

Risk information – Equipment breakdown

Backup power generation

The need for backup power generation

Backup generators are a common and effective way of protecting organisations against the economic and social consequences of electricity disruptions.

Backup generators are usually diesel engines coupled to alternator sets. They supply power for many applications, for example:

- ▼ The local club, requiring lighting and essential services for safety.
- ▼ Hospitals requiring essential services and directly affecting human life.
- ▼ Any location at risk of stock loss up to multimillion dollar refrigerated warehouses.
- ▼ Small businesses where a significant loss of stock or business interruption would have a severe effect.
- ▼ Commercial or residential buildings where emergency services are required for access, fire safety and lighting.

To investigate the needs for a backup generator consider the following:

- ▼ If there was an electricity disruption, what losses could be incurred?
 - (a) Could there be a loss of stock?
 - (b) Could there be a business interruption and loss of service or supply to stakeholders?
 - (c) Could it create a safety hazard?

- ▼ What are the regulatory requirements for your business in regards to emergency supply?

- ▼ Are sufficient contingencies already in place?

Considerations for backup power generators

- ▼ Fuel supply availability

- (a) Demand for fuel would increase during a wide spread power disruption.
- (b) Supply of fuel may be slowed due to dependence on electricity and fuel by distribution systems and services. For example a large number of fuel stations do not have backup power generation.
- (c) Governments may allocate fuel to priority users therefore restricting supplies to others.

- ▼ Fuel supply requirements

- (a) Run time before refuelling. Daily requirements for continuous operation.
- (b) Is a fuel testing and replacement system in place?
- (c) What access is required to refuel tanks?
- (d) Is there a contracted supplier for emergency refuelling?
- (e) Would the organisation receive priority fuel allocation in the event of government intervention?

- ▼ Generator maintenance and testing

- (a) Is the generation capacity sufficient to maintain necessary operations for extended outage?

- (b) Can the generation plant withstand extended operation in hot weather? Is there enough airflow to prevent overheating?

- (c) Is the wiring of the premises adequate to support backup power generation?

- (d) Is the electrical installation capable of dealing with variations in loads and supply, such as that due to “rolling blackouts”.

- (e) Are spare parts readily available?

- (f) Is there a regular maintenance contract for the generator?

- (g) Is the generator exercised monthly?

- (h) Is the generator run up on load to test the entire system?

- (i) Are there personnel within the organisation trained to maintain and operate the generator unit, and are these personnel on call?

- ▼ Where the economics of installing and maintaining a backup generator are prohibitive, an option to upgrade the electrical installation to accept a hire generator via a pre-wired connection may prove sufficient. There may need to be an agreement in place to supply the generator in an emergency.

- ▼ Backup generators should be installed and maintained by competent personnel.