

Leeds 2050 Study, Appendix C: One Planet Living Technical Paper

NOTE

This technical annex covers a range of quantitative data for the project, focusing on the resource flow agenda of energy, material flow, carbon and ecological footprint.

It is based on the REAP model and related system of accounts. These re-allocate from the economic production side of the national accounts to the consumption side, so enabling a clear and accurate calculation of the upstream 'footprint' of each consumption type. Further details of the methodology and data sources is available on www.ecologicalbudget.org.uk and www.sei.se/reap

The scenario modeling at this point (mid 2007) is in development in its detailed form. The results shown here are preliminary estimates based on the REAP key sector baselines, and factoring in aggregated estimates

- Baseline data: general with a 2003 baseline as in the REAP system
- Baseline (BAU) trends: based on the revised projections of the Energy White Paper of 2007. This has modest but significant climate emissions reduction targets, which are then recalculated as ecological footprint baseline projections.
- One Planet policy scenario: based on the general reduction of all resource impacts (climate emissions, carbon / ecological footprint) by approx 75% by 2050.

General data

BASIC AREA & POPULATION DATA

source: Regional Trends 2006							Total		Standardise
							population	Total	mortality
People							percentage	fertility	ratio
Area		per					change	rate	(UK=100)
	(sq km)	sq km	Males	Females	Total population	1982-2002	(TFR) ³	(SMR) ⁴	
United Kingdom	242,514	244	28,911	30,318	59,229	5.2	1.63	100	
England	130,281	380	24,240	25,319	49,559	5.9	1.64	98	
Yorkshire and the Humber	15,408	323	2,424	2,559	4,983	1.5	1.67	101	
West Yorkshire (Met County)	2,029	1,030	1,013	1,076	2,089	1.4	1.73	104	
Bradford	366	1,292	230	243	473	2.1	2.18	109	
Calderdale	364	531	94	100	193	1.1	1.85	102	
Kirklees	409	953	189	200	389	3.2	1.87	107	
Wakefield	339	934	154	163	316	0.9	1.59	110	
Leeds	552	1,299	346	370	717	0.2	1.44	99	

HOUSING & LABOUR MARKET DATA

source: *Regional Trends 2006*

	Economic activity ² rate 2004-2005 (percentages)	Claimant unemployment March 2005 (thousands)	Percentage claiming over 12 months, computerised claims only ⁴ April 2004-March 2005	Lone parents ⁵ as a percentage of all households, spring 2005	Housing completions ⁶ by Private enterprise, 2004	Average dwelling price ⁷ 2004 (£ thousands)	Percentage change in dwelling price 2003 to 2004	Local authority average weekly rent per dwelling ⁸ (£), April 2005 (provisional)
United Kingdom	78.2	882.3	14.0	7.2				
England	78.5	717.3	13.8	7.2	129,544	181	13.8	55.11
Yorkshire and the Humber	77.7	77.5	10.7	7.3	13,629	128	20.6	46.25
West Yorkshire (Met County)	77.9	32.5	9.4	7.4	5,951	124	19.5	46.42
Bradford	73.6	8.3	10.7	9.0	979	109	23.1	..
Calderdale	81.9	2.6	6.1	7.1	487	115	22.9	..
Kirklees	78.1	5.0	5.5	8.4	670	120	21.0	48.78
Wakefield	78.5	4.5	8.0	6.8	964	119	20.0	..
Leeds	79.2	12.2	11.5	6.2	2,851	142	16.0	45.50

HOUSEHOLD TRENDS & PROJECTIONS

Source: *Regional Trends 2006*

	Household numbers ¹			Household projections ²				annual growth 2006-2021	annual growth 2006-2021
	1981	1991	2001	2006	2011	2016	2021		
Great Britain	20.18	22.39	24.14	25.29	26.20		
North East	0.98	1.05	1.07	1.12	1.14	1.15	1.17	4.5%	0.29%
North West	2.55	2.72	2.82	2.93	3.00	3.06	3.11	6.1%	0.40%
Yorkshire and the Humber	1.83	1.99	2.09	2.20	2.26	2.32	2.37	7.7%	0.50%
East Midlands	1.41	1.60	1.74	1.83	1.90	1.97	2.03	10.9%	0.69%
West Midlands	1.86	2.04	2.16	2.24	2.30	2.35	2.40	7.1%	0.46%
East	1.76	2.04	2.26	2.39	2.49	2.60	2.70	13.0%	0.82%
London	2.64	2.84	3.17	3.25	3.38	3.52	3.65	12.3%	0.78%
South East	2.64	3.03	3.35	3.57	3.74	3.91	4.06	13.7%	0.86%
South West	1.64	1.90	2.10	2.21	2.32	2.42	2.52	14.0%	0.88%

REGIONAL GVA BY BROAD SECTOR (YORKSHIRE & THE HUMBER)

Source: Regional Trends 2006

	1996	1997 ²	1998 ²	1999 ²	2000 ²
Agriculture, hunting, forestry and fishing	2.1%	1.7%	1.5%	1.4%	1.3%
Mining, quarrying of energy materials	0.4%	0.4%	0.4%	0.4%	0.4%
Other mining and quarrying	0.3%	0.3%	0.2%	0.2%	0.2%
Manufacturing	26.9%	26.4%	24.9%	23.3%	22.3%
Electricity, gas and water supply	2.3%	2.3%	2.2%	2.1%	2.0%
Construction	5.6%	5.5%	5.6%	5.8%	6.0%
Wholesale and retail trade	12.5%	12.7%	12.9%	13.3%	13.3%
Hotels and restaurants	2.9%	3.0%	3.1%	3.3%	3.4%
Transport, storage and communication	7.9%	8.0%	8.2%	8.1%	8.1%
Financial intermediation	4.4%	4.2%	4.6%	4.3%	4.4%
Real estate & business activities	15.0%	15.5%	16.5%	17.1%	17.6%
Public administration and defence ⁴	5.4%	5.0%	4.8%	4.7%	4.8%
Education	6.0%	6.0%	6.1%	6.5%	6.8%
Health and social work	7.2%	7.4%	7.6%	7.9%	8.2%
Other services	3.6%	3.8%	4.0%	4.3%	4.5%
Adjustment for financial services (FISIM ⁵)	-2.3%	-2.2%	-2.7%	-2.8%	-3.3%
Total	100.0%	100.0%	100.0%	100.0%	100.0%
Actual total	50,612	53,501	56,099	57,706	59,675
Total growth year on year		5.7%	4.9%	2.9%	3.4%

INDUSTRIAL GROWTH PROJECTIONS:

Source DTI 2006

Source DTI 2006	Food, drink & tobacco	Textiles, leather & clothing	Pulp, paper, printing & publishing	Chemicals & chemical products	Non-metallic minerals	Non-ferrous metals	Engineering & vehicles	Construction & other industry	Iron + Steel
2000	100	100	100	100	100	100	100	100	100
2005	104.8	69.5	96.8	111.2	106.5	113.4	94.2	110.8	87.6
2010	107.3	55.7	104.1	128.1	113.7	122.4	105.5	121.8	112.4
2015	111.2	45.6	110.7	148.3	119.9	126.2	112.8	130.4	113.7
2020	114.7	37.2	117.2	170.9	125.5	129.4	120.7	139.6	114.5
growth rate 2000 - 2020	0.7%	-4.8%	0.8%	2.7%	1.1%	1.3%	0.9%	1.7%	0.7%

Summary accounts

This section shows the basic summary tables from the UK accounts. These tables are based on the REAP database and related workbooks. Data is generally based at 2003. There are variations in the Leeds accounts which show up in the following section.

TABLE A: MATERIAL FLOWS

Shows aggregate material flows through the UK economy, per person: note that Direct Material Input (DMI) includes primary industries plus all imports. Detailed material data is available only for SIC sectors 1-84, ie. Primary & manufacturing.

	Domestic production t/cap	UK imports t/cap	UK exports t/cap	controlled waste t/cap	other waste t/cap	recycled & reused t/cap	import fraction of DMI %	waste fraction of DMI %
Agriculture, forestry, fish	1.65	0.28	0.06		1.47		17%	89%
Mining and quarrying	9.63	1.69	1.92		1.57		18%	16%
Manufacturing	5.74	1.95	1.30	0.72	0.00	0.33	34%	13%
Electricity, gas, water								recycling % of waste
Construction					1.72			
Wholesale & retail				0.31		0.14		45%
Transport & comms				0.04		0.02		36%
Financial intermediation				0.14		0.04		28%
Public administration				0.03		0.01		28%
Education, health, social				0.07		0.01		22%
Other services								
Domestic				0.59		0.12		20%
Private transport								
Other flows					0.61			
Total		3.92	3.28	1.91	5.37	0.67		35%
Direct Material Input (DMI)	15.2							

TABLE B: RESOURCE PRODUCTIVITY

This shows the material flows as above, per unit of economic output, for a basic measure of physical resource productivity:

	Domestic production t/£M	UK imports t/£M	UK exports t/£M	controlled waste t/£M	other waste t/£M	recycled & reused t/£M	total economic output £billion
Agriculture, forestry & fish	3622	609	135		3224		27
Mining and quarrying	12439	2180	2484		2027		46
Manufacturing	269	91	61	34	0	16	1262
Electricity, gas, water							48
Construction					806		127
Wholesale & retail				175		78	106
Transport & comms				15		5	167
Financial intermediation				17		5	488
Public administration				20		5	82
Education, health, social				20		4	205
Other services							81
Domestic							
Private transport							
Other					0		
Total	16330	2881	2680	280	6057	114	2638

TABLE C: ENERGY & EMISSIONS

This shows key indicators of energy demand & supply, with climate change emissions & ecological footprint per person.

	Total energy	Electrical energy	Fossil fuel energy	Greenhouse gases	Acid rain precursors	Carbon dioxide	Eco-footprint
	toe / cap	toe / cap	toe / cap	t CO2 eq/cap	t SO2 eq./cap	t / cap	gha/cap
Agriculture, forestry & fish	0.03	0.01	0.02	0.85	0.009	0.06	0.86
Mining and quarrying	0.14	0.00	0.13	0.56	0.001	0.42	0.12
Manufacturing	0.96	0.12	0.84	2.28	0.009	2.09	0.53
Electricity, gas, water	1.11	0.09	1.02	3.20	0.017	3.02	1.04
Construction	0.04	0.00	0.04	0.11	0.000	0.10	0.03
Wholesale & retail	0.14	0.05	0.10	0.31	0.001	0.25	0.08
Transport & comms	0.56	0.02	0.54	1.59	0.014	1.56	0.44
Financial intermediation	0.09	0.04	0.05	0.14	0.000	0.13	0.07
Public administration	0.07	0.01	0.07	0.17	0.001	0.17	0.04
Education, health, social	0.12	0.02	0.10	0.23	0.000	0.22	0.08
Other services	0.05	0.01	0.04	0.33	0.001	0.12	0.04
Domestic energy	0.83	0.17	0.66	1.58	0.003	1.52	0.49
Private transport	0.38	0.00	0.38	1.12	0.004	1.05	0.28
Total	4.51	0.53	3.98	12.46	0.06	10.72	4.09

TABLE D: ENERGY & EMISSIONS BY DEMAND SIDE

Shows key indicators of energy & emissions as above, by demand side category:

	Total energy	Electrical energy	Fossil fuel energy	Greenhouse gases	Acid rain precursors	Carbon dioxide	Eco-footprint
	toe / cap	toe / cap	toe / cap	t CO2 eq/cap	t SO2 eq./cap	t / cap	gha/cap
households	3.20	0.39	2.81	9.00	0.040	8.20	4.20
government	0.36	0.04	0.32	1.00	0.004	1.00	0.40
capital	0.41	0.05	0.36	1.20	0.006	1.40	0.80
exports	1.10	0.10	1.00	3.10	0.019	3.50	0.00
other demand	0.02	0.00	0.02	0.06	0.000	0.10	0.00
total	5.09	0.58	4.51	14.36	0.069	14.20	5.40

TABLE E: RESOURCE PRODUCTIVITY BY ENERGY & EMISSIONS

Shows resource productivity in terms of energy, emissions & footprint, per unit of economic output.

	Total energy	Electrical energy	Fossil fuel energy	Greenhouse gases	Acid rain precursors	Carbon dioxide	Eco-footprint
	t/£M	t/£M	t/£M	t/£M	t/£M	t/£M	gha/£billion
Agriculture, forestry & fish	0.06	0.01	0.04	1.86	0.02	0.13	1.88
Mining and quarrying	0.18	0.00	0.17	0.72	0.00	0.54	0.15
Manufacturing	0.05	0.01	0.04	0.11	0.00	0.10	0.02
Electricity, gas, water	1.38	0.11	1.27	3.99	0.02	3.76	1.29
Construction	0.02	0.00	0.02	0.05	0.00	0.05	0.01
Wholesale & retail	0.08	0.03	0.05	0.17	0.00	0.14	0.05
Transport & comms	0.20	0.01	0.19	0.56	0.00	0.55	0.16
Financial intermediation	0.01	0.00	0.01	0.02	0.00	0.02	0.01
Public administration	0.05	0.00	0.05	0.12	0.00	0.12	0.03
Education, health, social	0.03	0.01	0.03	0.07	0.00	0.06	0.02
Other services	0.03	0.01	0.03	0.24	0.00	0.09	0.03
Domestic energy	0.60	0.12	0.48	1.15	0.00	1.11	0.36
Private transport	0.27	0.00	0.27	0.81	0.00	0.77	0.20
Total	0.10	0.01	0.09	0.28	0.00	0.24	0.09

TABLE F: SUMMARY RESOURCE FLOW BY HOUSEHOLD CONSUMPTION

Shows resource productivity in terms of energy / CO2 footprint / ecological footprint: all calculated on the consumption basis.

		Energy demand	Carbon footprint	Ecological footprint	Energy demand %	Carbon footprint %	Ecological footprint %
		(GJ/cap)	CO2:kg/cap	(gha/cap)	% of total	% of total	% of total
FOOD&DRINK	food	5.6	381	0.72	3%	3%	14%
	drink	1.2	79	0.09	1%	1%	2%
HOME&ENERGY	catering	6.8	425	0.37	4%	4%	7%
	house	3.4	247	0.14	2%	2%	3%
TRANSPORT	services	64.3	2938	1.06	37%	27%	21%
	private trans	21.1	1458	0.44	12%	13%	9%
CONSUMABLES	public trans	12.2	747	0.21	7%	7%	4%
	clothing	1.3	107	0.03	1%	1%	1%
SERVICES	household	5.4	438	0.19	3%	4%	4%
	leisure	6.7	556	0.35	4%	5%	7%
GOVERNMENT	private health etc	1.1	69	0.03	1%	1%	1%
	other services	6.9	452	0.20	4%	4%	4%
CAPITAL	national	10.2	659	0.25	6%	6%	5%
	local / non-profit	8.9	545	0.23	5%	5%	4%
TOTAL	capital	19.1	1879	0.79	11%	17%	16%
TOTAL		5.08	174	10979	100%	100%	100%

Key sector data

This data is generated from the REAP system, and re-analysed into 'key sector' supply chain format. This enables a clearer view of the total resource flow metabolism in the supply side, demand side and capital investment categories. Note that production for export is not included. The category 'operations' shows domestic fuel consumption which appears on both production and consumption sides. For details of methodology, data sources, applications etc, refer to www.sei.se/reap

FOOD & AGRICULTURE

SUPPLY SIDE							
	electric energy	total energy	green house gases	acid rain precursors	CO2	energy ecological footprint	total ecological footprint
	GJ/cap	GJ/cap	kg/cap	kg/cap	kg/cap	gha/cap	gha/cap
Agriculture	0.21	1.12	836.8	8.94	50.1	0.01	0.60
Fishing	0.03	0.16	7.8	0.14	7.7	0.00	0.17
Total	0.24	1.29	844.6	9.08	57.7	0.01	0.77
Food and drink	0.57	4.24	182.4	0.66	180.3	0.04	0.04
Fertilisers	0.05	1.06	92.3	0.09	30.9	0.01	0.01
Pesticides	0.01	0.07	3.1	0.01	3.1	0.00	0.00
Total	0.63	5.38	277.7	0.76	214.2	0.05	0.05
Hotels and restaurants	0.33	1.28	41.8	0.05	41.5	0.01	0.02
TOTAL	1.20	7.94	1164.1	9.89	313.4	0.08	0.84
DEMAND SIDE							
	electric energy	total energy	green house gases	acid rain precursors	CO2	energy ecological footprint	total ecological footprint
	GJ/cap	GJ/cap	kg/cap	kg/cap	kg/cap	gha/cap	gha/cap
Food	0.60	5.10	791.7	5.75	345.8	0.11	0.68
Non-alcoholic beverages	0.06	0.54	53.0	0.29	35.5	0.01	0.04
Alcoholic beverages	0.12	1.00	98.8	0.55	66.2	0.02	0.07
Catering services	0.74	5.99	488.1	2.48	373.7	0.10	0.33
Total	1.52	12.63	1431.6	9.07	821.2	0.24	1.11
CAPITAL INVESTMENT							
	GJ/cap	GJ/cap	kg/cap	kg/cap	kg/cap	gha/cap	gha/cap
Agriculture; forestry and fishing	0.03	0.24	44.2	0.28	22.4	0.01	0.03
Food, beverages, tobacco	0.03	0.28	34.9	0.07	34.0	0.01	0.01
Hotels and restaurants	0.06	0.56	64.4	0.15	62.2	0.02	0.03
Total	0.12	1.08	143.5	0.51	118.6	0.04	0.07

HOUSING & BUILT ENVIRONMENT

SUPPLY SIDE							
	electric energy GJ/cap	total energy GJ/cap	green house gases kg/cap	acid rain precursors kg/cap	CO2 kg/cap	energy ecological footprint gha/cap	total ecological footprint gha/cap
Forestry	0.01	0.03	1.3	0.01	1.2	0.00	0.09
Wood and wood products	0.10	1.33	76.6	0.27	74.7	0.02	0.02
Plastics & Synthetic resins etc	0.06	0.72	32.7	0.16	32.4	0.01	0.01
Paints, varnishes, printing ink etc	0.04	0.14	4.6	0.01	4.6	0.00	0.00
Rubber products	0.06	0.55	25.9	0.11	25.5	0.01	0.01
Plastic products	0.51	1.75	64.7	0.20	63.4	0.02	0.02
Glass and glass products	0.10	0.49	22.2	0.05	22.1	0.01	0.01
Ceramic goods	0.04	0.21	7.6	0.01	7.6	0.00	0.00
Structural clay products	0.03	0.33	15.8	0.18	15.5	0.00	0.01
Cement, lime and plaster	0.08	1.34	186.6	0.83	185.8	0.05	0.05
Articles of concrete, stone etc	0.09	0.38	13.6	0.04	13.5	0.00	0.00
Iron and steel	0.18	7.42	424.8	1.39	420.1	0.10	0.10
Non-ferrous metals	0.35	1.10	48.6	0.34	48.1	0.01	0.01
Metal products	0.27	1.06	40.7	0.13	40.0	0.01	0.01
Mechanical machinery and equipment	0.23	0.94	37.2	0.12	36.6	0.01	0.01
Electrical machinery and equipment	0.10	0.37	13.6	0.04	13.4	0.00	0.00
Radio, television and communications	0.11	0.25	7.0	0.02	6.9	0.00	0.00
Construction	0.09	1.78	106.7	0.37	104.8	0.03	0.03
Real estate activities	0.06	0.47	18.4	0.03	18.2	0.00	0.00
TOTAL	2.49	20.63	1148.7	4.31	1134.3	0.27	0.37
OPERATIONS							
Domestic Energy Consumption	7.06	41.77	1538.0	2.66	1523.0	0.37	0.49
DEMAND SIDE							
	electric energy GJ/cap	total energy GJ/cap	green house gases kg/cap	acid rain precursors kg/cap	CO2 kg/cap	energy ecological footprint gha/cap	total ecological footprint gha/cap
Actual rentals for housing	0.07	0.64	48.5	0.21	42.5	0.01	0.02
Imputed rentals for housing	0.17	1.42	108.4	0.47	94.9	0.03	0.05
Maintenance and repair of the dwelling	0.15	1.34	115.9	0.40	110.1	0.03	0.06
Electricity and gas distribution	1.29	18.15	1371.2	6.59	1227.6	0.31	0.46
Goods and services for routine household maintenance	0.03	0.25	25.0	0.06	23.8	0.01	0.01
Domestic fuel and land consumption	7.53	44.56	1640.6	2.84	1624.6	0.42	0.58
Total	9.23	66.35	3309.6	10.56	3123.5	0.81	1.18
CAPITAL INVESTMENT							
Other mining and quarrying	0.01	0.04	4.6	0.01	4.5	0.00	0.00
Electricity	0.05	0.40	48.6	0.10	47.4	0.01	0.02
Gas	0.01	0.07	9.3	0.02	9.1	0.00	0.00
Construction	0.03	0.25	30.8	0.06	30.1	0.01	0.01
Real estate, renting, business activities	0.26	2.23	258.1	0.59	249.9	0.07	0.10
Dwellings	0.34	3.36	285.9	1.05	269.5	0.07	0.13
Total	0.69	6.35	637.4	1.82	610.5	0.17	0.26

TRANSPORT & COMMUNICATIONS

SUPPLY SIDE							
	electric energy	total energy	green house gases	acid rain precursors	CO2	energy ecological footprint	total ecological footprint
	GJ/cap	GJ/cap	kg/cap	kg/cap	kg/cap	gha/cap	gha/cap
Rubber products	0.06	0.55	25.9	0.11	25.5	0.01	0.01
Plastic products	0.51	1.75	64.7	0.20	63.4	0.02	0.02
Glass and glass products	0.10	0.49	22.2	0.05	22.1	0.01	0.01
Iron and steel	0.18	7.42	424.8	1.39	420.1	0.10	0.10
Non-ferrous metals	0.35	1.10	48.6	0.34	48.1	0.01	0.01
Radio, television, communications	0.11	0.25	7.0	0.02	6.9	0.00	0.00
Motor vehicles	0.21	1.14	44.7	0.13	44.1	0.01	0.01
Ships, aircraft, other transport	0.12	0.49	18.3	0.05	18.1	0.00	0.01
Total	1.63	13.17	656.2	2.29	648.4	0.16	0.16
Motor vehicle distribution, repair, fuel	0.17	1.34	53.2	0.08	52.5	0.01	0.01
Wholesale distribution	0.51	2.49	91.0	0.44	88.9	0.02	0.02
Retail distribution	0.99	2.57	68.5	0.27	67.4	0.02	0.03
Railway transport	0.05	0.41	26.3	0.18	23.7	0.01	0.02
Road transport	0.21	7.47	473.6	3.23	466.4	0.11	0.14
Water transport	0.01	5.40	382.0	10.31	374.0	0.09	0.09
Air transport	0.06	10.29	763.5	0.18	756.9	0.18	0.18
Ancillary transport services	0.10	0.23	7.5	0.02	7.3	0.00	0.00
Post and telecommunications	0.34	0.80	30.1	0.12	29.4	0.01	0.01
Total	0.76	24.60	1683.1	14.04	1657.8	0.40	0.44
OPERATIONS							
Private transport (car fuel)	0.00	15.76	1109.9	3.78	1053.3	0.25	0.28
DEMAND SIDE							
	electric energy	total energy	green house gases	acid rain precursors	CO2	energy ecological footprint	total ecological footprint
	GJ/cap	GJ/cap	kg/cap	kg/cap	kg/cap	gha/cap	gha/cap
Purchase of vehicles	0.27	2.16	244.3	0.54	237.2	0.07	0.08
Operation of personal transport	0.35	4.70	282.9	1.07	270.2	0.07	0.09
Transport services	0.26	10.69	669.2	4.59	651.9	0.15	0.17
Overseas tourists in the UK	-0.19	-1.72	-141.5	-0.73	-115.4	-0.03	-0.08
UK resident holidays abroad	0.22	2.40	187.2	1.04	152.7	0.04	0.10
Private transport (car fuel)	0.00	14.21	1001.1	3.41	950.1	0.25	0.27
Total	0.91	32.44	2243.3	9.93	2146.8	0.54	0.63
CAPITAL INVESTMENT							
Transport equipment	0.04	0.34	37.9	0.09	36.8	0.01	0.01
Motor vehicles sales and repairs	0.06	0.53	46.1	0.13	44.5	0.01	0.02
Rail transport	0.00	0.02	1.7	0.00	1.7	0.00	0.00
Other land transport	0.04	0.30	34.3	0.08	33.4	0.01	0.01
Water transport	0.01	0.07	6.5	0.02	6.3	0.00	0.00
Air transport	0.05	0.33	28.5	0.08	27.5	0.01	0.01
Other transport services	0.05	0.50	46.7	0.15	44.3	0.01	0.02
Roads	0.02	0.22	17.9	0.07	16.8	0.01	0.01
Total	0.27	2.30	219.7	0.61	211.3	0.06	0.08

PRODUCTS

SUPPLY SIDE							
	electric energy	total energy	green house gases	acid rain precursors	CO2	energy ecological footprint	total ecological footprint
	GJ/cap	GJ/cap	kg/cap	kg/cap	kg/cap	gha/cap	gha/cap
Tobacco	0.01	0.02	0.6	0.00	0.6	0.00	0.00
Textiles	0.15	1.10	48.3	0.20	47.8	0.01	0.01
Wearing apparel	0.02	0.12	5.3	0.02	5.2	0.00	0.00
Leather products	0.02	0.06	2.5	0.01	2.4	0.00	0.00
Wood, wood products	0.10	1.33	76.6	0.27	74.7	0.02	0.02
Pulp and paper	0.07	1.57	74.1	0.25	73.2	0.02	0.02
Paints, varnishes, printing ink etc	0.04	0.14	4.6	0.01	4.6	0.00	0.00
Pharmaceuticals	0.05	0.75	30.9	0.06	30.7	0.01	0.01
Soap and toilet preparations	0.04	0.15	5.4	0.02	5.4	0.00	0.00
Chemical products	0.03	0.34	13.9	0.09	13.8	0.00	0.00
Man-made fibres	0.06	0.44	22.2	0.13	21.8	0.01	0.01
Rubber products	0.06	0.55	25.9	0.11	25.5	0.01	0.01
Plastic products	0.51	1.75	64.7	0.20	63.4	0.02	0.02
Glass and glass products	0.10	0.49	22.2	0.05	22.1	0.01	0.01
Medical /precision instruments	0.09	0.23	7.5	0.02	7.3	0.00	0.00
Furniture , misc manufacturing	0.16	1.79	90.3	0.32	88.1	0.02	0.02
Total	1.50	10.83	495.0	1.77	486.7	0.12	0.13
DEMAND SIDE							
	electric energy	total energy	green house gases	acid rain precursors	CO2	energy ecological footprint	total ecological footprint
	GJ/cap	GJ/cap	kg/cap	kg/cap	kg/cap	gha/cap	gha/cap
Tobacco	0.02	0.17	27.9	0.19	13.1	0.00	0.02
Clothing	0.12	0.96	85.4	0.23	82.8	0.02	0.02
Footwear	0.07	0.37	26.4	0.10	23.8	0.01	0.01
Furniture, furnishings, carpets etc	0.10	0.94	127.7	0.21	125.4	0.04	0.05
Household textiles	0.07	0.55	38.3	0.14	36.6	0.01	0.01
Household appliances	0.53	3.01	209.3	0.85	188.9	0.05	0.09
Glassware, tableware, household	0.04	0.27	22.9	0.06	22.2	0.01	0.01
Tools and equipment	0.06	0.44	42.7	0.12	41.1	0.01	0.02
Medical products, appliances & equipment	0.03	0.28	24.0	0.08	22.6	0.01	0.01
Telephone and telefax equipment	0.00	0.01	0.7	0.00	0.7	0.00	0.00
Audio-visual, photo and IT equipment	0.37	2.39	191.5	0.68	177.6	0.05	0.07
Other major durables for recreation	0.03	0.27	26.8	0.10	23.2	0.01	0.01
Other recreational items & equipment	0.18	1.71	308.9	1.48	195.1	0.06	0.20
Newspapers, books and stationery	0.10	0.74	66.0	0.21	63.2	0.02	0.03
Personal care	0.10	0.77	75.3	0.18	71.6	0.02	0.03
Personal effects n.e.c.	0.42	2.38	165.8	0.67	149.4	0.04	0.08
Total	2.23	15.24	1439.8	5.29	1237.4	0.34	0.65

.../PRODUCTS CONT.

CAPITAL INVESTMENT							
	electric energy	total energy	green house gases	acid rain precursors	CO2	energy ecological footprint	total ecological footprint
	GJ/cap	GJ/cap	kg/cap	kg/cap	kg/cap	gha/cap	gha/cap
Textile and leather products	0.01	0.04	5.1	0.01	4.9	0.00	0.00
Pulp, paper printing and publishing	0.03	0.24	29.6	0.06	28.8	0.01	0.01
Extraction - oil and gas	0.05	0.80	59.9	0.67	57.6	0.02	0.02
Solid and nuclear fuels, oil refining	0.01	0.09	9.1	0.03	8.7	0.00	0.00
Chemicals, man-made fibres	0.04	0.31	38.6	0.08	37.6	0.01	0.01
Other non-metallic minerals	0.01	0.09	10.3	0.02	10.0	0.00	0.00
Basic metals and metal products	0.02	0.14	17.1	0.04	16.7	0.01	0.01
Machinery and equipment	0.01	0.10	13.4	0.03	13.1	0.00	0.01
Electrical and optical equipment	0.03	0.23	30.0	0.06	29.3	0.01	0.01
Other manufacturing	0.02	0.19	23.9	0.05	23.3	0.01	0.01
TOTAL	0.26	2.53	271.5	1.10	263.8	0.07	0.10

COMMERCIAL SERVICES

SUPPLY SIDE							
	electric energy	total energy	green house gases	acid rain precursors	CO2	energy ecological footprint	total ecological footprint
	GJ/cap	GJ/cap	kg/cap	kg/cap	kg/cap	gha/cap	gha/cap
Post and telecommunications	0.336	0.803	30.106	0.116	29.434	0.007	0.008
Banking and finance	0.3	0.552	10.555	0.026	10.23	0.002	0.003
Insurance and pension funds	0.2	0.403	8.401	0.022	8.099	0.002	0.002
Auxiliary financial services	0.217	0.422	8.509	0.022	8.207	0.002	0.002
Renting of machinery etc	0.15	0.529	20.792	0.077	20.317	0.005	0.006
Computer services	0.28	0.465	10.035	0.027	9.715	0.002	0.003
Research and development	0.057	0.177	5.385	0.007	5.332	0.001	0.002
Legal, consultancy & other services	0.446	1.378	48.87	0.119	47.722	0.011	0.043
Education	0.403	2.731	100.107	0.132	99.567	0.024	0.041
Health and social work	0.474	3.212	123.62	0.227	122.876	0.03	0.036
Membership organisations	0.018	0.306	14.785	0.026	14.446	0.003	0.011
Recreational services	0.208	0.83	30.751	0.169	30.466	0.007	0.01
Other service activities	0.039	0.361	16.198	0.043	15.829	0.004	0.005
TOTAL	3.128	12.169	428.114	1.013	422.24	0.1	0.171
DEMAND SIDE							
	electric energy	total energy	green house gases	acid rain precursors	CO2	energy ecological footprint	total ecological footprint
	GJ/cap	GJ/cap	kg/cap	kg/cap	kg/cap	gha/cap	gha/cap
Water supply & misc services	0.374	1.574	162.498	0.517	85.361	0.023	0.028
Out-patient services	0.012	0.099	6.803	0.024	6.308	0.002	0.003
Hospital services	0.022	0.186	12.545	0.043	11.619	0.003	0.004
Postal Services	0.007	0.044	3.127	0.013	2.961	0.000744	0.001
Telephone and telefax services	0.134	0.805	57.227	0.233	54.192	0.014	0.019
Recreational and cultural services	0.22	1.553	108.746	0.443	96.852	0.024	0.044
Package holidays	0	0	0	0	0	0	0
Education	0.057	0.487	30.731	0.119	28.207	0.007	0.012
Accommodation services	0.101	0.816	66.591	0.339	50.98	0.014	0.045
Social protection	0.072	0.61	42.466	0.156	38.69	0.01	0.016
Insurance	0.246	1.647	104.922	0.427	98.792	0.025	0.037
Financial services n.e.c.	0.129	0.862	53.647	0.207	50.616	0.013	0.019
Other services n.e.c.	0.08	0.669	46.539	0.163	42.859	0.011	0.019
Total	1.454	9.351	695.842	2.684	567.437	0.147	0.25
CAPITAL INVESTMENT							
Wholesale trade	0.128	1.132	103.121	0.33	98.165	0.027	0.038
Retail trade	0.101	0.936	113.336	0.24	110.151	0.032	0.046
Financial intermediation	0.084	0.672	68.363	0.181	65.686	0.018	0.026
Other services	0.086	0.733	82.384	0.193	79.166	0.022	0.032
Transfer costs for land, etc.	0.078	0.693	54.132	0.208	50.071	0.013	0.024
Water	0.019	0.176	17.526	0.05	16.762	0.005	0.008
Post and telecommunications	0.154	1.051	135.072	0.264	131.64	0.035	0.044
Total	0.65	5.393	573.934	1.466	551.641	0.152	0.218

PUBLIC SERVICES

SUPPLY SIDE							
	electric energy	total energy	green house gases	acid rain precursors	CO2	energy ecological footprint	total ecological footprint
	GJ/cap	GJ/cap	kg/cap	kg/cap	kg/cap	gha/cap	gha/cap
Public administration and defence	0.219	3.355	389.352	1.41	366.282	0.097	0.137
Education	0.403	2.731	100.107	0.132	99.567	0.024	0.041
Total	0.622	6.086	489.459	1.542	465.849	0.121	0.178
DEMAND SIDE							
	electric energy	total energy	green house gases	acid rain precursors	CO2	energy ecological footprint	total ecological footprint
	GJ/cap	GJ/cap	kg/cap	kg/cap	kg/cap	gha/cap	gha/cap
Public administration (central)	0.487	5.428	389.352	1.41	366.282	0.097	0.137
Total	0.487	5.428	389.352	1.41	366.282	0.097	0.137
Public administration (local)	0.208	2.322	166.603	0.603	156.732	0.041	0.059
Education (local)	0.311	2.619	162.374	0.615	148.811	0.039	0.068
Health services (local)	0	0	0	0	0	0	0
Social work (local)	0.139	1.147	76.718	0.236	70.985	0.018	0.027
Sanitary services (local)	0.056	0.531	118.731	0.329	38.363	0.01	0.012
Total	0.714	6.619	524.426	1.783	414.891	0.108	0.167
CAPITAL INVESTMENT							
Public administration etc.	0.059	0.535	49.966	0.155	47.518	0.013	0.021
Education	0.04	0.363	31.926	0.106	30.22	0.008	0.014
Health and social work	0.044	0.376	36.145	0.107	34.449	0.009	0.015
Sewage and refuse disposal	0.044	0.402	40.306	0.112	38.636	0.011	0.017
Total	0.187	1.676	158.343	0.48	150.823	0.041	0.066

LOCAL ENERGY & EMISSIONS

Source: DEFRA local CO2 database 2005

	Domestic	Road Transport	Land Use Change	Industry, commercial, power gen
Barnsley	2.7	2.3	0.1	4.7
Bradford	2.6	1.0	0.0	2.7
Calderdale	3.0	2.5	0.1	2.9
Craven	3.0	3.6	0.4	2.6
Doncaster	3.0	3.1	0.2	3.8
East Riding	3.0	2.6	1.0	4.9
Hambleton	3.5	5.0	1.6	3.4
Harrogate	3.2	4.1	0.5	2.8
Hull, City of	2.3	0.8	0.0	3.7
Kirklees	2.7	1.9	0.0	4.3
N.E. Lincs	2.6	1.3	0.1	8.2
N. Lincs	2.7	3.2	0.7	83.7
Richmond	3.1	5.5	1.4	2.5
Rotherham	2.7	2.7	0.1	3.8
Ryedale	3.5	4.2	2.8	4.3
Scarborough	3.0	1.8	0.6	3.2
Selby	3.3	4.9	1.0	10.6
Sheffield	2.6	1.3	0.0	3.8
Wakefield	2.9	2.3	0.1	3.3
York	2.8	1.4	0.1	3.3
LEEDS	2.7	2.3	0.0	3.1
Y&H REGION	2.8	2.2	0.3	6.3

ENERGY & EMISSIONS BY SECTOR

Source: DEFRA local CO2 database 2005

Leeds	Yorkshire and the Humber	UK TOTAL	
1103	7256	109165	Industrial Electricity
769	7416	62559	Industrial Gas
0	387	6245	Industrial Gas (Exclusions)
239	6216	37494	Industry Commercial Oil
10	2244	14658	Industry Commercial Solid Fuel
12	198	2291	Industry Commercial Wastes And Biomass
3	6280	16030	Industry Process Gases
7	1029	8431	Industry Non Fuel
31	266	2613	Industry Off-Road Machinery
1	36	566	Agriculture Oil
0	1	12	Agriculture Solid
2	98	1058	Agriculture And Deforestation
7	89	963	Railways
766	5081	65301	Domestic Electricity
1091	7753	84181	Domestic Gas
15	487	9676	Domestic Oil
22	522	4327	Domestic Solid Fuel
3	21	252	Domestic Home And Garden Machinery
826	5454	67670	Road Transport Petrol
796	5572	59253	Road Transport Diesel
20	137	1683	Road Transport Other
27	1278	13676	Land Use Change
5750	57822	568105	Total

Policy scenarios

This section shows the result in ecological footprint of the policy scenario modelling exercise, focussing on the 'One Planet' scenario.

ECOLOGICAL FOOTPRINT TREND PROJECTIONS

This ecological footprint trend projection includes for policy impact assessments as shown in the technical reports to the Energy White Paper 2007. It then estimates the additional factors due to the UK proportion of air travel, marine shipping, imported goods, and land-use change and impacts in the countries of origin.

	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050	growth 2005 - 2050
Food & drink	1.19	1.28	1.37	1.48	1.59	1.71	1.84	1.98	2.13	2.30	1.5%
Home & energy	1.45	1.36	1.27	1.19	1.12	1.05	0.98	0.92	0.86	0.81	-1.3%
Travel (incl.air)	0.71	0.78	0.86	0.94	1.03	1.14	1.25	1.37	1.51	1.66	1.9%
Consumables	0.98	1.01	1.04	1.07	1.11	1.14	1.18	1.22	1.26	1.30	0.6%
Services & government	0.94	0.91	0.88	0.85	0.82	0.80	0.77	0.75	0.72	0.70	-0.6%
TOTAL	5.25									6.76	0.56%

FOOD & AGRICULTURE POLICIES

FOOD											annu al growt h	propo rtion of total	cumu lative reduc tion
	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050			
BAU trend	1.29	1.32	1.36	1.42	1.48	1.54	1.60	1.66	1.73	1.80	0.8%		
stabilization target	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	1.29	0.0%		
low impact imports	1.29	1.28	1.27	1.25	1.23	1.22	1.20	1.19	1.17	1.15	-0.3%	10%	90%
low impact farming	1.29	1.27	1.23	1.18	1.14	1.10	1.06	1.02	0.99	0.95	-0.7%	15%	75%
food process mgmt	1.29	1.25	1.16	1.08	1.00	0.93	0.86	0.80	0.74	0.69	-1.5%	20%	55%
retail & catering	1.29	1.24	1.12	1.02	0.92	0.83	0.75	0.68	0.62	0.56	-2.0%	10%	45%
demand side mgmt	1.29	1.21	1.04	0.90	0.77	0.67	0.57	0.49	0.42	0.36	-3.0%	15%	30%
											-3.0%	70%	30%

HOUSING & BUILT ENVIRONMENT POLICIES

BUILDINGS											annual growth	proportion of total	cumulative reduction
2005	2010	2015	2020	2025	2030	2035	2040	2045	2050				
BAU trend	1.09	1.11	1.14	1.17	1.21	1.24	1.28	1.32	1.36	1.40	0.6%		
stabilization target	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	0.0%		
local materials	1.09	1.09	1.08	1.07	1.07	1.06	1.05	1.05	1.04	1.03	-0.1%	5%	95%
sustainable construction	1.09	1.08	1.06	1.04	1.02	1.00	0.98	0.96	0.94	0.92	-0.4%	10%	85%
housing efficiency	1.09	1.05	1.00	0.94	0.88	0.82	0.77	0.72	0.68	0.64	-1.3%	25%	60%
property efficiency	1.09	1.01	0.91	0.80	0.70	0.61	0.54	0.47	0.41	0.36	-2.6%	25%	35%
												65%	

TRANSPORT

TRANSPORT											annual growth	proportion of total	cumulative reduction
2005	2010	2015	2020	2025	2030	2035	2040	2045	2050				
BAU trend incl.air	0.88	0.92	0.98	1.05	1.13	1.22	1.32	1.42	1.53	1.64	1.5%		
stabilization incl.air	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.0%		
vehicle & fuel supply chain	0.88	0.87	0.85	0.82	0.80	0.78	0.76	0.74	0.72	0.70	-0.6%	20%	80%
public transport	0.88	0.87	0.85	0.82	0.80	0.78	0.76	0.74	0.72	0.70	-0.6%	0%	80%
cars & highways demand side	0.88	0.85	0.78	0.71	0.66	0.60	0.55	0.51	0.46	0.43	-1.7%	30%	50%
management	0.88	0.82	0.69	0.58	0.49	0.41	0.35	0.29	0.24	0.21	-3.4%	25%	25%

PRODUCTS & CONSUMABLES

PRODUCTS											annual growth	proportion of total	cumulative reduction
2005	2010	2015	2020	2025	2030	2035	2040	2045	2050				
BAU trends	0.64	0.65	0.69	0.72	0.76	0.80	0.84	0.88	0.92	0.97	1.0%		
stabilization target	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.64	0.0%		
materials & imports	0.64	0.63	0.62	0.61	0.60	0.59	0.57	0.56	0.55	0.54	-0.4%	0.15	85%
supply chain management	0.64	0.62	0.58	0.53	0.50	0.46	0.43	0.40	0.37	0.34	-1.5%	0.3	55%
product life design	0.64	0.61	0.55	0.49	0.43	0.39	0.34	0.31	0.27	0.24	-2.3%	0.15	40%
demand side management	0.64	0.60	0.50	0.42	0.36	0.30	0.25	0.21	0.18	0.15	-3.4%	0.15	25%

SERVICES & GOVERNMENT (PUBLIC SERVICES)

SERVICES & PUBLIC											annual growth	proportion of total	cumulative reduction
2005	2010	2015	2020	2025	2030	2035	2040	2045	2050				
BAU trends	0.65	0.66	0.68	0.70	0.72	0.74	0.76	0.79	0.81	0.84	0.6%		
stabilization target	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.65	0.0%		
public services	0.65	0.64	0.60	0.57	0.54	0.51	0.49	0.46	0.44	0.41	-1.1%	0.35	65%
financial services	0.65	0.63	0.59	0.56	0.52	0.49	0.46	0.43	0.41	0.38	-1.3%	0.05	60%
demand side management	0.65	0.62	0.57	0.51	0.46	0.42	0.38	0.34	0.31	0.28	-2.0%	0.15	45%
tourism & leisure	0.65	0.61	0.53	0.45	0.39	0.34	0.29	0.25	0.21	0.18	-3.0%	0.15	30%
retail & distribution	0.65	0.60	0.49	0.40	0.33	0.27	0.22	0.18	0.15	0.12	-3.9%	0.1	20%