TECHNICAL APPENDIX 14.3.2

Carbon Calculator Output Values

ITPENERGISED
Earth. Smart. Solutions

ScottishPower Renewables

9th Floor Scottish Power Headquarters

320 St Vincent Street

Glasgow

G2 5AD

ITPEnergised

7 Dundas Street

Edinburgh

EH3 6QG

Registration Number: SC450178

Tel: 0131 557 8325

Table of Contents

1 Carbon Calculator Input Values

1.1 Introduction

1.1.1 The Scottish Government Carbon Calculator Online Tool Version 1.6.0 was used in the assess the carbon impact of the proposed Development. The output values are outlined below.

Payback Time and CO_2 emissions • J8AL-WNTQ-CUND v9

1. Windfarm CO2 emission saving over...	Exp.	Min.	Max.
...coal-fired electricity generation (t CO2 / yr)	132,055	118,849	145,260
...grid-mix of electricity generation (t CO2 / yr)	36,398	32,758	40,038
...fossil fuel-mix of electricity generation (t CO2 / yr)	64,592	58,133	71,051
Energy output from windfarm over lifetime (MWh)	5,741,514	5,167,363	6,315,666

Total CO2 losses due to wind farm (tCO2 eq.)	Exp.	Min.	Max.
2. Losses due to turbine life (eg. manufacture, construction, decomissioning)	55,128	54,857	55,400
3. Losses due to backup	48,565	48,565	48,565
4. Lossess due to reduced carbon fixing potential	1,484	555	2,322
5. Losses from soil organic matter	28,629	5,572	46,573
6. Losses due to DOC & POC leaching	2,194	112	5,226
7. Losses due to felling forestry	3,062	2,481	3,706
Total losses of carbon dioxide	139,063	112,142	161,791

8. Total CO2 gains due to improvement of site (t CO2 eq.)	Exp.	Min.	Max.
8a. Change in emissions due to improvement of degraded bogs	314	0	-2,675
8b. Change in emissions due to improvement of felled forestry	0	0	0
8c. Change in emissions due to restoration of peat from borrow pits	58	0	-494
8d. Change in emissions due to removal of drainage from foundations & hardstanding	0	0	0
Total change in emissions due to improvements	372	0	-3,169

RESULTS	Exp.	Min.	Max.
Net emissions of carbon dioxide (t CO2 eq.)	139,435	108,973	161,791
Carbon Payback Time			
...coal-fired electricity generation (years)	1.1	0.8	1.4
...grid-mix of electricity generation (years)	3.8	2.7	4.9
...fossil fuel-mix of electricity generation (years)	2.2	1.5	2.8
Ratio of soil carbon loss to gain by restoration (not used in Scottish applications)	No gains!	1.79	No gains!
Ratio of CO2 eq. emissions to power generation (g/kWh) (for info. only)	24.29	17.25	31.31

ITPENERGISED
Earth. Smart. Solutions

Registered Address:

7 Dundas Street

Edinburgh

EH3 6QG

+44 (0) 131 557 8325