

LEEDS CITY COUNCIL

RESIDUAL WASTE MANAGEMENT PFI PROJECT

HM TREASURY VFM MODEL

PFI Value for Money Quantitative Assessment

What is this spreadsheet for?

This Excel model is designed to assist the evaluation of Value for Money for an individual project by comparing PFI against conventional procurement methods. The quantitative evaluation is only one pass of the assessment for Vfm and should be supplemented by qualitative judgements.

This Excel model should be used in conjunction with the Quantitative Assessment User Guide. This may be accessed from the HMT website:

http://www.hm-treasury.gov.uk/documents/public_private_partnerships/key_documents/ppp_keydocs_index.cfm

How do you use the spreadsheet?

This workbook displays an Input sheet (containing inputs which need to be provided by the user), and an Output sheet with "switches" which are used for running the Spreadsheet, as well as an "Output Box" and charts which display all relevant outputs.

Excel will need to be correctly configured to allow the running of macros. If the running of macros is denied, this may be on account of security settings. The user should check that the macro security setting in Tools/Options/Security/Macro-Security is set to either low or medium

There are essentially 2 steps when using the Spreadsheet:-

Step 1.

The user should insert values for each of the aqua-marine coloured inputs in the Input sheet. With the exception of the "Indirect Vfm Factors" all other inputs should be expressed in real terms. Guidelines are provided for filling in many of the inputs. An instruction box will appear when sitting on the relevant cell **Those cells which are grey are hard-wired variables which should NOT be changed by the user.**

Step 2.

Having filled in all the amber and aqua marine input boxes with appropriate values, the Spreadsheet may be run and the outputs assessed. The Spreadsheet is run by clicking on the grey switches immediately to the left of the Output Box in the Output sheet. The user should first click on the relevant Pre Tax Target IRR Switch to determine the "Indicative" PFI Vfm value. A positive value indicates that the PFI Option may be more likely to provide Vfm than conventional procurement.

The Indifference Switches may then be clicked as part of the assessment. Each switch determines, based on the assumed IRR Target, the level of change required in each relevant variable to erode to zero the net present value difference between the PFI Option and the CP Option.

The line graphs in the Output-Indifference sheet show the effect on the "Indicative" Vfm PFI value of increasing and decreasing each relevant cost variable under the conventional procurement (CP) Option, and the Unitary Charge under the PFI option. Combined scenarios may be run by changing the CP sensitivity multiplier values in the Output sheet

What are on these sheets?

"Input - Assumptions":	Contains all inputs and a table which should be used to list the assumptions and sources which underlie the input value:
"Input Summary":	Contains input values and hard-wired values required to run the mode
"Output - Indifference":	Contains the main outputs, switches to test the effect of changing key inputs, and a graph showing how changing key inputs affects Vfm
"Output - Stashed Scenarios":	Allows you to save several scenarios after changing key variables
"Print All":	Contains a print macro to allow you to print all the relevant tables and graphs

In case of error and problems...

The user should enter all input values before running the Spreadsheet. Failure to introduce sensible values for all inputs may cause the Spreadsheet to generate spurious outputs. In the event that #DIV/0!s, #NUM!s or other error messages are propagated in the the IRR section of the Output Box, revise the inputs and press the "IRR Stabiliser" switch to clear these. Similarly, in the event that there is non-convergence, giving rise to very large Indifference Point values, with ##### appearing in the Indifference Points section of the Output Box, then having revised the inputs, use the "IP Stabiliser" switch to clear these.

In the event that clarification with respect to Spreadsheet usage is required, please contact Nick Forster at Partnerships UK at the following e-mail address

nick.forster@partnershipsuk.org.uk

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Input and Assumptions Sheet

Note: As per the "Value for Money Assessment Guidance", procuring authorities should provide a table listing the assumptions behind each of the inputs. This table can be used as a template for this.

Input	Values		Assumptions & Rationale	Source
Timings				
Contract period (years)		28	Agreed length of contract based on commercial considerations	LCC Project Team
Initial CapEx period (years)		4	Standard build and commissioning period	Technical Advisors
Year when OpEx is first incurred (years)		5	As above	As above
Proportion of UC during initial CapEx period payment		0%	Single plant	Technical Advisors
Escalators	Rates	Base Year		
CapEx escalator	2.5%	0	Differential inflation already included	Financial Advisors
OpEx (non employment) escalator	2.5%	0	Standard macroeconomic assumption	Financial Advisors
OpEx (employment) escalator	2.5%	0	Standard macroeconomic assumption	Financial Advisors
Unitary charge escalator	50%	0	In line with cost base	Financial Advisors
COSTS AND REVENUES				
Whole Life Costs				
CP				
Initial CapEx (£'000)		117,381	Consistent with affordability model	Technical Advisors
Lifecycle costs at each LC date (£'000)		350	£8,400k over full operating period	Technical Advisors
Lifecycle intervals (yrs)		1	4 times in contract, average of every 7 years	Technical Advisors
OpEx (non employment)(p.a.) (£'000)		7,749	Industry benchmark	Technical Advisors
OpEx (employment per person) (p.a.) (£'000)		0	As above	Technical Advisors
OpEx (employee number)		0	As above	Technical Advisors
PFI				
Initial CapEx (£'000)		117,381	Consistent with affordability model	Technical Advisors
Lifecycle costs at each LC date (£'000)		350	£8,400k over full operating period	Technical Advisors
OpEx (non employment)(p.a.) (£'000)		8,010	Includes SPV management	Financial Advisors
OpEx (employee number)		0	As above	Technical Advisors
Transaction Costs				
CP		2,000	Includes client contract management	LCC Project Team
PFI		1,000	Experienced LCC team	LCC Project Team
Third Party Income				
CP		3,444	Standard electricity assumptions	Technical Advisors
PFI		3,444	As above, market price same for public sector and private client	Technical Advisors

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Note: As per the "Value for Money Assessment Guidance", procuring authorities should provide a table listing the assumptions behind each of the inputs. This table can be used as a template for this.

Input	Values		Assumptions & Rationale	Source
OPTIMISM BIAS	Optimism bias pre-FBC	Optimism bias post-FBC		
Whole Life Costs				
Initial CapEx	31%	13%	See detailed appendix	Pre and Post FBC Calculation Tools
Lifecycle costs at each LC date	10%	5%	See detailed appendix	Pre and Post FBC Calculation Tools
OpEx	10%	19%	See detailed appendix	Pre and Post FBC Calculation Tools
Transaction Costs (CP option)	10%	10%	Standard contingency	LCC Project Team
Third Party Income (CP option)	1%	1%	Reflects potential up-side - broadly neutral risk	LCC Project Team
Flexibility				
Scope change year		15	Certainty of waste stream - low likelihood of change	Technical Advisors
Probability factor (%)		30%	As above	Technical Advisors
Level of scope change (%)		10%	As above	Technical Advisors
Premium Flexibility Factor (PFI option)		10%	Standard margin	Financial Advisors
Indirect VFM Factors				
CP Amount NPV (£000s)		0		
PFI Amount NPV (£000s)		2,000	Design enhancement and innovation - strong competition more likely through PFI	Project Team
Tax				
CP adjustment factor (%)		10%	See detailed appendix	Financial Advisors
PFI Funding				
Gearing (%)		85%	Commercial experience	Financial Advisors
Sterling swap rate (%)		6.00%	Commercial experience	Financial Advisors
Credit spread (bps)		15	Commercial experience	Financial Advisors
Bank margin (bps)		105	Commercial experience	Financial Advisors

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Input sheet

General				
Timings	(Yrs)	Rates - Escalators & Discount	Rates (%)	Base Year
Contract period	28	CapEx escalator	2.5%	0
Initial CapEx period	4	OpEx (non employment) escalator	2.5%	0
Year when OpEx is first incurred	5	OpEx (employment) escalator	2.5%	0
Proportion of UC in initial CapEx period payment (%)	0%	Unitary charge escalator	50%	0
		Nominal discount rate	6.09%	NA

PFI Funding	
Gearing (%)	85%
Sterling swap rate (%)	6.00%
Credit spread (bps)	15
Bank margin (bps)	105
Tail for bank debt (yrs)	2
Commitment fee (bps)	50
Upfront fee (bps)	90
Grace period (yrs)	1

Costs					
Whole Life	CP	OB Pre (%)	OB Post (%)	PFI	OB Pre (%)
Initial CapEx (£'000)	117,381	31%	13%	117,381	31%
Lifecycle costs at each LC date (£'000)	350	10%	5%	350	10%
Lifecycle intervals (yrs)	1	NA	NA	1	NA
OpEx (non employment)(p.a.) (£'000)	7,749	10%	19%	8,010	10%
OpEx (employment per person) (p.a.) (£'000)	0	NA	NA	0	NA
OpEx (employee number)	0	NA	NA	0	NA
Transaction					
Public sector (£'000)	2,000	10%	10%	1,000	10%
Private sector (£'000)	0	0%	0%	1,761	10%

Pre Tax IRR Targets	
High	18%
Medium	15%
Low	13%

Third Party Income					
	CP	OB Pre (%)	OB Post (%)	PFI	OB Pre (%)
Income (p.a.) (£'000)	3,444	1%	1%	3,444	1%

Flexibility		
	CP	PFI
Scope change year	15	15
Probability factor (%)	30%	30%
Level of scope change (%)	10%	10%
Premium flexibility factor (%)	0	10%

bps

CapEx

LC

NA

OB Pre

OB Post

OpEx

CP

Basis Points

Capital Expenditure

Lifecycle Costs

Not Applicable - **no input required**

Pre-FBC Optimism Bias

Post-FBC Optimism Bias (for CP only)

Operational Expenditure

Conventional Procurement

Input required (can link from previous sheet)

Hard-wired Assumption - **no input required**

Indirect VfM Factors		
	CP	PFI
Amount (Npv)(£'000)	0	2,000

Tax		
	CP	PFI
CP adjustment factor (%)	10%	NA

Lifecycle Related Adjustments	
Lifecycle / residual cost benchmark	50%
CP lifecycle VfM adjustment if lower than benchmark	40%
CP lifecycle VfM adjustment if higher than benchmark	40%
CP residual cost factor if lower than benchmark	70%
CP residual cost factor if higher than benchmark	35%

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Output sheet - Indifference points (see User Guide paras A17-A37)

Output Box	
Scenario name	Indicative Vfm -15% IRR
IRRs	
Pre Tax Equity IRR	15.01%
Pre Tax Project IRR	9.17%
VFM	
"Indicative" PFI Vfm	3.22%
Indifference Points (IP)	
CP	
Initial CapEx	0%
OpEx (Non Employment)	0%
OpEx (Employment)	0%
Transaction Costs	0%
PFI	
Unitary Charge	0%
Other Values	
CP Costs (NPV)	-289
PFI Costs (NPV)	-280
Unadjusted Annual Unitary Charge	23.8

Switches
IRR

The "Indicative" PFI Vfm value is determined by selecting the target IRR switch which corresponds closest to the PFI Contractor's expected return.

Indifference Points (IP)

Running an Indifference Point switch gives the percentage increase/decrease in the variable required to give the point of indifference between the two procurement options.

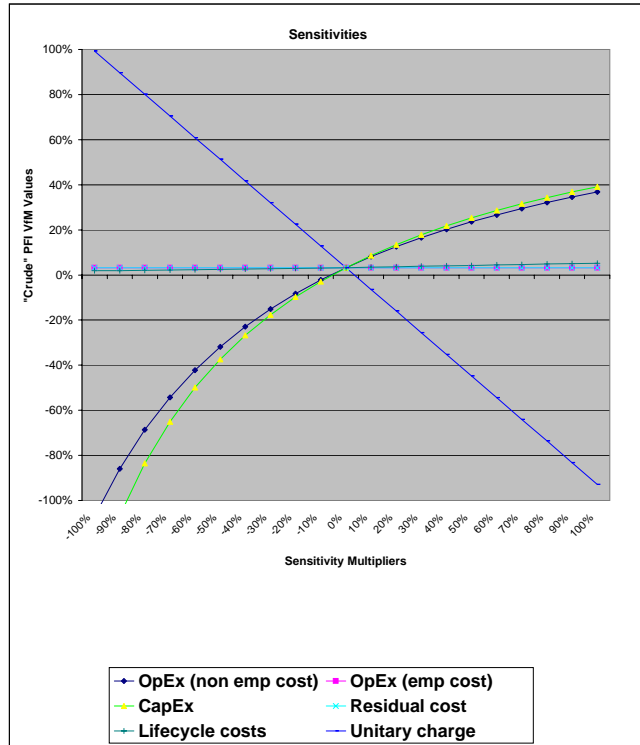
In the event that #DIV/0!s, #NUM!s or other error messages appear in the Output Box, having updated the relevant inputs, the stabiliser switch should be used to clear the errors.

A separate shadow bid model should be developed to calculate the projected unitary charge. There are a number of simplifying assumptions underpinning the Vfm Spreadsheet which means that Local Authorities should not use the Unadjusted Annual Unitary Charge figure shown in the Output Box as a proxy for affordability purposes.

CP Sensitivity Multipliers	
CapEx(%)	0%
Lifecycle (%)	0%
OpEx (non employment) (%)	0%
OpEx (employment) (%)	0%
Transaction (%)	0%
Residual cost (%)	0%
Third party income (%)	0%

Check	
Senior Debt Fully Repaid?	TRUE
Pre Tax IRR = Target?	TRUE
Total Cashflows = Zero?	TRUE

The Output Box results may be recorded in the separate "Output-Stacked Scenarios" spreadsheet by clicking the Stash Scenarios switch.



"Indicative" PFI Vfm Sensitivity Values

Multiplier	OpEx (Non Employment)	OpEx (Employment)	CapEx	Residual Cost	Unitary Charge	Lifecycle Cost
-100%	-107.1%	3.2%	-136.6%	3.2%	99.3%	1.8%
-90%	-85.9%	3.2%	-106.7%	3.2%	89.7%	2.0%
-80%	-68.6%	3.2%	-83.6%	3.2%	80.1%	2.1%
-70%	-54.3%	3.2%	-65.1%	3.2%	70.5%	2.3%
-60%	-42.2%	3.2%	-49.9%	3.2%	60.9%	2.4%
-50%	-31.9%	3.2%	-37.4%	3.2%	51.2%	2.5%
-40%	-23.0%	3.2%	-26.7%	3.2%	41.6%	2.7%
-30%	-15.2%	3.2%	-17.6%	3.2%	32.0%	2.8%
-20%	-8.3%	3.2%	-9.8%	3.2%	22.4%	2.9%
-10%	-2.2%	3.2%	-2.9%	3.2%	12.8%	3.1%
0%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%
10%	8.1%	3.2%	8.6%	3.2%	-6.4%	3.4%
20%	12.5%	3.2%	13.4%	3.2%	-16.0%	3.6%
30%	16.6%	3.2%	17.8%	3.2%	-25.6%	3.8%
40%	20.2%	3.2%	21.7%	3.2%	-35.2%	4.0%
50%	23.6%	3.2%	25.3%	3.2%	-44.8%	4.2%
60%	26.7%	3.2%	28.5%	3.2%	-54.4%	4.4%
70%	29.5%	3.2%	31.5%	3.2%	-64.0%	4.6%
80%	32.1%	3.2%	34.3%	3.2%	-73.6%	4.8%
90%	34.6%	3.2%	36.8%	3.2%	-83.2%	5.0%
100%	36.8%	3.2%	39.2%	3.2%	-92.8%	5.2%

The chart shows the impact on the "Indicative" PFI Vfm Value of inflating and deflating the relevant tabulated PSC cost variable and the Unitary Charge by different multiplier values, varying from -100% to 100%.

(i) Where the x axis (corresponding to a zero Vfm Value) is traversed, the point of indifference between the two procurement options has been reached.

(ii) Various hard-wired lifecycle related assumptions, (i.e.) in connection with the Residual Cost and the Vfm Adjustment factor, will result in adjustments only in the event that pre-determined benchmarks are reached. Since such adjustments are "stepped", rather than gradual, it is likely that the lifecycle cost line will be skewed.

For further information, please refer to section < > of the User Guide.

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Output sheet - Stashed Scenarios (see see "Quantitative Assessment User Guide" pp. 10-15)

<p>Scenario name</p> <p>IRRs</p> <p>Pre Tax Equity IRR</p> <p>Pre Tax Project IRR</p> <p>VfM</p> <p>"Indicative" PFI VfM</p> <p>Indifference Points</p> <p>CP</p> <p>Initial CapEx</p> <p>OpEx (Non Employment)</p> <p>OpEx (Employment)</p> <p>Transaction Costs</p> <p>PFI</p> <p>Unitary Charge</p> <p>Other Values</p> <p>CP Costs (NPV)</p> <p>PFI Costs (NPV)</p> <p>Unadjusted Annual Unitary Charge</p>
<p>CP Sensitivity Multipliers</p> <p>CapEx</p> <p>Lifecycle</p> <p>OpEx (non employment)</p> <p>OpEx (employment)</p> <p>Transaction</p> <p>Residual cost</p> <p>Third party income</p>

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Appendix 8a (ii)

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To print all the sheets, click this button



To print individual sheets, click the individual buttons

Table	Sheet name
Assumptions page	"Input - Assumptions"
Inputs	"Input Summary"
Main output page	"Output - Indifference"
Scenarios page	"Output - Stashed Scenarios"