Estimates of primary energy demand and electricity generation

This note examines what the goals set out in the white paper may mean for energy use and the generation mix in 2020. These estimates are based on EP68 projections while adjusting for the estimated impact of additional measures including those in the Climate Change Programme. A substantial range of uncertainty is attached to each element of the data presented here as such they are only indicative of possible future changes. It is currently intended that we carry out a full revision of EP68 in order to provide new projections within the next two years, consistent with the need to assess longer term trends post White Paper and with DEFRA's timetable for updating the UK's Climate Change Programme. An interim assessment of the EP68 projections is contained in Annex 2 of the white paper.

Estimates of primary energy demand and of electricity generated by fuel have been calculated by firstly adjusting the EP68 projections for the full impact of the Climate Change Programme. This is consistent with the IAG (A) projections described in Annex 2 of the white paper. The original published EP68 estimates already include an initial assessment of the impact of the Large Combustion Plant Directive, as well as the Climate Change Levy and the achievement of 10% renewables generation by 2010. Further adjustments have then been made for the additional energy efficiency and transport sector savings outlined in the white paper, the achievement of around 20% renewables generation and an estimate for the impact of emissions trading.

Estimates of reductions in projected fuel use have been made, based on certain assumptions, of the impact of specific measures. For measures that result in reductions in electricity demand these estimates may overstate the impact as figures presented here show the full reduction in demand falling on major power producers. In reality some of the total reduction in use may occur within autogenerators demand for electricity, which is not included in this analysis.

Estimated Primary energy demand (Mtoe) – energy use only

	2001	**2010**		**2020**		
	DUKES	EP68 CH	Consistent with IAG (A) [1]	EP68 CH	Consistent with IAG (A) [1]	Consistent with goals in WP [2]
Coal	42	28	26	19	15 to 20	10 to 15
Oil	77	84	75	94	80 to 95	80 to 90
Gas	95	102	92	119	105 to 120	85 to 100
Nuclear[3]	21	17	17	7	7	7
Renewables	3	12	12	11	10 to 15	15 to 20
Imports of Electricity[3]	1	0.4	0.4	0.3	> 0	> 0
Total	238	243	221	251	220 to 255	195 to 230

1. EP68 CH adjusted for the full impact of the Climate Change Programme measures not included in EP68

2. Achieving the carbon savings as outlined in chapter 2 and around 20% renewables. Range shown represents uncertainty as captured by the IAG (A) World Market and Global Sustainability scenarios from IAG report. Data rounded to nearest 5 Mtoe.
3. Nuclear based on the closure dates embodied in EP68. As made clear in the review of the EP68 projections, there is uncertainty about exact plant closure dates. Assumes electricity import capacity remains at present, although as described in chapter 6 of the white paper new projects are likely to have been completed before 2020.

Generation (Gross supplied) by fuel type (Major Power Producers[1]) TWh

	2001	**2010**		**2020**		
	DUKES[2]	EP68 CH	Consistent with IAG (A)[2]	EP68 CH	Consistent with IAG (A)[3]	Consistent with carbon saving in WP[4]
Coal	121	83	74	49	40 to 45	20 to 25
Oil	2	0	0	0	0	0
Gas	124	173	138	264	220 to 250	170 to 200
Nuclear[5]	83	66	66	27	27	27
Renewables	10	41	41	41	40 to 45	70 to 85
Imports of Electricity[6]	13	8	8	6	6	6
Total	354	371	328	387	320 to 370	290 to 335

1. Includes Major Power Producers electricity supplied data for coal, oil, gas and nuclear and all generators data for renewables for gross supply. Major Power Producers are companies whose prime purpose is the generation of electricity. Full list of Major Power Producers as at end of 2001 can be found in Digest of UK Energy Statistics 2002, page 128.
2. Digest of UK Energy Statistics 2002, Table 5.6, gross supplied.
3. EP68 CH adjusted for the full impact of the Climate Change Programme measures not included in EP68. Data rounded to nearest 5 Mtoe
4. Achieving the carbon savings as outlined in chapter 2 and around 20% renewables. Range shown represents uncertainty as captured by the IAG (A) World Market and Global Sustainability scenarios from IAG report. Data rounded to nearest 5 Mtoe
5. Nuclear based on existing closure dates.
6. Assumes electricity import capacity remains at present, although as described in chapter 6 of the white paper new projects are likely to have been completed before 2020. Imports include UK electricity supplied from pumped storage hydro stations (2 TWh in 2001).

These estimates also include an initial view on the impact of the EU emissions trading scheme. At this stage these estimated projections should be treated with caution as the full details of how the scheme will work have yet to be agreed and individual companies will choose their own strategy and response.