Decision Framework

For Sydney Desalination Plant Operation

September 2025

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Sydney WATER

Acknowledgement of Country

Sydney Water respectfully acknowledges the Traditional Custodians of the land and waters on which we work, live and learn. We pay respect to Elders past and present.

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1. Background

This Decision Framework provides a clear and transparent framework for Sydney Water to make production requests to Sydney Desalination Plant Pty Limited (SDP P/L) for the Sydney Desalination Plant (SDP) in line with the SDP Operational Approval. It responds to Action 2.2 of the Greater Sydney Water Strategy (GSWS) Implementation Plan which required the amendment of the SDP operating rules to enable flexible operation and optimise its contribution to water supply security and drought management. This framework supports the strategic use of rainfall independent supply to enhance water security while delivering value to customers. In 2022, the NSW Government approved the flexible full-time operation of the SDP under this framework.

2. Review and approval process

This Decision Framework is endorsed by the NSW Department of Climate Change, Energy, the Environment and Water (DCCEEW) and approved by the Minister. Although Sydney Water is the owner and author of this Decision Framework, the purpose of this document is to ensure the operation of SDP aligns with the direction and intention of the GSWS for practical implementation with SDP P/L. Consultation and engagement with DCCEEW and SDP P/L are carried out prior to final endorsement of the Decision Framework.

If there are changes to the GSWS that impact SDP operations, this Decision Framework will be reviewed in consultation with DCCEEW and SDP P/L to ensure that it reflects current government policies or strategies. Minor changes (such as minor administrative changes, introduction or expansion of non-rainfall independent supply) will be provided to DCCEEW and SDP P/L for consultation and seek further advice from DCCEEW on the need for an approval from the Minister.

3. Operating Rule objectives

The GSWS established the Operating Rule for SDP as flexible full-time operation. This aims to balance water security and water continuity risk with total system costs to customers. The key objectives of the rule are set out as below:

SDP Operating Rule objectives:

- Maximise the yield contribution of SDP to Sydney's drinking water supply (water security)
- Slow dam depletion rates during periods of drought risk (water security)
- Operate the total system (the SDP, Water Filtration Plants and drinking water networks) to reduce the risk to the amount of spill from dams where practical (reducing cost to customers).
- Allow Sydney Water and SDP P/L flexibility to respond to emergencies and Critical Maintenance in accordance with good operating practice.

4. Decision Framework for SDP operation

The Decision Framework provides practical guidance for the SDP operation based on trigger levels that achieve the objectives of the flexible full-time operating rule and is illustrated in Figure 1.

Figure 1 Decision Framework for the SDP operation under flexible full-time operating rule

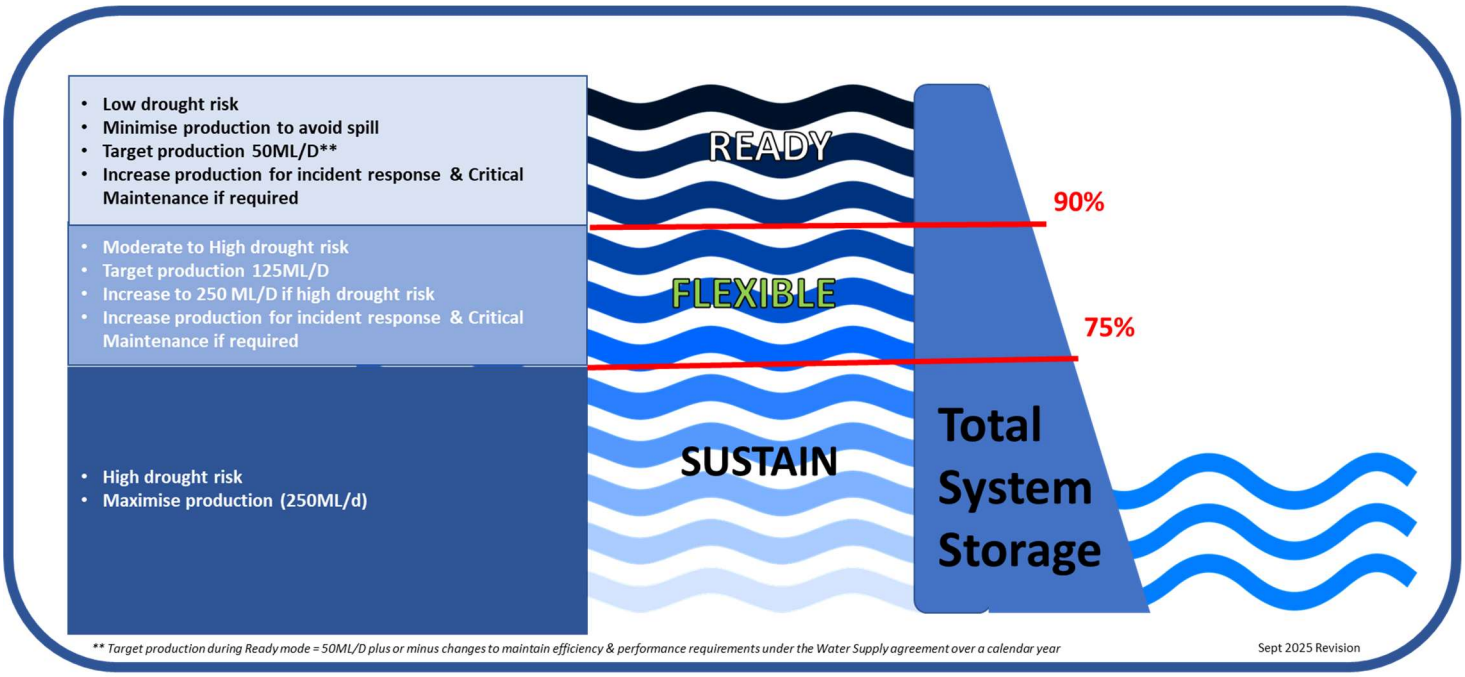


Table 1 provides a summary of the main decision drivers for Annual Production Requests (APR) under the three operating phases shown in Figure 1. All references to production volumes are based on annual averages, and actual production may vary from these values on any given day for operational reasons including routine maintenance.

The key operating phases shown in Table 1 have been determined from extensive modelling and optimisation analysis carried out by WaterNSW. This is to ensure the target productions strike a balance between increasing yield and providing value to customers under average conditions. The modelling identified the storage level at which SDP production should be maximised and is most needed (high drought risk), and the storage level at which production is inefficient and should be reduced to avoid the risk of dams spilling over (high spill risk). Economic analysis determined that maximising production from SDP when drought risk is high is the most cost effective in avoiding higher social economics cost due to higher water level restrictions.

Through Sydney Water's customer engagement program (Our Water, Our Voice), we heard that our customers' first priority is to maintain clean and safe drinking water, followed by affordable water bills. The Decision Framework encompasses our customer's feedback by ensuring that water security is most important, and that production from the SDP is the most cost-effective source of water when utilised.

Table 1: Summary of SDP operating phases

Operating phase	Annual Production Request decision drivers
READY to respond	• Normal operation - Low drought risk. • Spill risks and costs to customers are mitigated by reducing production. • Storage > 90% – **minimum baseline production** of 50ML/D* to maintain a state of readiness to respond to emergencies • Increase production only where required to maintain supply capacity during Critical Maintenance or incidents (**Emergency).** • Maintenance work (SDP P/L and Sydney Water) is prioritised to occur during these periods, where feasible and cost effective.

Operational FLEXIBILITY	• Preparing and responding for drought - drought risk varies between Moderate to High.
	• Flexible operation to balance water security risk with costs to customer.
	• Storage below 90% and above 75%
	• Default target production is 125 ML/D, unless:
	  ○ Drought risk is considered High, in which case production will increase to 250 ML/D (set by the Drought Indicator Dashboard in the Greater Sydney Drought Response Plan.
	  ○ Spill risk is High, in which case consider proactively moving to the minimum volume of 50ML/D.
	  ○ Production must vary (up or down) in order to maintain supply capacity during Critical Maintenance or incidents (**Emergency**).

SUSTAINING dam storage	• **Drought risk** is High • **Maximise** production to maintain water security and slow dam depletion. • Target production of 250ML/D at all times except during Critical Maintenance or outages.

** Target production during Ready mode = 50ML/D plus or minus changes to maintain efficiency & performance requirements under the Water Supply agreement over the financial year*

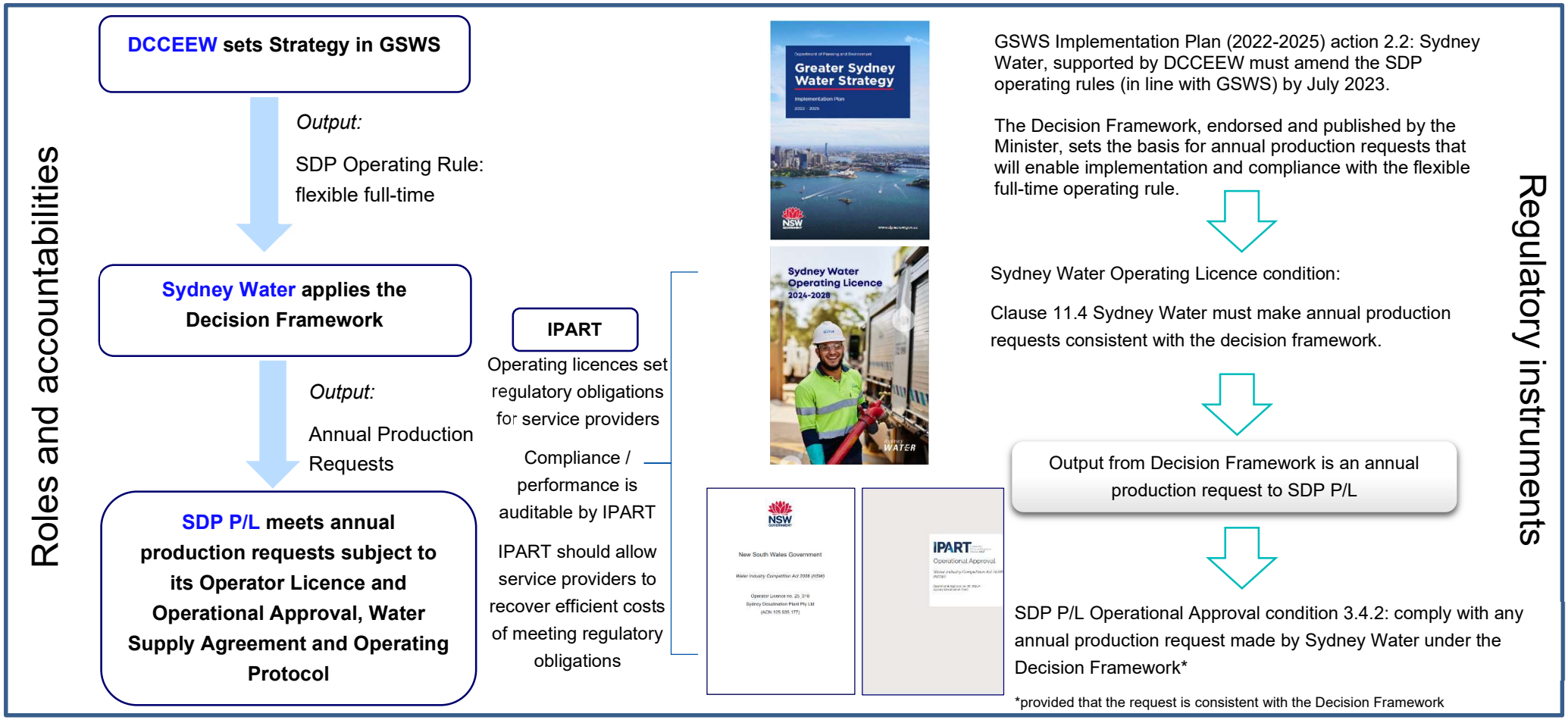
5. Outputs

Sydney Water will apply this Decision Framework when preparing all production requests to SDP P/L including the calculation of the Annual Production Request, Monthly Production Requests and any other production requests that require the production of drinking water from the SDP. SDP P/L will implement the Annual Production Requests from Sydney Water in accordance with its Operator Licence, Operational Approval obligations and the Water Supply Agreement with Sydney Water.

6. Roles and accountabilities

The role of this Decision Framework and its relationship with the SDP, stakeholders and other key documents is shown in Figure 2.

Figure 2: Governance of SDP Operations



7. Glossary and interpretation

Defined terms used in this document have the meaning given to them as set out below. The definitions provided in this document are intended to align with the terminology used in the SDP Stewardship Documents where available. In the event of any discrepancy between the definitions provided below and the definitions in the SDP Stewardship Documents, or to the extent that terms used in this document are not defined, the definitions in the SDP Stewardship Documents apply and take precedence.

Term	Definition
Annual Production Request (APR)	Request made by Sydney Water to SDP P/L for the supply of desalinated drinking water for the duration of the contract / financial year. As per Sydney Water's Operating Licence and SDP P/L Operational Approval, APRs must be consistent with the Decision Framework. An APR established under the Decision Framework for a contract / financial year may be amended by Sydney Water at the six-month review point or at other times agreed between Sydney Water and SDP. **Note** This definition supersedes and replaces section 4.2.2 of the previous version of this document (Rev 1).
Critical Maintenance	Essential maintenance work that is required to protect asset and/or maintain safe drinking water supply to customers.
Decision Framework	This document and has the meaning under the Operational Approval, i.e. "a framework for the Sydney Water Corporation to determine the quantities of drinking water to be supplied from Sydney Desalination Plant, which the Minister, from time to time: (i) consults the registered operator about; (ii) endorses; (iii) publishes; and (iv) brings to the attention of the registered operator and IPART"
Drought Indicator Dashboard	Dashboard prepared by WaterNSW and indicates drought risk as part of the Greater Sydney Drought Response Plan.
Emergency	A circumstance: (a) where there is a potential or immediate threat to: (i) public health or drinking water quality; (ii) public interest or public safety; (iii) the structural integrity or safety of any Water Infrastructure; (iv) the environment; or (v) water supply due to network outages; (b) which may cause material damage to property or injury to persons; or (c) in respect of which a declaration has been made under the Essential Services Act
Monthly Production Request (MPR)	Request made by Sydney Water to SDP P/L on a monthly basis in accordance with the Decision Framework. The MPR sets out and forecast production required for the contract / financial year and triggers a review of the APR when ±10% deviation is met between the MPR forecast and APR.
Operational Approval	Means the operational approval granted by IPART under the Water Industry Competition Act 2006 (NSW) for Sydney Desalination Plant.
Operating Rule	Operating rule for the operation of the SDP, which is currently flexible full-time operation as per GSWS.

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