



Worcestershire County Council – Waste PFI

Quantitative Value for Money Options Analysis

6 December 2013

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Deloitte has prepared this document in order to assist the Client in undertaking a quantitative Value for Money ("VfM") analysis of the proposal by the Council's existing contractor Mercia Waste Management Limited ("Mercia") to design, build and operate an EfW facility as a variation to the Council's current waste PFI contract as submitted to the Client in connection with the Project. No other party is entitled to rely on this document for any purpose whatsoever and Deloitte accepts no responsibility or liability to any party other than the Client in respect of this document and/or any of its contents.

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Our work was completed on 22 November 2013 and we have not updated our work since that date.

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1. Introduction

As part of the Council's Cabinet and the Department for Environment, Food and Rural Affairs ("DEFRA") approval process, the Council is required to undertake a VfM analysis to demonstrate that the EfW contract variation is a value for money proposition for the Council as compared to the other options available. In accordance with HM Treasury ("HMT") Guidance on VfM analysis as set out in the HMT Green Book, VfM is covered in the Economic Case which comprises a quantitative and qualitative analysis of options (this excludes PFI grant, which is a transfer payment between DEFRA and the Council and so is not relevant to the economic VfM analysis from an overall taxpayer perspective).

This report is only concerned with the quantitative financial analysis of the Council's VfM analysis. The qualitative analysis has been completed by the Council and its technical advisors and is not part of this report. The quantitative VfM analysis of the Council's options (as set out below) should be considered alongside the qualitative analysis by the Council in order that the VfM of the options can be determined as envisaged in the HMT Green Book Guidance.

The primary focus of the quantitative VfM analysis as set out in this section is to present the total non-risk adjusted and risk adjusted total nominal and Net Present Values ("NPVs" or "NPCs") of the options under consideration by the Council which assumes that financial close of the EfW contract variation is achieved on 31 December 2013. In addition, the impact of including PFI grant will be presented with the quantitative VfM analysis to inform the Council's affordability considerations. The affordability and budgeting of the Council's options is being considered separately by the Council and does not form part of this report.

A further scenario is also under consideration by the Council to represent a delay to financial close of 9 months which the Council has been advised by Mercia will be required to obtain commercial borrowing for those options requiring commercial borrowing. This has been estimated by Mercia's financial advisors in a delay model as detailed below.

The key dates are as follows:

- No delay scenario – assumes there is no delay and financial close is achieved on 31 December 2013; and
- Delay scenario – assumes there is a 9 month delay to financial close to obtain commercial borrowing and financial close is achieved on 30 September 2014.

The quantitative VfM analysis, as agreed with the Council is therefore based on the two scenarios:

- No delay - based on the Mercia financial model entitled "20131111_MERCIA_v20.xlsm" (the "Model") which assumes financial close is achieved on 31 December 2013; and
- Delay - for a 9 month delay to financial close based on the Mercia financial model entitled "20131112_MERCIA_v19_9M Delay Scenario_Updated.xlsm" (the "Delay Model") which assumes financial close is achieved on 30 September 2014.

We would draw the Council's attention to the following:

- The Model and Delay Model as provided by Mercia which will form the basis of the contract variation have been reviewed by the Council. Deloitte has also carried out a limited review of these models with a view to ensuring the content is appropriate and within expectation for projects of this nature, but has not audited or verified the inputs and assumptions or the logical integrity of the models; and

- The Model and Delay Model as provided by Mercia are subject to model audit by Mercia's model auditors. The Council should seek to confirm with Mercia at what point it accepts responsibility for changes as a result of the model audit i.e. whether any changes identified could have a financial impact on the Council.

The quantitative VfM analysis of the Council's options is based on the financial models submitted by Mercia as set out above, the Model submitted to the Council on 11 November 2013 and the Delay Model submitted to the Council on 13 November 2013. The Model and Delay Model represent a snapshot in time and are based on assumptions that are subject to change between the date of this report and signing the contract variation. This should be taken into consideration by the Council when making a judgement in respect of the quantitative and qualitative VfM of the Council's options.

This report is in two parts, Part A covers the quantitative VfM analysis of the Council's options in respect of the no delay scenario and Part B covers the quantitative VfM analysis of the Council's options in respect of the delay scenario.

2. Options under consideration

Deloitte was instructed to assist the Council in respect of the quantitative VfM analysis for the following options over the period from 1 April 2013 to 31 March 2042 to represent a 25 year operational period for the EfW facility in quantitative financial terms only:

- **Option 1:** Continue with the existing Mercia contract for waste services to its expiry in 2023. As part of the contract, Mercia constructs an EfW facility and operates it up to 2023. The construction of the EfW facility is financed by Mercia through commercial borrowing. Following the expiry of the Mercia contract in 2023, the Council procures a contract(s) to operate the EfW facility and carry out all other waste services;
- **Option 1a:** As Option 1 with the exception that the total debt funding for construction of the EfW facility and other services (c. £161.8m) is co-financed by the Council through Prudential Borrowing from the Public Works Loan Body ("PWLB") and by Mercia through commercial borrowing at 49% and 51% respectively;
- **Option 2:** As Option 1 with the exception that the construction of the EfW facility is financed by the Council through Prudential Borrowing from the PWLB and lends this onto Mercia on the same terms as the commercial borrowing within Option 1;
- **Option 3:** Continue "as is" with the existing Mercia contract for waste services to its expiry in 2023. However, an EfW facility is not constructed and instead all waste flows that were assumed to be allocated to the EfW facility are taken to landfill under the existing variation orders of the Mercia contract. Following the expiry of the Mercia contract in 2023, the Council procures a contract(s) to carry out all other waste services;
- **Option 4:** Terminate the current Waste PFI contract and procure a new Design, Build and Operate ("DBO") contract for an EfW facility and carry out all other waste services through a tender process; and
- **Option 5:** Terminate the current Waste PFI contract with Mercia and procure a new contract through a tender process to carry out all other waste services and merchant third party EfW capacity.

3. Approach

Deloitte worked with the Council to undertake the quantitative VfM analysis of the six options as set out above and to ascertain the inputs and assumptions required to model those options. The inputs and assumptions for the quantitative VfM analysis of the options have been drawn from key sources as follows (where inputs or assumptions have been provided by Mercia, these have been provided on a commercially confidential basis):

- Inputs and assumptions in relation to Prudential Borrowing provided by the Council for the no delay scenario. The versions used for the outputs set out below are entitled "Prudential Borrowing Model draft 7.0 - 100% prudential borrowing – updated (2).xlsx", "Prudential Borrowing Model draft 7.1.1 - 49% to 51% split - updated.xlsx" and "Prudential Borrowing Model draft 7.2 – Corp Financing.xlsx";
- Inputs and assumptions in relation to Prudential Borrowing provided by the Council for the delay scenario. The versions used for the outputs set out below are entitled "Prudential Borrowing Model draft 8.0 - 100% prudential borrowing.xlsx", "Prudential Borrowing Model draft 8.1 - 49% to 51% split.xlsx" and "Prudential Borrowing Model draft 8.2 – Corp Financing.xlsx";
- Inputs and assumptions from the Model provided by Mercia entitled "20131111_MERCIA_v20.xlsm" received from Mercia on 11 November 2013;
- Inputs and assumptions from the Delay Model provided by Mercia entitled "20131112_MERCIA_v19_9M Delay Scenario_Updated.xlsm" received from Mercia on 13 November 2013;
- Inputs and assumptions in relation to post 2023 costs provided by Mercia entitled "Mercia Unitary Charges 2024 – 2041 v 03 (Released 24 07 13).xlsx" received from Mercia on 24 July 2013;
- Various meetings, correspondence and discussions held with the Council's Project team and its advisors;
- Optimism Bias ("OB") and risk adjustment assumptions provided by the Council and its technical advisors (AMEC) as agreed in a risk workshop on 19 July 2013 in accordance with the WCC Options Assumptions ("WCC Options Assumptions v.1.8.pdf"; dated 18 November 2013); and
- Further risk adjustment assumptions agreed with the Council comprising a Lender's risk adjustment – to quantify the risk of the Council acting as lender in Options 1a, 2 and 4.

PART A: No Delay Scenario

4. Outputs

This section sets out the outputs from the quantitative VfM analysis of the Council's options under consideration in accordance with the WCC Options Assumptions and sources as detailed above. It should be noted that the analysis assumes that financial close for Options 1 and 1a is achieved on 31 December 2013.

4.1. Non-risk adjusted quantitative analysis

The non-risk adjusted quantitative analysis of the Council's options, as set out below, indicates that, in nominal and NPV terms, Option 4 (which assumes that the Council terminates the current Waste PFI contract and procures a new DBO contract for an EFW facility and to carry out all other waste services) has the lowest Unitary Charge and is c. £69m or c. 4.7% cheaper in nominal terms and c.£5m or c. 0.8% cheaper in NPV terms than the next lowest priced option, being Option 2 (to continue with the existing Mercia contract, including construction of an EFW facility financed by the Council through Prudential Borrowing from the PWLB).

The non-risk adjusted quantitative VfM analysis of the Council's options does not assume any OB, risk adjustments or any PFI grant.

4.1.1. Unitary Charge – Nominal

£ million	Unitary Charge Nominal – Excluding Optimism Bias				
	Pre – commissioning	Year 1 Post Construction	Year 2 Post Construction to end of Contract	Post Contract Period	Total
	1 Jan 2013 – 31 Dec 2016	1 Jan 2017 – 31 Dec 2017	1 Jan 2018 – 31 Dec 2023	1 Jan 2024 – 31 Dec 2042	
Option 1	161	48	311	1,040	1,560
Option1a	166	44	301	1,040	1,551
Option 2	158	41	284	1,049	1,532
Option 3	153	39	254	1,546	1,992
Option 4	196	39	263	965	1,463
Option 5	195	54	350	1,344	1,943

Table 4.1.1 Non-risk adjusted quantitative VfM analysis (Nominal) - Source: WCC Options Spreadsheet

4.1.2. Unitary Charge - NPV

Excluding Optimism Bias	Net Present Cost @ 1 April 2013 £m	Difference from Option 4 (%)
Option 1	677	4.6%
Option 1a	669	3.4%
Option 2	652	0.8%
Option 3	766	18.4%
Option 4	647	-
Option 5	821	26.9%

Table 4.1.2 Non-risk adjusted quantitative VFM analysis (NPV) - Source: WCC Options Spreadsheet

4.2. Risk adjusted quantitative analysis

The risk adjusted quantitative analysis of the Council's options, as set out below, indicates that, in nominal terms, Option 4 (which assumes that the Council terminates the current Waste PFI contract and procures a new DBO contract for an EfW facility and to carry out all other waste services) has the lowest Unitary Charge and is c. £7m or c. 0.4% cheaper in nominal terms than the next lowest priced option being Option 2, (to continue with the existing Mercia contract, including construction of an EfW facility financed by the Council through Prudential Borrowing from the PWLB).

In NPV terms, Option 2 (to continue with the existing Mercia contract, including construction of an EfW facility financed by the Council through Prudential Borrowing from the PWLB) has the lowest Unitary Charge and is c. £12m or c. 1.7% cheaper than the next lowest priced option, being Option 1a (to continue with the existing Mercia contract, including construction of an EfW facility co-financed by the Council through Prudential Borrowing from the PWLB and by Mercia through commercial borrowing).

4.2.1. Unitary Charge – Nominal

£ million	Unitary Charge Nominal – Including Optimism Bias				
	Pre – commissioning	Year 1 Post Construction	Year 2 Post Construction to end of Contract	Post Contract Period	Total
	1 Jan 2013 – 31 Dec 2016	1 Jan 2017 – 31 Dec 2017	1 Jan 2018 – 31 Dec 2023	1 Jan 2024 – 31 Dec 2042	
Option 1	172	48	316	1,135	1,671
Option1a	178	45	309	1,135	1,667
Option 2	172	43	297	1,144	1,656
Option 3	154	41	280	1,698	2,173
Option 4	279	42	278	1,050	1,649
Option 5	196	54	354	1,439	2,043

Table 4.2.1 Risk adjusted quantitative Vfm analysis (Nominal) - Source: WCC Options Spreadsheet

4.2.2. Unitary Charge – NPV Optimism Bias

£ million	Unitary Charge Nominal – Including Optimism Bias		
	Total Net Present Cost	Total Net Present Cost OB Adjustments	Total Net Present Cost – Including Optimism Bias
Option 1	677	38	715
Option1a	669	43	712
Option 2	652	48	700
Option 3	766	62	828
Option 4	647	105	752
Option 5	821	30	851

Table 4.2.2 Risk adjustments quantitative Vfm analysis (NPV) - Source: WCC Options Spreadsheet

4.2.3. Unitary Charge - NPV

Including Optimism Bias	Net Present Cost @ 1 April 2013 £m	Difference from Option 2 (%)
Option 1	715	2.1%
Option 1a	712	1.7%
Option 2	700	-
Option 3	828	18.3%
Option 4	752	7.4%
Option 5	851	21.6%

Table 4.2.3 Risk adjusted quantitative VfM analysis (NPV) - Source: WCC Options Spreadsheet

4.3. Impact of PFI Grant

The analysis set out below illustrates the impact of including PFI grant in the quantitative VfM analysis excluding and including Optimism Bias to inform the Council's affordability considerations:

Excluding Optimism Bias	PFI Credits Assumption	Excl PFI Credits	Incl PFI Credits	
		NPC £m	Impact £m	NPC £m
Option 1	Full allocation of PFI Credits	677	(41)	636
Option 1a	Full allocation of PFI Credits	669	(41)	628
Option 2	Full allocation of PFI Credits	652	(41)	611
Option 3	Partial allocation of PFI Credits due to absence of EfW Facility	766	(22)	744
Option 4	No PFI Credits following contract termination	647	(5)	642
Option 5		821	(5)	816

Table 4.3.1 Impact of PFI Grant on non-risk adjusted quantitative VfM analysis – Source: WCC Options Spreadsheet

Including Optimism Bias	PFI Credits Assumption	Excl PFI Credits	Incl PFI Credits	
		NPC £m	Impact £m	NPC £m
Option 1	Full allocation of PFI Credits	715	(41)	674
Option 1a	Full allocation of PFI Credits	712	(41)	671
Option 2	Full allocation of PFI Credits	700	(41)	659
Option 3	Partial allocation of PFI Credits due to absence of EfW Facility	828	(22)	806
Option 4	No PFI Credits following contract termination	752	(5)	747
Option 5		851	(5)	846

Table 4.3.2 Impact of PFI Grant on risk adjusted quantitative VfM analysis – Source: WCC Options Spreadsheet

5. No Delay Scenario Conclusion

Based on extensive discussions with the Council and its advisors, and in line with HMT guidance, where reasonable estimates could be provided, a range of assumptions have been incorporated and extrapolated to evaluate the risk adjusted quantitative VfM analysis of the Council's options. The outcome of this analysis is that the quantitative VfM difference for the no delay scenario between the risk adjusted Options 2 and 1a is c. 1.7% of total costs in NPV terms.

We would recommend, therefore, that the Council's decision should not be based on the quantified VfM analysis alone, but should link to the Council's qualitative considerations of the six options, but in particular Option 1, Option 1a and Option 2, taking account of other significant value factors relating for example to legal, strategic, contractual and economic development in assessing overall value for money. We understand that the qualitative aspects of the VfM analysis are being addressed by the Council and its technical advisors and will be reported separately.

PART B: Delay Scenario

6. Outputs

This section sets out the outputs from the quantitative VfM analysis of the Council's options under consideration in accordance with the WCC Options Assumptions and sources as detailed above. It should be noted that the analysis assumes that financial close for Options 1 and 1a is achieved on 30 September 2014.

6.1. Non-risk adjusted quantitative analysis

The non-risk adjusted quantitative analysis of the Council's options, as set out below, indicates that, in nominal and NPV terms, Option 4 (which assumes that the Council terminates the current Waste PFI contract and procures a new DBO contract for an EfW facility and to carry out all other waste services) has the lowest Unitary Charge and is c. £69m or c. 4.7% cheaper in nominal terms and c.£5m or c. 0.8% cheaper in NPV terms than the next lowest priced option, being Option 2 (to continue with the existing Mercia contract, including construction of an EfW facility financed by the Council through Prudential Borrowing from the PWLB).

The non-risk adjusted quantitative VfM analysis of the Council's options does not assume any OB, risk adjustments or any PFI grant.

6.1.1. Unitary Charge – Nominal

£ million	Unitary Charge Nominal – Excluding Optimism Bias				
	Pre – commissioning	Year 1 Post Construction	Year 2 Post Construction to end of Contract	Post Contract Period	Total
	1 Jan 2013 – 31 Dec 2016	1 Jan 2017 – 31 Dec 2017	1 Jan 2018 – 31 Dec 2023	1 Jan 2024 – 31 Dec 2042	
Option 1	161	44	321	1,051	1,577
Option1a	162	49	307	1,051	1,569
Option 2	158	41	284	1,049	1,532
Option 3	153	39	254	1,546	1,992
Option 4	196	39	263	965	1,463
Option 5	195	54	350	1,344	1,943

Table 6.1.1 Non-risk adjusted quantitative VfM analysis (Nominal) - Source: WCC Options Spreadsheet

6.1.2. Unitary Charge - NPV

Excluding Optimism Bias	Net Present Cost @ 1 April 2013 £m	Difference from Option 4 (%)
Option 1	683	5.6%
Option 1a	677	4.6%
Option 2	652	0.8%
Option 3	766	18.4%
Option 4	647	-
Option 5	821	26.9%

Table 6.1.2 Non-risk adjusted quantitative VFM analysis (NPV) - Source: WCC Options Spreadsheet

6.2. Risk adjusted quantitative analysis

The risk adjusted quantitative analysis of the Council's options, as set out below, indicates that, in nominal terms, Option 4 (which assumes that the Council terminates the current Waste PFI contract and procures a new DBO contract for an EfW facility and to carry out all other waste services) has the lowest Unitary Charge and is c. £7m or c. 0.4% cheaper in nominal terms than the next lowest priced option being Option 2 (to continue with the existing Mercia contract, including construction of an EfW facility financed by the Council through Prudential Borrowing from the PWLB).

In NPV terms, Option 2 (to continue with the existing Mercia contract, including construction of an EfW facility financed by the Council through Prudential Borrowing from the PWLB) has the lowest Unitary Charge and is c. £20m or c. 2.9% cheaper than the next lowest priced option, being Option 1a (to continue with the existing Mercia contract, including construction of an EfW facility co-financed by the Council through Prudential Borrowing from the PWLB and by Mercia through commercial borrowing).

6.2.1. Unitary Charge – Nominal

£ million	Unitary Charge Nominal – Including Optimism Bias				
	Pre – commissioning	Year 1 Post Construction	Year 2 Post Construction to end of Contract	Post Contract Period	Total
	1 Jan 2013 – 31 Dec 2016	1 Jan 2017 – 31 Dec 2017	1 Jan 2018 – 31 Dec 2023	1 Jan 2024 – 31 Dec 2042	
Option 1	172	45	326	1,146	1,689
Option1a	174	51	314	1,146	1,685
Option 2	172	43	297	1,144	1,656
Option 3	154	41	280	1,698	2,173
Option 4	279	42	278	1,050	1,649
Option 5	196	54	354	1,439	2,043

Table 62.1 Risk adjusted quantitative VFM analysis (Nominal) - Source: WCC Options Spreadsheet

6.2.2. Unitary Charge – NPV Optimism Bias

£ million	Unitary Charge Nominal – Including Optimism Bias		
	Total Net Present Cost	Total Net Present Cost OB Adjustments	Total Net Present Cost – Including Optimism Bias
Option 1	683	39	722
Option1a	677	43	720
Option 2	652	48	700
Option 3	766	62	828
Option 4	647	105	752
Option 5	821	30	851

Table 6.2.2 Risk adjustments quantitative VFM analysis (NPV) - Source: WCC Options Spreadsheet

6.2.3. Unitary Charge - NPV

Including Optimism Bias	Net Present Cost @ 1 April 2013 £m	Difference from Option 2 (%)
Option 1	722	3.1%
Option 1a	720	2.9%
Option 2	700	-
Option 3	828	18.3%
Option 4	752	7.4%
Option 5	851	21.6%

Table 6.2.3 Risk adjusted quantitative VfM analysis (NPV) - Source: WCC Options Spreadsheet

6.3. Impact of PFI Grant

The analysis set out below illustrates the impact of including PFI grant in the quantitative VfM analysis excluding and including Optimism Bias to inform the Council's affordability considerations:

Excluding Optimism Bias	PFI Credits Assumption	Excl PFI Credits	Incl PFI Credits	
		NPC £m	Impact £m	NPC £m
Option 1	Full allocation of PFI Credits	683	(41)	642
Option 1a	Full allocation of PFI Credits	677	(41)	636
Option 2	Full allocation of PFI Credits	652	(41)	611
Option 3	Partial allocation of PFI Credits due to absence of EfW Facility	766	(22)	744
Option 4	No PFI Credits following contract termination	647	(5)	642
Option 5		821	(5)	816

Table 6.3.1 Impact of PFI Grant on non-risk adjusted quantitative VfM analysis - Source: WCC Options Spreadsheet

Including Optimism Bias	PFI Credits Assumption	Excl PFI Credits	Incl PFI Credits	
		NPC £m	Impact £m	NPC £m
Option 1	Full allocation of PFI Credits	722	(41)	681
Option 1a	Full allocation of PFI Credits	720	(41)	679
Option 2	Full allocation of PFI Credits	700	(41)	659
Option 3	Partial allocation of PFI Credits due to absence of EfW Facility	828	(22)	806
Option 4	No PFI Credits following contract termination	752	(5)	747
Option 5		851	(5)	846

Table 6.3.2 Impact of PFI Grant on risk adjusted quantitative VfM analysis – Source: WCC Options Spreadsheet

7. Delay Scenario Conclusion

Based on extensive discussions with the Council and its advisors, and in line with HMT guidance, where reasonable estimates could be provided, a range of assumptions have been incorporated and extrapolated to evaluate the risk adjusted quantitative VfM analysis of the Council's options. The outcome of this analysis is that the quantitative VfM difference for the delay scenario between the risk adjusted Options 2 and 1a is c. 2.9% of total costs in NPV terms.

We would recommend, therefore, that the Council's decision should not be based on the quantified VfM analysis alone, but should link to the Council's qualitative considerations of the six options, but in particular Option 1, Option 1a and Option 2, taking account of other significant value factors relating for example to legal, strategic, contractual and economic development in assessing overall value for money. We understand that the qualitative aspects of the VfM analysis are being addressed by the Council and its technical advisors and will be reported separately.

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