

Position paper:

# Renewable Energy



April 2013

## At a Glance.

Renewable energy comes from a wide variety of natural resources.

It includes energy from long-established environmental sources such as sunlight, wind, hydroelectric and wave, as well as newer thermal options like anaerobic digestion (AD), biomass and energy from waste.

The UK Government defines energy from waste (which includes AD and incineration) as a partly renewable, low carbon option. That means it can make a valuable contribution towards reducing our environmental impact.

Following the European Commission's proposals on renewable energy, the UK Renewable Energy Strategy has set ambitious targets for 2020.

## Where we Stand.

Veolia firmly believes that the UK Government could easily boost its performance in two ways; by being less biased about the technology and by simplifying the nature of the subsidy schemes.

We champion clean energy that doesn't contribute to climate chaos.

To support the long term needs of the UK, we believe that simplifying the complex subsidy system is vital. We also advocate fewer changes to the system which appears to be modified annually, providing little confidence for investors.



*Turning waste into a resource*

# The Situation.



## Renewable energy comes from a wide variety of natural resources.

It includes energy from long-established environmental sources such as sunlight, wind, hydroelectric and wave, as well as newer thermal options like anaerobic digestion (AD), biomass and energy from waste.

The UK Government defines energy from waste (which includes AD and incineration) as a partly renewable, low carbon option. That means it can make a valuable contribution towards reducing our environmental impact.

We believe the potential for Energy from Waste (EfW) is huge with the capability to contribute up to 10% of renewable electricity supplies. In fact we already operate seven energy recovery facilities which together with our landfill sites export 1.3m MWh – enough to power over 300,000 homes. Two more EfW facilities are currently under construction with a further two at the planning stage. On average each facility creates 360 construction jobs and 50-60 permanent positions, which is vital for local economic regeneration.

To make sure energy from waste contributes even more to the green economy, we believe greater emphasis should be placed on Combined Heat and Power (CHP). CHP isn't just more efficient; it also boosts the local economy and is more acceptable to the general public. And, just like the Confederation of British Industry (CBI),

we believe that more Government support is needed to help develop CHPs, so that more new facilities are built and existing non-CHP sites are able to make the transition to generating both heat and power from waste.

Many more district heating schemes could become a reality if the Renewable Heat Incentive (RHI – see page 5) was reframed to help pay for urban piping infrastructure first. Otherwise subsidies towards the cost of capturing and exporting the waste heat won't come into play.

Following the European Commission's proposals on renewable energy, the UK Renewable Energy Strategy has set ambitious targets for 2020:

- 30%** renewable electricity (9.4% in 2011<sup>†</sup>)
- 12%** renewable heat (2.2% in 2011<sup>†</sup>)
- 15%** of overall energy consumption from renewable sources (4.1% in 2012)

Considering the UK's performance to date, it's highly unlikely that the 2020 targets will be reached.

Various financial carrots exist to make investing in our renewable energy infrastructure more attractive. Renewable Obligation Certificates (ROCs), the Renewable Heat Incentive (RHI) and the Feed In Tariff (FIT) are all designed to incentivise efficient energy. But without a comprehensive strategy in place for developing low-carbon emission technology - and that all-important Government support, the UK looks set to miss its renewable energy targets by a wide margin.

All our facilities have R1-Recovery status to ensure that we always generate the maximum yield when producing energy from waste.



<sup>†</sup>2012 figures not yet published.

Where we  
**Stand.**



We champion clean energy that doesn't contribute to climate chaos.

Veolia firmly believes that the UK Government could **easily boost its performance** in two ways; by being less biased about the technology and by simplifying the nature of the subsidy schemes.

Providing a simple tariff for each kWh of renewable energy, regardless of where it comes, could avoid a great deal of expense and targets could be reached more efficiently.

Today's 'Biomass Boom' is a case in point. Spurred on by large-scale subsidies and Feed In Tariffs for electricity from biomass, there's been a rush to import biomass – sometimes from as far afield as North America. The subsidy pays for the material to be transported across the globe and used as a fuel that is eligible for a ROC, discounting the carbon impact of any transportation involved. This practice has also been linked with environmental destruction through land grabs and deforestation. On the other hand, local biomass that is available from Municipal Solid Waste is excluded from the ROC scheme, despite the fact that it is readily available with zero carbon cost to import.

We champion clean energy that doesn't contribute to climate chaos. Dalkia, our energy business, is already reaping the benefits of the biomass subsidy by utilising local waste woods from the UK – an energy option that is genuinely sustainable. What's needed is more suppliers to follow suit.

To support the long term needs of the UK, we believe that simplifying the complex subsidy system is vital. We also advocate fewer changes to the system which appears to be modified annually, providing little confidence for investors.

Renewable Obligation Certificates (and the way they are calculated) are due to be reviewed via consultation. This should make it more difficult to be fully eligible when using only waste wood as a raw material for creating energy. The Department of Energy and Climate Change (DECC) is also considering awarding full eligibility to schemes that save more than 10% in primary energy and improve heat efficiency by more than 10%. This will certainly be great progress if it becomes part of the UK's renewable energy strategy. We welcome this consultation and we hope any recommendations will be adopted rapidly.

# The Challenges.

## 1. The Renewable Obligation Order (ROO)

The ROO was introduced in April 2002 to support renewable electricity. It requires power suppliers to derive a specified proportion of the electricity they provide to their customers from renewable sources. For 2011 to 2012, that figure was 12.4%.

Renewable electricity generators (wind farms, solar, biomass boilers) receive Renewable Obligation Certificates (ROCs) for any electricity they export. The actual number of certificates depends on which technology band that they fall into. The certificates can be sold to other electricity suppliers who can't reach their annual target (renewable obligation).

The minimum value for the ROC is the buyout price in the worst case scenario (if 100% of UK electricity suppliers met their renewable obligation targets). The price will fluctuate depending on market demand (a surplus or lack of renewable electricity). However as the Government set a 10% headroom in 2010, the value should never decrease below 110% of the buyout price (± £40).

In 2010/2011, the recycle price was £14.37 and the buyout price was £36.99 so the value of one ROC was £51.34.

### ROCs and Energy Recovery Facilities (ERF)

Energy from waste facilities that export both electricity and power (CHP ERF) are eligible for a ROC; incinerators that only export power are not part of the scheme.

The banding for Combined Heat and Power (CHP) energy from waste was set at 1 ROC per MWh of renewable electricity until April 2012. Since then it has been replaced by the Feed In Tariff Contract For Difference (FIT CFD) as defined in the Electricity Market Reform (EMR).



Our Energy Recovery Facilities and landfill sites generate enough electricity to power over **300,000** homes

Only the electricity that comes from the biomass portion of the waste that is burnt is considered renewable. For Municipal Solid Waste, biomass is deemed to be 50% of the waste, so the maximum subsidy is 0.5 ROC per MWh.

For CHP schemes, not all exported renewable electricity is eligible for ROCs; the Qualifying Power Output (QPO) is determined by taking into account the power and heat efficiency of the plant.

When the Electricity Market Reform comes into effect in 2017, the Renewable Obligation Order will be replaced by a FIT CFD. Any new project commissioned after April 2017 will not receive accreditation for ROCs. Details on FIT CFD tariffs are still unknown, however it is likely to be an auction system. The Government has yet to decide whether each technology would get a specific percentage of the renewable "money pot" or if the system would work on a first come, first served basis.

### Grandfathering

As legislation evolves over time, any pre-existing arrangements are phased out or 'grandfathered' rather than cancelled in order to protect investment. Since July 2010, thermal technologies (AD, EFW, biomass) and non-thermal technologies (wind, hydro, PV, wave) have been grandfathered for 20 years once the plant is accredited. Even if a banding review sets a higher or lower level of ROC per MWh, this means they will carry on receiving the same level of support they were granted initially.

# The Challenges.

## 2 The Renewable Obligation Order (ROO)

To encourage renewable heat the Government launched the Renewable Heat Incentive in February 2010. It supports the following technologies:

- Bio-energy (solid biomass from CHP or dedicated boilers, biogas)
- Mixed fuels: MSW CHP up to the biomass content (currently 50%)
- Energy from the ground (heat pumps, geothermal)
- Energy from the air or water (heat pumps)
- Energy from the sun

In the future it may also support bioliquids and gasification.

Only new equipment (installed after 15th July 2009) is eligible for the RHI. Increasing a facility's capacity will also make it eligible, as will converting an ERF that generates electricity into a CHP ERF.

### What's not included in the scheme?

- Repair or refurbishment
- Heat used for generating electricity
- Heat produced from anaerobic digestion that is used purely for keeping the plant in operation

### Tariffs and support levels

Each technology receives a tariff for the metered amount of heat it exports, depending on the size of the scheme. There's no need for a Good Quality CHP certificate but the heat must be "useful heat" (not used to generate electricity for the process in general or artificially wasted to get RHI). Cooling is eligible too.

The table below shows the level of support that is granted for 20 years.

## The future of RHI

A consultation has been initiated by the DECC with the aim of creating a specific tariff for Combine Heat and Power; a figure of £41/MWh of renewable heat has been suggested. However, this would only apply to good quality CHP plants and the actual figure will depend on the outcome of the consultation.

Unlike the RO, which is funded by electricity customers, the RHI is tax funded. The budget has only been agreed until 2015, so there is a risk that the budget may be limited after that date and the RHI will not continue.

## What about ROCs?

CHP ERF or biomass plants won't be able to claim both CHP ROCs ("uplift") and RHI. Until April 2017, new plants will be able to make a one-off choice about which one they'd like to claim.

CHP plants (1.5 ROC for non-CHP and an additional 0.5 ROC for CHP) will only keep that one-off choice until April 2015. After that date they will automatically fall under the RHI and will lose the CHP uplift (0.5 ROC).

Tariff Name	Eligible Technology	Eligible Sizes	Tier	Previous Tariff (pence/kWhth) - up to 31.3.12	New Rounded Tariff (pence/kWhth) - from 1.4.12
Small Commercial biomass	Solid biomass including solid biomass contained in municipal solid waste (incl. CHP)	Less than 200 kWth	Tier1	7.9	8.3
			Tier 2	2	2.1
		200 kWth and above; less than 1,000 kWth	Tier1	4.9	5.1
Medium Commercial biomass			Tier 2	2	2.1
Large Commercial biomass			N/A	1	1
Small Commercial heat pumps		Ground-source heat pumps; Water Source heat pumps; deep geothermal	Less than 100 kWth	N/A	4.5
Large Commercial heat pumps	100 kWth and above		N/A	3.2	3.4
All solar collectors	Solar collectors	Less than 200 kWth	N/A	8.5	8.9
Biomethane and biogas combustion	Biomethane injection and biogas combustion, except from landfill gas	Biomethane all scales, biogas combustion less than 200 kWth	N/A	6.8	7.1

# The Challenges.

### 3. The Feed In Tariff (FIT)

The Feed in Tariff was created to support small scale installations of less than 5MWe and was launched in April 2010. The technologies eligible are:

- Hydro
- Photovoltaic (solar)
- Wind
- Micro-CHP pilots (30,000 first units) <2MWe
- AD

The tariff rate depends on the technology and the size of the scheme. It applies to all the electricity generated, including the 'parasitic load' (standby power). An additional 4.5p/kWh for electricity that is exported is given to the generator (an increase from 3p as of July 2012).

The tariff for large scale AD facilities was reduced to £89.6/MWh in July 2012. This now matches the RO benefit, which is the alternative incentive that such facilities can opt to receive. The Feed In Tariff for Photovoltaic facilities has also decreased significantly following a large number of accreditations.

Once a scheme receives the FIT, this is grandfathered and index linked to the Retail Price Index (RPI). Tariffs for new registrants will reduce progressively each year, through a mechanism called 'degression'.

This takes into account the fact that technologies become easier to develop. The baseline is 5% and will change each year depending on how the technology is used. The lowest figure will be 2.5% and the highest 20% (if the amount of accredited energy really exceeds expectations).



### A final word

Subsidies are vital if we are to support and develop renewable energy. But which one is most appropriate, the Feed In Tariff, Renewable Obligation or Renewable Heat Incentive? Here's a quick guide:

- Schemes below 50KWe will only be eligible for FIT
- Larger schemes up to 5MWe have a one-off choice between RO and FIT. For AD facilities, the FIT is more attractive. £89/MWh (guaranteed for 20 years) is available on all the electricity they generate, whereas with the RO it is 2ROCs/MWh of exported electricity (not on the parasitic load) and the value of ROCs could decrease to £40/ROC.
- Installations receiving the FIT are also eligible for RHI - if they export both heat and power. For example, an AD plant with a combined heat and power gas turbine would be eligible if the heat was not used on site for the process but was exported to another user such as a factory.

Technology	Band (kW)	Current Generation Tariffs (p/kWh)	Final Tariffs from 1 Dec 2012 (p/kWh 2012 prices) <sup>2</sup>
AD	<250	14.7	14.70
	>250 - <500	13.6	13.60
	>500 - <5000	9.9	8.96



Where do you stand?

Join the debate at: [www.veolia.co.uk](http://www.veolia.co.uk)