

# Planning for Disaster

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Planning for disaster may seem a fruitless exercise, as we can never accurately forecast the nature, duration and impact of the event. However there is always a need for leaders to guide groups and organisations through unfamiliar situations.

For the power industry, responding to the damage caused by earthquakes, hurricanes, floods or other disasters, while rare, is a distinct possibility. When a disaster occurs, there is little opportunity to stand back and consider the desired strategic outcome. During natural disasters, the decisions of electricity executives may have life and death implications and it makes sense to prepare for such unlikely situations.

To help form a strategic approach to dealing with disasters, Cigre undertook a major study of a number of disasters across continents and natural environments. We studied the following disasters in depth:

- New Zealand: Christchurch Earthquake, 2011
- Spain: Cyclone Klaus, 2009
- Brazil: Generation Shortfall, 2001
- Japan: Tsunami, 2011
- Canada: Ice Storms, 1998
- Australia: Queensland Floods, 2010-2011
- China: Ice Storms, 2008
- Australia: Victorian Bushfires, 2009
- United States: Hurricane Sandy, 2012
- India: Blackouts, 2012

A number of trends and common themes presented below were identified from these case studies and disaster responses. In addition, feedback from those on the front line who have responded to and managed disaster responses was used to enhance understanding and test the findings.

- **Each Disaster Response is Different.** The response to a disaster will vary from country to country and is highly dependent on inherent resilience and disaster response preparedness. Generally, it is unhelpful to prepare a handbook or detailed plan for a major disaster. While disasters often damage physical infrastructure, it is leadership (and inspiration) that is most critical. Developing these skills or capabilities in management is much more effective than trying to leverage corporate risk management systems or other traditional processes for extra-ordinary events. However, strong business continuity practices and processes are still critical.
- **Each Disaster is Different: Prepare for the Worst.** While some extreme events may be classified as “highly unlikely” and typically outside the general ambit of probability, the unexpected could occur. Neglecting to consider the possibility of such low-probability, high-impact crises could exact a greater toll than allocating time and resources to cater for a worst case scenario, even if the likelihood is low.
- **People Management.** Mobilisation of a workforce and thoughtful, ongoing interaction with employees/contractors/volunteers is important. While the China response of mass mobilisation would probably only be possible in a command and control economy, the lessons of the New Zealand earthquake, the Australian floods and bushfires, and Hurricane Sandy are more relevant for developed, western nations. These instances highlight the need for strong human resource and management processes, which are not excessively rigid, but provide the tools for middle-management to make timely decisions during a disaster.
- **Policy Implications.** The Japanese tsunami impacted not only Japan’s energy mix, but also had broader, global policy implications concerning a desirable generation fleet. Frequently, non-technical policy makers and political leaders will draw comparisons between electrical systems and come to conclusions about the implications of a disaster in another country. While a particular disaster may not necessarily have any direct implications for other nations, industry and trade organisations should still respond to both media and policy makers to help differentiate external crises from internal issues. This could reduce knee-jerk responses that can be costly and often ineffective in achieving their stated aim.
- **National Cohesion and Psychological Management.** Perception management of the target audience was important in the aftermath of the China ice storm, with the Chinese Government publicising its high-level involvement in disaster response and garnering sympathetic international support. On the other hand, India’s 2012 blackouts and failure to enact swift power restoration had less than positive implications for its national image on the global economic stage. While governmental thinking and responses vary depending on political structures, issues can arise if, for example, a disaster occurs around the time of ...

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an election (as noted with “super-storm” Sandy in the US November 2012 Presidential elections). Senior executives should understand such implications for perception management, as it may change the nature of government response and management during the immediate period following a disaster.

- **Importance of Communication.** Communication flow is vital not only within the utility companies conducting repairs, but also between utilities, the public, and governmental agencies (sometimes through the media) in order to facilitate coordinated relief efforts and recovery. This was demonstrated in the aftermath of the Japanese tsunami and also emerged when reviewing the disaster response actions in Christchurch, Queensland and China. Maintaining open communication channels during a disaster is important, indeed often critical, and consideration should be given to scenarios when landline and mobile networks are disrupted.
- **Empowering Middle-Management and Local Leaders.** At times a decentralised response may be better than centralised decision making, especially when the disaster is widespread. Training should not only focus on senior executives in a “war room”, but also include middle-managers and leaders in roles likely to require direct interaction with the event. This will allow them to take the lead in a particular area, rather than waiting for limited input and fragmentary guidance from a head office. Utilising local intelligence during the initial stage of emergency disaster response can also provide benefits to other services and help lay the foundation for initial surveys of damage and reconnaissance.
- **Workforce Trauma.** The trauma and societal disruption caused by the Christchurch earthquake significantly impacted on crisis management. Managing people in a crisis scenario when workers have lost family members or have had their personal property damaged or destroyed is different to management in normal business conditions. These issues are not always sufficiently considered in contingency plans which tend to focus on the urgency of technical repairs. However, as management procedures to address this are difficult to institutionalise, it requires great levels of flexibility and often empathy from front line managers.
- **Long-term Resilience.** In disasters such as in China, Quebec, Queensland, Victoria and New York, utilities learned from the destruction caused by natural disasters to identify means of improving the longer-term resilience of the network to a particular event type. Although planning to limit grid vulnerabilities to all calamities is clearly not possible (and would be extremely expensive), where areas are particularly susceptible to certain natural disasters, mechanisms to mitigate future damage were deployed. This is also relevant in relation to the effects of climate change on weather patterns and preparations based on the probability

(and frequency) of natural disasters occurring.

- **International Assistance.** While not formally captured in the case studies considered here, there were anecdotal examples of challenges incorporating external or international support, be it via “loaned” personnel or extra equipment. This can involve assistance channelled through embassies and foreign governments, which may result in additional layers of administration for little apparent benefit. Although it has been thought that senior leaders should delegate some of these “goodwill” efforts to more junior staff, as minor assistance can often be difficult to deploy, the process should not be ignored or overlooked.

Based on the work completed, we have identified the following areas of disaster recovery which could form the basis of future working groups and inform future Cigre studies:

- **Strategic Planning Options.** It is possible to consider techniques to manage disasters and then restoration, as well as the transition through rebuilding back to a ‘business as usual’ power system.
- **Building Resilience.** Considering the longer-term measures to improve resilience and reduce risk to natural hazards in advance, is something that planners encounter in their day to day work.
- **Measuring Resilience.** Managing the response to a major disaster can involve a number of variables not often considered during mock exercises or desktop planning. Accordingly there is a need to measure an organisation’s resilience in a consistent and recognised manner.
- **Technological Robustness.** There are significant changes being made to utilities embracing smart grids, implementing cloud computing and trialling other new technology systems. Examining how these technologies perform during a disaster may provide another input into procurement or implementation decisions.
- **External Communication.** Communication with the public and management of external stakeholders can be a difficult task, especially at the height of a disaster. The critical nature of this aspect suggests further exploration is warranted.
- **Human Resources.** Cigre’s examination of planning for emergency staff capabilities, whether by outsourcing crews or investing in skilled, well prepared in-house staff raises planning issues that could be explored in more depth.
- **Cyber Attacks.** Telecommunications and the vulnerability of network communication systems against attack during or after disasters are rarely, if ever considered. Further investigation into this field would be useful. ■

For further information, a longer paper entitled “Disaster Recovery within a Cigre Strategic Framework: Network Resilience, Trends and Areas of Future Work”, is available on [www.e-cigre.org](http://www.e-cigre.org), reference ELT\_275\_1.