SASKATCHEWAN ENERGY MANAGEMENT TASK FORCES

TECHNOLOGY INFORMATION SHEET

INCANDESCENT AND HALOGEN LAMPS

1. Background

Conventional incandescent lamps contain a tungsten filament within an atmosphere of an inert gas such as argon. Lamps come in the familiar globe style, as parabolic reflector (PAR) lamps, and in a multitude of small decorator and special purpose lamps (including automobile lighting). The primary applications for this type of lighting has been in the home, in office and commercial building hallways and other areas, and in retail stores and other applications needing spot or "down lights".

Incandescent lighting is low cost and, until recently has been the lighting of choice when good colour rendition is required. Its efficacy (lumens/watt), however, is very low compared to fluorescent and HID lighting, and in areas where lighting operating hours are long, very expensive compared with other these types of lighting.

As the light quality of fluorescent and HID lighting improves, incandescent lighting is being replaced in many applications, especially in commercial buildings where lighting is on for many hours per day. There still are household and some retail applications, however, where incandescent lamps are still the best option. Some new innovations are improving efficiency. These include krypton gas fill, improved reflectors, "smart" lamps, and halogen lamps.

2. Krypton Fill Lamps

Using krypton instead of argon in incandescent lamps reduces the heat losses from the lamps and extends the life. Note that reduced wattage lamps or "econowatt" lamps also have reduced light output, so they are not more efficient.

3. Improved Reflectors

A new generation of PAR lamps designed to meet new Canadian standards for light efficiency use elliptical reflectors to produce more light for the same power input.

4. Smart Lamps

Incandescent lamps are now available with built-in electronics that perform several unique control functions. These include four level dimming, automatic turn-off (after about 30 minutes), gradual dimmed turn off (night light), power outage back-up, and time of day turn on/off. These lamps allow users to be much more efficient with the lighting operating hours in applications where light is needed only for short time periods.

5. Halogen Lamps

Halogen fill incandescent lamps provide a brighter, whiter light for the same power input. Halogen PAR lamps are mostly used in retail and other applications.