



## Residual Waste Study

# Joint Waste Management Group

Meeting #6

(May 30<sup>th</sup>, 2006)

## Consulting Team's Recommendation on the Preferred "Alternative To"





- ◆ Environmental Assessment Process and Timelines
- ◆ Alternative Residuals Processing Systems Considered
- ◆ Advantages and Disadvantages of Alternatives and Recommended Residuals Processing System
- ◆ Public and Agency Consultation on Consultants Conclusion and Issues Identified
- ◆ Next Steps



## Environmental Assessment Process & Timelines

### Residual Waste Study

- ◆ EA Terms of Reference developed during 2005 and Approved on March 31, 2006
- ◆ **Consideration of “Alternatives To” and selection of a preferred Residuals Processing System – June 2006**
- ◆ Consideration of “Alternatives Methods” and selection of a preferred Facility Site – Spring 2007
- ◆ Selection of a Specific Technology and Vendor – Fall 2007
- ◆ Detailed Site Specific Studies – late 2007 & early 2008
- ◆ Submission and Approval of EA – End of 2008
- ◆ Construction of Facility – 2009 & 2010
- ◆ Facility Operational - 2011



- ◆ **To process - physically, biologically and/or thermally – the waste that remains after the application of both Regions’ at-source waste diversion programs in order to recover resources - both material and energy - and to minimize the amount of material requiring landfill disposal.**
- ◆ **In proceeding with this undertaking only those approaches that will meet or exceed all regulatory requirements will be considered.**



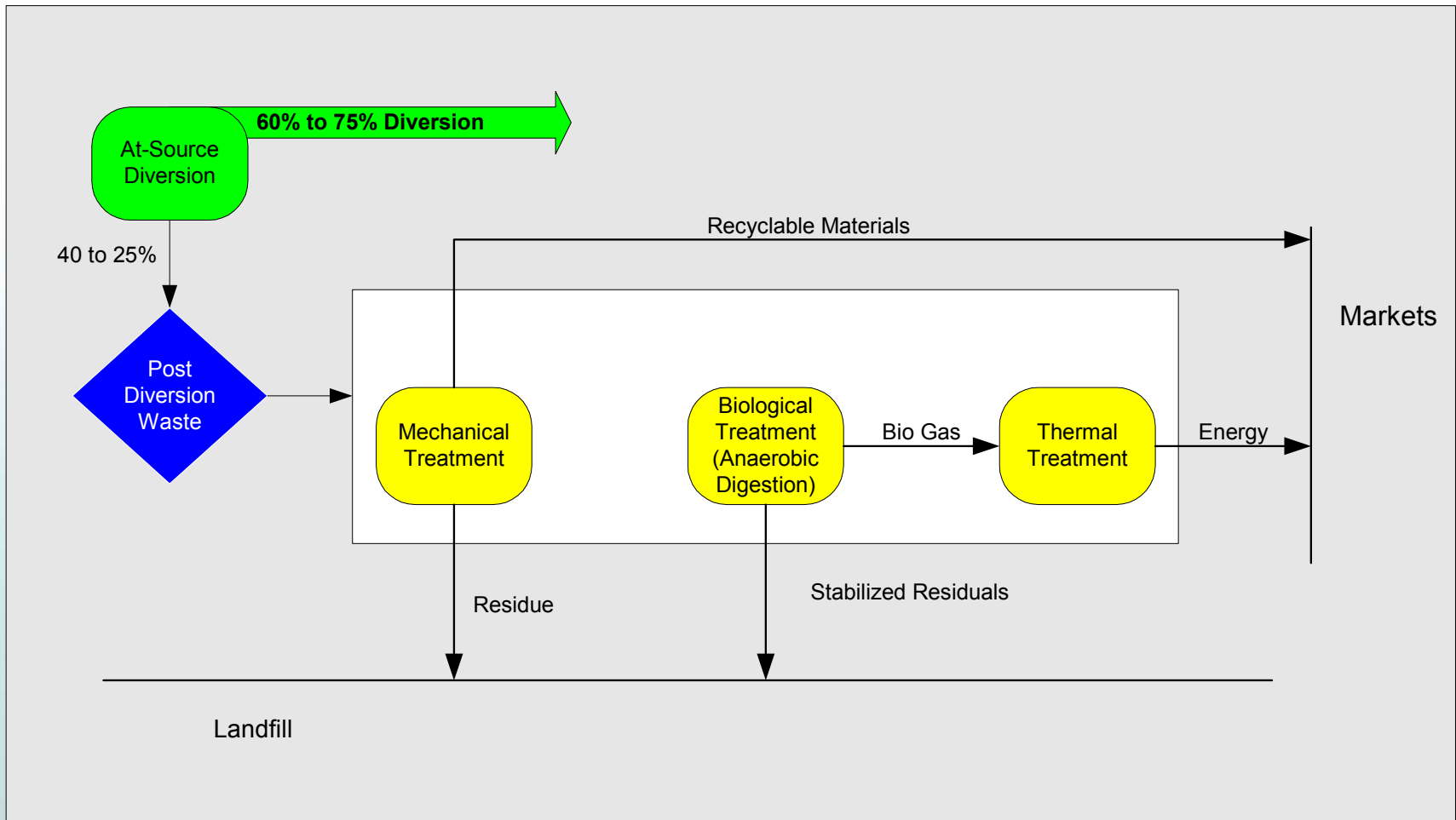
- ◆ 2005 diversion at 36% in Durham & 32% in York
- ◆ Need full implementation of expanded recycling, SSO programs & drop-off depots
- ◆ Need additional promotional programs and incentives to get to 60% by 2011
- ◆ If 60% diversion achieved need initial Capacity of 250,000 tpy in 2011
- ◆ If diversion grows to 75% then no facility expansion required, otherwise may expand to 400,000 tpy

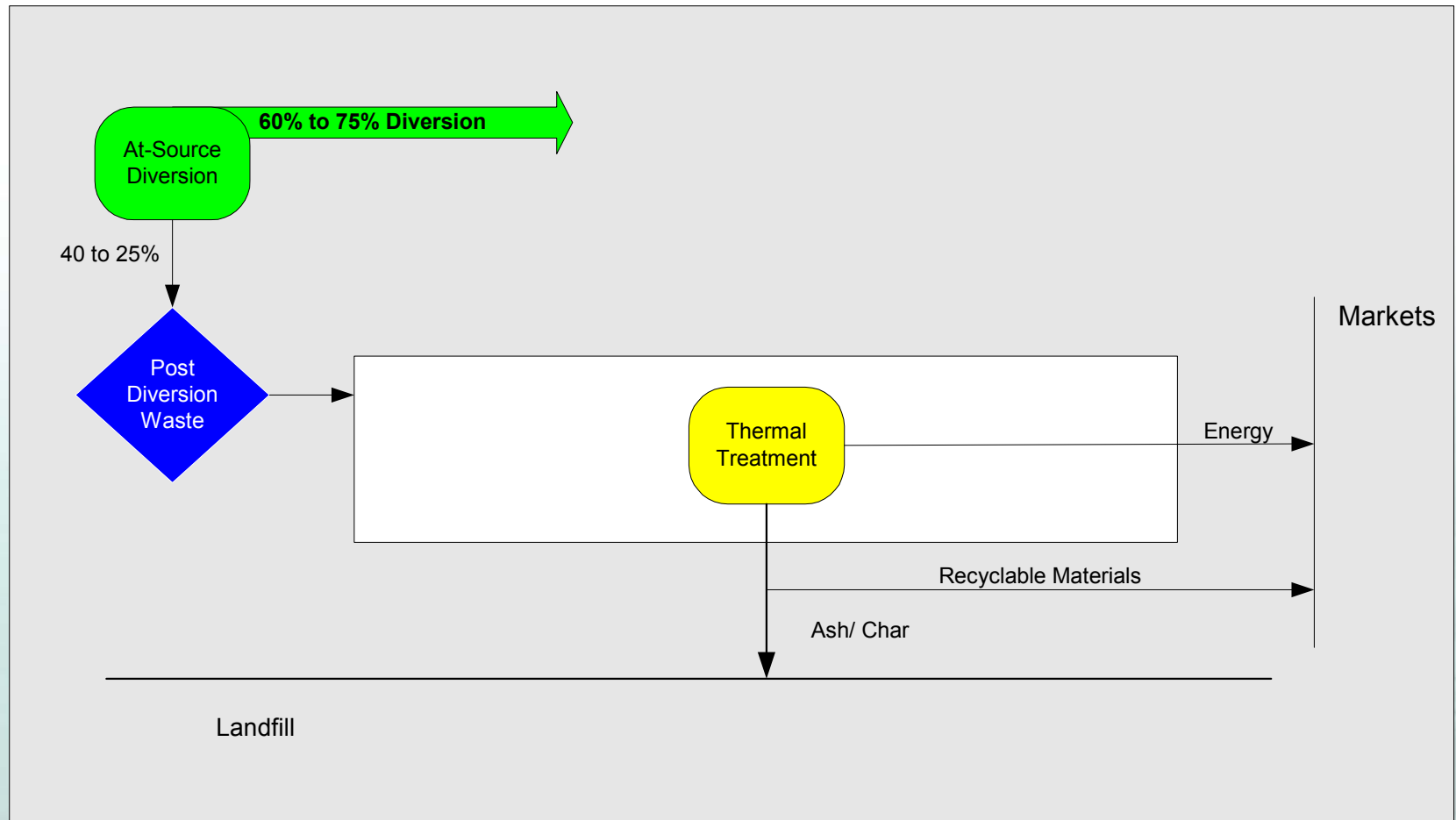


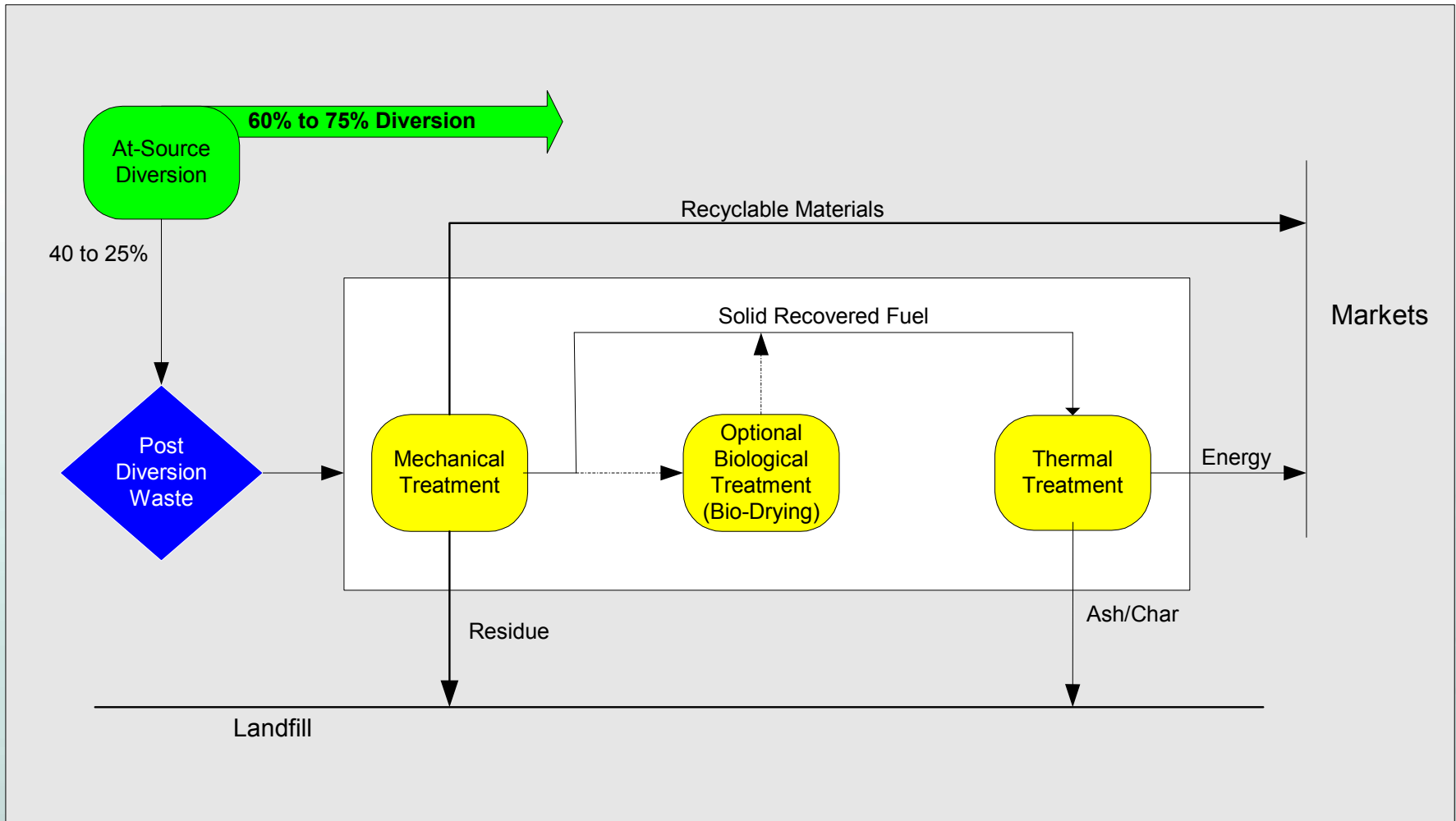
- ◆ Four functionally different alternatives to recover materials and energy
- ◆ Alternative Systems
  - ◆ 1 Mechanical, Biological Treatment with Recovery of Biogas
  - ◆ 2(a) Thermal Treatment of MSW & Recovery of Materials from Ash/Char
  - ◆ 2(b) Thermal Treatment of Solid Recovered Fuel
  - ◆ 2(c) Thermal Treatment of Solid Recovered Fuel with Biogas Recovery
- ◆ All alternatives have some residue that requires landfill disposal

# System 1: Mechanical and Biological Treatment with Biogas Recovery

## Residual Waste Study

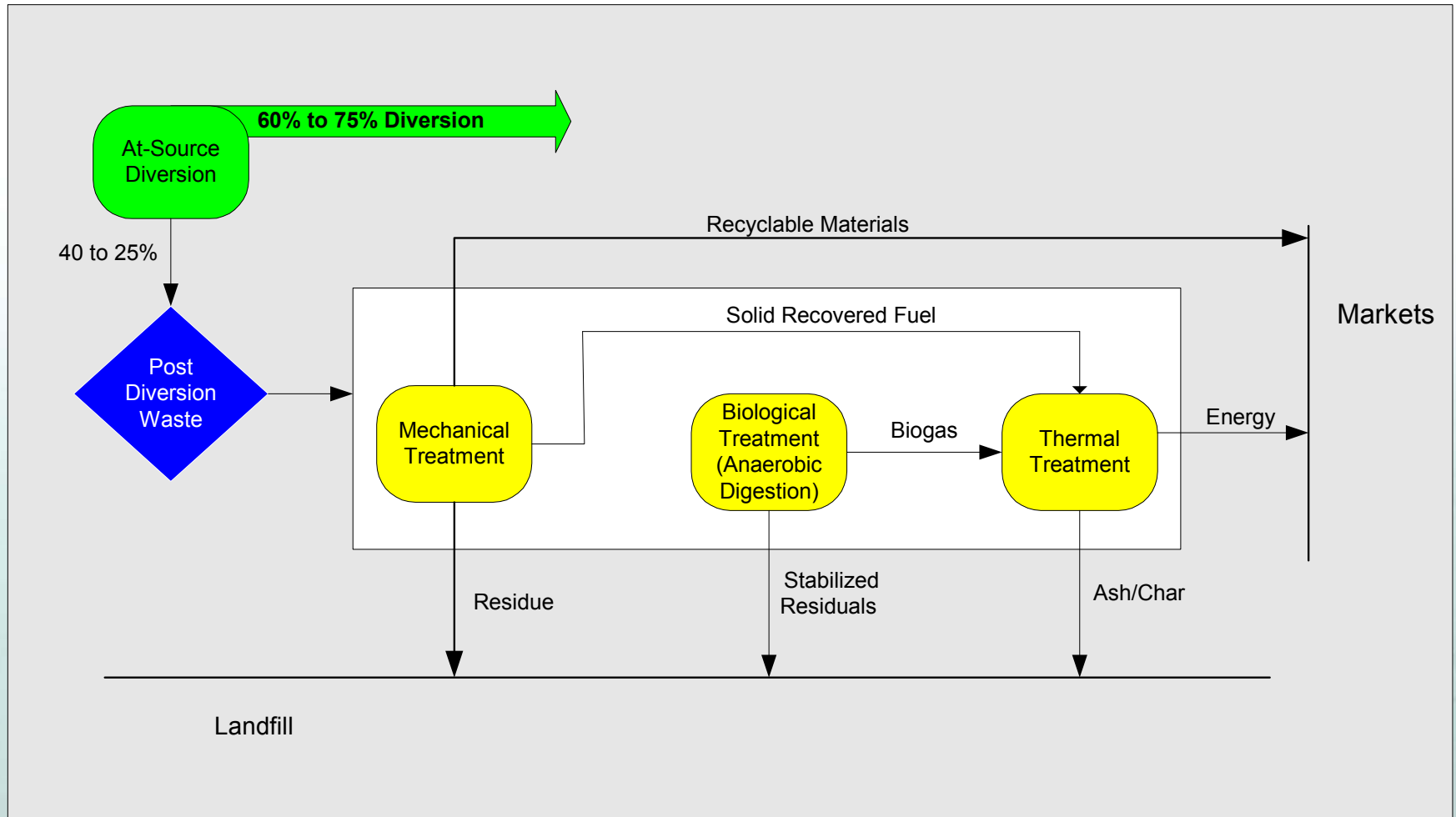






# System 2c: Thermal Treatment of Solid Recovered Fuel with Biogas Recovery

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◆ **Advantages**

- ◆ Lowest potential impacts on air environment
- ◆ More flexible to changes in waste quantities & composition
- ◆ Potentially lower system costs provided low cost landfill can be obtained
- ◆ Potential to increase diversion through recovery of additional recyclables – advantage shared with Alternatives 2(b) & 2(c)

◆ **Disadvantages**

- ◆ Greatest potential impacts to water & land
- ◆ Greatest potential to disrupt sensitive habitat
- ◆ Lowest energy generation - both renewable & total
- ◆ Greatest potential social impact on landfill host community
- ◆ Least reliable due to dependence on export landfill contracts



◆ **Advantages**

- ◆ Lowest potential impacts to water & land
- ◆ Lowest potential to disrupt sensitive habitats
- ◆ Greatest energy generation – both renewable & total
- ◆ Lowest potential social impact on landfill host community
- ◆ Highest reliability due to minimum dependence on export landfill
- ◆ Costs, although high, comparable in the case of System 2(a) to System 1

◆ **Disadvantages**

- ◆ Highest potential impact on the air environment
- ◆ Less flexible to changes in waste quantities & composition
- ◆ Need to manage hazardous residues – may not be a disadvantage



- ◆ System 2(a) Thermal Treatment of MSW
  - ◆ More proven & reliable technology
  - ◆ Lower costs – based on experience to date
- System 2(b) Thermal Treatment of SRF
  - ◆ Potential to recover more recyclables – some plastics as well as metals
  - ◆ Potential improvements to air emissions, energy conversion efficiency & costs **MAY** be provided by new technologies presently under development



- ◆ **Advantages**

- ◆ Potential to increase diversion through recovery of additional recyclables and also make beneficial use of the post diversion waste stream – advantage shared with Alternative 2(b)

- **Disadvantages - due to complexity of process**

- ◆ Highest Cost
- ◆ Low technical reliability

- ◆ **Other Advantages & Disadvantages fall between System 1 & System 2(a, b)**

- ◆ Based on a 7 Step evaluation methodology and application of criteria approved with the Terms of Reference the Consulting Team recommends:
  - ◆ ***2(a) Thermal Treatment of MSW & Recovery of Materials from Ash/Char***
- ◆ Because new technologies may offer additional benefits an alternative for further consideration is:
  - ◆ ***2(b) Thermal Treatment of Solid Recovered Fuel***

Note: Thermal treatment includes combustion, gasification & pyrolysis



SYSAV



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## Report & Supporting Documentation

### Residual Waste Study

- ◆ Executive Summary
- ◆ Report: Consultants Recommendation
- ◆ Annex A
  - ◆ Approved Environmental Assessment Terms of Reference
- Annex B
  - Results of Public & Agency Consultation on Step 1 Review of Evaluation Methodology and Criteria
- Annex C: Step 2 Reports
  - C-1 Report on Additional At-Source Diversion
  - C-2 Report on Formulation of Alternative Residuals Processing Systems



## Report & Supporting Documentation Continued

### Residual Waste Study

- ◆ Annex D: Reports on Environments Potentially Effected
  - ◆ D-1 Air Environment
  - ◆ D-2 Terrestrial / Aquatic Environment
  - ◆ D-3 Agricultural Environment
  - ◆ D-4 Social / Cultural Environment
  - ◆ D-5 Legal / Jurisdictional Environment
  
- Annex E: Steps 4, 5, & 6 Net Effects Analysis
  - E-1 System Mass Balances and Diversion Estimates
  - E-2 Facility land Requirements
  - E-3 Electrical Energy Balances
  - E-4 Financial Analysis and Costs
  - E-5 System Environmental Analysis
  - E-6 Generic Air Dispersion Modeling
  
- Annex F: Step 7 Identification of Preferred Residuals Processing System
  - Summary Report and Record of Consultation



## Consultation on Consultation's Conclusion re Preferred System

### Residual Waste Study

- ◆ Conclusion re Preferred Disposal System Presented to JWMG on April 18<sup>th</sup> – opportunities for consultation promoted widely
- ◆ Public Information Sessions, 7:00 – 9:00 pm, to present conclusions
  - ◆ Durham Region
    - ◆ Cannington May 9<sup>th</sup>
    - ◆ Clarington May 10<sup>th</sup>
    - ◆ Ajax May 11<sup>th</sup>
  - ◆ York Region
    - ◆ Newmarket May 9<sup>th</sup>
    - ◆ Richmond Hill May 10<sup>th</sup>
    - ◆ Vaughan May 11<sup>th</sup>
- ◆ Public Delegation Sessions of May 17<sup>th</sup> to listen to residents
  - ◆ Durham Region (1:00 pm & 7:00 pm)
  - ◆ York Region (9:00 am & 7:00 pm)
- ◆ Polling by Ipsos Reid



## Major Issues Identified During Consultation

### Residual Waste Study

- ◆ Numerous comments expressing support for “Additional Diversion”
- ◆ Numerous comments expressing support for “Thermal Treatment”
- ◆ Suggestions to visit, examine and adopt modern incineration methods used in Europe.
- ◆ Implement Extended Producer Responsibility – have industry manage their own wastes
- ◆ Some respondents prefer other alternatives based on the selective application of various criteria
- ◆ Concern that a Thermal Treatment Facility will hinder future diversion efforts
- ◆ Concerns regarding air emissions from a Thermal Treatment Facility and public health
- ◆ Concerns regarding greenhouse gas emissions
- ◆ Suggestions that a larger facility is needed to serve the GTA
- ◆ Concerns that the 30 days provided for review and consultation was insufficient



### Residual Waste Study

- ◆ 400 residents surveyed by telephone during the week of May 15<sup>th</sup>  
*(Results accurate to +/- 4.9%, 19 times out of 20)*
- ◆ 79% agree that the continued export of waste is not sustainable
- ◆ 78% agree with the plan to build a thermal facility (incinerator or gasification plant) in Durham or York to process the waste left over after recycling & composting
- ◆ Of the 17% who disagree with building a thermal facility,
  - ◆ 57% (or 10% of total) feel the remaining waste should be managed by additional diversion
  - ◆ 29% (or 5% of total) feel export to landfill should continue and
  - ◆ 5% (less than 1% of total) feel a new landfill site should be developed in Durham or York.



## Residual Waste Study

## Proposed Next Steps

- ◆ Joint Waste Management Group to consider Consultants Recommendation on May 30th
- ◆ Committees & Councils may consider a recommendation from the JWMG on a Residuals Processing System at their June Meetings
  - ◆ Durham & York Committees June 7<sup>th</sup>
  - ◆ Durham Council June 21<sup>st</sup>
  - ◆ York Council June 22<sup>nd</sup>
- ◆ If direction provided, will begin work on identifying a facility site and preferred implementation approach.

All documents available on the project web site

[www.durhamyorkwaste.ca](http://www.durhamyorkwaste.ca)

