as the specific requirements of each asset. If a suitable EV is not available, the asset is categorised as the 'base' and is replaced with another ICE vehicle. However, if a suitable EV option exists, a TCO analysis is conducted. This analysis takes into account expected purchase and operating costs, along with the projected residual value at the end of the vehicle's life. The goal is to determine whether the EV would be a more favourable investment compared to the ICE vehicle. If the TCO analysis favours the ICE vehicle, then an ICE vehicle is procured. Conversely, if the TCO analysis demonstrates that the EV is the more efficient option, then an EV is chosen. This systematic approach ensures that each vehicle's transition to EV is thoroughly assessed based on cost-effectiveness and suitability, leading to a well-informed decision on whether to go with an EV or an ICE vehicle.
Option 2 – Economic Transition Plus Carbon Price	In this option, the fleet transition process remains similar to Option 1, where each vehicle is assessed at the forecast point of purchase to determine the availability of a suitable EV and whether it meets the asset's requirements. If a suitable EV is available, a TCO analysis is performed, considering expected purchase and operating costs, as well as the forecast residual value when the vehicle reaches the end of its life. However, the key difference in this scenario is the inclusion of a forecast carbon price in the TCO calculation. The carbon price is applied as a placeholder in anticipation of guidance from the AER regarding the efficient value to include in order to economically value the reduction in emissions achieved by using an EV instead of an ICE vehicle. By factoring in the cost of carbon emissions, the TCO analysis takes into account the environmental impact of each vehicle option. As this evaluation happens prior to the procurement point, in turn, this then results in the transition of more vehicles than Option 1. This means that not only the direct financial costs but also the potential benefits associated with lower carbon emissions are considered in the decision-making process. If the TCO analysis, incorporating the forecast carbon price, indicates that the EV provides a more economically favourable option considering both financial and environmental aspects, then the EV is chosen as the replacement. Conversely, if the TCO analysis favours the ICE vehicle, it will be procured. By incorporating the forecast carbon price, this scenario ensures a more comprehensive evaluation of the fleet transition, promoting environmentally conscious decisions that balance economic efficiency with emission reductions.
Option 3 – Force Transition by 2030	In this option, during the last replacement cycle before 2030, the fleet transition focuses on a straightforward approach. Every ICE vehicle is replaced by an EV as long as there is a suitable EV option available that meets the requirements of the specific asset. Unlike the previous scenarios where the TCO analysis played a pivotal role in the decision-making process, here, the TCO analysis is not a determining factor.

Option	Description
	The primary criterion for replacing the vehicles is the availability of an EV that can perform the same role and function as the ICE vehicle being replaced. If there is a viable EV option that meets the asset's requirements, it is chosen for the transition, regardless of the TCO analysis. By adopting this approach, the focus is on accelerating the adoption of EVs and ensuring a comprehensive shift towards cleaner and more sustainable transportation options. While cost considerations are still essential for operational efficiency, the priority in this scenario is to embrace the transition to EVs in the final replacement cycle before 2030, promoting environmental responsibility and reducing carbon emissions.

5.3.2 Options investigated but deemed non-credible

In addition to the above options, the initial investigations into our fleet's transition to EVs encompassed all asset types. However, these investigations revealed that the heavy vehicle EV market is currently in its early stages and is likely to remain so during the 2025-30 RCP.

Since any transitioning vehicle must be capable of fulfilling the same role and function as its predecessor, we faced two options. We would either have to postpone replacing assets, regardless of their age and condition, in the hope of finding suitable EV options, or invest in fleet assets that are ill-suited for their intended purpose. Both options were deemed unfeasible, leading us to exclude the heavy vehicle fleet from the scope of the EV transition.

5.3.3 NPV Analysis summary

Table 10 below details the outcomes of each of the NPV assessments of the various options. Option 1 has been chosen as the most appropriate as it represents the least negative NPV.

Table 10: EV Transition Options ($M June 2022) – 10-year cash-flow period

Option	Costs		Benefits[15][16]		NPV[17]	Ranking
	Capex[18]	Opex[19]	Capex	Opex		
Option 0 - The 'base'	29.33	18.27	12.52	-	-32.53	3
Option 1 – Economic Transition	31.87	15.90	13.68	-	-31.96	1
Option 2 – Economic Transition Plus Carbon Price	33.58	15.18	14.46	-	-32.33	2
Option 3 – Force Transition by 2030	40.10	13.56	17.25	-	-34.78	4

[15] This NPV analysis does not currently quantify the benefits of emissions reduction pending release of official guidance as noted in the AER release on 25 August 2023 https://www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/guidance-on-amended-national-energy-objectives. This guidance may change the recommended option.

[16] Represents the total capital and operating benefits, including any quantified risk reductions compared to the risk of Option 0 (base case), over 10-year cash flow period from 1 July 2025 to 30 June 2035 expected across the organisation as a result of implementing the proposed option.

[17] Net present value (NPV) of the proposal over 10-year cash flow period from 1 July 2025 to 30 June 2035, based on a discount rate of 4.05%.

[18] Represents the total capex associated with the proposed option over the 10-year cash flow period from 1 July 2025 to 30 June 2035.

[19] Represents the total opex increase associated with the proposed option above the current level of opex, over the 10-year cash flow period from 1 July 2025 to 30 June 2035.

5.3.4 Decision on recommended option

In all the options examined here, the benefit-to-cost analysis yields a negative result in terms of NPV. This NPV analysis is focused on determining whether transitioning to EVs would be cost-efficient and, if so, what the most efficient transition strategy would be. It is important to note that this analysis does not assess the benefits of maintaining a fleet of vehicles, as we already maintain such a fleet, which is vital for providing SCS services to our customers.

Instead, this analysis compares the costs and changes in benefits associated with different EV transition options against the baseline Option 0, serving as a reference point for evaluating the cost-effectiveness of these transition strategies.

We recommend Option 1 as the preferred option on the basis that this option results in the least negative cost benefit analysis outcome in NPV terms and is therefore the most cost efficient relative to the base case costs. We consider this represents an efficient approach by which to gradually transition toward EVs and reducing our costs to serve and impact on the environment.

Option 0 represents a base case as outlined in sections 5.1 and 5.2 with lower upfront capex costs, but incurring higher operating expenses in the long term, making it less preferable.

Option 2 involves transitioning slightly more vehicles than Option 1, but it incorporates a carbon price and has a marginally worse NPV result than Option 1. This option relies on a carbon price, which as described earlier, at this current time has not yet been officially established as part of the regulatory framework – we may reconsider the effect of including a VER once relevant aspects of the framework are enacted.

Option 3 represents the fastest transition, but it contradicts the views of our stakeholders on fleet management where they did not believe that SA Power Networks should take a leadership position, and this option yields the worst quantified NPV with the highest costs.

During the upcoming 2025-30 RCP, we will continually review the TCO analysis whenever a vehicle is procured. It is expected that there will be continual innovation in the EV industry which may make more vehicles TCO positive than the current forecasts. We will proactively look to identify these opportunities as and when they arise as this will represent the most optimal outcome for consumers.

6 Deliverability of recommended option

We have analysed the resourcing requirements associated with the uplift in network capex that we have forecast in our Regulatory Proposal.[20] In this analysis, the required fleet volumes and whether these could be procured was assessed as a potential constraining factor. The analysis determined that this would not have an impact on the deliverability of the required proposal.

We have undertaken several forward-looking investigations into the volume of assets available for purchase within the Australian market. Whilst there remain lead time challenges, vendors have assured us that, on provision of a purchase order, sufficient supply is available within the 2025-30 period.

When assessing EVs, a key component of the determination to transition away from ICE vehicles and to an EV is whether or not there is an available EV. Where this is not the case, we will not transition that vehicle to an EV. As such, this is an implicit assessment on the deliverability of the proposed expenditure.

7 How the recommended option aligns with our consumer and stakeholder engagement

SA Power Networks' consumer and stakeholder engagement program did not ask customers to deliberate on outcomes specific to fleet expenditure, other than in relation to a transition toward EVs. This was a decision made jointly with our Community Advisory Board (**CAB**), under a desire to direct deep engagement toward topics that were jointly deemed to be 'focusing on what matters to consumers'.

With respect to transitioning our vehicle fleet to EVs, the outcome that is enabled by the expenditure proposed in this business case is aligned to achieve outcomes that were directly supported by our customers as ultimately reflected in the recommendations of the People's Panel. This is noting that:

- the topic of reducing emissions including via EVs has been a key focus of our consumer engagement program. One of the key themes that have framed our engagement under a desire to 'focus on what matters' to our customers has been the theme of the 'energy transition';
- in engaging on this theme, and under the topic of transitioning our fleet to EVS, we undertook a series of deep-dive workshops called 'Focused Conversations, with a broad range of consumer, industry, government and regulatory body representatives. In these Focused Conversations we sought recommendations on the service outcomes that customers prefer and expect;[21]
- with particular regard to the 'EV transition' step change considered in this business case, we engaged on the identified need by outlining: types of vehicles and when they would transition within each investment scenario to support network work; how these expenditures are forecast to vary if we transition toward EVs under differing approaches by type of vehicle; contributions that EV transition scenarios can potential make to emissions reduction, the need for accompanying charging infrastructure at our depots;
- we then posed three scenarios of how we could respond to the need, and the expected outcomes for customers in relation to service, expenditure and price – (1) a base case of continuing with our BAU approach of replacing vehicles with other ICE vehicles (2) a cost optimised scenario of replacing ICE vehicles due for replacement, with an equivalent EV if its fit for purpose and more cost efficient on a total cost of ownership basis and (3) an accelerated transition to EVs by always choosing an EV in the last replacement cycle before 2030, if its fit for purpose but irrespective of the total costs of ownership;

[20] 5.2.5 - Resourcing Plan for Delivering the Network Program

[21] This was covered in workshops 1, 2, and 3. Materials presented at the Focused Conversations are available on our Talking Power website under the page titled 'focused conversations'. [https://www.talkingpower.com.au].

- the Focused Conversation arrived at a clear consensus recommendation to the People's Panel as the next stage in our engagement program, that we should invest in transitioning its fleet assets gradually to EVs but only where this costs the same or less on a total cost of ownership basis;[22]
- ultimately the People's panel deliberated on and affirmed the results of the Focused Conversations in their formal recommendation, and we have committed to taking this recommendation forward as reflected in this business case;[23] and
- since conducting the People's Panel process, we published a Draft Proposal to play back how we have given effect to customer recommendations and to confirm that those recommendations remain valid given continued cost of living pressures and to obtain further input to refine our Regulatory Proposal. Submissions received on our Draft Proposal commented as follows:
    - members of the People's Panel affirmed that their recommendations, including in respect of investment in an EV fleet transition as set out in this business case, remain current;[24] and
    - no other submissions raised concerns or new information to warrant a change in the recommendation of our customers.

8 Alignment with our vision and strategy

Our fleet assets are a critical enabler in the delivery of distribution services. Our fleet allows field crews to access the network, to work at height and on live components, reducing customer power outages and restoring power quickly and safely.

Our Strategic Fleet plan 2025-2030 notes several key objectives[25]. Whilst several of these objectives refer to the business-as-usual relationships of fleet management with the wider SA Power Networks business, this business case is closely aligned with the following;

- **Operational excellence** – Provision of fit-for-purpose vehicles in a cost-effective and timely manner to enable the efficient and effective operation of the business.
- **Safety and compliance** – Vehicles acquired and maintained in accordance with legislative requirements and standards to maximise the safety, operational reliability and availability of our fleet for customers.
- **Technical capability** – Ensuring a high level of core capability and technical expertise to identify, evaluate and provide optimal solutions to our customers.
- **Robust planning, management and governance** – Clearly defined roles and accountabilities and effective planning, management and governance across the fleet management lifecycle to ensure we achieve our strategic intent and core areas of focus.
- **Energy transition** – preparing for the transition to a zero-emission future.

Further, this document is aligned to our broader strategies. As can be seen in Figure 11, we have six core focus areas driving the 15-year Strategic Direction[26]. The Base and Trend components of our expenditure align closely to two Focus Areas: Safety and the Network. The Step change transitioning the fleet to EVs relates to the Sustainability focus area.

[22] The recommendation of the Focused Conversation is contained in documents published on our Talking Power website under the page titled 'focused conversations'. SAPN, final outputs and recommendations to the People's Panel – Energy Transition, November 2022. Accessible on: [https://www.talkingpower.com.au].

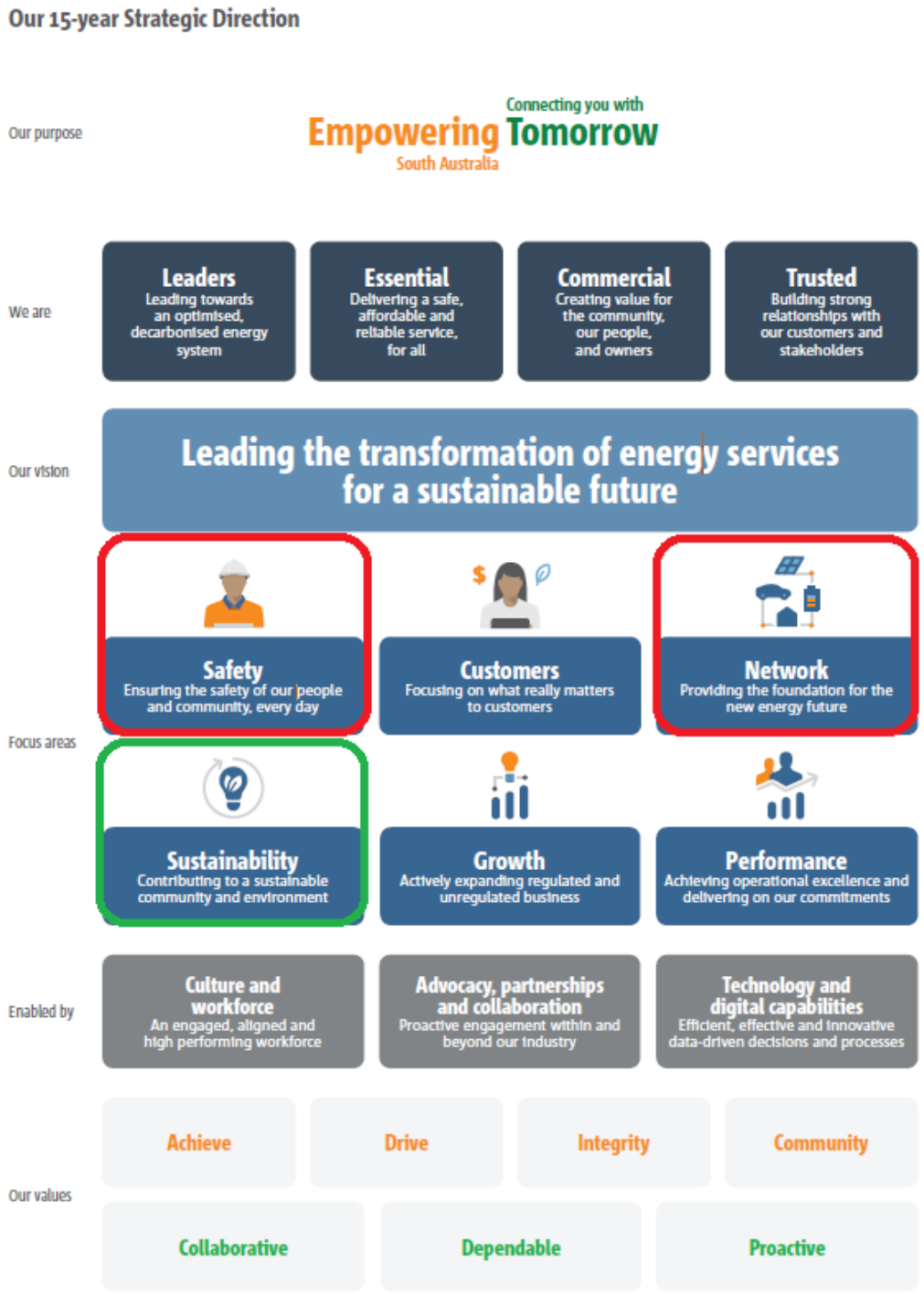
[23] The recommendations of the People's Panel are contained in documents published on our Talking Power website under the page titled 'people's panel'. SAPN, SA Power Networks People's Panel Final Report – balancing service and price, March 2023.

[24] DemocracyCo, *Submission: SA Power Networks Draft Regulatory Proposal 2025-30*, 30 August 2023.

[25] SA Power Networks, *Strategic Fleet plan 2025-2030,* August 2023

[26] SA Power Networks, *Strategic Direction 2035,* September 2021

Figure 11: SA Power Networks' 15-year Strategic Direction[27]



8.1 Safety

We have a workforce exceeding 1700 employees and one of the biggest private fleets of vehicles in South Australia. The majority of the workforce are required to travel in a vehicle on a daily basis, either operationally or for commuting purposes.

As a result of the multitude of potential vehicle interactions that happen across the organisation on a daily basis, driving is one of our key safety risks. This risk is exacerbated in our case, potentially compared to other

[27] SA Power Networks, *Strategic Direction 2035*, September 2021

DNSPs, as the vast geographic spread of our operations and asset base increase the potential for long range driving (i.e. fatigue) and driving at high speed (i.e. highway driving in regional areas).

New light fleet and passenger vehicles have the majority of the key safety features as part of their standard manufacturer specification – including (but not limited to) electronic stability control, front and side impact air bags, hill start assistance and Anti-Lock Braking System as standard features. All new purchases of heavy vehicle fleet have reversing cameras as a required feature.

Proactive replacement of the existing asset base at the optimum point ensures that new safety features entering the market are incorporated into our fleet as soon as possible. This in turn ensures the safety of our people and community, every day.

8.2 The Network

With fleet as an enabler in the delivery of distribution services, it underpins our focus on the Network. Repex, Augex, Connection and Supply Restoration activities all require field crews to access a network spanning 178,000 square kilometres with a line length of over 90,000 kilometres.

Further, a network that once served only to supply energy generated by large, centralised fossil-fuelled generators, now hosts more than half of the State's generation capacity, with much of it owned by customers. Over the longer term, the network will enable broader decarbonisation through electrification of homes and transport and potentially other end-use applications currently powered by hydrocarbons.

This transformation has seen a sudden and material increase in state-wide demand forecasts which is driving a considerable volume of augmentation work. This increase can be contributed to electrification and renewable targets, as well as localised factors, such as in-fill housing and residential developments.

Prudent and efficient investment in the network and the provision of our current service levels to customers is not possible without fleet assets enabling this access to the network.

8.3 Sustainability

We are a proactive member of the Electric Vehicle Council and share a broader vision for Australia to be a leader in the transition of electric vehicles. In 2022, we joined more than 100 companies to publicly support the Federal Government's development of an ambitious National Electric Vehicle Strategy, 1 million EV's on Australian roads by 2027.

On World EV Day in 2022 SA Power Networks joined many other like-minded organisations leading the way in making South Australia a national leader in electric vehicle uptake and smart charging by taking the EV Fleet Pledge.[28]

Our proposed increase in fleet capex aligns with this public commitment by transitioning vehicles away from ICE to EVs as soon as they become economically viable to do so. This will be a core contributor to the achievement of the Sustainability medium- and long-term outcomes from the 15 Year Strategic Direction.[29]

This commitment to investing in the EV transition is one of the underpinning elements to SA Power Networks' public ambition to play our part 'by achieving net-zero Scope 1 and Scope 2 greenhouse gas emissions across our operations by 2035.'[30]

[28] SA Power Networks, *SA Power Networks Group Sustainability Report 2022,* May 2022

[29] SA Power Networks, *Strategic Direction 2035*, September 2021

[30] SA Power Networks, *Sustainability Strategy 2022-2026*, June 2022

9 Reasonableness of cost and benefit estimates and input assumptions

9.1 Base

All unit rates have been drawn from the AER Distribution Determination for 2020-25 escalated forward to June 2022 based on the Australian Bureau Statistics CPI releases. Asset replacement volumes have been drawn from our Fleet Model determined from asset's historical procurement dates within SAP.

As these are factual numbers and based on pre-determined AER values, we believe these numbers to be inherently reasonable.

9.2 Trend

Due to increased lead times, we have already raised purchase orders for delivery during the upcoming 2025-30 RCP. These orders have revealed price growth within the 2020-25 period in excess of CPI and as such, SA Power Networks has increased the unit rates for 2025-30 forecasts relating to these purchase orders. SA Power Networks do not forecast any real escalation during the 2025-30 period.

Assets required to support the uplift in the total network program (being the sum of all network work and expenditure forecast in our Regulatory Proposal for 2025-30) have been determined by a comprehensive assessment of the work required and consultation with the relevant business areas who will perform it – this approach is further detailed in our separate 'Resourcing plan for delivering the network program'[31] document This has therefore provided a true understanding of the uplift within the workforce required to deliver the forecast uplift as well as an associated understanding of the equipment that will be required to support these activities.

Further, we have performed benchmarking analysis to ensure that these volumes appear to be reasonable when considering the performance of similar organisations.

9.3 Step

Care has been taken to ensure that this remains a conservative forecast of EV uptake and does not depend upon any over-optimistic forecasts. Data relating to ICE vehicles has been taken from the historical performance of SA Power Networks vehicles. This has allowed detailed modelling to be performed on each asset to understand the TCO implications and when the optimum time to transition to an EV would be whilst not undermining current asset performance.

Wherever possible, we have utilised external, market forecasts for all inputs rather than depending on our own modelling. As an example Electricity CO^2/MWh estimates have been drawn from the Department of Climate Change, Energy, the Environment and Water's projections.[32] Battery forecasts have been developed based on multiple sources[33][34] and used against a current ICE vehicle ratio to provide cost curves forward into the next RCP (refer Figure 12).

[31] SA Power Networks, *Document 5.2.5, Resourcing Plan for Delivering the Network Program*, August 2023

[32] Department of Climate Change, Energy, the Environment and Water, *Australia's emissions projections 2022,* December 2022

[33] Kraneshares, *Key Takeaways From 2023 BloombergNEF Summit & EV Outlook,* March 2023

[34] GM Authority, *GM Expects Battery Cells To Cost $87 Per kWh By 2025,* May 2023

Figure 12: EV cost curve modelling (example only)

Key parameters	2024	2025	2026	2027	2028	2029	2030
Battery Price $ (USD)	152	134	124	114	104	94	84
Vehicle Price ($ AUD)	35000	35000	35000	35000	35000	35000	35000
Battery Price ($ AUD)	21375	18843	17437	16031	14625	13218	11812
Vehicle + Battery Price (assumes 90 kWh pack)	56375	53843	52437	51031	49625	48218	46812
Cost Curve	1	0.955	0.93	0.905	0.88	0.855	0.83