

**Department of Education (DoE)**

# Melrose Park High School

## Net Zero Statement

Reference: ESD-MPH-REP-005

2 | 20 January 2025

This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 303392-00

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## Document Verification

**Project title** Melrose Park High School  
**Document title** Net Zero Statement  
**Job number** 303392-00  
**Document ref** ESD-MPH-REP-005  
**File reference**

Revision	Date	Filename	Net Zero Statement		
1	29/11/2024	<b>Description</b>	REF Net Zero Statement		
			<b>Prepared by</b>	<b>Checked by</b>	<b>Approved by</b>
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2	20/01/2025	<b>Filename</b>	Net Zero Statement		
		<b>Description</b>	For planning approval/REF		
			<b>Prepared by</b>	<b>Checked by</b>	<b>Approved by</b>
		<b>Name</b>	Enda Seyama-Heneghan	Alex Rosenthal	Edward Caine
		<b>Signature</b>			
		<b>Filename</b>			
		<b>Description</b>			
			<b>Prepared by</b>	<b>Checked by</b>	<b>Approved by</b>
		<b>Name</b>			
		<b>Signature</b>			

Issue Document Verification with Document



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# Cover Note and Certification


This Net Zero Statement has been prepared by Arup on behalf of the Department of Education (DoE) to assess the potential environmental impacts that could arise from the construction and use of the new Melrose Park High School project (the Activity) at 37 Hope Street, Melrose Park. This report supports the assessment of the proposed Activity under Part 5 of the Environmental Planning and Assessment Act 1979. The Activity is proposed by the DoE to meet the growth in educational demand in the Melrose Park precinct.

This report has been prepared to demonstrate how the development minimises the use of on-site fossil fuels, to align with the New South Wales (NSW) Government goal of achieving net zero emissions in NSW by 2050 and DoE goal of net zero emissions by 2030.

The building is being designed to minimise the use of fossil fuels upon occupation, and to allow for future transition to fossil-fuel free operations.

## Certification

I am a qualified electrical engineer familiar with the project. I hereby certify that all evidence and information within this statement is correct to the best of my knowledge.

Name	Ed Caine
Qualification	C Eng
Signature	

# 1. Introduction

This Net Zero statement has been prepared to support a Review of Environmental Factors (REF) for the proposed new Melrose Park High School.

This report has been prepared to satisfy Section 3.3 (1) of the State Environmental Planning Policy (Sustainable Buildings) 2022 (Sustainable Buildings SEPP), which considers whether the activity minimises the use of on-site fossil fuels, as part of the goal of achieving net zero emissions in New South Wales by 2050.

## 1.1 REF Reporting Requirements

Requirement	Relevant Report Section
<b>Ecologically sustainable development</b>	
Does the ESD Report include a Net Zero Action Plan / Net Zero in operations plan (exact name TBA) that adequately addresses how the activity has been designed to eliminate use of fossil fuels during operations, or how the use of fossil fuels will be minimised and will be eliminated by 2035?	Section 2

# 2. On-site fossil fuel usage

The Melrose Park High School is being designed to minimise operated fossil fuels upon occupation, and to allow for future transition to fossil-fuel free operations. This includes:

- Heating using heat pumps, underfloor radiant heating, and radiant panel heaters
- Domestic hot water from instantaneous electric hot water units
- No gas connection for cooking facilities

The project is fully electric sourcing renewable electricity for all electrical energy use. There is a small component of fossil fuel use in the project. Uses of fossil fuels from Day One are as below:

**Table 2.1 Operations using fossil fuels from Day One**

Item	Day One Energy Source	Reason
Science lab Bunsen burners	Bottled LPG gas	DoE requirement for gas Bunsen burners as there are two experiments within the currently curriculum calling for their use. It is expected that the use of gas for Bunsen burners will typically contribute to a small percentage of a building's operational energy greenhouse gas (GHG) emissions. The annual emissions of these equipment will be quantified by the Contractor in the next project stage.
Welding equipment in Wood and Metals Workshops	Bottled LPG gas	DoE requirement for gas-powered welding equipment as it is part of the current curriculum. It is expected that the use of the gas-powered welding equipment will typically contribute to a

		small percentage of a building's operational energy greenhouse gas (GHG) emissions. The annual emissions of these equipment will be quantified by the Contractor in the next project stage.
Emergency backup power generators	Diesel fuel	Based on generators and fuel readily available in market currently. It is noted that regular maintenance and testing of diesel generators typically contribute to a small percentage (in the order of 1%) of a building's operational energy greenhouse gas (GHG) emissions.

Gas used in the science labs and workshops are designed to be provided by bottled LPG gas in order to allow for future transition toward fossil fuel-free operations, to align with the goal of achieving net zero emissions in New South Wales by 2050. State Significant Developments under Schedules 13-15 of the State Environmental Planning Policy (Planning Systems) 2022 must demonstrate that they are capable of operating without fossil fuels by 2035. The DoE has also set a goal of having net zero emissions in operations by 2030. The DoE acknowledges the current gap to electrifying science labs and workshops, and are developing a number of schools to act as precedents to others, in which electric Bunsen burners, etc. are used. In the short-term, the DoE plans to engage with the relevant educational stakeholders to transition the cooking curriculum away from gas use and support teaching staff being trained on electric cooking alternatives. Generators will be considered which will allow alternative types of fuel when available.

The project is registered with the Green Building Council (GBCA) under the Green Star Buildings v1 rating tool as GS-13034B and is committed to achieving a minimum Green Star 5-Star rating. It is a minimum requirement under this rating level for buildings to be all-electric, with 100% of the building's energy to be obtained from on-site or off-site renewable sources, with Green Star requiring a minimum initial contract length for off-site renewable energy of 5 years. Any fossil fuels used for specialised equipment or backup power generators are to be less than 1% of the total building energy consumption and be offset for the first five years of operation. This will be verified by the Contractor in the next project stage.

Evidence of the above-described design to minimise fossil fuel use in operations or to allow for future transition towards fossil fuel-free operations are within the following services documentation:

- ME-MPH-SPC-001 Mechanical Specification
- EL-MPH-SPC-001 Electrical Specification
- 8335 HS Hydraulic Specification

### 3. Renewable Energy Generation and Storage

Melrose Park High School is being designed to generate renewable energy on site with the following initiatives:

- Solar photovoltaic (PV) generation to rooftop areas – total capacity 70 kWp, with future expansion capabilities to 99kWp in Stage 2. Refer to EL-MPH-SPC-001 Electrical Specification.

### 4. Energy-efficient design

As a DoE development, the project has minimum energy efficiency targets as noted in the Education Facilities Standards and Guidelines (EFSG) 2.0. The project is designed to meet these requirements, which include:

- NCC Section J building system and façade to comply with deemed-to-satisfy requirements, with total energy consumption to be at least 10% lower than compared to code compliant baseline. Total building's energy consumption reduction must be achieved without including renewable energy generation in the calculation.
- Passive design elements should be maximised to minimise energy consumption, with consideration for air tightness, thermal insulation, thermal bridge free envelopes, high performance windows, and energy efficient mechanical plant.
- Energy efficient LED lighting.
- Maximised natural daylight.
- Natural ventilation to all classrooms.
- All new lighting and HVAC systems to have timed or sensor feedback functionality for energy conservation.
- All new electrical equipment to be at least 0.5 stars above the market average star rating or be recognised as high efficiency under relevant accreditations.

## 5. Energy Consumption

Calculations of the energy consumption of the building are not yet available. Energy modelling simulation will be carried out during Design Development stage by the Contractor.

The project is registered with the Green Building Council (GBCA) under the Green Star Buildings v1 rating tool as GS-13034B and is committed to achieving a minimum Green Star 5-Star rating. It is a minimum requirement under this rating level for buildings that operational energy use must be at least 20% less than a reference building (Credit 22 Energy Use – Credit Achievement).

## 6. Conclusion

In conclusion, the new Melrose Park High School is being designed to minimise the use of fossil fuels upon occupation, and to allow for future transition to fossil-fuel free operations. It complies with the Sustainable Buildings SEPP Section 3.3 (1), as it minimises the use of on-site fossil fuels, as part of the goal of achieving net zero emissions in New South Wales by 2050. The development is also designed to enable elimination of fossil fuels by 2035.

Subject to implementing the recommendations/mitigation measures set out in Sections 2 to 4 of this report, the conclusion of this assessment is that the proposed Activity is not likely to significantly affect the environment in relation to ecologically sustainable development matters.