



uniongas

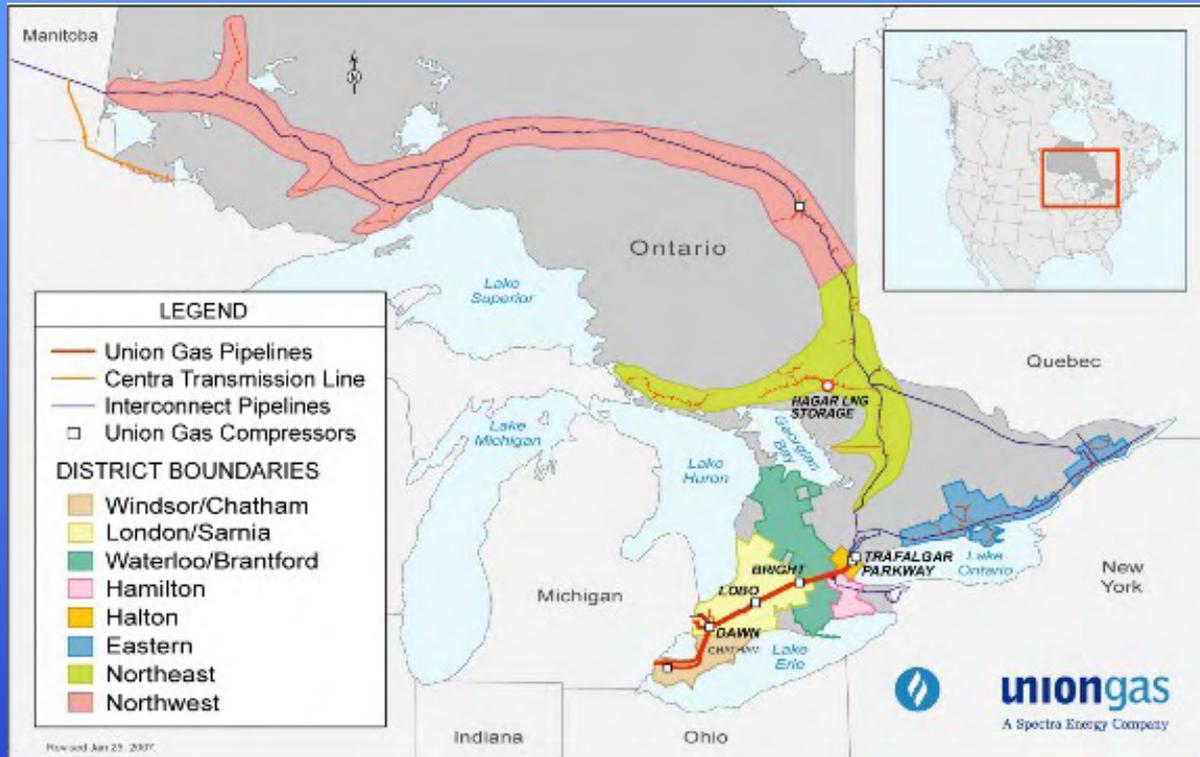
A Spectra Energy Company



Union Gas Approach to Conservation and Sustainable Building

**Union Gas
Corporate Real Estate Services
2007**

Union Gas Franchise



- Union Gas serves 1.3 million customers in 400 Communities
- 63 Union Gas Administrative Buildings in Ontario
- 800 Fleet Vehicles for Union Gas Field Representatives

Union Gas LEED Buildings

Replace three existing Service Centres

- Approx. 22,500 sq. ft
 - Approx. 40,000 sq.
 - Approx. 30,000 sq. ft.
 - Opening From April 08 – Dec. 09
- These buildings consist of Office Space and Service Areas
 - Our goal is to meet Gold Certification



Environment Sustainability



- Union Gas has made a commitment to sustainability
- Our approach to green building solutions, promotion of unique and innovative technologies, reduces demands on utilities and services
- These buildings have higher initial costs due to new construction practices, materials and types of equipment
- As a result of the practices, a high quality building that is environmentally friendly providing users with more controllable work environment.



Environment Sustainability



- Due to the significant reduction in potable water, electricity & natural gas, the economics support this additional investment over the life of the building
- As a result there is a reduction in demand for Municipal Infrastructure; waste disposal, potable water, electrical power & natural gas services
- Challenges are:
 - new concepts and approaches to security/property protection
 - selling power back to the electrical grid
 - understanding new equipment and technologies as they relate to the Building Code.



Transportation & Site Selection



- ❑ Union Gas' LEED Sites are on or close to public transit routes for employees.
- ❑ The use of bicycle racks and preferred parking for employee pool cars are provided. Hybrid fleet vehicles will be provided to some roles.
- ❑ Our Field Utility Service Representatives take home their Service Vehicle reducing the need to access our building on a daily basis.
- ❑ Building sites are selected based on convenient access for Field Service Reps near major transportation corridors.



Innovation Building Operations



- ❑ After normal working hours, the building will go into sleep mode shutting down all ventilation equipment and electrical services except for emergency lighting and security technologies.
- ❑ Heat to maintain building temperature in winter will be provided from the thermal storage tank circulating hot water to the perimeter of the building.
- ❑ Infrared cameras provide continuous video surveillance of fenced in compound, turning on yard lighting and notifying Chatham Security of an intrusion.
- ❑ If an employee requires access to the building after hours, their ID access card will; unlock doors, open the gate, turn lights on & activate the ventilation system if required.
- ❑ The estimated electrical night load is between 10 & 20 KWs



Water Management



- ❑ Union Gas' new LEED Buildings will capture rain water in under ground cisterns. This non-potable water will be used to flush low flow toilets and urinals.
- ❑ The landscaping will be of drought resistant native vegetation and will not receive regular irrigation.
- ❑ Storm water flow control is managed on site. Stringent erosion & sediment control are adhered to during construction.
- ❑ Utilizing these processes will save as much as 70% of potable water consumption compared to a conventional building.



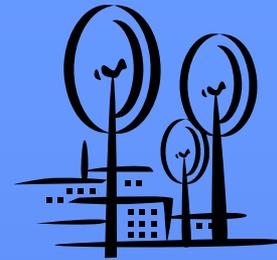
Waste Management & Recycling



- ❑ Construction practices shall utilize strict criteria regarding waste by diverting as much as 75% of material from landfill site.
- ❑ Waste management will continue once the building is operational by recycling paper, aluminum can, plastic bottles, paint cans, oil, scrap metal (pipe), batteries and fluorescent lamp tubes.
- ❑ Continual promotion to reduce and reuse, to divert waste from landfill sites.



Energy Utilization



- ❑ On-site co-generation or tri-generation systems using natural gas fueled micro-turbine or advanced reciprocating engine technologies
- ❑ These generation systems will produce enough electrical power to meet all the needs of the building
- ❑ The waste heat from the micro turbine or reciprocating engine will be utilized to provide heating and/or cooling (TriGen/ CoGen Technology)
- ❑ Underground thermal storage heated during the day will be utilized at night to temper building when generator is not operational
- ❑ The combination of highly efficient building, equipment and building automation controls will reduce electrical demand by 25% or greater than standard Canadian Energy Code Compliant Buildings
- ❑ At our new sites we are working with the local PUC's to sell back power to the electrical grid



Questions

