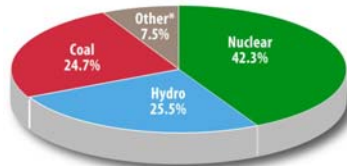




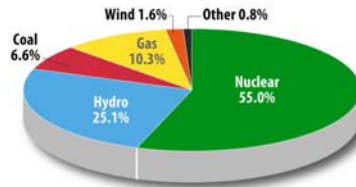
**Ontario: Electricity Supply 2002 & 2009**

Ontario: Electricity Supply 2002



\* Includes Gas, Oil, some Wood Waste Source: IESO

Ontario: Electricity Supply 2009



Source: IESO Jan. 2010



## Ontario Power Generation Profile

- Owned by the Province of Ontario
- Generated 92.5 TWh in 2009
- Produced about 65% of Ontario's electricity
- 11,000 employees
- Capacity: 21,729 MW



3



## OPG Facilities

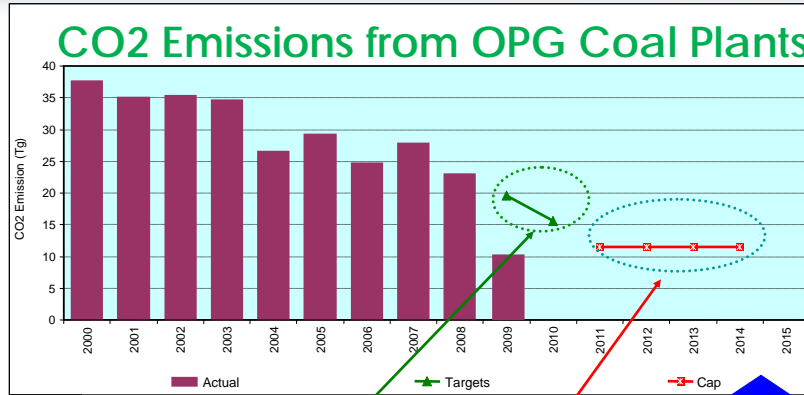


- 3 Nuclear stations (10 units)
- 5 Thermal stations (19 units)
- 65 Hydroelectric stations (4 being redeveloped; 236 operating units)
- 2 Co-Owned Natural Gas stations

4



## CO2 Emissions from OPG Coal Plants



Note: OPG will close two Lambton GS units and two Nanticoke GS units in October 2010

Target based on Shareholder Declaration and Resolution (2008)

Target based on Shareholder Declaration and Resolution (2010)

Use of coal ends under Ontario Regulation O. Reg 496/07



## Why Biomass at OPG Coal Plants?

Atikokan GS



Thunder Bay GS



- Renewable energy
- Available when you need it
- Greenhouse gas benefits significant compared to fossil fuels
- Synergy with Ontario's agriculture and forestry sectors
- Makes use of existing generating stations owned by the people of Ontario
- Lower capital costs



## OPG Repowering Program Scope

- Assess biomass and gas options for conversion of some of the coal fired units at four generating stations
- Outcome > 1,000 MW of biomass-fueled electricity generation capacity
- Help develop Ontario's forest and agriculture biomass fuel supply chain
- Assess advanced biomass fuels
  - torrefied and carbonized

7



## OPG Thermal Generating Stations Considered for Biomass

Atikokan GS 211 MW



Thunder Bay GS 306 MW



Lambton GS 1,920 MW



Nanticoke GS 3,640 MW



**Note:** OPG will close two Lambton GS units and two Nanticoke GS units in October 2010

8



## Biomass Current Focus:

### Atikokan GS

- Conversion to wood-fibre biomass
- Expect full electrical output capability
- Anticipated annual production of around 150 million kilowatt-hours = enough for 12,500 homes
- Annual fuel requirements approximately 90,000 tonnes of dried wood pellets
  - less than 1% of annual 2005/2006 harvest in Northwest Ontario
- Engineering work underway

9



## Biomass: Basic Fuel Requirements

- Pelletized fuel from wood or agriculture – up to 2 to 3 million tonnes per year
- Ontario sourced and processed
- Sustainability standards will be applied



10



## Biomass: Supply Chain Business Model

### OPG will:

- buy pelletized biomass fuel from technically and financially capable counterparties who aggregate raw biomass materials and produce processed fuel
- arrange transportation of processed fuel
- purchase fuel through competitive RFIPs on the basis of well defined technical specifications for pelletized wood biomass and pelletized agricultural biomass
- enter into long term fuel contracts

11



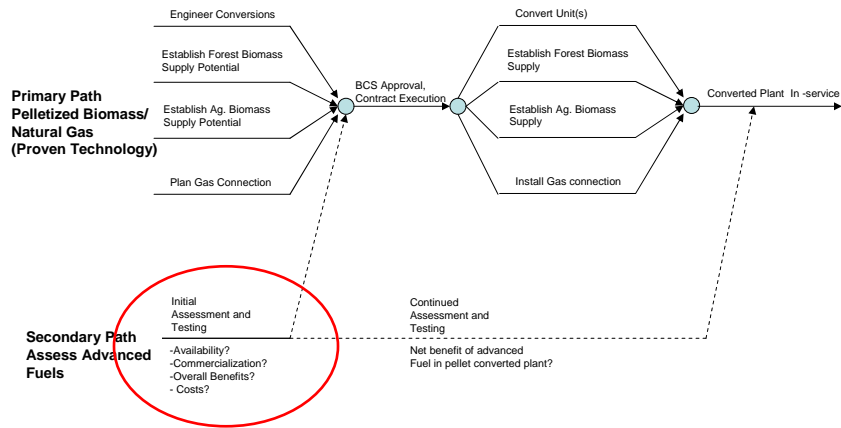
## OPG's "Advanced" Biomass Fuel Program

OPG is conducting an overall assessment of the suitability of advanced biomass for OPG's biomass program. By Assessing:

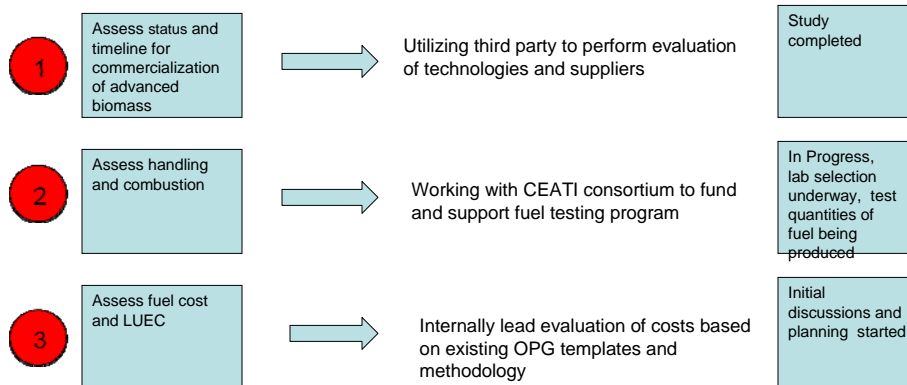
- the status of **torrefaction technologies** and timelines for **commercial scale** production.
- the **storage, handling and combustion characteristics** of advanced biomass.
- the **likely cost** of commercial advanced biomass fuel.

12

## Advanced Biomass in the Context of OPG's Program (General Logic)



## Work Plan





## Next Steps

- Establish cost recovery mechanism
- Plant modifications engineered & contracts let
- Confirm that processed fuel is available at the right price
- Confirm fuel supply chain in place
- Support fuel supply that is sustainable
- Continue to analyze advance fuel options

15

