Strategy for an environmentally sustainable, low carbon and climate-resilient healthcare system 2024 – 2030

Acknowledgement of Country

The Department of Health acknowledges the Aboriginal people of the many traditional lands and language groups of Western Australia (WA). We acknowledge the wisdom of Aboriginal Elders both past and present and pay respect to the Aboriginal communities of today.

Using the term Aboriginal

Within WA, the term Aboriginal is used in preference to Aboriginal and Torres Strait Islander, in recognition that Aboriginal people are the original inhabitants of WA. Aboriginal and Torres Strait Islander may be referred to in the national context and Indigenous may be referred to in the international context. No disrespect is intended to our Torres Strait Islander colleagues and community.

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DG foreword

I am pleased to present our strategy for delivering high quality, low carbon and environmentally sustainable health care.

We are committed to reducing emissions and to achieve this, have set several ambitious targets across the next 6 years.

The impacts of climate change are global, with rising temperatures and changing conditions placing increasing pressure on health service demand, with links to heat-related illness, injuries and rates of infectious and respiratory diseases.

Here in WA, we are not immune to these risks and are susceptible to numerous effects of climate change including rising temperatures, droughts, coastal erosion and bushfires.

We are responsible for mitigating these changes, and while patient safety will always be a priority, we also need to deliver more sustainable care.

To do this, we must continue to measure and limit the impact our health services have on WA's delicate ecosystem and the global climate more broadly.

This strategy supports the excellent work already underway at our local hospitals and health service providers and supports the development and implementation of environmentally sustainable activities across our system.

Together, we will create a health system that is sustainable, resilient and adaptive in the face of climate change.

Dr Shirley Bowen
Director General
Department of Health

The elements of the strategy

Vision

To build an environmentally sustainable, low carbon, and **climate resilient health system** that provides high quality **health care** for current and future Western Australians.

Targets

WA Health supports the WA Government's roadmap to net zero emissions by 2050. However, in recognition of the overwhelming scientific consensus for urgent **climate** action to safeguard human health, we are setting ourselves ambitious emission reduction targets and will aim to meet a net-zero target by no later than 2040. This target is consistent with goals already set by the Child and Adolescent Health Service (unpublished source) and South Metropolitan Health Service. [1, 2]

Target 1
Reduce scope 1 and 2 emissions by
80 per cent by 2030, based on 2020 levels [3]

Target 2
Achieve **net zero emissions** (scopes 1, 2 and 3) by
no later than 2040

Delivery on these targets will require collective action across our entire system, with this strategy helping to outline the pathway forward.

Key deliverables

1. Release the draft **Health Sector Adaptation** actions

2. Complete a first pass **climate risk** assessment

3. Develop an emissions profile in 2025 and an emissions reduction plan in 2026, to lead the system toward its 2030 target.

Framework for success

Health sector
Build **resilience** of our health services to ensure ongoing capacity to deliver health services.

Clinical care
Deliver high quality, low carbon and environmentally **sustainable health care**.

Resources
Preference the use of environmentally and socially responsible pharmaceuticals, chemicals and consumables.

Supply chains and procurement
Implement sustainable procurement processes to build the resilience of supply chains, reduce waste, and improve social, financial and environmental outcomes.

Infrastructure and utilities
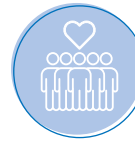Support climate-resilient, environmentally sustainable hospital design and function.

Transport
Develop sustainable transport infrastructure and services for staff, patients and visitors.

Guiding principles

Culture

Equity

Community

Empower

Collaborate

Prevent

Enablers

- Leadership and sustainable thinking
- Collaboration and **systems approach**
- Learning and enabling environment

Defining emissions

Scope 1 emissions are the direct emissions from sources the WA health system owns or controls, such as fleet vehicles, boilers, waste treatment, anaesthetic gases, metered dose inhalers or cooling equipment. [4]

Scope 2 emissions are the indirect emissions from the energy we purchase to power our hospitals and buildings, which is largely electricity. [4]

Scope 3 emissions are the indirect emissions that occur in our value chain (the steps that go into creating a product or service) and are not produced by the **WA health system** itself. For example, emissions from patient and employee commutes or the production, transport and disposal of goods and services we purchase. [4]

Net zero refers to an overall balance between greenhouse gas emissions produced and greenhouse gas emissions taken out of the system

Rationale for action

The human health impacts of **climate change** are already being observed worldwide, with rising temperatures and changing conditions being linked to increasing heat-related illnesses, injuries and occurrence of infectious and respiratory diseases.

WA is susceptible to multiple effects of climate change – including rising temperatures, decreasing rainfall, increasing drought, rising sea levels, coastal erosion and increasing frequency and severity of bushfires. These events increasingly place pressure on health service demand and will continue to do so as the impacts of climate change worsen.

Western Australians will be affected by climate change, but not everybody will be affected equally. Some areas and population groups are more vulnerable to the health impacts due to their health context and the variability of their location. We need to understand and address vulnerabilities across the community and health system if we are to build capacity to adapt.

On the other hand, our health system is a significant contributor to climate change. Every healthcare activity carries an environmental and carbon cost, including the energy and water consumed in our hospitals and buildings, the vehicles used to transport patients, staff and visitors, and the products purchased to deliver patient care. [5]

WA is the largest area in the world covered by a single health authority, and the WA health system employs over 50,000 staff across the State to deliver high quality, safe and timely **healthcare services** to a population of over 2.9 million people. [6] The total carbon emission footprint of WA Health in 2020 was quantified at 6,578 kilotonnes of CO_2 equivalent, or an estimated 8 per cent of the State's total emissions (appendix B). [5]

The WA Government has made a commitment to an 80 per cent reduction in carbon emissions from 2020 levels by 2030 across all government sectors. [3] This is anticipated to be legislated under the Climate Change Bill 2023, which will also require annual emission reporting by government departments from 2025, and establish interim targets at 5-year intervals. We have an important role to play in addressing our own environmental footprint in line with these targets. While maintaining patient safety as a priority, we must meet these goals by reconsidering how we deliver care both now and into the future.

In addition, the WA Government is committed to achieving the 2050 net zero emissions objective set by the Paris Agreement and recognises the importance of Australia's pursuit of the United Nations **Sustainable Development Goals** (SDGs). [7] The 17 goals seek to guide global effort towards sustainable development by 2030 and each have relevance to Western Australia. In particular, the SDGs of good health and well-being, sustainable cities and communities, climate action and responsible consumption and production are directly relevant to the goals and **sustainability** targets of the strategy. [8]

WA legislation

WA's proposed Climate Change Bill 2023 [9] will require the State Government to set greenhouse gas emission reduction targets, report annually to Parliament on progress against these, and develop policies and plans to both support achieving them and enhance our climate resilience.

The legislation will also require the health and human services sector to prepare a sector adaptation plan, which must set out:

- the potential impacts of climate change on the sector

- the likelihood, severity and potential costs of those impacts

- policies, programs and measures that support adapting to or managing those impacts

- responsibilities and time frames for implementing and related reporting requirements

- key performance indicators to enable monitoring and evaluation of the effectiveness of the plan.

Framework for success and deliverables

This strategy provides a framework of how we will achieve our targets by committing to actions across 6 key areas, ensuring the health system operates in a sustainable, resilient and adaptive manner. Each key area provides a sustainability objective for system transition and identifies flagship deliverables and commitments.

Health system

Enabling our health system to meet the risks and challenges posed by climate is at the forefront of our strategy.

Meeting these challenges requires an understanding of the health impacts of climate change, knowing who is most at risk and identifying the most appropriate ways to adapt throughout our state's regions. Our response needs to consider the population and geographical contexts to health, utilising local knowledge to understand health risks and vulnerabilities to guide our adaptation plans.

To achieve these outcomes, we need to assess our current risk portfolio and develop tools to understand the impact of climate on health. These can inform the development of early warning systems to identify climate-related risks before they occur and will provide the necessary data to understand and inform appropriate responses.

Working with local communities and health services to develop climate resilience and **adaptive capacity** will support health outcomes from climate-related shocks and stressors and inform community and workforce awareness on the health risks of climate change and their role in responding to these impacts. [10, 11, 12]

Success for the health system is dependent on integrating knowledge of our emissions and vulnerabilities into our models of health service delivery, decision-making and leadership, shaping our health system into an environmentally sustainable, low carbon and resilient model.

Objective

Build resilience to ensure ongoing capacity to deliver health services.

Flagship deliverables

- **Release the draft Health Sector Adaptation actions**
- **Assess climate risk:**
  - Complete a first pass climate risk assessment by 2025 to understand our **vulnerability** to climate change impacts and integrate climate risk into existing risk management, monitoring and reporting systems.
  - Undertake local climate risk assessments to identify where enhancements are required to existing health services, infrastructure and assets.
- **Develop early warning systems to inform health system preparedness to climate risks and weather events.**

Commitments

- Collaborate with stakeholders to build the adaptive capacity of vulnerable groups.
- Enhance climate-related public health messaging to build capacity and understanding of the health impacts of climate change and weather events.
- Adapt our approach to disaster and emergency preparedness and response activities to include emerging climate change threats and prolonged and overlapping **extreme weather** events.
- Raise health workforce awareness of their potential contribution to respond to climate risks and establish collaboration and knowledge sharing processes for sustainability throughout the system.

What we're already doing

Workforce development: The Sustainable Development Unit is currently delivering the Sustainability in Healthcare Scholarship program for the third year in a row. This program provides staff with training to build workforce capacity and understanding of the health systems own **carbon footprint** and strengthens the provision of environmentally sustainable health services.

Clinical care

Most of our waste and emissions stem from patient care – including medical investigations, interventions, equipment, pharmaceuticals, patient food and staff and patient travel.

Reduction of emissions from patient care will be underpinned by a transition to more sustainable models of care, and empowering clinicians to identify and create change in their workspaces. Environmentally sustainable care can be explored under 4 main themes which align with current health system priorities:

1. **preventative health** – better integration of preventative health care into our health system
2. **patient empowerment and self-care** – improved links between primary and community health care and hospital care
3. **lean service delivery** – embedding sustainability metrics into safety and quality
4. **low carbon and low waste alternatives** – investigating, prioritising, financing and embedding models of low carbon treatment and care, and utilising low emission consumables and medication into the system. [13]

Flexibility in service, such as opportunities for alternative delivery modes and digital health, will support the resilience and security of essential service delivery and our workforce.

Climate resilient care recognises that climate change puts patients, services and staff at risk. The process of climate adaptation involves understanding these risks, and working to decrease and manage vulnerabilities, while preparing the system and workforce. [11]

Objective

Deliver high quality, low carbon and environmentally sustainable health care.

Flagship deliverables

- **Establish clinical sustainability networks that connect clinicians, community, consumers, carers and other stakeholders to support pathways for environmentally sustainable and climate resilient care.**
  - Identify clinical processes and pathways that have high environmental impact to inform the work of these networks.
- **Pilot the Australian Commission on Safety and Quality in Health Care Environmental Sustainability and Climate Resilience Healthcare Module at selected WA hospitals – this provides a nationally consistent statement of the level of care consumers can expect.**
- **Embed environmental sustainability criteria and key performance indicators in quality improvement programs and clinical safety reporting mechanisms.**

Commitments

- Embed preventative health interventions across the system to improve health outcomes and reduce overall health costs and emissions. [18]
- Prioritise models of care that deliver high quality and value care, improving on both carbon emissions and patient outcomes. [19]
- Support specialist clinical positions to lead environmentally sustainable and climate resilient care pathways for their service or specialty.
- Use the Australian Commission on Safety and Quality in Health Care guidance to identify opportunities to reduce unwarranted healthcare variation and low value care.
- Use epidemiological models to estimate climate impacts on future health service delivery and integrate the findings into clinical service planning.

What we're already doing

Clinical sustainability roles: Dedicated clinical positions in sustainability have been created by some of our hospitals and health service providers to support the development and implementation of environmentally sustainable activities within the system.

Responsible use of plastics: An education campaign at Fiona Stanley Hospital has encouraged staff to reduce waste generated by bluey absorbent pads by prompting staff to reconsider the necessity when using blueys. The 'Think before you bluey' campaign has demonstrated effective results with a 23.7 per cent reduction in the number of blueys used across SMHS in the 22 months following the program's introduction (unpublished source).

Similar success in other Australian jurisdictions has led to reduced glove usage, with the Gloves Off! campaign in a NSW health district resulting in unnecessary glove use dropping from 60 per cent to 23 per cent 6 months after the education campaign.

Resources

Health resources make a significant contribution to our system's emission profile, with chemicals and gases making up 25 per cent of emissions out of the top 12 greenhouse gas producing activities (appendix B).[5]

Volatile anaesthetic agents can have a significantly greater impact on emissions than CO_2. Desflurane and nitrous oxide, have 2,540 and 295 times the **global warming** potential of CO_2 respectively. [14] Similarly, metred dose inhalers used for the treatment of asthma contain a propellant that is a highly potent greenhouse gas. [11, 15]

Gas generates further emissions as both an energy source to power heating and equipment, and via processes such as sterilisation of equipment.

Chemical emissions and usage are also driven by use of cleaning and disinfecting agents, and laboratory chemicals such as reagents and culture media used for diagnostics. These chemicals have a high carbon footprint and are harmful to human and environmental health.

Consumables and single-use items such as plastic personal protective equipment (PPE), medical and non-medical items and packaging make further contributions to emissions and waste through their creation and transportation.

Preferencing the use of environmentally sustainable pharmaceuticals, chemicals and consumables will provide a significant reduction to health system emissions and minimise their negative impact on human and environmental health.

Objective

Preference the use of environmentally and socially responsible pharmaceuticals, chemicals, and consumables

Flagship deliverables

- **Optimise clinical use of high-emitting medical gases and pharmaceuticals and embed processes to reduce their waste.**
  - Implement systemwide nitrous oxide reduction measures.

Commitments

- Promote responsible use of personal protective equipment and single use consumables and replace disposable plastic products with reusable or biodegradable options where appropriate.
- Maximise opportunities to reuse, refurbish and recycle medical devices and equipment such as walking aids and surgical instruments.
- Optimise the use of low carbon, environmentally sustainable and safe alternatives for environmentally harmful chemicals and pathology reagents, in collaboration with clinicians and patients.
- Procure environmentally sustainable, locally and ethically sourced food in our health services.
- Develop and implement interventions to minimise food waste in healthcare facilities.

What we're already doing

Optimising pharmaceutical usage: A pilot project is underway to develop and refine a methodology to reduce the carbon footprint of nitrous oxide anaesthetic gas. This will be achieved by guiding appropriate clinical use, advising on detecting and repairing leaks, and identifying ways to reduce loss to the atmosphere across the whole life cycle of use.

The pilot project will inform development of statewide guidance on nitrous oxide usage in hospitals to reduce associated emissions.

Minimising food waste: Health sites such as Fiona Stanley Hospital have implemented bedside meal ordering and à la carte menus, to reduce the amount of unwanted food sent to patients.

Reusing and recycling medical equipment: NMHS is currently developing a proof of concept for a resource register to facilitate transfers of equipment and consumables between work areas, other health services and to charities to save money and reduce environmental impact by limiting waste. This service, when implemented, will support the health sector's strategic commitments to reuse, refurbish and recycle equipment and reduce system waste.

Supply chains and procurement

We rely on an extensive network of suppliers to produce, transport and deliver goods and services. The manufacturing and delivery of these products and services make a significant contribution to our emissions – in 2020, our external supply chain emissions made up 44.4 per cent of our carbon footprint. [5]

Supply chain emissions can be complex to address as they lie outside our direct control. A long-term process of engagement and negotiation, underpinned by reliable data, will be required to achieve change. [11]

Extending the life of purchased products, implementing circular economy* principles and keeping waste to a minimum will also help build a supply chain that is resilient to climate-related disruptions and other global pressures.

The outcome of our focus on supply chains and procurement will be to implement sustainable procurement processes and take measures to reinforce the resilience of our supply chain to minimise disruption from climate change.

*a global economic model that decouples economic growth and development from the consumption of finite resources. Circular economy systems keep products in use for as long as possible, allow for the recycling of end products and eliminate waste. [16]

Objective

Implement sustainable procurement processes to build the resilience of supply chains, reduce waste and improve social, financial and environmental outcomes.

Flagship deliverables

- **Develop and promote simple and easy to use resources that enable staff to integrate sustainability into any procurement process.**

Commitments

- Identify the goods and services with the highest environmental impact within our supply chain and explore sustainable procurement opportunities.
- Work with suppliers and research institutes to embed circular economy design principles into the use of healthcare consumables and products.
- Engage with suppliers to understand their current commitments to climate change, emissions reduction, environmental impact and waste
- Work with other jurisdictions to align procurement requirements, to decarbonise our supply chains.
- Work with industry, researchers and suppliers to reduce packaging and develop sustainable new alternatives.

What we're already doing

Sustainable procurement: Under the Western Australian Procurement Rules, agencies are required to consider the WA Government's social, economic and environmental priorities when seeking the best value for money outcome for procurements. [20]

The Department of Health worked with Health Support Service to make changes to existing procurement forms to encourage consideration for sustainability objectives in procurement processes.

Infrastructure and utilities

Hospitals and other healthcare facilities make up a large portion of our state's emissions. In 2020, gas and electricity supplied to our sites contributed an estimated 1,980 kilotonnes of CO2 emissions and a financial cost of almost $70 million. For older health care facilities such as Sir Charles Gairdner, Royal Perth and Fremantle Hospitals, total gas usage can be as much as double the use of electricity (Department of Finance Common Use Agreement data). By electrifying our facilities, we can maximise our use of **renewable energy** sources, such as solar and wind, to provide both financial savings and reduction in emissions.

In 2021, we used 2.24 gigalitres of water across our hospital sites (unpublished source), the equivalent of 900,000 Olympic-sized swimming pools.

In addition to being major contributors, health infrastructure, workforce and service delivery are each vulnerable to the impacts of climate change. [17] Understanding and managing climate risks to ensure continuation of essential functions during extreme weather events and other climate-related disruptions is a critical component of the transition to a sustainable and resilient health system.

To meet emission reduction targets and ensure the sustainability and resilience of our health system, optimising energy and water usage and minimising waste are key – this course will reduce emissions, conserve resources and deliver financial savings in the process.

Considering sustainability principles in the design and construction of new healthcare facilities (and modification of existing facilities) will support these principles and improve resilience in service delivery.
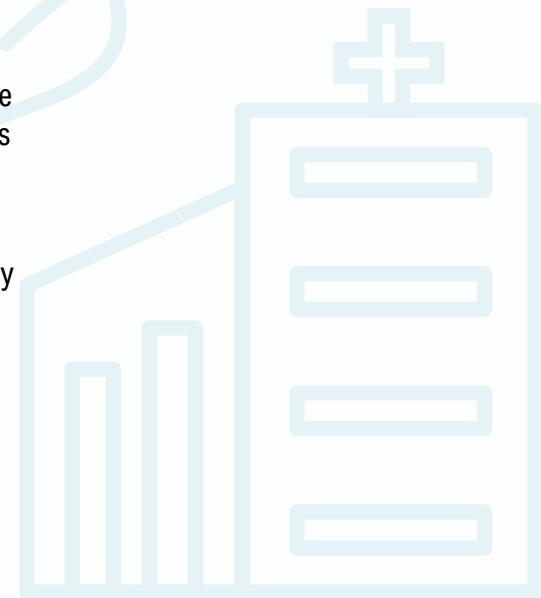
Objective

Support climate-resilient, environmentally sustainable hospital design and function.

Flagship deliverables

- **Develop an Emissions Reduction Plan by 2026 to establish systemwide emissions reduction priorities, including a strategy to transition our buildings from fossil fuels (including gas) to electricity (electrification).**
  - Establish emissions tracking and reporting capabilities across the health system.
  - Undertake emissions reduction modelling to identify opportunities to reduce energy usage.
- **Ensure that new hospital builds meet minimum 5-star rating in the Green Building Council of Australia's Green Star rating scheme and incorporate climate change resilience into their design.**
- **Develop a waterwise strategy for hospitals and health services that identifies opportunities to reduce water use while supporting high-quality patient care – this will include water literacy programs and waterwise policies.**
- **Establish green spaces on hospital campuses and incorporate green space planning into healthcare facility design where possible, to reduce ambient heat and provide patient health benefits.**

Commitments

- Maximise use of renewable electricity such as solar and wind by 2030.

What we're already doing

Green spaces: The Department of Planning, Land and Heritage is currently developing the Perth and Peel Urban Greening Strategy, which will enhance tree canopy and increase green space across the Perth and Peel regions. The consultation process has included discussion with our health system in relation to expanding green spaces on hospital campuses.

Electrification of healthcare facilities: Adopting renewable energy offers the opportunity to reduce carbon emissions and provide cost savings in the process.

A rooftop solar system has been installed at Derby Regional Hospital and is expected to provide close to 25 per cent savings on annual variable energy bills for the hospital through the provision of renewable energy.

Improvements to infrastructure: Upgrades to PathWest's Queen Elizabeth II Medical Centre building have delivered financial and carbon emission savings of $129,512 and 605,346 kgs respectively by installing variable speed drives on air handling units and exhaust fans. Further improvements are in progress to upgrade to LED, sensor-driven lights for further improvements.

An initiative at NMHS was introduced to change heating, ventilation and air conditioning schedules at Sir Charles Gairdner Hospital to reduce associated emissions. In 2023–24, this change resulted in annual energy savings of 349,249 KWh, which is the equivalent of powering 48 households, and provided a carbon savings of 178 tonnes.

Transport and travel

Providing high-quality healthcare services across WA is resource intensive, requiring a range of transport modes to effectively deliver supplies and medication, and to transport staff and patients. These services, including road freight and the movement of patients through the Patient Assisted Travel Scheme, makes up roughly one fifth of our total emissions. [5]

Exploring other transport and service delivery options for staff and patients supports emission reduction targets and system resilience. Opportunities exist in digital health and remote care, as well as through sustainable travel options such as electric vehicles and the accompanying infrastructure and supporting public and active transport (walking and cycling).
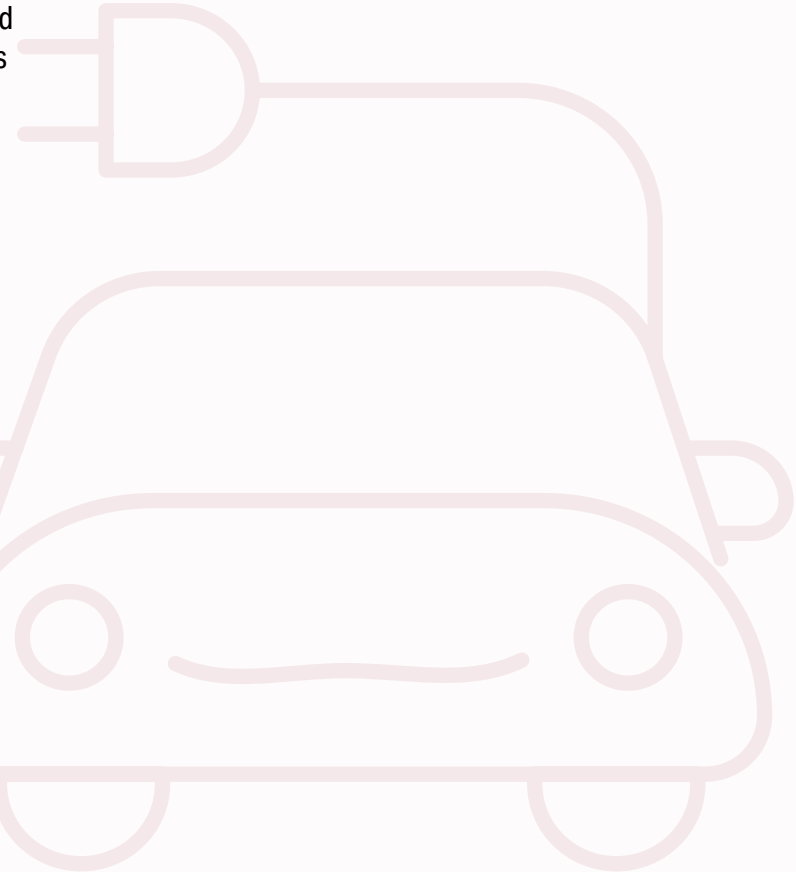
Objective

Develop sustainable transport infrastructure and services for staff, patients and visitors.

Flagship deliverables

- **Accelerate electrification of the staff fleet with an aim to reach 25 per cent by 2026 in line with the government's Electric Vehicle Strategy. [21]**
  - Review existing electric vehicle infrastructure and commence phased installation of charging stations for fleet vehicles at existing sites.
  - Incorporate electric vehicle charging stations for fleet cars in all new public building capital works, including hospitals and office accommodation.
- **Invest in digital health opportunities that reduce travel requirements and emissions without compromising health care.**

Commitments

- Promote the use of low carbon modes of transport including public transport for staff, patients and visitors.
- Develop a campus access and traffic strategy to explore opportunities to reduce emissions from transport for staff, patients and visitors.
  - Develop guidelines on reducing single occupancy vehicle commutes, encouraging alternative mode share and collaborating with local and state authorities to improve surrounding public transport infrastructure.
- Enable flexible working arrangements that reduce travel requirements for staff.
- Review interstate and intrastate business travel to reduce its environmental impact.
- Develop models for delivering health care in the home, community or close to home where clinically appropriate.
- Develop environmentally sustainable solutions for deliveries to health sites across WA.

What we're already doing

Models of care: We are investing in a suite of initiatives to improve access to health care across WA, including telehealth and virtual care models, expansion of patient monitoring services and the introduction of the State Health Operations Centre and WA Virtual Emergency Department.

Digital technologies: Electronic records, digital outpatient clinics, remote-clinician activities and digital or virtual monitoring are all being explored and embedded in services across WA. [22] Well-designed telehealth and digital health services will contribute to making the health sector more cost-effective, more resilient and less susceptible to service disruptions during extreme weather events. [23]

Staff and patient transportation: We are currently developing a Metropolitan Health Campus Access and Traffic Strategy, to provide guidance on staff, patient and public transportation and access infrastructure such as parking availability. The strategy will aim to reduce reliance on single occupant vehicles and reduce air and noise pollution on hospital campuses.

Staff commuting: The Sustainable Development Unit undertook a survey of staff commuting to establish an emissions baseline for Department of Health staff employed at the May Holman building and to identify variables and opportunities to encourage more sustainable transport options for staff. The survey received responses from 205 staff based at the May Holman building and identified a total of 6653.5 kg of carbon emissions generated from staff commuting on a fortnightly basis.

Guiding principles

These principles will guide us in implementing this strategy, and inform decision-making at all points.

Culture
Promote, elevate and embed Aboriginal knowledge, beliefs and ways of being, knowing and relating.

Community
Recognise, value and centre the needs, experience and knowledge of our communities, both now and in the future, through participatory and inclusive processes.

Empowerment
Engage and empower our workforce to support a sustainable healthcare system.

Equity
Address the disproportionate burden of climate health impacts on vulnerable Western Australians.

Prevention
Support community-led health solutions that prioritise preventative health and target the relevant place or location to build on local strengths.

Collaboration
Build, promote and prioritise inclusive relationships and transformational partnerships to drive change across the system.

Enablers

Leadership and sustainable thinking

Leadership is essential to demonstrate that sustainability is a strategic priority, and to deliver progress in line with our vision consistently and on time. The inclusion and elevation of Aboriginal knowledge is necessary to sustainable thinking and must form part of any **governance** structure.

We will require a 'new normal' mindset and cultural shift to embed sustainability across all parts of the health system. Strong, visible leadership will set the ambition, but we will also need to invest in and empower our workforce to support delivery.

We will focus on integrating climate and sustainability considerations across strategic documents (e.g. policies, operational plans, agreements and annual reports), establishing a governance structure to deliver on our commitments and investing in staff by establishing dedicated sustainability roles and training in key positions of influence.

Collaboration and systems approach

The process for responding to climate change must embrace uncertainty, allow creative thinking and incentivise approaches that allow us to adapt over time.

We will need to coordinate our efforts to meet our targets – collaboration and an understanding that we are part of a greater whole will allow us to respond to change more quickly. Building new relationships and strengthening existing networks will provide us with opportunities to drive high-level change.

We will focus on investing in data processes (to measure and report emissions, and model cost-effective emissions reduction), integrating sustainability, climate risk measures and key performance indicators into routine governance and reporting processes, and including sustainability as a standing agenda item for executive and board meetings.

Learning and enabling environment

We require a strong evidence base to inform decision-making, develop communication and capacity building programs, use existing health research funds and partner with industry and the research community to develop solutions.

By providing our staff with the knowledge to understand how the objectives of this strategy relate to their areas of responsibility, as well as the tools to implement them, we will encourage new ways of thinking and working and embed sustainability principles and practices into our daily work.

We will focus on establishing education and training events and developing tools and programs for staff, to promote and normalise sustainability across the system. In addition, we will build climate health research capacity by investing in partnerships and identifying relevant research opportunities.
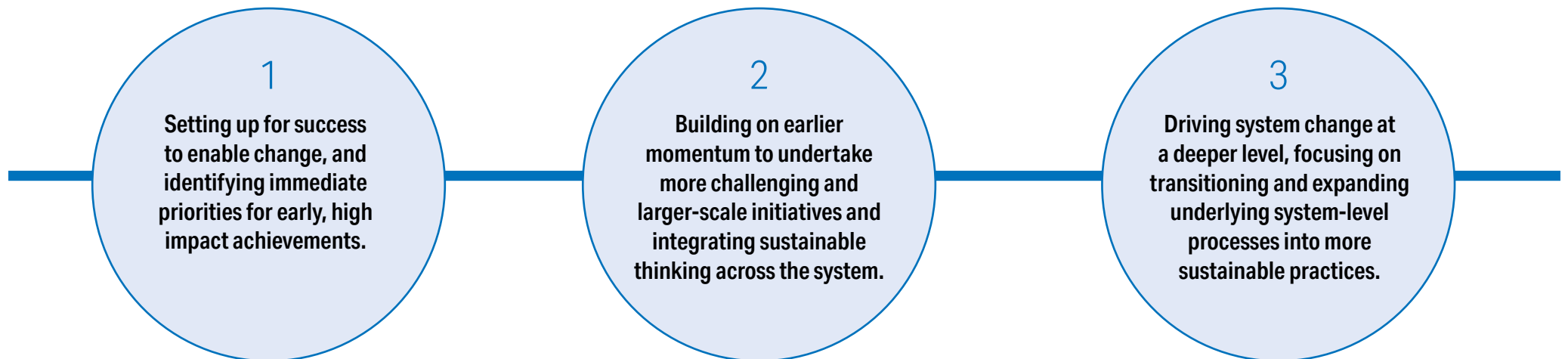
Next steps

We will facilitate action towards our commitments, including:

1. Promote this strategy across the sector to raise awareness of our commitments to sustainability and climate change.
2. Invest in people and partnerships to develop our workforce capacity and awareness, identify new opportunities to reach our objectives and strengthen existing partnerships to promote sector collaboration.
3. Develop governance structures to determine ownership of commitments and reporting processes for monitoring our progress toward them.
4. Identify and develop data requirements and capabilities to assist in tracking and reporting our emissions and inform prioritisation of commitments.
5. Develop an implementation plan, including refining horizons and mapping processes, to achieve early successes and lay the groundwork for future action.

Implementation

Implementing this strategy will require pursuing long-term change while taking steps to accomplish short and medium-term goals. We have mapped these commitments across 3 preliminary horizons, which will be revised and expanded upon with the implementation plan as needed. These horizons are:

1

Setting up for success to enable change, and identifying immediate priorities for early, high impact achievements.

2

Building on earlier momentum to undertake more challenging and larger-scale initiatives and integrating sustainable thinking across the system.

3

Driving system change at a deeper level, focusing on transitioning and expanding underlying system-level processes into more sustainable practices.

Horizons

Horizon 1: Setting up for success

- Publish the draft Health Sector Adaptation actions.
- Pilot the environmental sustainability and climate resilience healthcare module at select WA hospitals.
- Embed sustainability KPI's in quality improvement programs and clinical safety reporting.
- Establish clinical sustainability networks that connect clinicians, community, consumers, carers and other stakeholders to support pathways for environmentally sustainable and climate resilient care.

2023–2025

Horizon 2: Early priorities, results and building momentum

- Assess climate risk and complete a first pass climate risk assessment by 2025 to understand our vulnerability to climate change impacts and integrate climate risk into existing risk management, monitoring and reporting systems.
- Implement the Health Sector Adaptation Plan.
- Develop an Emissions Reduction Plan by 2026 to establish systemwide emissions reduction priorities, including a strategy to transition our buildings from fossil fuels (including gas) to electricity (electrification).
- Accelerate electrification of the staff fleet with an aim to reach 25 per cent by 2026 in line with the government's Electric Vehicle Strategy.
- Optimise clinical use of high-emitting medical gases and pharmaceuticals and embed processes to reduce their waste.
- Develop and promote simple and easy to use resources that enable staff to integrate sustainability into any procurement process.
- Embed environmental sustainability criteria and key performance indicators in quality improvement programs and clinical safety reporting mechanisms.

2025–2027

Horizon 3: Driving deeper change and seeing results

- Invest in digital health opportunities that reduce travel requirements and emissions without compromising health care.
- Ensure that new hospital builds meet minimum 5-star rating in the Green Building Council of Australia's Green Star rating scheme and incorporate climate change resilience into their design.
- Develop a waterwise strategy for hospitals and health services that identifies opportunities to reduce water use while supporting high-quality patient care.
- Establish green spaces on hospital campuses and incorporate green space planning into healthcare facility design where possible, to reduce ambient heat and provide patient health benefits.
- Develop early warning systems to inform health system preparedness to climate risks and weather events.

2027–2029

Appendix A – our strategic process

What we did

To develop this strategy, we first assessed the carbon footprint of WA Health to understand where we generate carbon emissions (appendix B). We used this information to prepare a discussion paper (unpublished) and seek feedback from key stakeholders across the sector.

Consultation and engagement included:

- an online survey open to all staff across WA Health
- a Clinical Senate* session to explore the perspectives of clinicians on what changes are needed to deliver sustainable healthcare
- targeted engagement with external partners including the Aboriginal Community Controlled Health sector, primary health, research institutions, public sector agencies, peak bodies and non-government organisations
- community workshops to understand the views and expectations of patients, consumers and members of the public
- a leaders' forum with our executives and key decision-makers
- feedback from environmental sustainability questions embedded in the 2023 'Your Voice in Health' staff survey.

What we heard

There was strong support for us to develop and implement an ambitious climate and sustainability agenda. Key themes included:
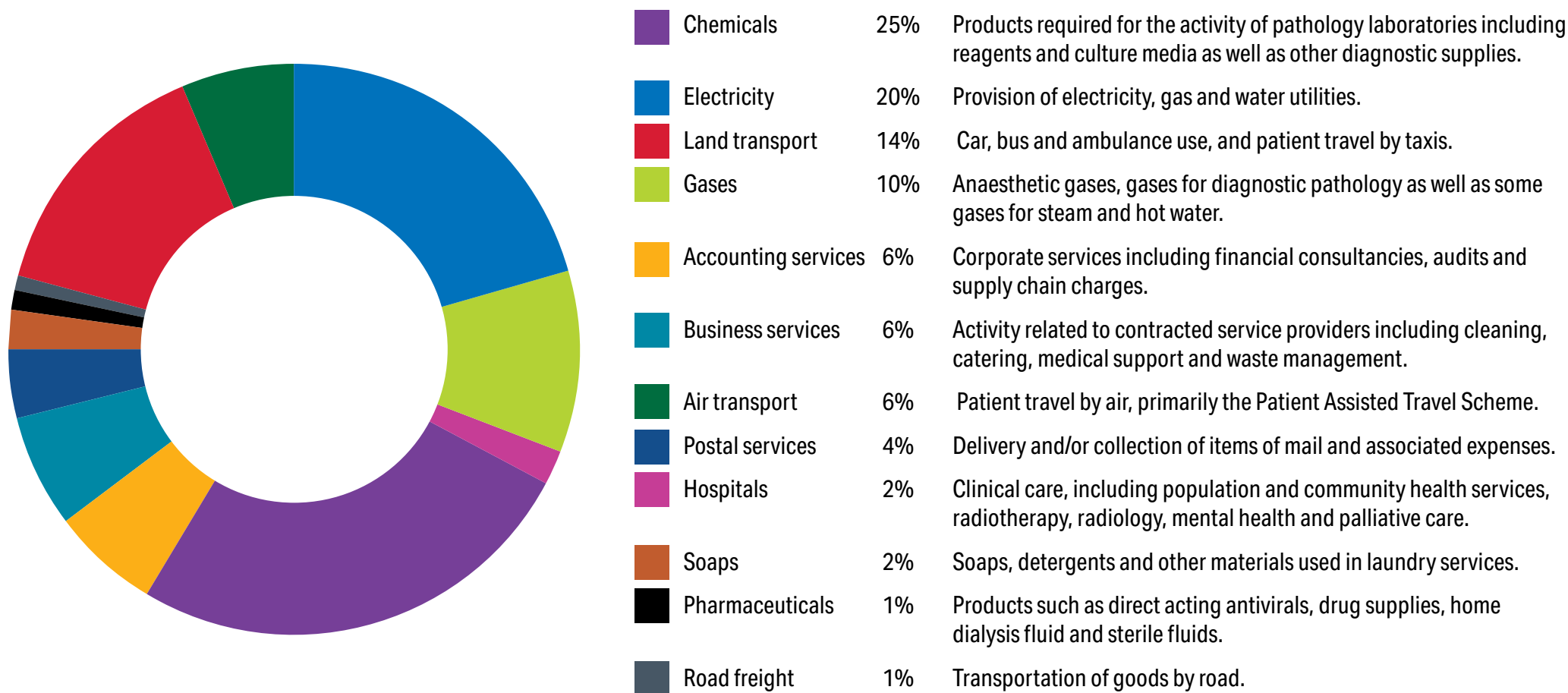
- climate change is an emergency that will increasingly impact the health of our community and disrupt the delivery of healthcare.
- we must act now to safeguard an equitable, sustainable and healthy world for current and future generations.
- while State Government emission targets should underpin our actions, there is a health imperative for us to go beyond these.
- Aboriginal knowledge and wisdom must be central to a holistic response to the challenges of climate change.
- leadership, governance, transparency and accountability will be critical to developing a culture of sustainability and delivering on this strategy.
- this is a shared responsibility across the health system that will require a coordinated **systems approach** to achieve our vision.
- many solutions lie outside the sector, and we need to use our influence to work toward broader societal change.
- staff want to be part of the solution, but need the right tools, skills, resources and support.
- sustainable and low carbon health care is consistent with the principles of preventative, high value and patient-centred health care*, and aligns with other major health priorities including Closing the Gap, [25] virtual care and community-based and digital technologies and services.

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* a respected peak body that brings together clinicians and individuals from all professional disciplines and backgrounds to generate informed, impartial and integrated advice for the Health Executive Committee and wider WA health system on systemwide issues requiring diverse perspectives and innovative thinking. [24]

* high value care is the use of an intervention which evidence suggests 'confers benefit on patients, or probability of benefit exceeds probable harm, or more broadly, the added costs of the intervention provide proportional added benefits relative to alternatives. [18 p. 132]

Appendix B – top 12 economic sectors contributing to WA health's greenhouse gas emissions in 2020

Summary of goods and services contributing to sector emissions

Chemicals	25%	Products required for the activity of pathology laboratories including reagents and culture media as well as other diagnostic supplies.
Electricity	20%	Provision of electricity, gas and water utilities.
Land transport	14%	Car, bus and ambulance use, and patient travel by taxis.
Gases	10%	Anaesthetic gases, gases for diagnostic pathology as well as some gases for steam and hot water.
Accounting services	6%	Corporate services including financial consultancies, audits and supply chain charges.
Business services	6%	Activity related to contracted service providers including cleaning, catering, medical support and waste management.
Air transport	6%	Patient travel by air, primarily the Patient Assisted Travel Scheme.
Postal services	4%	Delivery and/or collection of items of mail and associated expenses.
Hospitals	2%	Clinical care, including population and community health services, radiotherapy, radiology, mental health and palliative care.
Soaps	2%	Soaps, detergents and other materials used in laundry services.
Pharmaceuticals	1%	Products such as direct acting antivirals, drug supplies, home dialysis fluid and sterile fluids.
Road freight	1%	Transportation of goods by road.

Source: WA Health Climate Action Plan 2023

Appendix C – glossary

Adaptation: a process of adjustment to actual or expected climate change and its effects, to reduce harm or gain benefits. It addresses the consequences of climate change and reduces vulnerability to its effects. [17 p. 5]

Adaptive capacity: the ability of systems, institutions, humans and other organisms to adjust to potential damage, take advantage of opportunities or respond to consequences. [26 p. 542]

Carbon footprint: the total greenhouse gas emissions released into the atmosphere because of the activities of a person, organisation, or community, expressed in terms of CO2e. [17 p. 138]

Climate: the general weather conditions for an area averaged over a period, typically 30 years. [17 p. 138]

Climate change: a change in climate patterns over long periods of time, typically more than 30 years. Used to describe the complex shifts in Earth's weather and climate systems that are currently being experienced, and will continue to occur over the coming decades, as a result of the enhanced greenhouse effect. [17 p. 138]

Climate risk: the potential for negative consequences because of the exposure and vulnerability of human or ecological systems. [26 p. 557]

Climate resilient health systems: those capable of anticipating, responding to, coping with, recovering from and adapting to climate-related shocks and stress, to bring about sustained improvements in population health despite an unstable climate. [27 p. 81]

Extreme weather event: a weather event that is rare at a particular place and time of year, including heatwaves, extreme temperatures, droughts, bushfires, storms, heavy rainfall, cyclones and floods. [17 p. 139]

Fossil fuels: the world's primary energy source, including coal, oil and natural gas. They are formed from organic material over millions of years and result in the release of greenhouse gases when burnt. [17 p. 139]

Global warming: the phenomenon of increasing average air temperatures near the surface of the earth. It is one of the main manifestations of climate change, because of the enhanced greenhouse effect. [17 p. 139]

Governance: a set of processes and tools related to decision-making in steering the totality of institutional activity, influencing most major aspects of organisational behaviour, and recognising the complex relationships between multiple stakeholders. Its scope ranges from normative values (equity and ethics) to access, quality, patient responsiveness and patient safety dimensions. It also incorporates political, financial, managerial as well as daily operational issues. [28 p. 38]

Greenhouse gas emissions: greenhouse gases released into the atmosphere because of human activities such as agriculture, burning of fossil fuels and land clearing. [17 p. 139]

Health care, healthcare services: the delivery of medical services by specialist providers, such as midwives, doctors, nurses, pharmacists, allied health (including occupational therapists, physiotherapists, speech therapists and dieticians) and health sciences (such as medical imaging and medical radiation). [18 p. 132]

Health sector: the provision of health care within WA, including by government, non-government, community level and private providers.

Renewable energy or electricity: produced using natural resources that are constantly replaced and never run out, including from sources such as wind, solar or hydroelectricity. It can also include geothermal energies, and other technologies including batteries. [29]

Resilience: the ability of a system, community or society exposed to hazards (such as those associated with climate change) to resist, absorb, accommodate, adapt to, transform and recover from their effects in a timely and efficient manner, including through the preservation and restoration of essential basic structures and functions through risk management. [17 p. 141]

Sustainability: the ability to meet the needs of the present, without compromising the ability to meet the needs of the future. The concept can be considered to have 3 pillars – economic or financial, social and environmental. Environmental sustainability is how we interact with the environment to avoid depleting or degrading natural resources and allow for long-term quality and viability. [17 p. 141]

Sustainable health care: broader than financial sustainability alone, such a system takes what is known as a 'triple bottom line' approach to decision-making, explicitly considering financial, social and environmental returns on investment simultaneously. [17 p. 92]

It also requires limits on resource use in all 3 categories to be set at sustainable levels since even an otherwise high-value service will not be sustainable if available resources are exceeded over time. [1 p. 30]

Sustainable Development Goals: a collection of 17 interlinked global goals designed to be a 'shared blueprint for peace and prosperity for people and the planet, now and into the future.' They were set in 2015 by the United Nations General Assembly and are intended to be achieved by 2030. [1 p. 30]

System approach: identifying and examining the links, interactions and dynamics between internal and external parts of a defined system or systems. It can help individuals and organisations develop a deeper understanding of a given system or systems to identify opportunities for targeted interventions particularly where there are longstanding and complex issues and stakeholders. [18 p. 133]

Vulnerability: the characteristics of an individual, community or system that make them more likely to be adversely impacted by climate change. These can include social and demographic factors, such as age and level of wealth, as well as other features of people and places, such as access to services, the state of local infrastructure and the surrounding environment. Many individuals will face a combination of factors which contribute to their level of vulnerability. [17 p. 142]

WA Health: an informal collective term for the WA health system. [30]

WA health system: defined by the *Health Services Act 2016* as the Department of Health, Health Service Providers and contracted health entities providing health services to the State. [18 p. 133]

Appendix D – legislative and policy drivers

International

United Nations Sustainable Development Goals

National

National Agreement on Closing the Gap | Closing the Gap

National Health and Climate Strategy

National Safety and Quality Health Service Standard

Environmental Sustainability and Climate Resilience Healthcare Module

Western Australia

Western Australian Climate Change Bill 2023

Western Australian Climate Policy

Sectoral emissions reduction strategy for Western Australia

Climate Adaptation Strategy

Waste Avoidance and Resource Recovery Strategy 2030

State Electric Vehicle Strategy for Western Australia

Climate Resilient WA: Direction for the states Climate Adaptation Strategy

WA Health

Sustainable Health Review

Climate Health WA Inquiry

WA Health Digital Strategy 2020–2030

Health impacts of climate change: Adaptation strategies for Western Australia

WA Health Climate Action Plan 2023

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