THE INTEGRATED POWER SYSTEM PLAN FOR THE PERIOD 2008-2027

1.0 INTRODUCTION

This exhibit presents the Integrated Power System Plan (the "IPSP" or the "Plan") for the period 2008 to 2027.

2.0 OVERVIEW

The IPSP is designed to assist, through the effective management of electricity supply, transmission, capacity and demand, the achievement of the government of Ontario's goals identified in the Supply Mix Directive dated June 13, 2006 (the "Directive").

As discussed in Exhibit B-3-1, the OPA's plan to achieve the Directive's goals was developed by identifying the areas of discretion left open by the Directive and applying the OPA's planning criteria to make decisions in those areas. This resulted in an IPSP that prioritizes how Conservation and supply resources should be acquired through (i) meeting the requirements of the Directive in light of the OPA's planning criteria (the "Directive Priority"); and (ii) sequencing the installation of resources, in light of lead times and necessary transmission enhancements (the "Implementation Priority").

2.1 Directive Priority

With respect to the Directive Priority, the Directive identifies a number of goals respecting Conservation and supply resources. The IPSP ensures that these goals are met by identifying the priority order in which the resources are planned to meet the province's resource requirements with respect to capacity, electricity production, and flexibility. The IPSP is not represented by any single case or scenario but rather, it represents the ongoing capability to meet resource requirements across a range of conditions. The range of conditions described in Exhibits D-9-1 and G-1-1 illustrates the possible range of resource requirements. In planning to meet an estimated range of resource requirements, the IPSP identifies specific priorities for the near-term, but will, more generally, develop options for the mid term and explore opportunities for the longer term.

The resources identified in the Directive each make their own contribution to meeting these requirements. In summary, the Directive Priority is as follows:

1. Maximize feasible cost effective contribution from energy efficiency, demand management, fuel switching, and customer based generation ("Conservation");
2. Maximize feasible cost effective contribution from renewable sources;
3. Make up baseload requirements remaining after Steps 1 and 2 above with nuclear power;
4. Replace coal-fired generation with power from committed and planned resources. Specifically, in order to ensure that existing coal-fired facilities are replaced by 2014, gas-fired generation ("GFG") facilities are planned to be installed in the areas of Northern York Region, Kitchener-Waterloo-Cambridge-Guelph and the Greater Toronto Area ("GTA") by 2014; and
5. Restrict contribution of GFG to specific projects as required when additional Conservation and renewable resources are not feasible or cost effective.

Transmission is a facilitator and enabler of supply choices and therefore transmission considerations were integrated in all steps in the planning process. Transmission planning is particularly important in meeting the Directive's renewable goals since the accessing and delivery of potential renewable resources depends on making substantial transmission enhancements.

2.2 Implementation Priority

The Directive Priority outlined above does not necessarily represent the order in which resources will be installed. For example, in light of necessary transmission investments to enable hydroelectric resources, many hydroelectric resources will be brought on later in the Plan term. As a result, the Directive Priority is accompanied by an Implementation Priority.

The Implementation Priority should also be understood as enabling contributions from different resources as opposed to a rigid in-service schedule for specific facilities. The IPSP ensures that resources will be prioritized in an economically prudent and cost effective manner by creating opportunities for resource acquisition in the future. In other

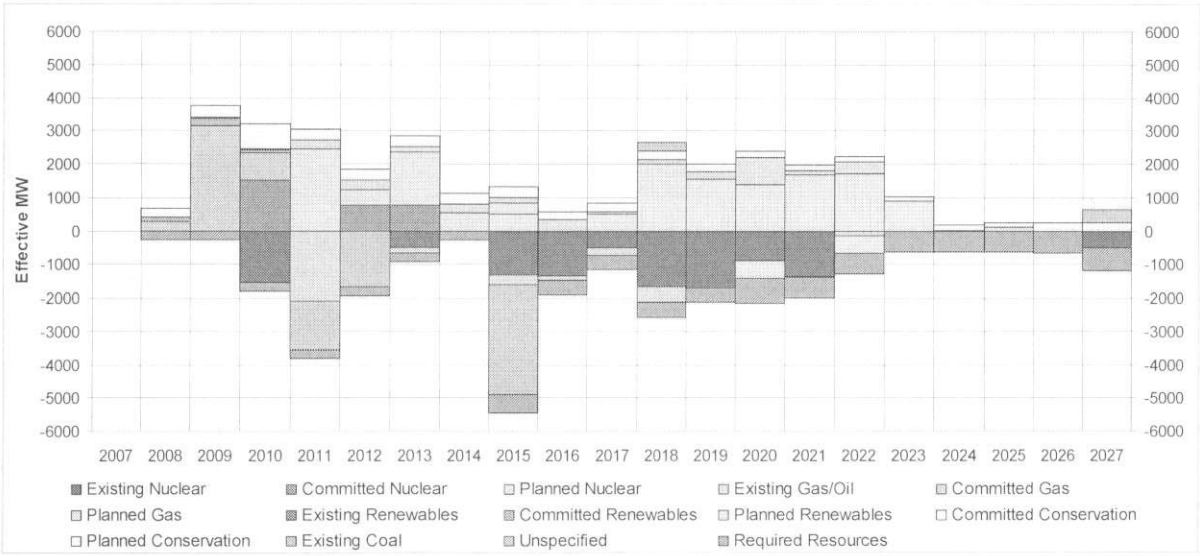
words, it is economically prudent and cost effective to have more than one choice when it comes to acquiring a resource.

It is also important to note that the IPSP will be implemented through a number of projects, facilities and programs, some of which are within the OPA's control and some of which are not. There are a number of initiatives that the OPA is currently pursuing and plans to pursue in order to implement the IPSP in accordance with the Directive and Implementation Priorities. These initiatives are summarized at the end of this exhibit at Table 5. The specific projects, facilities, and programs that are referenced in Table 5 comprise the OPA's current view of a reasonable way to implement the IPSP. The sequence and specific projects will likely change as opportunities present themselves in the market place. Included within those projects are resources that the OPA intends to procure through the OEB-approved procurement process prior to the end of 2010. These procurements are addressed in greater detail in Exhibit D-10-1. Also included in Table 5 are resources and programs that the OPA intends to pursue under existing Directives issued by the Minister of Energy under the *Electricity Act, 1998* (the "Act").

The change in the installed capacity of resources resulting from the Directive and Implementation Priorities is illustrated in summary form in Figure 1 below[1].

[1] This exhibit, including Figure 1, presents Case 1A. Case 1 B (which has minor variations in respect of this Figure), is presented in Exhibit D-9-1, Figure 12 and is described throughout the remainder of the evidence.

Figure 1: Annual Resource Additions and Reductions (Effective MW)



Source: OPA (Exhibit D-9-1, Figure 5)

The remainder of this exhibit addresses how the IPSP prioritizes and implements the contribution from the Conservation and supply resources identified in the Directive.

3.0 CONSERVATION

3.1 The Directive

The Directive's Conservation goals are to reduce demand by 1,350 MW by 2010 and an additional 3,600 MW by 2025. The Directive states:

> The goal for total peak demand reduction from Conservation by 2025 is 6,300 MW. The plan should define programs and actions which aim to reduce projected peak demand by 1,350 MW by 2010, and by an additional 3,600 MW by 2025. The reductions of 1,350 MW and 3,600 MW are to be in addition to the 1,350 MW reduction set by the government as a target for achievement by 2007. The plan should assume Conservation includes continued use by the Government of vehicles such as energy efficiency standards under the Energy Efficiency Act and the Building Code, and should include load reductions from initiatives such as : geothermal heating and cooling; solar heating; fuel switching; small scale (10 MW or less) customer-based electricity generation, including small scale natural gas-fired co-generation and tri-generation, and including generation encouraged by the recently finalized net metering regulation.

Directive Priority

Conservation takes priority over supply resources in that the IPSP first applies all economic and feasible Conservation to meeting resource requirements before applying supply resources. Economic Conservation is defined as Conservation that is more cost effective than supply resources as determined by applying a Total Resource Cost ("TRC") Test. Feasible Conservation is Conservation that can be used for resource planning. In other words, the Conservation contribution can make as predictable and reliable a contribution to meeting resource requirements as the alternative supply resource.

The OPA will seek to develop and identify Conservation opportunities that exceed the Directive's 2010 and 2025 Conservation goals. However, determining whether and how this can be done requires a realistic understanding of the feasibility of achieving Conservation beyond the goals. Such an understanding can only occur as Ontario gains more experience in Conservation and in associated evaluation, measurement and verification ("EM&V") results. In addition, the OPA will monitor future policy changes such as codes and standards, price, carbon taxes and land use that underpin the potential estimate to establish the feasibility of exceeding the goal.

The IPSP has sufficient flexibility to develop a number of options on both the Conservation and the supply side. If experience from the 2008 to 2010 Conservation programs demonstrates that there is feasible Conservation to exceed the Directive goal, that Conservation will be compared to alternative supply resources before any commitment is made.