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Your ref: **ENER CI/TH/pd D(2011) 102445**  
Our ref:

July 4 2011

## **RE: National Renewable Energy Action Plan**

Thank you for the letter (reference ENER CI/TH/pd D(2011) 102445) on the subject of the UK National Renewable Energy Action Plan and for the opportunity to meet and subsequently discuss the detail with you and colleagues before submission of this response which deals with the questions raised in the letter from Mr Lowe.

### **Table 3**

- *Are the negative figures for "Surplus for cooperation mechanism" of 2011-2016 indicating that the UK needs to import RES? If yes, it should be indicated in the row "Of which cooperation mechanism".*
  - *The "Overall RES share (%)" is below minimum indicative trajectory, if the figures are rounded like they are in the NREAP. But they seem correct if one calculates with the exact numbers. Figures are at the moment not consistent. The exact figures should be used and it should be ensured that the minimum trajectory is met. (The Directive requires that measures are effectively designed to achieve or exceed the trajectory).*
1. The numbers given in the NREAP are modelled annually, and accordingly the numbers which showed a marginal shortfall have changed. At present demand is under projections, and as stated in the notes to Table 1, certain energy efficiency measures, for example those that were highlighted in the Low Carbon Transition Plan, are not included in the energy demand estimates. This, combined with increased deployment – which for renewable electricity capacity is progressing above forecast levels – mean that the UK is confident of meeting our interim targets without additional measures. We will continue to monitor growth in renewable deployment to ensure that targets are met.
  2. The UK intends to achieve our overall 15% target through domestic action. However we are exploring the costs and benefits of cooperation mechanisms and given the uncertainty underpinning projections will be open, under certain conditions to using joint projects to make up any shortfall.
- *Whilst technology specific details do not constitute mandatory targets and may vary according to scenario, the Directive requires Member States to establish 2020 sectoral targets. This should be made clearer in the plan.*

In Section 3.2 the UK NREAP provides an illustrative mix of technologies, developed from our lead scenario, which suggests that the UK could deliver around 30% of electricity, 12% of heat and 10% of transport energy from renewable sources by 2020. As stated this is only one scenario of the technology mix which could come forward to meet our 15% target, but will provide the Government and the market indicators against which to judge the progress of individual sectors. As such, the sectoral results meet the requirements of Article 4(1) of the Directive. In addition, we expect to

include updated sectoral trajectories in the Renewables Roadmap which will be published this summer.

#### **Technical Specification (Q4.2.2)**

- *It should be clarified whether or not MCS certification of renewable energy equipment is the only eligible certification to benefit from support. It has been pointed out to the Commission that Ofgem considers only MCS certified equipment to be eligible for support, contrary to information earlier received from the UK government, which stated that equivalent European standards can also qualify for support. This matter has already been the subject of a complaint and needs verification/correction.*

MCS or equivalent certification of energy equipment is eligible for support under the financial incentives in the UK. Equivalence is based on European and international standards combined with EN45011 certification. For example, Solar Keymark products are eligible for support in the UK and that will continue to be the case under the proposed Renewable Heat Incentive.

The UK is replying separately to complaint about micro wind products from the EU Commission ref No EU PILOT Ref No 1909/11/ENER. We are not due to reply until 18 May 2011. The UK will respond to that complaint in full but we would like to make clear that MCS certification costs for a micro wind product are currently in the region of £13,000 and in this context that is as a consequence of EN45011 rather than MCS per se. The quoted £60,000 costs (which may be an inaccurately high figure) relate to MCS micro wind testing requirements, which refer to IEC61400-2 and IEC 61400-11 and to IEC 61400-12-1.

There is a revision of IEC 61400-2 which will imminently release the committee draft (CD) of the third revision after 2-years of intensive work. This has built upon many of the lessons learnt in implementing the MCS scheme and has been in cooperation with many EU countries (UK, Netherlands, Spain, Sweden, Germany, Italy, Greece, France, Denmark) as well as non-EU countries (Korea, Australia, USA, Canada, Israel, China, Japan).

The UK requirement for IEC 61400-2 is in line with other EU countries similar requirements, all of whom have cooperated in the IEC 61400-2 revision process and who have been benefiting from the MCS implementation. For example Germany and Denmark require compliance with IEC 61400-2, and as a minimum Greece, France, Spain, Sweden, and the Netherlands are moving in this direction. Outside the UK both Canada and the USA have adopted IEC61400-2 (again in a way that is harmonised with the UK MCS scheme) and Japan is moving in this direction.

Within IEC 61400-2 there is a requirement for quality assurance, and MCS delivers this through the annual review by the EN45011 certification body.

#### **Buildings (Q4.2.3)**

- *More details should be provided of measures for buildings to be introduced from 2013. In fact, the targeted increase of renewables in domestic buildings seems not to be consistent with the objectives for zero carbon homes, as only 1% renewables is foreseen in residential buildings in 2020.*

The UK is committed to ensuring that new homes are zero carbon from 2016. Policy through which this commitment is being delivered is in development, but at this stage includes:

- an ambitious mandatory standard for fabric energy efficiency for homes, (which is being trailed through incorporation in the voluntary Code for Sustainable Homes;
- commissioning the Zero Carbon Hub (a government/industry partnership body) to gather evidence and recommend appropriate requirements for on-home carbon reductions (the Hub have recently submitted their findings, which call for on-home carbon reductions of between 44% and 60%, dependent on house type, compared to 2006 Building Regulations; Government is now considering these findings); and
- Allowable solutions - an approach enabling housebuilders to deal with any carbon reductions not delivered on the site of the home to do so by certain off-site means. The Government has signalled its interest in the 'Community Energy Fund' approach, whereby housebuilders could meet their obligations through making payments to fund local renewable energy projects.

The Coalition Government will also be starting detailed work soon to consider options for a 2013 interim regulatory step to support this policy approach.

#### **District heating development (Q4.2.9)**

- *The UK expects district heating to increase somewhat, but it remains unclear whether the measures proposed by the former government to incentivise district heating will be taken up by the new government. More information should be provided on how the development of district heating infrastructure will be incentivised. The new government's plans to introduce the renewable heat incentive should also be further described.*

Analysis demonstrates that district heating could supply 6-14% of the UK heat demand and the current Coalition Government are as committed to ensuring there is appropriate support for helping district heating to achieve this as the previous administration. In particular, we are currently undertaking a fundamental root and branch assessment of heat policy as one part of putting ourselves in a position to respond appropriately to the Committee on Climate Changes report on the UK's 4<sup>th</sup> carbon budget period. A key focus of the Coalition is the support we provide to decentralised and community technologies and already we have removed restrictions on Local Authorities selling electricity (supporting the economics of CHP schemes) and launched a new website entitled Community Energy Online to provide support to communities and local authorities seeking to develop community scale technologies. We are seeing development of heat networks and the Government continues to work closely with the industry and others to encourage deployment of district heat networks in those communities where it is beneficial and economic to do so.

The roll out of district heating will also be supported by initiatives like the Renewable Heat Incentive which will provide long-term financial support to encourage the uptake of renewable heat. District heating will be eligible for the RHI where the heat is produced by an RHI-eligible installation

#### **Biomass supply (Q4.6.1)**

- *Table 7a: the amount of domestic resource should be provided in units of m3 or alternatively in tonnes for forestry and agriculture.*

[See table at annex](#)

- Ø *Table 7a clarification: Regarding agricultural biomass supply to be used for biofuels production, could it be indicated whether the data provided in the columns "primary energy production" (2015 and 2020) include the final energy contained in biofuels or the primary energy from raw feedstock used to produce such biofuels*

The UK has a market based system of support, and the sourcing of feedstock is therefore the decision of investors. Accordingly it is not possible to estimate which sources of biomass will be used to deliver the bio-energy element of the 15% target. This is also why the previous estimates given in the NREAP were on the basis of the estimated supply in the UK, rather than what will actually be used, which cannot be estimated.

There are however estimates of the total amount of generation from bio-energy in the heat, power and transport sectors which can be broken down between solid and gaseous bio-energy. [\[please see the table 7a below\]](#)

- *Tables 7 and 7a: The decrease of about 1.34Mtoe in supply for 2015 relative to 2006 should be explained (i.e. what are the sectors and sub-sectors responsible for this decrease, while overall there is an increase from 2006 to 2020 of about 2.6 Mtoe?)*

The total amount of generation from bio-energy in the heat and power sectors was included in the 2<sup>nd</sup> columns of Table 7a – 2145 and 6085 ktoes in 2015 and 2020 respectively. This is not on a primary energy basis as indicated, but on an output or final energy basis. The figure for 2015 is lower than the figure in table 7 for 2006 because the latter is on a primary energy basis.

- *The following question should be answered: "Please specify on what basis the biodegradable fraction of municipal solid waste and of industrial waste was calculated"*

The UK has a longstanding and ongoing programme of waste analysis in the UK, which is carried out to an accuracy of +1 per cent. Such studies are guided by the use of ACORN (A Classification Of Residential Neighbourhoods) socio-economic profiles, which are used to select sample areas for the analysis of household collected waste, and is based on the premise that households of similar socio-economic characteristics are likely to have similar behavioural, purchasing and lifestyle characteristics; this will be reflected in the quantity and composition of waste that those households produce.

MSW comprises domestic waste plus other feedstocks, such as, general industrial waste, building demolition waste and tree clippings from civil amenities. A large scale study in Wales showed that the only category in domestic waste to show a statistically significant seasonal variation was garden waste; as garden waste is a small percentage (certainly when compared to food and kitchen waste), the effect on the operation of biomass-to-energy plants should be almost unnoticed. As there is now virtually no regional variation to be seen within the UK; this data is likely to become the UK standard.

UK domestic waste has a biodegradable content of 67.5 per cent +1 per cent and this accounts for about 62.5 per cent of the energy generated from its combustion. Following the result of recent work, it has been calculated that 63.5 per cent of MSW is now formed of biodegradable material (average of Wales and Scotland using English EA guidance method), one percentage point above previous years. This is the figure used in the 2010 Digest of UK Energy Statistics, but it will continue to be reviewed on an annual basis.

- *The imports question is not sufficiently addressed. It should be answered more specifically to what is the estimated role of imported biomass up to 2020, while specifying the expected quantities (ktoe) and indicating possible imports countries.*

As explained above, the UK's market based system of support mean that is not possible to estimate or specify the expected quantities or sources of import to 2020. The market determines the most cost effective solution to meet the high level target. At present the UK imports the majority [how much] of its biofuels, and in this respect the UK market is quite different from other major EU biofuel markets. This may change over the decade as there are currently large ethanol refineries under construction in the UK.

#### **Table 10**

- *All the hydro figures for 2005 should be indicated.*

The hydro figures for 2005 are given in the table attached to footnote 2 within the NREAP. An updated version of this, with differentiation and pumping, is shown below.

- *Are the future estimations of hydro figures based on non-normalised figures? If yes, normalised figures should be used and this should be corrected in Table 10 of the NREAP*

Estimates of hydro are normalised. Load factors for hydro are around 34% pa - the average load factor for hydro 1996 to 2009.

- *The missing figures for pumping should be indicated (according to Eurostat-data there is pumping. Include the pumping figures in total hydro for the installed capacity, but exclude the pumping figures of total hydro for gross electricity generation).*

Please see Annex 2

- *The hydro figures should be differentiated. (Indicate the figures "<1MW", "1MW-10MW", ">10MW" and "of which pumping".)*

Please find below an updated version of the table in footnote 2 of Table 10 given in the NREAP – as requested, this includes pumping capacity and excludes pumping generation:

	MW	GWh
< 1 MW	56	44
1MW - 10 MW	102	399
>10 MW	4131	4478
Of which pumping	2788	

## Annex 2 – Table 10 update in accordance with query

		2005		2010		2011		2012		2013		2014		2015		2016		2017		2018		2019		2020	
		MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh
Hydro (see note 1)																									
	ROC eligible: mainly <20MW			640	1970	690	2100	730	2230	770	2350	810	2480	850	2600	890	2730	930	2860	970	2980	1010	3110	1060	3230
	Not ROC eligible: mainly >20MW			3860	3130	3860	3130	3860	3130	3860	3130	3860	3130	3860	3130	3860	3130	3860	3130	3860	3130	3860	3130	3860	3130
	Of which pumping			2800		2800		2800		2800		2800		2800		2800		2800		2800		2800		2800	
Geothermal																									
Solar																									
	PV	10.9	8	50	40	140	120	280	240	490	410	730	610	1070	890	1400	1170	1720	1440	2040	1710	2360	1970	2680	2240
	concentrated solar power			0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Tide, Wave Ocean				0	0	0	0	0	0	0	0	0	0	0	0	200	690	400	1380	700	2070	1000	2980	1300	3950
Wind																									
	Onshore	1351.2	2501	4040	9520	5270	12480	5970	14200	6720	15990	7540	17970	8710	20610	9980	23460	11350	26500	12770	29690	13840	31920	14890	34150
	Offshore	213.8	403	1390	4630	1980	6650	2650	8970	3470	11800	4450	15200	5500	18820	6810	23270	8310	28300	9800	33350	11300	38400	12990	44120
Biomass																									
	solid	500.7	4347	580	5500	590	5970	730	6640	880	7050	1030	7500	1290	7990	1580	10070	1910	12420	2260	14870	2660	17540	3140	20590
	biogas	957.4	4762	1340	6830	1320	6720	1300	6620	1280	6510	1260	6410	1240	6300	1210	6150	1180	6010	1150	5860	1130	5710	1100	5570
	bioliquids (see note 2)		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	total			9110	31630	11040	37160	12720	42010	14660	47220	16880	53280	19720	60330	23160	70660	26900	82000	30730	93620	34340	104740	38210	116970
	of which CHP (see note 3)			0	0	0	0	30	210.2205	60	420.2858	90	630.4288	120	840	150	1050	180	1260	210	1470	240	1680	270	1890

**Table 7a: Estimated Biomass Domestic Supply 2015 and 2020**

		2015		2020	
		Expected amount of domestic resource tonnes (see note 1)	Primary energy production Ktoes (see note 2)	Expected amount of domestic resource tonnes (see note 1)	Primary energy production Ktoes (see note 2)
(A) Biomass from forestry	(1) direct supply of wood biomass from forests and other wooded land for energy generation	1,565,000		1,825,000	
	(2) indirect supply of wood biomass for energy generation	1,980,000		3,400,000	
(B) Biomass from agriculture and fisheries	(1) agricultural crops and fishery products directly provided for energy generation	3,630,000		16,680,000	
	(2) Agricultural by-products/processed residues and fishery by-products for energy generation	1,175,000		1,185,000	
C) Biomass from waste	1) Biodegradable fraction of municipal solid waste including biowaste (biodegradable garden and park waste, food and kitchen waste from households, restaurants, caterers and retail premises, and comparable waste from food processing plants) and landfill gas	2,325,000		2,660,000	

	((2) Biodegradable fraction of industrial waste (including paper, cardboard, pallets)	6,730,000		10,285,000	
	(3) Sewage sludge (note 3)	1,500		2,500	
Total		17,401,000	5,050	36,030,500	10,900

Note 1: These represent estimated potential UK biomass resource by these dates rather than 'expected' resource. They are based on a study commissioned in 2009 - see link

[http://www.decc.gov.uk/en/content/cms/what\\_we\\_do/uk\\_supply/energy\\_mix/renewable/res/res.aspx](http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/res/res.aspx)

Note 2: This is not available for individual biomass feedstocks.

The total shows the total amount of primary energy in feedstocks estimated to be used in the heat and electricity sectors.

This differs from the previous Table 7a estimates which were on an energy produced (output) basis.

Note 3: This is in M mCH04 m3 and is not included in the total.

- The following question should be answered: Please specify on what basis the biodegradable fraction of municipal solid waste and of industrial waste was calculated.

This fraction was estimated on the basis of the biogenic content of individual waste streams. The exact percentages can be found in the report 'Carbon Balances and Energy Impacts of the Management of UK wastes' March 2007 by ERM and Golder, available here [http://randd.defra.gov.uk/Document.aspx?Document=WR0602\\_4750\\_FRP.pdf](http://randd.defra.gov.uk/Document.aspx?Document=WR0602_4750_FRP.pdf)

Yours faithfully,

Gary Shanahan

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