



Bright Future

Avoiding Blackouts in Ontario

On August 14, 2003, the lights went out all over Ontario. It shouldn't have come as a surprise. Consumers were warned in the summer of 2002 and again in 2003 that blackouts might occur at peak times. The blackout on August 14 came at a time when electricity use in Ontario and neighbouring U.S. states was almost at its highest level. When it happened, the power failure exposed the vulnerability of Ontario's electricity system and shook the confidence of consumers.

To deal with the ever-increasing demand for electricity, the province's strategy has been to simply boost supply by importing coal-fired electricity from the U.S. and extending the life of coal and nuclear powered plants in Ontario. This ties Ontarians to an ever more complex, vulnerable and expensive system. Ontarians pay more than \$12 billion a year to keep their electrical system running – and it's failing them.



PHOTO CREDITS: Tourism Toronto (top); Paul Sampson (bottom)



California's energy-efficiency standards for appliances and buildings have helped residents save more than \$15.8 billion in electricity and natural gas costs.



Reducing demand through efficiency and conservation is the fastest and most cost-effective approach for strengthening electricity reliability for residential, commercial and industrial consumers.

Ontario needs a new strategy, one that focuses on reducing energy use through efficiency and conservation, rather than increasing supply. *Bright Future* shows how these measures can help Ontario reduce its total demand for power by 20 per cent between now and 2010. The report also shows that energy efficiency and conservation are the fastest and cheapest ways to ease Ontario's electricity crisis.

Not only do conservation and efficiency ease electricity crunches by reducing demand, but also cut smog and air pollution because they reduce the amount of coal, gas and oil that is burned. As well, cutting energy use saves consumers and businesses money. It's a win-win situation.

Using less energy isn't about making drastic lifestyle changes or sacrifices. Conservation and efficiency measures can be as simple as improving the standards for new buildings so that they use less energy for heating and cooling, replacing an old refrigerator with one that doesn't waste as much power, or adjusting a thermostat before leaving home.

The way California slashed electricity use when its electrical grid was at the breaking point provides a lesson for Ontario. In the summer of 2001, California faced the well-publicized prospect of electricity shortages and rolling blackouts. Rather than spend huge amounts of money on more polluting power plants, the state decided to push energy conservation. It worked. California dramatically reduced power consumption over just a few weeks and prevented rolling blackouts. The state was able to reduce peak load demand by between 3,200 and 5,600 megawatts over the summer months.¹ (During the summer of 2001, Californians were able to reduce their electricity usage by 7.5 per cent and average monthly peak demand by 10.4 per cent.)

California also learned firsthand that saving energy means saving money. The state's energy-efficiency standards for appliances and buildings have helped Californians save more than \$15.8 billion in electricity and natural gas costs. One-third of Californians cut their electricity use by 20 per cent to qualify for a 20 per cent rebate on their bill. State buildings reduced their energy consumption, older buildings were weatherized and new buildings were constructed to higher standards.

In addition to saving electricity, California's conservation and efficiency efforts reduced greenhouse gas emissions by close to 8 million tonnes, and nitrogen oxide emissions by 2700 tonnes during 2001 and 2002. Saving this much electricity in Ontario would allow for the shutdown of the Nanticoke coal-fired power plant, which is the largest single source of greenhouse gas emissions in Ontario.

Bright Future shows that through planned, cost-effective energy efficiency measures, Ontario will soon be in a position to start phasing out its coal-fired plants, which will help clean the air, reduce greenhouse gas emissions and provide a more reliable electricity system. Experience from across North America has proven that it is significantly cheaper to invest in energy efficiency than to build or even maintain polluting sources of electricity supply. These measures will also avoid the need for costly transmission upgrades.

Shifting to conservation and efficiency in Ontario will require a financial investment. However, the alternative, to spend money on new conventional supply, is more expensive and is fraught with problems. Coal-fired generating plants are a major source of smog and a significant contributor of greenhouse gas emissions. Nuclear energy is prohibitively expensive; the cost of refitting four aging Ontario reactors has risen from \$800 million to \$2.5 billion in a project that is years behind schedule. And after the recent blackout, nuclear power stations were the slowest element of the power supply to recover.

Bright Future encourages Ontario to adopt proven, commercially-available energy-efficient technologies for lighting, heating, air conditioning and manufacturing and other functions. The trend to energy efficiency, already well established in the market, can be greatly accelerated through broad-based incentives for consumers and higher standards for manufacturers and builders.

California’s long record of success will provide valuable guidance for Ontario. Its efficiency initiatives, assisted by the innovative strength of California’s industries, have enabled state residents to keep per capita power consumption roughly steady since 1978, even though per capita consumption across the U.S. has risen by 50 per cent.

The principles underlying California’s current programs include a strong belief in energy conservation and efficiency, openness to public engagement, a commitment to integrated resource planning, and a vigorous pursuit of renewable energy development. Ontario can adopt the same principles, and accelerate its transition to sustainable electricity use. This transition could include the following elements:

- Aggressive incentive programs to ease short-term pressure on the system and reduce residential and small commercial customer load
- A comprehensive province-wide public education campaign to promote conservation and efficiency strategies
- Transparent, collaborative planning to rationalise energy investment and build public understanding of energy issues and choices
- Creation of an energy efficiency fund to support emerging energy efficiency technologies
- Investment by utilities in renewable energy technologies, to produce 10 per cent of total generating capacity in 2010 compared with 0.5 per cent today
- Phasing out nuclear and coal-fired power plants

The energy efficiency fund would have three objectives: 1. to support the development of improving standards for appliances, equipment and buildings, 2. to help new, more efficient technologies gain market share and reduce their production costs and, 3. to promote research and development. We propose that the fund would be supported through a public benefit charge of 0.3 cents per kilowatt-hour on electricity consumption. For the average household in Ontario, this would amount to \$2.20 per

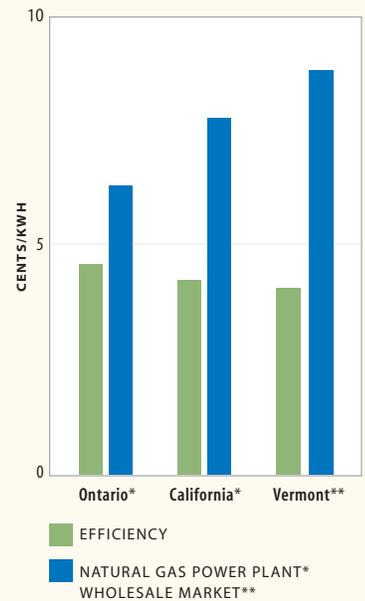


FIGURE I
Cost of new electricity³



Renewable energy and a decentralized power system play an important role in electricity security.



Conservation and efficiency also cut smog and air pollution by reducing the amount of coal being burned.

month, which would help raise \$440 million per year. This investment would help reduce electricity use 20 per cent by 2010.

Instead of funding energy efficiency, the province currently provides an incentive to waste electricity in the form of a cap on electricity prices. This cap has cost Ontario taxpayers more than \$600 million in a power-production subsidy to utilities in addition to what consumers pay for their electricity. This sum is likely to rise as the utilities continue their efforts to patch up the nuclear plants and mitigate smog emissions from the coal plants. The efficiency fund, on the other hand, is an *investment* that will be used to reduce electricity consumption in the homes, offices and businesses of Ontarians, and will reduce their electricity bills in the long term.

Ontario stands to reap many benefits from the transition to energy efficiency, including improved security of supply; greater system stability; reduced exposure to price volatility on both the electrical and fossil fuel markets; reduced per capita spending on the energy system; reduced emissions of air pollutants and greenhouse gases; and new jobs in businesses related to retrofitting and renewable energy.

The province is already well positioned to begin this transition. Researchers and entrepreneurs are at work creating new technologies. Managers in local governments and large companies have gained confidence in the potential of efficiency-based approaches by saving millions of dollars through energy efficiency investments. Community-based groups and businesses are taking part in training, public education and energy audits. Professionals from the energy industry have valuable experience in energy planning and public engagement.

By adopting better standards for efficiency, focusing on conservation and shifting to renewable energy supplies and a decentralized power system, Ontario will be less vulnerable to large blackouts in the future. 

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- 1 Goldman, C., Eto, J. and G. Barbose. (2002). *California Customer Load Reductions during the Electricity Crisis: Did they Help to Keep the Lights On?* (Berkeley: E.O. Lawrence Berkeley National Laboratory) http://eetd.lbl.gov/ea/EMS/EMS_pubs.html
 - 2 Bachrach, D. Ardema, M., and A. Leupp. (2003). *Energy Efficiency Leadership in California: Preventing the Next Crisis*. San Francisco: Natural Resources Defense Council, p.2. The full report is available at www.nrdc.org/air/energy/eecal/eecal.pdf
 - 3 Sources for California chart: Energy Efficiency Programs. Global Energy Partners. *California Summer Study of 2001 Energy Efficiency Programs*, (Southern California Edison and The California Measurement Advisory Council, March 2003). Available at www.calmac.org; Wind, Gas Combined Cycle, Combustion Turbine data from: California Energy Commission. *Comparative Cost of California Central Station Electricity Generation Technologies*, (California Energy Commission, August 2003) www.energy.ca.gov/energypolicy/documents/index.html
- Vermont sources: Efficiency Vermont. (2002). *The Power of Efficient Ideas* Efficiency Vermont: Preliminary Report 2002. www.efficiencyvermont.com/Docs/EVExecSummary47.pdf



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