

## **Analytical Annex to the Renewable Heat Incentive Impact Assessment (2011)**

### **Assumptions used in the analysis underpinning the RHI**

#### **Introduction**

This note presents the key assumptions used in the analysis presented in the Renewable Heat Incentive Impact Assessment. The assumptions are key drivers to various analytical outputs such as resource and subsidy costs, cost-effectiveness assessment, counterfactual costs, technology costs, and the value of CO<sub>2</sub> displaced.

Areas covered include:

- projected final energy demand based on the DECC Updated Energy Projections (UEP40)
- fossil fuel prices;
- electricity and prices for heating products;
- biomass prices; and
- carbon prices

#### **Final Energy Demand (Annex 1):**

Final energy demand is based on projected demand across different consumer segments – industry, commercial, public, domestic, agriculture – and are taken from the DECC Energy Model. The baseline is taken to be existing policies as presented in the Low-Carbon Transition Plan 2009, which have been updated to reflect revised analysis and economic growth projections. The data are presented on a net calorific value basis.

#### **Fossil Fuel Prices (Annex 2):**

Fossil fuel price assumptions used for the RHI analysis are based on prices forecasts published by DECC in 2009. They are given as 2008 prices, which is a different price base compared to all other fuel and carbon prices presented here. They draw on illustrative scenarios which reflect different patterns of demand and investment in supply. The four fossil fuel scenarios are:

- Low global energy demand (Low)
- Timely investment, moderate global demand (Central)
- High global demand, producers' market power (High)
- High global demand, significant supply constraints (High high)

The latest information on wholesale prices and scenarios can be found in Annex F here:

<http://decc.gov.uk/en/content/cms/statistics/projections/projections.aspx>

These prices are used to derive electricity and heating product prices for different types of consumer (see below). Fossil fuel price assumptions have been used in the RHI policy Impact Assessment to inform Government of the cost of different policy options, and how sensitive these are to changes in underlying assumptions.

### **Electricity and Prices for Heating Products (Annex 3):**

Electricity and heating product prices are used for two purposes:

- To estimate counterfactual costs to different energy users – ie costs they would have had to incur if they did not take up a renewable heat technology.
- To estimate the value of the financial incentive needed to incentivise users to take-up renewable energy technologies.

Different elements of prices are used for these different purposes and across different consumers. To estimate counterfactual resource costs (costs to the economy of deploying renewable technologies in place of conventional alternatives), we use wholesale or variable costs as representing conventional generation costs.

To estimate the amount of subsidy needed to incentivise uptake of renewable technologies, we use prices faced by the relevant user group – e.g. commercial and industrial sectors. The retail price represents the actual price paid for that fuel which fully incorporates the fixed and variable elements of costs.

The retail gas price series presented in this Annex have been adjusted compared to published retail gas prices to reflect the removal of the “RHI levy” following the Comprehensive Spending Review announcement that the RHI will be funded through general taxation, rather than this levy.

### **Biomass Prices (Annex 4):**

Biomass prices are based on updated analysis undertaken by AEA.

### **Carbon Price (Annex 5):**

The Carbon prices assumed in the impact assessment are consistent with those published in the Inter-departmental Analyst Guidance: ‘Valuation of energy use and Greenhouse Gas emissions for appraisal and evaluation’

[http://www.decc.gov.uk/en/content/cms/statistics/analysts\\_group/analysts\\_group.aspx](http://www.decc.gov.uk/en/content/cms/statistics/analysts_group/analysts_group.aspx)

### Annex 1: Final Energy Demand of fuels used for heating (TWh Net Calorific Value)

	2010	2015	2020	2025
<b>Industry</b>	203.4	204.4	205.1	205.6
<b>Domestic</b>	357.7	306.1	280.0	294.1
<b>Public</b>	51.7	50.5	50.6	49.9
<b>Commercial</b>	65.6	66.6	65.0	66.2
<b>Agriculture</b>	6.3	6.4	6.5	6.6
<b>TOTAL</b>	685	634	607	622

### Annex 2: Fossil Fuel Prices – 2009 prices

The tables in this section show the wholesale energy prices which have been used to determine the retail prices in annex 3. Whilst these wholesale prices have not been used in the modelling, they are reproduced here to provide transparency about the underlying fuel price assumptions.

Low global energy demand (Low) fuel price scenario:

	<b>Oil-Brent</b>	<b>Gas-NBP</b>	<b>Coal-ARA</b>
	<b>\$/bbl</b>	<b>p/therm</b>	<b>\$/tonne</b>
<b>2010</b>	50	33	80
<b>2011</b>	50	33	74
<b>2012</b>	52	33	68
<b>2013</b>	54	33	62
<b>2014</b>	56	33	56
<b>2015</b>	58	33	50
<b>2016</b>	60	33	50
<b>2017</b>	60	33	50
<b>2018</b>	60	34	50
<b>2019</b>	60	34	50
<b>2020</b>	60	34	50
<b>2021</b>	60	34	50
<b>2022</b>	60	34	50
<b>2023</b>	60	34	50
<b>2024</b>	60	34	50
<b>2025</b>	60	34	50

Timely investment, moderate global demand (Central) fuel price scenario:

	<b>Oil-Brent</b>	<b>Gas-NBP</b>	<b>Coal-ARA</b>
	<b>\$/bbl</b>	<b>p/therm</b>	<b>\$/tonne</b>
<b>2010</b>	70	58	110
<b>2011</b>	71	60	104
<b>2012</b>	72	61	98
<b>2013</b>	73	62	92
<b>2014</b>	74	63	86
<b>2015</b>	75	63	80
<b>2016</b>	76	64	80
<b>2017</b>	77	65	80
<b>2018</b>	78	66	80
<b>2019</b>	79	66	80
<b>2020</b>	80	67	80

<b>2021</b>	81	68	80
<b>2022</b>	82	69	80
<b>2023</b>	83	69	80
<b>2024</b>	84	70	80
<b>2025</b>	85	71	80

High global demand, producers' market power (High) fuel price scenario:

	<b>Oil-Brent</b>	<b>Gas-NBP</b>	<b>Coal-ARA</b>
	<b>\$/bbl</b>	<b>p/therm</b>	<b>\$/tonne</b>
<b>2010</b>	84	70	120
<b>2011</b>	87	72	116
<b>2012</b>	91	75	112
<b>2013</b>	95	78	108
<b>2014</b>	98	80	104
<b>2015</b>	102	83	100
<b>2016</b>	105	86	100
<b>2017</b>	109	88	100
<b>2018</b>	113	91	100
<b>2019</b>	116	94	100
<b>2020</b>	120	97	100
<b>2021</b>	120	97	100
<b>2022</b>	120	97	100
<b>2023</b>	120	97	100
<b>2024</b>	120	97	100
<b>2025</b>	120	97	100

High global demand, significant supply constraints (High high) fuel price scenario:

	<b>Oil-Brent</b>	<b>Gas-NBP</b>	<b>Coal-ARA</b>
	<b>\$/bbl</b>	<b>p/therm</b>	<b>\$/tonne</b>
<b>2010</b>	103	84	130
<b>2011</b>	111	90	130
<b>2012</b>	119	95	130
<b>2013</b>	126	101	130
<b>2014</b>	134	107	130
<b>2015</b>	142	113	130
<b>2016</b>	150	119	130
<b>2017</b>	150	119	130
<b>2018</b>	150	119	130
<b>2019</b>	150	119	130
<b>2020</b>	150	119	130
<b>2021</b>	150	119	130
<b>2022</b>	150	119	130
<b>2023</b>	150	119	130
<b>2024</b>	150	119	130
<b>2025</b>	150	119	130

### Annex 3: Electricity and Prices for Heating Products

1. Low global energy demand (Low) fuel price scenario:

	<b>Electricity - p/KWh 2009 prices</b>			
	Retail		Variable	
	Commercial	Industrial	Commercial	Industrial
<b>2010</b>	7.65	7.02	4.62	4.33
<b>2011</b>	7.65	7.02	4.56	4.28
<b>2012</b>	7.95	7.30	4.72	4.43
<b>2013</b>	8.14	7.47	4.71	4.42
<b>2014</b>	8.53	7.83	4.78	4.48
<b>2015</b>	8.88	8.15	4.76	4.47
<b>2016</b>	9.25	8.48	4.79	4.50
<b>2017</b>	9.61	8.82	4.81	4.52
<b>2018</b>	10.15	9.31	4.83	4.54
<b>2019</b>	10.57	9.70	4.88	4.58
<b>2020</b>	10.98	10.07	4.90	4.61
<b>2021</b>	11.35	10.41	4.97	4.67
<b>2022</b>	11.86	10.88	5.07	4.76
<b>2023</b>	12.38	11.36	5.24	4.92
<b>2024</b>	12.78	11.73	5.38	5.06
<b>2025</b>	13.31	12.21	5.55	5.21
<b>2026</b>	13.63	12.51	5.70	5.36
<b>2027</b>	13.93	12.79	5.84	5.49
<b>2028</b>	14.37	13.18	6.27	5.89
<b>2029</b>	14.45	13.26	6.33	5.95
<b>2030</b>	14.52	13.33	6.38	6.00

	<b>Gas - p/KWh 2009 prices</b>			
	Retail		Variable	
	Commercial	Industrial	Commercial	Industrial
<b>2010</b>	1.89	1.73	1.17	1.17
<b>2011</b>	1.89	1.73	1.17	1.17
<b>2012</b>	1.90	1.73	1.18	1.18
<b>2013</b>	1.91	1.74	1.18	1.18
<b>2014</b>	1.92	1.74	1.19	1.19
<b>2015</b>	1.92	1.74	1.19	1.19
<b>2016</b>	1.93	1.74	1.20	1.20

<b>2017</b>	1.93	1.74	1.20	1.20
<b>2018</b>	1.94	1.73	1.20	1.20
<b>2019</b>	1.94	1.71	1.21	1.21
<b>2020</b>	1.93	1.70	1.21	1.21
<b>2021</b>	1.94	1.70	1.22	1.22
<b>2022</b>	1.95	1.71	1.22	1.22
<b>2023</b>	1.96	1.72	1.23	1.23
<b>2024</b>	1.98	1.73	1.23	1.23
<b>2025</b>	1.99	1.75	1.24	1.24
<b>2026</b>	2.00	1.76	1.24	1.24
<b>2027</b>	2.02	1.78	1.25	1.25
<b>2028</b>	2.04	1.79	1.25	1.25
<b>2029</b>	2.05	1.81	1.26	1.26
<b>2030</b>	2.07	1.83	1.27	1.27

<b>Coal - p/KWh 2009 prices</b>				
	<b>Retail</b>		<b>Variable</b>	
	<b>Commercial</b>	<b>Industrial</b>	<b>Commercial</b>	<b>Industrial</b>
<b>2010</b>	0.91	0.70	0.67	0.58
<b>2011</b>	0.91	0.70	0.67	0.58
<b>2012</b>	0.91	0.70	0.67	0.58
<b>2013</b>	0.91	0.70	0.67	0.58
<b>2014</b>	0.91	0.70	0.67	0.58
<b>2015</b>	0.91	0.70	0.67	0.58
<b>2016</b>	0.91	0.70	0.67	0.58
<b>2017</b>	0.91	0.70	0.67	0.58
<b>2018</b>	0.91	0.70	0.67	0.58
<b>2019</b>	0.91	0.70	0.67	0.58
<b>2020</b>	0.91	0.70	0.67	0.58
<b>2021</b>	0.91	0.70	0.67	0.58
<b>2022</b>	0.91	0.70	0.67	0.58
<b>2023</b>	0.91	0.70	0.67	0.58



<b>2030</b>	41.04	39.54	28.52	28.75
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2. Timely investment, moderate global demand (Central) fuel price scenario:

	<b>Electricity - p/KWh 2009 prices</b>			
	Retail		Variable	
	Commercial	Industrial	Commercial	Industrial
<b>2010</b>	10.07	9.24	6.80	6.36
<b>2011</b>	10.25	9.40	6.97	6.52
<b>2012</b>	10.55	9.68	7.20	6.74
<b>2013</b>	10.81	9.92	7.30	6.83
<b>2014</b>	11.19	10.27	7.39	6.92
<b>2015</b>	11.57	10.62	7.49	7.01
<b>2016</b>	11.93	10.95	7.57	7.08
<b>2017</b>	12.30	11.29	7.65	7.16
<b>2018</b>	12.82	11.77	7.71	7.22
<b>2019</b>	13.21	12.12	7.83	7.33
<b>2020</b>	13.57	12.46	7.91	7.41
<b>2021</b>	14.03	12.88	8.02	7.51
<b>2022</b>	14.55	13.35	8.10	7.59
<b>2023</b>	15.19	13.94	8.37	7.84
<b>2024</b>	15.86	14.55	8.69	8.14
<b>2025</b>	18.22	16.72	10.63	9.95
<b>2026</b>	19.84	18.20	11.99	11.22
<b>2027</b>	20.38	18.70	12.25	11.46
<b>2028</b>	20.82	19.10	12.54	11.73
<b>2029</b>	21.17	19.43	12.72	11.90
<b>2030</b>	21.58	19.80	12.95	12.12

	<b>Gas - p/KWh 2009 prices</b>			
	Retail		Variable	
	Commercial	Industrial	Commercial	Industrial
<b>2010</b>	2.90	2.64	2.06	2.06



<b>2011</b>	2.98	2.71	2.14	2.14
<b>2012</b>	3.01	2.74	2.17	2.17
<b>2013</b>	3.04	2.77	2.19	2.19
<b>2014</b>	3.08	2.80	2.22	2.22
<b>2015</b>	3.11	2.82	2.25	2.25
<b>2016</b>	3.14	2.85	2.27	2.27
<b>2017</b>	3.17	2.87	2.30	2.30
<b>2018</b>	3.20	2.89	2.33	2.33
<b>2019</b>	3.23	2.90	2.35	2.35
<b>2020</b>	3.25	2.90	2.38	2.38
<b>2021</b>	3.28	2.93	2.41	2.41
<b>2022</b>	3.32	2.96	2.44	2.44
<b>2023</b>	3.36	3.00	2.46	2.46
<b>2024</b>	3.40	3.03	2.49	2.49
<b>2025</b>	3.43	3.07	2.52	2.52
<b>2026</b>	3.48	3.11	2.55	2.55
<b>2027</b>	3.52	3.15	2.58	2.58
<b>2028</b>	3.56	3.18	2.60	2.60
<b>2029</b>	3.60	3.22	2.63	2.63
<b>2030</b>	3.64	3.27	2.66	2.66

<b>Coal - p/KWh 2009 prices</b>					
		Retail		Variable	
		Commercial	Industrial	Commercial	Industrial
<b>2010</b>		1.46	1.24	1.22	1.12
<b>2011</b>		1.40	1.19	1.16	1.06
<b>2012</b>		1.35	1.13	1.11	1.01
<b>2013</b>		1.29	1.08	1.05	0.96
<b>2014</b>		1.24	1.02	1.00	0.90
<b>2015</b>		1.18	0.97	0.95	0.85
<b>2016</b>		1.18	0.97	0.95	0.85
<b>2017</b>		1.18	0.97	0.95	0.85

<b>2018</b>	1.18	0.97	0.95	0.85
<b>2019</b>	1.18	0.97	0.95	0.85
<b>2020</b>	1.18	0.97	0.95	0.85
<b>2021</b>	1.18	0.97	0.95	0.85
<b>2022</b>	1.18	0.97	0.95	0.85
<b>2023</b>	1.18	0.97	0.95	0.85
<b>2024</b>	1.18	0.97	0.95	0.85
<b>2025</b>	1.18	0.97	0.95	0.85
<b>2026</b>	1.18	0.97	0.95	0.85
<b>2027</b>	1.18	0.97	0.95	0.85
<b>2028</b>	1.18	0.97	0.95	0.85
<b>2029</b>	1.18	0.97	0.95	0.85
<b>2030</b>	1.18	0.97	0.95	0.85

<b>Oil - p/KWh 2009 prices</b>					
		<b>Retail</b>		<b>Variable</b>	
		<b>Commercial</b>	<b>Industrial</b>	<b>Commercial</b>	<b>Industrial</b>
<b>2010</b>		44.47	43.49	32.18	32.86
<b>2011</b>		45.02	44.10	32.61	33.36
<b>2012</b>		45.54	44.67	33.04	33.85
<b>2013</b>		46.02	45.21	33.47	34.35
<b>2014</b>		46.46	45.71	33.90	34.84
<b>2015</b>		46.89	46.20	34.34	35.34
<b>2016</b>		47.32	46.69	34.77	35.83
<b>2017</b>		47.75	47.19	35.20	36.33
<b>2018</b>		48.18	47.68	35.63	36.83
<b>2019</b>		48.61	48.17	36.06	37.32
<b>2020</b>		49.04	48.66	36.49	37.82
<b>2021</b>		49.47	49.15	36.93	38.31
<b>2022</b>		49.90	49.64	37.36	38.81
<b>2023</b>		50.33	50.13	37.79	39.30

<b>2024</b>	50.75	50.62	38.22	39.80
<b>2025</b>	51.18	51.11	38.65	40.30
<b>2026</b>	51.61	51.60	39.09	40.79
<b>2027</b>	52.04	52.09	39.52	41.29
<b>2028</b>	52.47	52.58	39.95	41.78
<b>2029</b>	52.90	53.08	40.38	42.28
<b>2030</b>	53.33	53.57	40.81	42.77

3. High global demand, producers' market power (High) fuel price scenario:

	<b>Electricity - p/KWh 2009 prices</b>			
	Retail		Variable	
	Commercial	Industrial	Commercial	Industrial
<b>2010</b>	10.84	9.94	7.81	7.30
<b>2011</b>	11.04	10.13	8.06	7.53
<b>2012</b>	11.42	10.48	8.47	7.92
<b>2013</b>	11.74	10.77	8.75	8.18
<b>2014</b>	12.16	11.16	9.01	8.42
<b>2015</b>	12.51	11.48	9.23	8.63
<b>2016</b>	12.75	11.70	9.42	8.80
<b>2017</b>	13.12	12.04	9.75	9.12
<b>2018</b>	13.36	12.26	9.77	9.14
<b>2019</b>	13.52	12.40	9.89	9.25
<b>2020</b>	13.78	12.65	10.13	9.47
<b>2021</b>	14.48	13.28	10.52	9.84
<b>2022</b>	14.99	13.75	10.60	9.92
<b>2023</b>	15.64	14.35	10.83	10.13
<b>2024</b>	16.51	15.15	11.29	10.56
<b>2025</b>	18.91	17.36	13.15	12.30
<b>2026</b>	19.82	18.19	13.65	12.76
<b>2027</b>	20.68	18.98	14.11	13.19
<b>2028</b>	21.51	19.74	14.54	13.59

<b>2029</b>	21.99	20.18	14.66	13.71
<b>2030</b>	22.78	20.90	15.11	14.13

<b>Gas - p/KWh 2009 prices</b>					
		Retail		Variable	
		Commercial	Industrial	Commercial	Industrial
<b>2010</b>	3.35	3.05	2.46	2.46	
<b>2011</b>	3.45	3.15	2.56	2.56	
<b>2012</b>	3.56	3.25	2.65	2.65	
<b>2013</b>	3.67	3.34	2.75	2.75	
<b>2014</b>	3.78	3.44	2.84	2.84	
<b>2015</b>	3.89	3.54	2.94	2.94	
<b>2016</b>	4.00	3.63	3.04	3.04	
<b>2017</b>	4.11	3.72	3.13	3.13	
<b>2018</b>	4.21	3.81	3.23	3.23	
<b>2019</b>	4.31	3.89	3.32	3.32	
<b>2020</b>	4.41	3.97	3.42	3.42	
<b>2021</b>	4.42	3.97	3.42	3.42	
<b>2022</b>	4.43	3.97	3.42	3.42	
<b>2023</b>	4.43	3.98	3.42	3.42	
<b>2024</b>	4.44	3.99	3.42	3.42	
<b>2025</b>	4.45	4.00	3.43	3.43	
<b>2026</b>	4.47	4.01	3.43	3.43	
<b>2027</b>	4.48	4.02	3.43	3.43	
<b>2028</b>	4.49	4.04	3.43	3.43	
<b>2029</b>	4.50	4.05	3.43	3.43	
<b>2030</b>	4.52	4.06	3.43	3.43	

<b>Coal - p/KWh 2009 prices</b>					
		Retail		Variable	
		Commercial	Industrial	Commercial	Industrial
<b>2010</b>	1.55	1.33	1.31	1.21	

<b>2011</b>	1.51	1.30	1.27	1.17
<b>2012</b>	1.48	1.26	1.24	1.14
<b>2013</b>	1.44	1.22	1.20	1.10
<b>2014</b>	1.40	1.19	1.16	1.06
<b>2015</b>	1.37	1.15	1.13	1.03
<b>2016</b>	1.37	1.15	1.13	1.03
<b>2017</b>	1.37	1.15	1.13	1.03
<b>2018</b>	1.37	1.15	1.13	1.03
<b>2019</b>	1.37	1.15	1.13	1.03
<b>2020</b>	1.37	1.15	1.13	1.03
<b>2021</b>	1.37	1.15	1.13	1.03
<b>2022</b>	1.37	1.15	1.13	1.03
<b>2023</b>	1.37	1.15	1.13	1.03
<b>2024</b>	1.37	1.15	1.13	1.03
<b>2025</b>	1.37	1.15	1.13	1.03
<b>2026</b>	1.37	1.15	1.13	1.03
<b>2027</b>	1.37	1.15	1.13	1.03
<b>2028</b>	1.37	1.15	1.13	1.03
<b>2029</b>	1.37	1.15	1.13	1.03
<b>2030</b>	1.37	1.15	1.13	1.03

<b>Oil – p/litre 2009 prices</b>					
		Retail		Variable	
		Commercial	Industrial	Commercial	Industrial
<b>2010</b>		50.21	50.03	37.91	39.41
<b>2011</b>		51.58	51.58	39.16	40.84
<b>2012</b>		53.32	53.55	40.82	42.74
<b>2013</b>		55.03	55.49	42.48	44.63
<b>2014</b>		56.29	56.93	43.73	46.07
<b>2015</b>		57.95	58.83	45.40	47.96
<b>2016</b>		59.20	60.26	46.65	49.40

<b>2017</b>	60.86	62.15	48.31	51.29
<b>2018</b>	62.52	64.04	49.97	53.19
<b>2019</b>	63.77	65.47	51.22	54.62
<b>2020</b>	65.42	67.36	52.88	56.52
<b>2021</b>	65.44	67.39	52.90	56.55
<b>2022</b>	65.46	67.41	52.92	56.58
<b>2023</b>	65.48	67.43	52.95	56.61
<b>2024</b>	65.50	67.46	52.97	56.63
<b>2025</b>	65.52	67.48	52.99	56.66
<b>2026</b>	65.54	67.50	53.01	56.69
<b>2027</b>	65.56	67.53	53.03	56.72
<b>2028</b>	65.58	67.55	53.06	56.75
<b>2029</b>	65.60	67.57	53.08	56.78
<b>2030</b>	65.62	67.60	53.10	56.80

4. High global demand, significant supply constraints (High high) fuel price scenario:

	<b>Electricity - p/KWh 2009 prices</b>			
	Retail		Variable	
	Commercial	Industrial	Commercial	Industrial
<b>2010</b>	12.75	11.70	9.09	8.49
<b>2011</b>	13.24	12.15	9.62	8.98
<b>2012</b>	14.00	12.85	10.32	9.64
<b>2013</b>	14.73	13.51	10.87	10.15
<b>2014</b>	15.51	14.24	11.42	10.67
<b>2015</b>	16.17	14.84	11.85	11.07
<b>2016</b>	16.80	15.41	12.33	11.51
<b>2017</b>	17.06	15.65	12.45	11.63
<b>2018</b>	16.96	15.56	12.04	11.25
<b>2019</b>	17.14	15.73	12.12	11.33
<b>2020</b>	17.28	15.85	12.14	11.35
<b>2021</b>	17.87	16.40	12.26	11.46

<b>2022</b>	18.60	17.07	12.41	11.60
<b>2023</b>	19.78	18.15	13.06	12.21
<b>2024</b>	21.00	19.27	13.69	12.80
<b>2025</b>	23.76	21.81	15.78	14.74
<b>2026</b>	24.99	22.94	16.45	15.37
<b>2027</b>	26.21	24.05	17.12	15.99
<b>2028</b>	27.27	25.03	17.78	16.61
<b>2029</b>	27.09	24.86	17.12	15.99
<b>2030</b>	27.84	25.55	17.43	16.29

	<b>Gas - p/KWh 2009 prices</b>			
	Retail		Variable	
	Commercial	Industrial	Commercial	Industrial
<b>2010</b>	3.91	3.56	2.96	2.96
<b>2011</b>	4.13	3.77	3.17	3.17
<b>2012</b>	4.36	3.98	3.37	3.37
<b>2013</b>	4.60	4.19	3.57	3.57
<b>2014</b>	4.83	4.40	3.78	3.78
<b>2015</b>	5.06	4.61	3.98	3.98
<b>2016</b>	5.29	4.81	4.19	4.19
<b>2017</b>	5.30	4.81	4.19	4.19
<b>2018</b>	5.30	4.80	4.19	4.19
<b>2019</b>	5.29	4.79	4.19	4.19
<b>2020</b>	5.29	4.77	4.19	4.19
<b>2021</b>	5.29	4.77	4.19	4.19
<b>2022</b>	5.30	4.77	4.20	4.20
<b>2023</b>	5.31	4.78	4.20	4.20
<b>2024</b>	5.32	4.79	4.20	4.20
<b>2025</b>	5.33	4.80	4.20	4.20
<b>2026</b>	5.34	4.81	4.20	4.20
<b>2027</b>	5.35	4.82	4.20	4.20
<b>2028</b>	5.36	4.84	4.21	4.21

<b>2029</b>	5.38	4.85	4.21	4.21
<b>2030</b>	5.39	4.86	4.21	4.21

<b>Coal - p/KWh 2009 prices</b>				
	<b>Retail</b>		<b>Variable</b>	
	<b>Commercial</b>	<b>Industrial</b>	<b>Commercial</b>	<b>Industrial</b>
<b>2010</b>	1.64	1.42	1.40	1.30
<b>2011</b>	1.64	1.42	1.40	1.30
<b>2012</b>	1.64	1.42	1.40	1.30
<b>2013</b>	1.64	1.42	1.40	1.30
<b>2014</b>	1.64	1.42	1.40	1.30
<b>2015</b>	1.64	1.42	1.40	1.30
<b>2016</b>	1.64	1.42	1.40	1.30
<b>2017</b>	1.64	1.42	1.40	1.30
<b>2018</b>	1.64	1.42	1.40	1.30
<b>2019</b>	1.64	1.42	1.40	1.30
<b>2020</b>	1.64	1.42	1.40	1.30
<b>2021</b>	1.64	1.42	1.40	1.30
<b>2022</b>	1.64	1.42	1.40	1.30
<b>2023</b>	1.64	1.42	1.40	1.30
<b>2024</b>	1.64	1.42	1.40	1.30
<b>2025</b>	1.64	1.42	1.40	1.30
<b>2026</b>	1.64	1.42	1.40	1.30
<b>2027</b>	1.64	1.42	1.40	1.30
<b>2028</b>	1.64	1.42	1.40	1.30
<b>2029</b>	1.64	1.42	1.40	1.30
<b>2030</b>	1.64	1.42	1.40	1.30



<b>Oil - p/litre 2009 prices</b>				
	<b>Retail</b>		<b>Variable</b>	
	<b>Commercial</b>	<b>Industrial</b>	<b>Commercial</b>	<b>Industrial</b>
<b>2010</b>	57.99	58.92	45.69	48.29
<b>2011</b>	61.41	62.80	48.99	52.06
<b>2012</b>	64.79	66.65	52.29	55.83
<b>2013</b>	67.73	69.99	55.18	59.13
<b>2014</b>	71.04	73.77	58.48	62.90
<b>2015</b>	74.34	77.53	61.78	66.67
<b>2016</b>	77.63	81.30	65.08	70.44
<b>2017</b>	77.65	81.32	65.10	70.47
<b>2018</b>	77.67	81.35	65.12	70.49
<b>2019</b>	77.69	81.37	65.15	70.52
<b>2020</b>	77.71	81.39	65.17	70.55
<b>2021</b>	77.73	81.42	65.19	70.58
<b>2022</b>	77.75	81.44	65.21	70.61
<b>2023</b>	77.77	81.46	65.23	70.64
<b>2024</b>	77.79	81.49	65.26	70.66
<b>2025</b>	77.81	81.51	65.28	70.69
<b>2026</b>	77.83	81.53	65.30	70.72
<b>2027</b>	77.85	81.55	65.32	70.75
<b>2028</b>	77.87	81.58	65.35	70.78
<b>2029</b>	77.89	81.60	65.37	70.80
<b>2030</b>	77.91	81.62	65.39	70.83

#### Annex 4: Biomass Prices for non-domestic installations

Pellets	Current			2020		
	Low	Central	High	Low	Central	High
£2010/MWh (exc VAT)						
Bulk	36	41	46	32	45	51
Bagged	44	51	57	40	56	65
Overall	41	48	53	36	50	58

Chips	Current			2020		
	Low	Central	High	Low	Central	High
£2010/MWh (exc VAT)						
Industrial/commercial	16	21	33	17	23	27

#### Annex 5: Carbon prices

£/tCO <sub>2</sub> (2009)	Traded			Non-traded		
	Low	Central	High	Low	Central	High
2010	7	14	18	26	52	78
2011	7	14	18	26	52	79
2012	8	14	18	27	53	80
2013	8	15	19	27	54	81
2014	8	15	19	27	55	82
2015	8	15	19	28	56	84
2016	8	15	19	28	57	85
2017	8	16	20	29	57	86
2018	8	16	20	29	58	87
2019	8	16	20	30	59	89
2020	8	16	21	30	60	90
2021	11	22	29	31	61	92

<b>2022</b>	14	27	38	31	62	93
<b>2023</b>	16	32	46	32	63	95
<b>2024</b>	19	38	54	32	64	96
<b>2025</b>	22	43	63	33	65	98
<b>2026</b>	24	49	71	33	66	99
<b>2027</b>	27	54	80	34	67	101
<b>2028</b>	30	59	88	34	68	102
<b>2029</b>	32	65	97	35	69	104
<b>2030</b>	35	70	105	35	70	105
<b>2031</b>	38	77	115	38	77	115
<b>2032</b>	42	83	125	42	83	125
<b>2033</b>	45	90	134	45	90	134
<b>2034</b>	48	96	144	48	96	144
<b>2035</b>	51	103	154	51	103	154
<b>2036</b>	55	109	164	55	109	164
<b>2037</b>	58	116	173	58	116	173
<b>2038</b>	61	122	183	61	122	183
<b>2039</b>	64	129	193	64	129	193
<b>2040</b>	68	135	203	68	135	203