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Please enter your unique NFFO5 reference number as shown on the cover of the guidance notes and attach to the front of part one of the questionnaire before returning.

**NON-FOSSIL FUEL  
OBLIGATION  
FIFTH ORDER**

**ECONOMIC QUESTIONNAIRE**

**JANUARY 1998**

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## IMPORTANT

**APPLICANTS ARE ADVISED TO READ THE GUIDANCE NOTES AND THE INFORMATION ON OFFER'S ECONOMIC APPRAISAL METHODOLOGY BEFORE COMPLETING THE QUESTIONNAIRE .**

**PART ONE : ECONOMIC QUESTIONNAIRE**

**PLEASE NOTE: DETAILS TO BE PRINTED  
CLEARLY IN THE SHADED AREAS ONLY**

## SECTION 1: GENERAL DETAILS

Answer Questions 1 to 7 on this page

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Please enter your unique NFFO5 Reference number

### 1 APRIL 1998 PRICES

1.	Project Name (the facility)								
2.	Commissioning Date	Day	Month	Year	Day	Month	Year		
3.	Project End Date	Day	Month	Year	Day	Month	Year		
4.	Initial Tender Price (p/kWh) (1 April 1998 prices)								
5.	Contract Duration No of Years (Max 15 years)								
6.	Connection Cost (£'s)								
7.	Connection Date	Day	Month	Year	Day	Month	Year		



**SECTION 3: OTHER REVENUES**

Answer question 10 on this page

**1 APRIL 1998 PRICES**

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Please enter your unique NFFO5 Reference number

10. Period	Other Revenue Streams*					Total
	(£'s)	(£'s)	(£'s)	(£'s)	(£'s)	
1Apr - 31Mar						
98/99						
99/00						
00/01						
01/02						
02/03						
03/04						
04/05						
05/06						
06/07						
07/08						
08/09						
09/10						
10/11						
11/12						
12/13						
13/14						
14/15						
15/16						
16/17						
17/18						
18/19						
Ongoing						

\*If applicable, please enter description of other revenue stream/s

\*M&IW with CHP schemes must enter expected revenue from heat sales





# SECTION 6: OTHER OPERATING COSTS

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Please enter your unique NFFO5 Reference number

Answer question 16 on this page

1 APRIL 1998 PRICES

		Other Operating Costs*						Total
16.	Period	(£'s)	(£'s)	(£'s)	(£'s)	(£'s)	(£'s)	
	1 Apr - 31 Mar							
	98/99							
	99/00							
	00/01							
	01/02							
	02/03							
	03/04							
	04/05							
	05/06							
	06/07							
	07/08							
	08/09							
	09/10							
	10/11							
	11/12							
	12/13							
	13/14							
	14/15							
	15/16							
	16/17							
	17/18							
	18/19							
	Ongoing							

\*If applicable, please enter description of other operating costs (ie rent, rates, development costs, etc.)

**SECTION 7: REFURBISHMENT AND OTHER COSTS**

Answer questions 17, 18 and 19 on this page

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Please enter your unique NFFO5 Reference number

**1 APRIL 1998 PRICES**

17.	Period 1 Apr - 31 Mar	Land (£'s)
	98/99	
	99/00	
	00/01	
	01/02	
	02/03	
	03/04	
	04/05	
	05/06	
	06/07	
	07/08	
	08/09	
	09/10	
	10/11	
	11/12	
	12/13	
	13/14	
	14/15	
	15/16	
	16/17	
	17/18	
	18/19	
	Ongoing	
	*	
	*	

18.	Period 1 Apr - 31 Mar	Buildings (£'s)
	98/99	
	99/00	
	00/01	
	01/02	
	02/03	
	03/04	
	04/05	
	05/06	
	06/07	
	07/08	
	08/09	
	09/10	
	10/11	
	11/12	
	12/13	
	13/14	
	14/15	
	15/16	
	16/17	
	17/18	
	18/19	
	Ongoing	
	*	
	*	

19.	Period 1 Apr - 31 Mar	Plant/Others (£'s)
	98/99	
	99/00	
	00/01	
	01/02	
	02/03	
	03/04	
	04/05	
	05/06	
	06/07	
	07/08	
	08/09	
	09/10	
	10/11	
	11/12	
	12/13	
	13/14	
	14/15	
	15/16	
	16/17	
	17/18	
	18/19	
	Ongoing	
	*	
	*	

\* Enter date and cost details for any refurbishment after the end of the contract life

Project No 

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**DECLARATION**

**To be completed by all applicants - your attention is drawn to the warning concerning the provision of information on pages 3 and 4 of the Tender Pack Guidance Notes**

**I, the applicant, confirm that the information provided in this questionnaire is, to the best of my knowledge and belief, true and correct.**

Name of Applicant: .....

Position in Company: .....

Company: .....

Address, telephone and fax number .....

.....

.....

.....

TEL:.....FAX:.....

Signature: .....

Date: .....

Where the above is not the Seller (see page 2 of the Technical Questionnaire)

I, the Seller, confirm that the above is acting as agent on my behalf:

Signed: .....

Name: .....

Position in Company: .....

Company: .....

.....

## **PART TWO : GUIDANCE NOTES**

**NFFO5 ECONOMIC QUESTIONNAIRE**  
**PART TWO : GUIDANCE NOTES**

**1. GENERAL**

1.1 The questionnaire which forms Part One of this document is designed to be simple to complete, and will be used as the basis for standard input into a computer model. Duplication of information requested in the Technical Questionnaire has been kept to a minimum, though this has been necessary in some places. In completing the questionnaire please note the following:

- Please ensure that **all** entries are legible;
- Please insert your unique NFFO5 reference number in the relevant boxes throughout Part One of the questionnaire;
- Please only provide the information requested by the questionnaire. Do not submit any additional information or documents;
- Information should only be entered in the shaded boxes of the questionnaire;
- All costs should be given in pounds sterling, i.e. a connection cost of one hundred and twenty five thousand pounds should be entered as £125,000;
- Information should be supplied on a **Financial** year basis (i.e. April to March);
- All cost data should be provided in constant **1 April 1998 prices**;
- Do **not** include any element for inflation;
- Do not include VAT;
- Capital cost data should **not** include finance charges (e.g. do not include interest payments);
- Do **not** include any depreciation charges in your cost data;
- Do **not** include any estimate for capital receipts (e.g. residual values)
- It will be assumed that any data entered under the "Ongoing" box will apply to each subsequent year of the project's life.

- 1.2 The requested information should be completed as far into the future as possible. The questionnaire allows for annual data to be entered for **GENERATING CAPACITY, OUTPUT AND "OTHER" REVENUE** up to the financial year 2018/2019. Any figure entered under "ongoing" will be used for every subsequent year of the expected life of the project (it is assumed that most projects will continue to operate after their Power Purchase Agreement has expired).
- 1.3 Annual data for **CAPITAL COSTS** can be entered up to the financial year 2018/2019. Any capital costs incurred beyond that date should be entered in the boxes headed "**Refurbishment & Other Costs**" together with an **indication of the year in which they are expected to occur**.
- 1.4 Annual data for **OPERATING COSTS** can also be entered up to the financial year 2018/2019. Any figure entered under "ongoing" will be used for every subsequent year of the expected life of the project.
- 1.5 **REFURBISHMENT & OTHER COSTS** can be entered up to the financial year 2018/2019. Any such costs incurred beyond that date should also be entered, showing the year in which they are expected to occur.
- 1.6 In providing cost information, please only detail those costs which are directly attributable to the project itself. A "project" here refers to each renewable generation project for which there will be a separate Power Purchase Agreement (contract).
- 1.7 **PART YEAR DATA** - If any data is applicable for part of the year only, generators are requested to apply the following methodology to arrive at the appropriate part year figure:

$$\frac{FULL\ YEAR\ DATA}{12} \times RELEVANT\ NUMBER\ OF\ MONTHS$$

For example, a project with an annual output of 48,000 MWh, but has a contract start date of November, will have a reduced output of 20,000 MWh its first year of operation, i.e.

$$\frac{48,000MWh}{12} \times 5\ MONTHS\ (NOV - MAR)$$

- 1.8 When completing your questionnaire, both typed or hand-written entries are acceptable, but please ensure that **ALL** entries are legible. Poorly completed or illegible questionnaires may delay OFFER's appraisal of your project.

- 1.9 **Completed Economic Questionnaires, together with completed Technical and Commercial Questionnaires, must be received at OFFER HQ, Hagley House, Hagley Road, Edgbaston, Birmingham B16 8QG by 12 noon on 1 May 1998. Please note that FACSIMILES WILL NOT BE ACCEPTED.**
- 1.10 A completed example of the questionnaire is contained in Part Four of the questionnaire. A checklist of **OPERATING, CAPITAL and REFURBISHMENT / OTHER** cost items has been included at 2.2 to 2.4 below.

#### **CONFIDENTIALITY**

- 1.11 The information supplied to OFFER in the economic questionnaires will not be made available to any parties, other than OFFER (or to agents acting under its instruction) and the Department of Trade and Industry (DTI), in a form which permits the identification of individual generators or projects during the course of its appraisal.
- 1.12 Information will be made available to DTI in assisting the Secretary of State in determining the appropriate size and structure of the NFFO5 Order, and to enable DTI to meet its responsibilities in monitoring and developing its policy on renewable energy after the Order has been made.

## 2. QUESTIONNAIRE CHECKLIST

2.1 The following checklist is included to assist your completion of the questionnaire in relation to **Capital Costs, Operating Costs and Refurbishment/Other Costs** data. Please note that the checklist is **not exhaustive**, and in some cases relevant items of cost may not be specified here - please include such costs.

### 2.2 OPERATING COSTS      Manpower

Wages/Salaries;  
Bonuses;  
Employer's National Insurance Contribution;  
Employer's pension contribution;  
Other Benefits.

#### Fuel

Annual fuel costs for the project, including (where applicable) the cost of any supplementary fossil fuels consumed in the process of power generation (e.g. fossil fuels for plant start up).

#### Other Operating Costs

Rent and business rates;  
Insurance;  
Computer software;  
Office supplies;  
Administration;  
Use of utilities (gas, water, telephone etc);  
Travel and subsistence;  
Sundry expenses;  
On-going maintenance and repair;  
Rental on leased property;  
Development costs (e.g. legal advice, consultancy fees, research costs etc.);  
Charges for operation and maintenance of connection;  
Licence fees and Pool Membership costs.

### 2.3 CAPITAL COSTS      Land

Land Purchase or leasing costs;  
Road construction;  
Utility connection (gas, electricity, water, telephone).

2.3 **CAPITAL COSTS**  
(continued)

Buildings

Building construction / initial refurbishment;  
Building purchase or lease premiums.

Plant and Other Capital Expenditure

Vehicles;  
Computer hardware;  
Fixtures and fittings;  
Purchase costs of spare parts.

2.4 **REFURBISHMENT &  
OTHER COSTS**

Upgrade of buildings;  
Upgrade of plant & machinery;  
Decommissioning costs.

### 3. COMPLETION OF THE ECONOMIC QUESTIONNAIRE

The Economic Questionnaire forms Part ONE of this document. Each of the following numbered points refer to the numbered rows on the questionnaire itself. The descriptions should assist you in completing the questionnaire.

#### SECTION 1

1. PROJECT NAME

Please insert the project name.

2. COMMISSIONING NOMINATED DATE

Please insert the day, month and year in which electricity generation is expected to commence for the purpose of the Power Purchase Agreement.

In the case of phased projects, please indicate the day, month and year in which electricity generation is expected to commence from the **FIRST PHASE** [*Answer to agree with question 1.6 of the Technical Questionnaire*].

3. PROJECT END DATE

Please insert the day, month and year in which generation is expected to cease. It is envisaged that most projects will continue to operate after their Power Purchase Agreement has expired. [*Answer to reflect the information given in reply to question 2.12 of the Technical Questionnaire*].

4. INITIAL TENDER PRICE IN p/kWh

Please provide the initial tender price (p/kWh), to a maximum of two decimal places, at which you are offering to sell the electrical output from the project. Please note that a single **real** price will apply to the project throughout the life of its Power Purchase Agreement.

5. CONTRACT DURATION

Please insert the number of years you wish your NFFO Power Purchase Agreement (contract) to run (maximum of 15 years). [*Answer to agree with question 1.7 of the Technical Questionnaire*]

6. **CONNECTION COST**

Please provide the expected cost of connecting the project to the distribution system (£'s), i.e. a connection cost of one hundred thousand pounds sterling should be entered as £100,000. If the connection work is to be carried out by the host PES then the figure you give should be the budget connection cost provided by the host PES.

If an alternative contractor is being used to carry out the contestable aspects of the connection work then you should include the cost of both the part of the work to be carried out by the PES and the work to be carried out by a contractor.

**Please note that the cost of connection to the host REC should not be included in your answer to any other question.**

7. **CONNECTION DATE**

Please indicate the expected date (month and year) of connection of the project to the distribution system. *[Answer to agree with question 5.5(a) of the Technical Questionnaire.]*

**SECTION 2 : OPERATING DATA**

8. **CONTRACTED CAPACITY**

Please insert the capacity (MW) to be contracted under the Power Purchase Agreement. *[Answer to agree with question 1.6 of the Technical Questionnaire].* To convert from kW to MW, divide the kW figure by 1,000 - e.g. 7,500 kW equals 7.5 MW; 750 kW equals 0.75 MW. If this figure is set to change during the lifetime of the project (e.g. due to the commissioning of further phases), please indicate the capacity to be contracted in each year. It will be assumed that any figure entered under "Ongoing" will apply to each subsequent year of the project.

9. **EXPECTED ANNUAL OUTPUT**

Please insert the Expected Annual Output (MWh) to be exported from the facility. *[Answer to agree with question 2.9(a) of the Technical Questionnaire].* To convert from kWh to MWh, divide the kWh figure by 1,000 - e.g. 4,235,000 kWh equals 4,235 MWh; 42,350 kWh equals 42.35 MWh. Please show how this figure changes (if at all) from year to year (e.g. due to the commissioning of additional phases). If the project is forecast to be operational for only part of a year (e.g. due to commissioning part way through the year, or due to planned outages to accommodate maintenance / refurbishment etc.), please indicate the expected output for the period. It will be assumed that any figure entered under "Ongoing" will apply to each subsequent year of the project.

### **SECTION 3 : OTHER REVENUES**

#### **10. OTHER REVENUES**

Please indicate any other revenue(s) jointly associated with that derived from electricity generation which the project is set to earn (e.g. revenue derived from heat production by combined heat and power plants, gate fees at waste sites or capital grants). Please specify the revenue source at the top of the column and indicate the amount of revenue to be earned in each year. There are four columns in the questionnaire for these details. The figures entered into these columns should be added together to give the final column total for "Other" Revenues. It will be assumed that any figure entered under "Ongoing" will apply to each subsequent year of the project. If the project is not set to earn any "Other" revenues, write "none".

### **SECTION 4 : CAPITAL COSTS**

**(NOTE: Any capital costs which are expected to occur after year 2018 / 2019 should be entered in the boxes headed "Refurbishment & Other Costs", together with an indication of the year in which they are expected to occur).**

11. **LAND** - Please provide the capital cost of land purchase or lease premiums in the appropriate year(s). In years where such costs are zero, write "none". Exclude Finance Charges.
12. **BUILDINGS** - Please provide the capital costs of buildings in the appropriate year(s). In years where such costs are zero, write "none". Exclude Finance Charges.
13. **PLANT/OTHER** - Please indicate the expected installed costs of plant and other capital equipment, including plant which will require replacement before the end of the project life, in the appropriate year(s). In years where such costs are zero, write "none". Exclude Finance Charges and do not include Connection Charges which should have already been entered on page 1.

### **SECTION 5 : OPERATING COSTS**

14. **MANPOWER** - Please show the annual manpower costs associated with the project. It will be assumed that any figure entered under "Ongoing" will apply to each subsequent year of the project. In years where manpower costs are zero write "none".
15. **FUEL** - Please show the annual fuel costs (if any) associated with the project, including the use (if any) of any fossil fuels consumed in the process of power generation (e.g. fossil fuels for plant start up). It will be assumed that any figure entered under "Ongoing" will apply to each subsequent year of the project. In years where such costs are zero write "none".

### **SECTION 6: OTHER OPERATING COSTS**

16. **OTHER** - Please specify the type and amount of all other miscellaneous annual operating expenses which the project is expected to incur. Please specify the cost source (in the top row) and indicate the amount in each year. There are four columns on the questionnaire for these details. Any figures entered into to these columns should be added together to give the final column total "Other" operating costs. These costs should include any rents or rates payable on buildings and land, and any development costs to be incurred in setting up the project (see 2.2 (page 4) for examples). It will be assumed that any figure entered under "Ongoing" will apply to each subsequent year of the project. In years where "Other" Operating costs are zero write "none".

### **SECTION 7 : REFURBISHMENT & OTHER COSTS**

17. **LAND** - Please indicate the cost and year of any expenditure expected to be incurred on upgrading or refurbishing land assets (e.g. roads) during the life of the project. If there are no such costs write "none".
18. **BUILDINGS** - Please indicate the cost and year of any refurbishment programmes to buildings that are expected to be incurred during the life of the project. If there are no such costs write "none".
19. **PLANT/OTHER** - Please insert the cost and year of any refurbishment or renewal programmes that are expected to be implemented for the plant. This category should also include any other one off costs which apply to plant assets (e.g. decommissioning costs).

### **DECLARATION**

**DECLARATION** - All applicants are required to complete the declaration on the provision of information. The declaration confirms that the information provided by the applicant is, to the best of his knowledge and belief, true and correct. Applicants are advised to read the section on the provision of information (pages 3 and 4 of the Tender Pack Guidance Notes) before completing the declaration.

**PART THREE : OFFER'S ECONOMIC  
APPRAISAL METHODOLOGY**

## NFFO5 TENDER QUESTIONNAIRE

### PART THREE : OFFER'S ECONOMIC APPRAISAL METHODOLOGY

#### 1. Introduction

- 1.1 Before a project can be accepted under NFFO, the generator will have to demonstrate that the project is capable of "securing" the generating capacity it offers. This includes showing that the project is economically viable. OFFER will scrutinise each project to ensure that it satisfies this test, which is conducted using the data supplied by the generator, in conjunction with a set of assumptions concerning future commercial conditions.
- 1.2 To pass the economic test, the project must have a positive or zero Net Present Value (NPV) at the contract price over the period of the NFFO contract or the operational lifespan of the project, where that is greater than the proposed period of the NFFO contract. A project which fails the economic test at the initial bid price can still be contracted at that price if the final bid price is accompanied by a Rate of Return Declaration which is acceptable to OFFER. This is explained in more detail in paragraph 3.5 of these notes and Section 1.6 of the Tender Pack Guidance Notes.
- 1.3 In these notes, we outline the methodology used to assess whether a project is economically viable and describe the structure of the calculations and the Discounted Cash Flow (DCF) technique. A worked example is presented on page 6 of this Annex.

#### 2. Outline Methodology

- 2.1 The economic test is conducted by using the DCF technique to calculate a Net Present Value (NPV) for the project. NPV provides a widely recognised measure of economic viability which has been selected by OFFER as the primary standard by which to assess each project.
- 2.2 The data supplied by the generator (e.g. bid price, output, other revenue(s) and cost data) is used, together with a set of common assumptions concerning the conditions external to the project, to build up an expected cash flow for the project by calculating cost and revenue streams projected over both its contract and expected life. Each of these streams is then discounted to calculate its **present value** using a discount rate, as explained on page 3 and paragraph 4.2. Generators will be notified of the discount rate used on 9 July 1998 when feedback on the economic review is provided. Present value costs are subtracted from present value revenues to provide a Net Present Value. If the NPV is positive or zero (i.e. present value revenues are at least as large as present value costs) over either the contract period or the project's expected life, the project will pass the test.

### 3. Structure of the Cash Flow

- 3.1 The data provided by the generators on costs and expected output is sufficient to enable OFFER to build a cash flow forecast for the entire life of the project.
- 3.2 Costs are treated as either capital or operating costs, as defined in the Economic Questionnaire. Capital costs to provide physical assets are assumed to occur in the middle of the financial year (i.e. 1 October). Operating costs are assumed to be distributed evenly throughout the period in the year during which the project is operational. For example, if the project is commissioned half way through a financial year, the operating costs are spread evenly over the remaining six months. The costs of refurbishment programmes, where applicable, are added to the capital costs of the project and treated in the same way as capital costs.
- 3.3 During the NFFO period, the revenue from the project is the product of expected output and the agreed contract (premium price). Where applicable, other revenue streams are also taken into consideration. After the end of the premium price period, generators are assumed to receive the market price for their electricity sales. The value of these sales is estimated by allocating annual output over the months in the year, and applying avoided cost methodology.
- 3.4 The only other source of revenue used in the model is the salvage value of the capital assets, and this is assumed to accrue to the project at the end of its life. The following assumptions have been made:
- a) land is assumed to be worth the same, in real terms, at the end of the project as its purchase price (note: leasing costs should be included within operating costs);
  - b) buildings are assumed to be written off over 40 years. Should the project end before this time, the depreciated value of the buildings is added to the income from the project on the basis that some part of their cost will be recoverable from their value in some other use; and
  - c) plant and machinery is assumed to have a zero salvage value.
- 3.5 A project which is uneconomic at the final bid price may still meet the economic aspect of the Tender Conditions if the Final Bid Form is accompanied by a rate of return declaration which is acceptable to OFFER.

### Discounting

Discounting is used to revalue all costs and revenues, wherever they occur, to a common base. Rather than investing their resources in a particular renewables generation project, investors might seek a return by investing in financial assets or, indeed, by investing in another type of project. The rate of return from investing in an alternative asset, or project, is known as the **opportunity cost**, and the opportunity cost is the rate at which future costs and revenues are discounted (the discount rate). For example, £110 earned next year from a renewables project could otherwise be earned by investing £100 this year in a financial asset with an annual interest rate of 10%. In other words, at an assumed opportunity cost (or discount rate) of 10%, the present value of £110 available next year is £100.

This comparison can be extended *ad infinitum*. For example, £121 in two years time could be earned by investing £100 for two years ( $£100 \times (1.10)^2 = £121$ ): the **present value** of £121 available in two years time is £100. This means that the present value of £121 in two years is:

$$\frac{£121}{(1+0.1)^2} = £100$$

The Present Value (PV) of a stream of costs (X) over time (and in real terms) is calculated by applying the following formula:

$$PV = X_1 + \frac{X_2}{(1+d)} + \frac{X_3}{(1+d)^2} + K \text{ etc}$$

where the subscripts refer to the year, and  $d$  is the annual discount rate. The formula shows that  $X_1$ , because it occurs in year 1, is not discounted. Future values of  $X$  are discounted by an increasing amount. Assume  $X$  represents a stream of revenues. If  $X$  is constant at £100 each year, the graph shown in Appendix A shows the discounted (or present) value of each year's £100. If, for example, these revenues were available over the first five years only the present value of this stream of revenues equates to  $£100 + £91 + £83 + £75 + £68 = £417$ .

The formula can be written more formally as:

$$PV = \sum_{i=1}^T \frac{x_i}{(1+d)^{i-1}}$$

where  $T$  is the total number of years over which the analysis is conducted.

#### 4. Present Value and the Discount Rate

- 4.1 For any project, costs and revenues occur at different times. Broadly, capital costs occur predominantly early in the project, while operating costs and revenues are more evenly spread over the lifetime of the project. Discounting is used to revalue all costs and revenues on a common basis, and thus allow the total value of a project to be calculated. Real values are used throughout to avoid the need to make additional adjustments for inflation.
- 4.2 Discounting decreases (or discounts) the value of costs or revenues which occur in the future. The theoretical basis for this is that capital (or money) available now can be usefully employed by investing (in a financial or physical asset) to yield a return. It might be possible, for example, to invest £100 at the beginning of this year to earn a real annual rate of return of 10% (e.g. interest on a bank deposit account). The £100 would, therefore, be worth £110 (in real terms) by the start of the next year. In other words, the £110 available next year has a discounted (present) value equivalent to £100 this year (see graph on page 7). A more detailed explanation of discounting can be found on the previous page.

#### 5. Worked Example

- 5.1 A worked example is provided on page 6 which should help to clarify the DCF technique. **The example is purely illustrative and has been analysed using annual discounting.**
- 5.2 In the example, a project with a life of ten years, involves capital costs of £1m in the first year and annual operating costs of £200,000. In return, the project earns an annual income of £325,000 from sales. The only other revenue is the salvage of the assets amounting to £150,000 in year 10. All costs and revenues are in constant prices and the assumed rate of discount in the example is 10% per annum.
- 5.3 Since the project costs £3m yet earns £3.4m, it might seem on the face of it to be a sound investment. However, when the costs and income stream is discounted (at a rate of 10% per annum) the picture changes. A large proportion of the costs occur in the first year and are not discounted. The £150,000 salvage value of the assets, on the other hand, does not occur until year 10 and so its discounted value is quite low. The degree of discounting in any year rises over time and is shown by the discount factor.
- 5.4 The costs and revenues in the first year are not discounted but the present value of costs in year 2 (their equivalent value in year 1) are calculated by multiplying £200,000 by the discount factor, which is calculated as  $1/(1+0.1)$ , to give a present value equivalent of £181,818. The £200,000 operating costs in year 3 have a

present value of  $\text{£}200,000/(1+0.1)^2$  (or  $\text{£}165,289$ ) and so on. Revenue is discounted similarly.

- 5.5 When each of the discounted costs and revenues is summed, the total discounted cost is  $\text{£}2,351,805$  while the total discounted revenue is  $\text{£}2,260,296$ . In present value terms, costs exceed revenues by  $\text{£}91,509$ . The NPV is, therefore,  $-\text{£}91,509$  and the project fails the economic test.

# WORKED EXAMPLE: 10 YEAR SCHEME LIFE

Worked Example of DCF & NPV

(All values are in constant prices)

Scheme life: 10 years

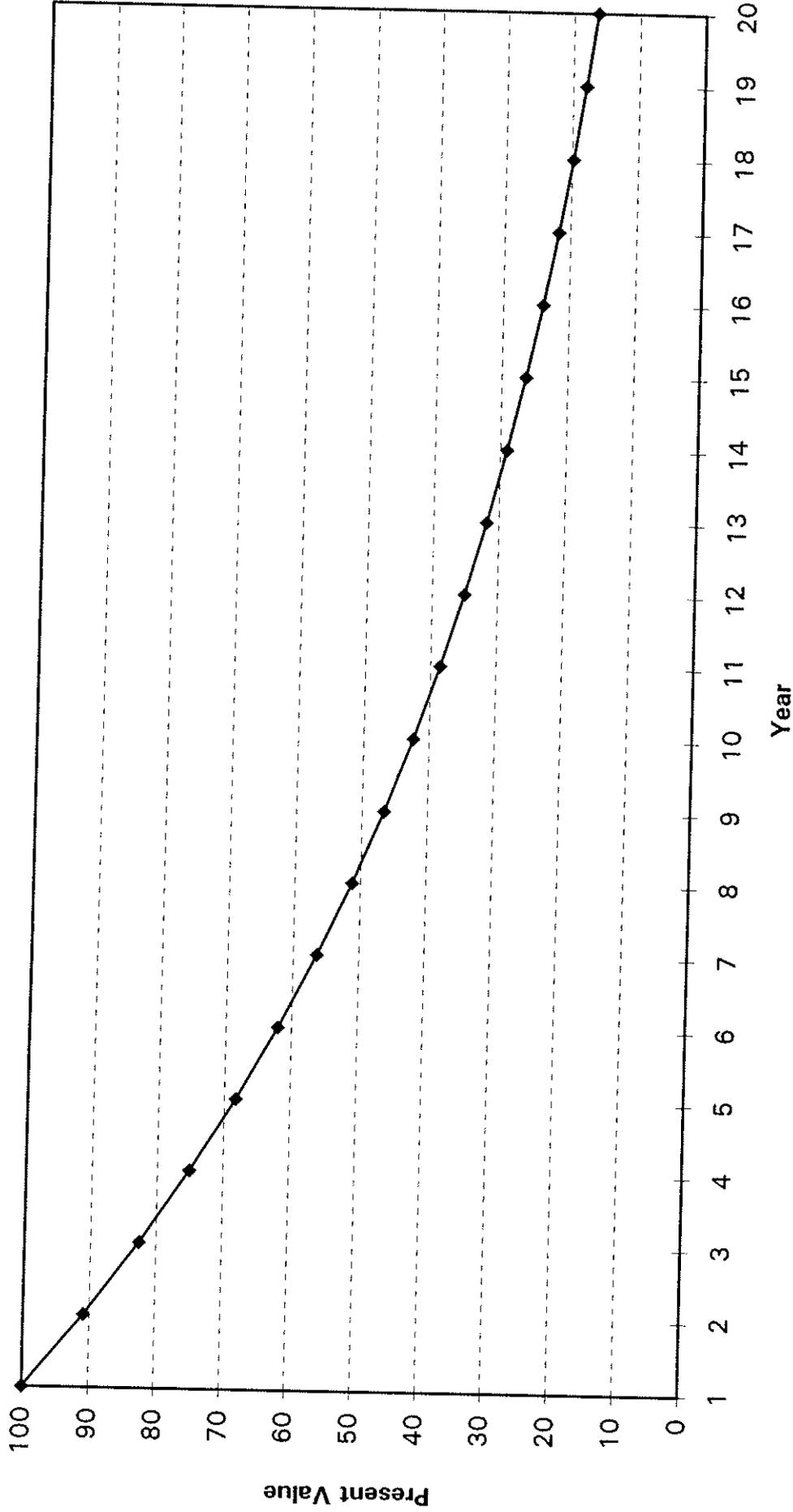
Assumed Annual Discount Rate 10%

Year	Cost Data			Revenue Data			Discount Factor (C)	Discounted Cash Flow	
	Capital £	Operating £	Total (A) £	Sales £	Salvage Value £	Total (B) £		Total Cost (A*C)	Total Revenue (B*C)
1	1,000,000	200,000	1,200,000	325,000		325,000	1.00	1,200,000	325,000
2		200,000	200,000	325,000		325,000	0.91	181,818	295,455
3		200,000	200,000	325,000		325,000	0.83	165,289	268,595
4		200,000	200,000	325,000		325,000	0.75	150,263	244,177
5		200,000	200,000	325,000		325,000	0.68	136,603	221,979
6		200,000	200,000	325,000		325,000	0.62	124,184	201,799
7		200,000	200,000	325,000		325,000	0.56	112,895	183,454
8		200,000	200,000	325,000		325,000	0.51	102,632	166,776
9		200,000	200,000	325,000		325,000	0.47	93,301	151,615
10		200,000	200,000	325,000	150,000	475,000	0.42	84,820	201,446
<b>TOTAL</b>	<b>1,000,000</b>	<b>2,000,000</b>	<b>3,000,000</b>	<b>3,250,000</b>	<b>150,000</b>	<b>3,400,000</b>		<b>2,351,805</b>	<b>2,260,296</b>

NPV £000s -91,509

# WORKED EXAMPLE

Profile of the Present Value Over Time of £100  
with an Assumed Discount Rate of 10%



**PART FOUR : EXAMPLE OF COMPLETED  
QUESTIONNAIRE**

**PLEASE NOTE: THE INFORMATION WHICH  
FOLLOWS IS FOR ILLUSTRATIVE PURPOSES  
ONLY**

0	1	9	9	9	M	5
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Please enter your unique NFFO5 reference number as shown on the cover of the guidance notes and attach to the front of part one of the questionnaire before returning.

**NON-FOSSIL FUEL  
OBLIGATION  
FIFTH ORDER**

**ECONOMIC QUESTIONNAIRE**

**JANUARY 1998**

**SECTION 1: GENERAL DETAILS**

Answer Questions 1 to 7 on this page

0	1	9	9	9	M	5
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Please enter your unique NFFO5 Reference number

**1 APRIL 1998 PRICES**

1.	Project Name (the facility)	Champion Waste Site Ltd				
2.	Commissioning Date	Day	Month	Year		
		1	4	99		
3.	Project End Date	Day	Month	Year		
		31	3	24		
4.	Initial Tender Price (p/kWh) (1 April 1998 prices)	3.5				
5.	Contract Duration No of Years (Max 15 years)	15				
6.	Connection Cost (£'s)	£50,000				
7.	Connection Date	Day	Month	Year		
		28	2	99		

## SECTION 2: OPERATING DATA

0	1	9	9	9	M	5
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Please enter your unique NFFO5 Reference number

### 1 APRIL 1998 PRICES

Period 1 Apr - 31 Mar	Contracted Capacity (MW)
98/99	None
99/00	11.5
00/01	11.5
01/02	11.5
02/03	11.5
03/04	11.5
04/05	11.5
05/06	11.5
06/07	11.5
07/08	11.5
08/09	11.5
09/10	11.5
10/11	11.5
11/12	11.5
12/13	11.5
13/14	11.5
14/15	11.5
15/16	11.5
16/17	11.5
17/18	11.5
18/19	11.5
Ongoing	11.5

Period 1 Apr - 31 Mar	Expected Annual Output (MWh)
98/99	None
99/00	87,644
00/01	87,644
01/02	87,644
02/03	87,644
03/04	87,644
04/05	87,644
05/06	87,644
06/07	87,644
07/08	87,644
08/09	87,644
09/10	87,644
10/11	87,644
11/12	87,644
12/13	87,644
13/14	87,644
14/15	87,644
15/16	87,644
16/17	87,644
17/18	87,644
18/19	87,644
Ongoing	87,644

Answer question 10 on this page

0	1	9	9	9	M	5
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Please enter your unique NFFO5 Reference number

**1 APRIL 1998 PRICES**

10. Period	Other Revenue Streams*					Total
	EC Grant	(£'s)	(£'s)	(£'s)	(£'s)	
1 Apr - 31 Mar		(£'s)	(£'s)	(£'s)	(£'s)	(£'s)
98/99	None					0
99/00	10,000					10,000
00/01	None					0
01/02	None					0
02/03	None					0
03/04	None					0
04/05	None					0
05/06	None					0
06/07	None					0
07/08	None					0
08/09	None					0
09/10	None					0
10/11	None					0
11/12	None					0
12/13	None					0
13/14	None					0
14/15	None					0
15/16	None					0
16/17	None					0
17/18	None					0
18/19	None					0
Ongoing	None					0

\*If applicable, please enter description of other revenue stream/s

\*M&IW with CHP schemes must enter expected revenue from heat sales

## SECTION 4: CAPITAL COSTS

Answer questions 11, 12 and 13 on this page

0	1	9	9	9	M	5
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Please enter your unique NFFO5 Reference number

### 1 APRIL 1998 PRICES

11.	Period 1 Apr - 31 Mar	Land (£'s)
	98/99	None
	99/00	12,500
	00/01	15,000
	01/02	None
	02/03	None
	03/04	None
	04/05	None
	05/06	None
	06/07	None
	07/08	None
	08/09	None
	09/10	None
	10/11	None
	11/12	None
	12/13	None
	13/14	None
	14/15	None
	15/16	None
	16/17	None
	17/18	None
	18/19	None
	Ongoing	None

12.	Period 1 Apr - 31 Mar	Buildings (£'s)
	98/99	None
	99/00	80,000
	00/01	20,000
	01/02	None
	02/03	None
	03/04	None
	04/05	None
	05/06	None
	06/07	None
	07/08	None
	08/09	None
	09/10	None
	10/11	None
	11/12	None
	12/13	None
	13/14	None
	14/15	None
	15/16	None
	16/17	None
	17/18	None
	18/19	None
	Ongoing	None

13.	Period 1 Apr - 31 Mar	Plant/Other (£'s)
	98/99	None
	99/00	125,000
	00/01	75,000
	01/02	None
	02/03	None
	03/04	None
	04/05	None
	05/06	None
	06/07	None
	07/08	None
	08/09	None
	09/10	None
	10/11	None
	11/12	None
	12/13	None
	13/14	None
	14/15	None
	15/16	None
	16/17	None
	17/18	None
	18/19	None
	Ongoing	None

Non-Fossil Fuel Obligation

Answer questions 14 and 15 on this page

**SECTION 5: OPERATING COSTS**

NFFO5 Economic Questionnaire

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Please enter your unique NFFO5 Reference number

**1 APRIL 1998 PRICES**

14.	Period 1 Apr - 31Mar	Manpower (£'s)
	98/99	None
	99/00	55,000
	00/01	80,000
	01/02	80,000
	02/03	80,000
	03/04	80,000
	04/05	80,000
	05/06	80,000
	06/07	80,000
	07/08	80,000
	08/09	80,000
	09/10	80,000
	10/11	80,000
	11/12	80,000
	12/13	80,000
	13/14	80,000
	14/15	80,000
	15/16	80,000
	16/17	80,000
	17/18	80,000
	18/19	80,000
	Ongoing	80,000

15.	Period 1 Apr - 31Mar	Fuel (£'s)
	98/99	None
	99/00	34,100
	00/01	819,000
	01/02	912,000
	02/03	912,000
	03/04	912,000
	04/05	912,000
	05/06	912,000
	06/07	912,000
	07/08	912,000
	08/09	912,000
	09/10	912,000
	10/11	912,000
	11/12	912,000
	12/13	912,000
	13/14	912,000
	14/15	912,000
	15/16	912,000
	16/17	912,000
	17/18	912,000
	18/19	912,000
	Ongoing	912,000

**SECTION 6: OTHER OPERATING COSTS**

0	1	9	9	M	5
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Please enter your unique NFFO5 Reference number

**1 APRIL 1998 PRICES**

16.	Period 1 Apr - 31 Mar	Other Operating Costs*				Total (£'s)
		Rent & Rates (£'s)	Insurance (£'s)	Development Costs (£'s)		
	98/99	None	None	None	0	
	99/00	45,000	92,000	1,350,000	1,487,000	
	00/01	60,000	105,000	None	165,000	
	01/02	75,000	105,000	None	180,000	
	02/03	75,000	105,000	None	180,000	
	03/04	75,000	105,000	None	180,000	
	04/05	75,000	105,000	None	180,000	
	05/06	75,000	105,000	None	180,000	
	06/07	75,000	105,000	None	180,000	
	07/08	75,000	105,000	None	180,000	
	08/09	75,000	105,000	None	180,000	
	09/10	75,000	105,000	None	180,000	
	10/11	75,000	105,000	None	180,000	
	11/12	75,000	105,000	None	180,000	
	12/13	75,000	105,000	None	180,000	
	13/14	75,000	105,000	None	180,000	
	14/15	75,000	105,000	None	180,000	
	15/16	75,000	105,000	None	180,000	
	16/17	75,000	105,000	None	180,000	
	17/18	75,000	105,000	None	180,000	
	18/19	75,000	105,000	None	180,000	
	Ongoing	75,000	105,000	None	180,000	

\*If applicable, please enter description of other operating costs (ie rent, rates, development costs, etc.)

## SECTION 7: REFURBISHMENT AND OTHER COSTS

Answer questions 17, 18 and 19 on this page

0	1	9	9	9	M	5
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Please enter your unique NFFO5 Reference number

### 1 APRIL 1998 PRICES

17.	Period <small>1 Apr - 31 Mar</small>	Land (£'s)
	98/99	
	99/00	
	00/01	
	01/02	
	02/03	
	03/04	
	04/05	
	05/06	
	06/07	
	07/08	
	08/09	
	09/10	
	10/11	
	11/12	
	12/13	
	13/14	
	14/15	
	15/16	
	16/17	
	17/18	
	18/19	
	Ongoing	
	*	
	*	

18.	Period <small>1 Apr - 31 Mar</small>	Buildings (£'s)
	98/99	
	99/00	
	00/01	
	01/02	
	02/03	
	03/04	
	04/05	
	05/06	
	06/07	
	07/08	
	08/09	
	09/10	
	10/11	
	11/12	
	12/13	
	13/14	
	14/15	
	15/16	
	16/17	
	17/18	
	18/19	
	Ongoing	
	*	
	*	

19.	Period <small>1 Apr - 31 Mar</small>	Plant/Others (£'s)
	98/99	
	99/00	
	00/01	
	01/02	
	02/03	
	03/04	
	04/05	
	05/06	
	06/07	
	07/08	
	08/09	
	09/10	
	10/11	
	11/12	
	12/13	
	13/14	
	14/15	
	15/16	
	16/17	
	17/18	
	18/19	
	Ongoing	
	*	
	*	

\* Enter date and cost details for any refurbishment after the end of the contract life

Project No 

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**DECLARATION**

**To be completed by all applicants - your attention is drawn to the warning concerning the provision of information on pages 3 and 4 of the Tender Pack Guidance Notes**

**I, the applicant, confirm that the information provided in this questionnaire is, to the best of my knowledge and belief, true and correct.**

Name of Applicant: ..... MR RICHARD CHAMPION .....

Position in Company: ..... MANAGING DIRECTOR .....

Company: ..... CHAMPION WASTE LTD .....

Address, telephone and fax number ..... UNIT 3 ROAD LANE .....

..... HAPPYTOWN .....

..... ANYWHERE SHIRE .....

TEL: 000 555 5555 FAX: 000 555 5556 .....

Signature: ..... *RC Champion* .....

Date: ..... 16/4/98 .....

Where the above is not the Seller (see page 2 of the Technical Questionnaire)

I, the Seller, confirm that the above is acting as agent on my behalf:

Signed: .....

Name: .....

Position in Company: .....

Company: .....

