OPTIONS EVALUATION REPORT (OER)

Strategic property acquisition for Western Sydney Priority Growth Area

OER- 000000002137 revision 2.0

Ellipse project no(s): P0015776
TRIM file: [TRIM No]

Project reason: Economic Efficiency - Network developments to achieve market benefits
Project category: Prescribed - Asset Renewal Strategic Property

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Change history

Revision	Date	Amendment
0	4/08/2021	Initial issue
1	19/10/2021	Update to wording
2	23/12/2021	Update to wording

Executive summary

With limited opportunity to expand the existing Sydney West substation, a new bulk supply point (BSP) and associated property will be required to supply the growing Western Sydney demand. Land south of Kemps Creek 500/330 kV Substation has been identified as a suitable site with access to the 330 kV and 500 kV network, and close-proximity to the load centre. This will provide sufficient network capacity to supply this area and the greater Sydney load area more broadly. Additionally, this will diversify the BSPs supplying the Endeavour Energy load in the area. The Supply to Western Sydney Priority Growth Area (WSPGA) project (Need 1687) discusses the longer-term supply capacity needs of this area in greater detail, including an option for a new 330/132 kV BSP adjacent to the existing Kemps Creek 500/330 kV Substation as a possible solution to meet its need.

The identified need for this project is for strategic land acquisition to facilitate future transmission supply infrastructure needs of the Greater Western Sydney (GWS) area. This transmission supply infrastructure will be needed so that Transgrid can meet future network reliability requirements.

In the absence of strategic land acquisition in the near future, it likely that when this infrastructure is needed, the land south of Kemps Creek 500/330 kV Substation will be either:

- no longer available for purchase; or
- significantly more expensive, in present value terms, than it is now.

It follows that there is an economic benefits need for strategic land acquisition as soon as possible.

There is a window of opportunity for Transgrid to secure the land south of Kemps Creek Substation while it is still available, prior to the surrounding land in the area being built out, which is currently occurring rapidly.

The assessment of the options considered to address the need/opportunity appears in Table 1.

Table 1 – Evaluated options compared to base case

Option	Description	Direct capital cost ($m)	Network and corporate overheads ($m)	Total capital cost ($m)	Weighted NPV ($m)	Rank
Option A	Buy the parcel of land south of Kemps Creek Substation	[redacted]				1

Only one option has been evaluated as alternate locations for the BSP are likely to be higher-cost solutions because they will be a further distance from the existing Kemps Creek 500/330 kV Substation, requiring additional underground 330 kV cable connections back to Kemps Creek or another close-by substation, and due to property constraints increasing as the area is developed.

Preferred Option

Based on the NPV analysis, the preferred option is Option A as it has the lowest net present cost. Under this option, Transgrid would purchase the land south of Kemps Creek 500/330 kV Substation.

Option A is identified as preferred because this option meets the identified need and has a higher Net Present Value than the Base Case option.

Whilst the base case (Do Nothing) requires no capital or operating expenditure in the short term, it is expected to result in significantly higher land acquisition costs in the longer term when the possible new BSP in the area is required to be constructed.

The preferred option requires capital expenditure of $[redacted] million. No additional operating expenditure has been identified for this option.

1. Need/opportunity

With limited opportunity to expand the existing Sydney West substation, a new BSP (and associated property) will be required to supply the growing Western Sydney demand. Land south of Kemps Creek is deemed a suitable site with access to the 330 kV and 500 kV network, and close-proximity to the load. This will provide sufficient network capacity to supply this area and the greater Sydney load area more broadly. Additionally, this will diversify the BSPs supplying Endeavour Energy load.

The Supply to Western Sydney Priority Growth Area (WSPGA) project (Need 1687) discusses the longer-term supply capacity needs of this area in greater detail. There is an imminent need to increase supply capacity to and within the Greater Western Sydney (GWS) area. The timing of the new BSP is presently forecast to be required by Summer 2028/29, with a BSP at Kemps Creek as a possible solution.

This need requires that consideration be given to the long-term supply capacity of GWS, to ensure the security of supply to this area and to the greater Sydney area. The identified need for this project is for strategic land acquisition to facilitate future transmission supply infrastructure needs of the GWS area. This transmission supply infrastructure will be needed so that Transgrid can meet future network reliability requirements.

In the absence of strategic land acquisition in the near future, it likely that when this infrastructure is needed, the land south of Kemps Creek 500/330 kV Substation will be either:

- no longer available for purchase; or
- significantly more expensive, in present value terms, than it is now.

It follows that there is an economic benefits need for strategic land acquisition as soon as possible with a small window of opportunity for Transgrid to secure the land south of Kemps Creek Substation while it is still available, prior to the surrounding land in the area being built out, which is currently rapidly occurring.

Due to the current high reliance on Sydney West to support the existing area load, and with expected fault level constraints limiting options for the future expansion of incoming supply capacity, Sydney West is not considered to be a long-term option to supply the growing load in the region. A new BSP would diversify bulk supply to this area and alleviate future line route congestion in and around Sydney West. Together this will provide greater security of supply in the area and allow a supply point for new loads in the eastern area of the WSPGA.

2. Related needs/opportunities

- Need N2371 – Supply to Sydney West Area
  - Need to provide supply for the growing Sydney West load, primarily supplying Endeavour Energy customer load growth in the vicinity of Sydney West.
- Need 1687 – Supply to Western Sydney Priority Growth area:
  - Need to provide supply for the Western Sydney Priority growth area, primarily supplying Endeavour Energy customer load growth in the vicinity of the new airport. This includes the creation of a BSP next to Kemps Creek as a potential solution.
- Need 2153 – Strategic property acquisition for Western Sydney Supply Growth area:
  - Need to acquire a 500 kV easement to connect generation in southern NSW to Sydney.

3. Options

3.1 Base case

The base case is either delaying investment in the land whilst allowing for other BSP location options to be identified and evaluated or purchasing another parcel of land in a different location in approximately five years' time in alignment with the required date for project 1687 (Summer 2028/29). Delaying the purchase is likely to result in the risk of land values increasing to a much greater level than current values and limit access to the Kemps Creek 500/330 kV Substation for possible future transmission line developments if this land is purchased and developed by another party.

Consequences of purchasing in an alternate location:

> Alternate locations for the BSP are likely to be higher-cost solutions because they will be a further distance from the existing Kemps Creek 500/330 kV Substation, requiring additional overhead 330 kV lines or underground 330 kV cable connections back to Kemps Creek or another close-by substation, and due to property constraints increasing as the area is developed. Approximate costs for every km of 330 kV overhead line is up to $1.7 million per km, excluding easement/property and biodiversity costs, with the cost of a direct buried underground cable being approximately four times[1] that of a 330 kV overhead line.

Consequences of delaying investment:

> Local purchases in the Austral area from December 2020 to June 2021 average approx. $400/sq. m according to data from Knight Frank. This is based on prices for properties zoned as R2 Low Density Residential. Parcels of land in the surrounding areas are being rezoned to R2 zoning. Therefore, it is likely that Transgrid will be required to purchase land at a rate similar to an R2 zoning rate in the future if investment is delayed.

Buying the land in approximately five years' time will see property prices increase further. A confidential report produced by JLL for another local project, Need 2153, indicates an expected compound annual growth rate (CAGR) of between [redacted] is expected for the surrounding lands. Using the lower end of that scale, a $400/sq. m. land value is expected to be worth approximately $[redacted]/sq.m in five years' time.

Estimated costs for Option A (see Figure 1, below), average approximately $[redacted]/sq.m. This suggests that the base case would have almost three times higher cost than Option A in five years' time.

This equates to $[redacted] million for 8.777ha at $[redacted]sq.m in 2025/26.

3.2 Options evaluated

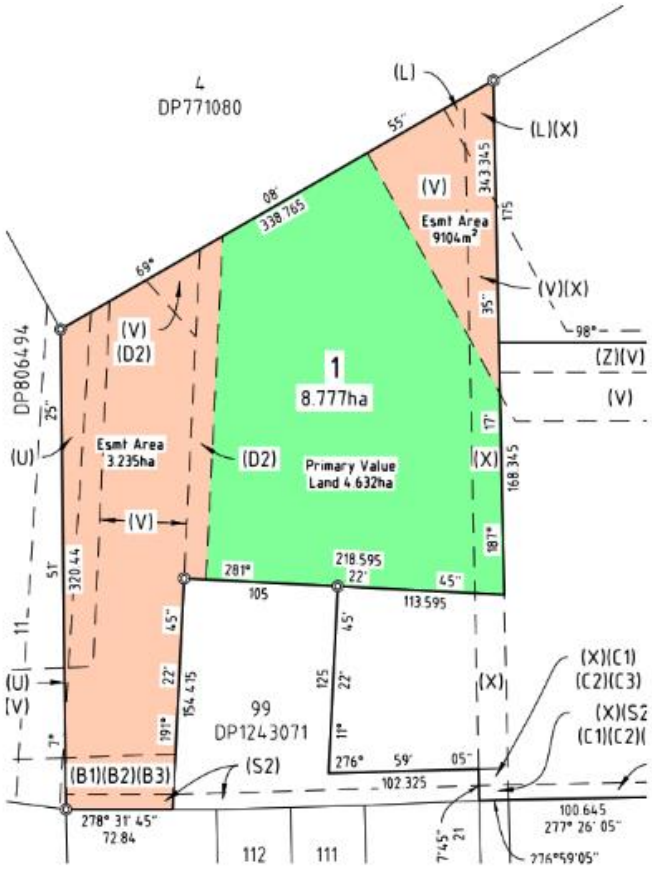
Option A — Buy the parcel of land south of Kemps Creek Substation

This option involves Transgrid strategically purchasing the land south of Transgrid's Kemps Creek 500/330 kV Substation. The unencumbered portion of land area is approx. 4.632 hectares, bordering both Kemps Creek substation to the north, and Endeavour Energy's future Austral Zone Substation to the south.

Based on discussions between Transgrid's Property and Environment Branch and the NSW Department of Planning, there will be a requirement for Transgrid to purchase a portion of land encompassing the adjacent existing 330 kV transmission line easements west and east of the unencumbered land. This is mostly due to the land effectively becoming land locked as well as being sterilised for any purpose other than the transmission network. This additional land area is approx. 4,145 hectares, making the total land to be acquired 8.777 hectares.

[1] AEMO 2021 Transmission Cost Report, July 2021, p24

Figure 1 – Proposed land to be acquired



Acquisition of the land in the short term will provide for a future 330/132 kV bulk supply point to be established to supply the WSPGA, as outlined in Need 1687, and ensure Transgrid has sufficient space to allow possible future new transmission lines to enter the existing Kemps Creek substation.

An indicative cost estimate for the identified land, based on valuation estimates provided by the NSW Department of Planning, is in the order of $[redacted] million. This is based on an average of $[redacted]/sq.m for the land, almost one third of the expected land value in five years' time for similar land in a close-by location for the same size, as discussed in relation to the Base Case.

Due to the current buoyant property market, land values have seen steady increases for a prolonged period. The initial proposal is to negotiate an agreed value and enter into a sale contract with a standard settlement period of 6-12 weeks. However, due to budgetary constraints Transgrid is unable to meet this settlement term. Currently Transgrid anticipates it will only be in a position to settle this matter in the 2023/24 financial year.

To satisfy Transgrid budgetary time frames, it is proposed the acquisition proceed by Transgrid [redacted]. Both proposals have been discussed with NSWDoP however a preferred option has not yet been advised.

The expected expenditure profile for these options is based on an initial land valuation from Knight Frank, along with [redacted] The estimates in the table below have an uncertainty of ± 25% and exclude capitalised interest.

Table 2 – Option A expected expenditure

	Total Project Cost ($M)	2021/22 ($M)	2022/23 ($M)	2023/24 ($M)
Estimated P50 Cost non-escalated ($2020-21)	[redacted]			

It is estimated that an amount up to $[redacted] million (included in Table 2) is required to progress the project from DG1 to DG2. [redacted]

4. Evaluation

4.1 Commercial evaluation methodology

The economic assessment undertaken for this project includes three scenarios that reflect:

> a central set assumptions based on current information that is most likely to eventuate (central scenario);

> a set of assumptions that give rise to a lower bound for net benefits (lower bound scenario); and

> a set of assumptions that give rise to an upper bound on benefits (higher bound scenario).

Assumptions for each scenario are set out in Table 3 below.

Table 3 – Assumptions for economic assessment

Parameter	Central scenario	Lower bound scenario	Higher bound scenario
Discount rate	4.8%	7.37%	2.23%
Dollars basis	[redacted]		
Initial land value	[redacted]		
Scenario weighting	**50%**	**25%**	**25%**

The property costs for the lower bound scenario are based on a Knight Frank report and valuation dated 15 June 2021, with the central scenario including [redacted] The higher bound scenario is based on land price increases of [redacted] on top of the central scenario. It is recommended that the Knight Frank report is considered when determining the DG1 budget, along with the latest pricing advice from the NSW Department of Planning via Transgrid's Property and Environment Branch.

Since the central scenario represents the most likely scenario to occur, it has been weighted at 50 per cent in the final analysis. The other two scenarios reflect extreme combinations of assumptions, designed to stress test the results. Accordingly, these scenarios are weighted at 25 per cent each.

However, Transgrid notes that it has used a conservative set of assumptions to provide a higher degree of certainty that this investment is beneficial for consumers.

Parameters used in this commercial evaluation are as shown in Table 4.

Table 4 – Parameters used in this commercial evaluation:

Parameter	Parameter Description	Value used for this evaluation
Discount year	Year that dollar values are discounted to	FY21
Base year	The year that dollar value outputs are expressed in real terms	FY21 dollars
Period of analysis	Number of years included in economic analysis with remaining capital value included as terminal value at the end of the analysis period.	25 years
Rate of growth in land values	The compound annual growth rate (CAGR) based on a confidential report produced by JLL for another local project.	[redacted]
Initial land value	Based on an average land value of $[redacted]/sq.m for the specific land south of Kemps Creek Substation	$[redacted] million

4.2 Commercial evaluation results

The commercial evaluation of the technically feasible options is set out in Table 5, $2020/21, millions. Details appear in Appendix A.

Table 5 – Commercial evaluation (PV, $ million)

Option	Capital Cost PV	OPEX Cost PV	Weighted NPV	Ranking
Base case	[redacted]			2
Option A	[redacted]			1

Comparing the Base case to Option A, Option A has a $[redacted] million positive NPV compared to the Base case.

4.3 Preferred option

The preferred option is Option A. Under this option, the following investments will be undertaken:

> Purchase of the land south of Kemps Creek 500/330 kV Substation.

The preferred option is identified as preferred because it meets the identified need and has a higher Net Present Value than the Base Case option.

The preferred option requires capital expenditure of $[redacted] million. No additional operating expenditure has been identified for this option.

The base case requires no capital or operating expenditure in the short term, however will likely have a larger expense in the long term.

Regulatory Investment Test

As this is a strategic land procurement, the preferred option is to acquire the land south of Kemps Creek Substation under Option A. This will require [redacted]

According to the AER's RIT-T Application Guidelines, strategic land purchases would not trigger a RIT-T but note that the future project utilising the land, Need 1687, should include the value in its option cost when assessed in a RIT-T.

Therefore a RIT-T is not required for this strategic land procurement.

5. Optimal Timing

> Optimal commissioning year: 2023/24

Due to the increased demand for land in the Western Sydney area, it is anticipated there is only a limited window for Transgrid to secure the property prior to the surrounding land in the area being built out, which is currently rapidly occurring.

[redacted]

Further, Figure 2 demonstrates that waiting longer to secure the property would not benefit Transgrid's customers. Based on the parameters used in the central scenario, the present value of the land south of Kemps Creek 500/330 kV Substation is at its lowest in 2021 at $[redacted] million (in prevent value terms), indicating that this is the optimal time to invest because:

> investment in future when the BSP is needed will be more costly to consumers overall. If the land purchase is delayed until 2025/26 to be ready for Need 1687, if the Kemps Creek option comes out as the preferred solution, then it would cost $[redacted] million or an additional $26.2 million in present value terms; and

> [redacted]

Figure 2 – [redacted]

[redacted]

6. Recommendation

The recommendation is to progress with Option A. This option requires $[redacted]m of capex to progress the project to Decision Gate 2 (DG2), which is included within the overall cost for the project.

[redacted]

Appendix A – Option Summaries

Project Description	**Strategic property acquisition for Western Sydney Priority Growth Area**		
Option Description	2137A – *Buy the parcel of land south of Kemps Creek Substation*		
Project Summary			
Option Rank	*1*	Investment Assessment Period	25
Asset Life	30	NPV Year	*2021*
Economic Evaluation			
NPV Weighted (PV, $m)	[redacted]	Annualised CAPEX ($m)	[redacted]
Network Safety Risk Reduction ($m)	N/A	Optimal Timing	Jul 2023
ALARP	N/A		
Cost			
Direct Capex ($m)	[redacted]	Network and Corporate Overheads ($m)	[redacted]
Total Capex ($m)	[redacted]	Cost Capex (PV,$m)	[redacted]
Terminal Value ($m)	N/A	Terminal Value (PV,$m)	N/A