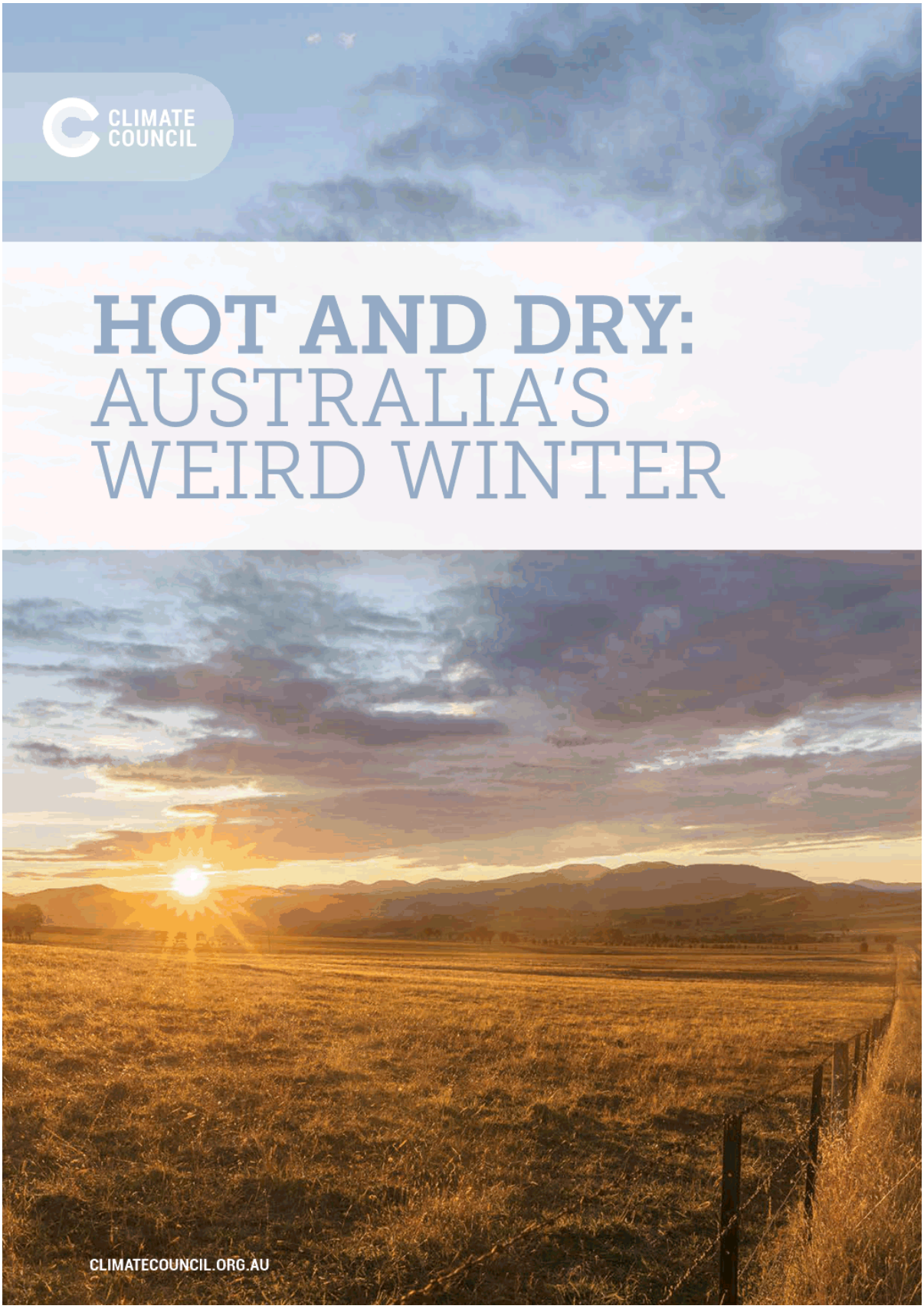
Sustainable Futures Committee

Meeting Date: Thursday, 12 October, 2017
Location: Jervis Bay Rooms, City Administrative Centre, Bridge Road, Nowra

Attachments (Under Separate Cover)

Index


CLIMATE COUNCIL
HOT AND DRY:
AUSTRALIA'S WEIRD WINTER
CLIMATECOUNCIL.ORG.AU

Thank you for supporting the Climate Council.

The Climate Council is an independent, crowd-funded organisation providing quality information on climate change to the Australian public.

Published by the Climate Council of Australia Limited

ISBN: 978-1-925573-30-5 (print)
978-1-925573-31-2 (web)

—

Image credit: Cover Image: "Sunset" by Flickr user russellstreet licensed under CC BY-SA 2.0.

This report is printed on 100% recycled paper.

facebook.com/climatecouncil
info@climatecouncil.org.au
twitter.com/climatecouncil
climatecouncil.org.au

Dr David Alexander
Researcher

Professor Will Steffen
Climate Councillor

Professor Lesley Hughes
Climate Councillor

Contents

Key Findings

1

Australia's 2017 winter was exceptionally warm, with over 260 heat and low rainfall records broken.

- Australia had its warmest winter on record for average maximum temperatures, reaching nearly 2°C above average.
- The nation experienced its second driest June on record and the driest winter since 2002.

2

The record-breaking winter conditions have set the scene for a dangerous bushfire season ahead.

- Bushfire risk is above normal for approximately one third of Australia, including Sydney, Melbourne, Brisbane, Adelaide and Canberra.
- The bushfire season is expected to start earlier in Australia's southeast.

3

Climate change is driving the record-breaking hot, dry conditions.

- The exceptionally warm and dry winter was made 60 times more likely by climate change.
- Australia's average winter temperatures have increased by about 1°C since 1910, driven by climate change, as a direct result of burning fossil fuels – coal, oil and gas.
- Winter warm spells are lasting longer, occurring more often and becoming more intense. The likelihood of such warm winters occurring will continue to increase as global temperatures rise.
- This comes as extreme weather events, exacerbated by climate change, wreak havoc around the world. Record breaking hurricanes in the Atlantic have devastated parts of the United States and Caribbean, while extreme flooding in South Asia has displaced millions of people.

4

Warm, dry conditions can decrease crop and livestock productivity, increase bushfire risk and put Australia's ageing energy system under pressure.

- Agriculture is the backbone of Australia's regional and rural communities, but is exposed to increasingly more extreme weather events including droughts, floods, heatwaves and bushfires.
- Climate change is driving an increase in the occurrence of dangerous bushfire weather in eastern and southern Australia, and is increasing the risks to the economy, human health and the environment.
- Australia's energy system is ageing, inefficient and polluting, and has proved unable to cope with escalating extreme weather, like heatwaves.

1. Winter Records

Winter: Warm and Dry

- Highest winter average maximum temperatures on record, at 1.90°C above average (Figure 1).
- Australia had its fifth warmest winter on record for average temperatures.
- The average maximum temperature in northern Australia for winter was the highest on record, more than 2°C above average.
- Queensland, Western Australia and the Northern Territory had their highest winter average maximum temperatures on record.
- It was the driest winter since 2002.

June: Dry

- The second driest June on record. Rainfall across Australia was 62% below average.
- June was the driest on record for many areas across southern Australia.
- 193 records were broken for the lowest rainfall on record.
- Victoria experienced its lowest rainfall on record (77% below average), while the Murray-Darling Basin experienced its fourth lowest on record (67% below average).
- Canberra had its driest June on record. Rainfall was only 6% of the monthly average.

July: Warm

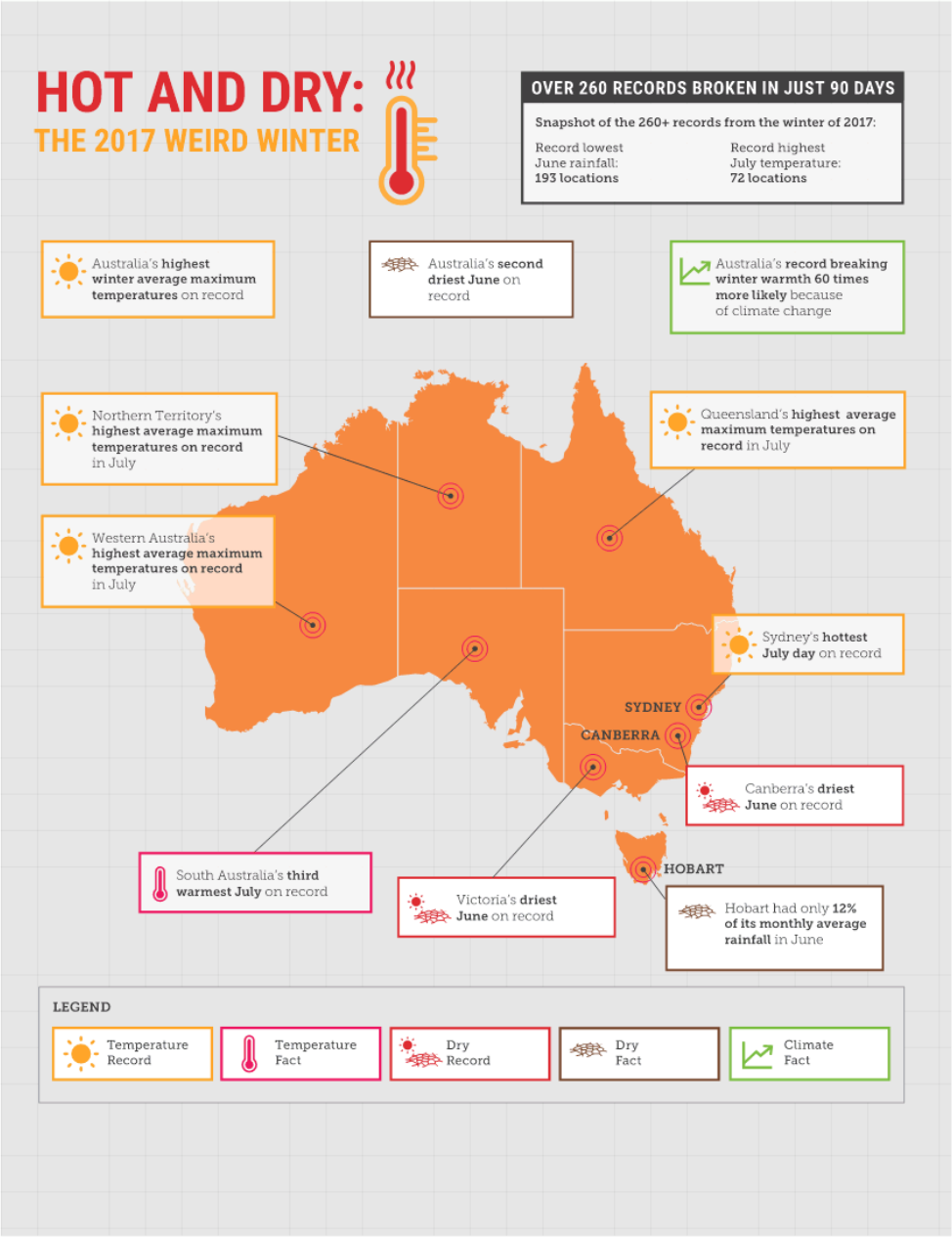
- Australia had its warmest July on record for average maximum temperatures, at 2.6°C above average, more than 0.6°C above the previous record set in 1975.
- Average maximum temperatures were the highest on record in July for Queensland (3.0°C above average), Western Australia (2.3°C above average) and the Northern Territory (3.2°C above average).
- Average temperatures were the highest on record for Queensland and the Northern Territory.
- 72 records were broken for the highest maximum temperature in July, chiefly in New South Wales (35 records), including Sydney which set a record high of 26.5°C.
- South Australia had its third warmest July on record.

August: Warm

- Eighth highest average maximum temperatures on record for Australia, at 1.75°C above average.
- Queensland had its fourth warmest August daytime temperatures, while Western Australia and the Northern Territory had their seventh and eighth warmest, respectively.
- Total rainfall for Queensland was 78% below average, while in the Northern Territory rainfall was 98% below average.

Note: Data sourced from BoM (2017a) Climate summaries archive, available at: http://www.bom.gov.au/climate/current/statement_archives.shtml

Figure 1: Significant climate records and events during Australia's 2017 winter.



Sources: BoM 2017a; King 2017a.

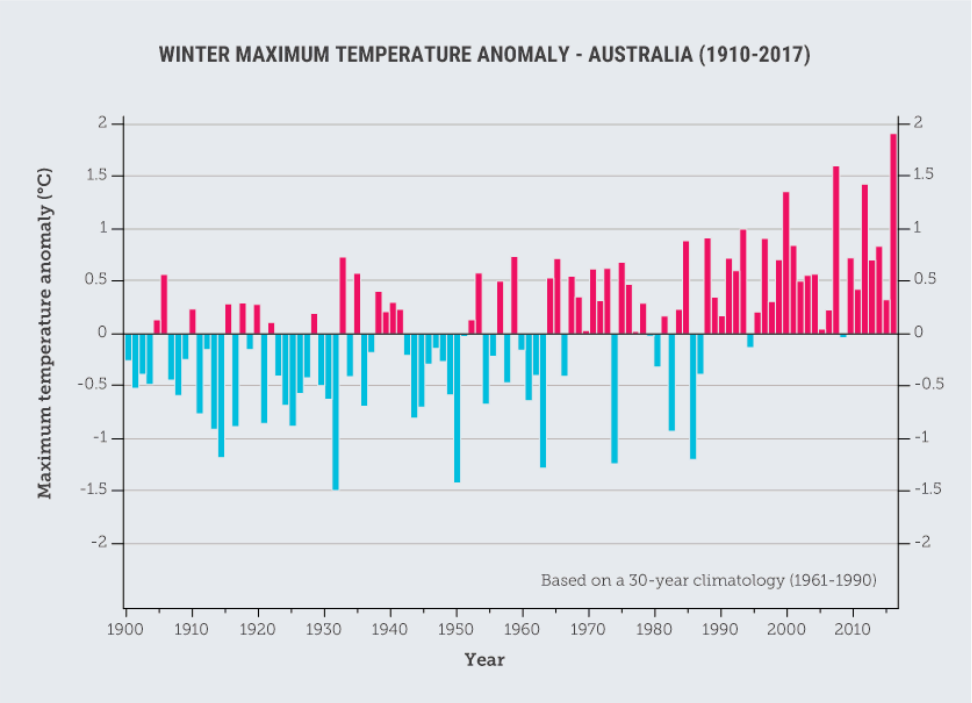
2. Climate Change is Driving Warmer and Drier Winter Weather

Average winter temperatures have increased by about 1°C since Australia-wide record-keeping began in 1910 (BoM 2017b; Figure 2). The long-term increase in temperatures across Australia and the globe is primarily driven by the burning of fossil fuels – coal, oil and gas.

This winter Australia had its highest average maximum temperatures on record, beating the previous 2009 record by 0.3°C (BoM 2017a). This record warmth was made 60 times more likely by climate change (King 2017a). The likelihood of very dry conditions in June throughout Australia has also increased because of climate change (King 2017b). It is expected that the chance of warm winters like 2017 occurring will continue to increase as global temperatures rise. For example, there is nearly a 60% chance of Australian hot winters like 2017 occurring in a 2°C world, and such warm winters are virtually impossible in a world without climate change (King 2017a).

Climate change made the record breaking winter 60 times more likely.

Figure 2: Winter temperature anomalies for Australia since record-keeping began in 1910, with the highest winter maximum temperatures on record occurring in 2017.



Source: BoM 2017b.

Winter warm spells, as well as summer heatwaves, are lasting longer, occurring more often and becoming more intense (Perkins et al. 2012). In the last 15 years, record-breaking hot temperatures occurred twelve times more often than record-breaking cold temperatures in Australia, a direct result of climate change (Lewis 2015). This is consistent with observed winter heat records this July, where many more maximum temperature records were broken (72), compared to record low temperature records (27). The record cold temperatures were predominantly in New South Wales and Victoria, as a result of clear, dry skies, leading to cold nights (BoM 2017a).

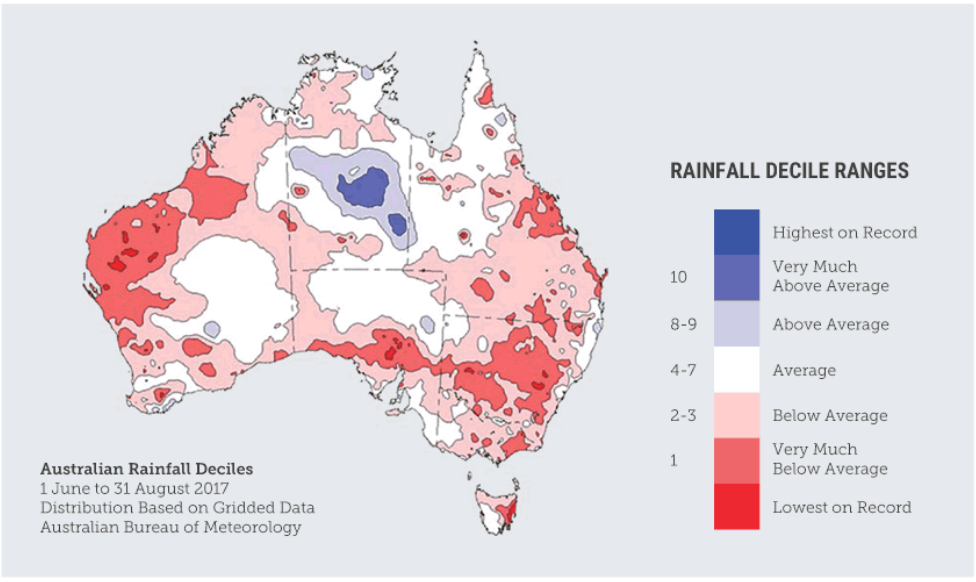
The very dry 2017 winter is consistent with a general drying trend in the April–October growing season (Figure 3). Rainfall in southeast Australia has declined around 11% since the mid-1990s (CSIRO and BoM 2016). The drying trend is related to the southward shift of fronts from the Southern Ocean that bring rain across southern Australia during the cool months (winter and spring) (CSIRO and BoM 2015). The observed reduction of average rainfall and increases in unusually warm days will very likely lead to increased frequencies of days with elevated fire danger (Clarke et al. 2011; Bushfire and Natural Hazards CRC 2017a).

All extreme weather events are now being influenced by climate change because they are occurring in a climate system that is more energetic than in previous decades (Trenberth 2012). In Australia, this means:

- Heatwaves are becoming hotter, lasting longer and becoming more frequent (Perkins et al. 2012).
- Dangerous fire weather conditions are worsening, especially in the south and east (CSIRO and BoM 2016).
- Droughts are likely becoming worse in the southwest and southeast (Climate Council 2015).
- Storms are increasing in intensity (Hartmann et al. 2013).

Dry, hot conditions, exacerbated by climate change, increase the risk of bushfires.

Figure 3: Dry areas in Australia during winter 2017. Major parts of Western Australia, South Australia, Victoria, Tasmania, New South Wales and Queensland had rainfall very much below average.



Source: BoM 2017c.

BOX 1: CLIMATE CHANGE IS INFLUENCING ALL EXTREME WEATHER EVENTS

All extreme weather events are being influenced by climate change because they are occurring in a more energetic climate system than in previous decades (Trenberth 2012).

While extreme weather events are a natural feature of the climate system, the atmosphere and surface ocean of today contain significantly more heat energy than in the 1950s. In fact, the rate of increase in global average temperature since 1970 is approximately 170 times the baseline rate over the past 7,000 years (Steffen et al. 2016). This extremely rapid, long-term rate of temperature increase is being driven by the additional greenhouse gases in the atmosphere, primarily from the burning of coal, oil and gas.

Flooding in South Asia

The South Asian countries of Nepal, Bangladesh and India have tragically experienced severe flooding in August after an exceptionally strong monsoon season. Heavy rainfall has led to numerous and unprecedented landslides and floods, resulting in more than 1,200 deaths and displaced or affected 41 million people (United Nations 2017). The flooding has left communities without food and fresh water, and will bring a threat of disease (Pacific Standard 2017; Figure 4). These disastrous floods were intensified as a result of increased sea surface temperatures due to climate change, leading to more moisture in the atmosphere, in turn causing more extreme rainfall.

Figure 4: Flooding in Bangladesh as a result of heavy rainfall during the monsoon season.

Hurricane Harvey

At the same time as the flooding disaster in South Asia was unfolding, Category 4 Hurricane Harvey ("Tropical Cyclone" in Australia) caused record amounts of rain in southern Texas, including the city of Houston. Analysis by MetStat (2017) reveals that a widespread area received 1-in-25,000 year rainfall over a 5-day period. The hurricane has caused more than 60 deaths, and has left more than 30,000 people homeless (SBS 2017; Washington Post 2017; Figure 5). Climate change increased the impact of Hurricane Harvey on the Texas coastline in two main ways (Mann 2017): (1) very warm sea surface temperatures in the region led to a 3-5% increase in moisture in the atmosphere, meaning more intense rainfall and more flooding; and (2) sea level rise caused the storm surge to be higher than it would previously have been, resulting in more flooding and destruction in coastal areas.

Hurricane Irma

Only one week after Hurricane Harvey made landfall, Hurricane Irma, one of the most powerful hurricanes on record with wind speeds up to 300 km per hour, left a path of destruction through the Caribbean, before moving north to Florida. More than 6 million people were ordered to evacuate by local authorities. In the Caribbean, at least 30 people have been killed (The Guardian 2017), while in Florida at least 17 people died (ABC News 2017). Hurricanes Irma and Harvey caused about $200 billion worth of damage to Texas and Florida, according to preliminary estimates from Moody's Analytics. The intense hurricane activity witnessed in the Atlantic in the past few weeks is part of a statistically significant increase in intense hurricane activity that has been observed in the North Atlantic region since the 1970s (Kossin et al. 2007; IPCC 2013).

Figure 5: Coastguard crews in the United States rescuing stranded residents in Texas, following Hurricane Harvey downpours in late August 2017.

3. Outlook for Spring and Summer

Australia is on track for a warmer than average spring. Daytime temperatures are likely to be above average in northern and southeastern Australia for September to November, including the cities of Darwin, Brisbane, Sydney, Canberra, Hobart and Melbourne (BoM 2017d). Spring nights are likely to be warmer than average over the same region, due to warmer sea surface temperatures off the northern and eastern coasts (BoM 2017d). Spring rainfall is likely to be about average for most of Australia, though it is likely to be well below average in southwest Western Australia including Perth, while in the east rainfall is likely to be slightly above average in southeast Queensland and east Gippsland (BoM 2017d).

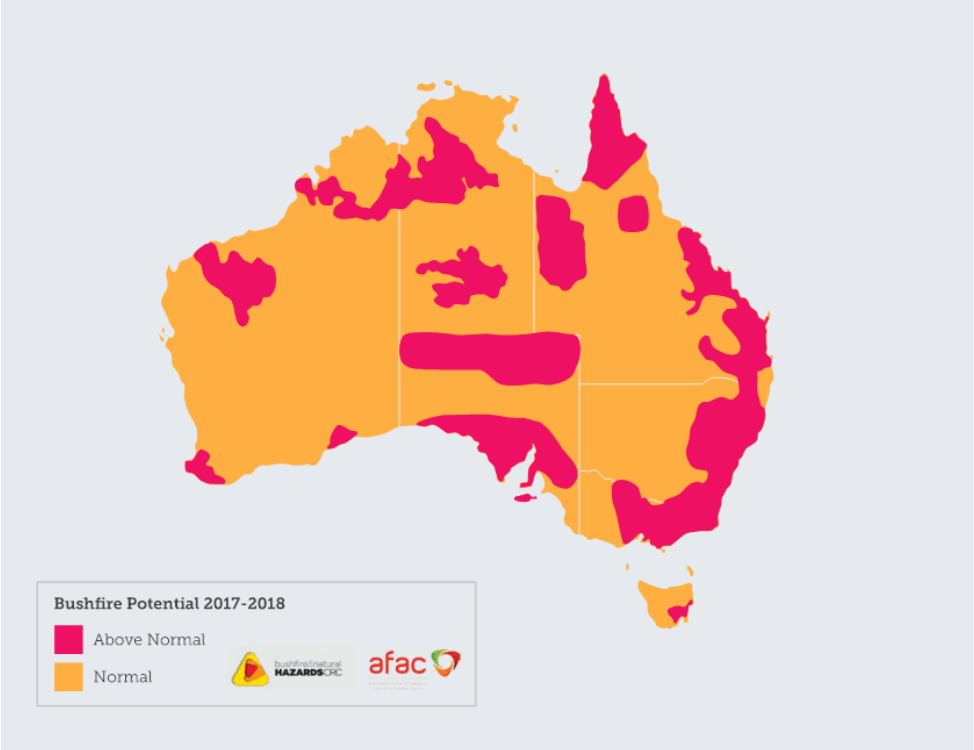
Above-average warmth combined with dry conditions over large parts of Australia during winter have led to a concerning bushfire seasonal outlook, with approximately one-third of Australia expected to have above-normal fire potential (Bushfire and Natural Hazards CRC 2017a; Figure 6). In the south, these areas broadly include the Australian Capital Territory, south and east Victoria, eastern New South Wales, south and central Queensland, and southern and northern regions of South Australia. Further, the warm and dry winter conditions mean the southern fire season is likely to begin earlier than usual (Bushfire and Natural Hazards CRC 2017a), especially in New South Wales (Boer et al. 2017). This is consistent with the general increase in the length of the fire season in Australia because of climate change (Clarke et al. 2013).

Meanwhile, a strong wet season in northern Western Australia and the Northern Territory has resulted in vigorous vegetation growth. This fuel has now dried out, contributing to the above-average fire potential for many parts of this region (Bushfire and Natural Hazards CRC 2017b). Queensland also has higher-than-normal bushfire risk as a result of rain increasing fuel loads in areas without farm stock, following three years of drought (Bushfire and Natural Hazards CRC 2017b).

Most of Australia will continue to experience hotter, drier conditions for spring.

Sydney, Melbourne, Brisbane, Adelaide and Canberra are all expected to experience an above normal bushfire potential.

Figure 6: Bushfire outlook for the 2017/2018 bushfire season. Magenta areas show above normal bushfire potential.



Source: Bushfire and Natural Hazards CRC 2017a.

4. Impacts of a Warmer, Drier Climate

4.1 Agriculture

The risks posed to agriculture from the rapidly changing climate have direct impacts on the communities supported by these industries. Although some rural and regional centres have diversified over time – establishing a range of industries as well as cultural, transport, education, and tourist hubs – agriculture remains the economic backbone of many rural communities. In addition to existing vulnerabilities and risks, rural communities have to face further environmental, social, health and economic issues that can be related to climate change (Kiem and Austin 2013). These risks include increased climatic variability and extreme events such as droughts, floods, heatwaves and bushfires.

Some specific impacts of climate change on agriculture:

- Droughts are projected to worsen through this century, particularly in southern Australia, as winter and spring rainfall declines, affecting crop yields and livestock productivity.
- The frequency of heavy rainfall events is very likely to increase across all regions, increasing the risk of flooding and erosion.
- As instances of extreme daytime heat increase, sunburn may occur in fruit trees, which can reduce flower number and pollination, affecting quality and flavour.

For more details on the impacts of climate change on agriculture and rural communities, see our report: **On the Frontline: Climate Change and Rural Communities.**

Agriculture is vulnerable to a wide range of impacts from our changing climate.

4.2 Bushfires

Climate change is driving an increase in the occurrence of dangerous bushfire weather in eastern and southern Australia, consistent with rising temperatures and, in the south, a decrease in May to October rainfall. The estimated economic impact of bushfires across Australia is more than $300 million per year (Deloitte Access Economics 2013), a value that includes damage and losses of dwellings (e.g. Figure 7) and infrastructure, as well as money spent on bushfire management and suppression. This value is expected to increase to at least $800 million per year by 2050.

There are many health impacts from bushfires. For example, bushfires in Australia have accounted for more than 800 deaths since 1850 (Cameron et al. 2009; King et al. 2013). Bushfire smoke can also seriously affect human health because smoke contains not only respiratory irritants, but also inflammatory and cancer-causing chemicals (Bernstein and Rice 2013). Mental health can also be affected by bushfires because the trauma and stress of experiencing a bushfire can increase depression, anxiety and other issues, both in the immediate aftermath of the trauma and for months or years afterwards (Sim 2002; Johnston 2009; Whittaker et al. 2012).

For more details on the impacts of climate change on bushfires, see our report: **The Burning Issue: Climate Change and the Australian Bushfire Threat.**

Figure 7: Bushfires encroaching on a property in Queensland. Impacts of bushfires include damage and loss of homes and livelihoods, as well as impacts on human health including the loss of life.

4.3 Energy Infrastructure

Extreme weather driven by climate change is increasing pressure on the electricity system (Figure 8). The Finkel Review, a recent independent review into the future of Australia's national electricity market, identified the wide range of possible extreme weather risks to electricity supply, including heatwaves, bushfires, cyclones, floods, tornadoes, drought, and storms. Extreme heat and heatwaves in February 2017 highlighted this risk. New South Wales experienced a heatwave with temperatures at Sydney Airport reaching 42.9°C, its hottest February temperature on record (BoM 2017a). Around 3000MW of coal and gas capacity was not available when needed during the heatwave (roughly the equivalent of two Hazelwood Power Stations). With near record all-time peak electricity demand, the state narrowly avoided widespread blackouts. As climate change continues to make heatwaves longer, hotter and more frequent, Australia's ageing energy infrastructure will be placed under increasing stress.

For more details on the impacts of climate change on energy infrastructure, see our report: **Angry Summer 2016/17: Climate Change Super-charging Extreme Weather.**

Figure 8: Power pylons in southeast Australia – climate change is worsening extreme weather including heatwaves and is placing ageing energy infrastructure under increasing stress.

References

Bernstein AS and Rice MB (2013) Lungs in a warming world: climate change and respiratory health. CHEST Journal, 143: 1455-59, doi: 10.1378/chest.12-2384.

Boer M, Nolan R and Bradstock R (2017) Dry winter primes Sydney Basin for early start of bushfire season. Accessed at: https://theconversation.com/dry-winter-primes-sydney-basin-for-early-start-of-bushfire-season-82641.

BoM (Bureau of Meteorology) (2017a) Climate summaries archive: Monthly, seasonal, and annual climate summaries are available for Australia, states and territories. Accessed at: http://www.bom.gov.au/climate/current/statement_archives.shtml.

BoM (2017b) Winter mean temperature anomaly – Australia (1910-2017). Accessed at: http://www.bom.gov.au/climate/change/#tabs=Tracker&tracker=timeseries&tQ=graph%3Dtmean%26area%3Daus%26season%3D0608%26ave_yr%3DT.

BoM (2017c) Three-monthly rainfall deciles for Australia. Accessed at: http://www.bom.gov.au/jsp/awap/rain/index.jsp?colour=colour&time=latest&step=0&map=decile&period=3month&area=nat.

BoM (2017d) Climate Outlooks – monthly and seasonal. Issued 31 August 2017. Accessed at: http://www.bom.gov.au/climate/outlooks/#/overview/summary.

Bushfire and Natural Hazards CRC (2017a) Southern Australia Seasonal Bushfire Outlook 2017. Accessed at: https://www.bnhcrc.com.au/hazardnotes/38.

Bushfire and Natural Hazards CRC (2017b) Northern Australia Seasonal Bushfire Outlook 2017. Accessed at: https://www.bnhcrc.com.au/hazardnotes/36.

Cameron P, Mitra B, Fitzgerald M, Scheinkestel C, Stripp A, Batey C, Niggemeyer L, Truesdale M, Holman P, Mehra R, Wasiak J and Cleland H (2009) Black Saturday: the immediate impact of the February 2009 bushfires in Victoria, Australia. Medical Journal of Australia, 191: 11-16.

Clarke HG, Smith PL and Pitman AJ (2011) Regional signatures of future fire weather over eastern Australia from global climate models. International Journal of Wildland Fire, 20: 550-562, doi: 10.1071/WF10070.

Clarke H, Lucas C, Smith P (2013) Changes in Australian fire weather between 1973 and 2010. International Journal of Climatology, 33: 931-944, doi: 10.1002/joc.3480.

Climate Council (2015) Thirsty Country: Climate Change and Drought in Australia. Accessed at: https://www.climatecouncil.org.au/droughtreport2015.

CSIRO and BoM (2015) Climate Change in Australia: Projections for Australia's NRM Regions. Technical Report. Accessed at https://www.climatechangeinaustralia.gov.au/media/ccia/2.1.6/cms_page_media/168/CCIA_2015_NRM_TechnicalReport_WEB.pdf.

CSIRO (Commonwealth Scientific and Industrial Research Organisation) and BoM (2016) State of the Climate 2016. Accessed at: https://www.csiro.au/en/Research/OandA/Areas/Assessing-our-climate/State-of-the-Climate-2016/Report-at-a-glance.

Deloitte Access Economics (2014) Scoping study on a cost benefit analysis of bushfire mitigation, Australia Forest Products Association. Accessed at: http://www.ausfpa.com.au/wp-content/uploads/AFPA-DAE-reportAmendedFinal-2014-05-27.pdf.

Johnston FH (2009) Bushfires and Human Health in a Changing Environment. Australian Family Physician, 38: 720-724.

Kiem AS and Austin EK (2013) Drought and the future of rural communities: opportunities and challenges for climate change adaptation in regional Victoria, Australia. Global Environmental Change, 23(5): 1307-1316, doi:10.1016/j.gloenvcha.2013.06.003.

King A (2017a) Australia's record-breaking winter warmth linked to climate change. Accessed at: https://theconversation.com/australias-record-breaking-winter-warmth-linked-to-climate-change-83304.

King A (2017b) Australia's dry June is a sign of what's to come. Accessed at: https://theconversation.com/australias-dry-june-is-a-sign-of-whats-to-come-80469.

King D, Ginger J, Williams S, Cottrell A, Gurtner Y, Leitch C, Henderson D, Jayasinghe N, Kim P, Booth K, Ewin C, Innes K, Jacobs K, Jago-Bassingthwaighte M and Jackson L (2013) Planning, building and insuring: Adaptation of built environment to climate change induced increased intensity of natural hazards. National Climate Change Adaptation Research Facility, Gold Coast.

Lewis S (2015) Sure, winter felt chilly, but Australia is setting new records at 12 times the rate of cold ones. Accessed at: https://theconversation.com/sure-winter-felt-chilly-but-australia-is-setting-new-heat-records-at-12-times-the-rate-of-cold-ones-35607.

Pacific Standard (2017) How Climate Change Contributed To Massive Floods In South Asia. Accessed at: https://psmag.com/environment/how-climate-change-contributed-to-massive-floods-in-south-asia.

Image Credits

Perkins SE, Alexander LV and Nairn JR (2012) Increasing frequency, intensity and duration of observed global heatwaves and warm spells. Geophysical Research Letters, 39: 20, L20714, doi: 10.1029/2012GL053361.

SBS (2017) Death toll from Storm Harvey reaches 60. Accessed at: http://www.sbs.com.au/news/article/2017/09/05/death-toll-storm-harvey-reaches-60.

Sim M (2002) Bushfires: are we doing enough to reduce the human impact? Occupational and Environmental Medicine, 59: 215-216, doi: 10.1136/oem.59.4.215.

Steffen W, Leinfelder R, Zalasiewicz J, Waters CN, Williams M, Summerhayes C, Barnosky, AD, Cearreta A, Crutzen P, Edgeworth M, Ellis EC, Fairchild IJ, Galuszka A, Grinevald J, Haywood A, Ivar do Sul J, Jeandel C, McNeill JR, Odada E, Oreskes N, Revkin A, Richter D, Syvitski J, Vidas D, Wagreich M, Wing SL, Wolfe AP and Schellnhuber HJ (2016) Stratigraphic and Earth System approaches to defining the Anthropocene. Earth's Future, 4: 324-345, doi: 10.1002/2016EF000379.

Mann ME (2017) It's a fact: climate change made Hurricane Harvey more deadly. Opinion piece featured in The Guardian. Accessed at: https://www.theguardian.com/commentisfree/2017/aug/28/climate-change-hurricane-harvey-more-deadly.

United Nations (2017) 16 million children affected by massive flooding in South Asia – UNICEF. Accessed at: http://www.un.org/apps/news/story.asp?NewsID=57455#.Wa4uBdOGNTY.

Washington Post (2017) Texas officials say at least nine dead as Harvey flooding continues. Accessed at: https://www.washingtonpost.com/news/post-nation/wp/2017/08/28/harvey-may-force-30000-people-into-shelters-while-flooding-will-linger-officials-warn/?utm_term=.732b9d07060a.

Whittaker J, Handmer J and Mercer D (2012) Vulnerability to bushfires in rural Australia: A case study from East Gippsland, Victoria. Journal of Rural Studies, 28: 161-73, doi: 10.1016/j.jrurstud.2011.11.002.

Cover Image: "Sunset" by Flickr user russellstreet licensed under CC BY-SA 2.0.

Figure 4: "German-supported forecast-based financing in Bogra, Bangladesh" by Flickr user Climate Centre licensed under CC BY-NC 2.0.

Figure 5: "Coast Guard crews conduct Hurricane Harvey rescue operations" by Flickr user Coast Guard News licensed under CC BY-ND 2.0.

Figure 7: "Bushfire" by Flickr user HighExposure licensed under CC BY-NC-ND 2.0.

Figure 8: "The power" by Flickr user Indigo Skies Photography licensed under CC BY-NC-ND 2.0.

Thank you for supporting the Climate Council.

The Climate Council is an independent, crowd-funded organisation providing quality information on climate change to the Australian public.

CLIMATE COUNCIL

facebook.com/climatecouncil

twitter.com/climatecouncil

info@climatecouncil.org.au

climatecouncil.org.au

The Climate Council is a not-for-profit organisation and does not receive any money from the Federal Government. We rely upon donations from the public. We really appreciate your contributions.

DONATE climatecouncil.org.au/donate

CLIMATE COUNCIL

ENOVA: community-owned energy

What is ENOVA?

ENOVA is an energy retail company, not an energy generator. It is comprised of a holding company (ENOVA Community Energy Ltd), the retail arm (ENOVA Energy Pty Ltd) and a not-for-profit arm (ENOVA Community Ltd). 50% of the profits generated from the retail arm are channelled to the not-for-profit arm, which helps finance vulnerable households, community organisations etc to install renewables.

It is community-owned, meaning that shareholders are typically individuals in the local area (northern rivers) and supplies only renewable energy. The ultimate aim is that all energy ENOVA supplies will be locally produced via renewable generation, but at present some energy must come from outside the region as there is not yet sufficient generation. ENOVA does not yet supply electricity in the Shoalhaven.

ENOVA offers various plans depending on what customers want to support and whether they are generators themselves.

Why is the model a good one?

The advantage of ENOVA's model is that the money that customers spend on electricity (they estimate up to $80 million annually in the northern rivers) stays in the region, and they employ locally. The structure means that the company actively encourages renewable installation among those who might otherwise struggle to afford it, and the company pays customers who generate excess electricity a generous feed-in-tariff of 16c/kWh.

Why is this relevant to the Shoalhaven?

ENOVA's model can be replicated anywhere. It offers local communities a means by which large, slow to change, fossil-fuel favouring energy retailers can be rapidly bypassed, and encourages local generation because of the shorter pay-back period (due to the higher feed-in-tariff), more favourable terms and guaranteed purchase of generated power. Importantly, the model of a not-for-profit arm allows rental and lower-income properties to access solar, which can rapidly increase renewable energy uptake and generation but also help control bills.

Because employment is local, jobs are kept in the local area. Because renewable installation is encouraged (via finance), it increases demand for local installers. And because the profits are retained locally, the local economy benefits.

ENOVA offers a model by which many of the goals of the Cities Power Partnership could be readily achieved, and by which others (e.g. installation of solar on Council buildings) can be maximised as to their flow-on benefits. Shoalhaven City Council (SCC) is required to deliver on five goals. Replicating the ENOVA model would automatically deliver on at least four. This would allow SCC to focus on delivering on additional goals to speed the transition to renewables.

Recommendations

1. That SCC and / or the Sustainable Futures Committee (SFC) travel to the northern rivers to meet ENOVA staff and discuss the steps necessary to replicate the model on the South Coast.
2. That SCC begin discussions with Bega, Eurobodalla, Kiama and Wollongong Councils to determine their level of interest.
3. That SCC and / or the SFC meet with Repower Shoalhaven to discuss how the ENOVA model could interact with Repower Shoalhaven.
4. That SCC set an ambitious target by which a replicated model will be operational on the south coast.