



toronto hydro energy services

Delivering sustainable energy savings

Today's Presentation

1. Introductions
2. Background & History
3. Who is Toronto Hydro Energy Services Inc.?
4. Why Toronto Hydro Energy Services?
5. What is Cogeneration?
6. Where is this being planned to be built? What is there now?
7. What is it going to look like?
8. What are the emissions like?
9. How noisy is this going to be?
10. What are the benefits?

A little bit of background

- Toronto Hydro Energy Services (TH Energy) and Toronto Water have been discussing working together at the Ashbridges Bay site.
- Toronto Water wanted to develop a solution that not only maximized the utilization of their available “biogas” but also addressed their need to install an Emergency Power Standby System.
- Toronto Water engaged a consulting firm to assess their Emergency Power Requirements for Ashbridges Bay Treatment Plant. This report recommended between 12 to 18 MW of standby power, depending upon operating conditions.
- 12 MW of standby generator capacity could cost Toronto residents between \$10 to \$15 million dollars to implement, plus maintenance.



Who is Toronto Hydro Energy Services?



- One of three independent companies owned by Toronto Hydro Corporation.
- Sole Shareholder is City of Toronto
- TH Energy is a licensed generator in the province of Ontario and holds a Renewable Energy Standard Offer Program Contract with the Ontario Power Authority for the Exhibition Place Wind Turbine.

Why Toronto Hydro Energy?

✓ Solution Developed - TH Energy along with Toronto Water developed a solution which addresses Toronto Water's critical requirements.

✓ Recommended to City Council - Toronto Water staff recommended to City Council to permit it to negotiate an agreement, on behalf of the City, with TH Energy.

✓ Approved by City Council - "City staff authorized to negotiate related agreements for TH Energy to undertake cogeneration projects at Dufferin, Ashbridges Bay Treatment Plant, Thackeray and Highland Creek Treatment Plant"

[Toronto City Council approval - P&F Committee Report 5, Clause 27]

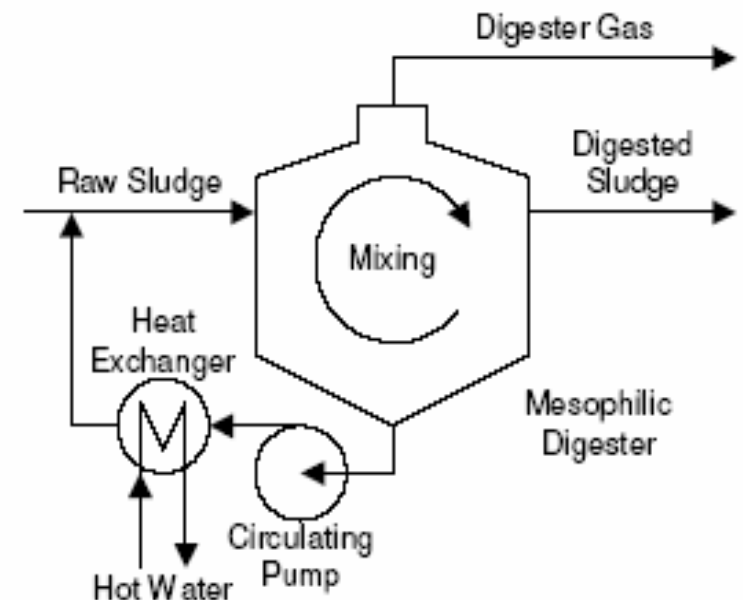


What is “Biogas”?

Biogas refers to a gas produced by the biological breakdown of organic matter in the absence of oxygen. Depending upon where it is produced it is also referred to as swamp gas, marsh gas, landfill gas or digester gas.

At the Ashbridges Bay plant part of the waste water treatment process includes sending the sludge to digesters where the microbes and bacteria process and stabilize the waste stream and produce “biogas” or digester gas.

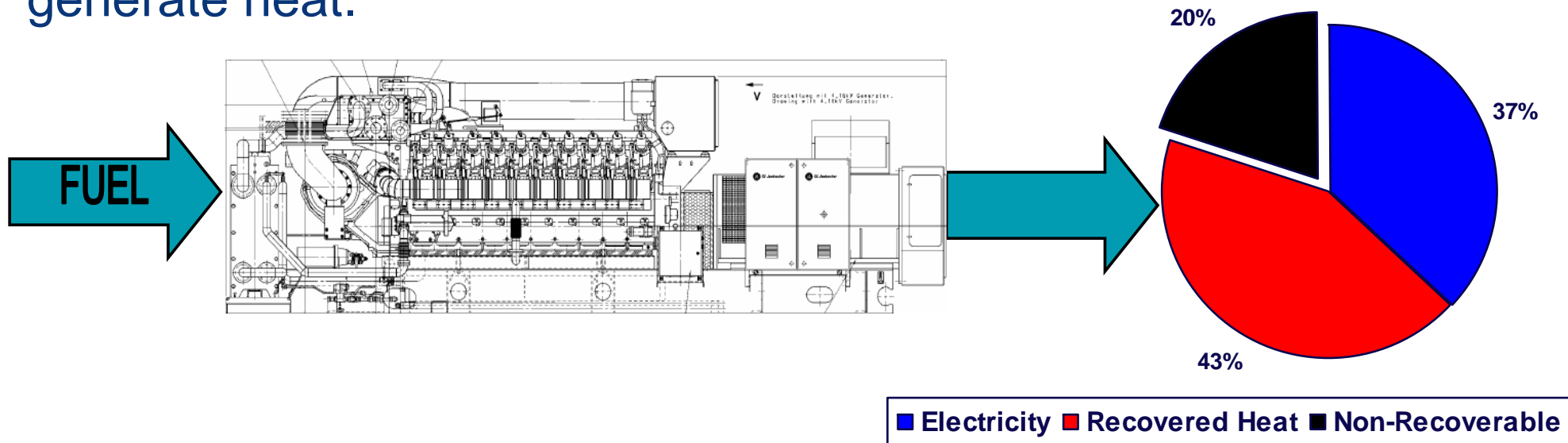
Digester gas is typically composed of 60%+ of methane and the balance is largely carbon dioxide.



What is cogeneration?

Cogeneration is the simultaneous production of useable heat and electrical power from a single process or piece of equipment. It is also referred to as combined heat & power.

Cogeneration maximizes the utilization of the fuel we use to generate power. It also is a means to generate a higher value energy, in the form of electricity, from fuels we often use just to generate heat.

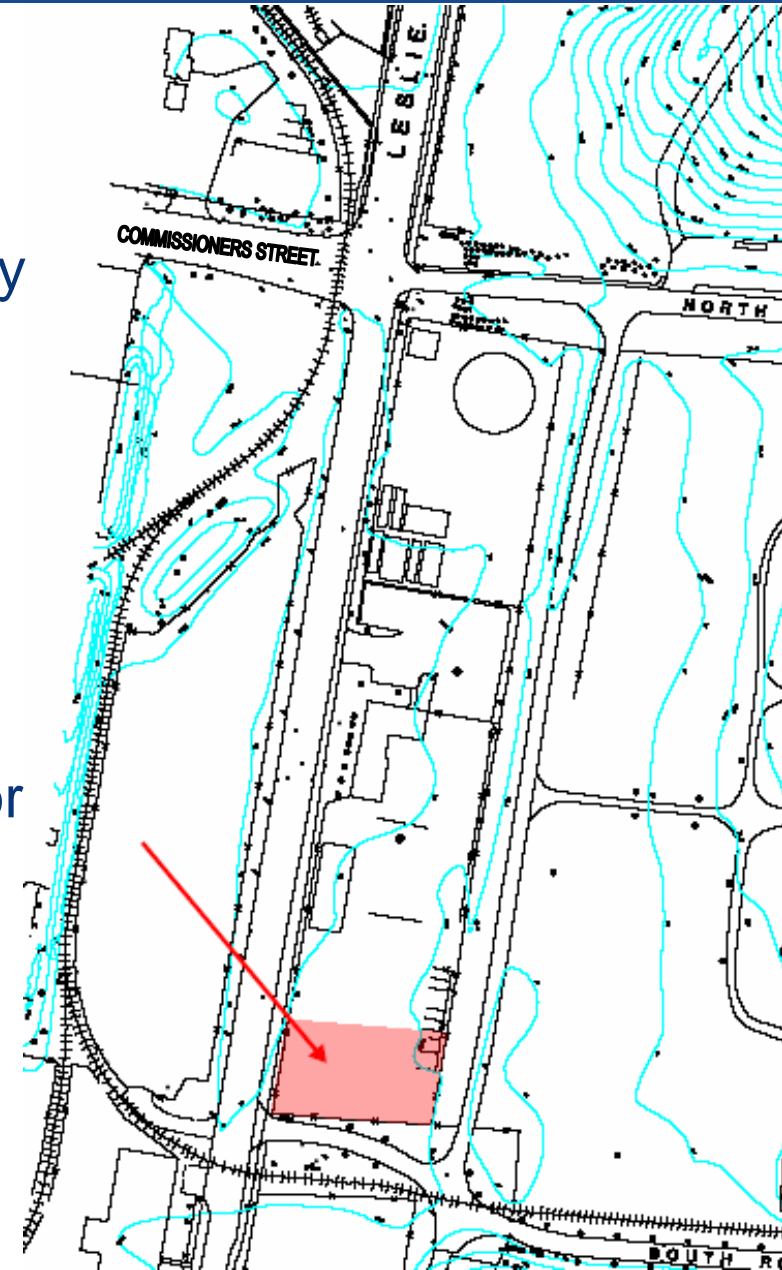


Where are you planning on building this and why there?

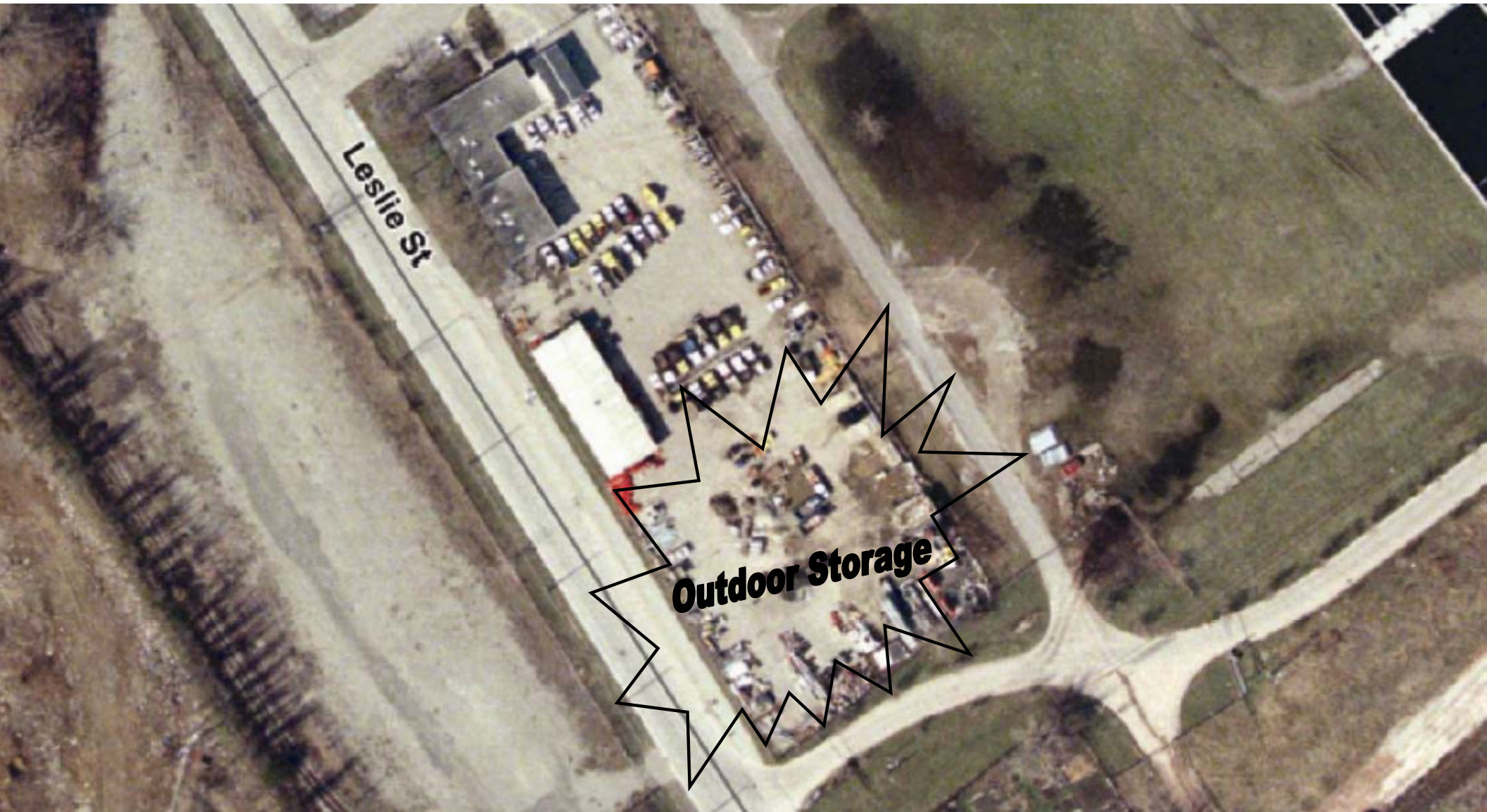
TH Energy and Toronto Water are in discussions with Transportation Services to utilize a small portion of City of Toronto Property that they occupy on Leslie St. which is contiguous to the Ashbridges Bay Plant site.

This location provides TH Energy with independent access and site control from Toronto Water. Proximity to Leslie St. provides ready access to services. The off site location relieves anticipated facility congestion issues for Toronto Water.

The property occupied by Transportation Services is owned by the City of Toronto.

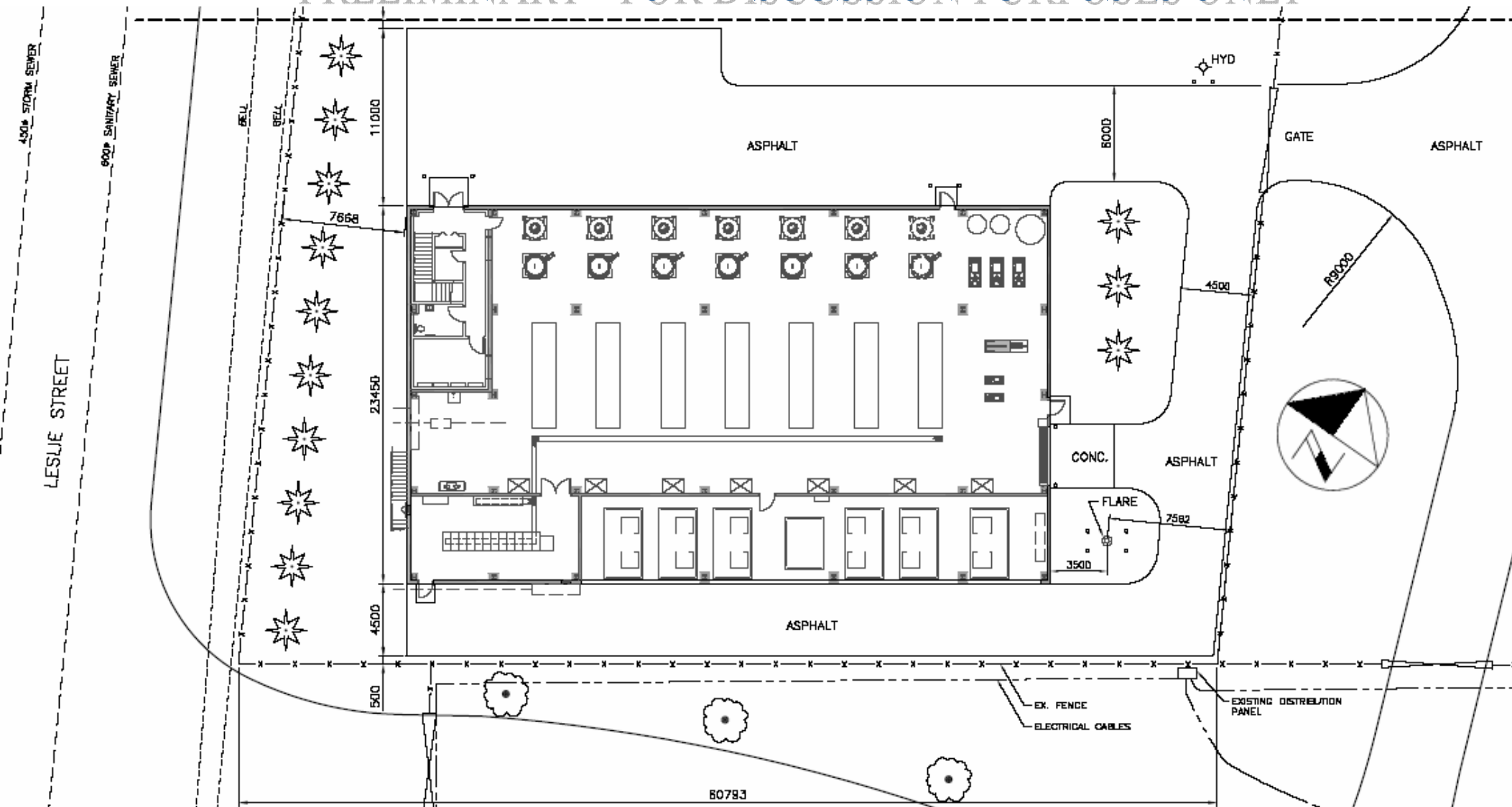


What is that area used for now?

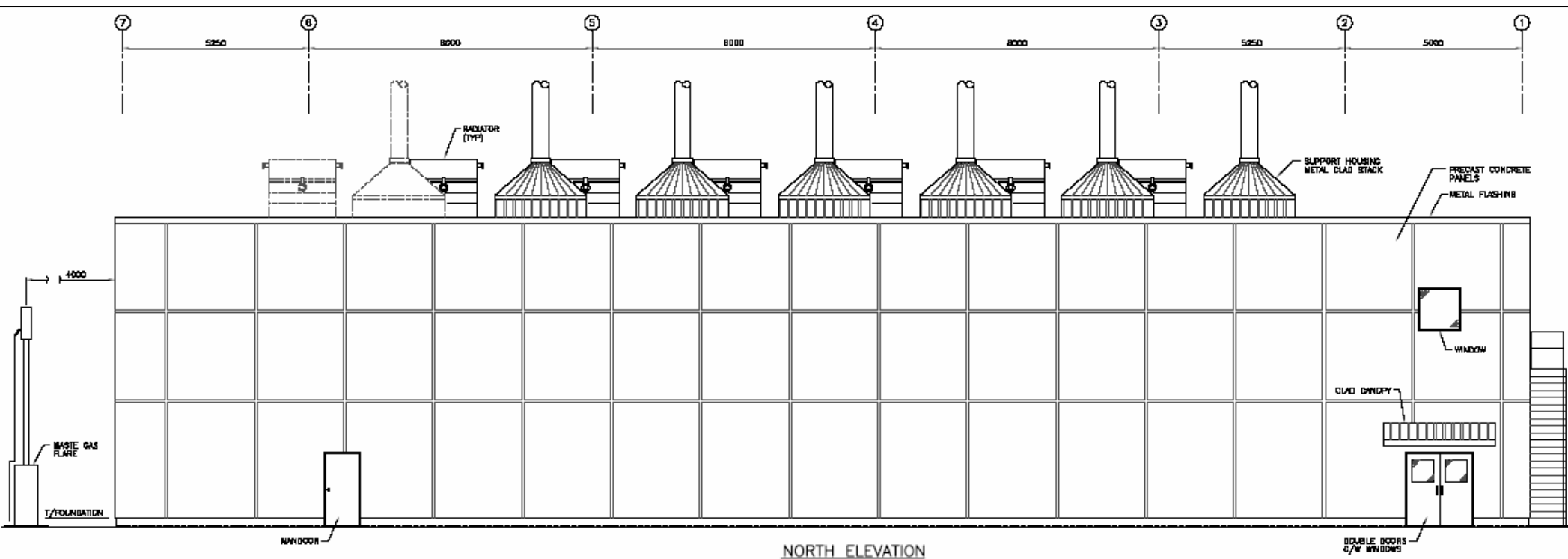


What is this going to look like?

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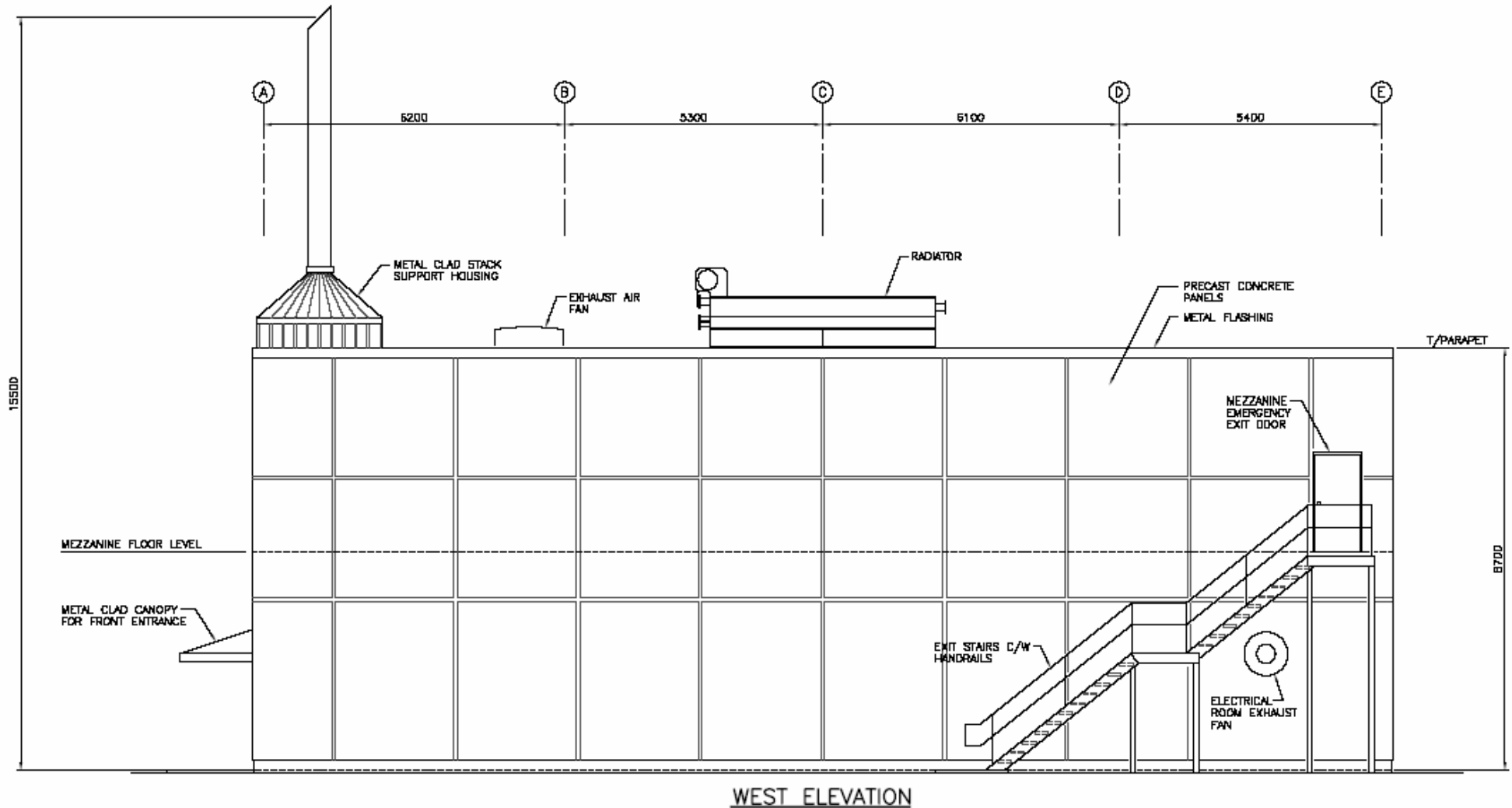


What is this going to look like?



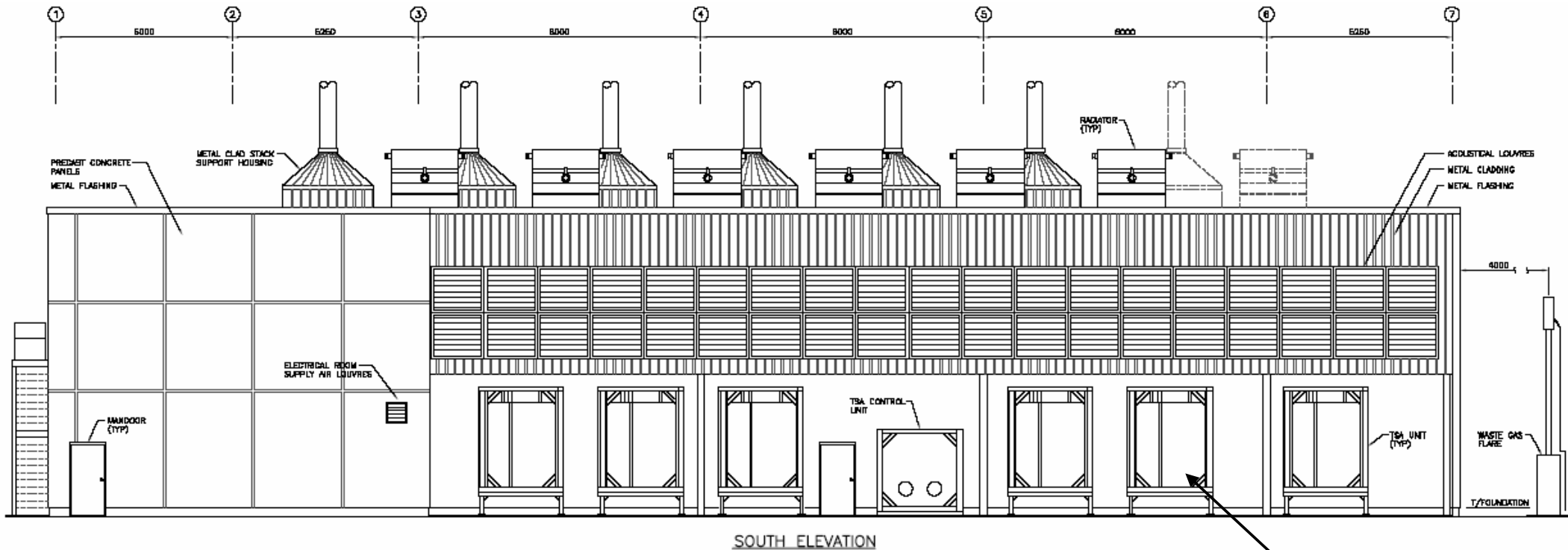
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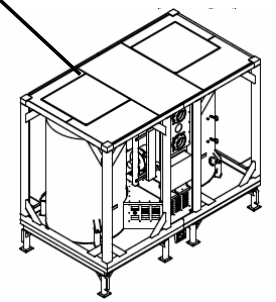


PRELIMINARY - FOR DISCUSSION PURPOSES ONLY

What is this going to look like?



SOUTH ELEVATION



PRELIMINARY - FOR DISCUSSION PURPOSES ONLY

What are the air emissions like?

- There will be no discernable smell or aroma from the plant or its stacks.
- As the “digester gas” is a gaseous fuel there are no particulate emissions.
- The plant will meet all applicable provincial regulatory requirements for air emissions.
- Air emissions will be as low or lower than most natural gas fired engine-generator power plants.



How noisy is this going to be?

- Sound attenuation equipment will be installed on air intakes and exhausts to maintain facility generated noise levels to ambient levels.
- The sound levels generated will be predicted through models and submitted to the Ministry of Environment for review and approval.
- The process includes monitoring of existing sound/noise levels within the neighbourhood including any “critical” noise receptors.
- The sound levels for people standing at the street would be like a car driving by at a distance 5 to 10 metres or standing 1 to 2 metres from a residential air conditioning unit.



What are the benefits?

- Maximize utilization of valuable biogas, a renewable resource!
- 8 MW of Emergency Power capacity available to Ashbridge's Bay Treatment Plant. Security of Waste Water Plant Operations during local/regional electricity outages!
- Replace over 60% of electricity drawn from the grid by Ashbridges Bay Treatment Plant!
- **Net emissions reduction of at least 10,000-15,000 tonnes of greenhouse gases (CO₂) annually!**



Questions?

