

Victoria's Critical Infrastructure All Sectors Resilience Report 2018



VICTORIA
State
Government

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1 Treasury Place, Melbourne, 3002
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Acknowledgement to Country

The Victorian Government acknowledges Aboriginal and Torres Strait Islander people as the Traditional Custodians of the land. The Victorian Government also acknowledges and pays respect to the Elders, past and present.

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Ministerial foreword

As the Minister for Police and Emergency Services, I am delighted to present Victoria's third annual *Critical Infrastructure All Sectors Resilience Report*.

Victoria's critical infrastructure is important to every single one of us. Every day, we enjoy the benefits of water, energy, transport, food supply, health services, communications, banking and finance, and government services. Critical infrastructure underpins our collective social and economic wellbeing and allows us to function as a community.

Just as we all rely on critical infrastructure, we all play a role in its resilience. Introduced in 2015, Victoria's critical infrastructure resilience arrangements recognise the strong collaboration between industry partners and government, and the achievement of Victoria's critical infrastructure resilience networks. Each year, Victoria's eight critical infrastructure sectors plan and complete resilience improvement initiatives. This collaboration between industry and government enhances our understanding and preparation for key emergency risks and the consequences of significant service disruption to communities.

In an increasingly interconnected world, critical infrastructure crosses state, national and global supply chains, and the range of potential disruptions becomes broader and interrelated. Victoria's focus on resilience helps us better understand the impacts of cross-sector interdependencies, and develop strategies to address the challenges and opportunities that this presents us with.

I would like to take this opportunity to acknowledge and thank all of the industry members who voluntarily give their time to focus on enhancing resilience work with government to build the resilience of Victoria's critical infrastructure. As Victorians, we benefit from this expertise, contribution and commitment to protecting the critical infrastructure that we all rely on. I would also like to thank my ministerial colleagues and the Victorian government departments who work with industry to drive and support Victoria's continuous improvement approach. Because of Victoria's arrangements, we are more resilient as a community.



The Hon. Lisa Neville MP
Minister for Police and Emergency Services

Executive summary

Every day, Victorians rely on the essential services Victoria's eight critical infrastructure sectors provide to underpin our social and economic wellbeing.

In 2015, Victoria introduced a framework aimed at continually strengthening critical infrastructure resilience and limiting the possibility of significant disruption to essential services due to emergencies.

This third All Sectors Resilience Report provides an overview of the sectors, their key emergency risks, and resilience improvement initiatives they completed this year and those proposed for 2018–19.

Victoria's sector resilience networks (SRNs) are the key mechanism for collaboration between industry and government. During the year they completed a variety of resilience improvement initiatives. They shared knowledge within and across sectors, built awareness and worked on mitigation strategies for shared key emergency risks.

This report highlights the benefits of the continued collaboration and on-going focus on enhancing resilience to key emergency risks.

While not all emergencies can be prevented, by investing in infrastructure resilience, Victoria is better prepared to respond and adapt to changing conditions.

This year SRNs focused on managing service disruption from cyber security threats and extreme weather. For future focus, most sectors have identified the following four key emergency risks: energy failure, pandemic, cyber-attacks and extreme weather events.

Victoria's greater reliance on interconnected systems, shared risks and the ripple effect of interdependencies between infrastructure, reinforces the importance of shared knowledge and risk mitigation across sectors. Looking ahead, sectors have identified a high dependency of essential services on the energy, water, communications and transport sectors.

Victorians continue to benefit from the ongoing commitment and contribution to enhancing the resilience of critical infrastructure.

Critical infrastructure in Victoria

Critical infrastructure in Victoria provides essential services to community, business and government. It supports everyday activities of all Victorians and drives productivity growth and business activity for economic well-being and a safe and cohesive community.

Victoria has eight critical infrastructure sectors that deliver these services:

- banking and finance
- communications
- energy
- food and grocery
- health
- government services
- transport
- water.

In Victoria, critical infrastructure includes those physical facilities, supply chains, systems, assets, information technologies and communication networks which, if destroyed or degraded, would significantly affect our social and economic wellbeing.

Private industry provides most of Victoria's critical infrastructure services, with a limited number provided by government.

In recognition of their importance, Victoria has operated a framework to strengthen critical infrastructure resilience and limit the possibility of significant disruption to essential services due to emergencies since 1 July 2015.



Water



Food



Transport



Health



Energy



Banking & Finance



Government



Communications

Victoria’s critical infrastructure resilience framework

Instrument	Summary
Part 7A <i>Emergency Management Act 2013</i>	Legislation to help identify and assess what is Victoria’s critical infrastructure and record it on a register. For the most important infrastructure — assessed as vital — owners and operators are required to complete emergency risk management planning.
Victoria’s Critical Infrastructure Resilience Strategy	Policy outlining critical infrastructure arrangements and why Victoria focuses on critical infrastructure resilience.
Critical Infrastructure Regulations	Regulations to support the implementation of legislation and set out standards that must be met regarding the assessment process and conduct of exercises.
Critical Infrastructure Ministerial Guidelines	Guidelines to assist industry and government to meet their obligations, and to promote consistency by detailing requirements and processes.



Victoria’s sector resilience networks

Sector	Responsible department
Banking and Finance	Department of Treasury and Finance
Communications	Department of Economic Development, Jobs, Transport and Resources
Energy	Department of Environment, Land, Water and Planning
Food and grocery supply logistics	Department of Economic Development, Jobs, Transport and Resources
Government	Department of Premier and Cabinet
Health	Department of Health and Human Services
Transport	Department of Economic Development, Jobs, Transport and Resources
Water	Department of Environment, Land, Water and Planning

During the year, networks met on a regular basis to improve the resilience of their sector through joint planning and information sharing.

Victoria is the only state with critical infrastructure sector networks focused on achieving a better understanding of key emergency risks and preparing for them. The voluntary contribution of critical

infrastructure owners and operators helps to collectively address challenges and provide new resilience building opportunities.

Over the last three years, Victoria has continued to benefit from this collaboration and the resilience improvement initiatives.



Resilient critical infrastructure

Victoria's critical infrastructure framework drives proactive management of the risks critical infrastructure face, enhancing Victoria's economic viability and the benefits of a cohesive community.

In Victoria, resilience means:

... the capacity of individuals, communities, institutions, business and systems to survive, adapt and thrive no matter what kind of chronic stresses and acute shocks they experience.¹

It enables critical infrastructure to:

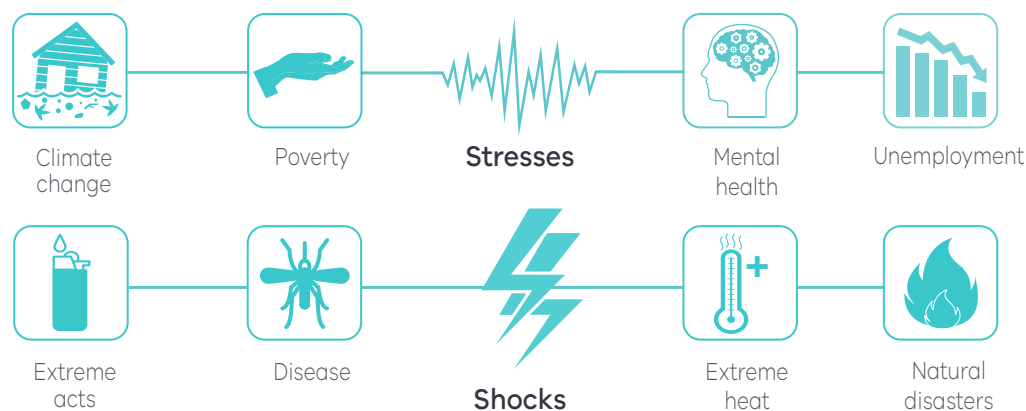
- be better prepared for and adapt to changing conditions
- withstand and recover more quickly from disruptions like accidents, naturally occurring incidents, attacks or threats.

The effects of climate change, population growth, aging infrastructure, new technologies, increased automation and market uncertainty continue to create challenges and opportunities for critical infrastructure.

The CSIRO expects that average temperatures across Australia will rise by 1.5°C by 2030, projecting an increase in extremely high temperatures, extreme fire weather, extreme rainfall events, tropical cyclone intensity, extreme sea levels and droughts in southern areas.² Driverless vehicles, 5G mobile networks, artificial intelligence, growing cyber threat activity and energy transitioning from fossil fuels towards renewable and low emissions, are further examples of critical infrastructure's evolving environment.


Resilience strengthens critical infrastructure to shocks and stressors.

Shocks and stresses



1. Victoria's critical infrastructure resilience strategy 2015.

2. CSIRO Climate change challenges for the future.



While not all emergencies can be prevented, resilient infrastructure can reduce the occurrence and severity of service disruption or failure due to emergency events. Victoria's resilience approach helps to recognise key emergency risks and work towards mitigation, adaptation and new opportunities.

Victoria's critical infrastructure resilience framework sits within a broader resilience approach in Victoria which includes:

- Climate change adaptation plan – Department of Environment, Land, Water and Planning (DELWP)
- Floodplain management strategy – DELWP
- Victorian cyber security strategy – Department of Premier and Cabinet
- Community resilience framework for emergency management – Emergency Management Victoria (EMV)
- Resilient recovery strategy (draft) – EMV
- Resilient Melbourne strategy – Melbourne City Council
- *Security of Critical Infrastructure Act 2018* – recent federal legislation to help understand and manage national security risks for critical infrastructure in Australia
- telecommunications sector security reforms – recent federal legislation to help protect networks from unauthorised access and interference.

Measures to enhance resilience sit alongside legislation, regulations, standards and organisational risk mitigation and business continuity practices. In addition, those responsible for Victoria's most important critical infrastructure, classified as 'vital' under Part 7A of the *Emergency Management Act 2013* complete an annual resilience improvement cycle that identifies their key emergency risks, actions to manage these, exercises to test preparedness, an audit program and a statement of assurance to government.

Critical infrastructure resilience improvement initiatives 2017–18

Collaboration between critical infrastructure owners and operators and government over 2017–18 has seen a range of resilience improvement initiatives implemented.

Sectors share knowledge to build collective awareness, preparation and mitigation strategies for shared key emergency risks.

As different emergencies can have similar consequences, Victoria has adopted an all emergencies approach. For example; storms and heatwaves can both lead to power outages, planning for one, can increase resilience in the other. Examples of resilience improvement initiatives and their outcomes include the following.



Maximising service continuity to the Victorian community

CYBER SECURITY

Cyber-attacks disrupt organisations and the communities they service. Over 2017–18:

- the water and transport sectors each undertook a desktop exercise to better prepare for, and respond to a cyber-attack.
- the government sector continued to share lessons on improving the cyber resilience of government services.
- critical infrastructure owners and operators completed cyber resilience self-assessments to identify vulnerabilities and opportunities for improvement.
- there was an All Sectors Resilience Network Forum cyber security panel discussion.
- presentations to sectors on the Victorian Cyber Security Strategy and by the Australian Cyber Security Centre on national coordination and member services.
- Australia Federal Police presented on improving evidence gathering during and following a cyber incident.

PANDEMIC

- At the All Sectors Resilience Network Forum, over 100 participants took part in a pandemic influenza desktop exercise discussion.

DELIVERING SERVICES DURING PROLONGED DISRUPTION

- Considered strategies to review and enhance the continuity of whole-of-government critical services.

MINIMISING ENERGY DISRUPTIONS

- Redeveloped information sharing practices for use during an energy emergency.
- Extensive work to prepare for potential summer supply disruptions, including reviewing plans, procedures and protocols as well as undertaking exercises.
- Targeted messaging with the 'Survive the Heat' campaign 2017–18.



Collaboration and shared responsibility between industry and government

ORGANISATIONAL RESILIENCE

- A forum for industry accountable officers in the transport, water and energy sectors discussed the impacts of Bourke Street Tragedy on 20 January 2017 and how to build resilience to such events.
- Yarra Trams presented to sectors on the impact of the Bourke Street Tragedy on their operations and staff.

CYBER SECURITY

- The transport SRN hosted a follow up multi-sector cyber security workshop for the transport and water sectors.

CLIMATE CHANGE

- Health and water sectors began development of climate change adaptation actions.

Better information, better decisions

RESPONDING TO EMERGENCIES

- Multi-agency education and training via simulation-based exercising (Emergo train system) involving over 250 health sector staff.
- A real-time health emergency monitoring system for Victorian public hospital emergency departments was developed.
- Implementation of a revised State Health Emergency Response Plan (version 4) which provides for significant improvement in communication and coordination between the Department of Health and Human Services (DHHS), the health system and other emergency management sector agencies.
- Emergency service organisations provided Emergency Management Liaison Officer training to the Port of Melbourne.
- Exercises to test emergency planning and response.

Emergency events in Victoria

Each year, communities experience trauma and disruption from emergencies. In Victoria last year, a number of emergencies disrupted critical infrastructure services to community and business. Most of these were natural hazards, showing the correlation between extreme weather and resulting power disruptions.

Storms and winds

Severe storms on 19 December 2017 saw between 95,000 and 110,000 lose power and on 14 February 2018, damaging winds resulted in 80,000 people losing power.

Fires in south west Victoria

Fires across south west Victoria on 17 and 18 March 2018, destroyed 26 houses, sheds, livestock and fences. Electricity was unavailable to 42,000 customers and the Iona and Minerva gas facilities resorted to backup generators.

Peat fires followed within Cobrico Lake and Elingamite Lake burned for several weeks, generating large amounts of smoke. This required air quality monitoring, reduced public transport access, the evacuation of an aged care facility and managing staff deployments and fatigue. A temporary four kilometre pipeline, built by Wannon Water, delivered 4.5 megalitres of water a day and was essential to extinguishing the fire.

Extreme heat

During the summer period extreme heat saw increased power use for air conditioning. On 30 November 2017 and 18 January 2018, the use of the Reliability and Emergency Trader (RERT) scheme helped to maintain system security and balance of supply by encouraging high energy industry users to reduce use during critical periods. On 28 and 29 January 2018 pressure on low-voltage fuses, due to high demand from sustained high temperatures and humidity, overloaded localised network assets causing power outages affecting 94,700 customers.

Hospital power outages

During the year, one hospital experienced significant consequences from the loss of their power supply, affecting its emergency department, intensive care and coronary units. Sixty-five patients were relocated to other hospitals, five requiring advanced life support. Ambulance Victoria had to relocate these patients; while other public emergency departments, already experiencing the increased demands of a severe flu season, needed to accommodate them.

Hostile vehicle attack

In December 2017, a hostile vehicle attack on Flinders and Elizabeth Streets in Melbourne saw 19 people admitted to four hospitals. DHHS distributed trauma recovery information through multiple platforms and notified hospitals immediately via first-wave SMS messaging. The tram and train networks redirected services.

Triple Zero outage across Australia

A telecommunication cable cut in NSW on 4 May 2018 prevented some Australians from using Triple Zero, or delayed them being appropriately transferred. Ambulance Victoria raised its response level to red; the highest. Authorities informed Victorian hospitals and emergency departments to look out for patients who'd been unable to contact Triple Zero. The cable and Triple Zero call services were restored around midday.

On 26 May 2018, a second outage disrupted calls to Triple Zero. This was due to an unusual volume of calls, generated by an attempted international toll fraud event, appearing to be a 'denial of service' attack. Service congestion left a number of callers unable to reach an operator. A follow-up welfare check identified no detrimental impact to those callers. The Commonwealth government review into these incidents identified learnings and improvement recommendations.³

3. Australian Government, Department of Communications and the Arts, *Investigation Report into the Triple Zero Service disruptions of 4 and 26 May 2018*.

Priority risks for 2018–19

Key emergency risks across sectors

Identifying, evaluating and understanding key emergency risks, assists sectors to undertake informed emergency management planning.

Each year Victoria's eight critical infrastructure sectors prepare a sector resilience plan providing the State Crisis and Resilience Council detailed information about the resilience of their sector. This report summaries the wide range of emergency risks with the potential to impact critical infrastructure and disrupt services.

The table opposite lists these and shows where sectors share such risks – demonstrating the need for, and benefits of, cross sector collaboration and shared learning.

Of the key emergency risks identified, most sectors have identified as a key risk for future focus:

- energy failure
- cyber attack
- pandemic
- extreme weather events.

These demonstrate the need for continuous review and improvement as three of these risks were experienced as an actual emergency in the past year, and are focus areas for resilience improvement activities; both completed and proposed for the next year.



Emergency risks with potential to impact critical infrastructure sectors

Emergency risk

ATM, Mobile phone, Light bulb, Shopping bag, Bank building, Stethoscope, Train, Water tap

[illegible]

Critical dependencies for 2018–19

In delivering services to the Victorian community, critical infrastructure owners and operators rely on advanced, automated and interconnected technologies and systems. This interconnectedness means failure in one sector can mean failure in others. For example:

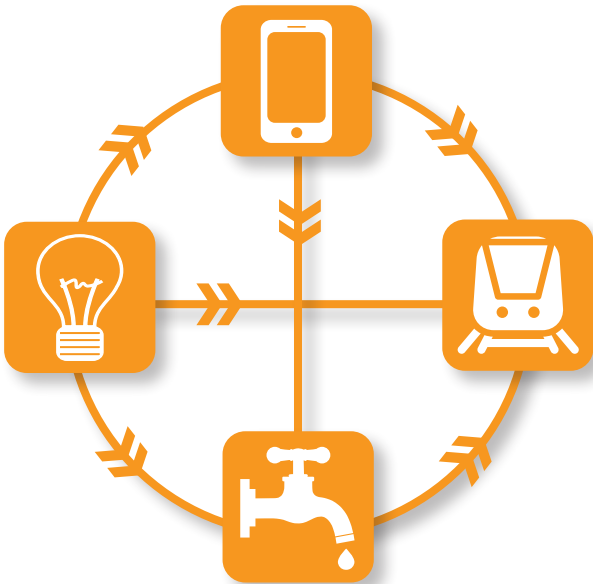


This year interdependencies were explored through cross sector desktop and functional exercises, particularly for prolonged or complex emergencies. At the All Sectors Resilience Network Forum, over 100 industry and government attendees considered the connections between sectors during a protracted influenza pandemic that significantly reduced staff resources. Owners and operators considered how reduced services from other critical infrastructure sectors would disrupt their ability to provide services. A multi-sector cyber security workshop explored how to promptly identify interdependencies in a borderless emergency of uncertain origin.

In 2018, sectors identified a high dependency on the following critical infrastructure:

- energy
- water
- communications
- transport.

As critical infrastructure systems increase their reliance on information and communications technologies to deliver services, there is an increased potential for disruption, and need to understand interdependencies and impacts from shared systems.



Overview of Victoria's critical infrastructure sectors



Banking and Finance

This sector provides financial deposit and loan services and facilitates associated financial transactions across service providers and customers. Services also include protection from financial loss through insurance arrangements and leveraging of assets to manage and create wealth. These services are delivered by multiple global, national, regional and community based financial institutions that are interconnected and operate on international platforms. As services are delivered from, and reach far beyond Victorian borders, the sector is regulated by the Commonwealth and coordinates its sector resilience building initiatives at the national level.

SECTOR OVERVIEW

- Over 40 financial sites identified as operationally important in Victoria, with two of Australia's major four banks hosting headquarters in the state.

- Services include payments, settlements, foreign exchange, equities and derivatives trading, money market and debt securities, cash supply management, call centres, consumer electronic payment systems, claims processing, core risk management, general ledger and insurance.

KEY STAKEHOLDERS

- Financial institutions, insurance providers, wealth management service providers, financial regulators.

KEY ASSETS AND INFRASTRUCTURE

- Primary data centres, back-up data centres, call centres, corporate headquarters, operations/processing centres and trading centres.



KEY RISKS

- Loss of electricity, water and gas supply supporting physical infrastructure.
- Loss of telecommunications services supporting customer and provider interfaces.

KEY DEPENDENCIES

- Electricity, water, gas and telecommunications.

KEY RESILIENCE IMPROVEMENT INITIATIVES COMPLETED IN 2017–18

- Victoria's continued engagement at the national Banking and Finance Trusted Information Sharing Network (TISN) to deepen links between sector members and federal and state law enforcement and emergency service providers.
- The Banking and Finance TISN continued to refine the whole-of-sector's institutional resilience and responses to common risks.
- Banking and finance sector's outreach with other TISN sectors, including participation at Victorian cross-sectoral forums, to increase awareness and understanding within other sectors of banking and finance activities and common cross-sectoral interdependencies.

- Greater awareness by the Victorian government financial and insurance institutions of the national TISN activities.
- Continued analysis of appropriate measures to maintain the availability and continuity of banking services supported by critical functions.

KEY RESILIENCE IMPROVEMENT INITIATIVES PROPOSED FOR 2018–19

- Further engage with Victorian financial agencies and formalise intra-Victorian government arrangements.
- Participation in the Commonwealth's review of the national TISN arrangements.
- Continue to assess the cross-sectoral interdependencies associated with exposure to cyber risks.
- Continuing focus on whole-of-sector risks, and implications for the sector's critical infrastructure, and cross-sectoral resilience.





Communications

The communications sector is a foundation for economic and social development and stability. Internet, phone, radio, television, online transactions and business operations all involve the exchange of data and information through an interconnected communications network. Many national or internationally owned providers are Commonwealth regulated and we work closely with the Commonwealth to build communications resilience.

SECTOR OVERVIEW

- The communications sector is regulated by the Australian Government, with the Department of Communications and the Arts setting national policy.
- The Australian Communications and Media Authority regulates broadcasting, the internet and radio communications, following Government policy and the national *Telecommunications Act 1997*.
- The telecommunications sector in Victoria encompasses voice and data services provided over fixed and mobile networks, including infrastructure for fixed and mobile customer access networks, backhaul and transmission networks.

KEY STAKEHOLDERS

- Victorian communities and businesses, including other dependent critical infrastructure sectors.
- Victorian Government, particularly Emergency Management Victoria (EMV) and the Department of Economic Development, Jobs, Transport and Resources.
- NBN Co, Optus, TPG, Telstra, Vodafone and VicTrack (communication systems).



KEY ASSETS AND INFRASTRUCTURE

- Copper networks, hybrid fibre-coaxial networks, fibre-optic cable networks, mobile telephone and wireless internet towers (3G/4G), satellites, base stations, exchanges or points of interconnect (POIs), data centres.
- Victoria's backhaul infrastructure that transfers high data volumes to and from the core network is complemented by eight intercontinental submarine cables.
- Cables between onshore nodes in Australia and other countries.

KEY RISKS

- Natural – fire, flood, storm, extreme weather.
- Human – pandemic, heatwave, security.
- Technical – electricity disruption, cyber security and redundancy asset failure and disruption of underground cables.

KEY DEPENDENCIES

- Electricity supply and human resources.

KEY RESILIENCE IMPROVEMENT INITIATIVES COMPLETED IN 2017–18

- A multi-sector, incident control workshop.
- Exercise to explore interdependencies between communications and energy.
- An information-sharing session for sector members with assets in the Gippsland region, to build awareness of appropriate contacts, assets and special requirements.
- Various information-sharing and awareness-raising initiatives to better understand sectoral, cross-sectoral and criminal/terrorist threats.
- Regular meetings of the Commonwealth TISN Communications Sector Group.

KEY RESILIENCE IMPROVEMENT INITIATIVES PROPOSED FOR 2018–19

- Continue to grow membership of the SRN.
- Participate in the TISN Communications Sector Group to enhance sector resilience at the national level.
- Identify activities that complement the work of the Commonwealth's TISN Communications Sector Group.
- Develop the 2019–20 Communications Sector Resilience Plan.





Energy

The energy sector allows all other critical infrastructure sectors to function. It provides Victorians with energy for personal and business use. The sector's three privately owned and operated subsectors are electricity, gas and liquid fuels which form part of national networks that import and export energy to and from other states. Victoria's energy sector industry owners and operators are involved in initiatives that build Commonwealth level resilience. The co-chair of the Trusted Information Security Network – Energy Group is from Victoria's energy sector.

SECTOR OVERVIEW

- This sector covers raw materials, processing plants, energy production and generation facilities, storage facilities, and transmission and distributions networks.

- Victoria's electricity, gas and liquid fuels are owned and operated by multiple privately owned organisations. Rapid change across the sectors, presents challenges and opportunities for improving resilience.

KEY STAKEHOLDERS

- Victorian communities and businesses, including other critical infrastructure sectors.
- Producers and distributors of electricity, gas and liquid fuel products and services to Victoria.
- The energy markets and the Australian Energy Market Operator (AEMO).
- Government regulators and the Victorian and Australian governments.
- Storage, import and export infrastructure owners and operators.



KEY ASSETS AND INFRASTRUCTURE

- Electricity: generators, high and low voltage transmission and distribution systems.
- Gas: production, receiving, processing and storage facilities; transmission and distribution systems.
- Liquid fuels: production and import facilities, fuel refineries, storage, distribution system (pipelines and transport) and retail outlets.

KEY RISKS

- Workforce issues (including pandemic, heat stress, industrial issues, ageing workforce and lack of experience).
- Fire affecting critical infrastructure.
- Severe weather (including severe wind, lightning, flood and storm surge).
- Extreme temperatures.
- Cyber-attack.
- Earthquake.
- Loss of electricity, communications, gas supply and liquid fuel supply.

KEY DEPENDENCIES

- Human resources (specialist staff), energy supply for operations, water, supporting infrastructure, transport infrastructure, production. infrastructure, information technology and communications (ICT), transport including transmission and distribution, management systems, plants and equipment

KEY RESILIENCE IMPROVEMENT INITIATIVES COMPLETED IN 2017–18

- The sector conducted exercises with both state and national based emergency committees across the three sub-sectors, addressing issues including communication, interrelationships and testing of protocols, procedures and incident response.
- Cross sectoral risk workshop with the three energy sub-sectors.

- The sector shared lessons and case studies via:
 - three SRN meetings
 - presentation and discussion about exercises organisations had completed
 - presentations on electricity load shedding, gas curtailment and liquid fuel bulk allocations
 - presentations on cyber security from the Victorian government about Victoria's Cyber Security Strategy and from the Australian Cyber Security Centre about its roles, functions and member services, as well as general cyber security issues
 - Central Gippsland Essential Industries Group (CGEIG) bi-monthly meetings.

KEY RESILIENCE IMPROVEMENT INITIATIVES PROPOSED FOR 2018–19

- Improve general emergency resilience and preparedness and major emergencies processes.
- Presentation and case study for the industry on moving large infrastructure ('superloads').
- Improve resilience and threat response by sharing best practice, innovation and unusual cases.
- Cross-sector (electricity, gas and liquid fuel) cyber security workshop exercise.
- Improve understanding of interdependencies.
- Be better prepared for summer electricity peaks and heat events.



Food and grocery supply logistics

This essential sector provides fresh, refrigerated and packaged food and groceries to all Victorians. Supply relies on assets and functions held by multiple large aggregators, retail outlets and key industry associations using multiple modes of transport and infrastructure. These privately owned, individual businesses maintain a national network and participate in the TISN – Food and Grocery Group.

SECTOR OVERVIEW

- A national network with multiple suppliers, processors, manufacturers, aggregators, distributors and retailers.
- Focused on continuity of supply of perishable products to emergency impacted areas, and continuity of supply of food and groceries to Victorian communities during emergencies.
- Food supply chain consists of production, processing and packaging, distribution and retail networks.
- Maintains a high level of redundancy within the food supply chain, which increases sector resilience.
- Operates under the Australian Competition and Consumer Commission (ACCC) and the *Competition and Consumer Act 2010*.
- Large retailers aggregate and distribute food.



- Key industry associations liaise with producers, aggregators and government.
- The SRN complements the work of the Commonwealth Food and Grocery Sector Group where specific resilience initiatives are required before, during and after state level emergencies.

KEY STAKEHOLDERS

- Victorian communities and businesses, including other critical infrastructure sectors.
- Aggregators and distributors: Aldi, Coles, Metcash and Woolworths.
- Industry associations: Dairy Australia and Victorian Farmers Federation (United Dairyfarmers of Victoria).

KEY ASSETS AND INFRASTRUCTURE

- Assets and functions held by individual businesses used to maintain food and grocery supply continuity.
- Large warehousing and distribution centres, complex logistics networks, and multiple modes of transport.

KEY RISKS

- Supply chain or supply continuity disruptions, including risks to major producers, logistics networks, storage and distribution centres, as well as transport and energy infrastructure.
- Maintaining supply continuity to isolated communities in an emergency, or being unable to remove essential goods from affected areas to ensure continuity of supply for unaffected areas.

KEY DEPENDENCIES

- Electricity supply, human resources, liquid fuels, gas, water, produce and transport infrastructure.

KEY RESILIENCE IMPROVEMENT INITIATIVES COMPLETED IN 2017–18

- Refocused membership to recognise existing government involvement in the food sector.
- Attended two meetings of the Commonwealth Food and Grocery Sector Group to discuss Victorian initiatives and broader national priorities.
- Participated in an all sectors pandemic exercise hosted by the energy sector in Launceston, Tasmania.
- Commenced planning for a food security forum.
- Hosted a multi-sector workshop exercise about transferring incident control between emergency service organisations—this included transport, banking and finance, health, water, energy and communications sector members.
- Developed a study to assess the suitability of Victoria's logistics infrastructure to meet expected growth in agricultural related freight flows.
- Developed an infographic showing key sector shocks and stresses.

KEY RESILIENCE IMPROVEMENT INITIATIVES PROPOSED FOR 2018–19

- Continue to develop and mature the network.
- Progress understanding of criticality of key food and grocery sector infrastructure in Victoria.
- Build on understanding of the sector and dependencies.
- Develop the 2019–20 Food and Grocery Supply Logistics Sector Resilience Plan.



Government

Victorian Government departments play an important role in ensuring whole- of-government business continuity for the effective management and delivery of services, such as education, public safety, transport, communications, public health, and land management, which are vital to the social and economic wellbeing of Victorian communities.

Departments, together with Victoria Police, work to build resilience by promoting, facilitating and coordinating effective emergency risk management, and advise ministers and high-level decision makers on challenges, dependencies, opportunities and better practices that will ensure the continued delivery of essential services.

SECTOR OVERVIEW

- Provides high-level strategic advice on resilience risks, opportunities and priorities within the Victorian Government departments of Premier and Cabinet; Treasury and Finance; Environment, Land, Water and Planning; Economic Development, Jobs, Transport and Resources; Justice and Regulation; Education and Training; Health and Human Services; and Victoria Police.
- Focuses on government sector coordination of risk management practices, sharing best practice, and developing a consistent approach to government sector resilience and consistent benchmarking.

KEY STAKEHOLDERS

- Victorian community.
- State Crisis and Resilience Council (SCRC).
- Victorian Secretaries Board (VSB).
- Integrity and Corporate Reform Subcommittee (ICRS) of the VSB.



KEY ASSETS AND INFRASTRUCTURE

- Staff, contractors, IT systems, primary CBD departmental and Victoria Police office locations, including all essential services (power, water) to these sites.

KEY RISKS

- Natural disaster.
- Pandemic.
- Cyber security threat.

KEY DEPENDENCIES

- Energy, water and telecommunications.

KEY RESILIENCE IMPROVEMENT INITIATIVES COMPLETED IN 2017–18

- Commissioned a report to enhance the continuity of whole-of-community critical services delivered across the Victorian Government.
- Endorsed a tool to measure and monitor business continuity performance and underpin business continuity.
- Shared lessons from business continuity and other sector exercises.
- Shared insights from the ICT disaster recovery planning report.
- Shared lessons from the ICT outages experienced by government departments.

KEY RESILIENCE IMPROVEMENT INITIATIVES PROPOSED FOR 2018–19

- Consider strategies to review and enhance the continuity of whole-of-government critical services.
- A pandemic exercise—the Government SRN (GSRN) will conduct a pandemic exercise with the Transport, Communications and Health SRNs, examining what would happen if a significant percentage of the population couldn't work due to a virus pandemic.
- Cyber security information sharing—the GSRN will receive updates on the cyber security environment and specific threats to government, acting as a forum to share lessons on how government departments treat cyber threats in business continuity plans.



Health

The Department of Health and Human Services (DHHS) is the lead portfolio agency for the Victorian health sector. Victoria's healthcare system is a complex network of public and private providers, locations and supporting mechanisms providing multi-faceted solutions to meet the health of all Victorians. These providers include:

- medical practitioners, nurses, midwives, allied and other health professionals
- hospitals, pre-hospital and ambulance services
- mental health, community and dental health services
- community pharmacies
- public health and preventive health.

SECTOR OVERVIEW

- Flexibility and spread of a skilled workforce — technology and infrastructure allows for a level of redundancy within the system.

KEY STAKEHOLDERS

- Acute metropolitan and rural hospitals, private industry, community-based health services, Ambulance Victoria (AV) and Australian Red Cross.

KEY ASSETS AND INFRASTRUCTURE

- Highly diverse mix of staff and skills in both public and private settings.
- Hospitals, primary and community health centres and private practices.

KEY RISKS

- Natural: bushfire, extreme weather (flood, storm, heatwave), water supply and quality.
- Technical: significant power outage and energy supply disruption, cyber-attack, loss of telecommunications and information and communications technology outage, redundancy asset failure.



- Other: pandemic influenza, communicable disease, contamination, security and malicious attacks, hazardous material incidents, supply disruptions (for example liquid fuel), mass casualty incidents, major structural fire, climate change.

KEY DEPENDENCIES

- Energy, water, transport and communications technology systems and networks.

KEY RESILIENCE IMPROVEMENT INITIATIVES COMPLETED IN 2017–18

Following the thunderstorm asthma review recommendations:

- established a hospital single contact point for all public and private health services that provide acute care.
- SMS notification alerts to health services about emerging issues and potential impacts on services.
- developed and implemented a thunderstorm asthma monitoring and forecasting system.
- developed and implemented an alerting system using real-time data to monitor surges in hospital demand and provide early notification of potential health emergencies.
- revised of the State Health Emergency Response Plan to improve communication and coordination with other emergency management sector organisations and the health system.
- epidemic thunderstorm asthma education and awareness programs for health professionals and the community.

KEY RESILIENCE IMPROVEMENT INITIATIVES PROPOSED FOR 2018–19

- Continue to work to identify and share information regarding criticality of health services and key emergency risks.
- Support the delivery of 'Exercise Petunia' — a multi-sector pandemic emergency scenario.
- Deliver 'Alchemy', a whole-of-government public information and communications exercise based on an emerging pandemic scenario
- Work with the health sector to better define resilience and emerging risks.
- Work with the health sector to identify and map interdependencies.
- Review procedures for re-deploying staff to maintain critical services.
- Consider and implement agreed recommendations from the Field Emergency Medical Officer and Victorian Medical Assistance Team review.



Transport

Victoria's transport sector helps shape and support the state's economic and societal development. Its highly developed, complex network of infrastructure is essential for the movement of people and freight within and beyond the state. The sector is locally coordinated and many of the public and privately-owned entities managing the critical assets, systems and infrastructure are focused on resilience building initiatives.

SECTOR OVERVIEW

- Local, state, national and privately owned and operated assets and infrastructure.
- Transport network includes trams, passenger and freight trains, ships, cars, trucks, planes, buses, taxis and motorcycles, as well as the posts, airports, roads and rail lines that are used by these vehicles.

KEY STAKEHOLDERS

- Members of the Victorian community and business, including other critical infrastructure sectors dependent on the transport sector, and the Victorian Government.

KEY ASSETS AND INFRASTRUCTURE

- Public transport systems: metropolitan train, tram, rural train, metropolitan and rural bus, intermodal hubs (Southern Cross station), and ferries.
- Freight and logistics: logistics infrastructure and service provider assets.
- Road and rail infrastructure: Westgate Bridge, Bolte Bridge and raised roadways, CityLink tunnels, EastLink tunnels, VicRoads arterial road system, rail managed by the Australian Rail and Track Corporation (ARTC) and rail managed by V/Line, telecommunications infrastructure managed by VicTrack.
- Airports and marine ports: Port of Melbourne, Port of Geelong, Port of Portland, Port of Hastings, Victorian Regional Channels Authority (VRCA), Melbourne Airport and Avalon Airport, Victorian Ports Corporation (Melbourne).

KEY RISKS

- Highest: human resources disruption, electricity supply disruption, liquid fuel, transport infrastructure emergency, major non-transport infrastructure disruption, security event.



- Medium: pandemic, fire, heatwave, storms, floods, earthquake.
- Low: emergency animal disease, plant disease, hazardous material incidents.

KEY DEPENDENCIES

- Primary: electricity supply, telecommunications, transport operator control systems (signalling and real-time information), liquid fuels, water and sanitation, human resources, infrastructure supporting transport operations.
- Secondary: road and rail (tram and train) infrastructure, road and rail network closures, road network, bridges and rail tracks.

KEY RESILIENCE IMPROVEMENT INITIATIVES COMPLETED IN 2017–18

- ‘Exercise Hydra’ explored a major terrorist incident or threat and the sector’s responses before, during and after the event.
- ‘Exercise Overload’ at Port of Melbourne, a marine pollution exercise
- Transport SRN’s four-part cyber security program with critical infrastructure owners and operators; including a desktop exercise, review of findings and organisational analysis and Australian Federal Police advice and practical tips to operators around steps to improve evidence gathering during and following a cyber incident.
- Organising a multi-sector Industry Accountable Officers forum which examined the impact of the Bourke Street Tragedy on organisations and the community and how to improve the resilience of companies and their staff to such events.
- ‘Exercise Chimera’ saw participants consider response, recovery and definitions of the Transport Disruption State Emergency Response Plan: sub-plan.
- A multi-sector cyber security workshop built on themes identified in the 2017 cyber security exercise, allowing members to reflect on and incorporate learnings from 2017–18’s cyber theme.

- V/Line expansion of its train familiarisation programs to regional areas
- Various information-sharing and awareness-raising initiatives to improve understanding of sectoral, cross-sectoral and criminal/terrorist threats, including observing exercises by energy sector organisations
- Regular exercises with emergency and government agencies.
- Review of major events like storms and floods to help us be better prepared.
- Participation in the All Sectors Resilience Network Forum.

KEY RESILIENCE IMPROVEMENT INITIATIVES PROPOSED FOR 2018–19

- Lesson sharing, reviews from international case studies or actual events as a standard sector resilience network agenda item.
- Develop a program of activities to focus on human resources (pandemic and security) including:
 - security awareness presentation and guidance focused on trusted insiders
 - presentations covering the on-going impact of trauma
 - skills competency management.
- Hold an Industry Accountable Officers Forum for owners and operators of vital critical infrastructure (transport, water and energy) to improve understanding of key themes across sectors.
- Develop a simple, consistent approach to measure the effectiveness of the SRN in raising awareness about resilience issues
- Arrange for Victoria Police to provide a security briefing as a standing agenda item.
- Development of the 2019–2020 Transport Sector Resilience Plan, including a review and possible reprioritisation of rolling themes.
- Rotating SRN meetings through critical infrastructure host venues.



Water

Victorians need reliable, safe water services for drinking, sanitation and irrigation, as well as for industry, communities and the environment. The sector manages catchments, water storages, pipelines, pumping stations, treatment plants and control facilities. Members of the Water SRN are key participants in many of the sector resilience building initiatives coordinated by the Commonwealth.

SECTOR OVERVIEW

- Nineteen water corporations and the desalination plant operator manage key infrastructure and services.
- Victoria's water systems are interconnected with high redundancy, which increases sector resilience.

KEY STAKEHOLDERS

- Water corporations.
- Desalination plant operator.

KEY ASSETS AND INFRASTRUCTURE

- Water supply catchments, storage infrastructure, treatment facilities and transfer systems.
- Victorian desalination plant.

KEY RISKS

- High: climate change, cyber-attack, electricity supply disruption, fire, severe weather including floods or storms, liquid fuel shortage, earthquake, drought.
- Medium: dam safety, hazardous material incident, treatment chemical shortage, loss of communications, source water contamination, human influenza pandemic.

KEY DEPENDENCIES

- Degree of interdependency between water and banking and finance, communications, energy, food supply, government, health and transport. This includes both upstream dependencies where water sector relies on services



- or goods provided by another sector, and downstream dependencies, where another sector relies on water sector services.

KEY RESILIENCE IMPROVEMENT INITIATIVES COMPLETED IN 2017–18

- Review and update of state level water related emergency response plans— Water and Wastewater Response Plan, Dam Safety Response Plan and Algal Response Plan.
- New— Pollution of Inland Waters Response Plan, following transfer of responsibilities from the Environment Protection Authority.
- Review and update of state level incident notification protocol for water corporations to improve clarity around what to report to DELWP.
- Emergency exercises for all water agencies based on key emergency risks like severe weather, earthquake, dam failure, hazardous chemical spill and cyber security.
- Exercise 'Aqua Byte' a water sector wide cyber security emergency exercise, as well as a cyber resilience review self-assessment by water agencies.
- Multi-sector exercises exploring consequences from protracted energy outage.
- Developed a new water industry portal, the Water Intelligence Platform with 'modules' for various functions, including blue-green algae management, dam safety and risk management.
- Commissioned an independent research project and held a workshop at a Water SRN meeting to improve understanding of sector interdependencies. Participated in cross-sector learning and sharing opportunities, including the Industry Accountable Officers forum, a multi-sector cyber security workshop hosted by the Transport SRN, and inviting representatives from other sectors to attend Water SRN meetings.

- Seminars on water sector emergency management and dam safety matters for department regional staff, water corporations, local government authorities and Parks Victoria.
- Water sector training for Incident Controller and other Australasian Inter-Service Incident Management System (AIIMS) related roles.

KEY RESILIENCE IMPROVEMENT INITIATIVES PROPOSED FOR 2018–19

- Water SRN focus on improving cyber security resilience and managing key emergency risks.
- Implementation of climate change adaptation actions for the water sector.
- Review emergency response plans, protocols and guidance; accounting for climate change and more extreme events.
- Develop a Victorian water sector strategic emergency exercise framework to improve opportunities for collaboration and learning.
- Emergency exercises to test water sector emergency response plans.
- Refine the new Water Intelligence Platform to include information sharing with the EMV - Emergency Management Common Operating Picture (EM-COP) system and a new water sector module for emergency management information sharing.
- Review and update workforce emergency management capability and training needs.
- Develop guidance for key interdependent risks between the water and other critical infrastructure sectors.
- Develop Water Sector Resilience Plan 2018–19, informed by a sector-wide emergency risk identification and assessment workshop.

