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Connecting a generator to the wiring of a house or building following an emergency

About this guidance

- This guidance sets out high level principles for connecting a generator to the wiring of an installation such as a house or other building when the network power supply has been disrupted as the result of an emergency.
- This guidance is for emergency situations. Once the network power is effectively restored then the generator must be removed from service.
- Connecting a generator to the wiring of an installation must be carried out by a licenced Electrical worker that is authorised by the Board to carry out this work.
- If the generator is for larger three phase connections, an electrical engineer or inspector must be used to provide a design for this supply configuration.
- This guidance is for generators with a loading capacity of 15 amps or greater.
- Smaller generators with 10amp socket outlets must only be used for smaller loads such as lighting or individual appliances. These generators **must not** be connected directly to the main switchboard or installation wiring, **unless** there is a permanent connection point installed to the requirements *AS/NZS 3010*, which would include a changeover switch.
- All prescribed electrical work (PEW) carried out to temporarily connect a generator must remain electrically safe while in use.

Certification

- For purposes of regulation 6A of the Electricity (Safety) Regulations 2010 the prescribed electrical work carried out to install an emergency generated power supply is categorised as 'general prescribed electrical work'.
- When a COC and ESC is required for certification, you must reference that this guidance has been followed.

Principal requirements for installing a temporary connection using a generator

General safety principles

- The maximum demand of the electrical installation must not exceed the maximum rating of the generator.
- Do not use an isolated supply (separated supply system) to connect an existing MEN installation.

Installation procedures

- Before connecting a generator, make sure that all the installation wiring is tested for safety and any final subcircuits that have been subjected to floodwater are disconnected, isolated, and labelled.
- The mains supply phase and neutral conductors must be disconnected and isolated to make sure that electricity from the generator does not feed back into the service line and network which could cause serious harm.

At the main switchboard

- Switch off the main switch and any final subcircuit circuit breakers that are not essential.
- Test for any live parts.
- Disconnect the incoming active from the main switch and insulate the conductor.
- Disconnect the incoming neutral from the neutral bar and insulate the conductor (note that sparking may occur when the neutral is disconnected).
- Install the temporary conductors from the generator to the incoming terminals of the main switch and neutral bar. Where using a flexible cord from the generator this will need to be fixed in position at the switchboard.
- Make sure that conductors installed between the generator and the main switchboard are protected and appropriately fastened so that people don't trip on them.
- Remove the link from neutral to earth. (MEN link)
- Check the main earthing system.
- Check the main earthing conductor is connected to the earth bar.
- Use a tag to label the switchboard as altered.

At the generator

- At the generator you may:
 - use a plug and socket configuration with a loading capacity of 15 amps or greater, or
 - join the conductors directly onto the generator output side.
- Install a bonding/earthing conductor between the generator earth and the earth bar at the main switchboard. (This can be the earth conductor of the flexible cord.)
- Make sure there is a connection between the generator earth and the neutral pole of the generator. If there isn't a connection, install one.

Testing

- Make sure that all tests are carried out in accordance with section 8 of *AS/NZS 3000*.

Alternative Installation

- The installation can be configured to comply with *AS/NZS 4509 .1 stand-alone power systems part 1: Safety and installation*. This standard is available to all licenced Electrical Workers from the EWRB online portal: [Electrical Workers Registration Board portal](#)

Important notes

1. If a generator without an RCD or a centre tapped generator is used it must have a 2 pole RCD installed after the generator set and before the main switch. Where a centre tapped generator is used it will have two active terminations do not earth any of the actives, only earth to the centre tap termination.
2. Smaller generators with 10amp socket outlets must only be used for smaller loads such as lighting or individual appliances as to not overload the socket outlets. These generators **must not** be connected directly to the main switchboard or installation wiring, **unless** there is a permanent connection point installed to the requirements *AS/NZ 3010*, which would include a changeover switch.
3. The generator must be located in a well-ventilated place and that exhaust gases are funnelled away from any internal or confined space. The generator must never be used in an indoor space where people are present; this includes areas such as an internal garage.
4. Before the network power is restored, make sure:
 - the temporary conductors have been removed
 - the MEN link is restored
 - any damaged fittings remain isolated, and
 - the installation has been assessed to section 5 of *AS/NZS 3019*.