

3M Canada Combined Heat and Power



3M at a Glance

- *Established in 1902*
- *84,000 employees*
- *Operations in 65 countries*
- *46 technology platforms*
- *Over 55,000 products*
- *Global sales: \$30 billion*
- *3M products sold in nearly 200 countries*



3M Canada Facts

- First 3M subsidiary (1956)
- Employs 1,800 people
- Seven manufacturing facilities
- Main products:
 - *Abrasives, Tapes, Healthcare, Scotchkote and Scotch-Brite*
- First 3M subsidiary to have two ISO 500001 certified plants
- Brockville Tape Plant second in the world and first in Canada SEP with ISO 50001 at platinum level certification



Sustainability at 3M

- 2015 Goals - from 2010 base year, indexed to net sales
 - *Reduce Volatile Air Emissions 15%*
 - *Reduce Waste 10%*
 - *Improve Energy Efficiency 25%*
 - *Reduce Greenhouse Gas Emissions 5%*



Summary

- 3M's Brockville, London, and Perth plants have high enough base load thermal demand to support a load displacement (behind-the-meter) cogeneration system in the 1.1 MWe to 2.0 MWe range.
- The three plants are working on Detailed Engineering Studies to ensure feasibility of the CHP projects
- Brockville Plant's CHP has been approved.

Why CHP?

- Electricity cost for industrial enterprises will rise by 33 per cent in the next five years and 55 per cent in the next 20 according to Ontario's Long Term Energy Plan
- Natural gas price will likely be stable for both US Short Term Energy Outlook (STEO) and NYMEX forecasts averaging slightly above \$5/MMBTU

Why CHP?

- CHP can save over 30% of energy cost
- Recovered heat will be used in production dryers
- Savings help lowering unit cost, making it easier to attract new products and investment
- Low risk: won't impact product quality or plant productivity

Important considerations

- Short Circuit Capacity
- Efficiency of the engine
- Heat recovery
- Delivered cost of electricity, including escalation
- Burner-tip cost of natural gas, including escalation
- Capital cost
- OPA incentive

High Level Financial Results

	Brockville		London		Perth	
	No OPA	With OPA	No OPA	With OPA	No OPA	With OPA
Capacity (MW)	2.0		2.0		1.1	
First Year Savings (\$000's)	940		900		500	
Approx. Capex (\$ million)	4.0		4.0		2.4	
OPA Grant (\$ million)	0.0	1.6	0.0	1.6	0.0	1.0
Actual Payback (years)	4.3	2.9	5.0	3.5	4.5	3.0
20-Year IRR (%)	22	34	20	30	21	32
TS Capacity (MW)	3.5		4		6.2	



Questions

