



Reducing peak demand

► How Ontario can expedite the coal phase out by reducing peak electricity usage

Figure 1 shows Ontario’s electricity load duration curve for 2006 — the period of time over which demand was at a set level of consumption. The left-hand side of Figure 1 shows that our peak demand in 2006 was 27,005 megawatts (MW). The right-hand side shows that our electricity demand was never less than approximately 12,000 MW.

The left-hand side of Figure 1 also shows that our demand for electricity exceeded 23,389 MW for only 88 hours or just 1% of the 8,760 hours in a year. That is, our last 3,616 MW (27,005 – 23,389) of demand, which occurred during the hottest days of the year, lasted for less than 1% of the year.

Meeting the top 1% of our annual electricity demand is extremely costly since the electricity generation and transmission infrastructure required to meet this fleeting demand is used for 1% of the year or less. In fact, according to the OPA, the cost of meeting the top 1% of demand with new electricity infrastructure is \$1.64 per kWh or approximately 16 times the residential price of electricity.

Instead of spending \$1.64 per kWh to build new electricity infrastructure to meet peak day demands, it would be

much more cost-effective to pay consumers up to \$1.64 per kWh to shift some of their electricity consumption from peak to off-peak periods during our peak demand days. For example, Toronto Hydro was able to reduce Toronto’s peak day

Fig. 1 - Ontario’s 2006 Electricity Load Duration Curve

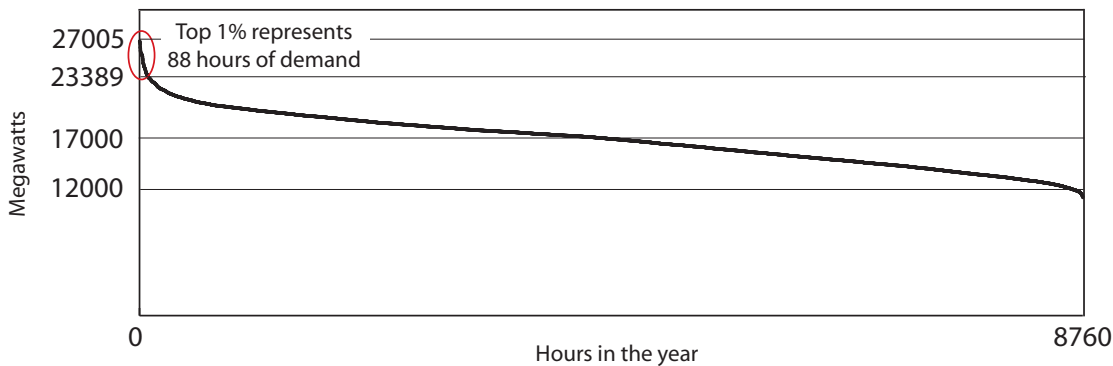


Fig. 2 - Break-out of Ontario’s electricity consumption by end-use on summer peak demand day

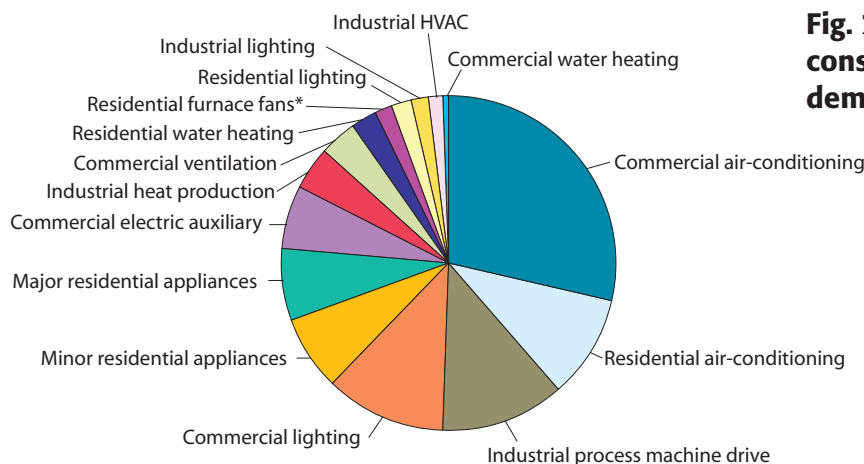


Figure 2 provides a break-out of Ontario’s electricity consumption at the time of the summer peak.

As Figure 2 reveals, residential and commercial air-conditioning is responsible for 40.2% of our electricity consumption at the time of the summer peak. Lighting is responsible for 13.1% of our total electricity use.

* for air conditioning

demand in 2006 with the help of its *peaksaver* program which cycles residential air-conditioners, water heaters and pool pumps on and off on peak-demand days.

In addition, large commercial, institutional and industrial consumers have the potential to dramatically shift their electricity consumption from peak to off-peak hours. For example, large office towers could use electricity during off-peak hours to produce ice or chilled water to provide cooling during the peak. Industrial consumers can adjust their production processes to reduce some of their electricity consumption during the super peak demand hours, which typically occur on approximately 12 days per year between 12 and 6 p.m.

Shifting the top 1% of Ontario's electricity demand (3,616 MW) to off-peak periods would permit the phase-out of 7 of Nanticoke's 8 coal-fired boilers. In addition, paying consumers to shift some of their consumption to off-peak hours would keep our electricity dollars and jobs in Ontario instead of using them to purchase dirty coal from the U.S. to burn at Nanticoke.

What would it cost?

Paying consumers \$1.64 per kWh to reduce their electricity consumption by 3,616 MW in 2006 would have cost the OPA \$193 million. However, by reducing the demand for electricity during peak hours, these payments would reduce the spot price of electricity for all consumers.

In 2006 as a whole, the resulting reduction in spot electricity prices would have reduced electricity bills by at least \$74 million. Therefore, in 2006, the net cost of phasing out 7 of Nanticoke's 8 boilers would have been \$119 million (\$193 million - \$74 million) or less — a net rate increase of less than 1% (at most).

In 2005, Ontario's electricity spot market prices were substantially higher than they were in 2006. As a consequence, paying consumers to reduce their electricity demands in 2005 would have had an even bigger impact in terms of reducing the spot price of electricity. Our preliminary research shows that paying customers \$1.64 per kWh to reduce their peak day demands in 2005 would have led to a net *reduction* in Ontario's electricity bills of \$33 million.

What you can do

Please contact Ontario's Energy Minister Gerry Phillips at gphillips.mpp@liberal.ola.org and ask him to direct the OPA to pay Ontario's electric utilities (e.g., Hydro One, Toronto Hydro) and large volume commercial, institutional and industrial consumers up to \$1.64 per kWh to shift some of their consumption from peak to off-peak periods on peak demand days.

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