


# Renewable Energy Management & Services Company (REMASCO)


## Environmental Screening Process Studies Presentation and Public Consultation

(ESP Public Meeting – August 22, 2011)



### OVERVIEW

- REMASCO designed, constructed and has successfully operated its proprietary gasification technology over the past 3yrs. The REMASCO system incorporates state-of-the-art air pollution control.
- Throughout this time, REMASCO was permitted as a pilot facility to demonstrate that its technology is capable of reliable and economic operation while meeting all applicable environmental performance standards set by the MOE.



### OVERVIEW

- In Jan 2011, REMASCO formally announced its intentions to seek full approval under the MOE’s Environmental Screening Process (ESP) in accordance with Ontario’s Environmental Assessment Act. This public meeting forms a part of REMASCO’s public consultation process as mandated by the ESP approvals process.



### OVERVIEW

- REMASCO designed its systems specifically to use an engineered fuel pellet (Enerpax) produced from residential waste. The pellets are produced at the Dongara Pelleting plant in Woodbridge, north of Toronto.




Each load of pellets received by REMASCO is accompanied by a Certificate of Analysis!

The CofA provides an analysis of contaminants, including metals and chlorine.

**REMASCO**  
Securing your future in energy

## OVERVIEW

The pelletizing of municipal waste is not new but has not traditionally been very successful.

So, What's Different Now?

- Source Separation (recycling) efforts have improved and expanded to include organics and kitchen waste, traditionally problematic streams due to high moisture and odour.
- The technology now exists to better identify, classify and sort each piece of waste material in real time. This not only includes ferrous and non-ferrous metals but also different types of plastics and materials of varying densities (batteries and electronic waste traditionally being particularly troublesome).

**REMASCO**  
Securing your future in energy

## OVERVIEW

Waste Derived Fuel Pellets (cont'd)

- Europe and recently the US have legislation to permit and promote the use of highly processed, homogeneous waste materials as renewable fuels. Such qualified, waste derived fuels are allowed to be used in appropriately designed boiler systems and/or used to co-fire with other fuels such as coal (ie: in cement kilns and coal fired utility boilers).
- Waste Management Inc. (WMI), the largest waste management company in the US and Canada is presently commissioning the first of up to 30 large waste pelletizing facilities it is proposing to construct over the next 5 years.

**REMASCO**  
Securing your future in energy

## OVERVIEW

- Unlike other greenhouse operations in Ontario, all of which are exempt from meeting any emission standards, use of the Enerpax fuel pellet requires that REMASCO seek and obtain a permit from the Ontario Ministry of Environment for each REMASCO installation. Even after approval, REMASCO will be required to undertake annual emissions testing and be subject to continuing oversight and reporting requirements from the MOE.

**REMASCO**  
Securing your future in energy

## OVERVIEW

### SCOPE OF ESP – Each Site/Expansion Requires Approval

**REMASCO AGRIVILLE EXPANSION**

- Four 500hp UNITS for 60 acres
- 100 tonnes/day
- 1700 GJ/day Thermal
- 4000 tonnes on-site storage


**REMASCO SSGH/MucciPac EXPANSION**

- Seven 500hp UNITS for 110 acres
- 145 tonnes/day
- 2800 GJ/day Thermal
- 48 m<sup>3</sup>/day Electrical
- 4000 tonnes on-site storage

**Legend**

- Existing = 100 acres
- =2011 Expansion = 30 acres
- =2012 Expansion = 48 acres
- Total = 178 acres

Map center: 360354, 4656154  
Scale: 1:25,000




## PUBLIC CONSULTATION

- This public meeting forms part of REMASCO's extensive public consultation process, an integral part of the MOE Environmental Screening Process (ESP).
- After having undertaken all of the appropriate environmental impact studies, including a comprehensive, peer reviewed Cumulative Effects & Process Upset Air Quality Report and Human Health Risk Assessment, REMASCO is seeking any additional input from you, public agencies and other stakeholders to confirm if any unanswered questions or unaddressed issues remain.
- Your input is important.




## PUBLIC CONSULTATION

- Since its inception 4yrs ago, REMASCO has been open and transparent while verifying and testing its technology. Throughout that period REMASCO has:
  - Provided regular updates to Kingsville and Leamington Councils. These updates included both, our successes and failures.
  - Hosted REMASCO plant tours for Kingsville Council and many other municipal and provincial representatives.
  - Established and maintained the REMASCO Public Liaison Committee (RPLC). Since 2007, the RPLC has met twice each year and is open to receiving additional members from the public.
  - Been featured in a several newspaper articles, trade magazines and local television news clips.



## PUBLIC CONSULTATION

- More specifically as part of the ESP process, REMASCO has undertaken the following public consultation efforts.
  - Sent Notices of Commencement, invitations to a March 30<sup>th</sup> Open House and this Public Meeting to approx. 300 parties, including residents within 500m radius of the existing/proposed sites, municipal council members, County and Provincial agencies, First Nations representatives and published the same in local newspapers.
  - Conducted plant tour for Kingsville Council on March 10<sup>th</sup>.
  - Conducted public Open House of REMASCO on March 30<sup>th</sup>.
  - Appeared on an ATV news segment May 5<sup>th</sup>.



## ESP STUDIES

- The REMASCO ESP studies/assessments/considerations undertaken as part of the ESP process will be discussed in more detail later, but the major studies included:
  - Air Emissions Modeling and Dispersion Study  
AJ Chandler & Associates Inc.
  - Human Health Risk Assessment  
Intrinsic Environmental Sciences Inc.
- In addition to commissioning these studies, REMASCO provided the financial support necessary to allow the Town of Kingsville to retain their own, independent consultant to review and comment on these studies. Stantec was the consultant chosen by the Town and presented a summary of their findings to Council on August 15<sup>th</sup>.



**REMASCO**  
Securing your future in energy

## ESP STUDIES

- Tonight's presenters/attendees include:
  - John Chandler – AJ Chandler & Associates
  - Elliot Sigal / Erin McGregor – Intrinsic Environmental Sciences Inc.
  - Ruwan Jayasinghe – Stantec
  - Bert Mucci – Southshore Greenhouses

**REMASCO**  
Securing your future in energy

## TECHNOLOGY OVERVIEW

- REMASCO has designed, constructed and operated its own, proprietary gasification technology over the past 4yrs.
- Complying with Ontario's stringent emission standards is a significant accomplishment.
- Recognize that Ontario's emission standards are set more stringently than required to protect human and animal HEALTH. They are set to reflect state-of-the-art technology PERFORMANCE and are regularly reviewed and tightened to reflect improvements in technology.
- Recognize that despite Ontario's farms (including greenhouses) being EXEMPT from meeting any emission standards whatsoever, REMASCO systems have been and will continue to be subjected to regular testing and continual MOE oversight.

**REMASCO**  
Securing your future in energy

### REMASCO PROTOTYPE 2007-08



**REMASCO**  
Securing your future in energy

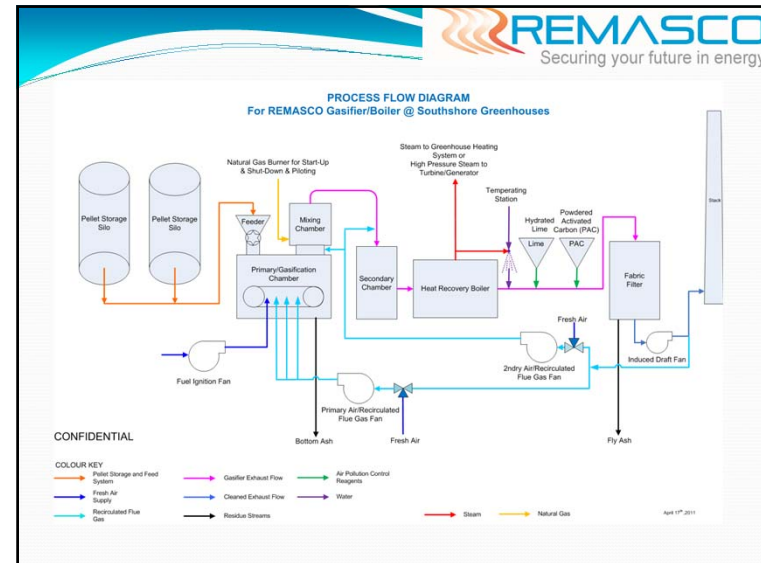
### REMASCO PILOT PLANT 2009-Present



*Unit 2 Recirculated Flue Gas & Steam Injection*



## REMASCO PELLET BINS & BAGHOUSES




## TECHNOLOGY OVERVIEW

- REMASCO gasifiers use a proprietary grate design that ensures excellent combustion air distribution while producing minimal wear and tear on the grate.
- REMASCO gasifiers employ three separate stages of gasification/combustion to ensure good mixing, complete combustion, low NO<sub>x</sub> emissions and higher thermal efficiencies.
- REMASCO gasification systems employ a proprietary, on-line boiler tube cleaning system that helps ensure the tubes remain clean at all times.
- REMASCO gasification systems employ a proprietary means of maintaining gas velocity through the boiler tubes throughout all operating ranges, from full load to part load operation. This plays an important role in the emissions abatement of the system.

## TECHNOLOGY OVERVIEW


- REMASCO gasification technology is unique in:
  - Its small size (less than ¼ the size of traditional, small industrial/utility units).
  - Its flexibility to viably process many different types of difficult-to-process fuels, including most energy crops and crop residues. It can be applied to a close-coupled boiler (as at Southshore) or the syn-gas can be captured, cleaned and used to fire a reciprocating engine or turbine (future).
  - The REMASCO gasification technology can vary the degree of gasification from very aggressive (high temperature in an oxygen rich atmosphere) to very gentle pyrolysis (low temperature in an inert environment) to produce char.



## OUTSTANDING TECHNICAL UNCERTAINTIES


**NONE**

- Operationally, the REMASCO units have performed very well. They have reliably produced rated output for more than 10 continuous weeks without requiring a shutdown.
- Economically, the units have performed according to the REMASCO business model (although natural gas is presently slightly cheaper).
- Environmentally, the units and air pollution control systems have demonstrated their ability to meet all of the very stringent MOE compliance criteria.



## REMASCO ENVIRONMENTAL PERFORMANCE

- REMASCO has invested more than \$6.5M and 4yrs developing and proving its technology. More than \$400K has been spent on independent, environmental testing alone.
- All environmental testing has been conducted by an independent, third party.
- All environmental testing procedures and methodologies were approved by the Ministry of Environment and witnessed by MOE personnel.
- The modeling of the air emissions from REMASCO used actual test data collected and supplied by AMEC Earth and Environmental, the testing company, not REMASCO. This test data formed the basis for the Air Modeling Study and Human Health Risk Assessment.



## REMASCO TRANSPARENCY COMMITMENT

- Since 2007, REMASCO has maintained the RPLC and kept the Kingsville Council current on both REMASCO's progress AND difficulties.
- The owners & operators of REMASCO are local residents and business owners who need to uphold and protect their good and valuable reputations.
- Unlike any other greenhouse energy producers, the MOE permanently oversees all REMASCO facilities and requires regular emissions testing to ensure facilities & equipment are properly operated and maintained.