

8.14. Ausgrid - Main Road & CFL Streetlighting LED Replacement Program - (Stage 2)

AUTHOR: Nathan Wu, Traffic and Transport Engineer

ENDORSED BY: Duncan Mitchell, Director Engineering and Property Services

ATTACHMENTS: 1. Binding agreement for the LED upgrade

PURPOSE:

This report provides Council with an update of the next stage of Ausgrid's LED Replacement Program.

EXECUTIVE SUMMARY:

The next stage of Ausgrid's LED Street lighting replacement program (Stage 2) is proposing to replace a further 978 Ausgrid streetlights on main roads throughout the North Sydney Local Government Area and 563 remaining compact fluorescent lights (CFLs) within the LGA with energy efficient LEDs over the next three years.

To date under Stage 1, a total of 1084 Street lights have been replaced with LED Luminaries.

Street lighting services in the North Sydney Local Government Area are generally provided by Ausgrid. This report only deals with streetlights owned and maintained by Ausgrid that were installed on main roads and those fitted with CFLs on residential roads.

FINANCIAL IMPLICATIONS:

Stage 1 of Ausgrid's LED Street lighting replacement program commenced in July 2020. Stage 1 is now complete and 1084 Street lights across the North Sydney LGA have been replaced with LEDs. The total cost of Stage 1 to Council was \$576,852.

The LED Street Lighting replacement program (Stage 1) has been funded from the Income Producing Projects Reserve.

For Stage 2 LED roll out, Council will not be required to pay the capital cost of installing new streetlights upfront. Ausgrid will issue an invoice annually based on the number of streetlights completed.

Currently there is no funding available in the adopted budget and LTFP for this project.

The funds required for the Stage 2 roll out over three years are \$130,000 in 2022/23, \$110,000 in 2023/24 and \$81,897 in 2024/25 - a total of \$321, 897 (Residual Value) over three financial years.

There are currently sufficient funds (approximately \$370,040) in the Income Producing Projects Reserve to proceed with Stage 2 of this project.

It is also anticipated that this program will generate Energy Savings Credits in the future and these funds then get returned to the reserve, effectively allowing the project to pay for itself with the annual energy and maintenance savings. This estimated net cost to Council after energy credits have been processed is estimated at \$121,608 – Refer to table 1 of this report.

Based on current costs, the resulting energy and maintenance savings will be \$47,725 per year. In simple payback terms, the project has an overall payback period of 2.55 years according to Council and Ausgrids current energy cost estimates.

The credits will be calculated based on the number of LED streetlights that have been replaced. The credits are banked to Council monthly.

RECOMMENDATION:

- 1. THAT** Council funds the Stage 2 LED Street lighting replacement program over the next three financial years through the Income Producing Projects Reserve which is the same reserve used to fund Stage 1.
- 2. THAT** Council signs the binding agreement for the Ausgrid Main Road and CFL Streetlight LED Replacement Program- Stage 2 Program.

LINK TO COMMUNITY STRATEGIC PLAN

The relationship with the Community Strategic Plan is as follows:

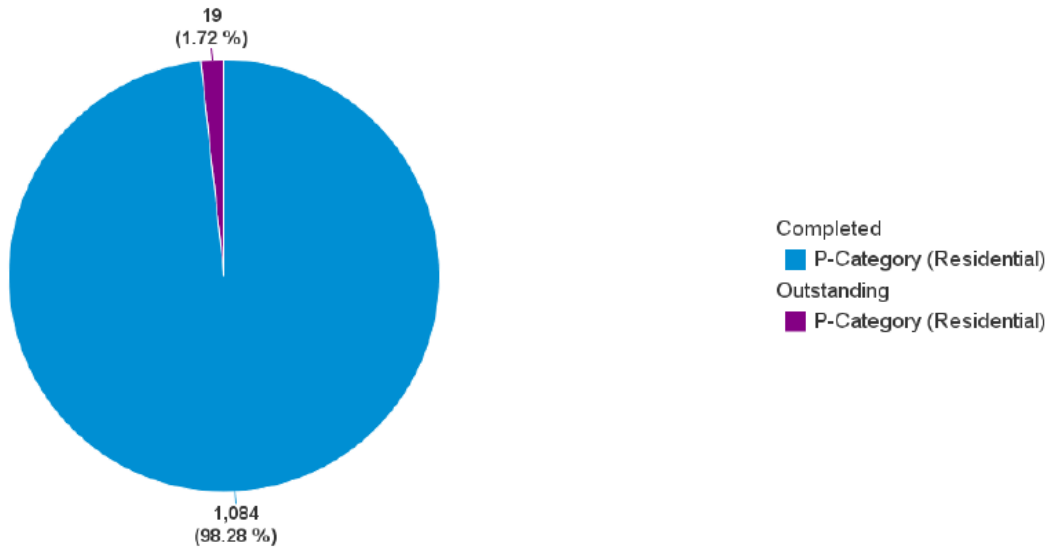
1. Our Living Environment
 - 1.2 North Sydney is sustainable and resilient
 - 1.4 Public open space and recreation facilities and services meet community needs
2. Our Built Infrastructure
 - 2.1 Infrastructure and assets meet community needs
3. Our Future Planning
 - 3.1 Prosperous and vibrant economy
 - 3.3 North Sydney is smart and innovative
4. Our Social Vitality
 - 4.1 North Sydney is connected, inclusive, healthy and safe
5. Our Civic Leadership
 - 5.1 Council leads the strategic direction of North Sydney
 - 5.4 Council's service delivery is well supported

BACKGROUND

Ausgrid owns and maintains approximately 3500 streetlights within North Sydney Council's Local Government area which Council pays the energy operating costs for. These lights include 2237 luminaires on main roads and 1263 remaining CFL luminaires on residential streets.

As part of Stage 1 LED roll out in North Sydney, Ausgrid has completed 1,084 or 98.28% of the lights to date covered by their initial (Stage 1) LED replacement program in 2019/20-2021/22.

LED P & V-Category Progress Graph



Ausgrid completed a re-tendering of streetlighting products and suppliers in 2020 resulting in lower cost and more advanced LED luminaire options. The full savings and benefits are being passed through to Councils as part of this expanded program offer.

CONSULTATION REQUIREMENTS

Community engagement is not required by Council. All Community Engagement and notifications are undertaken by Ausgrid and associated contractors.

DETAIL

Ausgrid has provided a financial summary indicating the total cost and savings for Council if all assets covered in this Stage 2 program are replaced. The figures are provided in table 1 below:

Table 1. - Financial Summary – Cost to Council and Projected Savings – Stage 2

Financial Years 2022/23 to 2024/25	Current Lights	New LEDs	Savings Per Year	Savings (%)
Number of V-category Luminaires	978	978		
Number of CFL Luminaires	563	563		
Energy Cost Per Year	\$ 174,630	\$ 78,783	\$ 95,847	55%
Maintenance Cost Per Year	\$ 86,343	\$ 52,336	\$ 34,007	39%
Annual Capital Cost	\$ 39,230	\$ 121,359	-\$ 82,129	-209%
Total Annual Cost	\$ 300,203	\$ 252,478	\$ 47,725	16%
Residual Value	\$ 321,897		one-time payment based on the number of lights replaced	

Estimated ESC Value		\$ 200,289	one-time credit based on the number of lights replaced	
Estimated ESC Value Less Residual Value		\$ 121,608		
Estimated Energy Consumption (MWh/yr)	1085	489	595	55%
Estimated GHG (tCO2e/yr)	922	416	506	55%

As shown in table 1, the total residual value cost for replacing all 1,541 streetlights under this Stage 2 program would be \$321,897 over three financial years. The estimated total potential Energy Saving Certificate (ESC) credit Council would receive with the LED replacement is \$200,289 (based on current ESC value of \$30 per certificate). This presents an estimated net cost to Council of \$121,608. Based on current costs, the resulting energy and maintenance savings will be \$47,725 per year. In simple payback terms, the project has an overall payback period of 2.55 years.

It is to be noted that, the figures provided by Ausgrid in table 1 are based on current market rates and assuming all lights are replaced in 2022/23. The actual cost, savings and ESC credit may be different at the time of implementation.

Ausgrid states that, if replacements occur beyond 2024/25, a new residual value and capital charge will be calculated to reflect the financial year in which they are replaced.

Details of the capital and maintenance charges for the primary lights to be used are listed in table 2 & 3 below for 2022/23. Council will pay the regulatory Rate 1 charge over a 10-year period. Rate 1 charges will increase by CPI each year until year 10 or as adjusted in future regulatory determinations.

Table 2: Products and charges summary

Product	FY23 Rate 1 Annuity charge	FY23 Maintenance charge
Aldridge 17W LED Zhaga, 3000K DALI	\$48.85	\$25.54
Aldridge 17W LED RRW Zhaga, 3000K DALI	\$48.85	\$25.54
Philips 47W LED Zhaga, 4000K, DALI	\$60.01	\$25.47
Philips 74W LED Zhaga, 4000K, DALI	\$73.53	\$33.81
Philips 137W LED Zhaga, 4000K, DALI	\$78.32	\$33.81
Philips 220W LED Zhaga, 4000K, DALI	\$89.54	\$33.81
Smart controller3	\$20.35	\$5.12

Table 3: Optional Glare Shield charges

Glare shield Glare shield type	One-off payment
Aldridge 17W metallic shield (front or rear)	\$43.95
Philips 47W and 74W	\$24.85
Philips 137W	\$25.86

Philips 220W	\$34.80
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Program Delivery

Ausgrid is planning to deliver the program across all Councils over three financial years 2022/23, 2023/24 and 2024/25 starting with lighting on major roads. The first of the installations for this program will be in early 2022/23 with exact timing to be confirmed.

Ausgrid has indicated that the exact annual cost for this program will depend on residual value of assets replaced each year. Ausgrid has recommended making the following allowances in North Sydney Council's future budgets based on their scheduled delivery program.

Table 4: Proposed Funding Requirement for Stage 2 LED Roll Out

Financial Year	Budget Allowance
2022/23	\$130,000
2023/24	\$110,000
2024/25	\$81,897
Total	\$321,897

Smart Controls and Devices

All new LED luminaires on major roads will be equipped with smart streetlighting controls through a 'NEMA' port. The NEMA smart controls will provide light switching, dimming and trimming capability as well as being able to monitor the luminaire status.

An additional smart device port (a Zhaga' port) will also be provided for future expansion uses at the discretion of Council. CFL replacements on residential roads are proposed to only be equipped with the Zhaga smart device port.

Zhaga ports are a recently agreed international approach to adding a smart interface between outdoor luminaires and smart city devices. It allows Council to install future smart city devices such as weather sensing, traffic monitoring, air quality and parking sensors etc.

Ausgrid states that it will work with councils and SSROC on agreement for use and costs of the new smart controls and interface.

Binding Agreement between Council and Ausgrid for Stage 2 LED Street Lighting roll out

Ausgrid has issued a binding agreement dated 8 March 2022 which is attached to this report. Ausgrid is seeking a response from Council by 18 March 2022 for Council's participation in this program. Council has advised Ausgrid that a report will be going to the March 28 meeting of Council seeking endorsement to sign the agreement and commence Stage 2 of the LED roll out. Ausgrid has acknowledged its short notice in issuing Council with the agreement and

confirmed that a decision by Council as to whether to enter the agreement or not by the end of March 2022 is acceptable.

Council is to note that the binding agreement Council proposes to sign includes a revised proposal to provide optional glare shields and greater flexibility for councils to make adjustments to lighting choice on a street-by-street basis.

Council will need to assess the street lighting inventory and proposed replacement luminaries supplied by Ausgrid and advise Ausgrid of any changes no later than 01/06/22 for start in FY2022/23.

8 March 2022

Ken Gouldthorp
General Manager
North Sydney Council
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**Final Approval to Commence Main Road Street Light LED Replacement Program for
North Sydney Council**

Dear Mr Gouldthorp,

As you might be aware, Ausgrid is now expanding its LED streetlight replacement program. Proposal seeking provisional agreement with the rollout was sent to all councils in Ausgrid network on 19 November 2021. To-date, Councils encompassing more than 90% of the lights on the Ausgrid network have provided their provisional agreement to participate in the program. The program, as previously outlined, involves replacing legacy lighting with lower energy consuming LEDs coupled with smart controls units on main roads that may enable future smart city opportunities.

Based on positive Council response to the program, Ausgrid released a smart controls tender in late December 2021 to be able to commence the program around July 2022, subject to the ongoing management of COVID labour shortages, supply chain and weather risks.

We are now issuing and seeking your response to a final binding agreement by 18 March 2022 for your Council's participation in this program. Your response in a timely manner is critical to allow Ausgrid to place the first of multiple large volume luminaire orders, mobilise installation crews and commence detailed project planning.

As outlined later in this letter, while we seek a binding agreement, there will remain practical flexibilities in the deployment in relation to items such as lighting levels and luminaire types.

Consistent with the provisional agreement, on acceptance of this binding agreement, North Sydney Council:

- Agrees to pay Ausgrid \$321,897, This amount is calculated on the total estimated residual value of existing assets that are to be replaced. However, installation of LEDs under the proposal should also entitle your council to claim Energy Savings Certificates (ESC):
 - o By paying the residual value amount and participating in the program, your council will pay an upfront estimated net cost of \$121,609 (exclusive of ongoing charges for the new LED luminaries), based on your council's current streetlighting charges and the current ESC value of \$30 per certificate, which is subject to government regulation changes. This results in an overall estimated payback period of 2.55 years (based on your Council's current annual streetlight charges).
 - o Alternatively, assuming a 50% lower ESC value compared to current value, your council will [receive an upfront estimated net benefit of pay an upfront

estimated net cost of \$221,753 (exclusive of ongoing charges for the new LED luminaires). This results in an overall estimated payback period of 4.65 years (based on your Council's current annual streetlight charges).

- Acknowledges that ongoing capital and maintenance charges for new LED luminaires are as per the provided charges and notes in the project proposal "Proposal – Main Road Streetlight LED Replacement Program" of 19 November 2021 and summarized in Table 1 – Charges summary¹ (see attached table).

Based on Council feedback and in consultation with Southern Sydney Regional Organisation of Councils (SSROC), Ausgrid offers the following approach to balance management of delivery risks, overall program scale benefits and individual Council needs:

- The "like-for-like" replacement approach suggested in Ausgrid's provisional agreement has resulted in a robust inventory assessment process being developed in cooperation with SSROC. Each council participating in the program will be given the opportunity to adjust proposed wattages, remove luminaires from the program and request installation of glare control devices (glare shields) before program commencement, subject to agreement with Ausgrid. SSROC has offered to assist councils with this assessment, if needed, and will shortly organise a presentation for all Councils participating in the program on the designed approach.
 - o **North Sydney Council** will need to assess the street lighting inventory and proposed replacement luminaires supplied by Ausgrid and advise Ausgrid of any changes no later than 01/06/22 for start in FY23².
 - o Glare shields can be requested and, if agreed by Ausgrid, will be installed together with luminaires at the cost stated in *Table 1 - Charges summary (attached)*. Costs for glare shields will be invoiced separately every quarter and will not be subject to annual payments.
- In the event that changes to product types are required based on inventory levels, Ausgrid will seek your council's agreement if resulting in an increase to regulated charges by more than 10%. Until such time as your council agrees to the change, Ausgrid will be unable to continue your council's participation in the program, and delays in agreement may result in delays to program completion.
- Ausgrid will commence the program with the replacement of remaining compact fluorescent lights (CFLs) on residential roads with LEDs, unless previously agreed by Ausgrid.
- Ausgrid will provide a high-level installation plan within one month of receiving the final inventory with any requested changes from your council.
- Ausgrid will supply a detailed plan to your council for the first 6 months of the rollout at least one month prior to installation commencement and then every 6 months, until the end of the project.
- Ausgrid will send monthly progress updates to your council in the form of automated reports.
- Ausgrid will provide inventory updates as requested by your council.

- Ausgrid intends to continue ongoing collaboration with SSROC to implement policies on:
 - o smart controls data access arrangements; and
 - o access arrangements associated with connecting Zhaga-enabled sensors.

Notes:

1. Subject to charges being aligned with the Australian Energy Regulator (AER) Ausgrid pricing determination FY19 to FY24. Values are for FY23 and are subject to change as outlined in the current AER determination and future AER determinations for Ausgrid Public Lighting.
2. If the binding offer agreement is not received by the prescribed due date, planned commencement in early FY23 may be delayed.
3. Smart controls charges are subject to final AER approval of Ausgrid's latest pricing proposal and have been modelled based on consultation with the AER.
4. Luminaires specified in *Table 1 – Products and charges summary* are proposed as the preferred option based on prior consultation with Councils. Products are subject to availability and Council will be consulted about any proposed changes.
5. Ausgrid have been in consultation with SSROC and DPIE in relation to the future of NSW Energy Saving Scheme's (ESS) treatment of street lighting projects, given the recent review commenced by DPIE. The ESS is a regulated credit scheme and is not determined by Ausgrid. To assist Councils in evaluating the commercial robustness of their respective binding agreements, a sensitivity analysis on the estimated financials have been conducted using a 50% ESC value and presented in *Table 2 – Financial Summary (attached)*. To ensure the ESS continues to benefit Public Lighting, Ausgrid encourages Councils to engage directly with DPIE on the community value of retaining the current scheme in an appropriate way moving forward. Early engagement with DPIE by Ausgrid has occurred to elevate the awareness of this matter.
6. A detailed delivery plan is not capable of being provided until the binding offer is returned allowing Ausgrid to forward plan the multi-year program.

North Sydney Council agrees with the contents of this document as the binding agreement and acknowledges that the program is committed to in full of when the binding agreement is returned.

Approved By:

Signature

Title

Date

For and on behalf of North Sydney Council.

Return via e-mail to publiclighting@ausgrid.com.au

Attention: Jiri Heider

Attachments

Table 1 – Products and charges summary

Product	FY23 Rate 1 Annuity charge	FY23 Maintenance charge
Aldridge 17W LED Zhaga, 3000K DALI	\$48.85	\$25.54
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Glare shield

Glare shield type	One-off payment
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Table 2 – Financial Summary

Ausgrid Proposal Main Road LED Upgrade - Executive Summary				
UPPER HUNTER SHIRE COUNCIL				
	Current Lights	New LEDs	Savings Per Year	Savings (%)
<i>Nr of V-cat luminaires⁴</i>	978	978		
<i>Nr of CFL luminaires⁴</i>	563	563		
<i>Energy Cost/Yr</i>	\$174,630	\$78,783	\$95,847	55%
<i>Maintenance Cost/Yr</i>	\$86,343	\$52,336	\$34,007	39%
<i>Annual Capital Cost</i>	\$39,230	\$121,359	\$-82,129	-209%
Total annual Cost	\$300,203	\$252,478	\$47,725	16%
<i>Residual Value</i>	\$321,897		<i>one-time payment</i>	
Est ESC Value⁵		\$200,289	<i>one-time credit</i>	
Est ESC Value Less Residual Value		\$121,609	<i>negative value = cash positive outcome</i>	
Est 50% ESC value		\$100,144	<i>one-time credit</i>	
Est 50% ESC Value Less Residual Value		\$221,753	<i>negative value = cash positive outcome</i>	
<i>Est Energy Consumption (MWh/yr)</i>	1,085	489	595	55%
<i>Est GHG (tCO2-e/yr)</i>	922	416	506	55%

8 March 2022