

ENERGY FOCUS

Power spin-off in switch to digital

The switchover from an analogue system could well increase peak power demand, writes Albé Bredekamp

THE switch from analogue to digital broadcasting has the potential to increase national electricity consumption significantly, particularly during peak hours.

In addition, old cathode ray tube-based (CRT) television sets will either have to be replaced or those viewers will have to invest in decoders.

It is not yet certain exactly when the switchover will take place, but when it does it could increase peak electricity consumption by as much as 260MW if all the old-style television sets are replaced with newer plasma screen sets or liquid crystal display-based (LCD) sets.

The impact could be lessened if consumers were able to buy sets that complied with global standards, so the government needs to monitor power consumption of imported television sets carefully to ensure that standards are set for the maximum allowable energy consumption.

The number of plasma sets should be controlled as their consumption of electricity is far greater than that of LCD sets, because plasma display technology is relatively inefficient.

Australia, in fact, looks set to ban the sale of plasma sets by next year because of their very high power consumption.

The switch from analogue to



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digital terrestrial — as opposed to satellite — broadcasting was scheduled to take place in 2012, but has been postponed.

It will, however, happen within the next five years. When it does, those with CRT sets will not be able to receive the new signal without upgrading to a newer television set or buying a set-top box (decoder) that will also add to electricity consumption.

The newer LCD and plasma televisions sets have built-in digital tuners that allow consumers to receive the new digital terrestrial television when it is introduced.

Cellphone chargers are also a threat to the national power grid. Cellphone chargers use electricity even without cellphones being

attached to them, although most consumers are unaware of this. Most consumers leave them plugged in, but they are still using energy even with no devices connected to them. Although the individual power consumption is small, the sheer number of chargers makes for a significant national power draw.

There are more than 60-million cellphone users in SA. If every cellphone charger drew 0,5 watt during standby that would present a national load of 30-million watts or 30MW.

Cellphone chargers should be standardised and manufacturers should be encouraged to produce a single, efficient type of charger. The introduction of a universal charger would reduce the standby power consumption of a typical cellphone charger by 50%. Consumers would no longer need to buy a new charger every time they changed their phones, resulting in less electronic waste generated.

While considerable strides have been made with traditional demand-side management activities that target geysers and lighting, careful monitoring of appliance usage and purchase patterns could access greater savings.

Demand-side management (DSM) has become an invaluable tool for utilities to manage consumer electricity and Eskom's DSM division is involved in several

initiatives and research studies to develop strategies that are more targeted.

Existing DSM strategies include replacing incandescent light bulbs with energy-efficient compact fluorescent light bulbs, appliance efficiency labels, geyser management and monetary incentives on certain energy-efficient technologies to reduce electricity usage.

Implementing a successful DSM strategy requires that electric utilities know not only the usage patterns of electricity consumers but also what appliances they own or are planning to buy, and how these are being used.

For example, a DSM strategy many utilities use has been to educate consumers not to leave their appliances in standby mode.

In actual fact, studies show that there has been a reduction in standby power consumption of 78% over the last five years, and instead strategies should be focused on the "on" mode power consumption.

■ *Albé Bredekamp, of the Cape Peninsula University of Technology, presented a study on demand-side management of the standby power consumed by television sets at an Eskom-sponsored conference on the domestic use of electricity.*