Resourcing Plan for Delivering the Network Program

Supporting document 5.2.5

January 2024

SA Power Networks

Empowering South Australia

Contents

Glossary

Term	Definition
AEMO	Australian Energy Market Operator
AMTP	Asset Management Transformation Project
Augex	Augmentation Expenditure
Capex	Capital Expenditure
CBD	Central Business District
CER	Customer Energy Resources
DNSP	Distribution Network Service Provider
EWP	Elevated Work Platform
FTE	Full-Time Equivalent
GSW	General Skilled Worker
IT	Information Technology
NEL	National Electricity Law
NER	National Electricity Rules
Opex	Operational Expenditure
Repex	Replacement Expenditure
RCP	Regulatory Control Period
SME	Subject Matter Expert
Totex	Total Expenditure
TSW	Trade Skilled Worker
TSW-E	Trade Skilled Worker – Electrical
TSW-P	Trade Skilled Worker – Powerline
URD	Underground Residential Distribution

1 Purpose and Scope

SA Power Networks' Regulatory Proposal has forecast an increase in its total program of network capital expenditure (**capex**) for the 2025-30 Regulatory Control Period (**RCP**) – this being the sum of the following:

- replacement expenditure (**repex**);
- augmentation expenditure (**augex**);
- Customer Energy Resources (**CER**) integration expenditure[1]; and
- gross connections expenditure[2].

This forecast increase in network capex is sufficiently material that the resourcing and deliverability implications need to be specifically considered, and considered in totality – that is, across the whole portfolio of network capital and operating expenditure, i.e. the network program.

This document provides an overview of how we plan to deliver this total network program and the justification as to why this is realistic and achievable. This document is to be read in conjunction with the overarching Regulatory Proposal, business cases and justification documents supporting each network expenditure area.

Relevant support services provided by Information Technology (**IT**), Fleet, Property and Human Resources are considered within the cost implication section of this document.

Quantitative modelling to support both the forecast demand and supply has been completed and the outputs are contained within this document.

2 Executive Summary

SA Power Networks' forecast total network capex for the 2025-30 RCP is an uplift of $349M[3,4] total, which represents a 22% increase relative to the current RCP. This document outlines the resourcing plan for delivering this network program, which has been driven by the material changes in the repex, augex and CER integration expenditure forecasts. For completeness of understanding total labour demand, we have looked at the total network expenditure for a complete resourcing approach. Across the 2025-30 RCP, we forecast an uplift of an additional [redacted] workers to deliver the network program.

This document identifies and assesses the options to address the gap between the current workforce and the future workforce requirements considering the specific skillsets, qualifications and supporting resources required. The demand and associated cost implications have also been examined across labour, equipment, fleet, and property.

Quantitative modelling has shown that the current approach to resourcing the network program, while maintaining overall resourcing levels (the base case), is inadequate to deliver the 22% increase in total network capex. The modelling has shown the resource requirements can be met via an uplift in labour,

1 The non-network part of CER integration expenditure is excluded from the scope of this document.

2 Customer contributions and gifting are excluded from all expenditure considered in this document.

3 All financial figures in this document are in real June 2022 dollars and exclude corporate overheads.

4 This network expenditure uplift is based on the difference between our 2025-30 gross network expenditure proposal and the 2020-25 actuals / forecast, exclusive of network overheads.

5 Asset Management Transformation Program (**AMTP**) efficiency savings have been factored into expenditure forecasts and resource modelling. Additional labour and costs are required if AMTP does not proceed.

equipment, fleet and property to deliver the 2025-30 RCP network program, while providing a sustainable approach to meet the longer-term forecast demand beyond 2030:

- [redacted]
- [redacted]
- [redacted]

[redacted]

The primary constraint in this preferred resourcing plan is the [redacted]. All other resource types are expected to be met ahead of the 2025-30 RCP with adequate organisation planning, as they have a reduced lead time. The uplift of resources and the preferred resourcing plan has cost implications that have been modelled and quantified. It includes the additional resourcing costs in the expenditure streams of IT, other labour and services (which include field work, non-field work and support services), fleet and property.

Quantitative modelling of this resourcing plan detailing the uplift in Full-Time Equivalent (**FTE**) resources and associated cost implications, shows that this resourcing plan is realistic and achievable within the next RCP.

Table 1: Forecast of Cost Implications to meet the Resourcing Requirements for 2025-30 RCP[6]

Cost Category	Cumulative Resources Required by 2030	Associated Total Cost (Opex) across the 2025-2030 RCP	Associated Total Cost (Capex) across the 2025-2030 RCP
[redacted]	[redacted]	[redacted]	
	[redacted]	[redacted]	[redacted]
	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]

6 Dollar terms: June $2022

7 Costs build-up for this step change considers the effect of the rate of change, which is applied to the opex base year to account for changes in output growth, price growth and productivity. When calculating the expected increase in costs, we have applied the rate of change to remove any possibility of double counting. Details of the calculation method can be found in Appendix F: Operating Cost Adjustment Methodology.

3 Background: Network Program Overview and Delivery Model

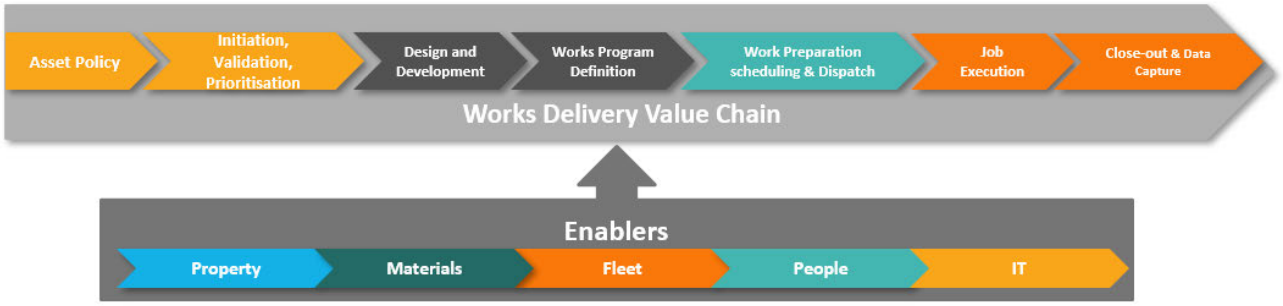
We build, maintain and upgrade the electricity distribution network assets that deliver power to around 1.7 million customers across South Australia (the distribution network). An overview of the expenditure streams within the network program have been provided below.

Table 2: Summary of Expenditure Stream descriptions

Expenditure Stream	Description
Replacement expenditure (repex)	Replacement of network assets in response to network condition – i.e. assets that need to be retired because they have either reached their end of technical life (i.e. failed) or reached the end of their economic service life (i.e. risk costs > costs of replacement).
Augmentation expenditure (augex)	Augmentation / upgrades to network assets to ensure sufficient capacity and security of the network in meeting demand, and to manage reliability and bushfire risks.
Connections	The cost of connecting customers to our distribution network.
Customer Energy Resources (CER) integration	Augmentation / upgrades to the network to enable energy exports from CER and other activities (e.g. enabling flexible customer loads, industry compliance improvement activities).

A key aspect of our ability to deliver services to our customers is our works delivery model. This is the organisational approach for progressing work through from planning to execution, to meet our regulated service obligations.

Figure 1: High-level Works Delivery Value Chain



Our ability to execute against the works delivery value chain is enabled by a number of teams involved that include (but are not limited to) Network Management[8], Field Services[9] and support functions[10].

[8] Network Management team are responsible for the process of configuring, monitoring, and managing the performance of the network.

[9] Field Services team undertakes the construction, maintenance and refurbishment activities on network assets.

[10] Support Functions include the personnel that enable the Field Services team to operate such as HR, Training, Customer Services.

Core skill types

Within these teams, there are core skill types that are required to deliver, replace and refurbish the network assets to deliver safety and reliability outcomes for customers and the community. TSW-Ps construct and maintain overhead lines and attend to faults as required, and TSW-E resources carry out the duties associated with the construction, commissioning, operating and maintenance of substations.

TSW-Powerline (TSW-P):

As the Distribution Network Service Provider (**DNSP**) in South Australia, SA Power Networks and its contractors are the sole employer of TSW-Ps and SA Power Networks is the only trainer of TSW-Ps in the state. Given the current four-year apprenticeship program associated with these specialised skills, and lead times associated with specialised equipment required to deliver works, [redacted]

TSW-Electrical (TSW-E):

SA Power Networks is an employer of TSW-E apprentices who specialise in our equipment in the last year of their respective four-year apprentice program within our organisation. Because of the specialist nature of the work and SA Power Networks being the sole employer and trainer of TSW-Ps in South Australia, [redacted] as TSW-Es have more of a general skill set [redacted], compared with the TSW-P skill type. [redacted]

Sourcing Strategy

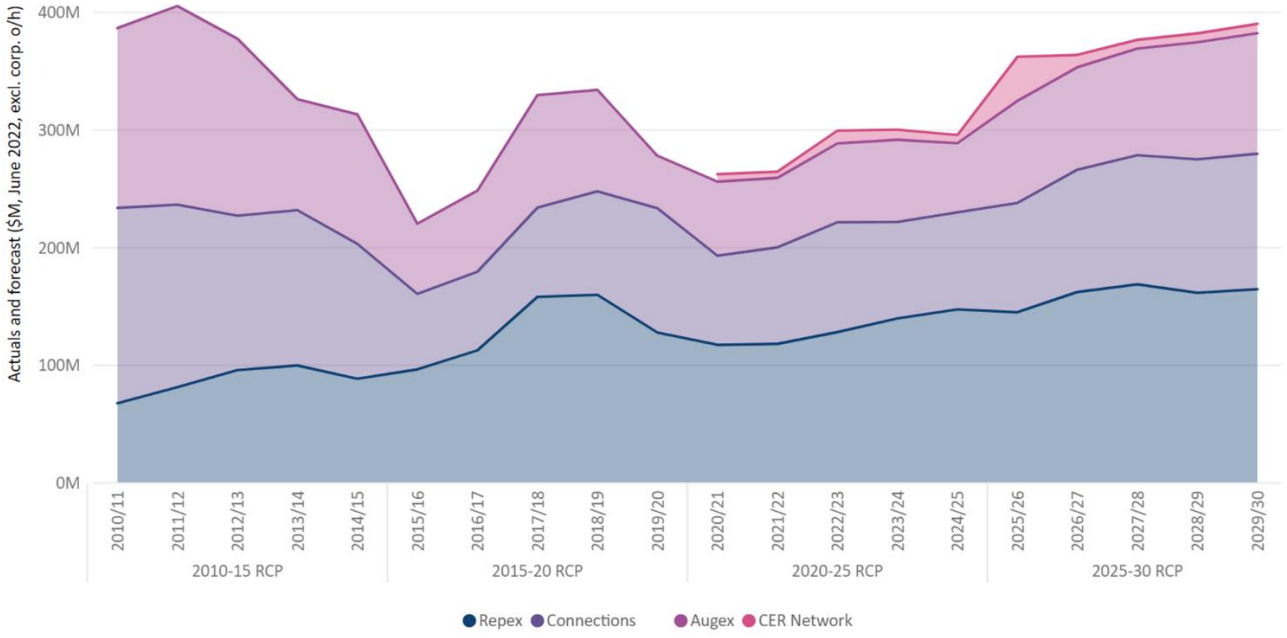
We have a highly skilled internal workforce which primarily delivers the required work, though contractors are utilised to support peak demands on internal resources. Contractors perform project works involving construction and maintenance on the network and works on customer's premises (regulated distribution services) involving alterations to the network. We have key delivery partners with established long term contractual agreements providing them with TSW-E and TSW-P resources. To ensure flexibility, the scope of works established under this sourcing strategy includes any service which can be carried out by the contractor's highly skilled workforce.

Additionally, we have agreements in place with smaller contractors who provide the balance of the necessary resources required. These are long-standing, robust arrangements that are part of the way we deliver work. The primary procurement objective is to secure suitably qualified and experienced resources to safely meet the ongoing demand while working with us to continuously improve productivity and efficiencies.

4 Current Network Program and resourcing for 2020-25 RCP

As evidenced in Figure 2, we have had investment levels in the past that were higher than the current RCP and of similar levels when competed to the 2025-30 RCP. Historically we have met and managed resourcing demands of increased network investment through our delivery model of using a mix of internal resources and service providers to ensure a resource balanced program.

Figure 2: Actual and Forecast Expenditure for 2010-30.



Deliverability Considerations for the 2020-25 Network Program

We are leveraging internal and external resources to deliver the current work program in 2020-25.

Internal Resources - Apprentices

Traditionally, TSW-Ps have been sourced through apprenticeship programs to meet our demand. With an aging demographic profile of TSW-Ps within our workforce, the apprenticeship program will continue to be a key element of our approach to resourcing the network program.

[redacted]

[redacted]

[redacted]

External Resources

Our key delivery partners have shown their commitment to contractual agreements and have worked with us to ensure that the needs of customers and the network are met. [redacted]

[redacted]

5 Proposed Network Program for 2025-30

We forecast a material increase in network capex for the 2025-30 RCP, to meet the service outcomes expected by our customers and otherwise comply with our regulatory obligations consistent with the National Electricity Rules (**NER**) and National Electricity Law (**NEL**). The identified need that these forecast increases in capex seek to address in the context of the NER and the overall justification for these expenditures is provided in respective business cases. Forecast capex for the 2025-30 RCP is an uplift of $349M[3,4] total and is a 22% increase relative to the current RCP.

This document does not seek to justify this network capex, but a summary of each key area contributing to network capex is provided in Table 3 below.

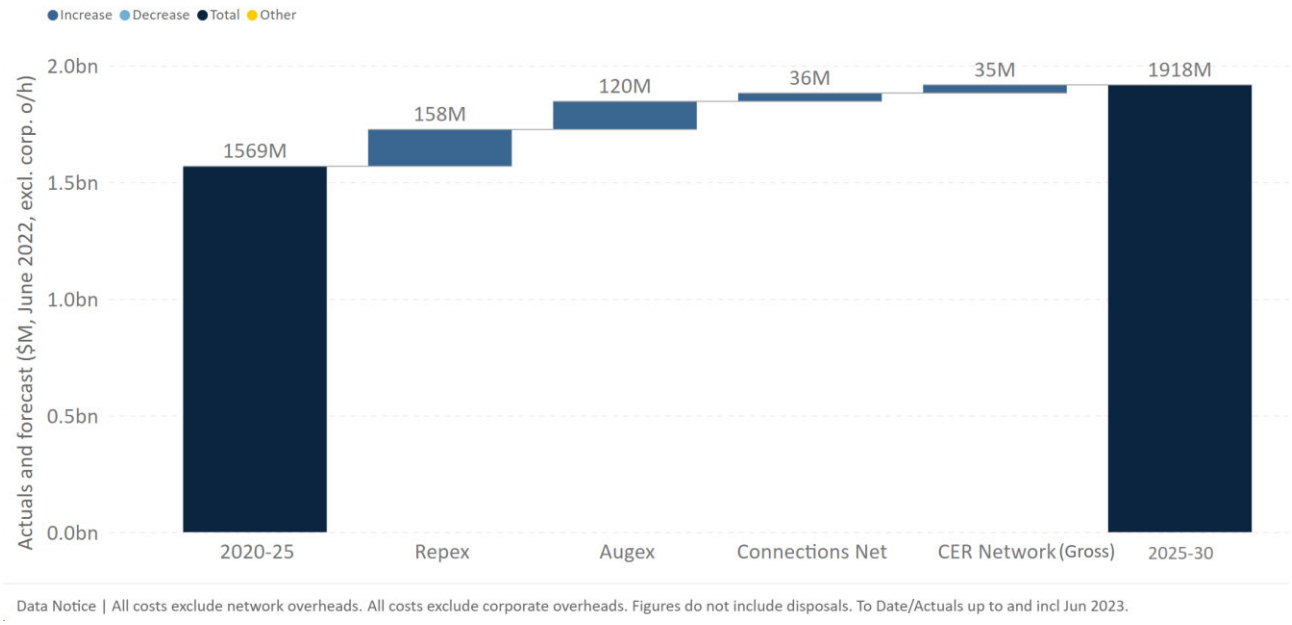
Table 3: Proposed Network Program for 2025-30 - Areas and drivers of expenditure Increase

Area	Driver of expenditure increases in 2025-30	Key supporting documents
Repex	Responding to the risk posed by deteriorating network asset condition, by increasing our replacement rate, to maintain reliability at a geographic regional level, improve reliability in the Adelaide Central Business District (**CBD**) to meet jurisdictional standards, and maintain safety in aggregate.	5.3.1 – Business case: Network asset replacement expenditure.
Augex	Key drivers include: • Capacity – meet forecast strong increases in demand, driven by increasing customer electrification by ensuring sufficient capacity in our network. • Reliability - respond to non-asset condition impacts on reliability (including flying foxes, weather and other damage causes); make targeted and optimised upgrades alongside repex to improve reliability in the Adelaide CBD; and make targeted improvements for regions and customers who repeatedly experience poor reliability performance. • Safety – upgrading network assets to mitigate the risk of our assets starting bushfires and minimising customer impacts when we must initiate public safety power shutoffs during bushfire risk times.	• 5.4.2 – Business case: Augex Capacity • 5.9.5 – Business case: Reliability Integrated Worst served Customer Improvement programs • 5.9.3 – Business case: Maintain Underlying Reliability Performance • 5.6.1 – Business case: Bushfire Risk Management • 5.3.12 - CBD Reliability Improvement
CER integration (network component)	Meet and manage expected demand for export services by increasing network hosting capacity to provide efficient service levels expected by customers, and investing in new capabilities to flexibly manage network loads (non-export related).	5.7.4 - CER Integration business case
Connections	Meet forecast connections to comply with our obligations – with a rebound in residential activity pushing up minor and Underground Residential Distribution (**URD**) connections, further growth in medium connections and a large increase in major customer connections.	5.5.1 – connections justification document

A summary of the associated expenditure forecasts for the 2025-30 RCP is shown in

Figure 3.

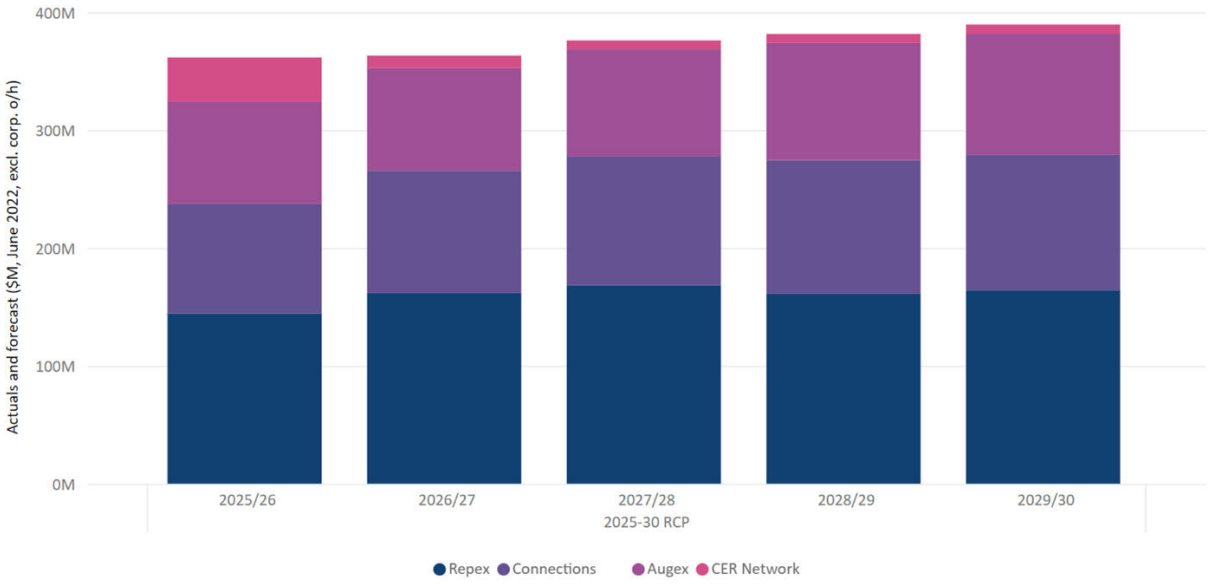
Figure 3: Forecast capex for 2025-2030 (compared with 2020-2025 actual capex) for the in-scope categories of Network Program.



The 2025-30 forecast capex includes the AMTP efficiency savings.

Cumulatively, these items contribute to a forecast steady increase in network capex, over 2025-30.

Figure 4: Forecast network capital expenditure for the network program 2025-30 RCP



Further, beyond 2030 our expectation is that the demand for network work and network expenditure is likely to continue to significantly increase relative to the levels we are forecasting for 2025-30. This is particularly in relation to the following:

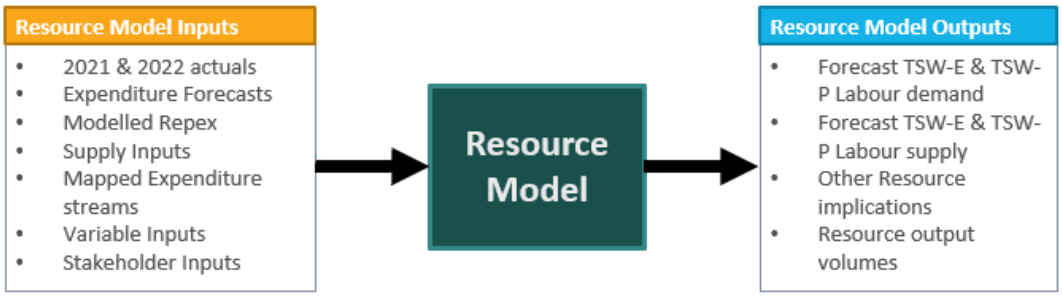
- network repex – where our repex risk forecasts indicate a continued need to sustain higher levels of repex to respond efficiently to the deteriorating condition of our network assets in order to maintain reliability and safety; and
- network augex – where based on the Australian Energy Market Operator's (**AEMO**) demand forecasts for South Australia, we expect continued elevated expenditure on capacity upgrades to meet and manage demand on our network to avoid constraints, particularly due to increased electrification.

6 Resource Requirements for 2025-30

To understand our resource requirements for 2025-30, a quantitative Resource Model was developed. This model was developed based on a bottom-up approach to analysing forecast work to translate our expenditure forecasts into labour hours required.

The modelling brings together a comprehensive set of inputs and considerations, including: expenditure forecasts[5], 2021 and 2022 actual expenditure, modelled repex (refer to Appendix B: Resource and Cost Model Methodology), supply inputs, mapped expenditures streams and inputs from our subject matter experts (SMEs). All these inputs were used to provide the expected resource demand and validate this against historical performance. A simplified methodology is shown below, with further detail provided in Appendix B: Resource and Cost Model Methodology.

Figure 5: Simplified Resource Model Methodology Block Diagram



[redacted]

Key resource considerations across the works delivery value chain to ensure deliverability of the network program for 2025-30 RCP are included in Table 4.

Table 4: Key resource descriptions across the works delivery value chain

Cost Category	Description	Supporting Document
Labour	Labour resources to be considered are both field-based labour, including TSW, General Skilled Worker (GSW), Operations Supervisors and office-based workers and/or support staff such as Switching Writer / Controller, Designer, Works Planners, Fleet Workshop, and Trainers.	N/A: contained within this document
Fleet	Fleet resources are vehicles that enable support crews and work types to execute work such as Elevated Work Platform (EWP) vehicles, civil construction vehicles and other light vehicles.	5.10.1 Fleet expenditure business case
Property	Property covers depots, including desks and toilet facilities; carparking and storage for fleet; and warehouses for storage of materials.	5.11.7 Property Recurrent Spend Program business case
IT support	IT currently provide support for human resources, across the value chain, and for fleet where vehicles are enabled with IT equipment.	5.12.1 IT Investment Plan 2025-30

All detailed resource implications are captured in Appendix E: Resource Model Demand Outputs.

The resource implications on Labour, Fleet, Property and IT support are summarised below at a high level.

Resource Uplift Implications

Labour

[redacted] such as human resources, customer services, trainer resources and health and safety. All works delivery and support services roles are a proportional uplift of [redacted] 2021 and 2022 actual hours were used to model the uplift in demand which took into account utilisation rates, overtime, hours worked per year and contracted labour. Works delivery and support services roles have been rounded

up to 1 x FTE if the role requirement is greater than 0.33 of an FTE as this workload would be unable to be addressed though within the existing workforce.

Fleet

A resource uplift will increase the demand on fleet to support crews and work types. The uplift in fleet has been based on current vehicles to support crew and work type fleet ratios, for example: for [redacted] It was assumed based on business-as-usual practices that works delivery roles outside of these listed roles, utilise "pool" vehicles which can be absorbed by the business due to the nature of their work. Apprentice TSW-Es and apprentice TSW-Ps roles do not require additional vehicles as the current fleet is sized appropriately to enable the provision of apprentices to be supervised in the field. Contractor equipment supply and demand have been excluded from this analysis as they provide their own equipment to deliver the work. As per our organisation sourcing strategy, contractors perform project works involving construction and maintenance on the Network and works on customers' premises involving alterations to the Network.

Property

Property requirements increase to account for an increased workforce, fleet and materials. While there is no need for new depots, training centre or warehouses, there will be additional office space required to house additional personnel. Additional workstations are planned to be created through the reconfiguration of existing arrangements to increase capacity within existing depots.

IT Support

A resource uplift will increase the demand in IT hardware and software accessed both in the field and the office. There will be an associated increase in the workforce that supports these systems. IT required to deliver the work includes the support for office IT users, ongoing IT charges and enabling vehicles with IT equipment. The uplift in IT for employee enablement and vehicle enablement are based on the proportionate demand for employees at a rate that is consistent with historical averages.

In summary, by 2030, we estimate the below total resources required across the 2025-30 RCP to support deliverability of the network program.

Table 5: Forecast of Cumulative Demand to meet the Resourcing Requirements at 2030 (end of 2025-30 RCP)

Cost Category	Resources Required
Frontline Labour	[redacted]
Support Labour	[redacted]
Fleet	[redacted]
Property	Office space to house additional FTEs
IT	Associated IT Hardware and Software to enable human and fleet resources

7 Resourcing Options for the 2025-30 RCP Network Program

Options were developed to analyse strategies to meet the projected demand. A structured approach was taken to prioritise the primary constraints and delivery considerations. The primary constraints were those that had the longest lead times and planning requirements to address the required uplift. These constraints are related to the talent pool and skill types to address the preferred resourcing strategy (option 2).

Resourcing Options to meet Demand Requirements

In determining the optimal response to meeting resource demands, the following options to alleviate constraints were considered with the aim of identifying a preferred option that is sustainable and considers the likely long-term uplift in network field work.

Table 6: Summary of Resourcing Options considered

No	Resourcing Option	Description
N/A	Base Case	Maintain current organisational approach to resourcing the network program while maintaining overall resourcing levels; including assumptions on attrition, retention, and transfers between roles.
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]

Our resourcing plan has examined the constraints to an uplift across the entire works delivery value chain, to identify the opportunities and a preferred option to meet network demand. This includes labour, fleet, property and materials across works planning, preparation and execution, based in the head office and field-based resources located in depots across the state. The focus has been on alleviating the primary constraint of the [redacted] requirement.

We have also explored the following additional levers, which were not selected as part of the preferred resourcing plan as it was evident from the resourcing outputs in the section below, they didn't need to be explored:

- [redacted]
- [redacted]
- [redacted]

Resource Modelling Outcomes

Quantitative modelling was undertaken to analyse forecast resourcing options against resources demanded, with a focus on [redacted] (see Figure 7).

[redacted]

[redacted]

[redacted]

[11] The orange supply line represents Option 1, and provides the quantitative input for Option 2.

[redacted]

While additional resources are needed, there is not a steep incline, and we can meet this through maximising [redacted]

[redacted]

Preferred Resourcing Plan

[redacted] as it will have minimal impact on existing business operations, and it is the only option that meets the shortfall against demand.

[redacted] – as discussed earlier in this document, we expect the demand for network work to continue to increase for the foreseeable future.

[redacted]

[redacted]. The additional options explored further demonstrate the prudency of this preferred resourcing option.

Further options have not needed to be exercised, as the required demand can be met through this lower risk and complexity option. Given that this quantitative outcome demonstrates that the [redacted] can be alleviated through this resourcing plan, then all other resource implications can be met ahead of the 2025-30 RCP, with adequate organisational planning. This is because [redacted] Other constraints can be alleviated with adequate planning ahead of the RCP.

8 Additional Resourcing Expenditure

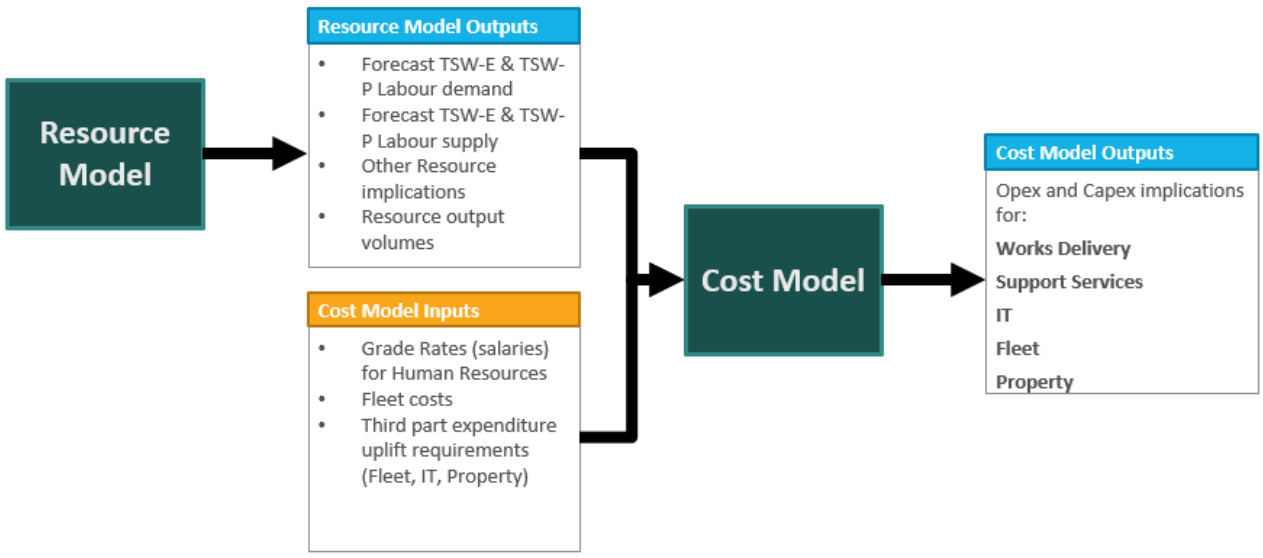
A cost model was developed to identify the associated costs based on historical costs and outputs projected from the resource model[5]. These additional costs are captured in the business cases supporting each respective expenditure area of the Regulatory Proposal. Costs were tested internally and based on historical figures. Where possible and relevant, costs were based on actual orders and real market costs (fleet costs). The assumption of averaging the costs of actual enterprise agreement salary bands (for resources) was taken so that the associated costs represent a conservative position. As a result, we consider that these costs are reasonable due to the rigorous internal and external validations completed.

Overview of Methodology and Key Assumptions

The Cost Model determines the associated cost implications based on historical costs and outputs projected from the Resource Model. It includes the additional resourcing costs in the areas of IT, Other Labour, Fleet and Property. Only additional costs outside of what is already included in the total network expenditure forecasts are represented within the cost model to ensure no costs are duplicated.

The modelling brings together a comprehensive set of inputs and considerations. A simplified methodology is shown below, with further detail provided in Appendix B: Resource and Cost Model Methodology.

Figure 8: Simplified Cost Model Methodology Block Diagram



The assumptions were obtained from the respective Field Services, Network, IT, Supply, Training and Property Groups within SA Power Networks and include;

- All work planned for the current RCP (2021-25) is assumed to be completed.

- [redacted]
- All Works Delivery and Support Services roles are a proportional uplift relative to their associated drivers of TSW-resources FTE, Total FTE or overall expenditure.

The full list of assumptions can be found in Appendix C: Cost Model General Assumptions.

Cost Basis and Cost Implications

All detailed cost implications are captured in Appendix D: Cost Model Estimates, with a high-level summary provided below.

Other Labour

Cost Basis

The labour cost implications are categorised as Works Delivery or Support Services roles:

- Works delivery labour resources refers to roles that are delivered by the Field Services (including TSWs), Planning, Design and Fleet Workshop teams.
- Support Services labour resources refers to roles that are delivered by the IT, HR, Customer, Training and Health, Safety and Environment teams.

Cost Implications

A large proportion of the Works Delivery roles have already been included in total network expenditure forecasts excluding those resources that fit within the resource and fleet teams. IT staff are also already included in total network expenditure forecasts.

All remaining roles that have not already been accounted for, will have opex cost implications[7] associated with the increase in FTE required and the historical salary of the role type. Agreed and actual enterprise agreements salary estimates were utilised and considered a conservative assumption based on historical salary ranges for resource uplift calculations. Contractors' uplift expenditure is not included as they are accounted for under relevant project costs.

Fleet

Cost Basis

The fleet portfolio is made up of the following key items:

- 4x4 light vehicle
- Commercial truck
- Commercial vans
- Cranes
- EWP 4x4
- Forklift
- Passenger Wagons 4x4

Each vehicle is used to enable and facilitate specific roles. No cranes or forklifts are required as no new depots are required.

Cost Implications

Fleet running costs were based on 2021 actuals to develop running costs (maintenance and fuel) for all fleet types and the fleet cost profile is conservative as it follows a consistent profile with June 2022 data. However, fleet operating costs are already allowed for within existing total network expenditure forecasts, resulting in these costs being excluded from estimates.

There will be additional capex implications for procurement of fleet, which will be incurred in the same year that new FTE are required for the resourcing plan. The procurement fleet costs were based on current market rates. Contractor equipment supply and demand is excluded from this estimate.

Property

Cost Basis

The property portfolio is made up of the following key items:

- Depots, warehousing and carparking

Cost Implications

The associated property cost implications are based on the required configuration and office layout changes within existing offices to accommodate for the human resource uplift. No further property uplift is required.

There are no Opex costs for property as there are no new depot operations required.
Capex costs for the additional office space will be incurred in the same year that new FTE are required for the resourcing plan. [redacted]

IT Support

Cost Basis

A conservative assumption has been applied for IT Support in line with historical data:

- 50% of users require general IT access
- 50% of users require advanced access

Cost Implications

Opex costs[7] for additional IT charges will be incurred in the same year that new FTE are required for the resourcing plan. Associated ongoing IT costs was determined through the consistent application of client device costs across all field FTE and non-field FTE respectively.

Capex costs for the additional hardware for personnel and enablement of vehicles will be incurred in the same year that new FTE and Fleet are required for the resourcing plan.

In summary, by 2030, we estimate the below total Opex and Capex requirements across the 2025-2030 RCP to support deliverability of the network program.

These costs are associated with the preferred option (Option 2) as it is the only option that addresses the identified need (shortfall against demand) and it maintains the acceptable level of risk (as described in Section 7 Resourcing Options for the 2025-30 RCP Network Program).

[redacted]

[12] Dollar terms: June 2022

Appendix A: Resource and Cost Model Basis of assumptions

The main assumptions considered for understanding Resource demand implications include:

- there are no regional demand considerations, and all demand can be met without geographical constraints;
- lead times for uplifting resources were provided via relevant SMEs in SA Power Networks.
- skilled resources to meet demand require SA Power Networks training facilities irrespective of resourcing strategy;
- the assessment of Works Delivery Resources assumes that the Customer Notification System (CNS) replacement project proceeds and subsequently no additional resources have been provisioned to undertake this function; and
- all third and fourth year apprentice booked hours were considered productive.

Table 11: Demand for Labour Resources

Resource	Description	Demand
Trade Skilled Worker - Powerline (TSW-P)	TSW-Ps are responsible for the execution of powerline work in the field. TSW-P's work in crews of at least two, are stationed at a depot, and are a key component of SA Power Networks' Field workforce.	TSW-Ps are demanded in accordance with the type of work forecast. For repex, work is typically categorised by asset class and type of replacement (e.g. reactive or proactive). An average labour hours needed to complete the work has been used to determine the TSW-Ps demanded.
Trade Skilled Worker – Electrical (TSW-E)	TSW-E resources carry out the duties associated with the construction, commissioning, operating and maintenance of transmission and distribution substations.	TSW-Es are demanded in accordance with the type of work forecast.
Apprentices	Apprentices are taken on to fill the pipeline for TSW-Ps and TSW-Es.	Apprentices are demanded to fill the TSW-P and TSW-E pipeline, with an assumed four-year lead time.
General Skilled Worker (GSW)	GSWs are non-trade qualified field resources that complete ancillary civil works necessary for the completion of powerline work (for example, trench cutting and cable laying for cable work)	GSWs are typically sourced through contractors, such as Enerven and Electel. The demand on GSW is assumed to be constant, and represent that which has been demanded historically.
Operations Supervisors	Operations supervisors oversee work in the field.	Operations supervisors are demanded at 1 FTE / Depot. No demand if there are no additional depots required.
Switching Writer / Controller	Switching writers and switching controllers are office based staff that plan (writers) and execute in coordination with the field (controllers) switching programs to enable the safe delivery of field work.	Switching writers and controllers are demanded proportionate to planned expenditure. This skillset roles has historically attracted TSWs seeking to transition to office roles, placing pressure on the TSW resources.
Drafters / Designer	Design and drafting works are commonly undertaken 12 months in advance of works delivery	Designers are demanded proportionate to planned expenditure.
Fleet Workshop	Resources in the fleet workshop are responsible for the maintenance and upkeep of the business' fleet of vehicles	Fleet Workshop staff are demanded in relationship to the number of TSW-Ps, i.e. at a rate of 0.04 FTE / TSW-P FTE.
Trainers	Trainers are responsible for the upskilling and accreditation of the workforce in the training centre	Trainers are demanded in relationship to the number of TSWs, i.e. at a rate of 0.12 FTE / TSW FTE. Trainers and apprentice support have a demand at a rate of 0.01 FTE / TSW FTE.

Table 12: Demand for Fleet Resources

Resource	Description	Demand
Elevated Work Platform (EWP) vehicles	Work at heights vehicle, for example, vehicles required by TSW-Ps to undertake works on poles.	[redacted]
Civil construction vehicles	Fleet machinery used to complete civil tasks, for example, cranes and forklifts.	[redacted]
Other light vehicles	Light vehicles, for example, utilities, are used by supervisors or team members to attend jobs and carry small amounts of materials or equipment.	[redacted]

Table 13: Demand for Property Resources

Resource	Description	Demand
Depots	For both metro and regional depots, there is a variety of facilities available, including different configurations of desks and toilets.	Nil: captured within the base case.
Training centres	The training centre is owned and maintained by SA Power Networks.	Nil: captured within the base case.
Additional Office Space	Office space is required to house SA Power Networks employees.	[redacted]
Warehouses	The SA Power Network warehouse provides storage for current inventory and input materials.	Nil: captured within the base case.
Car parking	Spaces at depots and other SA Power Network owned sites to accommodate staff vehicles and fleet.	Nil: captured within the base case.

Table 14: Demand for Materials

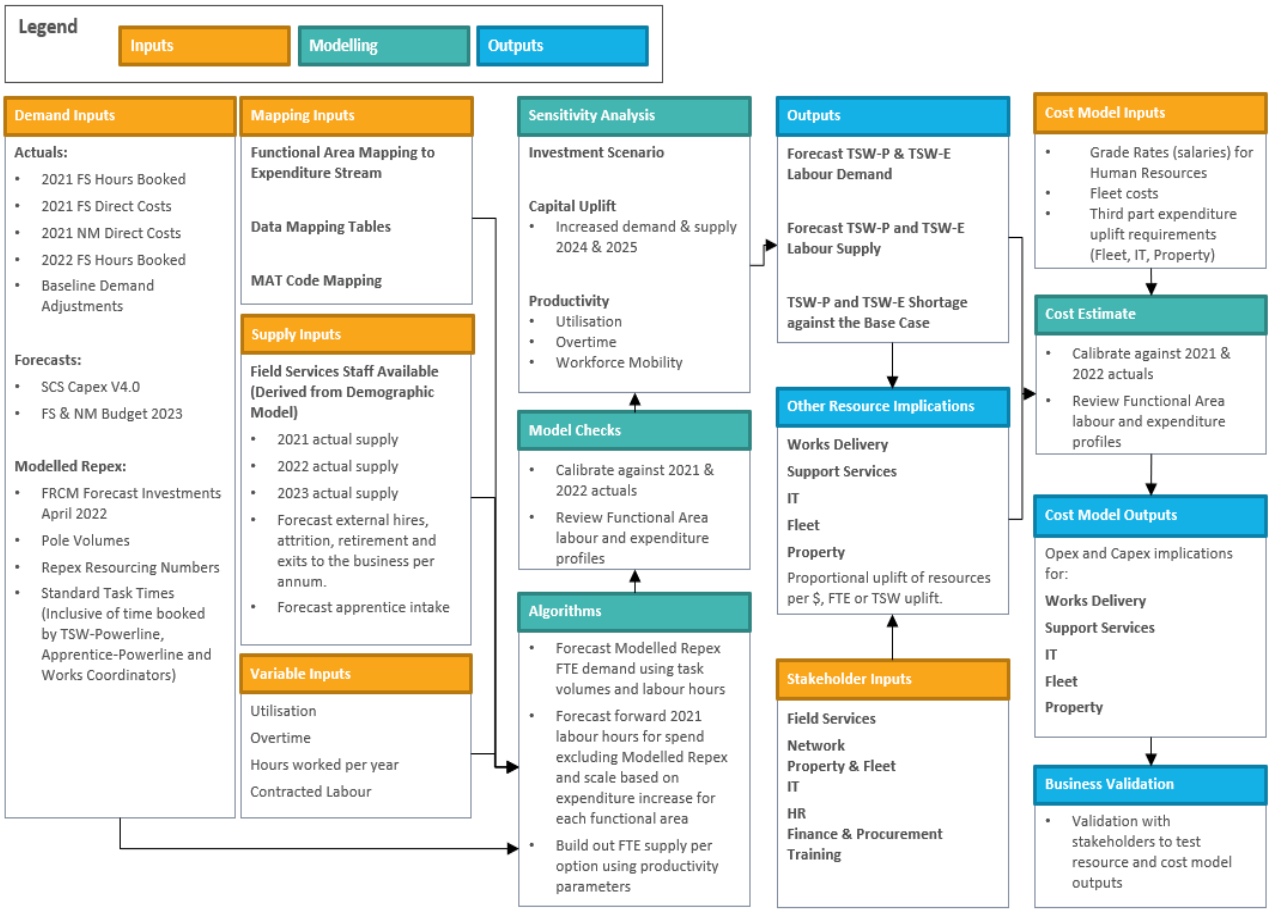
Resource	Description	Demand
Input materials	Inventory and input materials, including cables, overhead conductors and poles, which are required for delivery of field works.	Materials for Transformers, OH conductors and cables will be the highest demanded in the repex uplift. Inventory demand is expected to increase through the Angle Park Warehouse and most depots, but is able to be managed within existing facilities and organisational processes.

Table 15: Demand for IT Resources

Resource	Description	Demand
Employee enablement	IT purchase and ongoing support for: Field Employee Office IT User Office Advanced IT User	Proportionate demand for employees at a rate that is consistent with historical averages.
Vehicle enablement	Vehicle enablement with IT equipment for: Heavy vehicles Light vehicles Regional vehicles	Proportionate demand for vehicle enablement at a rate that is consistent with historical averages.

Appendix B: Resource and Cost Model Methodology

Figure 9: Resource and Cost Model Methodology



Appendix C: Cost Model General Assumptions

Table 16: Cost Model General Assumptions

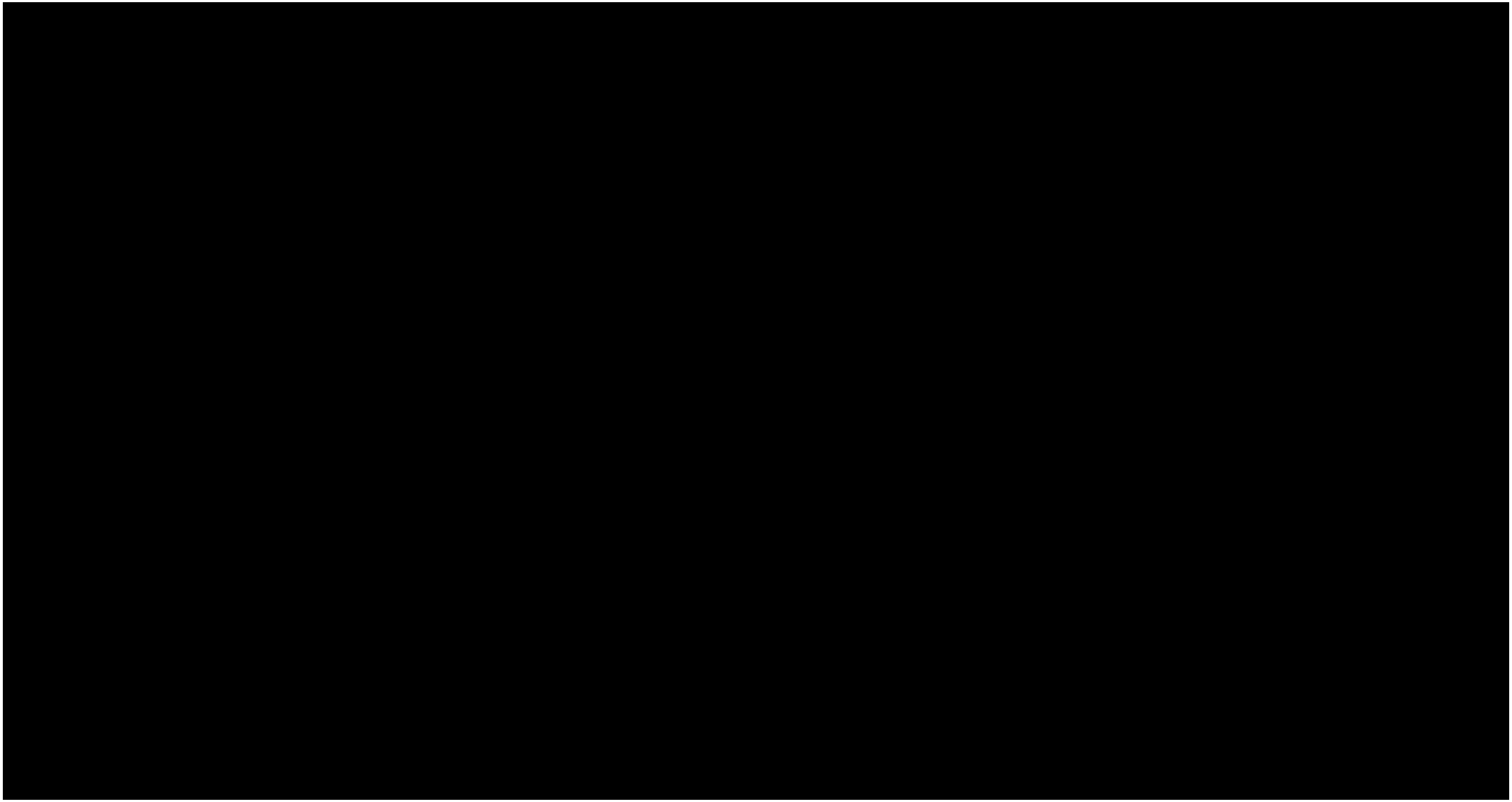
Reference:	Assumptions:	
1	Network Totex uplift estimate	All Network work for current regulatory period (2021-25) is assumed to be completed.
2	Network Totex forecasts	The Network Totex Forecast has been based on our SCS Capex proposal and Opex & ACS 2023 Budget.
3	Apprentices	The TSW apprentice count is based on maximising apprentices within existing training centres. 2022 Headcount numbers for apprentice TSW-P and TSW-E Resource Numbers are based on total number of 1st to 4th year apprentices.
4	TSW Costs	[redacted]
5	TSW Costs	TSW exhibit utilisation consistent with historical data; non-utilised TSW labour costs are not included within Network Totex forecast
6	Role implications	Works Delivery and Support Services roles are a proportional uplift, based on $/FTE, FTE/TSW or FTE/ uplifted FTE. This workbook captures the cost implications, with the resource calculations completed in the "Network Totex Uplift Resource Model"
7	Role implications	Works Delivery and Support Services roles have been rounded up to 1 x full time equivalent (FTE) count if the role requirement is >0.33 of an FTE
8	Recruitment costs	Recruitment costs are applicable for SA Power Networks HR team for in-house recruiting. Estimates do not include recruitment system/ app, LinkedIn licenses, etc which remain the same regardless of intake, i.e. expected to be unchanged.
9	Acquisition Costs	All acquisition costs for fleet to be captured within regulatory period (i.e. no amortisation or depreciation outside regulatory period).
10	Fleet Profile	Vehicle cost profile follows consistent profile with June 2022 data.
11	Fleet Profile	Contractor equipment supply and demand is excluded from this estimate.
12	Property Portfolio	Existing property portfolio including depots, carparking and warehousing to implement optimisation of staffing and warehousing to facilitate localised uplift in FTE without requiring refurbishment. No further property uplift is required.
13	Overheads	Existing corporate overheads redistribution excluded (including any uplift to insurances and utilities).
14	Costings	All costs in June 2022 dollars.
15	Works Coordinator	Works Coordinator are sourced from TSW-Powerline and TSW-Electrical workers when they transfer from the field to the Works Coordinator FTE.
16	Role Transfers	TSW internal role transfers to Works Coordinator, Switching Writer, Switching Controller, Trainers and Internal and Apprentice Support will require an uplift in IT equipment.
17	Dedicated Vehicles and Pool Vehicles	The following Work Delivery Roles require additional dedicated vehicles: - TSW Powerline - TSW Electrical - Works Coordinator Generally, Works Delivery roles outside of these listed roles utilise "pool" vehicles which can be absorbed by the business due to the nature of their work.

18	Apprentice Vehicles	Apprentice Electrical and Apprentice Powerline FTE types do not require additional vehicles due as the fleet is sized appropriately to enable the provision of apprentices to be supervised in the field.
19	2025-30 RCP Reference Head Count	Headcount entering 2025-30 RCP period (i.e. year 2025 Headcount) is the reference point in relation to additional Capital Expenditure estimates. For Operational expenditure estimates, a base step year of 2023 has been used as the reference point. Both input headcounts are provided in the “I-Resource_Model” tab.

Appendix D: Cost Model Estimates

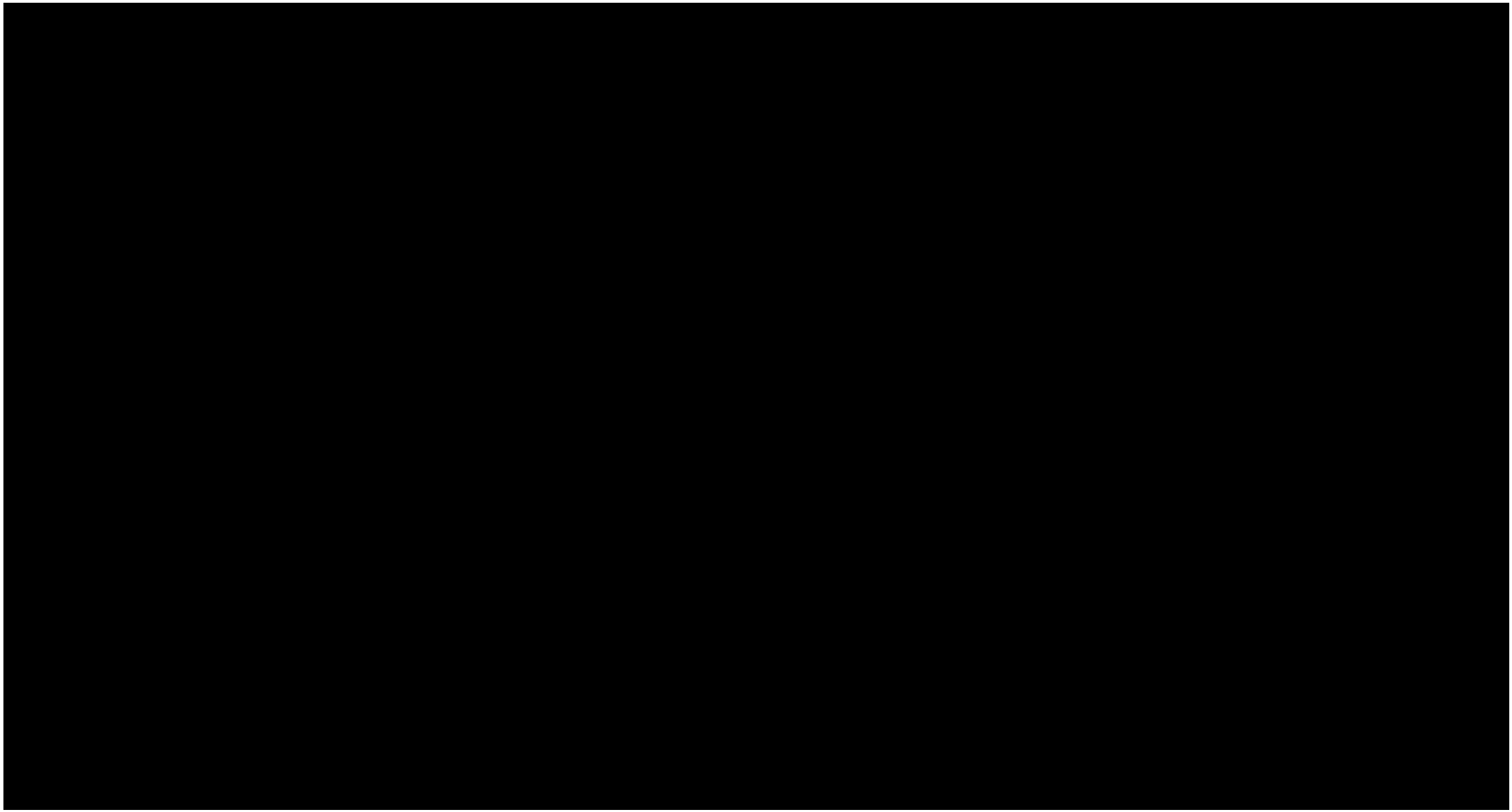
Table Data supplied from Cost Model V4.2 (2023.05.15)

Full Regulatory Period Per Annum Uplift (OPEX)



Full Regulatory Period Per Annum Uplift (CAPEX)

Sourced from Cost Model V4.2 (2023.05.15)



Full Regulatory Period Per Annum Uplift (CAPEX and OPEX Totals)

Sourced from Cost Model V4.2 (2023.05.15)

Figure 12: Full Regulatory Period Per Annum Uplift (CAPEX and OPEX[7] Totals)

	2026	2027	2028	2029	2030	Total Cost
Total Opex	$ 3,124,259	$ 2,666,793	$ 3,418,585	$ 3,185,137	$ 3,505,505	$ 15,900,279
Total Capex	$ 8,569,037	$ 596,269	$ 6,743,455	$ 4,690,325	$ 3,221,555	$ 23,820,641
Total Spend	**$ 11,693,296**	**$ 3,263,061**	**$ 10,162,039**	**$ 7,875,462**	**$ 6,727,061**	**$ 39,720,920**

AMTP efficiency benefits integrated into Cost Model Estimates (CAPEX and OPEX Totals)

Sourced from Cost Model V4.2 (2023.05.15)

Figure 13: AMTP Efficiency Integrated into Cost Model Estimates (CAPEX and OPEX Totals[6])

	2026	2027	2028	2029	2030	Total Cost
Total Opex	-$ 146,876	-$ 878,292	-$ 1,064,682	-$ 1,091,691	-$ 1,188,839	-$ 4,370,379
Total Capex	-$ 1,591,957	-$ 4,152,509	-$ 2,154,177	$ 31,230	-$ 588,836	-$ 8,456,249
Total Spend	**-$ 1,738,833**	**-$ 5,030,801**	**-$ 3,218,859**	**-$ 1,060,460**	**-$ 1,777,675**	**-$ 12,826,628**

Appendix E: Resource Model Demand Outputs

The cumulative demand for each of these resources is captured in the following tables. Sourced from Cost Model V4.2 (2023.05.15)

Appendix F: Operating Cost Adjustment Methodology

We applied a 'base-trend-step' approach in determining our cost build-up for the opex step change associated with delivering the network program for 2025-30 to ensure there is no double counting of costs.

For the base year component, we identified the existing resources which directly relate to, and scale with, enabling the delivery of the network investment programs. The related resources as at the start of 2023 has been used to determine a 'base year' expenditure as actual headcount has not been realised for the 2023/24 period[14]. These resources have been applied to the cost model to calculate a baseline operating cost on the same basis and dimensions as the increased resourcing requirement; this ensures a consistent base of comparison.

We then applied the 'rate of change' as calculated in the opex model to this baseline expenditure to determine the trend allowance as afforded through the base-trend-step methodology of the opex forecast.

Finally, we removed this trend allowance from the opex uplift calculated in the Network Uplift cost model.

This approach is demonstrated in Table 22.

[14] 2023/24 is the base year used in the opex forecast.

[15] From opex model.