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## Section 3 Summary

Over the past few decades, Durham and York Regions have spent considerable time and money attempting to establish and site new long-term waste disposal capacity to manage their post-diversion residual waste within their respective Regional boundaries. The following section provides a summary of the each of the Regions past, present, and potential future waste management practices and initiatives to reduce waste going to landfill.

As a result of continued failed attempts to establish new landfill disposal capacity, Durham and York entered into contracts with the private sector to export residual waste primarily to Michigan, U.S.A. However, in December 2010, the border will be closed to municipal waste from Canada, which includes residual waste from Durham and York Regions. As a result, the Regions do not currently have sufficient long-term waste disposal capacity.

In accordance with Subsection 6.1(2)(a) of the *Environmental Assessment Act*, the purpose of the undertaking for the EA is:

*"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."*

As outlined in Section 3.1 of the Approved EA Terms of Reference, the specific waste to be managed and service area of this Undertaking is:

- Municipal Solid Waste (MSW) from residential sources generated within Durham and York remaining after at-source diversion;
- A portion of post-diversion Industrial, Commercial and Institutional (IC&I) waste traditionally managed by the respective Regions at Regional waste disposal facilities; and,
- Municipal post-diversion residual waste from neighbouring non-Greater Toronto Area (GTA) municipalities that may provide disposal capacity for processing residues. For example, the City of Peterborough, the County of Peterborough and the County of Northumberland. A condition for including waste from neighbouring non-GTA municipalities in the total amount of material that would be managed by this undertaking, is the ability of these municipalities to provide disposal capacity (landfill space) for processing residues as neither Durham nor York currently have sufficient long-term disposal capacity for such residues.

### 3. Statement of Purpose

As outlined in Section 3.1 of the Approved EA Terms of Reference, this section describes the purpose of the Undertaking. To understand the reasoning for the completion of the EA Study, it is important to first understand the challenges and opportunities faced by the Regions in managing their respective waste streams. These challenges and opportunities form the basis for the purpose of the Undertaking as described in Section 1 of this EA Study document and the Approved EA Terms of Reference and have resulted in the completion of this EA Study in which they have been addressed.

#### 3.1 Purpose of the Undertaking

The Undertaking, defined by way of this EA Study, is subject to approval under the Ontario EAA. As a result, in 2005 and 2006 Durham and York prepared an EA Terms of Reference to guide the EA Study. These EA Terms of Reference were approved by the Minister of the Environment on March 31, 2006.

In accordance with Subsection 6.1(2)(a) of the EAA, the purpose of the Undertaking for the EA is described as follows and was outlined in Section 3.1 of the approved EA Terms of Reference:

The purpose of the undertaking is:

*"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."*

Durham and York developed the Approved EA Terms of Reference and have undertaken this EA to address the purpose of the Undertaking. In completing this EA Study, the following factors were identified as preexisting opportunities or constraints:

- Durham and York's strong desire to implement a safe and effective local solution as quickly as possible;
- Durham and York's commitment to aggressive source separated waste diversion programs and plans;
- Durham and York's historic experience associated with attempting to site new landfill capacity within the Regions and direction from both Regional Councils preventing the siting of new landfill capacity within either Region;
- The direction provided in the Durham's *Long Term Waste Management Strategy Plan: 2000 to 2020* and York's *Vision 2026*;

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- The inability to export waste for disposal to Michigan after 2010; and,
- Other potential opportunities including the opportunity for additional materials recovery to further increase waste diversion efforts and energy generation potential.

### 3.2 Waste to be Managed and Service Area

As outlined in Section 3.1 of the Approved EA Terms of Reference:

*"Specifically, the waste to be managed will be:*

- *Municipal Solid Waste (MSW) from residential sources generated within Durham and York Regions remaining after at-source diversion;*
- *A portion of post-diversion Industrial, Commercial and Institutional (IC&I) waste traditionally managed by the respective Regions at Regional waste disposal facilities; and,*
- *Municipal post-diversion residual waste from neighbouring non-Greater Toronto Area (GTA) municipalities that may provide disposal capacity for processing residues. For example, the City of Peterborough, the County of Peterborough and the County of Northumberland. A condition for including waste from neighbouring non-GTA municipalities in the total amount of material that would be managed by this undertaking, is the ability of these municipalities to provide disposal capacity (landfill space) for processing residues as neither Durham nor York currently have sufficient long-term disposal capacity for such residues."*

At-source programs refer to those initiatives undertaken at the source of waste generation (e.g., at home or work/business) to eliminate the generation of waste, manage it at the source, or to divert wastes to an appropriate facility (e.g., separation of recyclable materials from the waste stream by the home owner and placement of the recyclable material in a blue box for curbside collection or backyard composting).

Projections were used to estimate the composition and amount of residual waste that would be managed by the potential residual waste amangement facility. Data from both Regions was used in the projections (i.e., waste management data, population projections, etc.). Waste streams considered include those outlined in Figure 3-1 below:

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**Figure 3-1 Characterization of Post-Diversion Residual Waste Requiring Disposal in 2011-Combined Durham and York**

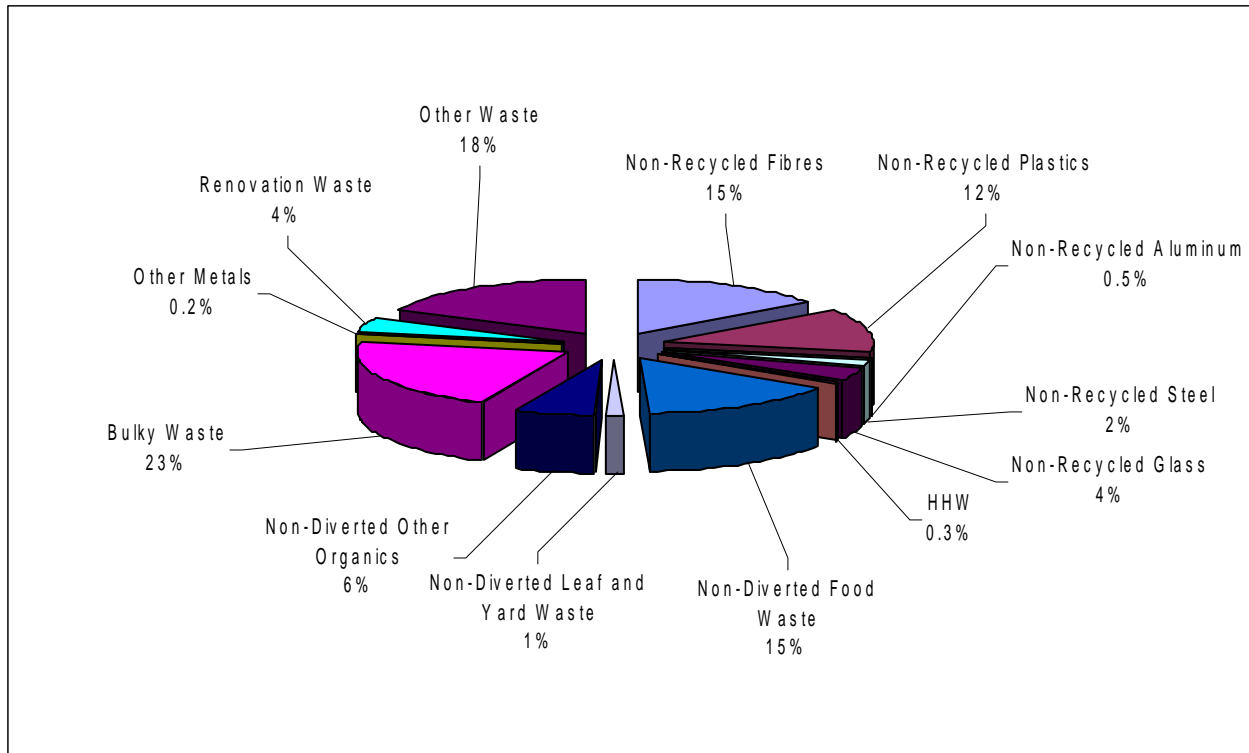


Table 3-1 shows the quantities of material generated, diverted and requiring disposal over the planning period for Durham and York.

**Table 3-1 Quantities of Materials Generated, Diverted and Requiring Disposal Over the Planning Period - Durham and York Combined**

For the 2011 to 2045 Period	2011 (tonnes)	2045 (tonnes)
Estimated Total Material Generation (Residential)	637,300	1,159,600
Estimated Annual Quantity Diverted At-Source	382,400	869,700
At-Source Diversion Rate	60%	75%
Estimated Annual Residual Quantity Requiring Management	254,900	289,900
Average Monthly Residual Quantity Requiring Management	21,200	24,200
Approximate Average Daily Residual Quantity Requiring Management (1)	1,020	1,160
35 Year Total Residual Wastes Quantity Requiring Management	Approximately 11,142,000	

(1) Annual quantity divided by 250 days per year.

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Section 7.4.1.5 (Characterization and Quantities of Post-Diversion Residual Waste) provides a detailed summary of the projected composition and quantity of residual waste to be managed by both Regions over the 35-year planning period. Section 7.4.1.5 also provides a description of why although the estimated annual residual waste at the end of the planning period is 289,900 tpy, the maximum design capacity of the facility is 400,000 tpy.

The facility designed to process 140,000 tpy is designed to manage only those wastes from Durham and York Region. Any expansion beyond this capacity to support the importation of wastes from outside Durham and York Regions (as discussed and allowed for in the approved EA Terms of Reference) would be addressed as part of a subsequent approval under O.Reg. 101/07 (or the applicable piece of legislation at that time).

### 3.3 Role of Waste Diversion in the Regional Waste Management Systems

The role of at-source diversion and landfill disposal is established in the statement of purpose, stated above, which clearly expresses the intention of Durham and York to minimize the amount of material requiring landfill disposal. Both Regions have adopted a waste management hierarchy placing waste reuse, reduction and recycling as priorities in their systems.

The purpose of this EA study is to address the waste that remains after the application of at-source waste diversion. Consideration of waste diversion initiatives themselves, although included in the EA for planning purposes, are outside of the scope of this EA study.

#### 3.3.1 Durham and York Region Waste Management

The following outlines the Regions waste management history, how each Region currently manages waste, and how the Regions intend to achieve higher diversion rates. Section 7 (Alternatives to the Undertaking) provides a more detailed discussion of the Regions historical, current, and future waste management practices.

##### 3.3.1.1 History of Waste Management (Durham Region)

**1974** Durham was formed by the Province of Ontario. Durham assumed responsibility for six operating local landfill sites located in Port Perry, Blackstock, Oshawa, Darlington, Uxbridge and Whitby. These facilities have all since been closed.

**1985** Solid waste disposal was carried out by four regionally operated landfill sites, two privately owned landfill operations, and the Municipality of Metropolitan Toronto's (Metro Toronto) Brock West landfill. In addition to landfill disposal, a number of recycling groups operated in Durham.

**1991** The Interim Waste Authority Ltd. (IWA) was created to find suitable long-term landfill capacity for the GTA. The Provincial Government announced that three long-term disposal sites for the GTA would be located in Durham, Peel, and Metro Toronto/York. The preferred site for Durham was in the Town of Pickering. The public reaction was strong and there were protests on how the search process was done. The project was working its way through the pre-hearing process when a new provincial government was elected in June 1995 and, in response to

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strong public opposition, the government ended the process. The consultant team costs for the Durham site search exceeded \$11 million.

**1997** Metro Toronto's Brock West landfill was closed and the bulk of Durham's residual wastes were sent to Metro Toronto's Keele Valley landfill located in neighbouring York.

**1999** Durham adopted a *Long Term Waste Management Strategy Plan: 2000 to 2020* in December 1999. The main goals of the waste plan were:

- To divert at least 50 per cent of the residential waste from disposal by 2007 or earlier.
- To implement an integrated residential waste management system for the collection and processing or disposal of:
  - Blue box recyclables;
  - Food and yard waste compostables;
  - Residual residential wastes; and,
  - Special wastes.
- To secure an alternate source for the disposal of residential waste, when Toronto's Keele Valley Landfill Site was closed.
- To consider an "energy-from-waste" (EFW) facility for the disposal of post-diversion residual waste.

**2002** On December 31, 2002, Toronto's Keele Valley Landfill closed and Durham began exporting the majority of its residential residual waste to Waste Management's Pine Tree Acres landfill site in Michigan. Only a small portion of Durham's Residual waste goes to the Brock Township landfill site, located within Durham's regional boundaries.

### **3.3.1.2 Current Waste Management System (Durham Region)**

Currently, the Region of Durham provides collection of recyclables for all eight municipalities and provides collection of garbage and food waste, leaf and yard waste, Christmas trees, White Goods and Bulky goods for all municipalities except Oshawa and Whitby which are locally responsible for collection of these materials. Residual waste composition is outlined in Figure 3-1 above.

The Region of Durham is responsible for:

- Collection, processing and marketing of blue box recyclables;
- Disposal of residential residual waste;
- Composting of SSO, as well as leaf and yard waste;
- Operation of a Recycling Centre;
- Operation of Brock Township landfill site;
- Operation of three waste transfer facilities;
- Operation of four household hazardous waste depots; and,

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- Education and promotion of waste reduction programs.

In 2007, Durham managed approximately 224,000 tonnes of residential waste with approximately 48% of the waste being diverted from landfill. Residual waste continues to be exported to Waste Management's Pine Tree Acres landfill site in Michigan.

To date, several of the key goals of Durham's *Long Term Waste Management Strategy Plan: 2000 to 2020* have already been reached:

- 48% of the residential waste managed in 2007 was diverted from disposal (near the 50% goal);
- A SSO curbside collection program was implemented in 2006 to further increase waste diversion rates and complement the integrated residential waste management program;
- Capacity at Waste Management's Pine Tree Acres landfill in Michigan was secured to accept residual waste (until 2010) to replace Toronto's Keele Valley Landfill which closed in 2002; and,
- An EFW facility is being considered for the long-term treatment of residual garbage.

Residents continue to strongly support waste diversion programs in the Region. On January 23, 2008, Durham Regional Council stated its commitment to increasing waste diversion:

"The Region of Durham agrees to continue to support an aggressive residual garbage diversion and recycling program in order to achieve and/or exceed on or before December 2010, a 70 percent diversion recycling rate for the entire Region and that such aggressive programs shall continue beyond 2010."

Durham retained a consultant in 2008 to assist in identifying possible strategies for reaching 70% diversion. The consultant's study released in March 2009 suggests that Durham's waste diversion rate can be increased in two ways, by:

- Increasing participation in existing waste diversion programs; and,
- Creating new waste diversion opportunities.

The report suggests that the combination of these two initiatives has the potential to increase the Durham's current diversion rate of 47.7% to approximately 73%.

The study concludes that reaching 70% diversion by December 2010 may not be realistic, considering the time it takes for newly implemented waste diversion programs to come to fruition. The consultant estimates that a more reasonable date for reaching 70% diversion is 2013 (Golder Associates, 2009).

### 3.3.1.3 History of Waste Management (York Region)

**1983** The majority of York's waste was disposed of at Toronto's Keele Valley Landfill Site located in Vaughan, within York boundaries.

**1991** Like Durham, York also participated in the IWA's efforts to site a landfill to serve both Toronto and York within York. The intent was for this new site to replace the Keele Valley landfill

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site. Large amounts of time and money were expended on this siting effort but in response to intense public opposition, this landfill siting exercise, like the effort in Durham, was abandoned.

**1993** York Regional Council approved its first strategic plan, *Vision 2021*, as an example of its goals to meet the needs of the York community.

**2002** The Keele Valley landfill closed. Since 2002, York has exported its residential waste to three landfills: Toronto's Green Lane Landfill in Ontario, Onyx's Arbor Hills Landfill in Michigan, and Republic Waste Services' Carleton Farms Landfill in Michigan.

**2002** *Vision 2026* was developed. It built on the key elements of *Vision 2021*. In terms of minimizing and managing waste, *Vision 2026* encouraged the continued diversion of waste from landfill through programs such as recycling and composting, enhanced public awareness programs about recycling, pursuing new technologies to reduce and handle waste; and leadership in waste reduction.

**2006** York and its nine area municipalities developed the *Joint Waste Diversion Strategy*. The results of the study led York to set a diversion goal of 65% for the short-term (by 2010) and 70% for the longer-term. The study identified the following priority initiatives to be investigated/implemented immediately:

- SSO;
- Optimized blue box material recovery programs;
- Community environmental centres;
- Bag limits/financial incentives;
- Enhanced communication and public outreach;
- Diversion of textiles;
- Infrastructure development; and,
- Advocacy.

#### **3.3.1.4 Current Waste Management System (York Region)**

Currently, the area municipalities are responsible for the delivery of the following waste management services within their respective communities:

- Collection of residential residual waste, blue box materials, yard waste, bulky items, white goods, and SSO;
- Waste management policies and enforcement;
- Promotion and education;
- Recycling depots;
- Public space recycling; and,
- Provision of recycling containers.

York is responsible for the delivery of the following waste management services:

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- Processing and marketing of blue box materials;
- Transfer, composting, and marketing of yard waste ;
- Transfer, composting, and marketing of SSO;
- Design, construction and operation of Community Environmental Centres;
- Waste management policies and enforcement;
- Promotion and education;
- Operation of household hazardous waste depots;
- Operation of municipal waste transfer, white goods, and blue box recycling drop-off facilities;
- Operation of residential electronics drop-off facilities; and,
- Operation of reusable goods diversion events.

In 2007, York managed approximately 319,000 tonnes of residential waste with approximately 45% of the waste being diverted from landfill. Residual waste composition is outlined in Figure 3-1 above.

In 2007, residual waste was exported to three landfills: Toronto's Green Lane Landfill in Ontario, Onyx's Arbor Hills Landfill in Michigan, and Republic Waste Services' Carleton Farms Landfill in Michigan. York has recently committed to sending 100,000 tonnes of residual waste per year to the Dongara plant in Vaughan where the waste is processed into "fuel pellets" to be used as a fuel product to substitute for conventional fossil fuel. These pellets are currently exported outside York and in some cases outside Canada.

In 2008, the Region of York ceased all shipments of residential residual waste to Michigan. This was made possible as a result of the above diversion initiatives, the commitment to the Dongara plant, and the continuation of the contract with the Green Lane Landfill for the receipt of residential residual waste. Although this has secured short-term waste disposal capacity for York, it still requires access to long-term disposal capacity.

The identification of this new disposal capacity has resulted in a change in the amount of waste York Region will be providing to the facility. Originally, in the approved EA Terms of Reference, the Regions of Durham and York were to supply approximately equal amounts of waste to the facility. However, early in the evaluation of "Alternatives to" it was determined that York Region may be able to secure additional waste disposal capacity through a contractual agreement with the Dongara facility being built in Vaughan. To accommodate this potential reduction in waste supply, the evaluation of "Alternatives to" included a 150,000 tonnes per year scenario (later refined as part of the RFQ process to 140,000 tonnes per year). This scenario, evaluated in the "Alternatives to" evaluation process, and carried forward throughout the entire EA represents York Region's current commitment to the facility and the waste to be managed as described in the Preferred Undertaking. Should York require additional capacity beyond that currently defined, a facility expansion would be required.

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Several of the priority initiatives mentioned in York's *Joint Waste Diversion Strategy* have already been implemented, including:

- Household SSO collection region-wide; and,
- Optimized blue box recycling: weekly collection region-wide.

These two initiatives have assisted York to increase its waste diversion rate to 45.7% in 2007, up from 34% in 2005.

### **3.3.1.5 Enhancements to Current Diversion Programs to Achieve Higher Diversion Rates**

The following is a summary of potential enhancements to waste management practices to increase diversion that could be achieved by Durham and York by 2011 via the programs and policies proposed for implementation by both Regions. A more detailed discussion and assessment of these programs are included in Section 7.3.1.4 (Achieving Higher Diversion Rates in Durham and York).

Key elements required in a municipal integrated waste management system to achieve high waste diversion rates include:

- Curbside collection of recyclables, kitchen organics and leaf and yard wastes;
- Additional services either through curbside, or at a minimum depots, for white goods;
- Diversion programs for household hazardous wastes, including electronics, paint, oil, etc., and construction and demolition materials, including wood, drywall, metals, etc.;
- Incentives and/or disincentives for all sectors to ensure appropriate behaviour by the users of the system (e.g., container limits, user fees, landfill bans, by-law enforcement);
- Promotion and education campaigns, using a variety of mediums to reach the target audience; and,
- Advances in diversion technologies, and product stewardship which currently are under consideration or development will allow increased diversion of more materials in the later years of the study period.

It is the effective combination of these elements which will encourage:

- High participation rates by the users of the waste management system (e.g., residents, businesses and institutions); and,
- High capture rates of materials that can be diverted.

Both Durham and York's approved waste management plans contain most or all of the key elements necessary to achieve high diversion rates in both municipalities.

In addition, other waste management plans (i.e., Durham Region's *Long Term Waste Management Strategy Plan: 2000 to 2020 (December 1999)* and York Region's *Vision 2021 and Vision 2026*) include plans on how to further increase diversion rates. Furthermore, the Durham

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and York approved waste management plans include a range of 'disincentives' such as continued restrictions on the amount of waste that can be set at the curb, bi-weekly garbage collection and more restrictive landfill bans and enforcement. In addition, both Regional Councils have endorsed energy recovery from waste as preferable to landfill disposal in an integrated and sustainable waste hierarchy.

Section 7.4.1.3 provides a detailed assessment of these programs and how they would potentially affect the Regions' diversion rates.

### 3.4 Role of Landfill in the Regional Waste Management Systems

It was been clearly identified by Durham and York in the Approved EA Terms of Reference that there is a desire to identify a preferred long term alternative that maximizes the recovery of resources and minimizes the reliance on landfill as a primary method of disposal. Landfill facilities will be assumed to continue to play a role for the disposal of certain materials that cannot be otherwise processed or diverted. A landfill only system, whereby a new landfill site capable of managing all waste that remains after at-source diversion would not meet the stated purpose of the Undertaking, and thus has not been considered in this EA Study.

In the approved EA Terms of Reference Section 1.1, the inability to access current waste disposal capacity (ie. Landfill in Michigan) was discussed. This practice of exporting waste outside the municipal boundaries to a landfill site in Michigan represented the "Do Nothing" alternative for this environmental assessment. As a result of the agreement between the province of Ontario and State of Michigan, the "Do Nothing" alternative is not a reasonably available alternative for consideration in establishing long-term waste disposal capacity. However, for the purpose of comparison and evaluation of the "Alternatives To", a "Do Nothing" system is required as a component of the EA process. For this study the "Do Nothing" system would be the continuation of the current method of disposal of the residual waste that remains after diversion, namely, the continued export of waste from Durham and York to landfill facilities outside of the study area. However, this "Do Nothing" alternative is not a "reasonable" alternative for consideration as the "Do Nothing" alternative does not represent a long-term solution for the management of residual waste. In particular, for Durham Region, the "Do Nothing" alternative is the continued export of residual waste to Michigan, an alternative no longer available after December 31, 2010. The "Do Nothing" alternative for York Region, based on the capacity for which approval is being sought, does not address the need for approximately 20,000 tonnes per year of post-diversion residual waste that cannot be accommodated by these other waste disposal contractual arrangements. As a result, should this EA not be approved, both Durham and York Region would have post-diversion residual requiring disposal and no capacity secured to manage this material.

Each of the proposed processing alternatives will require landfill disposal capacity for process residues. Responsibility for identification of this capacity will be borne by the successful Vendor of the preferred technology. Throughout the evaluation of "Alternatives to" and "Alternative methods" the quantity and composition of the material requiring landfill has been taken into consideration where appropriate.