

ONTARIO POWER AUTHORITY



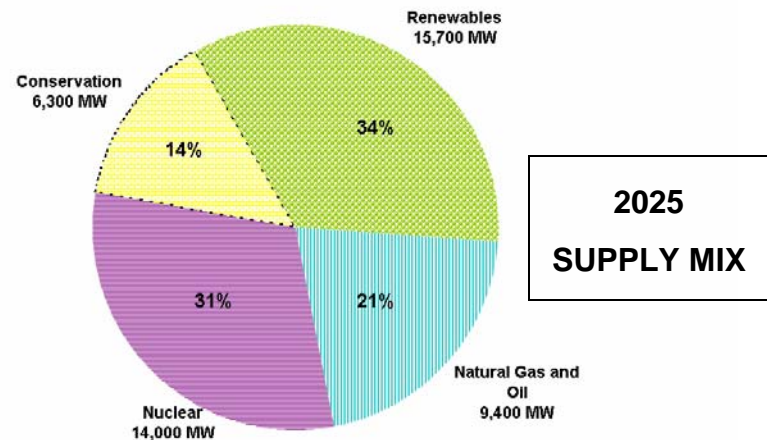
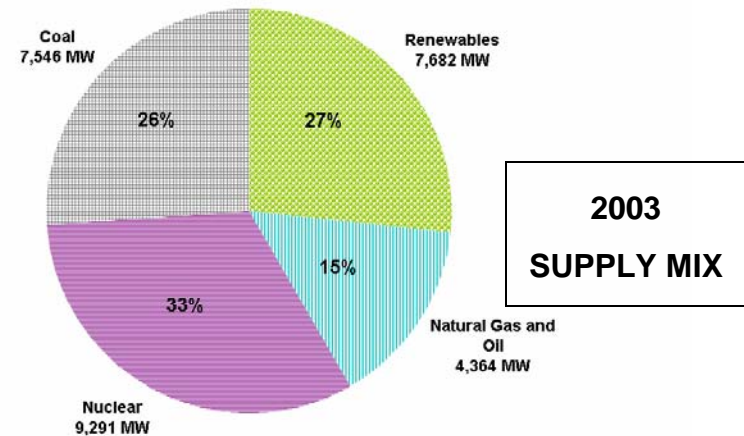
Ontario's Standard Offer Programs
IDGTE Renewable Fuel Utilization Seminar
Presented by: Kevin Devitt
June 12, 2008

Agenda

- Renewable Energy Supply in Ontario
- Renewable Energy Standard Offer Program
- Clean Energy Standard Offer Program
- Northern Hydroelectric Initiative
- Energy from Waste Initiative

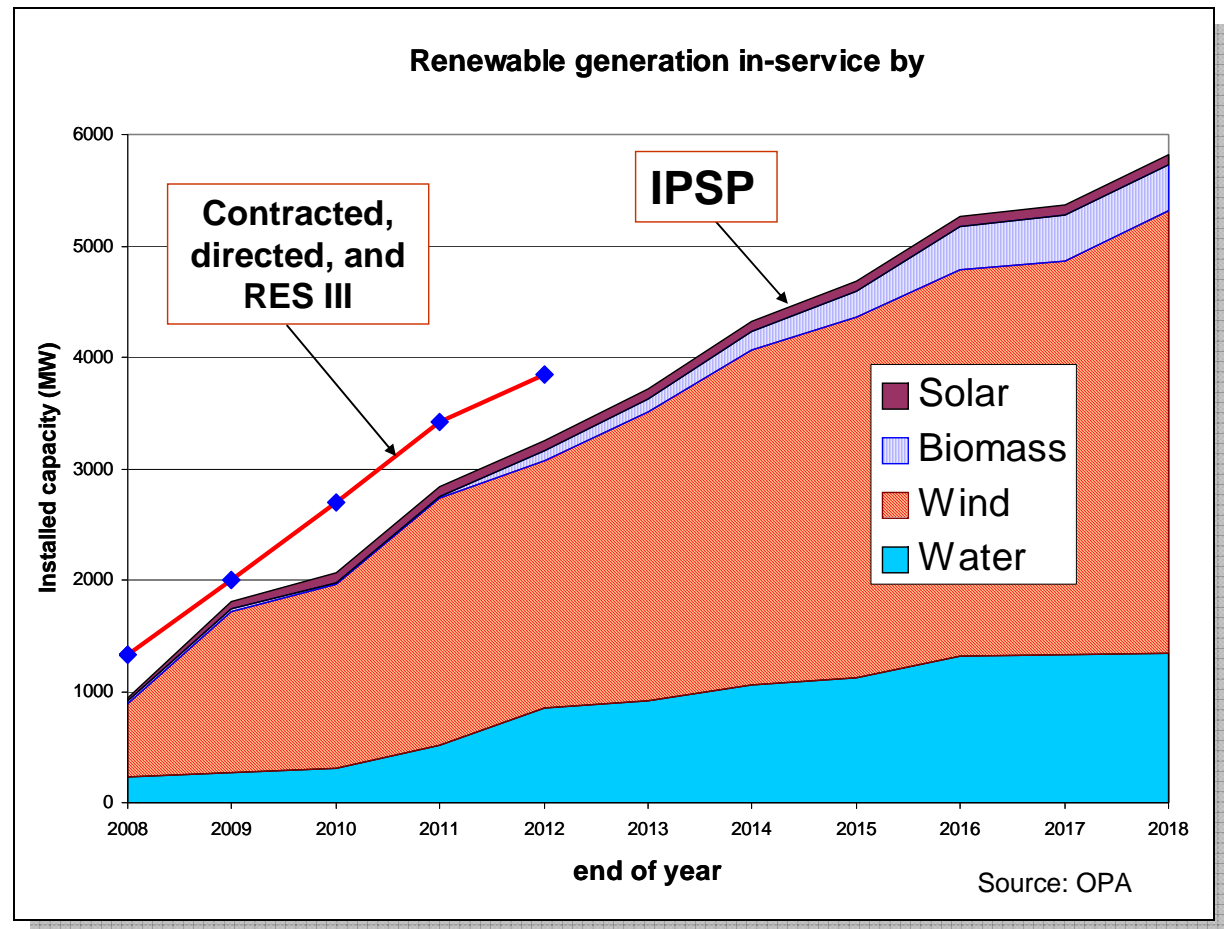
Renewable Energy Supply in Ontario

- Renewable Energy...
 - Involves electricity generation using environmentally-sustainable resources
 - Supports the replacement of coal-fired generation
 - Reduces Ontario's contributions to climate change and other air emissions
- Finding clean, affordable and sustainable sources of electricity is a top priority of the Ontario Government
- Through the Integrated Power System Plan (IPSP), the province is committed to doubling renewable energy capacity by 2025



Renewables Energy Supply Development on Track

- Ontario Government's target for 2010 is 2,700 MW of new renewable supply resources
- OPA is on track to meet this target
- There are over 2,500 MW of executed renewables contracts in place today
- By year end, it is expected there will be contracts for almost 4,000 MW
- Executed and planned contracts put us on target to double installed renewable energy supply capacity in Ontario by 2025



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 every three years
- The IPSP is currently under regulatory review by the OEB

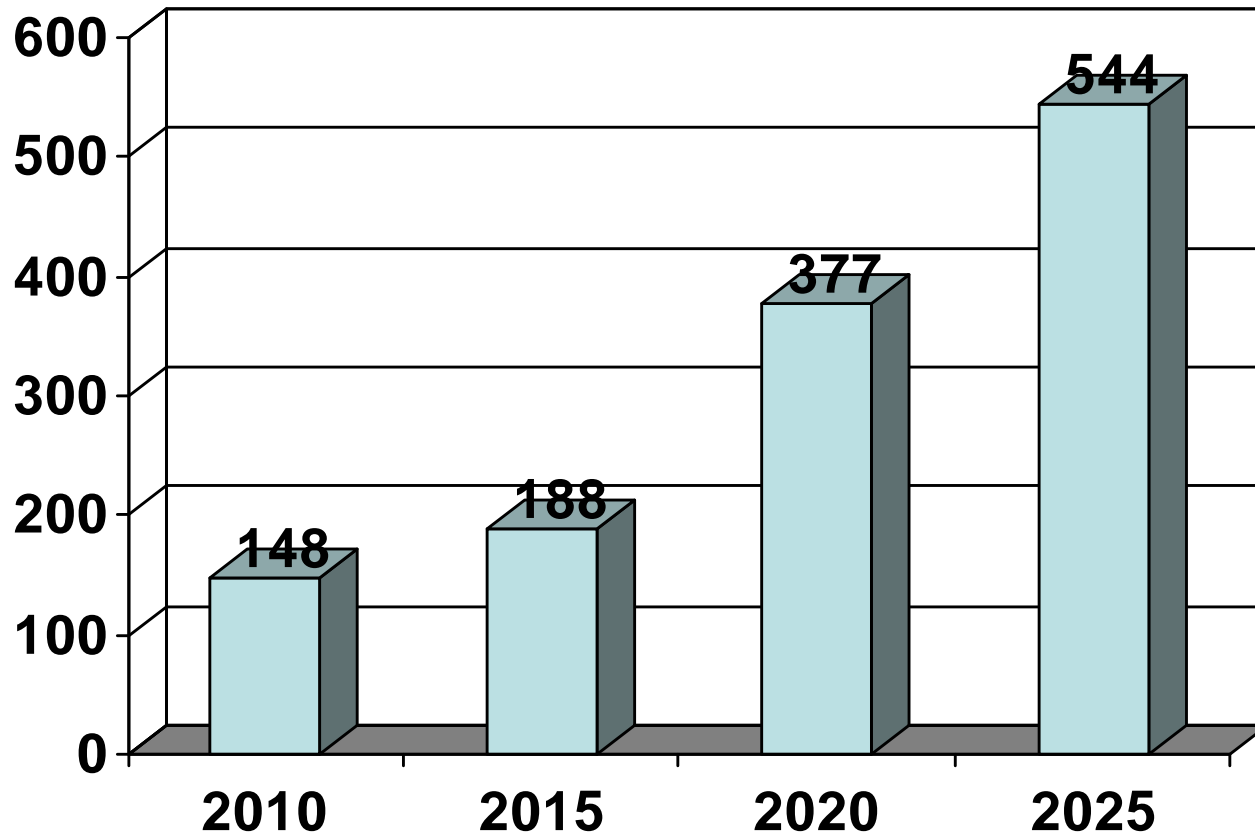
IPSP – Customer Based Generation

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.

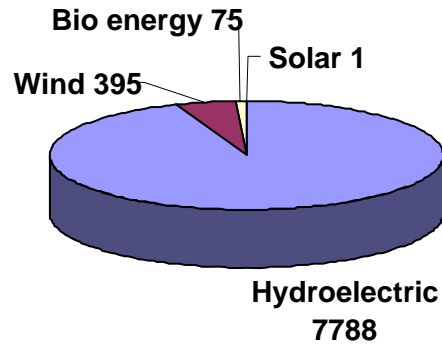
IPSP Content



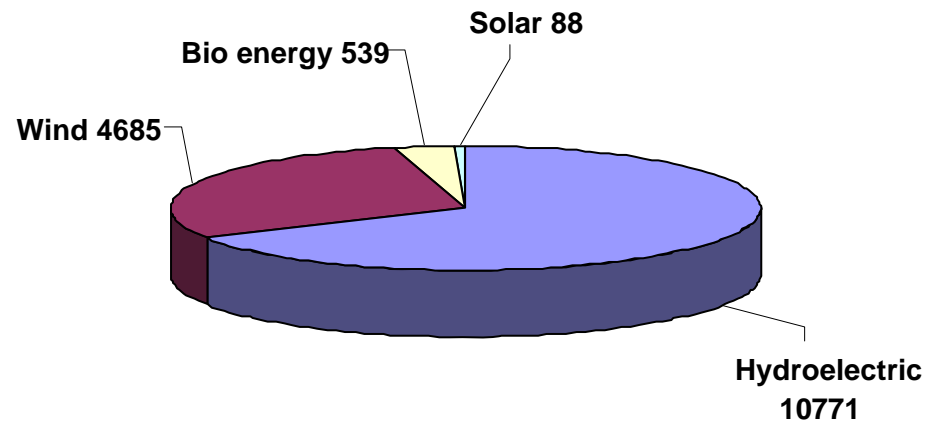
Proposed Peak Demand Reduction for Customer-Based Generation
(MW for 2008-2025)

Renewable Targets (by Government)

Renewable Resources in 2007 (MW)



Renewable Resources in 2027 (MW)



Renewable Energy Standard Offer Program

- **Objective**
 - Design and implement a standard offer approach in order to utilize Ontario’s renewable resources through small projects
- **Guiding Principles**
 - Keep it simple
 - Focus on removing barriers to smaller renewable developers
 - Maintain a balance between assisting with government policy and getting good value for Ontario ratepayers



Eligibility

- **Renewable energy sources:**
 - Biomass, Wind, Waterpower
 - Contract Price **11.08¢ / kWh**
 - On-Peak performance **3.52¢ / kWh** (if eligible)
 - Escalation on May 1st annually for Inflation **20%** of Base Rate indexed at CPI
 - Solar photovoltaic
 - **42¢ / kWh**
- **Contract Term**
 - Up to **20 years** after achieving Commercial Operation
- **Capacity Requirements**
 - Installed generating capacity of ≤ 10 MW

RESOP Experience to Date

- Renewable Energy Standard Offer Program (RESOP) status as of April 30, 2008:
 - 326 contracts
 - 1,362 MW
 - Technology types
 - Wind = 56 %
 - Solar PV = 35 %
 - Biomass = 5 %
 - Waterpower = 5 %

Renewable Energy Standard Offer Program

- RESOP uptake has exceeded all expectations, it is now prudent to address necessary program improvements to ensure continued success in the future
- Due to uptake, access to the grid needs to be fairer to enable more proponents to participate
- Improvements to RESOP reinforces Ontario's commitment to renewable and clean energy supply:
 - CESOP
 - NHI
 - RES III RFP
 - CHP II RFP
 - CHP III RFP

Review of Proposed Changes

- Significant interest and contract uptake requires action in these areas:
 1. Increasing certainty and program efficiency,
 2. Allow broader participation through proponent limits, and
 3. Improving administrative efficiency
 - Comprehensive Connection Impact Assessments
 - Waterpower Redevelopment Projects
 - Micro-scale Generators

CESOP Background

- **Eligibility**

- Natural gas fuel-fired combined heat and power project, involving the concurrent production of both heat and electricity
- By-product fuel-fired generation
- Under-utilized energy generation project (including thermal and mechanical energy)
- ≤ 10 MW, connected to eligible LDC on IESO grid

CESOP Capacity Payments

- 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**
 - Receive a Contingent Support Payment (CSP) based on a reference power plant, to address un-hedged NG price risk
 - CSP = the difference between Net Revenue Guarantee (NRG) and Net Market Revenue (NMR)
 - NRG: set at **\$15.97/kW-month** in 2009 dollars
 - NMR: what the reference CHP would earn during a 16 hour business day - calculated by the OPA
- **By-Product Fuel-Fired/Under-Utilized Energy Projects**
 - Higher incentive of **\$115/MWh** during weekday days (7 am to 11 pm) and a lower **\$46/MWh** price during weekday nights and weekends.

CESOP Schedule

- May 27: post final report on new program recommendations
- June & July : Technical Sessions
- July: release draft rules and draft contract for comment
- Late July: Q & As (web-based)
- August: release final rules and final contract

Northern Hydroelectric Initiative

- Northern Hydro-Electric Initiative (NHI)
- The goal of NHI is to promote small waterpower generating Projects that would be connected to an electricity transmission system in Northern Ontario
- The Draft Rules were released for feedback
- To be launched in Q3 of 2008

Energy From Waste (EFW)

Government EFW Initiative

- Ministry of the Environment Initiative: to test and evaluate tech with potentially improved environmental performance
 - streamlined environmental approvals for EFW Pilot or Demonstration Projects (PDPs)
 - some funding also available from Ministry of Research & Innovation

OPA

- Minister of Energy directed OPA to develop EFW program for PDP connected to distribution system
 - contract for “net” electricity injected @ 10¢/kWh
 - likely contract duration: continued Initiative participation “in good standing”
- OPA to launch late 2008

For more information

- OPA Standard Offer Program Website: www.powerauthority.on.ca/sop
- Information on CESOP under “Initiatives” section of OPA website: www.powerauthority.on.ca
- OEB Website: <http://www.oeb.gov.on.ca>
- Input welcome by email at: standardoffer@powerauthority.on.ca