

## 1. Introduction

- LAS Recycling Ltd:
- Established in 1963
  - Diversified into Waste and recycling management in the 1980s



Figure 1 Location of LAS

## 2. Operation

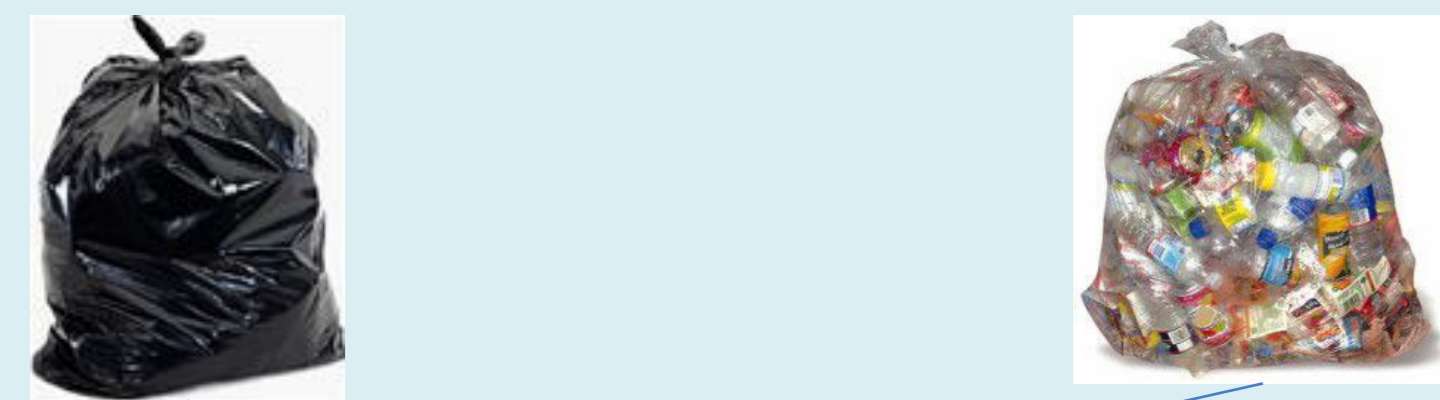


Figure 2 Black and Clear bags

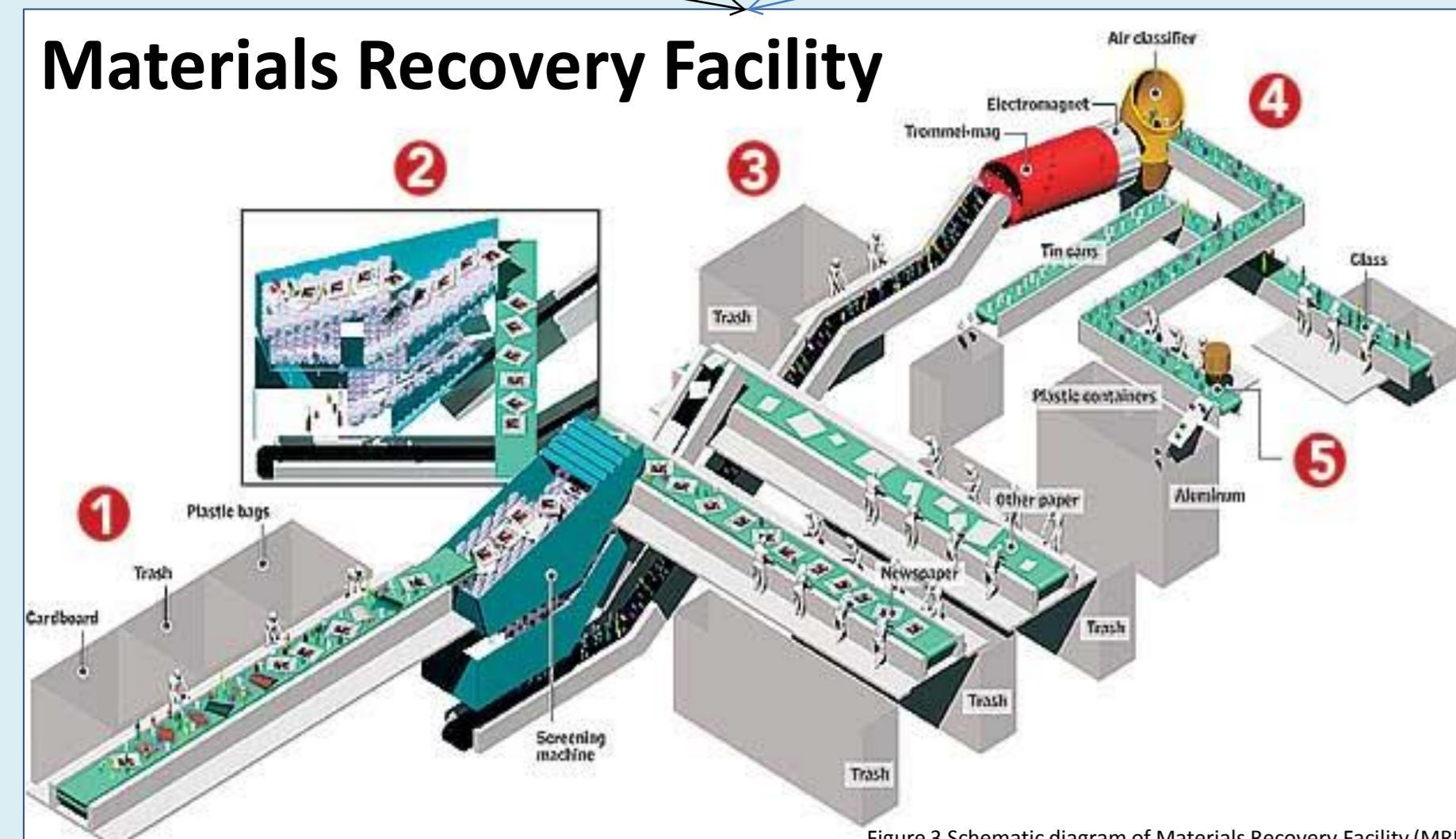


Figure 3 Schematic diagram of Materials Recovery Facility (MRF)

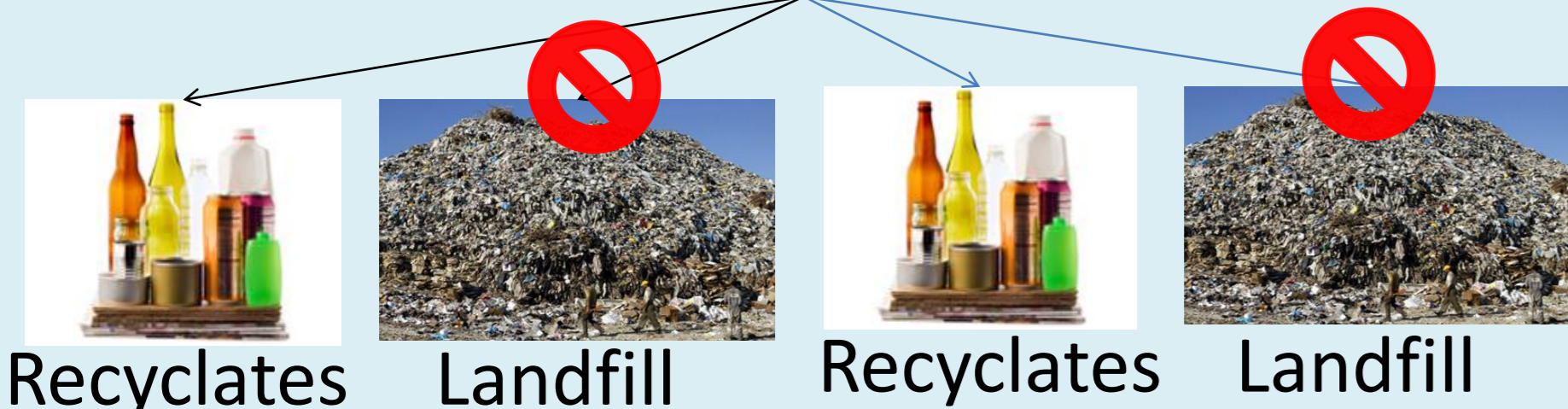


Figure 4 Recyclates Figure 5 Landfill site

See point 6.

## 3. Challenge

- Environmental consequences:
- Possible contamination of water streams and land
- Costs associated with landfill tax
- Legislation determines reduction of use of landfill

## 4. Proposed Solution

Integration of EfW system

### EfW process

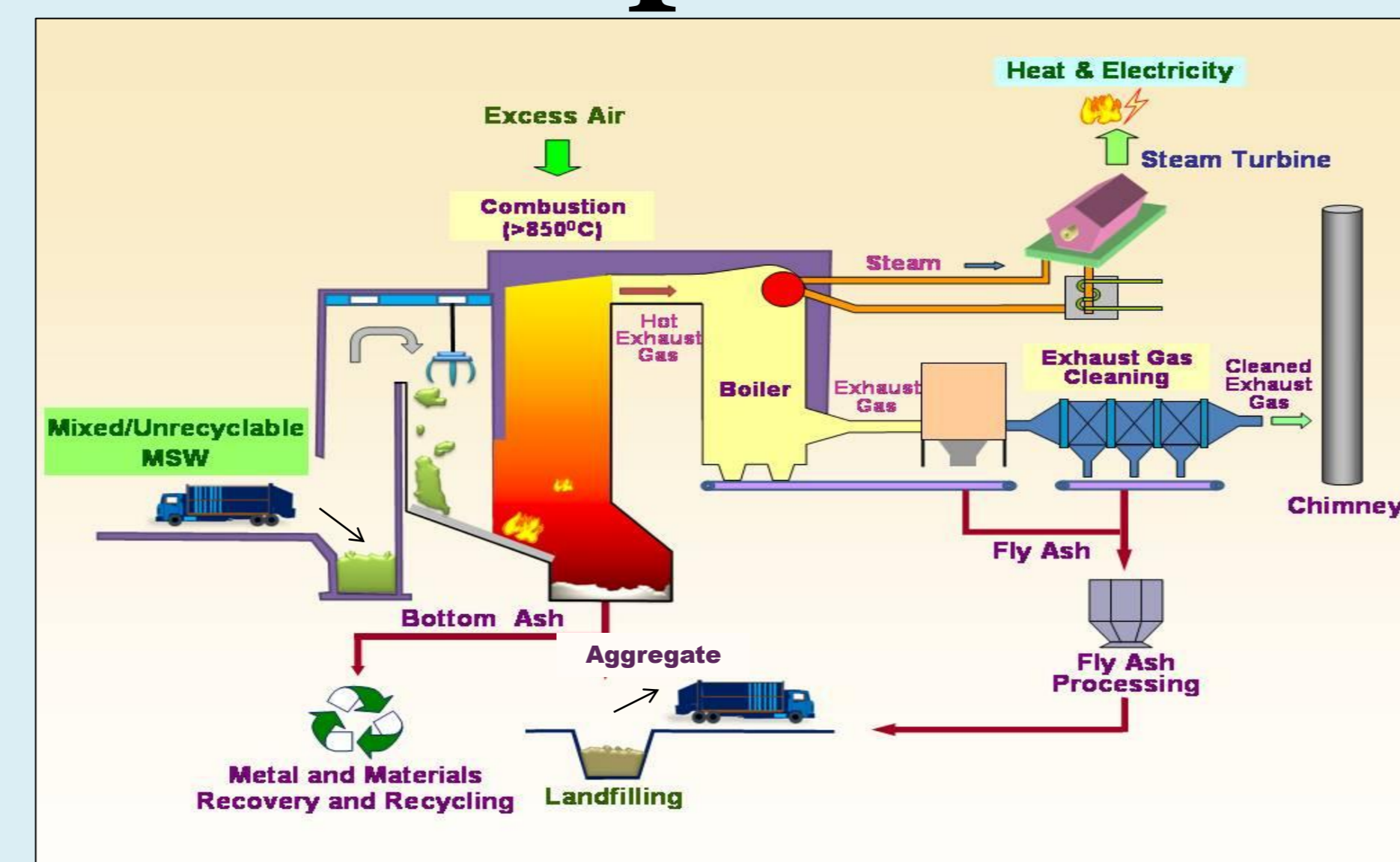


Figure 6 Diagram of EfW process

## 5. Objective

Is the waste suitable as a fuel for EfW? Consider points below (as plotted on graph):

- Calorific Value (CV) (chemical energy stored in materials)
- Moisture content (quantity of water present in materials)
- Available tonnages

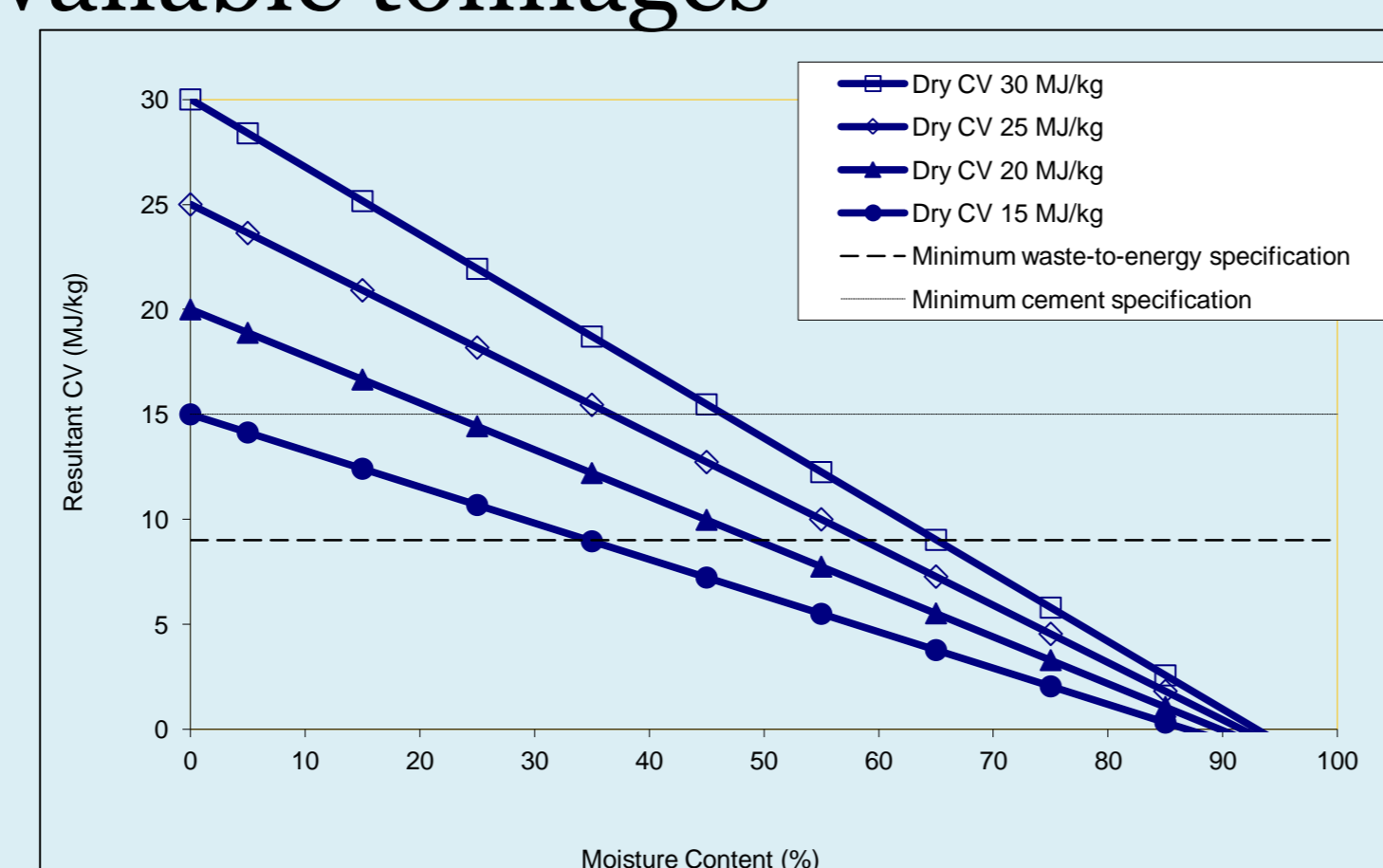


Figure 7 CV \* moisture content

## 6. Waste characterisation

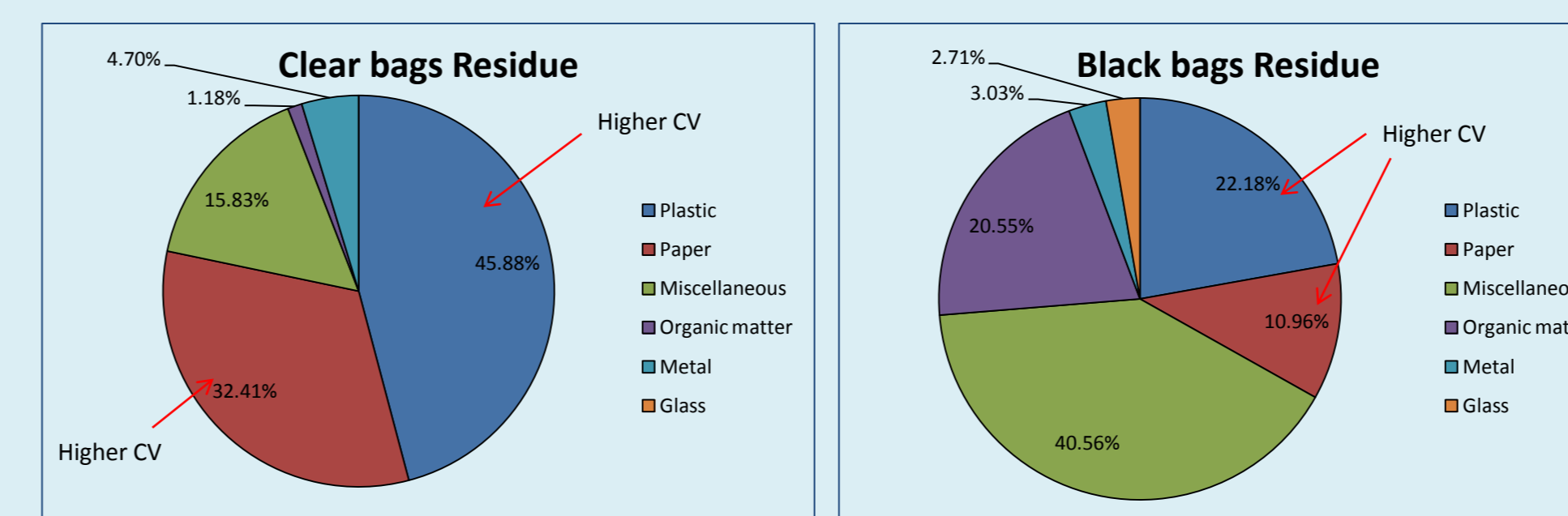
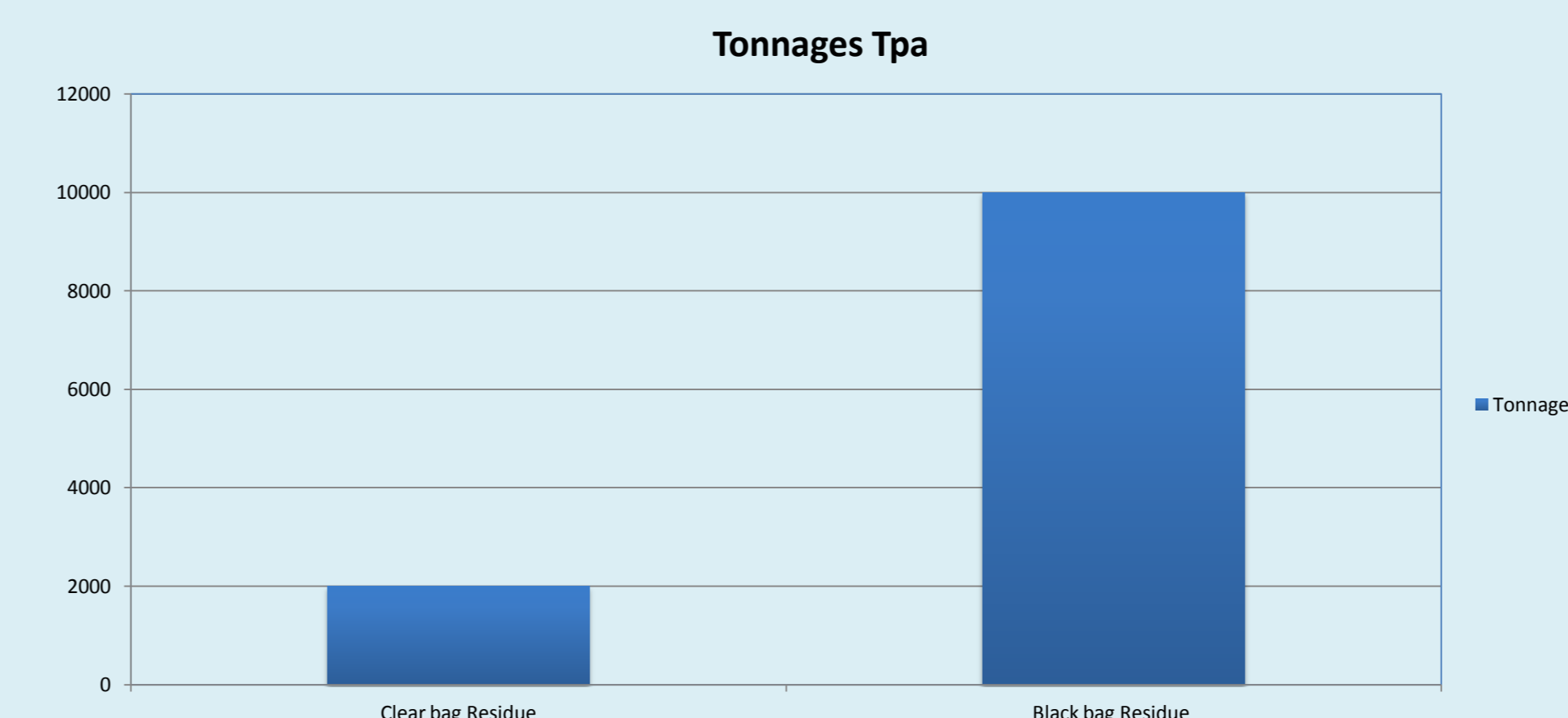


Figure 8 Clear and black bags residue

- High quantity of plastic and paper
- Greater release of energy in combustion



- Available Black bag residue tonnage is greater than clear bag residue tonnage

## 7. CV enhancement options

- Remove waste with a low calorific value content to condense overall composition
- Add more waste with a high calorific value, such as tyres
- Dry all materials in order to increase their Calorific value (CV)

## 8. Findings

- Trials confirmed large quantities of Plastic and Paper to be present in both streams
- Plastic and Paper have a high CV and are therefore suitable fuel for EfW systems

## 9. Benefits

- LAS now has strong data to demonstrate the most profitable waste streams
- LAS (by implementing an EfW system) will bring to the community added value benefits such as:
  - Landfill reduction
  - Heat and Power supply for local industry and population
  - Economic stimulus for the local economy, resulting in job creation
  - Research publications,
  - Innovative research applications

## 10. Future work

- Designing sensitivity models to demonstrate key elements in EfW processes
- Understanding key legislation and its impacts on the company
- Carrying out waste material trials at testing facilities

## 11. References

- Map of Wales: <http://homepage.ntlworld.com/geogdata/new/map.htm>
- Black Bag: <http://www.dorsetforyou.com/extranubbish/west>
- Clear bag: <http://www.postpack.co.uk/catalog/recycle-bags-1.html>
- MRF: <http://www.sirecycles.org/residents/mrf.asp>
- EFW: [http://www.epd.gov.hk/epd/english/environmentshk/waste/prob\\_solutions/Wfdev\\_IWMtech.htm](http://www.epd.gov.hk/epd/english/environmentshk/waste/prob_solutions/Wfdev_IWMtech.htm)
- CV\*Moisture content graph
- And 8. Kate Ladeira Lima "Waste characterisation"