Attachment 8.06

Network capital delivery plan

31 January 2023

PowerWater

Contents

Abbreviations

The following table provides a list of abbreviations and acronyms used throughout this document. Defined terms are identified in this document by capitals.

Term	Definition
D&C	Design and Construct
DNSP	Distribution Network Service Provider
ECI	Early Contractor Involvement
HV	High voltage
ICT	Information and Communications Technology
MGAF	Management Governance and Assurance Framework
NER	National Electricity Rules
NT	Northern Territory
PIDF	Project Investment Delivery Framework
SCS	Standard Control Services

Overview

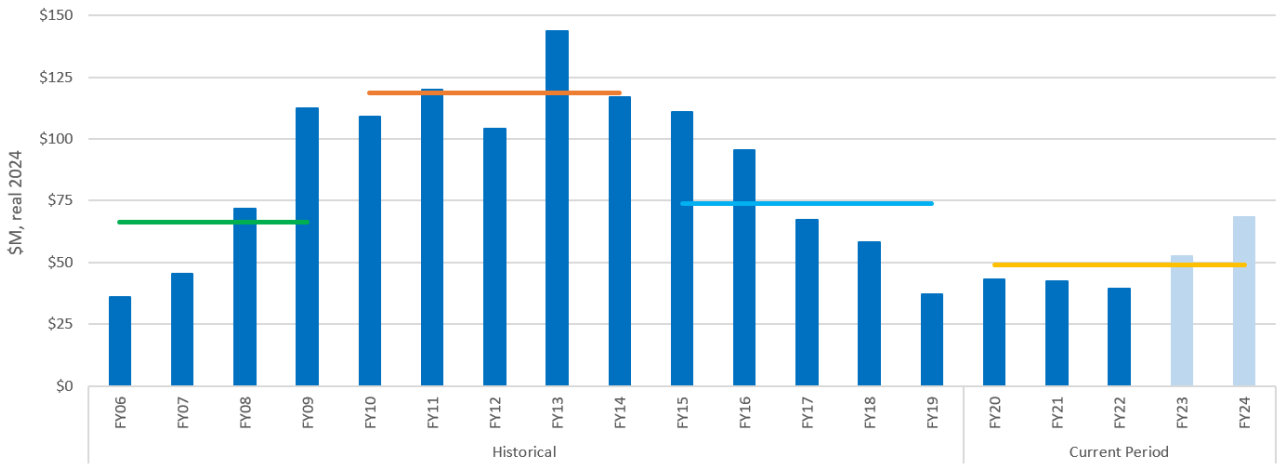
The Network Capital Delivery Plan outlines Power and Water's strategy and approach for network capital delivery with a focus on the 2024-29 regulatory period. Power and Water will continue to ensure the right capacity and capability is available to deliver a prudent and efficient capital program

In the current period, capital delivery has been impacted by a range of exogenous factors. This has resulted in a change to the composition and profile of the capital program compared with historical spend, and that has required adoption of new procurement and delivery methods.

Power and Water consider that the changes made to the delivery methods represent a responsible and measured approach to strengthen delivery capability for the remainder of the current regulatory period. The delivery rates currently being achieved are more representative of a sustainable level. The implementation of the works delivery framework and supporting initiatives that have commenced will provide a higher degree of scalability and flexibility allowing the business to pivot, if and as required, to meet the needs of and rapidly evolving and less certain future. During the next period, enhanced delivery capability will assist facilitate a major transition to renewables in the Northern Territory (**NT**) electricity system.

Power and Water has a demonstrated capability to deliver significant network capital work programs despite its relatively small workforce and limited supporting local industry, as can be seen in the figure below. This capability is underpinned by its Project Investment Delivery Framework (**PIDF**) that focuses on prudent advanced planning and development, efficient delivery, with sound management oversight. Within this framework, delivery strategies are developed, including novel contracting methods, to augment local internal and external capacity and successfully deliver across the capital investment portfolio.

Figure OV.1: Historical network capital expenditure ($ million real 2024)



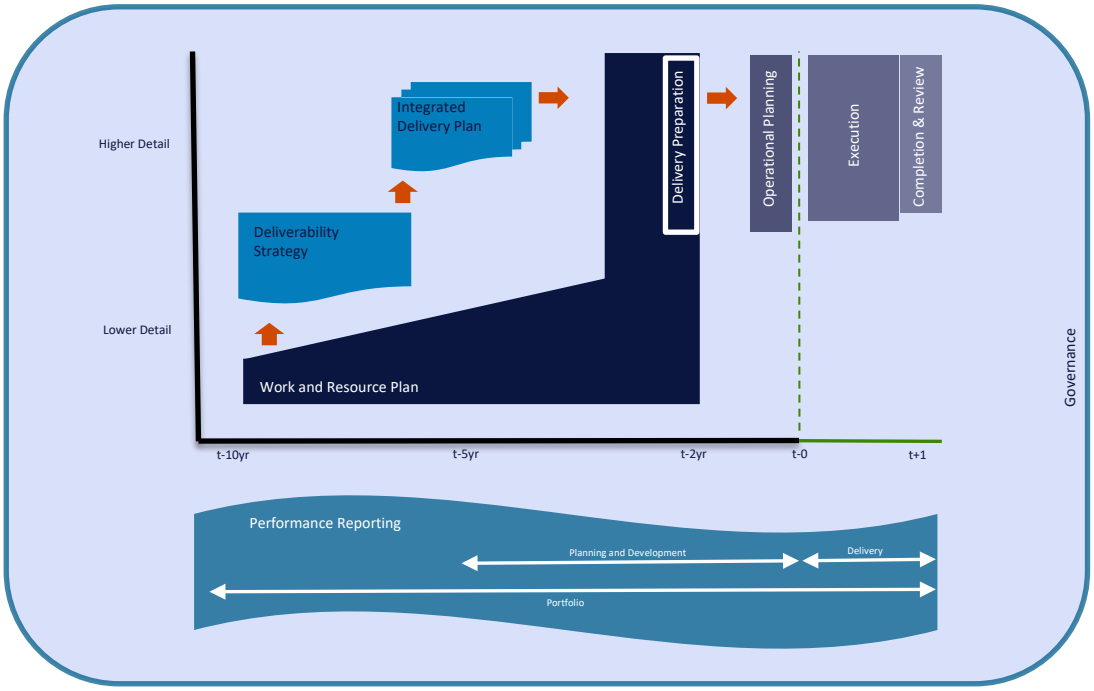
The peak of network capital delivery corresponded with a major rebuild of parts of the electricity network in response to an external review, and which followed widespread outages. During this time Power and Water delivered a large number of major projects. The previous regulatory control period[1] (2014-19) saw a steady reduction in the need for capital expenditure before returning to a more sustainable level in the current regulatory control period (2019-24). During the current period, Power and Water faced a number of additional and compounding challenges including an increasing need for the connection of large scale inverter-based technology, staffing constraints, management churn and significant disruption due to the evolving regulatory and market development environment in the Northern Territory. These challenges resulted in a significant draw on staff that would have otherwise been focussed on capital planning and delivery and as a result, there has been a delay in the return to these sustainable expenditure levels.

In response to these challenges, Power and Water has implemented a number of actions to remediate organisational focus and capability and enhance the current deliverability capability towards improved longer term resource planning, performance reporting and governance. This enhanced delivery approach will aid the development of more agile solutions to ensure delivery of the next regulatory control period forecast program and establish mechanisms to scale deliverability capacity as needed. These features are important to ensure successful delivery in the Northern Territory operating environment that is characterised by a modest capital investment program that is easily distorted by a small number of moderate sized projects, has limited internal resources and local supporting industry, and has a growing number of demands competing for these resources.

The enhanced delivery approach being developed by Power and Water is summarised in the long-term delivery framework shown below.

[1] Regulated by the Utilities Commission

Figure OV.2: Long-term works delivery framework



While components of this framework are currently operational within Power and Water, actions are in place to extend existing processes, such as Integrated Works Management initiative that will deliver the extended the Works and Resource Plan, improved delivery reporting and revisited governance structures for more timely and sound management oversight. A Target Operating Model has been established, which will streamline many aspects of Power and Water's business. Implementing this is a long-term staged process. Improvements in works planning and management rely strongly on the success of this program, its associated program according to the current timetable.

Taken together, Power and Water's previous delivery performance, actions to resolve current issues and its approach to enhance future capability demonstrate that the 2024-29 forecast capital works program is deliverable.

1. Scope and structure

1.1 Purpose

The focus of this document is to outline the delivery plan to ensure capacity and capability is available to deliver the long-term capital works plan effectively and efficiently. This is referred to as 'program deliverability'.

To demonstrate program deliverability, the operational context of the business together with the forward works and resource plan must be clear. This document provides an operational outline, performance assessment, initial modelling and other broader details to understand the context that the delivery must occur within.

1.2 Scope

This document considers the capital works program associated with delivering regulated Standard Control Services (**SCS**) for network capital expenditure.[2] The current version focusses on the period to the end of the next regulatory control period, 2029.

As the business and governance matures, it is intended that the strategy and plan will extend to consider an ongoing ten year outlook, and grow to include non-regulated network capital expenditure and the suite of system operational and maintenance activities.

The document is not intended to cover resource strategies related to the delivery of non-network expenditure including on Information and Communications Technology (**ICT**), property and other business support functions.

1.3 Structure of this document

This delivery strategy is made up of the following sections:

- Section 2 outlines Power and Water's investment governance framework and other key models that support the prudent and efficient long-term planning, development and delivery of the capital program.
- Section 3 provides a brief review of Power and Water's historic capital delivery performance, highlighting some of the challenges faced in its rapidly changing environment, and how the business has recognised, adapted and is planning to further improve deliverability performance into a less certain future.
- Section 4 discusses the future delivery outlook and introduces Power and Water's resource modelling approach. A key consideration of any delivery plan is the local NT context, including staffing needs operating within some truly remote regional and extreme areas (both from a local and national perspective), a predominately broad-skilled internal workforce and, the small local industry that has limits on providing direct (contracted) support and otherwise limits the available local pool of potential staff and resources to draw from.

[2] Also referred to as system capital expenditure, comprising work on the electricity transmission and distribution network (or system)

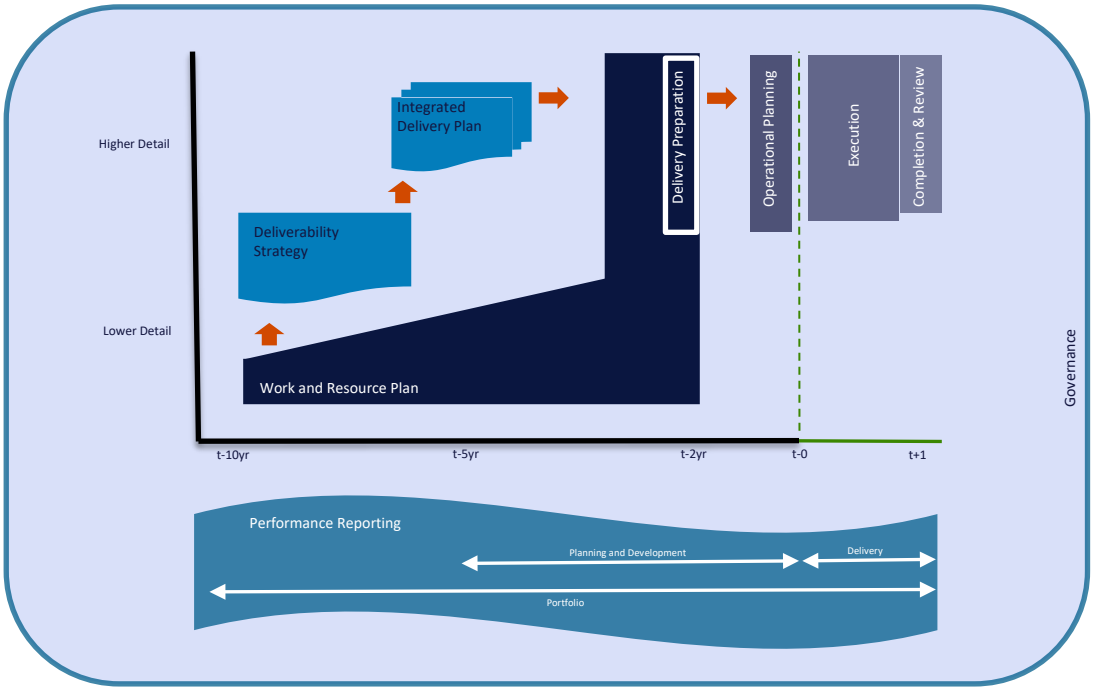
- Section 5 outlines strategies to ensure a suitable approach to capital deliverability. This is in light of the long-term work and resource outlook, coupled with constraints and necessary assumptions, as well as consideration for managing a reasonable level of uncertainty into the future.

2. Introduction

2.1 Overview

The Capital Delivery Plan is one of a number of components that ensures successful delivery of the capital works program. Figure 2.1 outlines Power and Water's Long-term Works Delivery Framework that conceptually presents the various elements and how they relate to one another. The central process of this delivery framework is key to ensuring early resource planning and subsequent successful delivery of the works plan.

Figure 2.1: Long-term Works Delivery Framework



The key elements are described in Table 2.1.

Table 2.1: Elements of the Works delivery Framework

Element	Description
Works Delivery Framework	Conceptually presents the various elements of the Delivery Strategy and how they relate to one another
Works and Resource plan	Outlines the programmed activities by work group and skill and makes the assessment of the required labour, materials and services for each aspect of the program in preparation for 'handover' to be operationally planned, executed and reviewed. The extension of this plan to 10 years in advance also provides the basis to determine and assess the Deliverability Strategy.

Element	Description
Deliverability Strategy	Defines the overall approach and objectives to delivering the capital program. This strategy will consider the approach to delivery, informed by the forecast work and resource requirements, as well as the full ecosystem and context Power and Water operates within. It is expected that the strategy may be adjusted from time to time, however will remain generally consistent for extended periods.
Integrated Delivery Plan	Plan consisting of a suite of organisational sub-plans that begin the process of program implementation. For example, initiating procurement activities for materials and services in consideration of the longer-term volumes and program composition for greater efficiency. Similarly initiating workforce capability changes in line with the proposed strategy and future works. This will ensure the future workforce is suitably skilled, with sufficient capacity and with the right mix of internal and external labour. These plans should be developed and initiated approximately five years in advance of the expected delivery dates for the best opportunity to achieve the desired strategy.
Preparation, Planning Execution and Review	This phase of the framework represents the activities required to ensure the physical delivery of the capital program, and review to ensure that objectives and outcomes are being delivered.
Performance Reporting	Performance reporting covers all keys aspects of the Works Delivery Framework. This includes monitoring the development and implementation of the framework itself including the implementation of organisational planning, through to project development requirements, and project/program delivery.
Governance	The Governance structures to monitor reporting and manage the Works Delivery Framework utilises the committees established within Power and Water's PIDF. This committee's structure covers the longer-term strategies and portfolio performance, as well as the operational project and program performance.

In practice and as Power and Water's business processes mature, all parts of this framework will be in place at any given time.

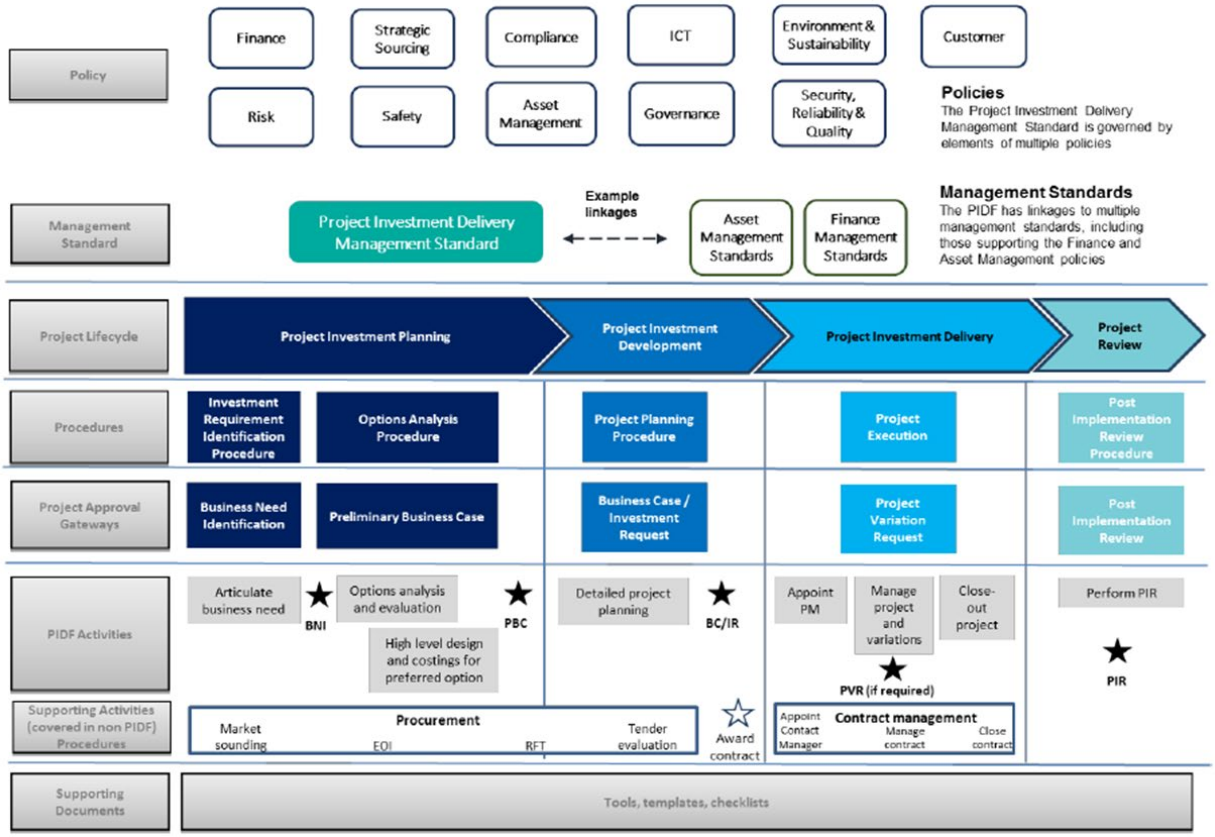
2.2 Capital governance framework

To support and provide the best opportunity to successfully deliver a prudent and efficient capital program, Power and Water have implemented a governance framework called the Project Investment Delivery Framework[3] (**PIDF**).

[3] Power and Water Corporation, *Project Investment Delivery Management Standard, Rev 1.1, 2021.*

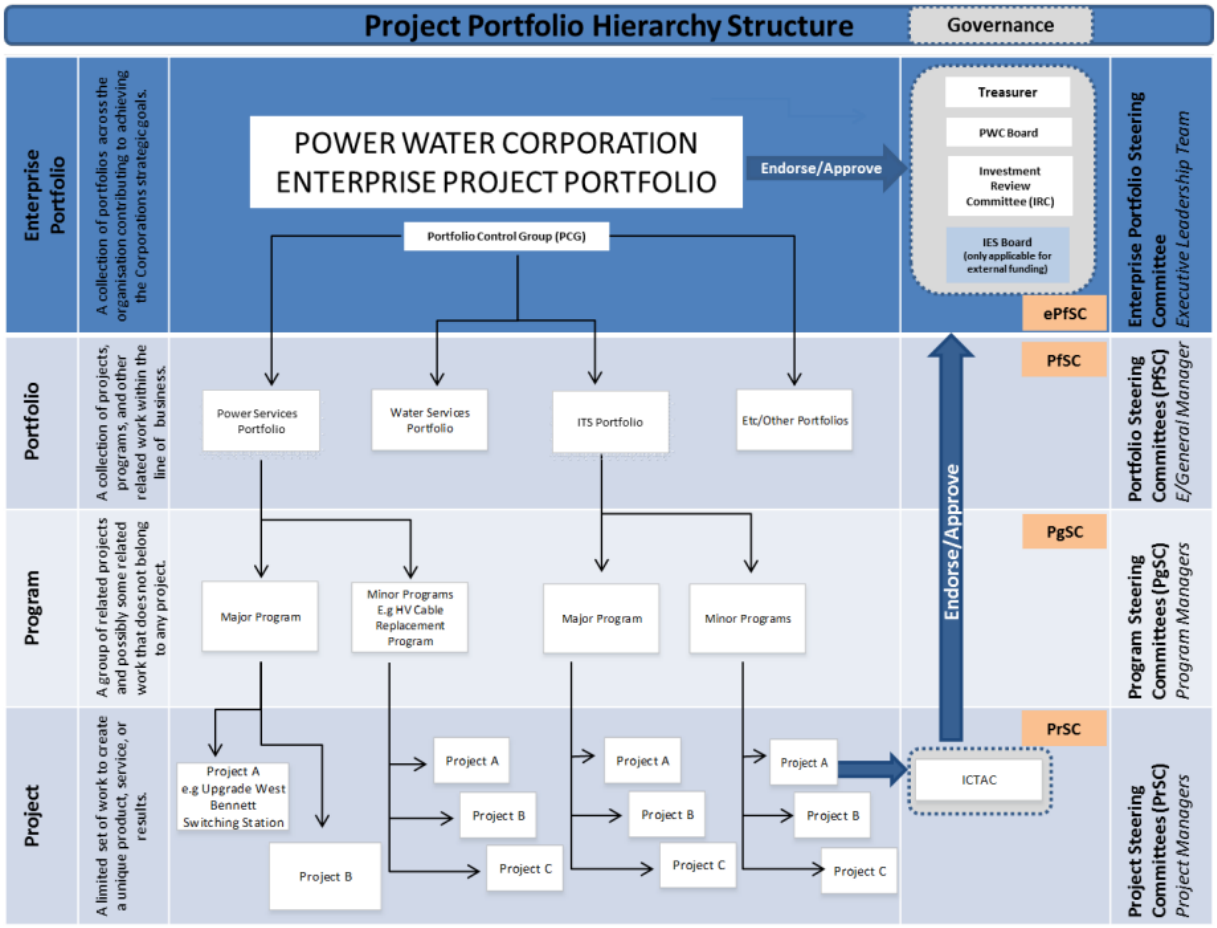
Figure 2.2 provides an overview of the PIDF document hierarchy, and the linkages between policy statement, management standards, and supporting procedures and documentation, as part of Power and Water's overarching Management Governance and Assurance Framework (**MGAF**). The PIDF supports effective project investment planning and delivery with an approach designed to achieve strategic objectives, maximise financial value, and deliver electricity services in a safe, reliable, efficient and cost effective way.

Figure 2.2: PIDF document hierarchy



The PIDF processes emphasizes early and thorough planning and project development, as well as supporting the performance monitoring and reporting of in-flight project and portfolio delivery. In order to provide this oversight an associated governance hierarchy has been developed that covers projects and programs, as well as broader Power Services works portfolio, through to a consolidated Power and Water 'whole of business' perspective on capital investment and delivery. Figure 2.3 describes these structures.

Figure 2.3: Governance structures



2.3 Delivery Strategy

The Delivery Strategy describes the overall approach and objectives to delivering the capital program. It is expected that the strategy may be adjusted from time to time, however will remain generally consistent for extended periods.

The following objectives outline the current approach to ensure long-term prudent and efficient deliverability.

Objectives:

- Provide and maintain a safe working environment and safe electricity network.
- Meet customers' needs for network performance and response, along with positive engagement and non-system services.
- Deliver value for money by effective long term works planning and appropriate balancing the use of skilled and efficient internal labour, augmented with external labour support as needed[4].
- Grow a competitive local industry through providing a longer-term view of forwards works and packaging works opportunities in a manner that encourages companies, individuals and new business to establish themselves in the Northern Territory in support of Power and Water. This will also assist

[4] 2018-2021 *Power and Water Enterprise Agreement*, Clause 25

with mitigating risks associated with having an extremely limited pool of local available resources for Power and Water to draw upon due to the Territory's small size and remote locale.

- Ensure flexibility and scalability within resourcing and procurement plans that permit and support a rapid change in expenditure profile in order to meet and manage the high levels of change and uncertainty within the electricity industry. This is particularly important to support the delivery of capital projects greater than $5 million, including possible contingent projects that can significantly impact the capital investment profile.
- Obtain and/or retain sufficient capacity and core skills within the internal workforce to deliver core business activities across the Territory's regions, adequately respond to call outs and extreme events and maintain core skills, knowledge and expertise ensuring the long-term viability and value of network services is achieved in the Northern Territory.

3. Current period and challenges

Power and Water's delivery needs and performance have significantly varied over time, in terms of:

- The overall magnitude of expenditure, and which is typically representative of scope and risk.
- The work type (i.e. replacement vs augmentation).
- The portfolios mix between major and minor projects works.

Compared to other distribution network service providers (**DNSP**) Power and Water has a comparatively smaller capital investment portfolio and a single moderately sized project can significantly distort expenditure trends and make the overall portfolio investment profile appear 'lumpy' when compared to a larger investment portfolio with similarly sized projects. This characteristic is a challenge to manage in regard to suitable business processes, maintaining relevant workforce capability and capacity, and managing the impacts of an individual projects' performance on the overall portfolio performance.

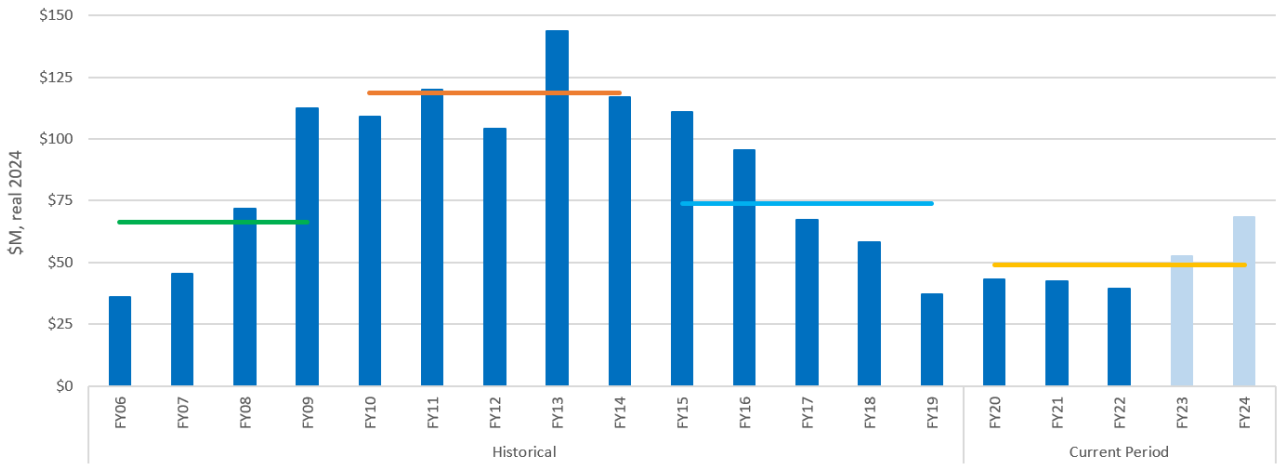
3.1 Historical performance

Historical capital delivery, as measured by incurred capital expenditure, is a useful indicator of the delivery capability of the business. In the absence of better information, it can be used as an indicator of the level of capital programs that the business has been able to deliver. However, it is not sufficient on its own, as the drivers of activity, nature of the work and resource model in place at that time also need to be considered.

As can be seen in the following figure, Power and Water has previously delivered higher levels of capital expenditure than is currently being undertaken. The period of FY2010-15 was associated with a major rebuild of parts of the electricity network in response to an external review, and which followed widespread outages.

It is important to note, that this 'peak' of activity was largely delivered using an Early Contractor Involvement (**ECI**) model for a significant volume of work, and those contractors are no longer active in the local market. Moreover, as the level of large scale capital investment reduced to sustainable levels there was a corresponding reduction in the corporate knowledge and delivery capacity and capability within the business.

Figure 3.1: Historical capital expenditure ($ million real 2024)



3.2 Current period delivery challenges

As noted above, the commencement of the current regulatory period coincided with a lower and declining level of capital delivery. Power and Water have faced a number of challenges in returning the business to the more sustainable level of capital program.

During the first few years of the current regulatory control period, the capital works program profile changed significantly due to a number of predominately exogenous drivers, including:

- A much stronger focus on integration of renewables including an emphasis on the connection of existing renewable generation and battery energy storage systems to the power network. This had the result of additional demands on existing engineering resources and created delays to the delivery of regulated capital projects.
- Significant management churn and uncertainty with relatively high vacancy rates and extended periods for recruitment into senior positions.
- Local employment market constraints impacting recruitment and retention of workforce capacity leading to turnover and an overall reduction in staffing levels and capacity.
- A global pandemic and strict controls for entry to the Northern Territory, impacting the availability of specialised service providers, in addition to global supply chain disruption and significant changes to work force management as a result of mandated isolation requirements and risk management of spread between individuals and work teams.
- Ongoing organisational changes, including a transformation change program and the integration of Indigenous Essential Services into the Power Services business, transitioning to the new regulatory framework and the implementation of an electricity market.

Each of these issues significantly impacted or otherwise required attention from the Power Services workforce, in particular the planning and engineering workforce who would typically be concentrating on the early planning and development of the capital program.

Consequently, instead of a delivering the proposed front-loaded regulated capital investment program the program has been re-profiled, with higher capital expenditure spend in the latter years of the current regulatory period. Overall, this increased level of capital delivery is considered to be more representative of a longer-term sustainable levels.

Whilst individually these challenges and changes form part of a business and industry in transition, they have compounded in recent years and collectively contributed to lack of available resource and focus on delivery of the regulated capital expenditure program. Power and Water acknowledge and recognise that in order to achieve the long-term capital investment needs, a set of targeted corrective actions to improve delivery performance is required across the project lifecycle covering investment governance, planning and development and project/program execution.

3.3 Recent achievements

Recent examples of capital works undertaken by Power and Water are provided below, that demonstrate the actions taken to deliver the capital works program, for both major projects and minor works. This experience will be leveraged to deliver elements of the forecast capital works program.

3.3.1 Major project delivery

To meet the requirement of the re-build of the electricity network Power and Water combined a number of capital projects to create a significant and extended work-package that would be attractive to interstate providers and encourage local consortiums. Further to this, Power and Water utilised an ECI procurement approach to leverage these larger contractor's knowledge and innovation, augment Power and Waters internal project development resources and mitigate risks related to construction variations. The approach successfully delivered a number of significant projects including, Darwin Zone Substation, Strangways Zone Substation, Casuarina Zone Substation (66kV), Tennant Creek Substation, Hudson Creek augmentation, and Pine Creek 66kV extension works among numerous other smaller projects.

This occurred in an environment of significant challenge for infrastructure contractors as national and state-based demand was high, mostly due to substantial mining industry growth.

As this ECI contract came to an end, an alternative arrangement was employed to mitigate construction variations risk and to augment internal development resources, a Design and Construct (**D&C**) contract with an early works component for development works. This arrangement was applied to deliver the new Sadadeen Zone Substation in Alice Springs. The Sadadeen Zone Substation project was complex to develop and deliver due to multiple brownfield challenges, however the approach achieved successful timely delivery of the substation.

With a continuation of the reduction of major projects, Power and Water has become more focussed on delivering a smaller capital portfolio, consisting of a higher portion of smaller projects. During this period, major projects returned to a more traditional delivery methods with project development being completed internally, however with various degrees of success due to the challenges outlined in section 3.2. A consequence has been some significant project delays. For example, the Trevor Horman Zone Substation, has been significantly delayed and significantly contributed to a re-profiling of the current regulatory control period capital expenditure profile.

Power and Water has undertaken a detailed review of these outcomes and implemented a number of actions to deliver these larger projects. This has included the procurement of long lead time items such as power transformers and switchgear via contracts to maximise purchasing power through the combining of numerous project needs, as well as updating of standards and procurement planning for major works.

Power Services is currently developing procurement contracts that incorporate learnings from previous experience and look to position the business to meet the future context. Specifically, the procurement approach currently being developed is based on a D&C approach and will include provision for early works and over an extended period of time. The contract will:

- Provide a reasonable middle ground between delivering a one-off project and committing to a very large on-going works program. It is reflective of a moderate works program that may scale up.
- Minimise construction risk through typical D&C arrangements.
- Augment internal project development resources through including early works components to the D&C approach and leverage the contractor's experience and innovation to grow internal capabilities.
- Look to the future and be scalable by establishing a number of contractors capable of supporting Power and Water in delivering large scale projects in this manner.

Given the timing of this contract procurement it is expected that the Trevor Horman Zone substation will be the first of a number of projects delivered in this manner, with some modifications to allow for

development and procurement that has occurred to date. The procurement contract is expected to continue for at least a five-year period, well into the next regulatory control period.

3.3.2 Minor project delivery

In recognition of the challenges in the delivery of the capital program, Power and Water has re-prioritised its portfolio of minor works and demonstrated an ability to sustain an increasing level of capital works. To ensure continuity of this approach into the future, Power and Water are progressing the procurement and implementation of larger scale fit-for-purpose construction delivery contracts for these minor projects.

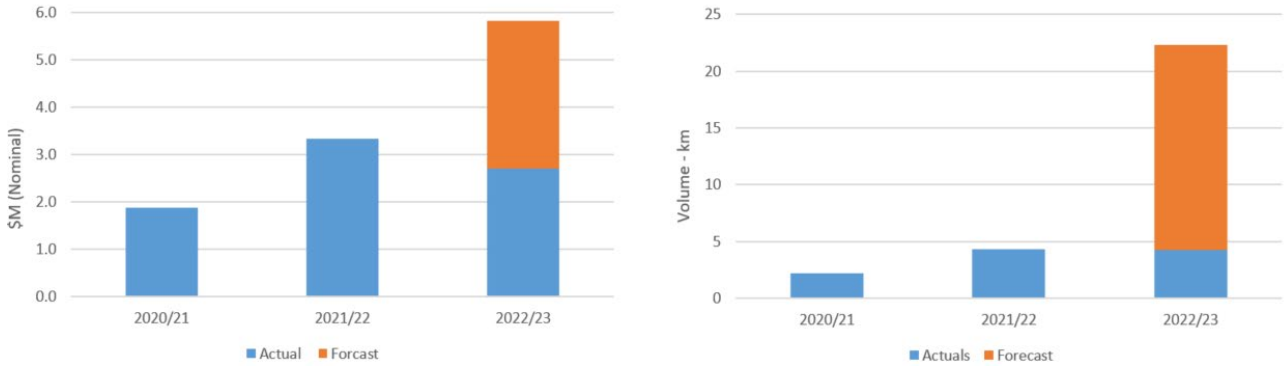
Power and Waters capital replacement program includes programs to rectify corroded poles in Alice Springs as well as the replacement of sections of aging underground high voltage cable in the northern suburbs of Darwin. The change in delivery methods and volumes are outlined following.

Case example 1 – High-voltage (HV) cable replacement

The HV cable replacement program primarily utilises a panel of contractors engaged through competitive tender process resulting in lower delivery costs. This contract vehicle enabled multiple delivery crews to be engaged simultaneously, efficiently increasing the volume of cable replacements able to be achieved.

The figure below on the left, shows the ramp-up in delivery expenditure following project initialisation and establishment delays, through to the forecast $8 million expenditure in 2022/23. The figure below and on the right provides the replacement volumes (in km), indicating a similar initial profile however forecasting a more significant uplift in 2022/23. Together these figures indicate the efficiency improvements as a reduced per unit cost as the program advances.

Figure 3.2: Actual and estimated capital expenditure (left) and volumes (right) for the HV cable replacement program



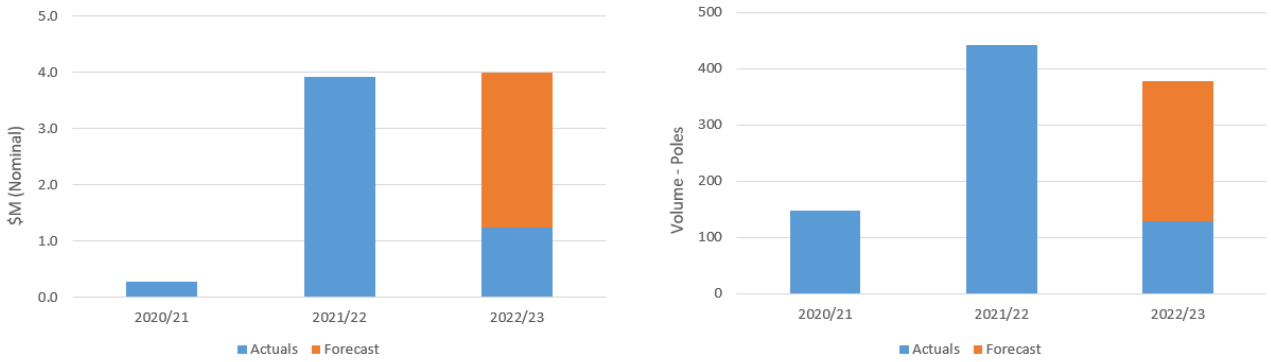
Case example 2 – Alice Springs pole replacement

Following engineering of a new steel pole re-butting solution to address the targeted replacement and refurbishment of poles in the Alice Springs area, a number of work contracts were implemented to deliver the program. The figure below on the left indicates the steady capital expenditure profile of the program following some delays in project initialisation.

As the Alice Springs pole replacement program utilises a completely new steel pole re-butting approach, in order to build the required new skills and processes, simpler poles were initially targeted for replacement. As the program has progressed the remaining poles are more challenging and require a greater effort and hence are higher cost. For example, these more challenging poles may include poles with limited access, termination poles, poles with distributions substations, cable transitions or air break switches, or a

combinations of challenges. As indicated in the figure below to the right, slightly fewer poles are being replaced as the program advances, despite a consistent expenditure level.

Figure 3.3: Actual and estimated capital expenditure (left) and volumes (right) for the Alice Springs Pole Replacement program



3.4 Improvement initiatives

Power and Water has recognised that it has a capital expenditure delivery challenge, particularly for the 2019-24 regulatory control period and has implemented a Capital Acceleration Program primarily to arrest the current under-delivery of the program.

The Capital Acceleration Program had a short-term focus that included:

- The engagement of new resources in project management and engineering teams to address immediate resource shortfalls. This approach supports the current delivery program and also demonstrates Power and Water's ability to effectively scale resource to meet different program sizes.
- Improvements to financial year and project performance reporting to provide better and timely information to act upon. This has provided clarity as to the impact of major projects delays to the portfolio performance and has resulted in the significant advancement of minor projects, demonstrating Power and Water's ability to adjust the program for unexpected challenges and manage risk.
- The progression of forward looking and more flexible procurement approaches, including for example establishing a period contract for D&C contractors for larger projects that will provide Power Services with options to effectively manage project progress and risk, while also providing options to scale-up to meet future capital delivery challenges, if for example any of the identified contingent projects proceed in the coming years. A review of existing civil works procurement is also being considered to ensure that the local industry remain engaged, competitive and available during peak periods of work locally and nationally.
- Refinement of governance structures to provide adequate oversight and timely input to the current financial year performance and individual project performance, initially through the Capital Program Steering Committee, while ensuring that the business maintains sufficient focus on the future through having a view to the longer-term portfolio performance, and ongoing monitoring of the strategies and plans required to achieve that in the current and future contexts via the Capital Portfolio Steering Committee.

In addition to this Capital Acceleration Program and along with several organisational initiatives already in place, Power and Water have re-focused on works management and improving capital delivery capability for the longer term. To assist management, identify actions to sustain a higher level of delivery capability, Power and Water commissioned a top-down review of its regulated capital expenditure delivery. Actions identified from this review have been summarised as follows:

Data & reporting

1. **Develop management scorecards to assist effective decision making:** Strong data to report current program and portfolio performance and support decision making has been developed and is being improved. A broader full suite of management performance reports is in development.

Delivery preparation

2. **Targeted improvements to works management:** New resources have been brought in to address immediate challenges in the engineering and project management resources with a greater focus on development, design and project management discipline.

Work and resource plan

3. **Settle the forward works plan:** The existing short-term forward works (and resource) plan is currently being extended to 10 years, via a Power and Water wide Integrated Work Management initiative, to settle the long-term plan and help develop and implement suitable long-term deliverability strategies.

Delivery strategy

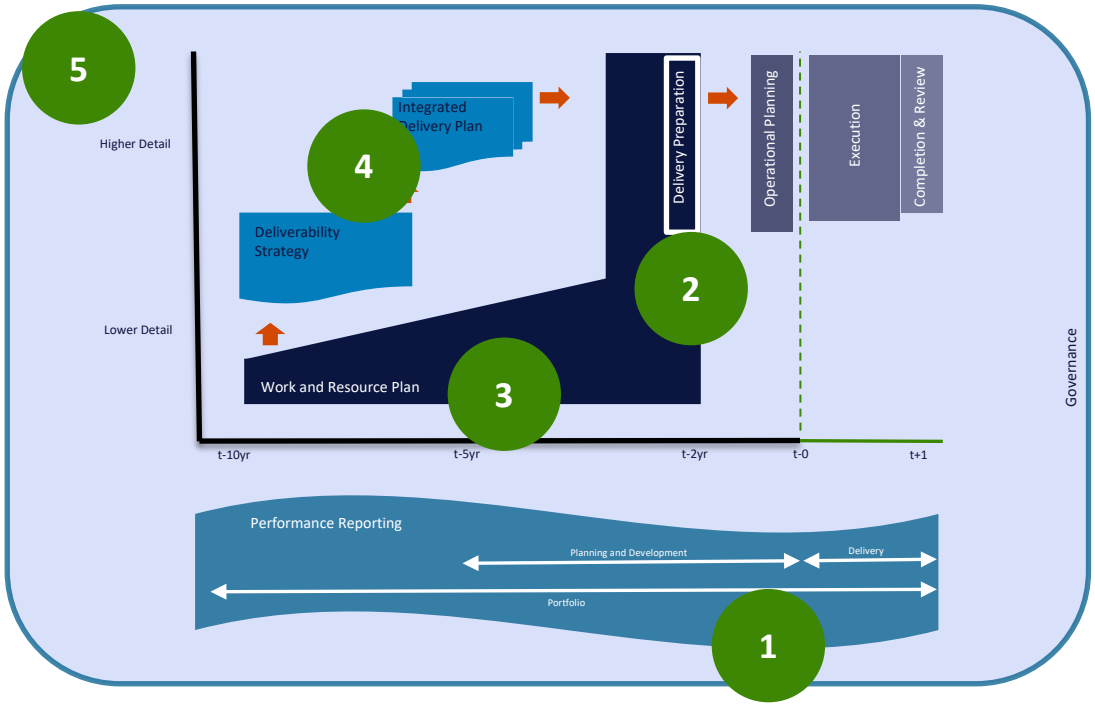
4. **Develop an integrated delivery strategy & plan:** Development of an integrated long–term delivery plan, covering the needs for internal and external labour, (i.e. recruitment plan) as well as material and services (i.e. procurement plan) is a key next step to enable sustained delivery performance.

Governance

5. **Provide necessary organisational focus:** Governance committees in line with Power and Waters PIDF have been re-established with new focused terms of reference to better monitor and manage program/project issues as well as portfolio impacts.

Figure 3.4 connects the works delivery framework being implemented by Power and Water with the high number of actions already in train to address the above items.

Figure 3.4: Long-term Works Delivery Framework and supporting actions



These immediate actions, and through establishing a longer term forward program demonstrate Power and Water's ability to the deliver capital in the short term and improve its positioning through a longer term view that allows for the best opportunity to pivot the business to meet the new challenges a more uncertain future will bring.

4. Resourcing model

The current resourcing model can be characterised as being a shorter-term, one-to-two-year view of the full operational and capital works program. This has been supported by an assessment of labour (type and skill), materials and services required for the various delivery aspects of the project lifecycle. Using this information, and applying several operational constraints, the view is further developed to identify internal and external labour split by functions.

Moving forward, this model will be developed to include a longer-term outlook, ultimately over a ten-year planning horizon.

4.1 Future delivery outlook

The future outlook for Power and Water's network is understandably entwined with the development and prospects of the Northern Territory as a whole. Currently and similar to the national context, energy and in particular renewable energy is the key driving force for future economic development in the Northern Territory.

In the Northern Territory, a number of these energy industry challenges are compounding, including ongoing regulatory change and challenges that require the significant maturing of business practices in order to apply bespoke NT National Electricity Rules (**NER**). This is in conjunction with:

- Changes to, and alignment with the jurisdictional requirements.
- Managing and considering proposed changes to the NER as required.
- Managing impacts of the developing local wholesale energy and essential system services markets.
- Accommodating growing retail competition, with ever increasing connection of distributed generation.
- Facilitating development of large-scale inverter based technology such as large-scale solar farms and battery energy systems connecting now.
- Challenges associated with the broader energy transition to renewables and new technology.

Whilst many of the challenges facing Power and Water are shared with other utilities, Power and Water's response to these challenges needs to reflect:

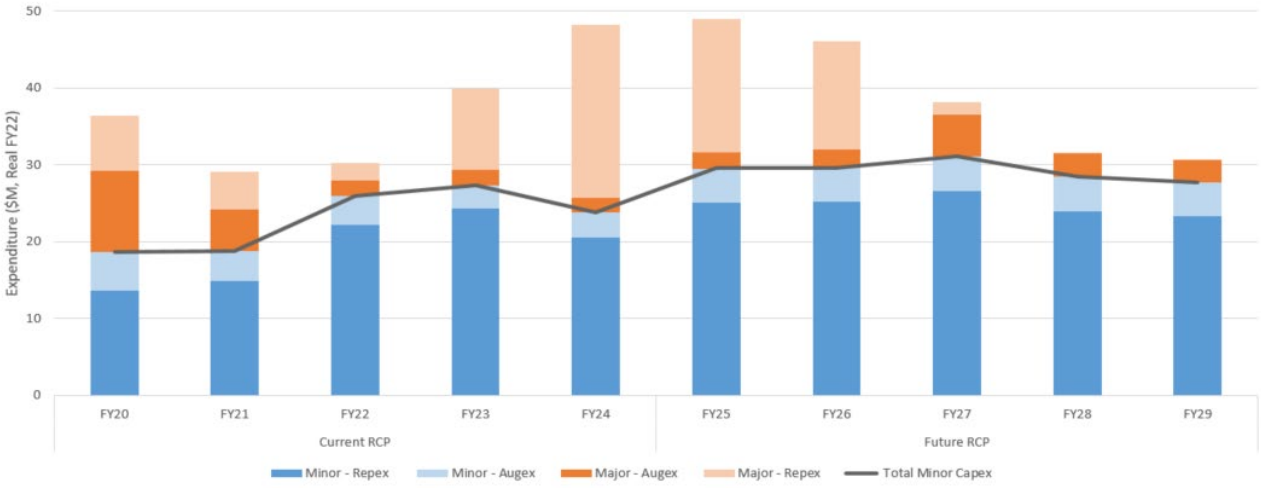
- Being the most recent utility to join the NER, and the need to mature business practice to meet these requirements and their modifications as they apply to the Territory.
- Power and Water's small and extremely diverse customer base, as well as operating across three individually separated networks each with unique characteristics, most notably being order-of-magnitudes smaller than other regulated systems and as such vulnerable to impacts from change that would otherwise not be experienced on larger systems.
- Access to limited specialised resources within the business.
- Access to limited general (and specialised) resources within the local industry generally.

4.1.1 Expenditure trend

Figure 4.1 shows the regulated capital expenditure profile for the current and next regulatory control periods. The chart shows major works and minor works to better demonstrate the impacts of larger

projects on what is an otherwise stable underlying overall expenditure profile. For example, the major works expenditure has a min-to-max variation of 180 per cent of its average expenditure, while the minor works component vary much less, with only about 50 per cent variation to average.

Figure 4.1: Current and next RCP capital expenditure profile



The black line in Figure 4.1 indicates the total capital expenditure for minor works. From 2021/22, once the corrective strategies had been applied, the associated level of capital expenditure on average is forecast to be reasonably flat and reflective of what Power and Water consider to be a sustainable level. The volatility in the total capital expenditure is driven by major projects, as discussed previously the impact of a single moderately sized project can significantly distort expenditure trends and make the overall portfolio investment profile appear 'lumpy' when compared to a larger investment portfolio with similarly sized projects.

Longer term, beyond the next regulatory period, the replacement expenditure in particular is expected to increase. Similarly, based on Government development desires for greater electrification and economic growth into the future, it is reasonable to expect that augmentation expenditure is also likely to increase in the longer term.

4.2 Managing in times of increasing change

The level of change is expected to increase and accelerate, with greater resourcing challenges as strategic projects and reform objectives are realised. This will likely include the Renewable Energy Hub and significant further take up of distributed energy resources, the realisation of electric vehicles and a desire for significantly greater economic growth[5] underpinned by renewable energy resources. Beyond this, new challenges and opportunities for growth will likely arise from the advancement of technology and the social drive towards de-carbonisation.

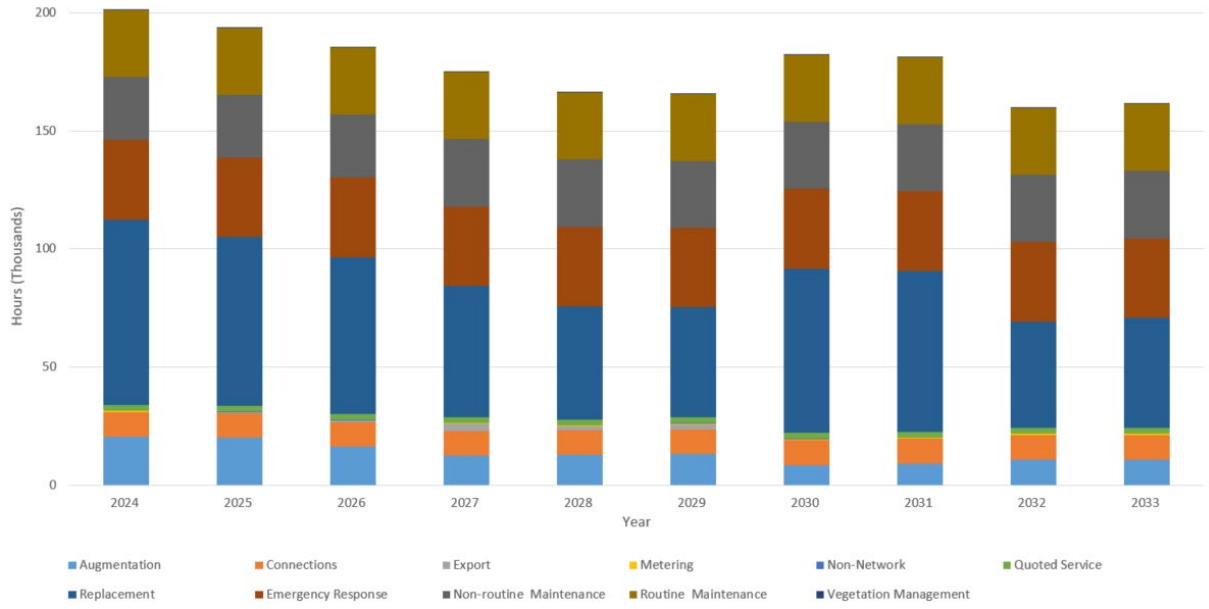
Notwithstanding these challenges, Power and Water will ensure that the enhanced framework and delivery strategy will have sufficient flexibility in its delivery models and approach to ensure that it can continue to provide services and maintain its safe, efficient and reliable network.

[5] *Territory Economic Reconstruction Commission: Final Report, Dec 2020,* outlines activities for the Northern Territory Government to reach its goal of a $40 Billion economy by 2030.

4.3 Resource model

Power and Water are currently in the process of developing a long-term resource model. It is conceptually a simplification and extension of the current annual resource model that will provide a ten-year view of the forward works plan, the expected labour requirements (extended to include project development and management labour), as well as identifying materials and service needs. The following is a conceptual indication of the data that will be available.

Figure 4.2: Conceptual 10-year Work and Resource Model



The process to determine the long-term resourcing requirements will be iterative. The model will show the expected forward capital works plan, apply the exiting delivery strategy, delivery models and assumptions to determine;

- Internal labour (hours & $) by work type / maintainer groups.
- External labour (hours & $) by work type.
- Service Contracts ($), identifying the need for various panel and period support contracts, as well as an approach to managing the various large projects.
- Materials (volumes & $) by asset class.

Based on the result of this information, an assessment of deliverability of the capital works program can be undertaken to identify if there are areas where an alternative approach may be preferred, or where additional focus may be needed. Importantly, this also provides an opportunity to test alternative strategies and institutes longer term recruitment and procurement planning to support delivery the capital works portfolio.

Although the initial work plan may be limited to the capital program, to best manage the total workforce and identify any potentially competing objectives, it is intended that the long term Work and Resource model will be extended to cover all work types, including operations and maintenance as well as non-regulated work.

4.4 Efficient resourcing approach

Power and Water's Work and Resource model seeks to find the efficient balance of:

- **Internal and external resourcing:** through the targeted allocation of internal workforce. Projects and programs that are not allocated to a resource type within Power and Water's internal workforce are then resourced using contractors, panels and tenders.
- **Competitive tendering:** for major projects, and specifically transmission projects, Power and Water undertake a competitive tendering process to ensure that optimise the cost of the works. This may include various contracting models subject to the size and complexity of the project to supplement internal engineering resource.
- **Materials procurement, and category management:** Power and Water have a number of long-term supply contracts for materials, and have undertaken a process of standardising requirements. More recently Power and Water have adopted category management processes across the business (including the water and gas business) to further streamline procurement processes to deliver value for money.

5. Delivery approach

A detailed review of the existing resourcing arrangements including access to external resources via panel and preferred vendors leads us to conclude that the network capital expenditure program for the next regulatory period is deliverable.

5.1 Principles

The following principles are applied for the development of the Integrated Delivery Plans in line with the objectives outlined in section 2.3.

Retain internal workforce capability and capacity in the following areas:

- Emergency and call out response. All operational areas are seasonally subjected to extreme weather and require a self-sufficient base workforce to safely and immediately respond, manage and repair the power system.
- Regional depots are required to have sufficient local capability (including with support from larger centres) to safely manage and respond to typical power system issues within a timely manner to meet customer and other performance expectations.
- Core network service functions - such as work directly on assets forming part of the active power system, to ensure skills are maintained and operations are conducted safely and securely. This includes final connections and commissioning.
- Core asset management and delivery functions - to ensure that intellectual property and corporate knowledge related to key assets and processes remain within the business. This also includes some inspections and audits, and various core maintenance activities.

Augment and/or support Power and Water's internal workforce to achieve best value in the following areas:

- 'Greenfield' activities, such as the construction of new assets not yet connected to the power system. This includes work such as major network extensions and development.
- Repetitive and time-limited investment programs such as cable pulling, meter replacements, and some types of inspections and testing.
- Specialised and infrequent activities/functions where meaningful knowledge transfer is likely and valuable, such as protection, SCADA, communications or other niche skill areas where the internal workforce capacity is limited due to the specialist nature of the work.

Utilise efficient external support for:

- Major works that are outside the 'business-as-usual' in regards to capacity, experience and efficiency. This may include work such as new zone substations or significant upgrades, defined scope and significant programs, such as undergrounding suburban power.
- Work that is ancillary to the power network, including civil and earth works, tree trimming, structures, fire systems and so on.
- Highly specialised and uncommon work where meaningful knowledge transfer is not likely to occur and where there is no/limited internal workforce capability due to the nature of the work.

- Considered work packages. For example due to the small nature of the industry within the Northern Territory best value may be achieved through packaging work in longer-term arrangements, that are larger and more secure than smaller packages, to attract more proponents to the local market. Having a larger local industry facilitates greater flexibility, reduces the chance of single sourcing risks (i.e. “all the eggs in one basket”) while potentially growing the local pool of locally available resources.

5.2 Delivery approach by expenditure type

The forecast capital expenditure program is made up of the following categories:

5.2.1 Replacement

Replacement capital expenditure is primarily the delivery of asset replacement projects, many of which form part of programs of work that are continuing at similar levels of asset replacement volume and expenditure to historical practice. Where individual programs are increasing, Power and Water are already ramping up to deliver the proposed volume of replacement in the current regulatory control period with established resources.

Major replacement programs are delivered primarily through external arrangements, which also seeks to supplement Power and Water’s engineering and project management expertise, with specialist skills from the market.

5.2.2 Augmentation

Augmentation capital expenditure is associated with extending the capacity and capability of the electricity network. In the next regulatory control period, there are minimal major augmentation projects planned. The underlying compliance and upgrade programs are continuing at levels similar to historical practice.

5.2.3 Distributed Energy Resources (DER)

DER capital expenditure is a new category, with individual projects arising from the Future Network Strategy. This includes new skills and capabilities that will be delivered via external arrangements to access specialised resources.

5.2.4 Connections

Connections capital expenditure ranges from routine connections to the low voltage distribution network to complex transmission connections. Routine connections will primarily be delivered through existing contract arrangements, with larger more complex transmission connections subject to separate market arrangements.

5.3 Capital delivery approach by work activity

A summary of the approach described above is provided for each of the work activities in Table 5.1.

Table 5.1: Delivery arms and nature of the work – distribution

Work Type	Underground	Overhead	Zone Subs	Sec. System	Metering
Faults	Internal	Internal	Internal	Internal	Internal
Defects	Internal Except: Trans. cables and joints	Internal	Internal Except: GIS and Pwr TF intrusive	Internal	Internal
Preventative Maintenance	Internal Except: Undersea cable inspections	Internal Except: RLS testing and Vegetation	Internal Except: GIS and Pwr TF intrusive	Internal	Internal
Specific Maintenance	Scope dependant	Scope dependant	Scope dependant	Scope dependant	Scope dependant
Replacements	Internal with external support	Internal with external support	Minor internal Major external	Minor internal Major external	Internal with external support
Augmentation	Scope dependant	Scope dependant	External	External	Internal
Connections	Internal - final connections Construction is various	Internal - final connections Construction is various	N/A	N/A	Internal

5.4 Review of key resource types

Power and Water will continue to review key resource types as a part of the resourcing model. Where there is an expected requirement over the available resource capacity, including access to external resources, a review of program priorities and sequence of work will be completed to fit within the resource envelope.

5.5 Continuous improvement

Power and Water recognise the challenges presented by the current market conditions and rapidly increasing expectations of customers.

Power and Water are committed to ongoing continuous improvement of the delivery plan, strategy and underpinning resourcing options. To ensure that the delivery plan continues to meet the needs of the capital work program, Power and Water will continue to evaluate options based on various attributes:

- **Cost efficiency** – including lowering costs via competitive processes, consideration of administration required to support external resources and refining the use of efficient internal resources.
- **Availability and security of local labour** – including considering novel work package arrangements to maintain a more stable operating environment for external labour, rather than add to boom and bust cycles. This is particularly required for specialists that may not be supported outside electricity industry while others are (i.e. electrical specialist vs civil contractors).
- **Flexibility and scalability** – an ability to adapt to new and additional work in short time frame. This includes the potential to significantly uplift external contract work and also must be supported with sufficient resource within Power and Water.
- **Skills availability and key corporate knowledge** – some skills may not be readily available in the market (i.e. specialised power systems) other will be. Some knowledge base should be maintained to ensure corporate knowledge is leveraged.

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