ATKINS

Member of the SNC-Lavalin Group

WaterNSW Greater Sydney Expenditure and Demand Review

Addendum to Final Report

IPART

27 February 2020

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This document has 11 pages including the cover.

Document history

Document title: Addendum to Final Report

Document reference: 5190978/WNSW/ADD

Revision	Purpose description	Originated	Checked	Reviewed	Authorised	Date
Rev 1.0	For IPART Review	GJ/SJI/JNSJ/SW	SJI	GJ	GJ	17/02/2020
Rev 2.0	For Issue	GJ/SJI/JNSJ/SW	SJI	GJ	GJ	18/02/2020
Rev 2.1	For Issue to IPART	GJ/SJI/JNSJ/SW	SJI	GJ	GJ	27/02/2020

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1. Background

Our Final Report and recommendations were issued to IPART in February 2020 and were based on interviews undertaken in 2019.

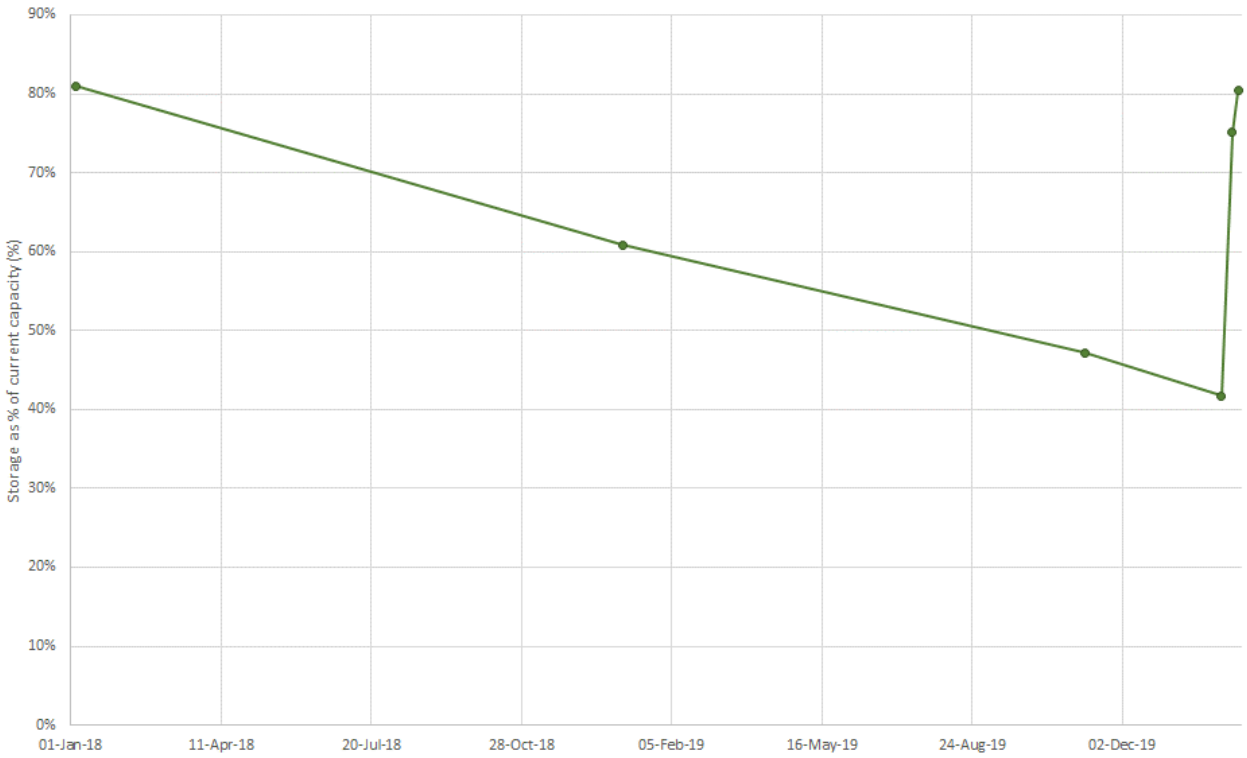
At the time of our review and prior to issuing our Final Report the Greater Sydney area was experiencing an unprecedented drought with dam levels depleting to 41.6% by 6 February 2020.

The recommendations in our Final Report were based on prudent and efficient levels of expenditure in a drought scenario, with reservoir levels well below 50% and continuing to fall.

Following issuing of our Final Report to IPART the Greater Sydney area experienced exceptional rainfall, ranging from 240mm in the Warragamba catchment to 520mm in the Blue Mountains catchment in a single week between 6 and 13 February[1].

This has led to the Greater Sydney dam levels restoring to over 80% of capacity by 17 February 2020.

Figure 1-1 – Greater Sydney reservoir storage levels



Source: WaterNSW Verified Weekly Storage Reports and Atkins/Cardno analysis

Following this dramatic increase in storage volumes and subsequent discussions with IPART we consider it timely to adjust our recommended expenditure levels for the 2020 Determination period. This addendum considers adjustments to our recommended capital and operating expenditure levels which we discuss in turn below.

[1] Source: Greater Sydney water storage and supply report, weekly edition, WaterNSW, 13 February 2020

2. Impacts on our recommendations

We consider that the significant increase in reservoir storage affects our recommendations for two of WaterNSW's proposed schemes, as set out below.

2.1. Avon Deep Water Access - Greater Sydney DRS A (WGO002)

The Avon Deep Water Access Project is the only drought response scheme for which Water NSW included construction costs in the submission. WaterNSW's submission included capex of $245.2M, of which $9.1M in the current Determination period.

This scheme was selected by the drought options study. As we noted in our Final Report:

> *The drought options study does not incorporate sophisticated economic optimisation or set out a clear process of options identification and evaluation. However, our view is that the first tranche of interventions is nonetheless reasonably sensible and robust.*

This was in the context that the drought options study projected that potential supply shortfalls and therefore the schemes with the shortest lead time were likely to be prudent to avoid major supply shortfalls and defer very significant new investment.

Our Final Report concluded that this scheme was likely to be prudent *"**if the drought continues**"*.

We stated that *"the trigger point for commencement of construction will require significant consideration and the construction contracts will need to be structured to take account of the **potential for the decision to be reversed if the drought breaks**"*.

The drought options study recommended that detailed planning for the scheme should commence at [redacted] reservoir storage and construction should commence at [redacted]. When total storage was close to this level and was declining at a rate of approximately 1.5% per month, it was prudent to assume that the scheme would be required in the next Determination period.

With storage on 17 February 2020 in excess of 80%, we no longer consider it prudent to assume that this investment should continue to proceed in the next Determination period. This is because:

1. Total reservoir storage is significantly in excess of (i.e. more than double) the construction trigger set out in the drought options study.
2. As we noted in our Final Report, the drought options study does not incorporate sophisticated economic optimisation or set out a clear process of options identification and evaluation. Deferring this scheme allows time for a more sophisticated drought response and long term supply-demand plan to be developed, which may identify more cost effective or robust solutions.
3. There are benefits to customer bills of deferring construction closer to the time the scheme is likely to be required.

We therefore consider that it is now prudent to stop significant expenditure on the scheme. We have assumed no further expenditure after June 2020. This is reflected in the revised capex and opex schemes below.

2.2. Warragamba Dam Environmental Flows (WGP008)

Our Final Report recommended that the prudent timing of expenditure for the Warragamba Dam Environmental Flows project was to commence construction from 2023/24. This represented a deferral of two years from that proposed by WaterNSW in its submission. Our recommendation to change the timing of this expenditure was due to the following two reasons:

- The time required to decouple this project from the project to raise the Warragamba Dam Wall. Each project has different drivers and require different works but had been progressed together as they impact the same asset.
- Our concerns over WaterNSW's corporate capacity to deliver the project given the urgency of the drought response that WaterNSW had commenced and was delivering at the time of our review and the Final Report.

The recent rainfall and substantial increase and supply storage levels means that we consider that WaterNSW will now be able to scale back its drought response into a more business-as-usual planning rhythm. Accordingly, we consider that WaterNSW will have increased corporate capacity in the coming period to deliver this project. We therefore recommend that the prudent timing for construction is to commence from 2022/23. That is a one

year deferral from that proposed by WaterNSW in its submission but one year sooner than recommended by us in the Final Report.

Our recommendation in the Final Report regarding efficient expenditure being aligned with the direct expenditure allowance in the business case is unchanged.

Our recommended prudent and efficient expenditure for the Warragamba Dam Environmental Flows project is detailed in Table 2-1.

Table 2-1 Warragamba Environmental Flows – Recommended capital expenditure

2019/20 $ 000k	2021	2022	2023	2024	2025	2021-2024	2021-2025
Proposed June 2019 SIR	11,633	39,052	29,189	20,283	6,638	100,156	112,058
Reduction in line with business case	0	-806	-2,707	-2,023	-1,406	-5,537	-6,943
Deferral adjustment	-11,633	-27,420	9,864	8,906	13,645	-20,283	-6,638
Total Atkins recommended adjustment	-11,633	-28,226	7,156	6,883	12,239	-25,820	-13,581
Atkins proposed expenditure	0	10,826	36,345	27,165	18,877	74,337	98,477

2.3. Outputs

We recommend amending the outputs for the Future Determination period as follows

- Removal of the drought output *"Avon Deep Water Storage"*; and
- Amend the recommended date for completion of the "Warragamba E-Flows" project to December 2025.

We consider that it would be useful for a robust Long Term Integrated Drought Management Plan to be developed so that future decisions before and during droughts are soundly based. The plan would need to incorporate a clear process of options identification and evaluation, a clear rationale for any constraints applied, and apply stochastic techniques and real options analysis, or similar. We have not recommended an output related to this as the development of strategic water planning for Greater Sydney is led by the Water and Utilities Branch on behalf of the NSW Government, and support to planning of this sort should be a business-as-usual activity for WaterNSW. Because it is a business-as-usual activity, we have also not recommended any additional expenditure related to it.

3. Revised capital expenditure recommendations

We summarise below our amended capex recommendations for the future Determination period.

Table 3-1 Efficient level of capital expenditure

WATERNSW PROPOSAL - CAPEX - WATER SERVICE							
($M 2019/20) year ending June	2021	2022	2023	2024	2025	2021-24 Total	2021-25 Total
Existing mandatory standards	79.8	69.3	63.6	64.1	44.2	276.8	321.0
New mandatory standards	11.7	10.3	15.6	6.6	0.8	44.2	45.0
Discretionary standards	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Growth - funded by developer charges	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Growth - funded by other	20.9	98.2	108.5	10.5	0.0	238.1	238.1
Government programs	34.8	39.1	29.2	20.3	6.6	123.3	130.0
Business efficiency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	147.2	216.9	216.9	101.5	51.6	682.4	734.0
Atkins/Cardno recommended adjustments for specific programs or projects							
Supply Augmentation Overhead Adjustment	-0.6					-0.6	-0.6
Greater Sydney Resilience Provision	-1.9	-5.7	-5.5	-3.9	-2.0	-17.0	-19.0
Warragamba E-flows	-11.6	-28.2	7.2	6.9	12.2	-25.8	-13.6
Avon Deep Water Access	-18.8	-98.2	-108.5	-10.5	0.0	-236.1	-236.1
[redacted]							
Data Centre (43% allocated of total WNSW expenditure)	-0.1	-0.1	-0.1	-0.1	-0.1	-0.4	-0.6
Property - South West Corridor Depot adjustment	[redacted]						
Fleet - error adjustment				0.3	1.3	0.3	1.6
ADJUSTED EXPENDITURE BEFORE APPLICATION OF EFFICIENCY TARGETS							
Existing mandatory standards	77.7	63.5	57.9	60.5	72.1	259.7	303.1
New mandatory standards	14.2	12.8	15.6	6.6	0.8	49.2	50.0
Discretionary standards	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Growth - funded by developer charges	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Growth - funded by other	1.4	0.0	0.0	0.0	0.0	1.4	1.4
Government programs	2.6	10.8	36.3	27.2	18.9	76.9	95.8
Business efficiency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	95.9	87.1	109.9	94.2	91.7	387.2	478.9
Atkins/Cardno recommended additional capital efficiency targets (beyond those applied by the company)							
Continuing Efficiency (%)	0.80%	1.60%	2.40%	3.20%	4.00%		
Continuing Efficiency ($M)	-0.77	-1.39	-2.64	-3.01	-3.67	-7.8	-11.5
Catch-up efficiency (%)	2.07%	5.13%	7.70%	9.26%	9.83%		
Catch-up efficiency ($M)	-1.98	-4.47	-8.46	-8.72	-9.01	-23.6	-32.6
ATKINS/CARDNO ASSESSMENT OF EFFICIENT EXPENDITURE							
($M 2019/20) year ending June	2021	2022	2023	2024	2025	2021-24 Total	2021-25 Total
Existing mandatory standards	75.5	59.3	52.1	52.9	62.1	239.8	301.9
New mandatory standards	13.8	11.9	14.1	5.8	0.7	45.5	46.2
Discretionary standards	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Growth - funded by developer charges	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Growth - funded by other	1.4	0.0	0.0	0.0	0.0	1.4	1.4
Government programs	2.5	10.1	32.7	23.8	16.3	69.1	85.3
Business efficiency	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Efficient Expenditure	93.2	81.3	98.8	82.5	79.0	355.7	434.8
[redacted]							

3.1. Efficient capital expenditure by asset type

Based on the revised expenditure above we report in Table 3-2 below our amended findings on efficient capital expenditure by service and asset type. [redacted]

Table 3-2 Recommended efficient capital expenditure by asset type

Asset Class (Capital Expenditure $m)	Recommended Asset Life	2021	2022	2023	2024	2025	Total 2021-2024	Total 2021-2025
Dams	200	12.40	18.00	19.86	20.97	16.01	71.23	87.24
Other storages	80	1.47	0.00	0.00	0.00	0.31	1.47	1.78
Meters	15	0.91	0.47	0.57	1.03	0.67	2.98	3.64
ICT systems	10	8.91	3.28	3.56	7.15	5.11	22.89	28.00
Vehicles	5	1.06	0.22	0.27	0.49	0.45	2.05	2.50
Buildings	40	5.00	0.86	0.69	1.23	1.70	7.78	9.48
Plant and Machinery	12	1.01	0.41	0.77	0.50	0.59	2.70	3.29
Pipelines	120	20.16	38.93	51.95	11.69	26.93	122.73	149.66
Major mechanical	30	5.50	2.80	1.14	0.00	2.07	9.44	11.51
system controls	10	3.17	0.93	0.71	1.40	1.37	6.20	7.58
roads/ minor civil	30	33.40	15.31	19.17	37.65	23.66	105.52	129.18
5-year inspections	5	0.21	0.06	0.14	0.35	0.17	0.76	0.93
Major Facilities	30	0.00	0.00	0.00	0.00	0.00	0.00	0.00

4. Revised operating expenditure recommendations

We do not propose any changes to our recommended operating expenditure levels because WaterNSW did not include an explicit allowance for additional opex associated with the Avon Deep Water scheme. For consistency we reproduce our recommended operating expenditure table below.

Table 4-1 Recommended efficient level of operating expenditure for the future Determination period

WATERNSW EFFICIENT LEVEL OF OPERATING EXPENDITURE					
($m 2019/20) year ending June	**2021**	**2022**	**2023**	**2024**	**Total 2021 to 2024**
WATER NSW PROPOSED EXPENDDITURE					
Catchment management	29.22	29.21	30.15	28.19	116.77
Dam safety	8.76	7.95	7.87	7.51	32.09
Water delivery and other operations	27.99	28.90	29.34	29.06	115.28
Maintenance	24.73	24.56	24.59	23.45	97.34
Environmental Planning and Protection	1.07	1.04	1.08	0.87	4.06
Asset Management	1.33	1.30	1.32	1.27	5.21
Other	4.39	4.41	4.42	4.35	17.57
PRE EFFICIENCY OPERATING EXPENDITURE					
Total for Atkins efficiency assessment	97.48	97.37	98.77	94.69	388.32
WNSW EFFICIENCY PROPOSAL					
Total	-0.97	-0.97	-0.99	-0.95	-3.88
WATER NSW PROPOSED EXPENDITURE					
WaterNSW proposed expenditure	96.51	96.40	97.78	93.75	384.44
ATKINS SCOPE ADJUSTMENTS					
CM Land management	-0.40	-0.40	-0.40	-0.30	-1.50
CM Water quality science	-0.50	-0.50	-0.50	-0.50	-2.00
Monitoring	-0.90	-0.90	-0.90	-0.90	-3.60
Additional Monitoring for SWC	-1.00	-1.00	-1.00	-1.00	-4.00
Metro Plan and drought studies	0.00	0.00	-0.90	-0.90	-1.80
Total post-adjustments	94.68	94.57	95.07	91.09	375.42
ATKINS EFFICIENCY ADJUSTMENT					
Catchup efficiency	-0.85	-1.70	-2.57	-3.28	-8.40
Continuing efficiency	-0.76	-1.51	-2.28	-2.91	-7.47
Total efficiency adjustments	-1.61	-3.22	-4.85	-6.19	-15.87
Total post efficiency adjustments	93.07	91.36	90.22	84.90	359.55
ATKINS EFFICIENT OPERATING EXPENDITURE					
Catchment management	27.83	27.35	27.77	25.55	108.50
Dam safety	8.61	7.68	7.48	7.02	30.80
Water delivery and other operations	25.63	26.04	25.10	24.36	101.12
Maintenance	24.32	23.75	23.39	21.92	93.37
Environmental Planning and Protection	1.06	1.01	1.03	0.81	3.90
Asset Management	1.30	1.26	1.25	1.18	5.00
Other	4.32	4.27	4.20	4.06	16.85
ATKINS TOTAL EFFICIENT EXPENDITURE					
Total	93.07	91.36	90.22	84.90	359.55

Source: Atkins analysis`

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