



Off-Peak Cooling

Its Impact on Electricity Conservation & Demand Management for Ontario

- Peak load shifting is identified as a key element in Ontario’s conservation and demand management strategy
- A target reduction of 6,300 megawatts in peak electricity demand by 2025 has been set by the Government of Ontario and the Ontario Power Authority (OPA)
- Off-peak cooling (OPC) has potential to achieve substantial peak load reductions representing 15 – 25% of the total OPA reduction target¹

Essential Facts – Ontario’s Off-Peak Cooling Opportunity²

Total Number of Buildings	52,182
Buildings with Central Chillers & Packaged Rooftop Units for Primary AC	24,302
Total Floor Space of Buildings with Chillers & Packaged Rooftop Units	830,511,160 ft ²
Air Conditioning Cooling Requirement Represented by Total Floor Space ³	2,768,371 Tons
Demand Requirement Represented by Air Conditioning Load ⁴	2,492 MW

	Reduction	% of Target
Peak Load Reduction Potential @ 35% Conversion to Off-Peak Cooling	872 MW	14%
Peak Load Reduction Potential @ 50% Conversion to Off-Peak Cooling	1,246 MW	20%
Net Carbon Emission Reduction Off-peak vs. On-peak Power Generation	~40% ⁵	

Survey statistics are from the year 2000

Statistics do not account for new construction in 2001 – 2008

Building statistics only include metropolitan areas of 175,000 or greater population

¹ Includes estimated increase associated with buildings not included in the survey data

² Source: Unless otherwise noted all statistics from Natural Resources Canada, Office of Energy Efficiency – Commercial and Institutional Building Energy Use Survey 2000

³ Generally accepted industry calculation: Total Floor Space ÷ 300 = Tons Cooling Requirement

⁴ Generally accepted industry calculation: Tons Cooling x .9 = kW demand

⁵ Source: California Source Energy & Environmental Impacts of Thermal Energy Storage – California Energy Commission