

# **Project Transform Waste PFI OBC**

## **Financial Modelling Assumptions**

### **1. SUMMARY**

This paper sets out the methodology and assumptions used in the development of the financial models for the Project Transform waste treatment project.

Two separate models will be developed to assist the Authorities in assessing the financial implications of its defined options.

#### **2) Shadow Tariff Financial Model**

- A) Cost Inputs
- B) Funding Terms
- C) Other Assumptions
- D) Project Dates

#### **3) Affordability Model**

##### **3.1) Generic Assumptions**

##### **3.2) Authority Specific Assumptions**

##### **3.2.1) *Coventry City Council***

##### **3.2.2) *Solihull Metropolitan Borough Council***

##### **3.2.3) *Warwickshire County Council***

## 2. SHADOW TARIFF FINANCIAL MODEL

A shadow tariff is a projected PFI price calculated using a financial model that the private sector would use to price their proposals. An underlying assumption in calculating the shadow tariff is that private sector will be funding the project using bank debt and not corporate debt.

As such it produces an indicative tariff that can be used to provide an estimate of the overall affordability of the project before going to market. The concept behind preparing a shadow tariff is that schemes that are going to have extreme affordability problems are identified at an early stage, allowing decisions to be made on the implications of bringing the scheme to market.

The shadow tariff however reflects the level of detail/certainty known about the project. If additional information becomes available on the key assumptions, then the shadow tariff should be revisited and updated accordingly, in light of the new information.

### 2.1. What are the key assumptions?

A shadow tariff models has been prepared for Project Transform's reference project of EfW with 50% recycling

### 2.2. Assumptions and basis of calculating the shadow tariff

We have estimated a shadow price based on current market knowledge. The details of which are shown in the table below (please note £1m = £1 million):

2A) Cost Inputs	Assumed	Source	Comments (please note references are likely to change)
<b>Price base</b>	January 2008	Entec	
<b>Inflation of unitary charge</b> <i>"Inputs E6"</i>	3.00%	GT	Unlike accommodation projects where the unitary charge is indexed by RPI or a proportion of RPI, waste projects usually involve a blend of indexation including RPI, average earnings index and fuel indices in respect of the transport costs element.  Assumes RPI + 0.50%
<b>Proportion of the Unitary Charge to be indexed</b> <i>"Inputs G334"</i>	49%	GT	Reflects the fixed (debt) element of the unitary charge
<b>Capital Costs</b> EfW Build Cost in January 2008 prices (Inflated to mid point of construction @ 5.25%)	£152.5m  £210m	Entec	Derived from £500 per tonne with capacity of 305,000 tonnes  Capital costs of the facilities. <i>"Entecs Inputs B5, B6, B9, B10"</i>  This cost per tonne includes architectural

2A) Cost Inputs	Assumed	Source	Comments (please note references are likely to change)
			enhancements, flood risk measures, ground conditions, utility connections, contaminated ground and road upgrades etc.
<b>Capital Costs inflation</b>	5.25%	Entec / GT	Inflation rate reflects estimate of construction inflation for the period
<b>Construction cost profile</b>	Stepped up flat profile	Entec / GT	3 year construction profile ( April 2011 to March 2013) Annual profile - Entec Monthly profile - GT
<b>Licensing Fee</b>	£0m	GT	Cost associated with obtaining waste licenses to use waste treatment technologies. Assumed in SPV costs.
<b>Construction phase costs</b> <i>Insurance</i> <i>"Inputs G401"</i>  <i>Others</i> <i>"Inputs G410"</i>	£1.0m  £ 0.5m p.a.	GT	This nominal cost is assumed to be spread evenly over the life of the project. Standard assumption to be reviewed.  Other SPV running costs and project management fees: waste contracts require a significant level of management at construction stage to ensure successful coordination and delivery of the project.
<b>Site acquisition costs</b>	£0	Authorities	The base case assumes use of an existing site. If a non Authority site were to be used, it is assumed it will be funded from reserves initially with any additional requirement being met from prudential borrowing.
<b>Site remediation costs</b>	£0	Authorities	Built in the site specific costs (part of capex).
<b>Capital Receipts</b>	£0	Authorities	None assumed
<b>Private sector bid costs</b> <i>EfW</i> <i>"Inputs G701"</i>	£3.5m (limited to 0.5% of Senior and Subordinated Debt for the PFI Credits calculation)	GT	Bid costs and project development costs are generally higher than in other sectors such as accommodation projects due to the complexity of the procurement and project development. The more services and the more complex the project the higher the costs. Nominal cost paid at Financial Close.

<b>2A) Cost Inputs</b>	<b>Assumed</b>	<b>Source</b>	<b>Comments (please note references are likely to change)</b>
<b>Life cycle cost</b> <i>"Entecs Inputs B15, B16"</i>	1.10% of Capex	Entec	<p>Provided by Entec as expected lifecycle costs over the life of the project with a repeating profile of 1:1:2:1:4 except that the last spike would appear in year 20.</p> <p>Base assumption is 1.10% of the relevant capital expenditure. Non-applicable categories account for 88% of the total cap-ex, e.g. licensing, SPC project management.</p>
<b>Lifecycle cost inflation</b> <i>"Inputs E11"</i>	3.00%	GT	<p>GT assumption based on other waste sector projects.</p> <p>Assumes RPI + 0.50%</p>
<b>Maintenance cost</b> <i>"Entecs Inputs B18, B19"</i>	1.50% of Capex	Entec	<p>Provided by Entec as expected maintenance costs over the life of the project.</p> <p>Base assumption for EfW is 1.50% of the relevant capital expenditure. Non-applicable categories account for 88% of the total cap-ex, e.g. licensing, SPC project management.</p>
<b>Maintenance inflation</b> <i>"Inputs E11"</i>	2.50%	GT	GT assumption based on other waste projects.
<b>Facility operating Costs</b> <i>"Entecs Inputs B21, B25"</i>	£ per tonne (real)  EfW £13.00	Entec	Cost per tonne of input to Facility. The EfW and RDF operating cost does not include the cost of bottom ash disposal which is included in the hazardous waste landfill cost per tonne.
<b>Operating cost inflation</b> <i>"Inputs E11"</i>	3.00%	GT	GT assumption based on other waste projects. Assumes RPI + 0.50%
<b>SPV running costs</b> <i>"Inputs D241"</i>	£0.5 million per annum	GT	Varies according to the complexity of the project, the variety of services on offer and the level of sub-contractor interface. Amount reflects sector average
<b>SPV running cost inflation</b> <i>"Inputs E7"</i>	2.50%	GT	Reflects estimate of RPIX
<b>SPV insurance – operating period</b> <i>"Inputs D239"</i>	£1.0 million p.a.	GT	Annual cost for contract's operational insurances.

<b>2A) Cost Inputs</b>	<b>Assumed</b>	<b>Source</b>	<b>Comments (please note references are likely to change)</b>
<b>SPV insurance – operating period inflation</b> <i>"Inputs E7"</i>	2.50%	GT	Reflects assumption for RPI long term.
<b>Hazardous Waste Gate Fee</b> <i>"Entecs Inputs B29"</i>	£200 per tonne	Entec	Cost of active landfill tax is additional.
<b>Hazardous Waste Gate Fee - Inflation</b>	2.50%	GT	Reflects assumption for RPI long term.
<b>Income from sale of spare Facility capacity to Third Party</b>	Nil		Assumes Authorities are sole user. Prudent assumption as no guaranteed contracts in place
<b>Income from sale of electricity</b> <i>"Entecs Inputs B42"</i>	£23/tonne (£40 / MWh)	Entec	Multiplied by the Facility throughput.
<b>Income from sale of electricity inflation</b>	2.50%	GT	Reflects assumption for RPI long term.
<b>Income from sale of heat and steam</b>	£8 / MWh	Entec	None assumed in base case. Only applicable for sensitivity
<b>Income from sale of heat and steam inflation</b>	2.50%	GT	Reflects assumption for RPI long term.
<b>Income from sale of ROCS</b>	£40 / MWh for info only	Entec	None assumed at present.
<b>Income from sale of ROCS inflation</b>	N/A		

2B) Funding Assumptions	Assumed	Source	Comments
<i>Senior Debt Terms</i>			
<b>Base Rate</b> "Inputs G450"	5.50%	GT	25 yr ask swap rate 5.00 + 50 bps buffer
<b>Interest rate (during Construction period)</b> "Inputs G457"	1.30%	GT	Market Assumption reflecting post Credit Crunch cost of funds
<b>MLAs</b> "Inputs G452"	0.02%	GT	Market Assumption
<b>Credit Margin</b> "Inputs G451"	0.12%	GT	Market Assumption
<b>Interest rate (during operation period)</b> "Inputs G453"	1.25%	GT	Market Assumption reflecting post Credit Crunch cost of funds Based on an average rate (may be a ramp up over the concession period)
<b>Arrangement Fee</b> "Inputs G462"	1.00%	GT	Market Assumption
<b>Commitment Fee</b> "Inputs G463"	0.50%	GT	Market Assumption
<b>Debt Service Reserve</b> "Inputs G470"	6 months	GT	6 month DSRA reserving for 6 months of senior debt payments on a look forward basis
<b>Life Cycle Reserve or "MRA"</b>	50% Yr 1; 50% Yr 2; 50% Yr 3	GT	Modelling 50% year 1, 50% year 2 and 50% of year 3 as modelling constant real per annum life cycle costs
<b>Gearing (Debt/"Equity" ratio)</b> "Inputs G433"	85:15	GT	Market Assumption. Split: Senior Debt 85% - Subordinated Debt 14.95% and Equity 0.05%
<b>"Tail"</b>	18 months	GT	Senior debt to be repaid 18 Months prior to the end of the concession
<b>Minimum/Average Service Cover Ratio</b> "Inputs G554"	1.25	GT	Market Assumption

<b>2B) Funding Assumptions</b>	<b>Assumed</b>	<b>Source</b>	<b>Comments</b>
<b>Minimum/Average Loan Life Cover Ratio</b> <i>"Inputs G549"</i>	1.30	GT	Market Assumption
<b><i>Equity Bridge Terms</i></b>			
<b>Arrangement Fee</b> <i>"Inputs G617"</i>	0.50%	GT	Market Assumption
<b>Commitment Fee</b> <i>"Inputs G618"</i>	0.20% per annum	GT	Market Assumption
<b>Letter of Credit Fee</b>	n/a		
<i>"Equity" Terms</i>			
<b>Sub debt coupon</b> <i>"Inputs G600"</i>	13.00%	GT	Market Assumption
<b>Blended "equity" return</b> <i>"Inputs G602"</i>	15.00%	GT	Pre-tax Blended Equity IRR

2C) Other Assumptions	Assumed	Source	Comments
<b>Interest on cash balances</b> <i>"Inputs G657:G658"</i>	During operations: (1) a deposit interest rate of Base Rate less a 1% margin on positive cash balances, (2) a deposit interest rate of Base Rate plus a 1.5% margin on negative cash balances.	GT	Market Assumption
<b>Debtor / Creditor Days</b> <i>"Inputs H145:H154"</i>	30 days	GT	Market Assumption
<b>Accounting /Tax</b>	Fixed asset accounting with capital allowances	GT	Market Assumption

<b>2D) Project Dates</b>	<b>Assumed</b>	<b>Source</b>	<b>Comments</b>
<b>Financial Close</b> <i>"Inputs E22"</i>	31 March 2011	Authorities	Agreed expected date of financial close.
<b>Construction Start</b> <i>"Inputs E26"</i>	1 April 2011	Entec / Authorities	Expected start date of construction. The period from Financial Close to actual construction start will involve design development and planning work.
<b>Construction End</b> <i>"Inputs E37"</i>	31 March 2015	Entec / Authorities	Expected end date of construction.
<b>Start of Operations</b> <i>"Inputs E48"</i>	1 April 2015	Entec / Authorities	Expected start date of operations.
<b>End of Operations</b> <i>"Inputs E24"</i>	31 March 2040	Entec / Authorities	Reflects the desired 25 year operating contract.

### 3. THE PFI AFFORDABILITY MODEL

The PFI Affordability Model compares the reference project costs with the other options, which are the 'Do Minimum' and the MBT with RDF.

Costs arising or varying as a result of the chosen option are reflected in the Affordability Model and the total cost of an option, including the unitary charge in the case of a PFI, is compared against forecast budgets to identify any affordability issues.

#### 3.1. GENERIC AFFORDABILITY MODEL ASSUMPTIONS

	Assumed	Source	Comments
<b>Business rates</b>	£553,575 per annum (08/09 cost)	GT / Authorities	Calculated on the rateable value of the existing EfW Facility £1.1m and adjusted for multiplier (0.462) and facility capacity (109%).
<b>Business rate inflation</b>	RPI	Authorities	Reflects estimate of RPI

<b>Residual waste to landfill transportation cost</b>	N/A		N/A
<b>Residual waste to landfill transportation cost indexed</b>	N/A		N/A
<b>RHWS Haulage costs</b>	N/A		N/A
<b>Haulage Costs</b> <i>"Entecs Inputs Row36"</i>	£0.25 tonne per mile	Entec	Costs of transport per mile per tonne of waste. Applicable for Warwickshire only.
<b>Haulage Costs inflation</b>	RPI		Applies to Warwickshire only. Inflated from 01/04/09.

<b>Landfill Gate Fee - Active</b>	See section 3.2		See section 3.2
<b>Landfill Gate Fee - Inflation Active</b>	See section 3.2		See section 3.2
<b>Landfill Gate Fee - Inert</b>	See section 3.2		See section 3.2
<b>Landfill Gate Fee Inflation - Inert</b>	See section 3.2		See section 3.2

	Assumed	Source	Comments
<b>Landfill Tax (Active)</b>	scaled £ per tonne	Authorities	£8 per tonne increase until cap of £80 reached in 2014 then inflate at RPI.
<b>Landfill Tax Inflation - Active</b>	RPI	GT	Inflate landfill tax every year from April 2015. Reflects estimate of RPIX.
<b>Landfill Tax - (Inert)</b>	£2.50 per tonne	GT	From April 2008
<b>Landfill Tax Inflation - (Inert)</b>	RPI	GT	From April 2011 Reflects estimate of RPIX.
<b>LATS fines</b>	£150 per tonne	GT	Not applicable since trading position adopted.
<b>LATS price profile</b>		Entec	Purchasing LATS rather than incurring fines.
<b>Income from sale of LATS</b>	N/A	Entec	LATS banked not sold, assume national surplus
<b>Income from Recyclables</b>	£0 per tonne		None assumed

### 3.2. AUTHORITY SPECIFIC AFFORDABILITY MODEL ASSUMPTIONS

<b>3.2.1</b>	<b>Assumptions provided by Coventry City Council</b>
LATS Income	Warwickshire will purchase, where needed, 2/3rds of LATS requirements until March 2021.
Landfill Gate Fees (Active & Inert)	These costs reflect the current and future expected costs taking into account the existing and anticipated or planned contracts that the authority has with landfill operators.
Budgets and Costs	Reflects total budgets available and those available to pay for the Residual Waste PFI Contract.
Costs	Reflects current costs of waste management and disposal and the expected costs going forward, including those arising as a result of the Residual Waste PFI Contract. For instance procurement and contract and monitoring costs.

<b>3.2.2</b>	<b>Assumptions provided by Solihull Metropolitan Borough Council</b>
LATS Income	Warwickshire will purchase, where needed, 1/3rd of LATS requirements until March 2021.
Landfill Gate Fees (Active & Inert)	These costs reflect the current and future expected costs taking into account the existing and anticipated or planned contracts that the authority has with landfill operators.
Budgets and Costs	Reflects total budgets available and those available to pay for the Residual Waste PFI Contract.
Costs	Reflects current costs of waste management and disposal and the expected costs going forward, including those arising as a result of the Residual Waste PFI Contract. For instance procurement and contract and monitoring costs.

<b>3.2.2</b>	<b>Assumptions provided by Warwickshire County Council</b>
LATS Costs	Warwickshire will purchase as much of its LATS requirements until March 2021 from Coventry City Council & Solihull Metropolitan Borough Council and on the open market thereafter.
Landfill Gate Fees (Active & Inert)	These costs reflect the current and future expected costs taking into account the existing and anticipated or planned contracts that the authority has with landfill operators.
Budgets and Costs	Reflects total budgets available and those available to pay for the Residual Waste PFI Contract.
Costs	Reflects current costs of waste management and disposal and the expected costs going forward, including those arising as a result of the Residual Waste PFI Contract. For instance procurement and contract and monitoring costs.