

## Backup Lamp

There are a few situations when a power failure is particularly difficult to handle. Some of these circumstances occur in the bathroom. This little circuit will pay for itself many times over the first time it is used, especially if you are in the shower.

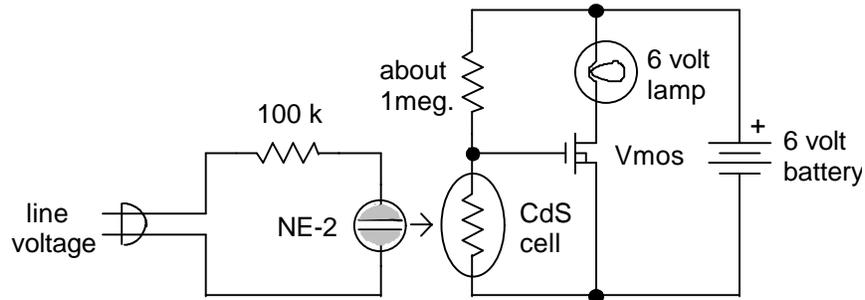


Figure 1: Back-up lamp lights when power fails at night.

**WARNING: Devices operating from line voltage should only be constructed by qualified individuals.**

This back-up lamp stays off as long as light falls on the CdS photocell from either the NE-2 or from room ambient light. So, if the power fails at night, the lamp will light. The 6 volt lamp should be directed away from the photocell to achieve full brightness and the 1 meg. resistor may be varied to adjust the sensitivity. Most N-channel power fets such as the VN-67 will work if they turn on well with 6 volts.

The NE-2 may be placed directly on top of the cell but make sure the leads do not touch other conductors. The NE-2 circuit must be well insulated for safety. A double-insulation scheme is a good idea. Insulate the 120 volt circuit so that no bare conductors are exposed then mount the entire device in an insulating enclosure. Two insulation “failures” must occur before the device becomes a shock hazard. Plug the device into an outlet with a ground-fault protector for additional safety. A simpler approach is to leave out the NE-2 circuit and add a power switch in series with the battery. This design is safe and portable but it must be turned off at night when not in use. Alternately, neon night lights are available which could be used in place of the NE-2. These little round night lights won't burn out like the 7-watt incandescent bulbs which would result in unnecessary battery drain. The standby lamp may be built into an empty jar with the photocell shielded from the lamp. Place the jar close to the night light to turn off the standby lamp when the room is dark. This version may be freely carried away like an electronic candle since the nightlight is not mechanically connected.

Remember, if this device is built for a bathroom, a wet person may be holding this lamp when the power comes back on! For bathroom, kids' room and other dangerous locations, go with the commercial nightlight or on-off switch version or build the circuit into the overhead light fixture where it is out of reach.