The economic impact of heatwaves on Victoria

Heatwaves have a significant impact on the Victorian economy, that will worsen over time if no action is taken.

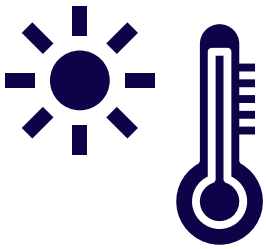
A heatwave is three or more days of unusually high day and night time temperatures[1]. Victoria experiences a *severe* heatwave event on average every two years, challenging already vulnerable people and industries[2].

An *extreme* heatwave event, experienced twice in Victoria in the past decade (in 2009 and 2014), makes normally resilient people and engineered systems vulnerable[3].

As climate change is likely to trigger more significant heatwave events, risk managers are also planning for the impact of a *very extreme* heatwave event on Victoria – an unprecedented scenario 10% more severe than the 2009 Black Saturday heatwave[4]. An event of this magnitude would cause irreparable damage to the natural and engineered systems that underpin the Victorian economy.

$179m

EXPECTED ANNUAL COST TO VICTORIA OF HEATWAVE EVENTS BY 2030



$87m

HEATWAVE EVENTS COST VICTORIA 0.025% OF GROSS STATE PRODUCT EACH YEAR

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Rural areas are more vulnerable

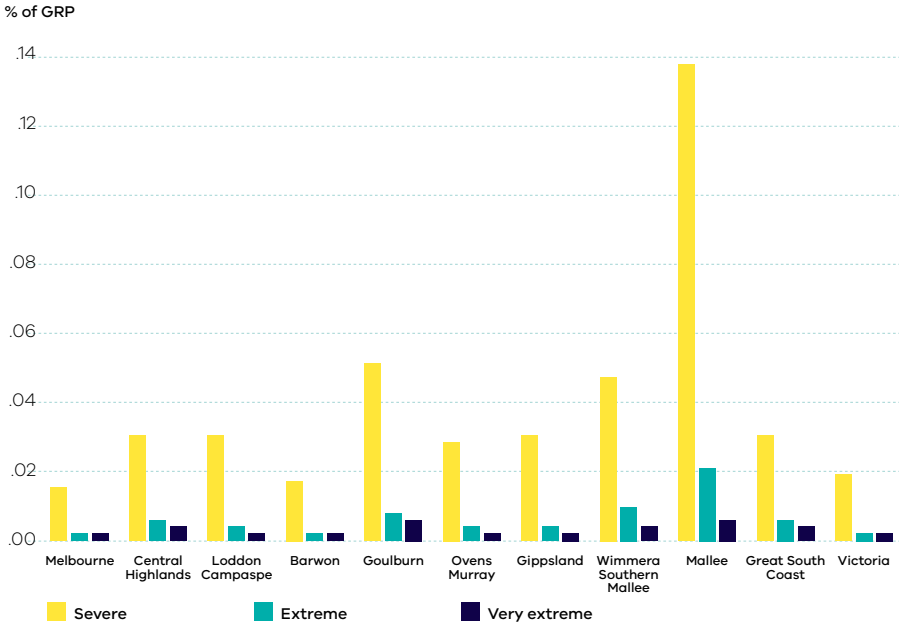
The economic impacts of heatwaves are not evenly distributed across Victoria.

The figure (on the right) shows distribution of impacts as a percentage of Gross Regional Product (GRP).

Whilst Melbourne faces the highest value economic impact, these results show that regional economies with a high dependency on the agriculture sector are most vulnerable to heatwaves.

For severe level heatwave events, almost half of the total economic impacts are incurred by the agriculture sector.

Annual economic impact of heatwave events on Victoria's regions



Source: Natural Capital Economics (2018). Heatwaves in Victoria: a vulnerability assessment. Report prepared for the Department of Environment, Land, Water and Planning, VIC.

$52.9m

Annual impact of heawave events on Melbourne's economy

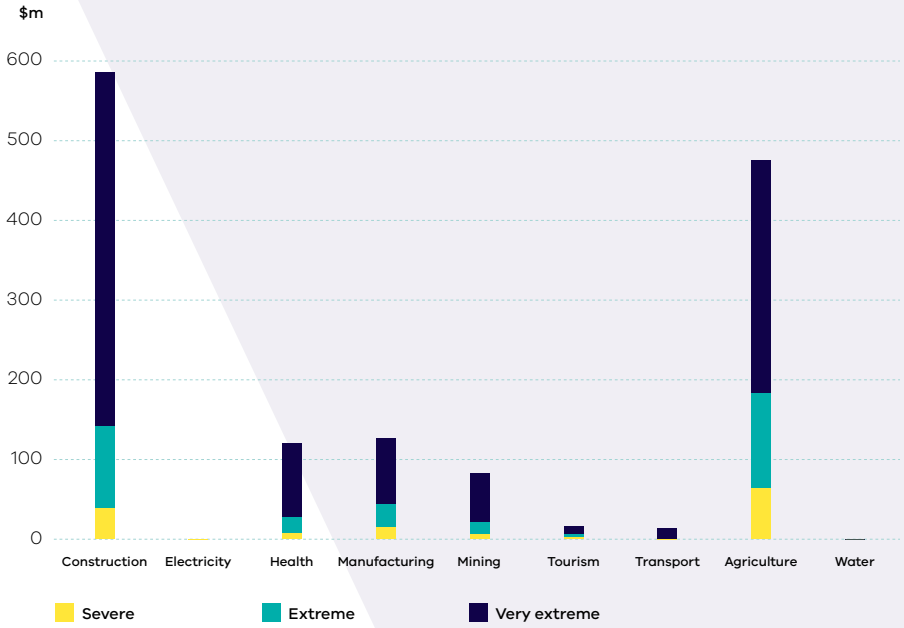
0.14%

Of the Mallee Regions' Gross Regional Product (more than $7m) lost to heatwave every year

29,661

Number of businesses in Victoria in the agriculture sector. Represents up to a quarter of the economy in some regions

Impact of heatwave on Victoria's main economic sectors



Source: Natural Capital Economics (2018). Heatwaves in Victoria: a vulnerability assessment. Report prepared for the Department of Environment, Land, Water and Planning, VIC.

Direct costs to sectors

As heatwave events increase in severity, the economic impacts grow for those sectors reliant on the health and productivity of outdoor workers. The construction sector is highly vulnerable to heatwave.

The figure (on the left) shows the direct economic impact of each heatwave event type on Victoria's key sectors.

The economic impacts shown in this graph do not reflect the domino effect that vulnerability to heatwave can have on sectors.

$103m

Loss to the Victorian construction sector from an extreme heatwave event

225,000

People or 8.3% of Victoria's working population are employed by the construction sector

49%

Almost half of the total economic impact of a severe heatwave event in Victoria is incurred by the agriculture sector

Victoria can expect to experience a severe heatwave event every year by 2030 – doubling the current event frequency and the cost to the economy

Likelihood of economic impacts on Victoria's economy from heatwave events

Type of heatwave event	Event impact $Millions	Current likelihood	Likelihood in 2030	2050 (RCP 4.5[5])	2050 (RCP 8.5[6])
Severe heatwave	131	Once every 2 years	Every year	Once every 0.9 years	Once every 0.8 years
Extreme heatwave	291	Once every 25 years	Once every 12.8 years	Once every 11.7 years	Once every 8.7 years
Very extreme heatwave	1,000	Once every 110 years	Once every 41.8 years	Once every 41.8 years	Once every 25.4 years

Action taken to stabilise and reduce emissions, as well as adapt sectors and workers to the changing climate, will save the Victorian economy millions of dollars in damage from heatwave events.

Tools for Victorian sectors and regions to manage the impacts of heatwave events

To access the latest data about climate projections, impacts and actions in your region, go to www.climatechange.vic.gov.au/information-and-resources/climate-change-adaptation-resources

To contribute to Victoria's efforts to reduce emissions, and prevent the worst impacts of climate change, make your pledge at www.sustainability.vic.gov.au/campaigns/take2

1 Bureau of Meteorology Heatwave Service www.bom.gov.au
2 Naim, J.R. & Fawcett, J.B., 'The excess heat factor: a metric for heatwave intensity and its use in classifying heatwave severity.' International Journal of Environmental Research and Public Health. 2015, 12, 227–253.
3 As above.
4 Scenario used by Victorian emergency management agencies to develop capability targets, as part of the Victorian Preparedness Framework (EMV, 2018).
5 A potential scenario, should significant global efforts be made to stabilise emissions.
6 The likely scenario should emissions continue to rise at the rate of recent decades.

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Accessibility

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