

Net zero road map

2018–2030

May 2025

Our commitment to sustainability



Acknowledgment of country

We acknowledge that across NSW we live and work on Aboriginal land, and the many Countries that are within that footprint. We sincerely pay our respects to Elders past and present and celebrate the diversity of Aboriginal peoples' unique cultural and spiritual relationship to Country, and their rich contribution to Australia.

The NSW Department of Education is committed to being a strong culturally responsive and inclusive education system

where every Aboriginal and/or Torres Strait Islander student is known, valued, and cared for to learn, grow, and belong.

We acknowledge our longstanding partnership agreement with the NSW Aboriginal Education Consultative Group Inc., which is based on the principles of respect, commitment, collaboration and accountability to improve educational outcomes for Aboriginal learners.

Secretary's message

Here in public education, we stand for shaping brighter futures in transformative learning environments. Just as Our Plan for NSW Public Education builds equitable and outstanding outcomes for our students, this Roadmap to Net Zero helps secure a sustainable planet for them to one day inherit.

The impacts of climate change are not distant warnings. They are being felt by our communities right now, so we all have a role to play in responding effectively. The NSW Department of Education is proud to uphold the government's commitment to take meaningful action under the Climate Change (Net Zero Future) Act 2023.

That is why we have set an ambitious target to make our schools operations net zero by 2030. This roadmap outlines clear and tangible strategies to reduce emissions, focusing on areas like energy

efficiency, using renewable sources, and promoting sustainable transport options.

Every step we take towards a net zero future for NSW helps us build high quality, safe, and sustainable learning environments for our children, grandchildren, and generations to come.

While the transition to low carbon operations takes careful thought and planning, the impact on the daily running of our schools will be minimal. As one of the world's largest education systems, we are proud to be leading by example and showing our wider communities that protecting and caring for our environment is the only way forward.

Murat Dizdar PSM

Secretary

NSW Department of Education

Executive Summary

The NSW Government is committed to taking decisive and responsible action on climate change. As one of the largest public education systems in Australia, the NSW Department of Education acknowledges the role we play in delivering the NSW Government's priority of minimising human-induced emissions which contribute to climate change.

The department has a responsibility to be at the forefront of environmental stewardship that shapes a better future for our students, communities and people of NSW. Through *Our commitment to sustainability* we have set an ambitious target to be net zero in operations by 2030.

Net zero means reducing greenhouse gas emissions from human activity as much as possible, and then balancing out the remaining emissions with the generation of renewable energy and actions that remove carbon from the atmosphere.

To ensure transparency and accountability to achieve this target, it is imperative to have a clear view of the department's emissions given the size and complexity of the organisation. This allows us to make well-informed decisions, drive meaningful action, and track our progress through robust measurements and reporting practices.

This comprehensive roadmap examines the department's operations and sets the direction to net zero by establishing a baseline inventory of operational emissions (scope 1 and 2) and identifies the key focus areas where we can deliver reductions in emissions. It also provides a framework for the challenges ahead, and the action plans and initiatives required to achieve the goal.

The department acknowledges that climate change is an environmental challenge that must be acted on as early as possible. By leading the way, we hope to drive meaningful change that empowers future generations to create a more sustainable and resilient world.



Table of Contents

1	Introduction	5
2	Our emissions	7
	2.1 Emissions inventory	8
	2.2 Emissions baseline	9
	2.3 Emissions sources	10
3	Our actions	14



1

Introduction



Why?



Take action on climate change

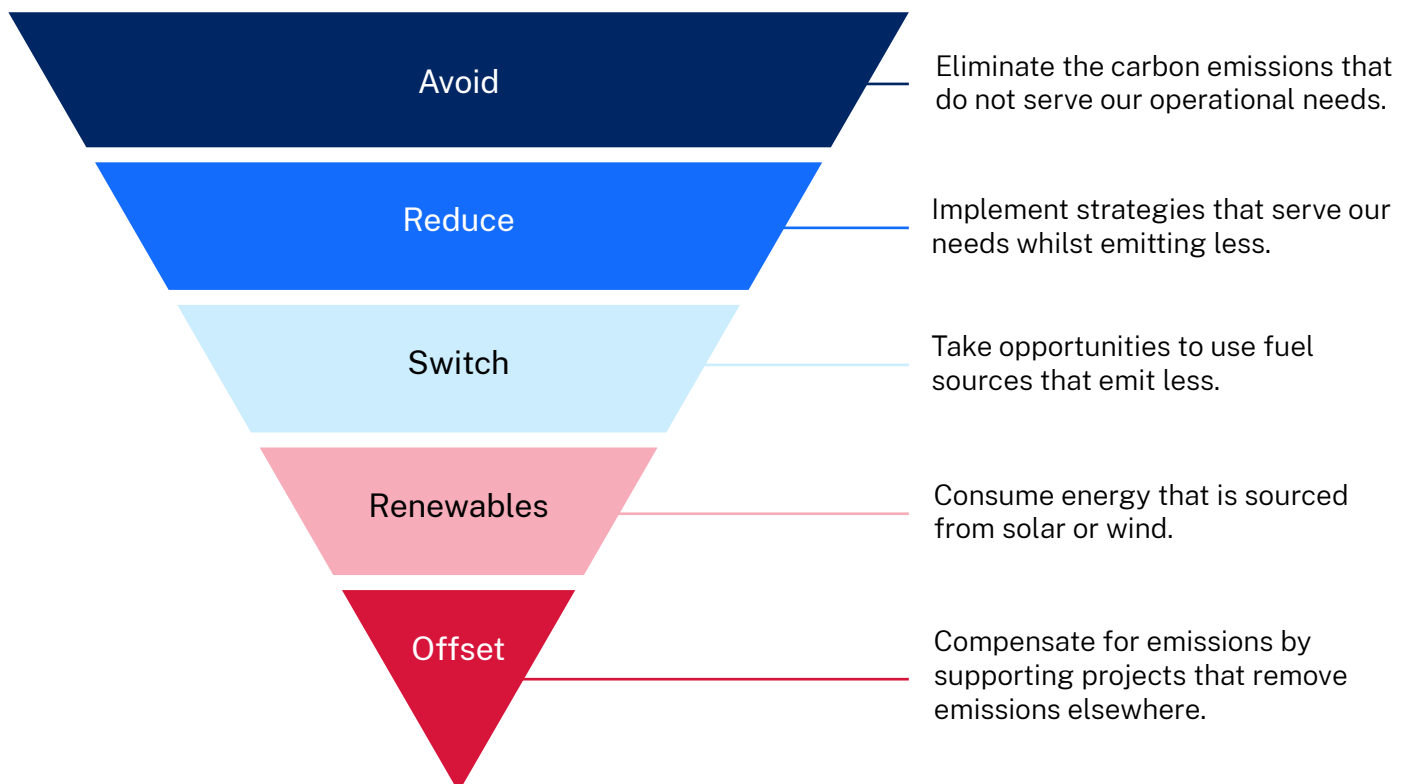
- Climate change is a physical threat to our people and our assets – we have a responsibility to mitigate the climate impact of our operations.
- Reducing emissions this decade is critical if we are to make the greatest impact.
- Many staff and students have an interest in minimising their environmental impact and see tackling climate change as a key responsibility of governments and businesses.
- We will monitor and report progress annually on our pathway to achieving the target to be net zero in operations by 2030.



Respond to legislative requirements

- Climate change mitigation has recently been enshrined in law in NSW – *The Climate Change (Net Zero Futures) Act* was passed by NSW Parliament in November 2023.
- This Act states that the NSW Government should pursue best practice in addressing climate change.
- Net Zero Government Operations Policy requires the department to aim to achieve a reduction in scope 1 and 2 emissions to contribute to whole-of-government targets and to have a long-term net zero transition plan for our operations.

Hierarchy of initiatives



2

Our emissions



2.1 Emissions inventory

Goal: Net zero in operations by 2030

Scope 1

These are “direct” emissions. That is, they are caused by operating the things the department owns or controls. They are generated within our sites and by our vehicles. We had expected that natural gas/LPG and fleet fuel would be the dominant source of our scope 1 emissions, however we now understand that refrigerants and on-site wastewater are also significant contributors. Scope 1 cannot be substituted by renewables. To achieve net zero, we either need to eliminate or offset these emissions.



Petrol/diesel
Department
fleet



Refrigerants
Including
leakage



Wastewater
Including
septic tanks



LPG/natural gas
Owned/leased
buildings

Scope 2

These are “indirect” emissions. They are created by the production of the electricity we buy from the grid, but exclude any green power purchased (currently 6% of our electricity). For net zero, the consumption of electricity must be avoided, reduced or substituted with renewables. Electricity is our largest emissions source and the percentage of emissions is likely to increase as we transition from using gas to electricity, but before we benefit from more renewable electricity.



Grid electricity

Indirect emissions: subject to future reporting and emissions pathways

Scope 3

These are also referred to as “indirect” emissions. They are produced by our staff and students, and by the goods, services and materials we use to build, operate and maintain our assets. Scope 3 also includes the emissions from waste generation and the emissions caused by commuting to and from our schools and offices.



**Goods
and services**



**Operational
waste**



**Embodied
emissions**



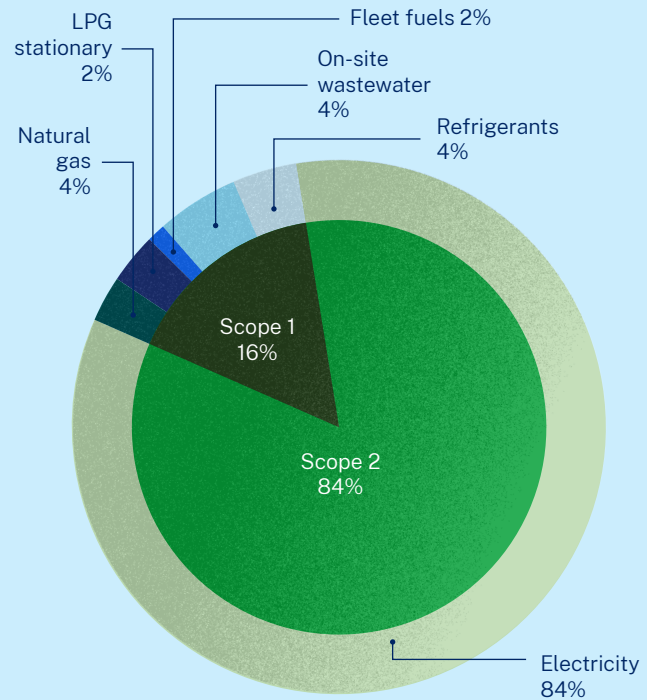
**Student/staff
commute**



Business travel

2.2 Emissions baseline FY 2018-19

Emissions scope	Emissions source	Available data	FY2018-19 emissions* (Tonnes of CO2e)
Scope 2	Electricity – market based	2,200 schools 42 owned offices	227,063
Scope 1	Natural gas	~890 schools	10,530
	LPG - Stationary	~500 schools	6,630
	Fleet fuels	728 diesel vehicles 1,000 petrol vehicles	3,968
	Refrigerants (estimate)	87,000 AC units across 2,179 schools	9,651
	On-site wastewater (estimate)	~1,100 tanks across 550 schools	11,125
Total scope 1 and 2			268,967



2.3 Emissions sources



Natural gas and LPG

Emissions are generated from the combustion of natural gas and LPG fuels for heat and energy. In our schools and offices gas is often used for hot water units, space heaters, science labs and stoves.



Alternatives:

- heat pumps for hot water
- split system heating
- induction cooktops.



Challenges:

- existing gas in science labs and kitchens within high schools
- feasibility of renewable gas as it is an unestablished market.

890

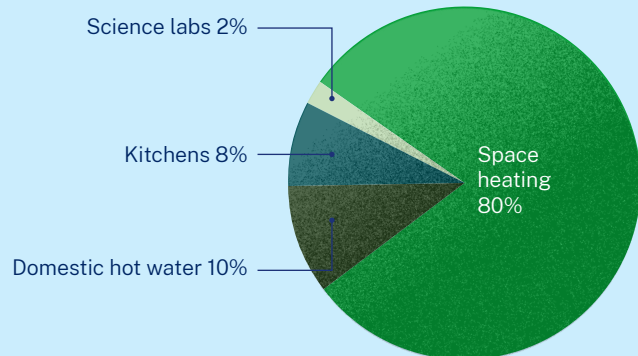
Schools with natural gas

500

Schools with LPG

~6%

Overall contribution





Fleet fuels

Emissions generated from fuels used for business travel in vehicles owned by the department. Our fleet includes diesel, petrol and hybrid-powered vehicles.



Alternatives:

- transition to electric vehicles (EVs) for passenger and commercial vehicles
- reducing vehicle use through increased uptake of walking, cycling and public transport.



Challenges:

- appropriate charging infrastructure for EVs
- commercial vehicles do not yet have suitable electric models
- geographically dispersed portfolio which requires some staff to travel via car frequently.

985

Passenger vehicles

743

Commercial vehicles

~2%

Overall contribution

Engine type	Fuel type	Vehicle type	Number
Combustion	Diesel	Commercial	640
Combustion	Diesel	Passenger car	88
Combustion	Petrol	Commercial	103
Combustion	Petrol	Passenger car	585
Hybrid	Petrol	Passenger car	310
Plug-in-hybrid	Petrol	Passenger car	2
Total			1,720

Department fleet breakdown





Refrigerants

These include emissions from Heating, Ventilation and Air Conditioning (HVAC) and refrigeration systems, like air-conditioners, refrigerators, freezers and cool rooms.



Alternatives:

- transitioning to lower global warming potential (GWP) Refrigerants
- consolidation of refrigerators, freezers and cool rooms where possible
- decreased reliance on air conditioning.



Challenges:

- accurately tracking and reporting refrigerant use given size and age of assets
- low availability and high cost of low GWP refrigerants.

87,000

AC units

2,179

Schools with AC

~4%

Overall contribution



On-site wastewater

Emissions released from septic tanks on school sites. These are mainly in the form of methane from on-site septic tanks.



Alternatives:

- decentralised wastewater treatment systems
- emission reduction methods include oxygen aeration systems to reduce methane production and biofilters or methanotropic bacteria that convert methane to less harmful substances.



Challenges:

- calculation of emissions factors for septic tanks
- investigation and development of abatement measures and low emission alternatives is not yet mature in Australia
- future investigations may look to understand more regarding emissions produced by existing septic tanks systems. At this stage, we have not quantified any abatement projects for wastewater emissions.

~1,100

Wastewater tanks

~550

Schools with tanks

~4%

Overall contribution



Purchased electricity

Emissions that result from the generation of electricity purchased by the department from a utility provider. Currently electricity is purchased via the Whole of Government Electricity Contract with Shell Energy. This includes a mandatory provision for a minimum 6% GreenPower (renewably sourced electricity).



Alternatives:

- on-site Solar PV
- Battery Energy Storage Systems (BESS)
- purchasing renewable electricity
- reducing electricity demand through energy-efficient appliances, removing unused appliances and encouraging user behaviour changes.



Challenges:

- upfront cost of renewable electricity, batteries and efficiency measures
- maintenance demands of solar PV systems.

2,217

Schools

42

Owned offices

~84%

Overall contribution



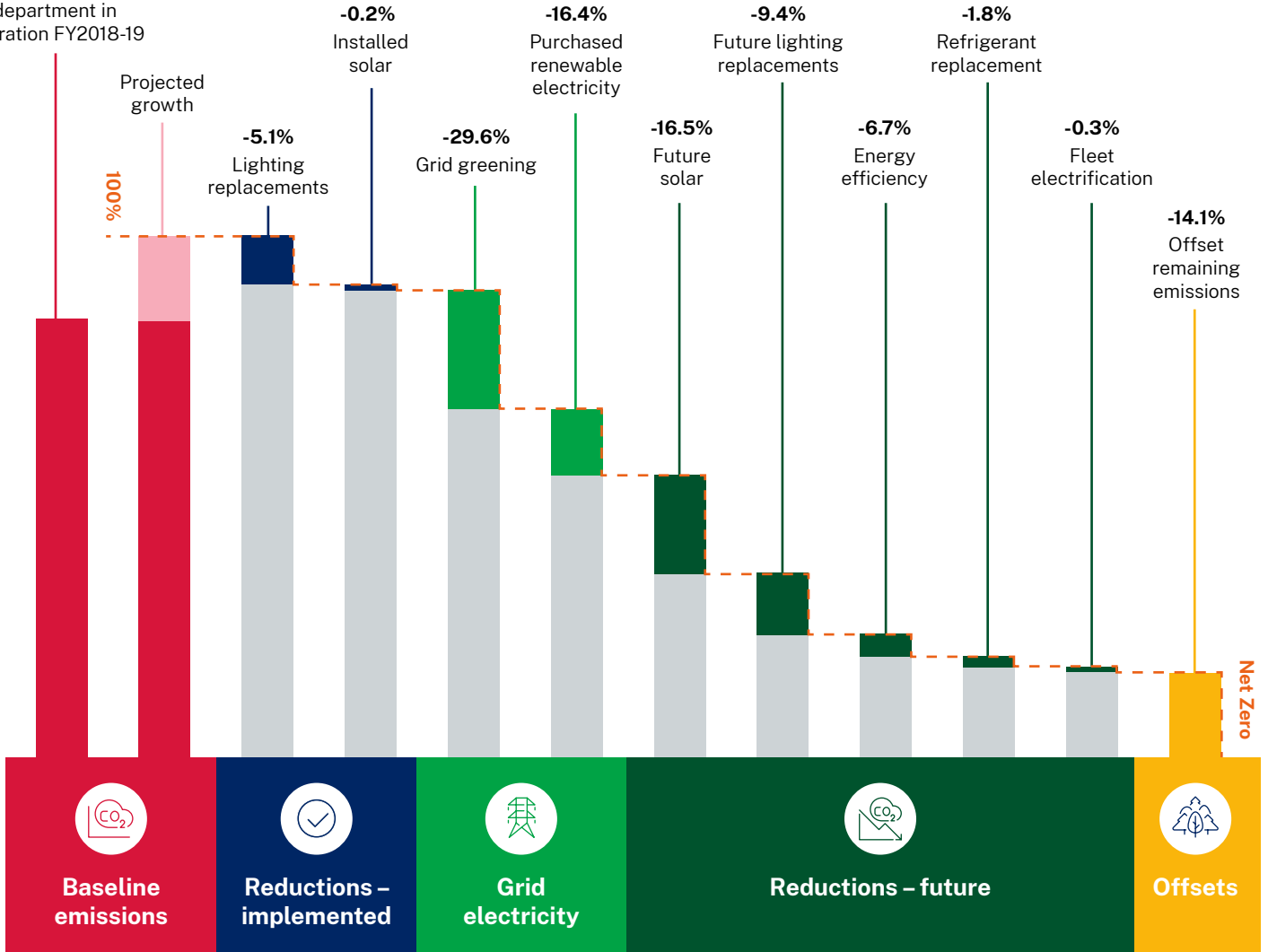
3

Our actions



Pathway in a snapshot

Total emissions generated by the department in operation FY2018-19



Action plan

Action type	Reduction	Emissions source
Existing school assets	LED lighting upgrade	
	Energy-efficient HVAC	
	Refrigerant standards	
	Metering and controls	
	Electrification of equipment at end of life	
	Equipment efficiency (through EdBuy)	
	IT equipment refresh	
New buildings	Electrification of new schools	
	Energy efficiency in design standards	
Organisational strategies	On-site renewable energy and battery storage	
	NSW Government EV program	
	Procurement of renewable electricity	
	Procurement of carbon credits	



Note on numbers in this report: Some numbers appear to be slightly off when compared to other totals or calculations. Certain values have been rounded to the nearest whole number or appropriate decimal place. While these small adjustments may cause minor variations in specific figures, they do not significantly impact the overall conclusions or integrity of the net zero calculations.

For more information about this project, contact School Infrastructure:

Website: schoolinfrastructure.nsw.gov.au

Email: schoolinfrastructure@det.nsw.edu.au

Phone: 1300 482 651

