



Source: OPA

## Sustainability

The federal and Ontario policies on energy appear to be generally similar, but since only the Ontario plans show explicit supply and demand figures they will be used in this review.

The above graph is Figure 1.2.20 from the OPA Advice and Recommendations report prepared for the Ontario government, based on a high success rate for conservation. Note that the dark green band marked CDM does not actually represent any energy supply. It shows the reduction in demand that might be achieved through conservation measures and through demand management techniques such as the use of “smart meters”. This picture thus indicates that the predicted energy demand in Ontario will decline over the coming 20 years. The report estimates that the population will grow by 25% in that period, and that the per capita consumption will remain about the same, indicating that there may be major inconsistencies in the report.

The overall pattern is that the mix of energy sources will remain almost constant throughout the whole period, so little or no progress is to be made in achieving long term sustainability. The use of combustible fuels (natural gas plus biomass) will decline slightly, with the difference being made up by wind energy.

Canada's reserves of natural gas will be exhausted by 2012, and the proposed nuclear reactors would burn up all of Canada's uranium supply well before the end of the reactors' predicted useful lifetime. Clearly, this scenario is not sustainable. Part of the reason is that the report does not tackle the issue of how to raise Ontario's hydro power consumption (currently 26%) much closer to the national figure of 56%.

The HEAT networks alternative described in “The Role of Combustible Fuels” proposes that the national mix should be 56% hydro, 22% HEAT networks, 15% wind power and 7% from waste product combustible fuels. Such numbers should be permanently sustainable and would permit substantial growth based on increases in the HEAT networks, wind and solar components. They would at the same time enable Canada to achieve its clean air targets.

## Achievability

In the period up to 2012 the Ontario program predicts a substantial increase in the consumption of natural gas, based on imports of natural gas at the end of that period. Given the large increases in demand elsewhere (the US, for example, increased its natural gas powered electric capacity by 180,000 megawatts in 2005 alone) that may not be achievable. Moreover, in the period after 2012 the plan is to progressively replace the existing nuclear power stations with a new generation of nuclear stations. If there are any delays or obstructions in the nuclear program then the balance will have to be made up by using more natural gas, which is likely to be very expensive and may not even be available.

If in fact the population grows by 25% and the per capita consumption remains constant then there will be a need to supply an additional 40TWh of energy supply, and that too would have to be produced by natural gas under the OPA plan.

The OPA plan does not explain how it arrived at the figures for the planned nuclear component, although it states that the overall cost figure is based on \$2,600 per kW of electrical output. The nuclear industry's estimate for the cost of construction is \$1,150 per kW, but that is out of line with previous experience. The Darlington stations, for example, cost about \$6,800 per kW. Moreover, the industry estimates that it can build the plants in 3.5 years, or about half of the time previously taken to build plants that have only half the capacity. There is no indication that an allowance has been made for dismantling the 22 reactors to be decommissioned, for the public insurance cost, for the permanent waste product handling and protection, etc.

HEAT networks have their own achievability challenges, particularly in the political arena. The seasonal storage concept has been in use for millenia, and has been in widespread use for home and office heating for half a century, but there is no mention whatsoever of this option in the OPA report, or indeed in most government reviews of future options. No reasons have ever been given for this omission.

The cost of fossil fuels has risen dramatically. That for natural gas, for example, has increased by more than a factor of five in the past decade. The cost of producing the gas has not risen commensurately, so the net result has been huge profits for the fossil fuel industry, for governments, and for related businesses. The OPA plan would perpetuate our dependence on fossil fuels once the “nuclear bubble” has passed, and it will put strong pressure on the prices of fossil fuels throughout the planning period. Moreover, the OPA plan in effect abandons the 2012 objectives of the Kyoto agreement altogether. If this political obstruction can be surmounted then HEAT networks could readily achieve the supply objectives, if necessary falling back on the large surplus of natural gas made available via home heating.