

# OPG Nanticoke GS

Welcome Agricultural  
Steering Committee  
April 9, 2010



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# OPG: Corporate Profile

PR

- Owned by the Province of Ontario
- 21,729 MW in-service generating capacity
  - 3 nuclear, 5 thermal, 65 hydroelectric stations
- Generated 92.5 TWh of electricity in 2009
- Produces about 66% of Ontario's electricity
- Approx 11,000 employees
- Gross revenue \$5.6 billion in 2009

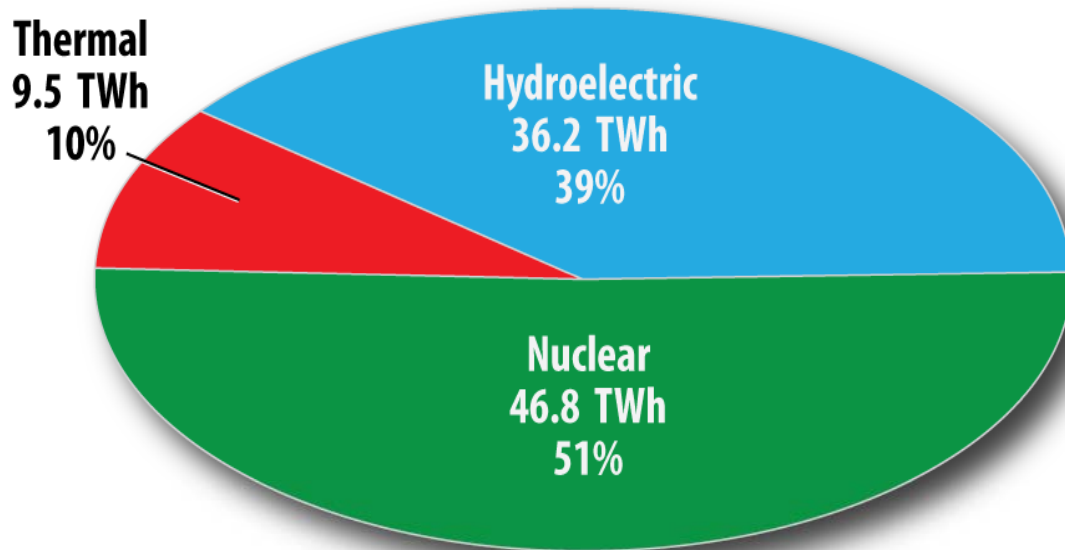


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# OPG Generation Mix: Production 2009

PR

## 2009 OPG Energy Production - 92.5 TWh



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# OPG Thermal Plants - Coal

PR



Nanticoke 3,640 MW



Atikokan 211 MW



Lambton 1,920 MW



Thunder Bay 306 MW

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# Nanticoke GS History

PR

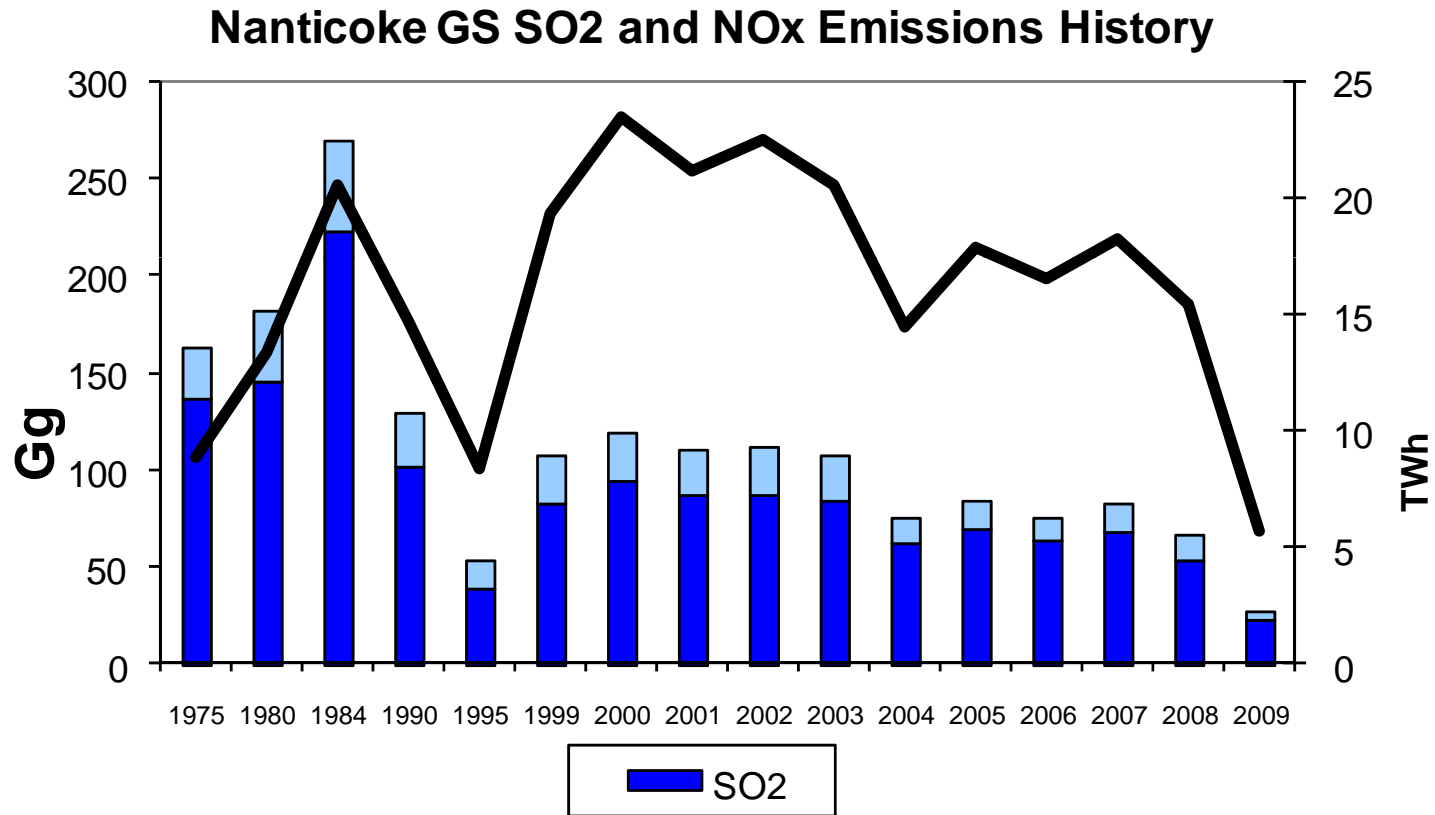
- Construction started September 12, 1968 for four unit 2,000 MW plant
- In 1971, doubled to eight unit 4,000 MW
- January 1972 first power
- 1978 all units in-service
- Construction cost \$840 million
- Annual production 6 TWh to 24 TWh
- Energy produced over 550 TWh



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# Nanticoke Historical Production and Emissions

PR

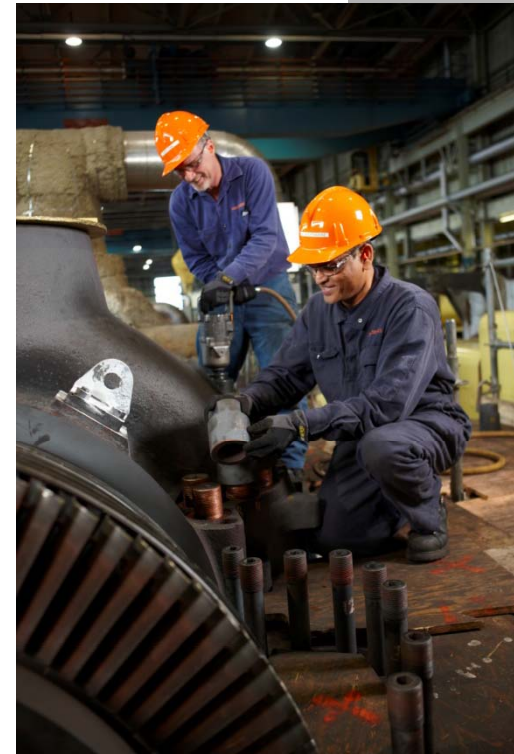


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# Coal Unit Closure Update

PR

- OPG must cease using coal by Dec 31, 2014
- September government announced two units at Lambton and two units at Nanticoke closing.
  - Nanticoke Units 3&4 by October 2010
  - 128 positions at Nanticoke
- Study feasibility of converting four units to biomass/gas



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PR

# Biomass/Repowering Project

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# OPG Thermal Stations Considered for Biomass

PR

Atikokan GS 211 MW



Thunder Bay GS 306 MW



Lambton GS 1,920 MW



Nanticoke GS 3,640 MW



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# Why Biomass at OPG Coal Plants?

PR



Thunder Bay GS



Atikokan GS

- Renewable energy
- On demand when you need it
- Greenhouse gas (GHG) benefits
- Synergy with Ontario's agriculture and forestry sectors
- Makes use of existing plants – lower capital costs

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# Fuel Types

PR

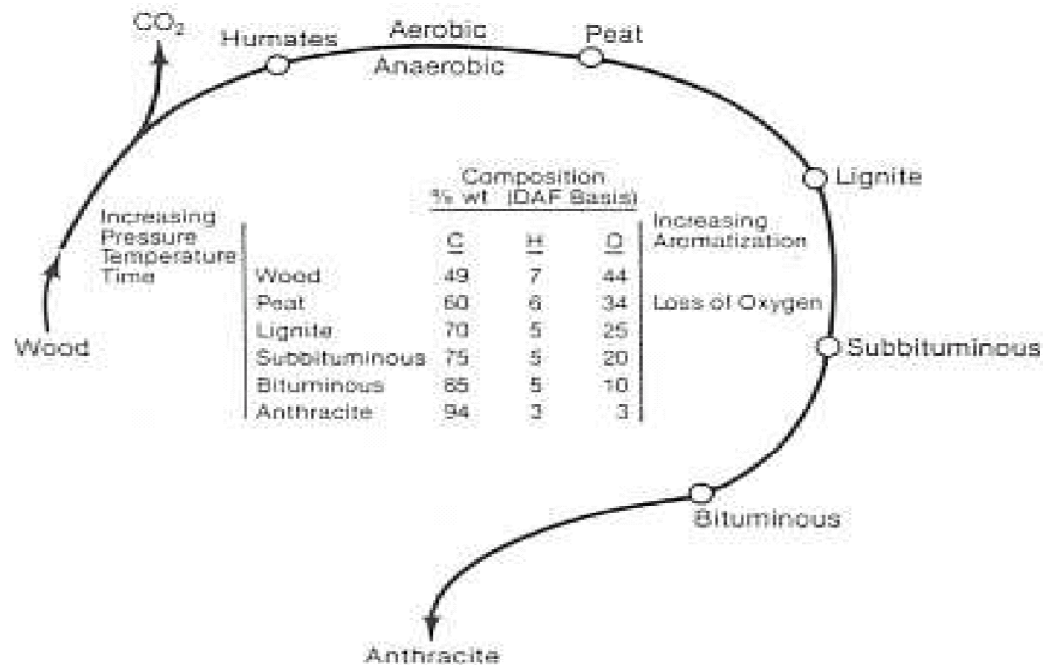
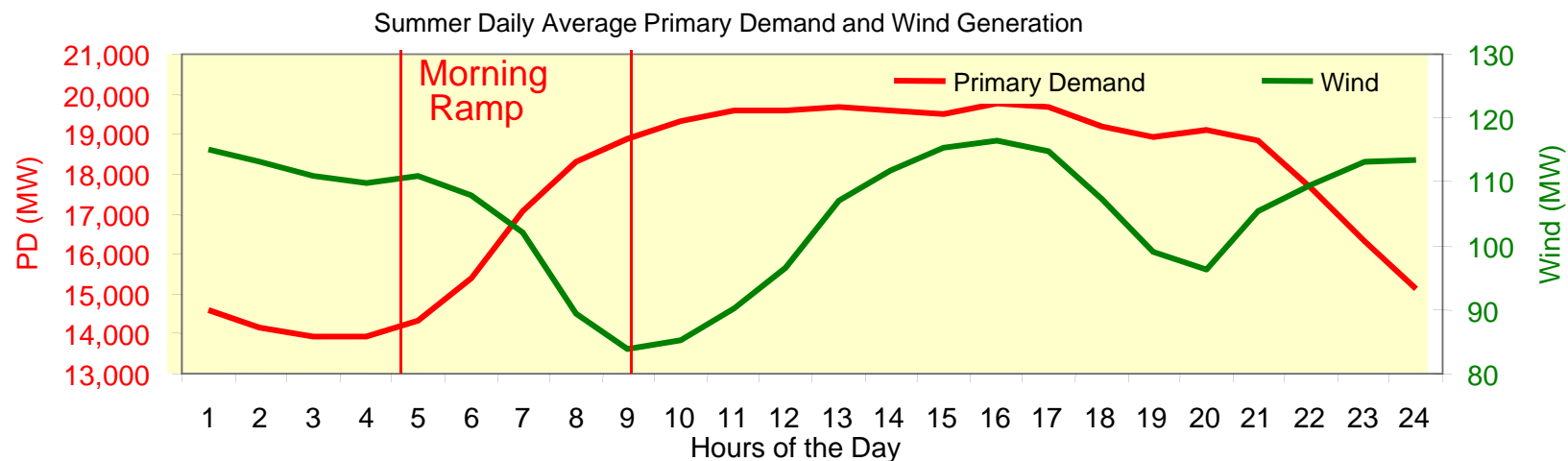


Fig. 9. The coalification process (DAF = dry ash-free).

# Biomass - Enabling Renewables

PR

- Biomass is a renewable fuel that can meet changes in demand
- Biomass generation can increase when wind generation declines

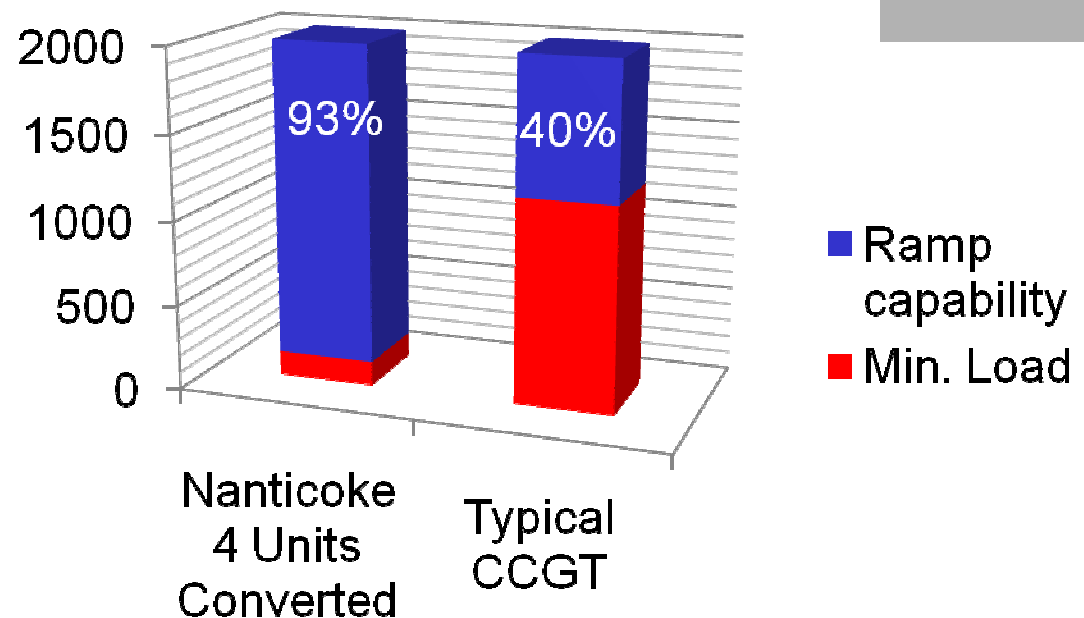


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# Example: System Flexibility

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- Increased flexibility to meet rapid changes in demand
- Lower minimum load can provide ramp while reducing amount of surplus generation



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BS

# Nanticoke Station – Equipment Overview

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# Coal Offloading - Vessel

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# Coal Storage

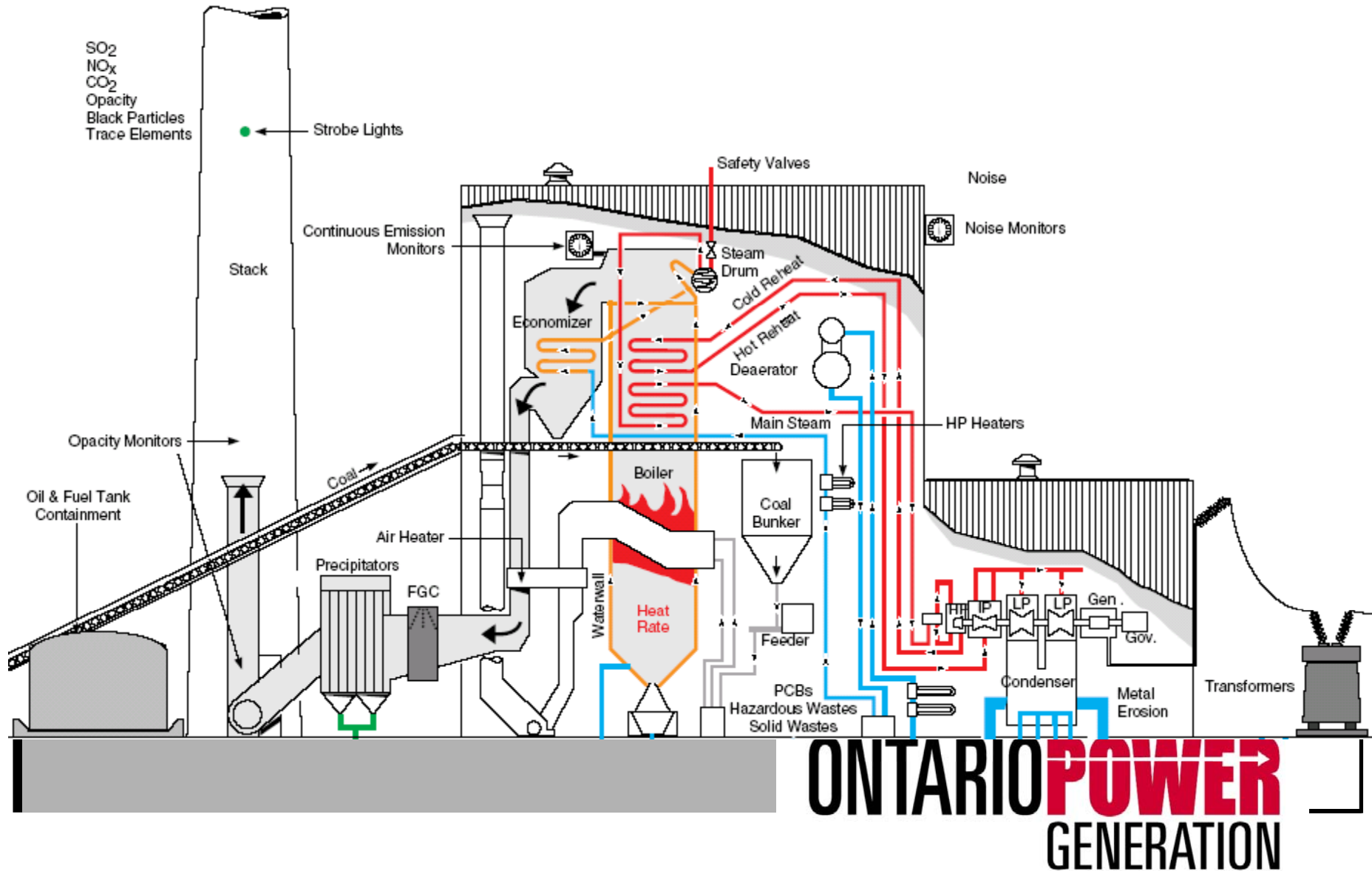
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# Powerhouse Overview

BS



# Tour Route

BS

Group 1	Group 2	Group 3
10th Floor - Boiler Top	U4 Biomass Silos	3rd Floor - Control Room Lobby, Bunkers, Burners, Turbine Hall
6th Floor - Coal Gallery	Ground Floor - Mills, Fans, Boiler Bottom, Precips	10th Floor - Boiler Top
3rd Floor - Control Room Lobby, Bunkers, Burners, Turbine Hall	3rd Floor - Control Room Lobby, Bunkers, Burners, Turbine Hall	6th Floor - Coal Gallery
Ground Floor - Mills, Fans, Boiler Bottom, Precips	6th Floor - Coal Gallery	Ground Floor - Mills, Fans, Boiler Bottom, Precips
U4 Biomass Silos	10th Floor - Boiler Top	U4 Biomass Silos

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# Tour Guidelines

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## **SAFETY ALWAYS!**

- Stay with your guide
- Wear PPE: hard hat, safety boots, safety glasses, earplugs
- Three-point contact
- Industrial environment
- Emergency: Dial 500

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