

ONTARIO POWER AUTHORITY



Presentation to Growing the Margins

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- OPA's Integrated Power System Planning (IPSP)
- Clean Energy Standard Offer Program (RESOP)
 - Background
 - Eligibility Requirements
 - Capacity Payments
 - Comparison: Previous vs. New Recommendations
 - Schedule

Government Directives

- Supply mix directed by the Ontario Government
 - 6000 MW Conservation (\$10 billion investment)
 - Double renewable energy from 8000 MW
 - Expand transmission to enable new sources
 - Phase out coal and limit nuclear

OPA's Integrated Power System Planning (IPSP)

- Ontario's 20 year generation and transmission plan
- The Plan:
 - Recommends infrastructure development, and procurement processes
 - Engaged the public interest in electricity through open processes
 - Becomes a reference to evaluate future options
 - Enables implementation to achieve policy priorities
 - Will be updated in three years

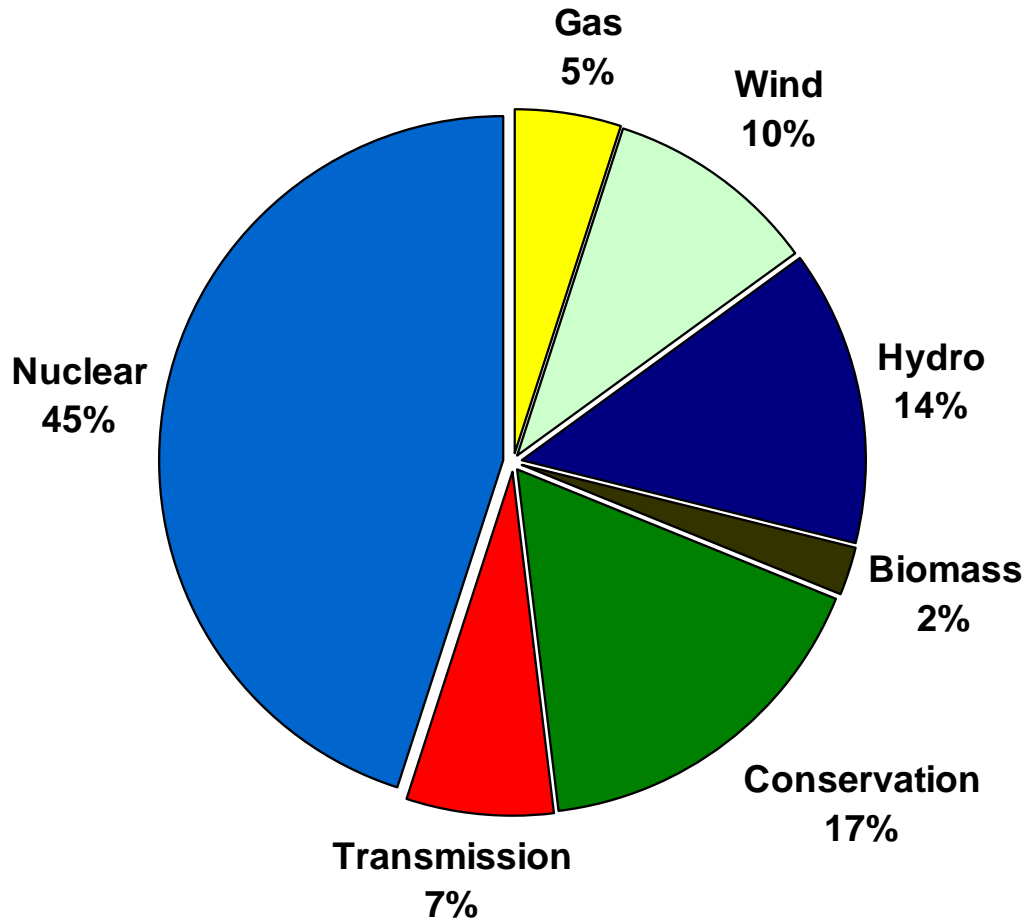
The infrastructure plan shows how to implement policy priorities

- Maximize feasible cost-effective conservation
- Maximize feasible cost-effective renewables
- Meet remaining baseload needs through refurbishment and new build of nuclear capability
- Replace coal by cleaner committed and planned new resources,
- Plan transmission for reliability, incorporation of generation, and system efficiency

Current Status of IPSP

- The IPSP is the product of over two years of consultation and planning. It started with public consultations in the fall of 2005 and is now heading for regulatory review at the OEB.
- Scope of OEB review:
 - Compliance with supply mix directive
 - Whether plan is economically prudent and cost effective

Cost of Planned Resources: \$60 Billion



2007 \$ Billions	
Conservation	10.2
Transmission	4.0
Nuclear	26.5
Gas	3.6
Wind	6.0
Hydro	8.4
Biomass	1.0
Total	59.7

IPSP – Customer Based Generation

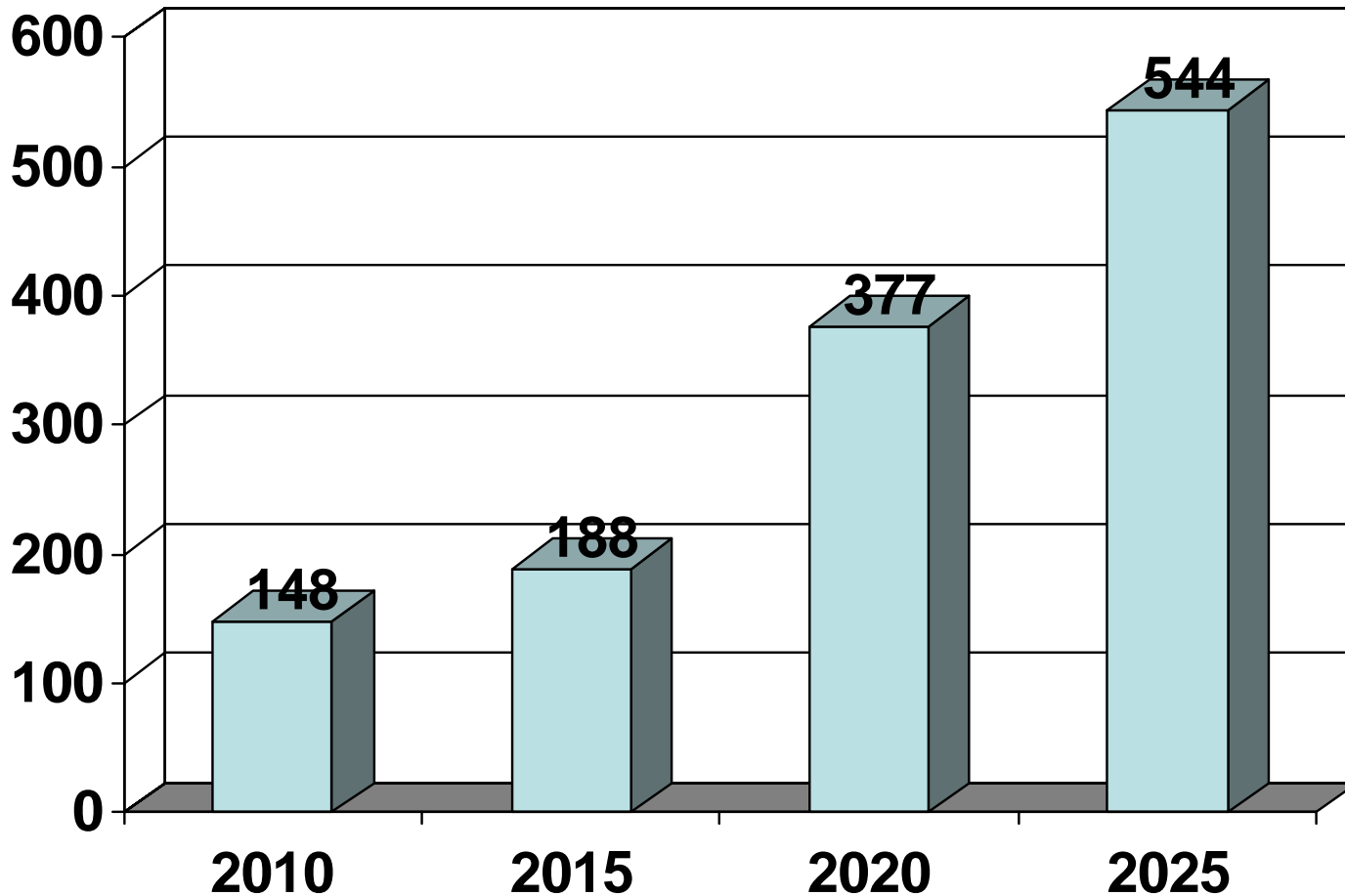
IPSP defines customer-based generation as:

- 10 MW or less for co-generation projects
- 500 kW or less for renewable energy projects

Savings potential was established in recognition of the two Standard Offer procurement initiatives, the Renewable Energy Standard Offer Program and the Clean Energy Standard Offer Program.

IPSP – Customer Based Generation

Proposed Savings Potential on System Peak for Customer-Based Generation (MW)



Data Extracted From: IPSP, Exhibit D, Tab 4, Schedule 1, Attachment 4, Page 3 of 9

IPSP – Customer Based Generation

- **Cogeneration proposed resources consist of:**
 - 50% district energy CHP resources and,
 - 50% industrial/agricultural resources

- **Renewable resources consist of:**
 - Biomass, photovoltaic and wind
 - Biomass consists of: 25% landfill gas, 25% biomass and 50% wastewater biogas

CESOP Background

- June 15, 2007: OPA directed to develop CESOP, with objective to launch by end of 2007
- Stakeholder concerns raised during Fall 2007 program development:
 - fixed 8-month payment schedule excluded four “shoulder months”
 - revenue/cost uncertainty of fixed payments on top of HOEP revenues (“HOEP-plus”)
- OPA worked with consultant (Navigant Consulting Inc.) to revise pricing approach to address above concerns

CESOP Eligibility Requirements

- ≤ 10 MW, connected to eligible LDC on IESO grid
- If natural gas, must be combined heat & power (CHP)
- By-product fuel-fired generation projects (e.g. flue-gas)
- Under-utilized energy (thermal or mechanical) projects

CESOP Capacity Payments

- **Previous recommendation:** fixed payment on top of HOEP ('HOEP Plus')
 - Concern with market heat rate revenue uncertainty
- **Current recommendation:** payment derived from capacity value of a CCGT and includes four components:
 - Capacity value - based on the above-market value of CCGT generation
 - Market revenue - spark spread between gas and electricity prices of reference generator
 - Avoided transmission losses - based on average marginal losses
 - Avoided transmission capital costs

Capacity Payments: NG Fueled Projects

- **Natural Gas Fuel Fired CHP Projects**

- Will receive a Contingent Support Payment based on a reference power plant, to address un-hedged NG price risk
- OPA calculates total value - from OPA plus the market – that the reference CHP would offer
 - This is called the Net Revenue Guarantee (NRG)
- OPA calculates Net Market Revenue (NMR) that the reference CHP would earn during a 16 hour business day, 12-month operating schedule (ex-post)
- difference between NRG and NMR is the support payment that OPA will provide to all CHP

- **By-Product Fuel-Fired/Under Utilized Energy Projects**
 - Will sign Power Purchase Agreements (PPA), which are appropriate because:
 - no NG fuel price risk;
 - costs largely fixed in money terms once financed and built
 - Higher incentive during weekday days (7 am to 11 pm) and a lower price during nights and weekends.

CESOP Procurement Schedule

- Release Final Report *May*
- Post Draft Program Rules *May/June*
- Release Final Rules and Contract *July*
- *Program Launch* *Summer*

Questions ?

