2025 consultation

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Disclaimer

Sweltering Cities' submission to Net Zero Commission 2025 consultation, addressing:

> What initiatives should the commission consider in assessing NSW's preparation and responses to extreme heat and humidity events in NSW?

Sweltering Cities is a national NGO that works directly with communities in hot suburbs and homes to advocate and campaign for more liveable, equitable and sustainable cities. Our work is at the intersection of health, inequality and climate change. We are a registered health-promotion charity with the ACNC and have been working in hot suburbs of Western Sydney, since 2020.

Sweltering Cities is supported by partnerships with organisations including The Lord Mayor's Charitable Foundation, City of Melbourne and NSW Health. We are a member of the Extreme Heat Resilience Alliance, Sydney Alliance and the Climate Action Network Australia. And, we partner with the University of Sydney and University of New South Wales on extreme heat related research projects.

Sweltering Cities is putting the impact of extreme heat and heatwaves on the national stage by amplifying the voices of communities directly impacted by catastrophic global warming in Australia.

We have:

- Conducted three rounds of the Summer Survey totalling over 5000 responses. The Summer Survey is the largest survey on heat, health and homes in Australia.
- Authored the 'Cool safe spaces report' where our research has found that around 30% of people are leaving their homes to go to a cooler location on hot days. We asked hundreds of people across the country where they go and why.
- Co-authored the 'Future climate impacts on home energy standards report' in partnership with Renew where the science, energy impacts and health costs of how we build our homes is examined.
- Authored the 'Hot roofs report' where the impact of roof colour is examined across Sydney.

- Authored the ‘Busted bus stops report’ revealing the infrastructure inequality resulting in Western Sydney communities baking at hot bus stops every summer.

  All of these reports can be found on our ‘Resources’ page and are referenced in more detail below.

It is vital to consider the community experience when mitigating extreme heat. We know from our research that people dread summer as the hot weather exacerbates physical and mental health conditions, the cost of living crisis - fuelled by rising housing costs and extreme heat emergencies inhibit people’s ability to stay cool and safe in homes and workplaces can be as unsafe as homes.

The Committee for Sydney’s found that the cost of living (in productivity losses, health costs, and costs of household cooling) as a key inhibitor of health and safety in their ‘Burning money’ report (2024).

Sweltering Cities supports the adoption of all recommendations from the Greater Sydney Heat Smart City Plan, including to introduce minimum efficiency standards and retrofit programs for low energy efficiency homes to ensure homes are safe, liveable and affordable in heatwaves.

Commuters reliant on buses in the hottest and most underserved areas of Sydney are subjected to magnified health risks associated with heat stress while travelling in extreme heat. We offer a community backed, low cost proposal to alleviate manageable risk factors preventing public transport from being accessible and safe during heatwaves.

We recommend the resourcing of culturally appropriate guidance on heat safety and public support schemes aimed at alleviating the impact of heat in the home and community spaces to culturally and linguistically diverse communities. Guidance should be made available in trusted places such as local community organisations and leaders should be equipped to support their communities in heatwaves.

We've also gathered stories and feedback from community members in NSW in relation to this submission and provide a summary of findings from our Summer Survey (Australia’s largest community survey on heat) in NSW.

Heat risk is driven by structural inequality and rising temperatures driven by climate change. We ask you to consider these voices and roll out heat mitigation and adaptation strategies as a matter of urgency in order of places most impacted by extreme heat and heatwaves.

Summer Survey NSW data

Sweltering Cities runs Australia’s largest community survey on extreme heat, specifically looking at the everyday impacts of rising temperatures and heatwaves on health and housing. The

Sweltering Cities 2023/2024 Summer Survey surfaced the disproportionate impact of heat-related health impacts on populations with higher risk factors, including age, disability, and socio-economic status, exacerbating the challenges of coping during heat waves in NSW.

Some stats from 2024 summer survey:

- 68% of people feel unwell on hot days or during heatwaves (with 90% of respondents with a disability reporting the same)
- 77% of people live in low energy efficient homes
- 61% of respondents said that cost of living pressures (the price of food, energy, housing and other basics) will make it harder for them or their family during a heatwave over summer.

The proportion of respondents concerned about cost of living pressures negatively impacting their ability to stay safe in summer was higher in Sydney's most socioeconomically disadvantaged postcodes. Census data on average income, employment, and education levels reveals that suburbs such as Mount Druitt, Plumpton, Campbelltown, Fairfield and Green Valley experience higher socioeconomic disadvantage than other areas in Sydney. These postcodes, concentrated in Western Sydney, are some of the city's hottest suburbs.

Respondents who identified as being from multicultural backgrounds expressed that they were less likely to have enough information to keep them and their family safe during heatwaves, and were also more impacted by cost of living pressures. Older migrants, recent arrivals, and low income individuals lacking proficiency in English are particularly vulnerable to impacts of heatwaves in Australia, elevating the need for accessible, multilingual communication strategies to address heatwave risks and promote safety measures in addition to equipping local community organisations and leaders with the resources to support communities to access public support schemes.

Resources:
2024 Summer Survey Report
2022 Summer Survey Report

Heat Health Risk and Structural Inequality

How we experience heat is influenced by our health, our homes, our work, the discrimination we experience, and more. Renters in hot homes who are unable to install simple common sense thermal efficiency measures – such as better blinds, awnings and screen doors – will be at a higher risk of physical and mental health impacts, and the social impacts of heat such as higher rates of violence.

Heat is a significant risk for workers, a UTS study in 2020 stated that:

> *Our research identified four key groups of workers as being at high risk of heat stress:*

- *workers who labour inside, in environments with poor climate control, or whose work requires them to be exposed to heat and humidity.*
- *outdoor workers, especially those who are weather-exposed.*
- *workers moving between different climates as part of their work (i.e., moving between extreme heat and cold).*
- *workers whose roles expose them to situational extreme heat, such as emergency workers and firefighters.*

High heat also impacts many workers in less direct ways: for example, poor sleep during a hot night can make it harder to work safely the next day, and working in extreme heat can make the drive home from work more dangerous.

Questions of social justice are deeply embedded in climate change and rising temperatures. Workers whose jobs are less secure — for example, temporary workers, on-demand workers and migrant workers — are just some of the groups who are at greater risk.

Heat Stress and Work in the Era of Climate Change:

Greater Sydney Heat Smart City Plan

Sweltering Cities works across the country, and we believe that the Greater Sydney Heat Smart City Plan, led by WSROC and Resilient Sydney, is the most effective and advanced project and policy process for creating heatwave safe communities. Our Executive Director Emma Bacon has participated in the Sydney Heat Taskforce since its inception. Sweltering Cities is the lead organisation responsible for delivering Recommendation 3: Listening to Communities. We recommend that the Net Zero Commission consider all of the recommendations within the holistic heat management plan, including the following two key recommendations in ensuring that everyone can stay safe at home during heatwaves:

- Introduce minimum energy efficiency standards for all rental homes in NSW

Many renters live in homes with poor insulation, inefficient cooling options, and outdated appliances. These issues are often beyond the control of renters. As cooling costs continue to rise, renters are being pushed to cut back on essentials to be able to keep cool in their homes. Introducing minimum energy efficiency standards for all rental properties is a necessary and equitable regulatory response to protect renters' health, safety, and financial stability. We welcome the introduction of minimum energy efficiency standards in the ACT and Victoria, and believe the commission should consider similar initiatives for NSW.

- Retrofit programs for low energy efficiency homes in hot regions.

These programs should be targeted to low energy efficiency homes in hot regions, including social housing and rental properties. We commend the 2024 $206 million cost-of-living energy upgrades package for low income households, social housing residents and renters. We also welcome the NSW Consumer Energy Strategy as a good start in building an equitable and sustainable energy future. We recommend an expansion of both programs to ensure that homes are safer, more comfortable, and energy-efficient during heatwaves, while reducing energy costs and improving public health outcomes.

Bus Shelter Fund for Sydney's Hottest Suburbs

Access to safe public transport infrastructure is crucial for protecting the health and wellbeing of the community, especially in extreme heat conditions. Sweltering Cities' community-led mapping of over 2,500 bus stops across Sydney has revealed that in the city's hottest suburbs, where socioeconomic disadvantage is more concentrated there is a smaller distribution of bus stops with shade, shelter, and seating:

- 66% of stops in the Inner West have seating and shelter or shade.
- Only 30% of stops in Penrith, where temperatures on the ground have measured over 50°C, had shelter, shade and seating.
- Only 37% of stops in the North West Sydney suburb of Schofield, one of the key growth regions of the city, have shelter or shade and a seat.

In Fairfield LGA, which experiences the highest Heat Vulnerability in Sydney according to NSW Government data, only 24% of stops have shade or shelter.

View the community-sourced map here.

In addition to concerns over comfort and accessibility, this disparity places commuters at serious risk of heat- related illnesses such as sunburn, heat exhaustion, and heat stroke. While local governments are responsible for bus shelter construction, they are only able to do so at the scale and speed required with the financial support of the NSW Government. We therefore propose a bus shelter fund, directed by the NSW Government, to help improve the heat resilience of the built environment in Sydney's hottest suburbs. We highlight Transport for NSW's ability to fund bus shelters via grants to councils, as seen by the Country Passenger Transport Infrastructure Grants Scheme for bus shelters in regional NSW, or the Get NSW Active program for cycling and walking infrastructure. This initiative will be a celebrated investment for communities most affected by extreme heat events in NSW.

Resources:
Sydney's Busted Bus Stops Report v1.1
Busted Bus Stops – Sweltering Cities

Reducing the Urban Heat Island Effect

The type of cities we build now will define the number of people who die in the deadly heatwave of our future. The sprawling urban heat island developments spreading around our cities have few trees, lots of concrete and dark surfaces to attract the heat. Our hottest suburbs already reach 50° on the ground in summer and in the coming decades we will experience summer heatwaves where it is dangerous to leave the house. We cannot build enough heat shelters for the millions of people who will be impacted by deadly heatwaves, so we need to make our homes safer.

New developments are not climate safe, with trends of black roofs, tightly packed developments, energy inefficient air conditioning, and limited green cover. If we continue to build new developments, urban heat islands and homes that aren't climate or future proof, heatwaves will continue to become acceleratingly deadly environmental disasters.

Our planning regulations don't take into account the environmental, health or social costs of building. Buildings, homes and infrastructure we're building now meet two goals:

- Are safe to live in in our changing climate and future extreme heat
- Help us get to net zero carbon emissions by 2050 (at the latest)

The buildings and infrastructure built now need to fit into Australia's 2050 net zero carbon emissions target.

This will reduce carbon emissions, give people and businesses more confidence in long term plans and future-proof our suburbs. New homes should be energy efficient and be ready for renewable electricity. Common sense energy efficiency measures like high quality insulation, eaves, light roofs and having enough room for trees in new suburbs are all affordable and effective. Making sure that our suburbs have high quality public and active transport networks will reduce transport related carbon emissions.

Transitioning our energy system away from fossil fuels will decarbonise the supply side of our energy system, but we also need to design and build our cities to facilitate decarbonisation on the demand side.

Practically, what this looks like is updating the climate benchmarks for measures like the BASIX and National Construction Code standards to be set according to the projected future climate, not historical climate data. In 2020 Waverley Council released a report saying that homes built under current standards would be unliveable without mechanical cooling by 2070 (Future Proofing Residential Development to Climate Change Stage 1 Report). In 2022 WSROC released the Future Proofing Residential Development in Western Sydney report stating that "BASIX-compliant homes became thermally unsafe when tested in 2020, 2030, 2050 and 2017 heatwave conditions."

In 2023 Sweltering Cities and sustainability NGO Renew undertook research into the impact of rising temperatures on energy efficiency and thermal comfort and found:

> *A key trend is that energy loads required for cooling to maintain comfortable internal temperatures are projected to increase as temperatures rise. Because current data includes years as far back as 1990, significant differences were found between the performance of homes according to currently used data and expected energy use in 2030. The level of increase varies according to the extent of climate change and successful emissions mitigation*

Read the FUTURE CLIMATE IMPACTS ON HOME ENERGY STANDARDS report

For somewhere like Western Sydney, incorporating climate change projections into planning and building codes would mean people could feel confident when they're buying a new home that it will be safer in environmental disasters. Infrastructure like public transport would be more reliable in the future and during disasters. People will see the practical and local transformation of our cities for sustainability and liveability. Our air will be cleaner and our workplaces will be safer. We will have better physical and mental health.

Some of the measures required are easy (no more black roofs in hot suburbs) and some are hard (deciding what areas may be unsafe to live in). However, the only guarantee is that not acting will result in higher emissions, more climate catastrophe and unsafe homes and suburbs.

Resources:
Sweltering Cities Hot Roofs report
NEW REPORT: Energy needed to cool homes set to double by 2050 – new report shows out of date climate data used for energy efficiency ratings will keep us sweating. – Sweltering Cities

Community comments

The following comments were submitted to us for inclusion in this submission.

1. all new dwellings in Sydney should have pale coloured roofs, say with at least 70% of the reflectance of a white roof.
2. all new coal and gas developments should be refused on the basis that unless they foot the cost of their climate damage they are too costly for NSW to allow. there needs to be a substantial increase in export tax on all coal in Australia.
3. double glazing should be mandatory on all northerly and westerly facing windows.
4. all new dwellings to have both wall and ceiling insulation of minimum R4 rating
5. Subsidies to all home owners to have their houses professionally draft proofed, the cheapest form of energy saving there is.
Peter, 2156

Compulsory A/C for social/government properties along with double glazing, European levels of insulation, removal of gas, addition of solar and wind and battery back-up, water tanks and grey water systems, and block out blinds and security: all adding up to relieving the financial burden on the govt benefit income of tenants and their mental health - AND reducing the govt burden of utilities subsidies. Paid by means-tested individuals, proper tax gathering, increase in property value and market desirability for investment via Public Housing organisations.
And, YES - it must be retrospective. Virtually none of this is happening. I'm in a "new build" NSW government housing unit/complex - and it's appalling !
All gas and very inefficient.
Note : key gas expert in Australia, speaking at many NSW Parliament committees and seminars, has made it clear, that the most POOR will be paying the HIGHEST prices - as they will be the ones least able / not allowed to modify/equip their accommodation, and the corporations will still be wanting their profits: which WILL NOT becoming from the remainder of society, who can afford/access renewables.
This is incredibly serious. MASSIVE subsidies from govt will have to occur - basically paying for the energy supplier's profits.
Another financial argument for the governments' to act and avoid the cost of subsidies - which WILL always be gobbled-up, eventually by cunning energy providers.
Adrian, 2526

Proper ALL WEATHER, ALL YEAR ROUND bus shelters and Taxi Ranks and Train Station Platforms.
Help fund A/C for Social Housing.
Adopt ratings on a "best and strictest" basis, from the world for ALL building codes for efficiency.
Individual homes to have: solar, wind, solar hot water, removal of gas, high rating insulation and SEALING, double glazing, rainwater and grey water systems, gutter guards, dimmable leds,

Reverse cycle A/C, window tint, metal shutters, high rating blinds - block out, opening skylights with covers, winter mode fans, induction cooktops - I could go on - battery storage, car charging bays/access (not TESLA).
Adrian, 2526

Trees instead of more and more developments change to more and more trees
Zena, 2150

We are keen to see provisions for workers across different industries, regions and sectors, as the need can change depending on factors such as location. Mandating that employers must offer appropriate climate adaptations, such as start and finish times, less heat prone locations, and of course PPE such as air conditioning, water, sun block and rest breaks.
Steph, 2037

I'd like to see more protected cycle lanes, that are safe and shaded with trees. It would be a huge carbon reduction compared to using a car, and if it connects in a network to public transport, schools, shops, parks and workplaces it means people would actually switch and use multiple modes (eg ride to the station and then catch the train to work. Making it safe would encourage everyone, especially children, women and elderly. E-bikes make it more accessible. It's also more feasible, a half hour walk in 40 degrees is much harder than a 10 minute ride supported by a battery bike to get to the station.
Phillip, 2119

Building applications should be assessed and optimised for Passive solar design. This optimises the ability of the building to heat and cool itself before needing to use power. Also, having a larger proportion of blocks of land oriented to maximise the correct placement of houses, to enable the best orientation of the future houses to be built there, to enable them achieve passive solar design is related to placement of roads and angling of blocks. Developers should be forced to have 80% of blocks able to orient the house properly. if not enough space to do so they should increase the block size to enable it. Apartments also benefit from passive solar orientation and chimney stack ventilation, but it must be designed in conjunction with the fire systems, and automatic door release systems. My parents had an apartment that got too hot, but by chocking their front door open it cooled passively from the atrium. This was not allowed due to fire rules. No auto door release had been installed, despite the design of the building being to passively cool in this manner. They got told to keep the door shut for fire safety. This is an example of design intent not being met. It should be inspected to ensure systems are in place at a cost to the developer, not the future owners/corporate body.

Tree canopy is great, but conflicts with bushfire safety and also native tree fanatics. It also blocks solar access for passive heating and solar panel generation. It needs to be understood that shrubs also cool the environment. So it should be tree and shrub canopy prioritised (less lawn). Shrubs can also mitigate hot and cold winds, and help provide a better local microclimate.

Building design must be optimised for passive heating and cooling, this helps reduce draw on electricity systems, and allows survivability in some blackouts. Roof type in certain climates should be light, others should be dark, depending on which city you are in.

Linear parks to provide green outdoor space available to more of the population would be an improvement to what is currently being provided. These could also passively infiltrate water into the landscape, further increasing the cool, and reducing the need for grey infrastructure. Enabling natural building materials such as straw and rammed earth under the building codes to make it easier to use including the use of complying development to allow fast tracking of their approval? These materials are much more viable for self builders to use at low cost, but eventually mainstream builders will start to do it once the demand is there. These materials are lower impact, and more thermally useful in terms of insulation and heat and humidity moderation / regulation with thermal mass in the case of rammed earth. Make it easier to use them!!!
Fiona, 2571

I want more action on the part of the NSW government on heatwave safe homes and workplaces, cool, walkable, leafy street, lower maximum car speed limits, more cycle ways and accessible public transport with safe, clean bus stops protected from extreme heat and rain.
Alberto, 2076

A response to power company tree lopers who destroy the shade for often scarce benefit. They are not arborists, often tree cowboys, driving their vehicles at speed in built up areas whilst destroying canopies. Shade reduces heat for pedestrians.
Marilyn, 2117

Housing Developments which occur after the death of a beautiful tall tree. It's not a coincidence.

Housing is needed, but designs don't take into account the position and western sun and often the shade has been removed or mysteriously disappeared. Private certifiers have no interest in the mess they leave in others suburbs

We can't be serious about cooling cities while street design and urban planning do not leave enough room for trees. The complying development rules focus on maximising the building footprint and driveways. More room should be left for trees in the back and front yards and nurturing them enforced. Concrete pathways are often installed after building completion so it seems they are not checked so that very little green space is left.
Jill, 2074

Insulation in all roofs and solar panels on all buildings especially on rental properties and council or government owned buildings. Stop funding private school (businesses) and heat proof all government schools and preschools. More trees and foliage everywhere.
Jenny, 2095

We need more trees but also education to persuade people to keep the trees that they already have on their properties. Facts such as the reduction in air conditioning bills from trees on the property, the value of walking on a shaded street on a hot day. If we could put a monetary value on trees then people might not be so keen to cut them down.
Jennifer, 2154

Our cities need more trees- parks and gardens, leafy boulevards ,rooftop gardens and green walls. Trees and green spaces are one of the answers to reducing the heat island effect. Two trees on a property will reduce air conditioning costs. Shady streets make it more likely that people will walk rather than drive short distances
Jennifer, 2154

Initiatives should include planting more trees and green spaces, providing bus and playground shelters as well as public places where people can go during extreme heat events. Better planning to take account of extreme heat in the future, for example not using plastic grass in playgrounds, providing covering for play equipment and play areas. Focusing on groups at risk such as the very young and the elderly. More information to the community about when extreme weather is expected and what actions people can take to stay safe.
Maria, 2131

Any future licence granted by a State or Australian Government to a private individual or company entity should in my opinion include a condition that the licence does not allow free emission of greenhouse gases in future .

This is especially important, when future governments, both state and Australian, legislate to mitigate climate change.

Without such conditional licences, companies like Woodside Petroleum might sue The Australian government for damages and loss of profits when our government inevitably prohibits the release of greenhouse gases resulting from natural gas extraction.
David, 2570

How about planting in a high density manner several species of fast growing native trees in unused or vacant public space within and around Penrith city e.g. the Penrith City Park and beside the Survey Creek from Ikin Street northwards. Too much grass and too hot to rest there in summer. Furthermore, if possible through negotiation .... do the same in large tracts of privately owned but undeveloped land. such as that bound by Station Street, Jamison Road and Woodriff Street.
Siang Wee, 2750

Trees: Trees keep us cool . I would like to see more canopy street trees to provide shade and reduce heat island effect in suburbs.
Canopy trees in backyards as a requirement for DA and CDC permits.
Plan and design for shaded pedestrian pathways

Lighter roof colour requirements for DA and CDC applications .
More Public Swimming Pools in heat affected western Sydney .
Shaded bus shelters
Look at Passiv Haus principles for addressing extreme heat and humidity in buildings
Nina, 2112

I would love to see proper climate adaptation in buildings, particularly medium density given the housing crisis, so that no new building doesn't contain proper landscaping and green roofs and balconies. We need to build smarter going forward and ensure we have proper landscaping plans for all our streets to deal with extreme heat and liveability going forward. This should include rights for renters to be able to insist on these protections in their homes and other measures to address extreme heat. I would also like to see greater adaptation around our parks and streetscapes. Building urban forests would not only improve our climate but also our mental health
Kirsty, 2022

More trees, more shade and more access to water and green spaces. Regulatory reform to allow Councils to more easily plant trees in roads and streets to mitigate against the heat of black bitumen roads.

TFNSW should reconsider how it manages wait times for people crossing main roads at signals, forced to wait in extreme heat environments. Excessive wait times (minutes) on extremely hot and dangerously fast roads are trapping the most vulnerable people (less economic advantage, children and older people , people with disabilities) in their homes . TfNSW should prioritise making it faster and more direct to walk by minimising wait times at signals and making intersection environments safer and more shady.
Tegan, 2194

I think there should be changes made to planning legislation which would mandate the minimum size of a residential building block (some of the newer ones are far too small) and mandating the maximum percentage of such a block that can be occupied by the footprint of the house built thereon. This would allow for more distance between houses, and provide room for more trees. New housing estates in outer western Sydney have some trees along the footpaths but I don't think this provides nearly enough shade. I also think that legislation should mandate light coloured rooves for all new houses and apartment blocks, if this has not already been done.
Angela, 2760

We need residential home designs much improved: black/charcoal coloured roofs banned, eaves wide enough to provide shade for windows, solar orientation incorporated into design. Also tree canopy coverage in urban areas vastly increased,
Jenny, 2650