

Analysis of Private Sector Involvement for an Energy-from-Waste Facility

Executive Summary

Prepared for York Region and
the Region of Durham

March 12, 2007

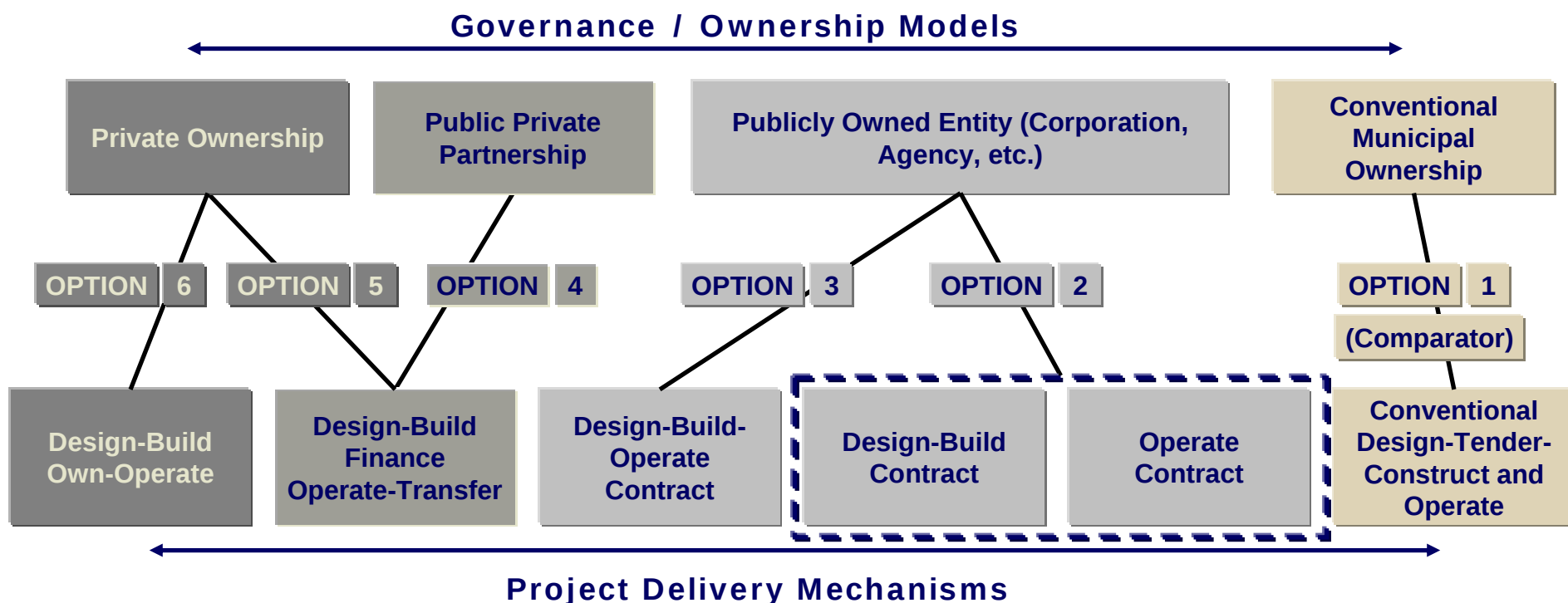
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Introduction

- In response to potential US legislation that would allow the border to the State of Michigan (“Michigan”) to be closed to waste (with 90 days notice), the Ontario Government, with concurrence from the Region of Durham (“Durham”), York Region (“York”), the Region of Peel and the City of Toronto, agreed to stop shipping waste to Michigan by the end of 2010.
- Since early 2005, Durham and York (collectively the “Regions”) have teamed to conduct a Residual Waste Planning Study to assess the feasibility of a thermal waste treatment facility (“EFW Facility”) as a waste management option.
- Durham and York have engaged Deloitte to analyze the extent of private sector involvement in the financing, design, construction and operation of the EFW Facility the results of which are presented within this report. This analysis is:
 - A relative comparison of the implications of a range of private sector options; and
 - Not an absolute dollar-figure predictive financial or business plan for the undertaking. Such a 'business case' might come later once key issues relating to specifics of waste tonnages, energy balance, facility size, costs and revenue streams are more precisely defined through evolution of the design concepts for the EFW Facility.

Options for Analysis of Private Sector Involvement

- Six options (collectively the “Options”) were selected as those that:
 - Represent the most common delivery models; and
 - Might reasonably be expected to occur based on Deloitte’s experience.



Components of Analysis

- Four categories of analysis are used to assess the appropriate role of the Private Sector:

- 1. Risk Assessment:** Different Options result in different risk exposure to Durham and York.
 - Some risks are retained and potentially mitigated as a result of the Option;
 - Others risks are fully transferred to the Private Sector; and
 - This analysis qualitatively assesses, using best practices by Deloitte, the degree to which risks are mitigated and transferred across the continuum of Options.
- 2. International Practices:** Energy from Waste facilities are widespread in Europe and the US.
 - This analysis reviews some of the ownership and Options that have been used in Europe and the US.
- 3. Financial Analysis:** Different Options may result in different costs to the Regions.
 - This analysis involved the construction of cash flow model for each Option to determine the relative price difference to the Regions.
- 4. Goals, Objectives and Constraints:** The Regions have different goals and constraints with respect to this EFW Facility.
 - This analysis assesses i) the degree to which a particular Option meets financial constraints, ii) the experience of the Regions in the undertaking Option, and iii) the long-term control that the Regions will have of the EFW Facility under each Option.

Components of Analysis

Risk Assessment

- 31 risks were assessed by Durham, York, Deloitte, MacViro and Ramboll to determine which Option poses the greatest risk exposure to the Regions.

Risk Category Considered	Specific Risks that are retained under each Option	Specific Risks that may be transferred or retained, depending on the Option	Specific Risks that are transferred under each Option
Development and Design Risk	- Scope Creep / Change in design specifications - Land assembly	- Construction delays - Cost overruns - Major reconfigurations and improvements	- Failure to build to design - Project coordination and administration
Financial Management Risk	- Supply of solid waste - Default	- Budgeting and forecasting - Unanticipated operating costs	Interest rate
Economic Risk		Inflation risk	
Implementation Risk		Implementation delays	
Political / Strategic Risk	- Reputation and public sensitivity - Planning and policy		
Human Resource Risk	Labour relations		
Governance Risk	Governance structure		
Partnership Risk	- Residual value - Successor rights	- Transfer of ownership - Reversion risk - Approvals - Integration	
Operational Risk	- Accounting - Periodic maintenance - Lifecycle maintenance		
Client / Customer Risk		Service level risk	
Legal Regulatory Risk		Environmental	
Other Risks	- Loss of operational flexibility - Public resistance to a new procurement model		

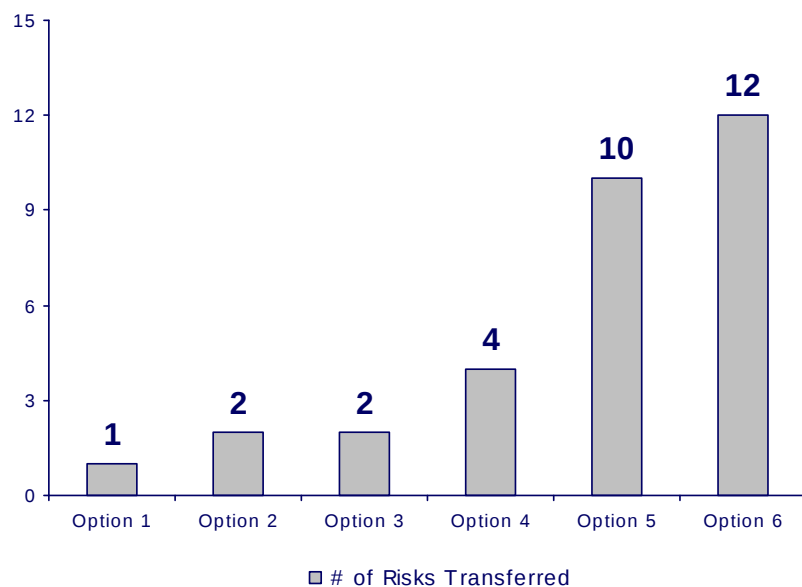
Components of Analysis

Risk Assessment

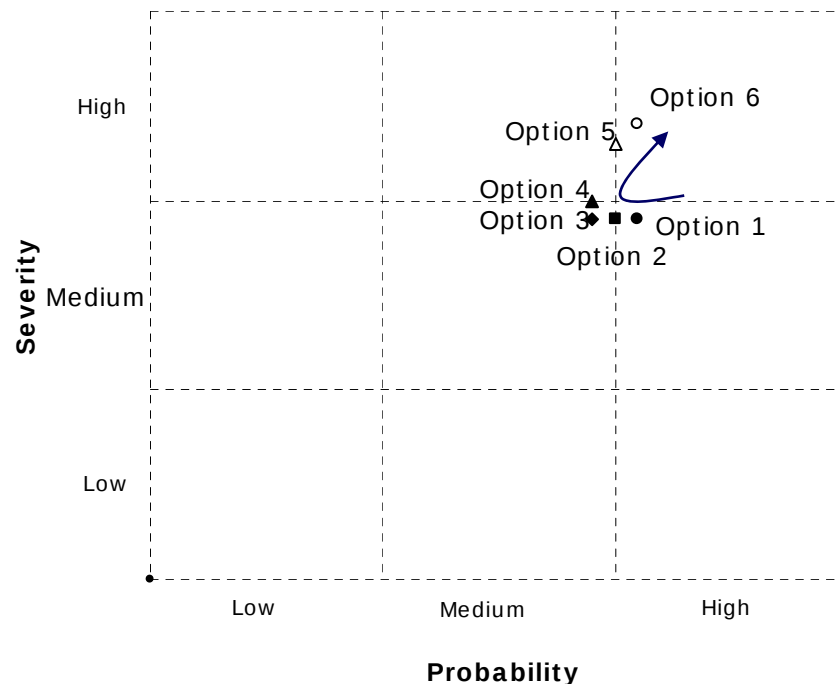
Given the risks considered:

- Options 5 and 6 have the most amount of risk transfer.
- Options 2, 3 and 4 have the greatest mitigation of retained risks.

Number of Risks Transferred



Risk Mitigation for Retained / High Importance Risks



Components of Analysis

International Practices

- The role of the Private Sector in selected Canadian, US and European case studies (collectively the “Case Studies”) was used to determine how other jurisdictions approached the role of the Private Sector. Key results are:
 - The Burnaby facility is publicly owned giving the municipality a low cost per tonne at the expiry of the term of the loan;
 - The Peel facility is privately owned and once the investment is paid off, the municipality is not likely to see any reduction in tipping fees; and
 - The European cases suggest that there is a preference for some degree of Public ownership, either in full or in part (Public / Private).

ID	Province / Country	Location / Facility	Estimated Capacity per year	Delivery Mechanism		Ownership			Term
				DB - O	DBO	Public	Private	Public / Private	
1	Ontario	Algonquin / Peel	160k tonnes		X		X		20 yrs (original)
2	BC	South Burnaby	250k tonnes		X	X			12 yrs
3	Ontario	Victoria Hospital	n/a	X ¹		X			N/A
4	Austria	Arnoldsstein	100k tonnes		X			X	25 yrs
5	UK	Cornwall	240k tonnes		X			X	30 yrs
6	UK	Isle of Man	65k tonnes		X	X			25 yrs
7	France	Isseanne Paris	460k tonnes	X		X ³			20 yrs
8	Germany	MV Kiel	100k tonnes	X ²				X	N/A
9	Sweden	SYSAV Malmö	725 tonnes	X ²		X ³			N/A
10	Sweden	Uppsala	325k tonnes	X			X		N/A

Notes:

1)Operated by Hospital

2)Public Operation

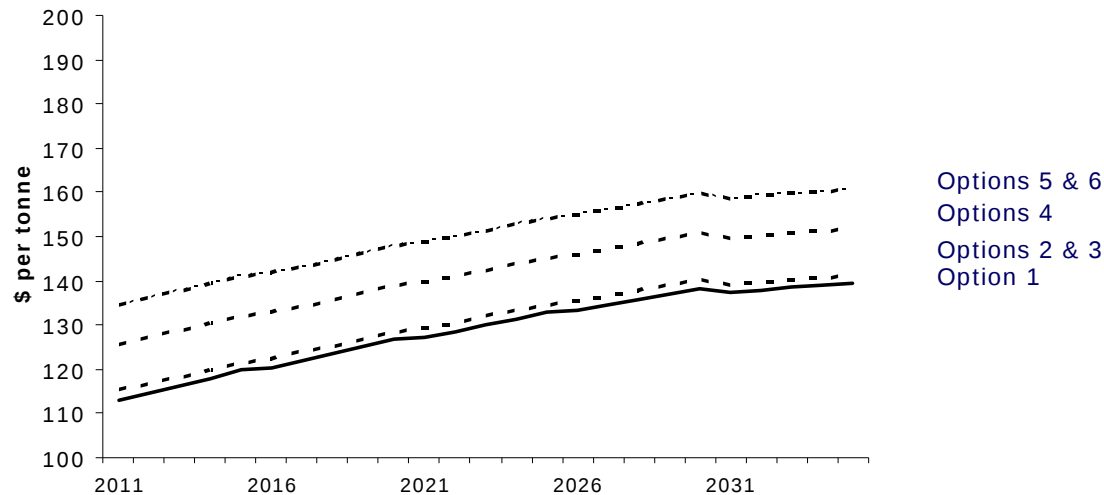
3)Waste Company

Components of Analysis

Financial Analysis

- A cash flow analysis was completed on each Option using cost assumptions from other studies conducted by Durham and York. Deloitte provided the financial assumptions related to Private Sector capital investments. The results show that:
 - Options 2 and 3 are only slightly more expensive than Option 1 due to the Regions' financing of working capital.
 - Option 4 is more expensive than Options 1, 2 and 3 due to the extra investment required of the Private Sector; and
 - Options 5 and 6 are more expensive because these Options have the most private sector investment.

Cost per Tonne



Term of the Analysis.

A 25-year term was selected because:

- These types of projects typically require 20 to 30 years to allow the private sector to earn a sufficient return on their capital. This range of terms has also been observed in other jurisdictions. Thus, 25 years is seen as an average term; and
- The same term was used for each scenario, including those without any private sector equity contributions, to ensure consistency of analysis.
- Finally, the 25-year term is only indicative and used for computational purposes. The term of the project should be finalized during the RFP stage.

Components of Analysis

Goals, Objectives and Constraints

- Meetings were held with York and Durham to identify goals, objectives and constraints related to the EFW Facility. The results are summarized below:

1. Ownership and Control:

- Given that a waste-to-energy facility, as with most waste management policies, can be a highly sensitive political issue, it is paramount that the Regions maintain control;
- True control can only come with ownership; therefore, the municipalities should be the owners of the EFW Facility;
- Options 1, 2 and 3 are the only Options that provide full control on the part of the Regions; and
- Option 4 provides moderate control given that a private sector partner will have a substantial equity stake in the EFW Facility.

2. Fiscal Constraints of the Regions:

- The larger the capital expenditure required by the Regions, the greater fiscal impact the EFW Facility will have;
- Therefore, Options 5 and 6 have the lowest fiscal impact (greatest benefit) to the Regions; and
- Option 4 has a moderate fiscal benefit reflecting the fact that the private sector makes a significant investment in the EFW Facility.

3. Previous Experience with Projects of Similar Scope and Magnitude:

- For projects of this nature, the Regions have experience with the Options 2 and 3; and
- Little to no experience is present for Options 1, 4, 5 and 6.

Comparison Of Options

Evaluation Criteria

- The criteria (the “Criteria”) that were developed to evaluate the Options are summarized below:

1. Degree To Which Risks Are Transferred

- Relates to number and magnitude of risks that are transferred from the Regions to the Private Sector.

2. Degree To Which Retained Risks Are Mitigated

- Relates to the impact of key risks retained by the Regions and the extent to which each is mitigated.

3. Degree to which Per Tonnage Costs To Regions Are Minimized

- Represents the total nominal cost, net of Revenue, of Capital and Operating expenses to the Regions, as a percentage of total waste processed. These costs do not include haulage costs to the EFW Facility.

4. Degree To Which Ownership And Control Is Maintained

- Considers the extent to which the Regions maintain control of key functions, providing the flexibility to divert or reduce tonnage of waste produced by the EFW Facility thereby reducing the ability to implement waste reduction programs.

5. Degree To Which Option Is Generally Consistent With Observed Industry Practice For Ownership

- The extent to which the ownership structure is consistent with the majority of the Case Studies.

6. Degree To Which Option Is Generally Consistent With Observed Industry Practice For Operations

- The extent to which the management of operations is consistent with the majority of the Case Studies.

7. Degree To Which Option Meets Fiscal Constraints Of Regions

- Considers the current capital programs and fiscal capacity of the Regions and the extent to which each may be negatively affected.

8. Degree To Which the Option is Consistent with each Regions' Previous Experience With Projects of Similar Scope and Size

- Relates to the experience and expertise of the Regions for the contemplated roles and responsibilities.

Comparison Of Options

Results

- The relative assessment of each of the Options against the Criteria is summarized below:

Criteria	WEIGHT	OPTION					
		1	2	3	4	5	6
1. Degree to which risks are transferred	MEDIUM						
2. Degree to which retained risks are mitigated	MEDIUM						
3. Degree to which per tonnage costs to the Regions are minimized	HIGH						
4. Degree to which ownership and control is maintained	HIGH						
5. Degree to which Option is generally consistent with observed industry practice for ownership	LOW						
6. Degree to which Option is generally consistent with observed industry practice for operations	LOW						
7. Degree to which Option meets fiscal constraints of Regions	HIGH						
8. Degree to which the Option is consistent with each Regions' previous experience with project of similar scope and size	HIGH						

Lowest Benefit
 Medium Benefit
 Highest Benefit

Options 2 and 3 produce a similar result

Comparison Of Options

Comparison Between Option 2 and 3

	Advantages	Disadvantages
Option 3: Design-Build-Operate Combined	• Only one procurement process to manage. • Some design-build risk may transferred (through warranties) instead of being retained by the Regions. • Increased size and value of the transaction.	• Success is predicated on a market of potential bidders that can meet the design, construction and operations experience requirements. • Need to develop output / performance specifications for the operating component sooner than would be required under a two-step process. • Market capacity and interest may be a factor (Private Sector preference would be Options 5 or 6 where private ownership is contemplated).
Option 2: Design-Build & Operate Under Separate Contracts	• Can quickly issue contract for Design-Build (and potentially just Design) in order to find a technology provider – technology providers are known. • Deal size of the transaction is reduced.	• Two procurement processes to manage, which may eventually delay the project start date. • Cannot transfer design-build risk to the operator; therefore, design-build risk will likely be retained by the Regions.

Option 3 (bundled Design-Build-Operate) offers contractual efficiency plus potential for possible transfer of design-build risk.

Recommendations

- **Proceed with Option 3:**

- Procurement should follow a two step RFQ and RFP process;
- RFQ should include appropriate requirements for financial capacity (construction, bonding, operations) together with technical requirements;
- The RFP should be issued together with the design-build-operate Contract to reduce need for protracted negotiations prior to financial close; and
- All commercial contracts and arrangements for waste supply and energy revenue, should be in-place prior to issuance of the RFP and Contract.

- **Confirm The Size of the Facility:**

- York and Durham must confirm long term waste disposal forecasts to reach a conclusion of an optimal size in consideration of financial constraints.

- **Make Financial Commitments on Waste Supply:**

- York and Durham should enter into long-term commitments for waste supply on a Put-or-Pay Basis to ensure that each party will not incur undue financial risk.

- **Secure Electricity Power-Purchase-Agreement with Province:**

- Electricity review will be a key component to the financial viability of the EFW Facility. Given the nature of Ontario's electricity market, the only means of securing this revenue source is to enter into discussions with the Province to determine their willingness to purchase power from an EFW (and the long term revenue that will be generated).

Recommendations

- **District Heating Revenue:**

- The availability of piping infrastructure and development density will be factors in determining if electricity revenue may be supplemented by selling steam to be used in district heating systems. Any such revenue sources should only be considered if commercial arrangements can be made with a large user.

- **Develop Detailed Cost Estimate:**

- Once the size of the EFW Facility has been confirmed and a site selected, a detailed cost estimate should be developed to finalize the estimate of capital and operating costs.

- **Final Decision to Proceed Should Consider Fiscal Capacity:**

- Upon reaching confirmation on commercial agreements for the supply of waste and for energy revenue and final costs on the EFW Facility, York and Durham should determine the financial feasibility of the EFW Facility over its life cycle by considering:
 - Other waste management options that may be available; and
 - Each Region's current fiscal position including current debt levels and long-term capital and operating needs.

- **Governance Structure:**

- York and Durham should reach an agreement on the governance model. Approaches used in previous successful partnerships between the Regions should be given high consideration.