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		Direct Impacts	Secondary Impacts		
	Physical Risks	 Asset damage and repair costs Asset loss and replacement costs 	 Staff reductions/shortage Costs of downtime Disruption to service and revenue loss 		
	Transitional Risks	 Rising energy costs and new technology requirements (capital) System-wide supply chain disruption costs Policy changes affecting business management 	 Supply chain disruptions leading to delays (and associated costs) Consumer choice changes leading to reduced sales Policy changes affecting business management 		
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Sectoral Cost Considerations				
Business Sector	Potential Climate Impacts			
Building Design and Construction	 People: Excess heat -reduced worker productivity Premises: Drainage - extreme weather events Supply Chains: Extreme weather disrupts transport to site, Operations: Extreme weather disrupts construction, delays critical shipments 			
Retail	 People: Extreme weather affects customer behavior Premises: Store, warehouse, equipment affected by extreme events (flood, wildfire, heatwave, etc.) Supply Chains: Extreme weather disrupts supply chains, flow of raw materials, distribution of products/services Operations: Extreme weather disrupts customer movements, deliveries, shipping times 			
Food and Beverage	 People: increases in heat or storms deters customers from premises, affects customer behavior, health Premises: Loss of power can result in loss of perishable food stocks Supply Chains: shipments of perishables delayed, subject to higher spoilage Operations: Physical risks to water supply, raw materials 			
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Sectoral Cost Considerations			
Business Sector	Potential Climate Impacts		
Rental, Hiring, Community Development	 People: higher heat and smoke exposure may cause health impacts to staff, customers Premises: Higher temperatures may require modification of existing HVAC systems Supply Chains: disruptions to shipments of replacement components, spare parts Operations: Physical impacts from extreme events (high heat, wildfire, extreme rainfall) may cause delays in construction for ongoing community development, leading to financial losses 		
Resource Extraction	 People: higher heat and smoke exposure may cause health impacts to staff, contractors Premises: Higher precipitation extremes may require changes in site drainage to combat localised flooding of site operations Supply Chains: disruptions in shipments of critical materials, equipment and personnel Operations: Waste containment lagoons to discharge more frequently; increased operational costs resulting from increased energy costs 		
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Economic Case for Adaptation Action - Examples



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Melbourne: benefit to cost ratios for various adaptation measures ranging from 3.2 to 4.4 benefit to cost ratios, including:

- Tree replacement program for extreme heat mitigation
- Management of emergency pumps for flood mitigation
- Management of drainage for flood risk
- Integrated water management system

















