Chapter 11
Critical Infrastructure Protection:
An Ethical Choice

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ABSTRACT

The protection of Australian critical infrastructures and the choices made in terms of priorities and cost all impact upon the planning, precautions, and security aspects of protecting these important systems. Often, the choices made will have an ethical imperative that is difficult to assess at the time the decision is taken, and it is only after an incident that the truth of the choices made become fully evident. This is the focus of this discussion that highlights the issues of earlier resource funding choices made and how an ethical choice had to be made, with regard to protecting the security of a water supply infrastructure, or that of a community under the threat of bushfire as outlined in the case study.

INTRODUCTION

The provision and delivery of many of the services that modern society enjoys are the result of ubiquitous critical infrastructure systems that permeate many sectors of the Australian community. Moreover, the integration of technological enhancements and networking interconnections between critical infrastructure systems has heightened system availability and resilience, including the efficient delivery of services to consumers throughout Australia. However, the reliance on these services and their supporting systems is ever more critical: as the removal, temporary loss, degradation or destruction of a single or multiple systems would have a detrimental impact across many sectors of Australian society. With this increasing system integration and societal

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dependence on critical infrastructure systems, their security, availability and protection becomes increasingly significant.

The broader Australian community has an expectation that services such as power and water will be available when desired and that it will be provided as expected in a safe manner. These services and others are provided by various infrastructure systems dedicated to producing and or providing these services seamlessly to all consumers within our modern society. Therefore, by community expectation and necessity, the protection of these critical infrastructure systems is an imperative to governments, infrastructure owners and consumers.

Australia's modern industrialised society, like those of other western nations, is increasingly reliant on the crucial services delivered by various physical and virtual infrastructure systems to maintain the comfortable standard of living and convenience that the population largely enjoy. Furthermore, the diffusion of information and communication technologies and their incorporation into these crucial systems enables greater system interconnections, which form relationally cooperative networks that facilitate communication, automation and control of infrastructure services supply. Thereby, the maintenance of high-levels of system availability, responsiveness and resilience in terms of their ongoing service supply is required, as is largely the expectation of the community and individual consumers.

The nature of these critical infrastructure systems and their systematic interconnection display attributes of highly structured, complex interconnected networks that characterise the issues of dependency and interdependency relationships, which by necessity exist between infrastructures to facilitate the supply of services. This is particularly prevalent when considering the energy sector, where for instance the continuity of the supply of electricity is crucial to many other sectors of Australia's critical infrastructure for their ongoing provision of services to the community at large (Scott 2005).

In the Australian context some common examples of critical infrastructure systems and services to the community, rely on electricity; water; gas and fuel; health services; telecommunication; and banking and financial services to name a few (AGD 2008). Furthermore, other services that are regarded as critical infrastructures in other national contexts may include: air transportation; ground transportation (interstate trucking, railroads, highways, bridges); telephone; cellular telephone; internet; sewers; food distribution and social events (shopping, sports, entertainment) (Smith 2002). However, critical infrastructures are vulnerable and can be damaged, destroyed or disrupted by breakdowns, negligence, natural disasters, accidents, cyber incidents, illegal criminal activity and malicious damage. So it is for these and other reasons that drives the need to protect the continuity of supply against such hazards and threats. It is the aim of government policy and that of infrastructure owners and operators, to ensure continued supply through identifying and implementing improved security, protective safeguards and analysis in response to the identified threats, vulnerabilities and weaknesses posed (Scott 2005, Bentley 2006).

The impact of disrupting one or more of these services that critical infrastructures supply and the potential inconvenience to the wider community is an ongoing concern to national decision makers. This is due largely in part to the physical magnitude of many of these infrastructures and the complexity of their interconnections and relationships with other systems. Furthermore, system availability coupled with system security analysis of the infrastructure operation and environment may provide sufficient insights into the potential vulnerabilities of these assets. Although this represents a significant challenge, critical infrastructure industry owners and operators including the various levels of government must remain cognisant of the potential consequences