Submission No 50

INQUIRY INTO RATIONALE FOR, AND IMPACTS OF, NEW DAMS AND OTHER WATER INFRASTRUCTURE IN NSW

Organisation: WaterNSW

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Submission: Inquiry into the rationale for, and impacts of, new dams and other water infrastructure in NSW

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Executive Summary

WaterNSW welcomes the opportunity to provide a submission to the Portfolio Committee No. 7 – Planning and Environment Inquiry into *the rationale for, and impacts of, new dams and other water infrastructure in NSW* (**the Inquiry**).

The *new dam and mass water storage projects* that are the focus of this Inquiry's Terms of Reference (see Annexure A) comprise major NSW water infrastructure projects currently in the investigatory phase. These are:

a) Wyangala Dam Wall Raising Project;

b) Dungowan Dam Project;

c) Mole River Dam Project;

d) Macquarie River Re-Regulating Storage Project; and

e) Western Weirs Project

(collectively, the **Projects**).

Following several State-wide and area-specific long-term water options and feasibility studies undertaken since 2014, the NSW Government has selected the Projects for further development due to their potential to improve long-term water security in the Lachlan Valley (Wyangala Dam Wall Raising Project), Namoi (Peel) Valley (Dungowan Dam Project), Border Rivers area (Mole River Dam Project), Macquarie Valley (Macquarie River Re-Regulating Storage Project), and Western NSW (Western Weirs Project). The Projects aim to provide not only town water supply security but also achieve broader social, environmental and community benefits. As NSW's bulk water services and infrastructure provider, WaterNSW has been directed[1] or funded[2] [3] by the NSW Government to progress work on the Projects, which consists of:

[1] Parliament of NSW, Direction to the Board of Water NSW (responsibility for progressing the Wyangala, Dungowan and Mole River Dam Projects) 2020, together with a notice of reasons for giving Direction (13 May 2020) <https://www.parliament.nsw.gov.au/la/papers/Pages/tabled-paper-details.aspx?pk=7806>, accessed on 18 September 2020.
[2] WaterNSW, Macquarie River Re-regulating Storage - Scoping Report (January 2020) <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PDA-1315%2120200303T024253.055%20GMT>, accessed on 16 September 2020.
[3] WaterNSW, *Project Update - June 2020 - Western Weirs* <https://www.waternsw.com.au/__data/assets/pdf_file/0003/157611/Western_Weirs-Project-update_June-2020.pdf>, accessed on 15 September 2020.

a) the early works and pre-construction activities, Final Business Case, and Environmental Impact Statement (**EIS**) for the Wyangala Dam Wall Raising Project;

b) the early works and pre-construction activities, Final Business Case and EIS for the Dungowan Dam Project;

c) the Final Business Case and EIS for the Mole River Dam Project;

d) the Final Business Case, investment decision and preparation of an EIS for the Macquarie River Re-Regulating Storage Project; and

e) the Strategic Business Case (feasibility study) for the Western Weirs Project.

In this Executive Summary, we outline the status of the Projects and their proposed timeframes for delivery.

Status of the Projects

At present, WaterNSW is in the process of investigating the Projects. Prior to any decision or approval to commence the main works construction for any of the Projects, each will be subject to robust planning and assessment processes including the finalisation of the Strategic Business Case (feasibility study), Final Business Cases and EIS documents described above. This will involve detailed exploration of the social, environmental, economic and other impacts referred to in the Terms of Reference. Therefore, it is not yet possible for WaterNSW to comment on some aspects of the Terms of Reference pertaining to the current Inquiry. These aspects will be the subject of investigation, public exhibition and consultation (as part of the assessment and approval process for the Projects) at an appropriate later date.

Timelines for Delivery

The Wyangala Dam Wall Raising Project, Dungowan Dam Project, Mole River Dam Project and Western Weirs Project have been declared Critical State Significant Infrastructure (**CSSI**) Projects under Schedule 3 of the *Water Supply (Critical Needs Act) 2019* (NSW) (**Critical Needs Act**). The Macquarie River Re-Regulating Storage Project is considered a State Significant Infrastructure (**SSI**) Project under clause 1 of Schedule 3 of the *State and Regional Development State Environmental Planning Policy 2011* (NSW) (**S&RD SEPP**).

Due to their CSSI status, the Wyangala Dam Wall Raising Project and the Dungowan Dam Project are subject to accelerated timelines for delivery by WaterNSW. Notwithstanding their accelerated timelines, these Projects must still pass through and meet all the usual planning requirements. However, the accelerated timelines allow the procurement and design phases

to progress in parallel with the EIS and Final Business Case development. This parallel progression means that the Wyangala Dam Wall Raising Project and the Dungowan Dam Project will be ready to commence construction work as soon as practicable following planning approval and completion of any pre-construction requirements (assuming that all necessary approvals are granted). The remaining Projects are not subject to accelerated timeframes (i.e. the Mole River Dam Project, Macquarie River Re-Regulating Storage Project and the Western Weirs Project).

In this submission, WaterNSW provides the Inquiry with:

a) a background of WaterNSW, its role in planning and delivery infrastructure, and the current drought;

b) WaterNSW's involvement with the Projects;

c) An overview of each of the Projects; and

d) a response to the Terms of Reference.

We look forward to the Committee's consideration of this submission.

Background

About WaterNSW

Our purpose is to improve the availability of water resources that are essential for the people of NSW.

WaterNSW was established in 2014 under the *Water NSW Act 2014* (NSW) (**Water NSW Act**) as the state's bulk water services and infrastructure provider. WaterNSW is the result of a merger between the former State Catchment Authority and State Water Corporation.

WaterNSW is a State-Owned Corporation (**SOC**) and operates under an Operating Licence granted by the NSW Governor on the advice of the portfolio Minister and monitored by the NSW Independent Pricing and Regulatory Tribunal (**IPART**). As a SOC, WaterNSW is also subject to the *State Owned Corporations Act 1989* (NSW) (**SOC Act**) and to NSW Government directions. In addition to WaterNSW's primary functions, it must operate at least as efficiently as any comparable business, as well as maximising the net worth of the State's investment.

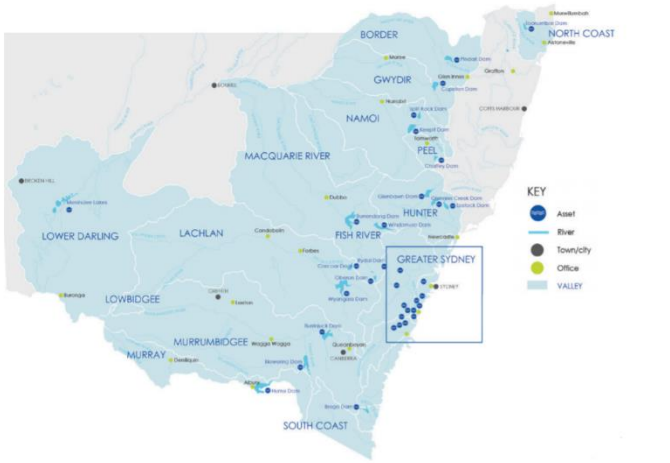
The objectives of WaterNSW are specified in the Water NSW Act, which are achieved by carrying the following key activities[4]:

- **Source water protection**: protect the Greater Sydney drinking water catchment to ensure safe water is supplied to Sydney Water, local councils and other distributors for treatment and distribution to their customers.
- **Bulk water supply**: supply water from our storages to customers in the Greater Sydney drinking water catchment and in the State's regulated surface water systems.
- **System operator**: efficiently manage the State's surface and groundwater resources to maximise reliability for users through the operation of the state's river systems and bulk water supply systems, in collaboration with the Commonwealth Murray-Darling Basin Authority which directs operations of the River Murray system.
- **Infrastructure planning, delivery and operation**: meet customer-defined levels of service, consistent with NSW Government policy and priorities, to increase the security and reliability of water supply to our customers and communities in NSW.

4 *Water NSW Act 2014* (NSW), section 6.

- **Customer water transaction and information services**: provide efficient and timely services to our customers for water licensing and approvals, water trades and billing, and meet their water resource information needs for surface and groundwater quantity and quality.

With more than 40 dams across the state, WaterNSW supplies two-thirds of water used in NSW to regional towns, irrigators, Sydney Water Corporation, environmental water holders and local water utilities. Through its hundreds of employees located across the State, WaterNSW provides services daily to over 40,000 customers across NSW and manages its extensive operational assets, water monitoring and metering networks.



WaterNSW's role in planning and delivering infrastructure

A principal objective of WaterNSW is to "*provide for the planning, design, modelling and construction of water storages and other water management works*" in NSW.[5] In establishing WaterNSW, the organisation was given an explicit role in assisting the NSW Government to deliver on its water security objectives through the planning and delivery of bulk water infrastructure.

In executing this function, WaterNSW works closely with other State and Commonwealth Government agencies, who have defined accountabilities and functions in relation to the planning and delivery of water infrastructure. This includes DPIE Water, who set policy objectives and water strategies, and INSW, which provides oversight and coordination, among others.

WaterNSW's role in delivering water infrastructure takes different forms. Broadly speaking, as a price-regulated entity, WaterNSW must fund infrastructure planning and delivery through customer-charges – in which case projects are customer-informed and reviewed for prudency and efficiency by IPART (customer-directed).

However, from time to time and due to its technical expertise and capacity, WaterNSW is tasked with supporting the development and/or implementation of NSW Government policy by undertaking investigatory studies, providing options/solutions and recommendations, and delivering capital works (Government-directed). In line with this, WaterNSW has been contracted by Government agencies to deliver infrastructure studies and Business Cases, as well as being directed to deliver the Government's priorities and decisions via directions made under the SOC Act from the Portfolio Minister.

Infrastructure NSW Gateway Review System and Investor Assurance Framework (IIAF)

In delivering infrastructure work on behalf of the NSW Government, WaterNSW must comply with relevant statutory planning assessment and approvals processes and relevant NSW Government guidelines, including Treasury's *NSW Government Business Case Guidelines*.

[5] *Water NSW Act 2014* (NSW), section 6(c).

WaterNSW must also comply with the INSW Gateway Review System under the "*Infrastructure Investment Assurance Framework - Gateway Coordination Agency Framework for Capital Projects under the NSW Gateway Policy*" (**IIAF**). The IIAF outlines processes through which the projects progress, including independent peer review, gateway reviews, periodic health checks, and risk-based reporting and monitoring by INSW. The IIAF may require regular reporting to Cabinet and Cabinet sub-committees.

The Gateway Review System is a project assurance process conducted by INSW as an independent, objective organisation. The Gateway Review System is a requirement for most major capital projects funded, either in whole or in part, by the NSW Government. In 2004, the Gateway Review System was introduced by the NSW Government to mitigate risks associated with investing in major projects and supporting the effective delivery of NSW Government objectives.[6]

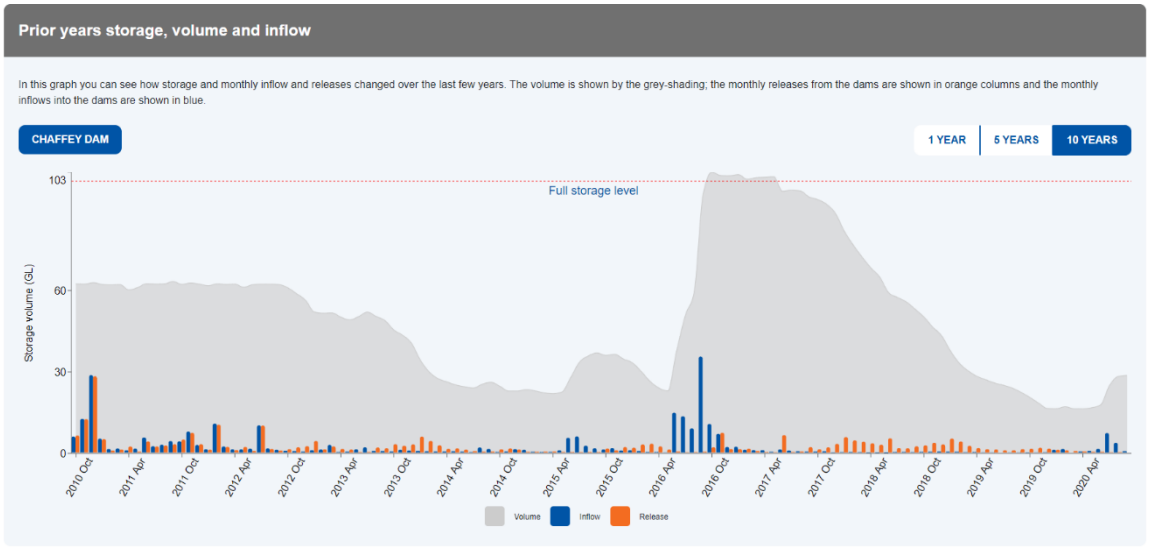
[6] NSW Government - Treasury, *NSW Gateway Policy - Policy & Guidelines Paper* (February 2017) <https://www.treasury.nsw.gov.au/sites/default/files/2019-02/TPP17-01%20NSW%20Gateway%20Policy%20-pdf.pdf#:~:text=The%20requirement%20for%20major%20capital,effective%20delivery%20of%20Government%20objectives>, accessed on 21 September 2020; NSW Government - Treasury, *Gateway Review System Overview* <https://www.treasury.nsw.gov.au/gateway-review-system-overview>, accessed 21 September 2020.

The current drought

WaterNSW also has a key role within Government in responding to drought and flood, in line with its statutory functions. This includes effective management of its storages and river operations to prolong supplies, as well as the identification and delivery of asset and non-asset solutions.

Over the past few years, regional NSW has witnessed one of the worst droughts in recorded history.

Inflows into the State's rivers and storages were, in many cases, the lowest recorded. For example, in the Northern basin, the rivers received their lowest annual inflows on record in both 2018 and 2019.[7] In Tamworth, Chaffey Dam received only half of the inflows received during the previous worst drought on record (24 months). Similar low inflow patterns were also recorded across the central west, coastal, western slopes and south of the State.



Graphic: Peel Valley storage volume and inflows, 2010-2020 (WaterInsights, September 2020)

The acute lack of water seriously impacted not only the environment, but towns and economic activity across the State.

By February 2020, the drought had been going for more than three years in many parts of regional NSW, with most catchments on stage 4 critical drought status. Many rivers had ceased to flow and supplies in some dams had exhausted (e.g. Keepit Dam) or were

[7] The Northern basin only received 216GL in 2018 and 147GL in 2019.

dwindling (Burrendong Dam at 1.4%). According to WaterNSW modelling, if there were no significant rainfall events within the year, most regional storages would have run dry, with supplies exhausted.

Running out of water would have had major impacts on the environment and regional economies, further hindering agricultural and industrial production. Adding to this was three successive years of zero general security allocations experienced across most of the State.

However, for towns relying on surface supply and where there are limited viable alternative options (i.e. very limited viable water carting option, no desalination, and limited available groundwater resources), the impact of running out of water would be catastrophic. Should entire water supplies be exhausted, one extreme outcome would be for entire towns to evacuate. Such a traumatic event would have devastating and lasting impacts on towns and communities.

Thankfully, many (but not all) of the worst impacts of the drought were delayed or avoided, due largely to the existence and management of bulk water assets including dams, weirs and pipelines. The storage of inflows captured in WaterNSW dams during floods from previous years, and released during drought conditions, maintained flows in rivers for longer than would otherwise have been the case. In addition, the effective management of existing assets, and the delivery of emergency assets built in response to the drought (such as the Chaffey to Dungowan Pipeline), helped prolong supplies for critical human needs.

Long periods of drought, punctuated by short, intense periods of rain and flood, are a common and unavoidable feature of the Australian climate. Although the risks associated with a variable climate are ever-present, their impacts can be mitigated through a combination of operational, asset and policy responses. Indeed, the adversity experienced by regional and rural communities during the current drought highlights the pressing need to explore all these options. This is to better prepare our communities for the next drought and contribute to safe, healthy and prosperous regional communities.

WaterNSW's involvement with the Projects

The delivery of the Projects falls under the contracted role of WaterNSW to deliver infrastructure studies, Business Cases and NSW Government priorities and including decisions under SOC Act directions. Each of the Projects is currently progressing through the Gateway Review System.

Historically, the delivery of the Projects by WaterNSW evolved out of work that commenced as early as 2014. A general overview of the key studies is outlined below:

a) the NSW Government's State Infrastructure Strategy Priority Catchment studies;

b) WaterNSW's 20 Year Infrastructure Options Study (rural valleys); and

c) Commonwealth-funded feasibility studies.

The NSW and Commonwealth Governments have been informed by these studies in their decisions to progress the Projects**.** Further detail on each of these historical aspects of the Projects is provided below and in Annexure B.

a) NSW Government's State Infrastructure Strategy Priority Catchment Studies

Starting in 2014 through the INSW State Infrastructure Strategy (**SIS**), the NSW Government identified specific "*Priority Catchments*" in the regional valleys and projects for further investigation.

The SIS (2014 and 2018)[8] listed several high priority catchments for the delivery of critical infrastructure projects – including the Lachlan and Macquarie Valleys. These catchments had been identified to have "*low Irrigation and drought security due to low/variable rainfall, high evaporation and limited storages*".

In delivering this strategy, the NSW Government funded WaterNSW to undertake several studies on infrastructure options for each valley. These included:

a) the Lachlan Valley Water Security Study – Phase 1 and 2;

b) Macquarie Priority Catchment Study; and

[8] INSW, *State Infrastructure Strategy Update 2014* (November 2014) <https://www.infrastructure.nsw.gov.au/media/1090/inf_j14_871_sis_report_book_web_new.pdf>, accessed 18 September 2020.

c) Gwydir Priority Catchment study.

The purpose of these studies was to investigate and compare options for securing water security outcomes in each valley. In preparing the SIS studies, INSW developed a needs identification framework to identify the regulated river valleys facing the most significant water management challenges. This was done using four quantitative indices, namely, the:

a) Irrigation Drought Security Index;

b) Flow Utilisation Index;

c) Flood Management Index; and

d) Delivery Efficiency Index.

The SIS proposed several possible infrastructure solutions. In conducting this work, WaterNSW undertook a range of investigative studies, ranging from engineering studies to high-level preliminary cost/benefit analyses. However, these studies were initial studies, or Preliminary Business Cases, used to inform decisions in relation to whether to proceed to undertake more detailed studies or prepare a Final Business Case.

b) The 20 Year Infrastructure Options Study (rural valleys)

The NSW Government's SIS Update (2014) also recommended that WaterNSW "*develop a best practice 20-year capital plan for bulk water supply to provide the evidence base for pricing applications going forward*".[9]

In response, WaterNSW developed a "*20 Year Infrastructure Options Study*" (**Infrastructure Options Study**) to guide long-term water planning in relation to NSW's regulated river valleys. It explored bulk water infrastructure options to improve customer Levels of Service (**LOS**) and respond to future challenges.[10]

The Infrastructure Options Study was designed to address customer service needs and was based on a series of consultations with customers and stakeholders including through Customer Advisory Groups (**CAGs**) to determine LOS needs.

[9] INSW, *State Infrastructure Strategy Update 2014* (November 2014) <https://www.infrastructure.nsw.gov.au/media/1090/inf_j14_871_sis_report_book_web_new.pdf>, accessed on 18 September 2020, page 80.
[10] WaterNSW, *20 Year Infrastructure Options Study, Summary Report* (June 2018) <https://www.waternsw.com.au/__data/assets/pdf_file/0019/132616/20-Year-Infrastructure-Options-Study-June-2018.pdf> accessed on 17 September 2020.

The context for the Infrastructure Options Study is important and is described in the Context Chapter of the Infrastructure Options Study as follows:

> *"This Options Study identifies infrastructure options that were considered successful in qualitatively addressing our perceived LOS gaps within a valley. Should customers or government wish to explore the opportunities to close the identified LOS gaps, then we recommend the identified options be investigated in more detail.*
>
> *This Options Study will be further developed with appropriate customer input, technical assessment and cost-benefit analysis. Customers will be consulted about their long-term LOS priorities and the infrastructure options they will support to meet those needs.*
>
> *The cost estimates presented in this document are strategic (pre-feasibility) level estimates, and so carry inherent uncertainty commensurate with the level of detail of this work. The cost estimates were prepared for options comparison only. The infrastructure sizes and costs will be further reviewed in future studies.*
>
> *This Options Study is not a Capital Investment Plan for WaterNSW, but rather a baseline to guide future decision making and benchmark future investments.*
>
> *It does not address the potential operational or regulatory options that need to be considered when making investment decisions. These options are being developed by WaterNSW in parallel and will come together prior to WaterNSW's 2021 rural price review."*

The Infrastructure Options Study was published in June 2018 and involved a preliminary options study that identified a series of preferred options warranting further consideration. These preferred options were selected based on their ability to meet the identified operational or infrastructure gaps in meeting our customers' preferred LOS. The preferred options were then refined and analysed further.

The Infrastructure Options Study established a benchmark for WaterNSW's future operational landscape. It provided a robust strategic approach for infrastructure development and informed discussion on broader NSW Government and WaterNSW investment priorities. For WaterNSW, the Infrastructure Options Study provided a context for informing our asset

management and investment decisions and whether to upgrade, replace or remove our ageing assets.

Since publishing the Infrastructure Options Study in 2018, WaterNSW has been undertaking further technical analysis and engagement with our customers on many of the preferred options. This engagement and consultation is intended to identify if there are solutions and investments that deliver benefits: at a cost that our customers are willing to pay; and, for which our customers wish to see Business Cases developed. The cost to advance those Business Cases is then proposed to be supported for inclusion in WaterNSW's next Rural Valleys pricing proposal to IPART. This engagement is a part of, and consistent with, its regulatory obligations under the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW) to consult with customers on pricing proposals.

In addition, there are some options that may deliver significant benefits (such as water security and reliability) to the community more generally but which come at a significant cost to end users. In these circumstances, it has on occasion been the NSW Government which has sought to fund (or direct WaterNSW to fund) further investigations to prove the case for the investment (for example, the SIS Priority Catchment Studies).

All of the Projects (including the need for a strategic approach to the Western Weirs, prior to the Project being scoped) were identified in the Infrastructure Options Study as solutions to meet identified LOS opportunities.

c) Commonwealth-funded feasibility studies

In 2015, the Commonwealth Government established the National Water Infrastructure Development Fund (**NWIDF**) to deliver "*planning and construction of water infrastructure projects that will deliver new and reliable water to enhance water security and underpin regional economic growth, including irrigated agriculture and other primary industries*".[11]

The NWIDF has two parts, a feasibility component and a capital component. WaterNSW was contracted and funded by DPIE Water (acting on behalf of the Commonwealth) to undertake an investigation into the:

[11] Australian Government, *National Water Infrastructure Development Fund* <https://www.nationalwatergrid.gov.au/nwi-development-fund>, accessed on 18 September 2020.

a) feasibility of building the Dungowan Dam and develop a Preliminary/Strategic Business Case in relation to the recommended infrastructure solution that improves water security and flood security. WaterNSW completed this work in 2017, which resulted in the Peel Valley National Water Infrastructure Development Fund Feasibility Study; and

b) financial and technical feasibility of a major water storage on the Mole River to supply security to users in the Border Rivers catchment. WaterNSW completed this work in 2017, which resulted in the Border Rivers National Water Infrastructure Development Fund Feasibility Study.

The Peel Valley National Water Infrastructure Development Fund Feasibility Study focussed on the augmentation or replacement of the existing Dungowan Dam as well as options for connectivity with Chaffey Dam and the Calala Water Treatment.

The Mole River Dam Feasibility Study Report considered options for a 100, 200 and 300 GL dam on the Upper Mole River. Non-asset options have already been approved and implemented and include water licence buy-backs, on-farm efficiency improvements and capacity building to facilitate improved water efficiency. Other dam locations were not considered as part of the study.

Copies of these studies are available on the WaterNSW website.

NSW and Commonwealth Government initiatives in relation to the Projects

Based on the strength of opportunity identified in earlier studies listed above, the NSW (and Commonwealth) Government made decisions to progress the Projects to advance their water security policy objectives.

Macquarie River Re-Regulating Storage

On 8 October 2018, the NSW Government announced funding for WaterNSW to deliver a Final Business Case for a new re-regulating storage on the Macquarie River.[12] This option was identified in the NSW Government's Macquarie Priority Catchment Study as part of the SIS, and WaterNSW's 20 year Infrastructure Options Study.

[12] NSW Government, *NSW Government Response to the Inquiry into the augmentation of water supply for rural and regional New South Wales* <https://www.parliament.nsw.gov.au/lcdocs/inquiries/2390/Government%20response%20-%20Water%20augmentation%20-%2014%20November%202018.pdf>, accessed on 18 September 2018.

Western Weirs Project

On 26 February 2019, the NSW Government announced funding for WaterNSW and DPIE Water to investigate the feasibility of the Western Weirs Project. The Western Weirs Project has also been declared a CSSI Project under Schedule 3 of the Critical Needs Act.

3 Regional Dams Projects - Wyangala Dam, Dungowan Dam and Mole River Dam.

In October 2019, the Prime Minister and NSW Premier announced the planning and delivery of the Wyangala Dam Wall Raising Project, the Dungowan Dam Project, and the Mole River Project (together, the **3 Regional Dams Projects**). In line with this announcement, in May 2020 the Hon. Melinda Pavey, Minister for Water, Property and Housing, provided a direction to the Board of WaterNSW under section 20P of the SOC Act, to advance the planning and early works for the 3 Regional Dams Projects.

The NSW Government has also declared the 3 Regional Dams Projects to be CSSI Projects under Schedule 3 of the Critical Needs Act.[13] The 3 Regional Dams Projects have and will be assessed under the Gateway Review System, with regular reporting to both INSW and Cabinet.

[13] The *Water Supply (Critical Needs) Act 2019* (NSW) was passed by the NSW Parliament in November last year.

Overview of projects

Wyangala Dam Wall Raising Project

Overview

WaterNSW has been directed to advance planning works and delivery of the Wyangala Dam Wall Raising Project.[14] The project is one of the 3 Regional Dams Projects (along with the Dungowan Dam Project and Mole River Dam Project) and is declared to be CSSI under Schedule 3 of the Critical Needs Act.

The Wyangala Dam Wall Raising Project consists of:

a) the early works and pre-construction activities;

b) preparing the Final Business Case; and

c) preparing the EIS.

The commencement of early works is scheduled for late 2020 with full construction starting in October 2021.

[14] Parliament of NSW, *Direction to the Board of Water NSW (responsibility for progressing the Wyangala, Dungowan and Mole River Dam Projects) 2020, together with a notice of reasons for giving Direction* <https://www.parliament.nsw.gov.au/la/papers/Pages/tabled-paper-details.aspx?pk=78061>, accessed 18 September 2020.

Background

The Lachlan Valley has some of the poorest levels of water security and reliability in NSW in terms of regulated and licensed irrigation and urban water supply, and the region was dramatically impacted by both the Millennium drought and the current drought.

As noted by Minister Melinda Pavey in her Direction to the WaterNSW Board (13 May 2020):

> *"The current drought situation in the Lachlan region is now the most severe on record. The Lachlan and the Belubula Rivers have experiences stage 3 drought restrictions and there have been unprecedented water shortages in many towns in the region. Increasing the capacity of the Wyangala Dam by raising the dam wall will ensure the long-term water security for Cowra, Forbes and Parkes, and provide flood mitigation for Lachlan region."*[15]

The Lachlan Valley was identified as a "*priority catchment*" in the SIS for investment and delivery of critical water projects.[16] Following a specific feasibility study by WaterNSW into appropriate infrastructure responses to address issues in the Lachlan Valley, the Wyangala Dam Wall Raising Project was identified for its ability to provide the Lachlan Valley greater water security and mitigate against the impacts of flood. It was also identified in the Infrastructure Options Study as a solution to meet LOS opportunities in the Lachlan Valley. The project also provides dam safety benefits relating to flood risk.

The Wyangala Dam Wall Raising Project will involve raising the dam wall by around 10 metres. The exact height and new full supply level will be confirmed in the coming months as a result of the project development process and as detailed investigations, technical assessments and site inspections are undertaken. The raised dam will contribute to a steep improvement in water security, drought security and flood management capacity for the Lachlan Valley region.

The Wyangala Dam Wall Raising Project is a Tier 1 Project under the Gateway Review Framework. Accordingly, it will pass through all seven "*Gates*" in the Gateway Review Framework and receive close scrutiny at regular intervals by both INSW and Cabinet. As the

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[15] Parliament of NSW, Direction to the Board of Water NSW (responsibility for progressing the Wyangala, Dungowan and Mole River Dam Projects) 2020, together with a notice of reasons for giving Direction (13 May 2020) <https://www.parliament.nsw.gov.au/la/papers/Pages/tabled-paper-details.aspx?pk=7806>, accessed on 18 September 2020.

[16] INSW, *State Infrastructure Strategy Update 2014* (November 2014) <https://www.infrastructure.nsw.gov.au/media/1090/inf_j14_871_sis_report_book_web_new.pdf>, accessed 18 September 2020.

Project has been declared as CSSI, it will be delivered on an accelerated timeline while still meeting all the necessary planning requirements and approvals. As outlined above, the accelerated timeline will be achieved by running procurement and design progression in parallel with the EIS and Final Business Case development so that the Project is ready to commence work as soon as practicable following planning approval (if obtained) and completion of any pre-construction requirements.

Recent developments

WaterNSW is currently undertaking a range of environmental surveys including ecological biodiversity, geological, heritage including European and Aboriginal cultural heritage and aquatic surveys to determine the environmental impact of the project. These surveys are taking place on both the Lachlan and the Abercrombie sides of the dam. The EIS is currently being prepared after the Secretary's Environmental Assessment Requirements (**SEARs**) were issued in July 2020.[17] The EIS will be finalised for public display in 2021.

[17] DPIE, Environmental Assessment Requirements - Wyangala Dam Wall Raising Project (27 July 2020) <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-10047%2120200727T053835.671%20GMT>, accessed on 15 September 2020.

Dungowan Dam and Pipeline Project

Overview

The Dungowan Dam and Pipeline Project is one of the 3 Regional Dams Projects and is declared to be CSSI under Schedule 3 of the Critical Needs Act.

The project involves the following components:

a) a new 22.5 GL Dungowan Dam on Dungowan Creek - approximately 3.5 km downstream of the existing Dungowan Dam;

b) a new delivery pipeline from the new Dungowan Dam to the Calala Water Treatment Plant to replace the current end-of-life pipeline; and

c) the decommissioning/partial decommissioning of existing Dungowan Dam.

WaterNSW has been directed to advance planning and early works for the Dungowan Dam and Pipeline Project.[18] This consists of:

a) early works and pre-construction activities;

b) preparing the Final Business Case; and

c) preparing the EIS.

[18] Parliament of NSW, Direction to the Board of Water NSW (responsibility for progressing the Wyangala, Dungowan and Mole River Dam Projects) 2020, together with a notice of reasons for giving Direction (13 May 2020) <https://www.parliament.nsw.gov.au/la/papers/Pages/tabled-paper-details.aspx?pk=7806>, accessed on 18 September 2020.

The Dungowan Dam and Pipeline Project is scheduled to commence early works in October 2020.

Background

In 2017, the Commonwealth Government funded the Peel Valley National Water Infrastructure Development Fund Feasibility Study through the National Water Infrastructure Development Fund. The study, conducted by WaterNSW, confirmed the technical feasibility of a new Dungowan Dam and upgraded pipeline.

The principal objective of the Dungowan Dam project is to secure the long-term water supply security for the regional city of Tamworth. The project will enable future population growth for Tamworth which, together with an already-augmented Chaffey Dam, will maintain a productive level of general security reliability and water use for irrigation. Over time, this objective is expected to underpin water affordability that will support broader agricultural productivity benefits for the region.

In May 2020, Minister Pavey provided a Ministerial Direction to the WaterNSW Board under section 20P of the SOC Act to submit a Final Business Case for the project by July 2021.

In her Ministerial Direction (13 May 2020), Minister Pavey stated that:

> "*There are growing risks in relation to water security in the Namoi region, particularly with regard to town water supplies for Tamworth and water access along the Peel Valley. Drought conditions have been severe in the Namoi region, with Stage 4 drought conditions in the Peel valley, and Stage 3 drought conditions in the Upper and Lower Namoi. Constructing the new Dungowan Dam and upgrading the Dungowan pipeline will secure town water supplies for Tamworth, support population growth and improve water security for the region*."[19]

As the Project has been declared to be CSSI, it will be delivered on an accelerated timeline while still meeting all the necessary planning requirements. As outlined above, the accelerated timeline will be achieved by running procurement and design progression in parallel with the EIS and Final Business Case development so that the project is ready to

[19] Parliament of NSW, Direction to the Board of Water NSW (responsibility for progressing the Wyangala, Dungowan and Mole River Dam Projects) 2020, together with a notice of reasons for giving Direction (13 May 2020) <https://www.parliament.nsw.gov.au/la/papers/Pages/tabled-paper-details.aspx?pk=7806>, accessed on 18 September 2020.

commence work as soon as practicable following planning approval and completion of any pre-construction requirements.

Recent developments

WaterNSW is in the process of undertaking geotechnical investigations in the area between Dungowan Village and Callala, as well as environmental investigations such as biodiversity and heritage surveys in the area between Dungowan Dam and Dungowan Village. The EIS is currently being prepared following the release of the SEARS for the Project in July 2020.[20] The EIS will be finalised for public display in 2021.

[20] DPIE, *Environmental Assessment Requirements - Dungowan Dam* (27 July 2020) <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-10046%2120200727T053308.720%20GMT>, accessed on 16 September 2020.

Mole River Dam

Overview

The Mole River Dam Project is one of the 3 Regional Dams Projects and is declared to be CSSI under Schedule 3 of the Critical Needs Act.

The project involves the "*construction of a rockfill dam and associated spillway and other infrastructure to provide nominally 100 gigalitres (GL) of storage capacity*".

WaterNSW has been directed by the NSW Government to advance planning for the Mole River Dam Project. This consists of:

a) preparing the Final Business Case; and

b) preparing the EIS.

The Mole River Dam Project is scheduled to commence construction in October 2022.

Background

In 2017, WaterNSW completed the Border Rivers Infrastructure Investment Feasibility Study, funded by the National Water Infrastructure Development Fund. The study confirmed the technical and financial feasibility of a new dam on the Mole River to provide water supply security within the Border Rivers catchment. A Final Business Case was recommended to explore those opportunities and issues in greater detail as well as to confirm the benefits and costs of the proposal. The Mole River Dam Project was also identified in the 2018 Infrastructure Options Study as a preferred option to address issues in relation to water availability in the Border Rivers area.

The Border Rivers is a large catchment that services both NSW and Queensland users. Its water supply is serviced by three relatively small catchment dams and large on-farm storages. A new dam will have the potential to secure more water in flood sequences so that in drier times more water would be available to communities, agriculture, and the environment.

In October 2019, based on the strength of the opportunities provided by the Mole River Dam Project, the Commonwealth and NSW Governments announced $24 million in funding for the development of a Final Business Case which is being delivered by WaterNSW.

In May 2020, Minister Pavey issued a Ministerial Direction to the WaterNSW Board under section 20P of the SOC Act to submit a Final Business Case for the project by July 2021.[21]

In her Ministerial Direction (13 May 2020), Minister Pavey stated that:

> *"The Border Rivers region is heavily dependent on agriculture. Low reliability of water supply is eroding on-farm productivity and is a significant issue for the region. Investigations will consider the potential for a Mole River dam to improve the reliability of water supply and other possible benefits such as mitigation of flood damage."*

The Project is expected to deliver the following key benefits:

a) enabling sustained on-farm productivity as a result of more reliable and secure water supply;

b) increasing reliability for agricultural production, which will help secure existing jobs and create new opportunities;

c) improving security of town water supply and providing flood mitigation;

d) supporting the downstream Barwon-Darling system through increased flow reliability and associated environmental health outcomes; and

e) shared benefits between Queensland and NSW.

Recent developments

WaterNSW is currently undertaking a range of environmental investigations around the Mole River Dam Project including biodiversity, ecological and heritage surveys in relation to the

[21] Parliament of NSW, *Direction to the Board of Water NSW (responsibility for progressing the Wyangala, Dungowan and Mole River Dam Projects) 2020, together with a notice of reasons for giving Direction (13 May 2020)* <https://www.parliament.nsw.gov.au/la/papers/Pages/tabled-paper-details.aspx?pk=7806>, accessed on 18 September 2020.

project. The EIS is currently being prepared following the release of the SEARS for the project in July 2020.[22] The EIS will be finalised for public display in 2021.

[22] DPIE, *Environmental Assessment Requirements - Mole River Dam Project* (27 July 2020) <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-10045%2120200727T053608.985%20GMT>, accessed on 16 September 2020.

Macquarie River Re-Regulating Storage Project

Overview

WaterNSW has been funded by the NSW Government to deliver Macquarie River Re--Regulating Storage Project.[23] The project involves a proposed gated re-regulating weir and fishway structure on the Macquarie River between the townships of Warren and Narromine.

WaterNSW's involvement in the project consists of:

a) preparing the Final Business Case; and

b) following the investment decision, preparing the EIS.

The Final Business Case is expected to be submitted in late 2020.

[23] WaterNSW, Macquarie River Re-regulating Storage - Scoping Report (January 2020) <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PDA-1315%2120200303T024253.055%20GMT>, accessed on 16 September 2020.

Background

The Macquarie River Re-Regulating Storage Project arose out of the SIS and WaterNSW's Infrastructure Options Study (2018). In 2019, following the SIS and Infrastructure Options Study, a comprehensive list of "*build*" and "*non-build*" options was developed by WaterNSW for further consultation with community and stakeholders, to assist with addressing water access reliability and resilience for the Macquarie Valley. The Macquarie River Re--Regulating Storage Project was one of these options and was shortlisted and ultimately recommended to proceed.[24]

Following initial option investigations and consultation, the preferred site for the re-regulating weir was identified. It will be located about 200 metres downstream of the existing Gin Gin Weir.

The benefits of the Macquarie River Re-Regulating Storage Project include improvements to long term water security, delivery efficiency and reducing transmission losses in delivering water through the system.

The project will improve long-term water security using an adaptable, gated structure that can better manage supply to towns and industries downstream and be within the requirements of the Sustainable Diversion Limits set under the Murray Darling Basin Plan.

The gated structure will temporarily capture the operational surplus (excess dam releases from cancelled water orders and savings in delivery losses) and then release this volume to meet downstream water orders when needed. A new state-of-the-art fishway would also accommodate the free passage of fish up and down 140 kilometres of river for the first time in over 100 years, following the full or partial removal of the damaged Gin Gin Weir.

Tributary flows excess to operational requirements will continue through the new gated structure to downstream communities to the Macquarie marshes. Monitoring gauges will be upgraded as part of the project to ensure flows pass through in accordance with the Water Sharing Plans.

Recent developments

WaterNSW has completed the preliminary assessments including geotechnical studies, hydrological modelling and Aboriginal cultural heritage assessment to inform the Final

[24] WaterNSW, Macquarie River Re-regulating Storage - Scoping Report (January 2020) <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=PDA-1315%2120200303T024253.055%20GMT>, accessed on 16 September 2020.

Business Case. Following the investment decision, assessments will continue to inform the preparation of an EIS as part of the assessment and consideration of the project. The SEARs for the project were received in March 2020 and supplementary SEARS received in July 2020.[25] These SEARs will be addressed in the EIS, which is expected to be on public exhibition in mid-late 2021.

[25] DPIE, *Planning Secretary's Environmental Assessment Requirements - Macquarie River Re-Regulating Storage* (25 March 2020) <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-10044%2120200324T134511.143%20GMT>, accessed on 16 September 2020; DPIE, *Planning Secretary's Environmental Assessment Requirements - Macquarie River Re-Regulating Storage* (21 July 2020) <https://majorprojects.planningportal.nsw.gov.au/prweb/PRRestService/mp/01/getContent?AttachRef=SSI-10044%2120200721T021733.102%20GMT>, accessed on 15 September 2020.

Western Weirs Project

Overview

The NSW Government has committed $4.2 million to WaterNSW and the DPIE Water to jointly deliver a Strategic Business Case (feasibility study) for the Western Weirs Project. [26]

Background

The Western Weirs Project covers the Barwon-Darling River, which comprises both the Barwon-Darling Unregulated River Water Source and the Lower-Darling Regulated River Source, from Mungindi to Wentworth. There are over 29 weirs along the Barwon-Darling River and the adjoining tributaries. WaterNSW owns many weirs in the system.

The current infrastructure is also known to have several deficiencies including: the poor condition of some weirs; no system level functionality; flow regulation limitations; town water supply and security concerns; and unclear responsibility of some structures.

The Strategic Business Case (feasibility study) will examine the proposal for the holistic management and operation of the weirs in the Barwon-Darling unregulated and Lower Darling regulated systems to support remote community water security and other benefits.

If fully implemented, this project is expected to deliver:

[26] WaterNSW, *Project Update - June 2020* - Western Weirs <https://www.waternsw.com.au/__data/assets/pdf_file/0003/157611/Western_Weirs-Project-update_June-2020.pdf>, accessed on 15 September 2020.

a) construction of a new integrated system of gated weirs to replace current fixed weirs along the river allowing WaterNSW to more effectively manage flow along the whole system;

b) provision of fish passage on all new and existing fish barriers along the river;

c) removal of weirs and structures that provide no benefit to the system;

d) implementation of new ownership, maintenance, operations and cost recovery arrangements for infrastructure and operations along the river; and

e) amendments of the Water Resource Plan considering the new operational regime on the river.

Key benefits that are expected to be achieved include:

a) improved water resource management and enhanced water security for all water users;

b) improvement of river health and reduction of no-flow events;

c) better management of environmental flows (including first flush and low-flow scenarios);

d) collective outcomes likely to provide positive flow-on benefits and revitalise the regional communities and economies in the remote far west of NSW;

e) improved asset condition and capability; and

f) additional control barriers to enable local water utilities to manage water quality for town supplies.

Recent developments

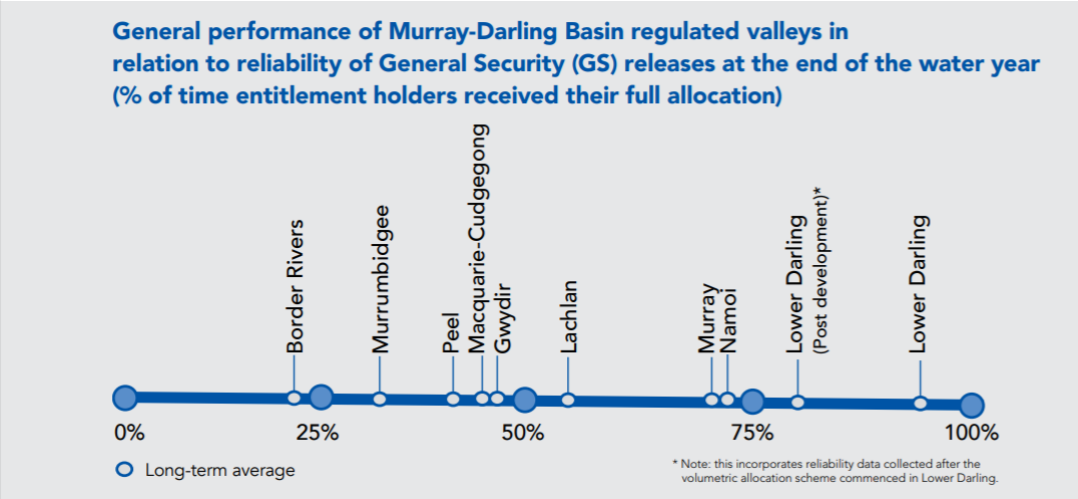
The Strategic Business Case is scheduled for completion in 2021. However, the timeline is subject to change due to the impacts of restrictions from the COVID-19 pandemic.

Response to Terms of Reference

Given the information outlined in the sections above, we provide some additional information responsive to each Item of the Terms of Reference.

Item (1)(a) - the need for the projects, including the historical allocation of water and consideration of other options for ensuring water security in inland region

Historically, regional NSW has been subject to intense periods of drought. This has had wide impacts, including lower water allocations across the Murray--Darling Basin. On average, general security licence holders in the Border Rivers, Murrumbidgee, Peel, Macquarie, Gwydir and Lachlan Rivers only receive a full allocation about once every two to four years. Water allocation announcements are made by DPIE Water.



Source: 20 year infrastructure options study (rural valleys), 2018

The NSW and Commonwealth Governments have made clear their intention to improve water security in inland regions through investments in new infrastructure. These decisions have been informed by a series of studies conducted, since 2014, into valley-specific infrastructure options (as outlined earlier).

Item (1)(b) - the economic rationale and business case of each of the projects, including funding, projected revenue, and the allocation and pricing of water from the projects,

As outlined above, WaterNSW is currently in the process of preparing detailed Business Cases and EIS documents for the 3 Regional Dams Projects, a detailed Business Case and, following an investment decision, an EIS for the Macquarie River Re-Regulating Storage Project, as well as the Strategic Business Case for the western weirs project.

This work will outline the proposed revenue sources, water allocation and pricing for the Projects. A full picture of the issues associated with each of the individual Projects will therefore not be known until this work is completed.

Item (1)(c) - the environmental, cultural, social and economic impacts of the projects, including their impact on any national or state water agreements, or international environmental obligations

As set out above, work is underway investigating the Projects. This includes environment assessments detailing the potential environmental, cultural, social and economic impacts. The EIS process can lead to recommendations to mitigate impacts where required. For the same reasons as set out above in relation to Item 1(b) of the Terms of Reference, as the respective Business Cases and EIS documents are in the process of being prepared, the full picture in relation to the environmental, cultural, social and economic impacts of the Projects will not be known until this work is completed.

However, as a general principle, the Projects will aim to avoid, mitigate and offset any impact from construction and operation through innovation, design and implementation of ongoing management plans. This includes any adverse impacts on flora and fauna.

The Projects will need to comply with all applicable legislation and statutory instruments, including the Water Sharing Plans. If and where there is a need to amend Water Sharing Plans or create new Water Sharing Plans, these will be subject to the statutory processes for amendments.

Item (1)(d) - the impacts of climate change on inland waterways, including future projections, and the role of dams and other mass water storage projects in ensuring security of water supply for social, economic and environmental outcomes

Item (1)(d) does not relate to the Projects specifically, but broader considerations around climate change.

Consistent with WaterNSW's roles and functions, the organisation is involved in research into climate change impacts on water availability for dams. This research is progressing but is yet to result in conclusive findings, as accurate predictions for the east coast of Australia for water security purposes are not yet available. For example, temperature increases were predicted consistently by all the models which could lead to drier catchments and reduced inflows during droughts, and major flooding with more extreme rainfall events.

As far as climate change is considered in relation to the Projects that will be assessed as CSSI, WaterNSW will incorporate the latest climate modelling work currently being undertaken by DPIE Water, including for the purposes of underpinning the cost benefit analysis of the detailed Business Cases for the 3 Regional Dams Projects. The EIS for each of the Projects will also require consideration of climate change including contribution of construction to emissions and long-term variability of inflows.

Item (1)(e) - water infrastructure technologies that may promote enhanced environmental outcomes,

The Projects are being designed to meet the environmental objectives as prescribed by the Murray-Darling Basin Plan and respective Water Sharing Plans. This includes delivering water for the environment in the most efficient way possible to deliver the best outcomes.

Throughout the Murray Darling Basin, both the Commonwealth Environmental Water Holder and Department of Planning, Industry and Environment – Environment, Energy and Science (**DPIE – EES**) hold thousands of megalitres of general security water entitlements. Increased water security and reliability from the Projects will lead to increased Available Water Determinations (**AWDs**). Given the historic low levels of AWDs throughout the Murray Darling Basin, this will allow environmental customers greater flexibility to manage their entitlements to achieve their environmental watering objectives.

Item (1)(f) - any other related matter

WaterNSW has addressed background matters earlier in this submission, which may assist the Inquiry.

We trust that this submission is of assistance to the Committee in relation to the Inquiry that it is conducting.

Annexure A – Terms of Reference

TERMS OF REFERENCE

1. That Portfolio Committee No.7 - Planning and Environment inquire into and report on the rationale for, and impacts of, new dam and mass water storage projects proposed by Water NSW including Wyangala, Mole River and Dungowan Dam projects, the Macquarie River reregulating storage project, the Menindee Lakes Water Savings Project and the Western Weirs project, particularly:

(a) the need for the projects, including the historical allocation of water and consideration of other options for ensuring water security in inland regions,

(b) the economic rationale and business case of each of the projects, including funding, projected revenue, and the allocation and pricing of water from the projects,

(c) the environmental, cultural, social and economic impacts of the projects, including their impact on any national or state water agreements, or international environmental obligations,

(d) the impacts of climate change on inland waterways, including future projections, and the role of dams and other mass water storage projects in ensuring security of water supply for social, economic and environmental outcomes

(e) water infrastructure technologies that may promote enhanced environmental outcomes,

(f) any other related matter.

2. That the committee report by 22 March 2021.

Annexure B – Timeline

	Wyangala Wall raising	Dungowan Dam and Pipeline	Mole River Dam	Macquarie River Re-Regulating Storage	Western Weirs Program
2014	**June** NSW Deputy Premier announces $1M for feasibility study into Cranky Rock Dam **October** Commonwealth identify new dam on Belubula River (Needles Gap) increasing water security in the Lachlan valley as suitable for further assistance to accelerate feasibility, CBA and design studies **November** NSW Government identifies Lachlan as priority catchment under State Infrastructure Strategy (SIS)		**October** Commonwealth identify Mole River Dam as suitable for further assistance to accelerate feasibility, CBA and design studies **November** Government identifies Mole River Dam as possible solution for improved flood management with water security benefits in Border Rivers.	**November** NSW Government identifies Macquarie as priority catchment under State Infrastructure Strategy (SIS)	
2015	**March** Feasibility study (phase 1) completed by WaterNSW - recommends further study into build and non-build options				
2016		**June** Commonwealth announce funding for NWIDF study ($850k)	**June** Commonwealth announce funding for NWIDF study ($550k)		
2017		**September** NWIDF feasibility study completed by WaterNSW	**September** Feasibility study completed by WaterNSW		
Start of 2018	**April** Feasibility study (phase 2) completed by WaterNSW **June** Project identified in 20 year infrastructure options study	**June** Project identified in 20 year infrastructure options study	**June** Project identified in 20 year infrastructure options study	**June** Project identified in 20 year infrastructure options study	**June** Need for strategy for unregulated weir assets identified in 20 year options study

2018 continued	**30 October** Minister Niall Blair announces intention to proceed with Wyangala dam wall raising project and fund a final business case **October** Project included in Commonwealth and NSW Government's $1bn commitment			**October** Minister Blair announces future funding allocation for business case for a new regulator on the Macquarie River ($1.2m) **November** WaterNSW completes options report as part of Macquarie SIS study, which identifies feasible options for further detailed assessment – including confirming MRRRS project	
2019	**October** Project included in Commonwealth and NSW Government's $1bn commitment **October** NSW Government lists project in schedule 3 of Critical Needs (Water Supply) Act 2019	**October** Project included in Commonwealth and NSW Government's $1bn commitment **October** NSW Government lists project in schedule 3 of Critical Needs (Water Supply) Act 2019	**October** Project included in Commonwealth and NSW Government's $1bn commitment (business case) **October** NSW Government lists project in schedule 3 of Critical Needs (Water Supply) Act 2019	**March** Project planning and investigations commence **June** WaterNSW completes First Draft of Strategic Business Case that considered feasible options in response to the SIS	**February** Minister Niall Blair announces $4.2M for western weirs study **October** NSW Government lists project in schedule 3 of Critical Needs (Water Supply) Act 2019 **November** WaterNSW and DPIE Water contracted to deliver study
2020	**May** WaterNSW receives direction to progress planning and early works	**May** WaterNSW receives direction to progress planning and early works	**May** WaterNSW receives direction to undertake final business case	**May** Macquarie Strategic Business Case complete	**January** Study commences
FUTURE					
2020	**Late 2020** Commence early works Stage 1 of Wyangala Waters Holiday Park Relocation (Water Treatment Plant)	**Late 2020** Commence early works		**November 2020** Estimated time of completion of final business case	
2021	**Mid 2021** Estimated completion of final business case **Mid 2021** EIS on display	**Mid 2021** Estimated completion of final business case **Mid 2021** EIS on display	**2021** Estimated completion of final business case **Mid to late 2021** EIS on display		**2021** Estimated completion of preliminary business case