

# Renewable and Clean Energy for Ontario

## **The Ontario Power Authority's Procurement Initiatives for Renewable and Clean Energy**

**June 2008**



# Renewable and Clean Electricity Generation

## Commitment and Plan

The Province of Ontario faces a major challenge – to ensure a reliable, sustainable, long-term supply of electricity. Electricity is vital to all of us – at home, at work and at play. And it's critical for the delivery of essential services such as health care and education.

Today, about 37 percent of Ontario's electricity is supplied by nuclear power, 21 percent by coal-fired generating facilities, 16 percent by oil- and natural gas-fired generation and 26 percent by renewable sources, primarily hydroelectric generation.

Within the next 20 years, however, nearly 80 percent of the province's existing generating capacity will need to be replaced. This is because of expected population and economic growth, the need to replace nuclear facilities nearing the end of their service lives, and the need to eliminate environmentally harmful coal-fired generation. Strong progress in energy conservation will make an important contribution, but the supply challenge remains formidable.

As part of the long-range plan to meet this challenge, the amount of electricity generated from renewable energy sources – wind power, waterpower, solar photovoltaic (PV) installations and biomass energy from agricultural and waste material – will double from about 7,500 megawatts (MW) today to about 15,000 MW by 2025. In addition, electricity generation from clean-burning natural gas will increase from around 5,000 MW today to more than 10,000 MW by 2025.

The Ontario Power Authority (OPA), a not-for-profit organization with a mandate to ensure reliable, sustainable, long-term electricity supply for Ontario, has a number of procurement programs and initiatives underway to help achieve these goals:

- Renewable Energy Standard Offer Program
- Northern Hydroelectric Initiative
- Renewable Energy Supply III
- Clean Energy Standard Offer Program
- Combined Heat and Power II
- Combined Heat and Power III

This brochure introduces the opportunities offered or planned by the OPA. Additional details can be found on the OPA website at [www.powerauthority.on.ca](http://www.powerauthority.on.ca).

## Renewable Energy Programs and Initiatives

As of May 1, 2008, the OPA had executed contracts for both small and large renewable energy projects representing more than 2,500 MW, with an additional 1,500 MW of contracts expected to be executed by the end of 2008. This is encouraging progress toward the goal of doubling renewable energy generation by 2025.

Following are the programs in development or underway as of May 2008:

### Renewable Energy Standard Offer Program (RESOP): Opportunities for Small Generators

Ontario's RESOP was designed to allow small, renewable projects (with a generating capacity of 10 MW or less) to sell their electricity to the provincial distribution system at a fixed and stable price and under a long-term contract, without the complex and costly processes that apply to larger projects. It allows small generators such as homeowners, farmers, small energy companies and local, community-based projects to contribute to supply reliability



while also helping to reduce impacts on the environment.

Introduced by the OPA in November 2006, RESOP was the first initiative of its type in North America, and it has proven to be an outstanding success. Initial estimates that about 1,000 MW of eligible projects might be developed within 10 years were exceeded within the first 18 months of RESOP availability.

By May 31, 2008, the OPA had executed 326 RESOP contracts for more than 1,300 MW of generating capacity, with a further 60 applications under consideration. In fact, the early response has been so strong that the number and potential capacity of proposed projects exceeds the capability of the province's transmission system to accommodate them all.

### RESOP Eligibility and Payment

To be RESOP eligible, Ontario-based projects using wind power, waterpower, solar PV technologies or biomass facilities to generate electricity must have an installed capacity of no more than 10 MW and must establish a metered connection with an eligible Ontario distribution system at a voltage of 50 kilovolts or less. Generators must enter into a 20-year contract with the OPA and meet certain other requirements, including a connection impact assessment, demonstrated site access and other terms, such as an environmental impact assessment. Because of transmission system constraints, the OPA limits RESOP participation in certain areas of the province.

Renewable energy generators other than solar PV generators are paid a fixed rate for electricity delivered to the grid, subject to annual adjustment for inflation, with an additional incentive payment for generators who reliably meet peak demand requirements. Solar PV generators are paid at a higher rate but without inflation adjustments or peak-period incentives.

On May 13, 2008, the OPA announced proposed changes to the RESOP and a schedule for consultation with stakeholders from May to September 2008. Details on RESOP, including the proposed changes, the consultation process and general updates, can be found on the OPA website at [www.powerauthority.on.ca/SOP](http://www.powerauthority.on.ca/SOP).

### Northern Hydroelectric Initiative

Proposed waterpower projects in northern Ontario that are 10 MW or less will be eligible for a standard offer contract, even though they will be connected to the transmission grid rather than a local distribution system. This will allow northern projects to contribute to Ontario's renewable energy targets.

### Renewable Energy Supply III: Large Projects Exceeding 10 MW

In August 2007, the OPA received direction to procure up to 2,000 MW of new renewable supply from projects greater than 10 MW of generating capacity. The OPA has since initiated a multi-phase process to extend over the next several years. Implementation of the first phase to procure 500 MW began in November 2007 when the OPA issued a Request for Expressions of Interest. In June 2008, the OPA issued a Request for Proposals (RFP) with a view to receiving proposals by the end of 2008.

# Clean Energy Initiatives

As of June 2008, the OPA had 18 natural gas-fuelled clean energy supply contracts with a combined capacity of 5,459 MW. Eleven of these have cogeneration capability, with a total capacity of 1,026 MW, and seven of them are combined cycle, for a total capacity of 4,433 MW.

Following are the clean energy initiatives in development or underway as of June 2008:

## **Clean Energy Standard Offer Program (CESOP): Promoting Small Projects Fired by Clean Fuels and High-Efficiency Technologies**

Building on the success of the RESOP, the OPA has designed a similar program to spur the development of small (10 MW or less) clean energy projects and technologies, including natural gas-fired combined heat and power (CHP) projects, by-product fuel-fired projects and generation projects fueled by under-utilized thermal or mechanical energy in industrial operations.

CESOP will compensate small clean energy generators connected to the distribution system, reflecting the various benefits of embedded generation and providing value to Ontario ratepayers. Typical operations that might qualify under CESOP include large greenhouses, institutional buildings with high thermal energy demands, multi-family buildings, industrial facilities, district energy projects and natural gas pressure regulating stations.

As of June 2008, the OPA was developing draft program rules, based on consultation with and feedback from stakeholders, with a view to launching CESOP in the late summer of 2008.

### **CESOP Eligibility and Payment**

CESOP-eligible projects must have an installed generating capacity of no more than 10 MW and must establish a metered connection with an eligible Ontario distribution system at a voltage of no more than 50 kilovolts. Generators must enter into a 20-year contract with the OPA and must meet certain other contractual requirements. Because of transmission system constraints, the OPA will limit CESOP participation in certain areas of the province.

Payments to CESOP generators will vary according to the type of project and will reflect the capacity value of different projects to the OPA. Prospective applicants are strongly advised to examine the CESOP contract rules and other terms as they become available. Watch for updates on the OPA website, [www.powerauthority.on.ca](http://www.powerauthority.on.ca) (look under OPA Initiatives).

### **Combined Heat and Power (CHP)**

In June 2005, the OPA launched an initiative to procure up to 1,000 MW of high-efficiency CHP projects using natural gas, industrial by-product or renewable fuels, including industrial co-generation projects and district energy projects. A Request for Proposals issued in 2006 and known as CHP I resulted in contracts for 414 MW of new CHP projects. A second RFP, known as CHP II and aimed at procuring a further 500 MW of CHP projects, was issued in May 2008 with a view to executing contracts by early 2009.

In April 2008, the OPA received direction to procure approximately 100 MW of CHP projects of more than 10 MW of generating capacity using renewable fuels (CHP III). A Request for Expressions of Interest was issued in June 2008. An RFP will be issued in the summer 2008. The OPA expects to execute contracts under this initiative by the end of the year.

### **For Further Information**

Detailed information on all OPA programs and initiatives can be found on the OPA website at [www.powerauthority.on.ca](http://www.powerauthority.on.ca).

