



East Of England Renewable Energy Statistics

JUNE 2009

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Renewables East is supported by the East of England Development Agency

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1. Introduction.

The purpose of this series of reports is to monitor, twice a year, the progress of the East of England towards its adopted targets for the production of electricity from renewable sources.. This report covers activity up to June 2009 – and is being produced with the benefit of DECC stats published in October which dealt with the period up to December 2008. A further 6 month review will be published in the new year.

This will be the last renewable electricity report on its own. Future reports, will be accompanied by a parallel assessment of the development of renewable heat. This is a challenging area to monitor. A questionnaire seeking information on renewable heat installations is included as Annex 7 Recipients of this report are requested to contribute any information they have by returning this to Renewables East.

2. Summary

The East of England remains the leading region for the generation of renewable electricity. It has now passed its first 500MW of installed capacity, with some 508MW built counting both on and off-shore sources. This compares with 475MW in June 2008. Renewables East estimates that this equates to about 2220 GWhrs /yr of renewable electricity and the saving of over 870,000 tonnes of carbon dioxide emissions in a year.¹ The region's 2010 target is for 10% of its electricity consumption to come from on-shore renewable sources (14% counting off-shore), and, by 2020, 20% (44% counting off-shore). Renewables East estimates that currently 8.1% of the region's consumed electricity comes from renewables both on and off-shore with on-shore contributing 7.3%. Completion of the Gunfleet Sands wind farm and currently declining consumption levels are expected to enable the region to achieve at least 10% by December 2010. The scale of the off-shore projects under construction is shown in Table 7 (p.6) and in Annexe 1.

Little new capacity has come on-line over the past 6 months, but there has been vigorous activity both in off-shore construction and on the planning front on-shore. Further commissioning of turbines at Gunfleet Sands off Clacton will significantly enhance the region's delivery by year-end. The expectation is that a substantial proportion of both the Gunfleet Sands project and part of the Greater Gabbard project off Orford will be generating by the end of 2010. Lack of on-shore wind delivery remains a serious concern. Wind is the on-shore technology with greatest potential and will need to increase its rate of delivery as the region refocuses on achieving the 2020 targets of the East of England Plan (see section 2 below). However, the past six months has seen new wind farm proposals coming forward at Biggleswade, Linton, Turves and Floods Ferry (see Annex 4). Major biomass generators are coming forward (Table 4). Landfill gas generation continues to rise and there has been encouraging planning activity bringing forward anaerobic digestion plants, some entirely farm-product based, others also designed to utilise waste as feed-stock.

Table 1: Installed generating capacity (MW) from renewables by County as at June 09

	Beds	Camb	Essex	Herts	Norfolk	Suffolk	Total of identified schemes	Identified schemes plus others
<i>Onshore Wind</i>	-	98.825	-	.225	21.45	2.75	123.25	127.875*
<i>Biomass</i>	.786	36.85	12.767	2.88	41.5	20.716	115.499	115.499
<i>Others - Landfill gas</i>	49.208	17.856	87.825	6.155	15.596	14.748	191.388	191.388
<i>Others - sewage gas</i>	.555	.342	.342	1.480	3.136	-	5.855	5.855
<i>Micro-gen (<50kW)</i>	.019	.086	.106	.055	.152	.125	.543	.543
Onshore total							436.535	441.16
<i>Offshore Wind</i>							67.2	67.2
TOTAL							503.735	508.36

Sources: Renewables East for wind. OFGEM for "Others".

* Includes adjustments to take account of December 07 figures in Energy Trends September 2008.

¹ This figure assumes that renewables will offset only gas-fired electricity generation. The offset figure is derived from the DECC document "Digest of United Kingdom Energy Statistics 2009 " Table 5C. Future changes in the power generating mix and fuel costs in the UK means that the offset figure will change over time.

3. Onshore wind.

No commercial scale wind turbines have been constructed in the region in the 6 months to June 09, so the region still has 128MW of installed capacity (about 71 commercial scale turbines) generating electricity. There has been considerable planning activity however, with several completely new schemes (see Table 2) coming forward. The proportion of wind energy applications refused by local authorities continues to far exceed the average refusal rate for planning applications.

Approved wind schemes not yet implemented amount to 41MW (Table 3 and Annex 3). Potentially some 30MW of this might be implemented by the end of 2010. There are some 295MW of projects in the planning system (Table 3 and Annex 4), whether with local authorities, at appeal or at judicial review. Others, amounting to around 180MW (not individually listed) are in their pre-application public consultation stages and may come forward as planning applications before the end of 2010. None of those can now be expected to contribute to the 2010 target.

Table 2: Planning decisions- on-shore wind projects, January-June 2009 (Source: Renewables East)
For detail see Annexes 3 and 4

Approved by local authority:	Approved on appeal:	Refused by local authority:	Refused on appeal:	Decision imminent as at June 09	New applications
Stags Holt extension, (2MW)	Creek Road STW, March (2MW)	Foundry Way March (2MW)	Shipdham (4MW)	Wadlow farm (30MW)	Biggleswade (Langford) 32MW
		French Fm Thorney (4MW)	QE Hospital (0.8MW)	Lotus Hethel (6MW) Judicial Review	Linton (16MW)
		Benington 6MW		Earls Hall Fm Clacton (11MW)	Burnthouse Fm Turves (10MW)
		Weston Hills (6MW)			Floods Ferry March (18MW)
					QE Hospital (0.8MW)
					Upper Holton Halesworth (11.5MW)
					Potash Fm Wyverstone 7MW
2MW	2MW	18MW	4.8MW	47MW	95.3MW

Table 3: On-shore wind schemes. Progress by County (Source: Renewables East)
For detail see Annexes 2, 3 and 4.

County	Constructed	MW	Approved	MW	In Planning	MW
	Projects		Projects		Projects	
Beds	-	-	-	-	3	51.8
Cambs	10	98.825	5	18.675	9	129.9
Essex	-	-	1	8	2	36.5
Herts	1	.225	-	-	2	12
Norfolk	5	21.45	-	-	6	46.8
Suffolk	1	2.75	3	14.025	2	18.3
Total	17	123.25	9	40.7	24	295.3

4. Offshore wind. (Annex 1)

Major progress continues off-shore. In addition to the Round 1 Scroby Sands 60MW scheme, the first 2 turbines (3.6MW each) of the Dong Energy Gunfleet Sands scheme off Clacton are generating electricity with the remaining 46 turbines expected to be in place by year-end and amounting to 173MW of installed capacity. The Greater Gabbard project, 23km off Orford, is scheduled for delivery of part of its 500MW project in 2010. The informal 2010 offshore wind target of 371MW therefore remains achievable.

Sherringham Shoal's construction is under way. (Footnote: The September 2009 edition of DECC's "Energy Trends" includes the recently commissioned 194MW Lynn and Inner Dowsing schemes within the region's total even though they "land" their electricity outside the region. If counted the region has already exceeded its offshore target, but it is expected that this generation will be reallocated to East Midlands in the next edition)

5. Bioenergy projects (see Annexe 5 and Table 4)

There has been considerable activity here. Recent months have seen a continuing slight increase in **landfill gas** installations although output will level off with increasing diversion of waste away from landfill. Despite the importance attached to wind development, the installed capacity of generators utilising landfill gas, at 191MW, and the corresponding output, still exceed that of onshore wind turbines (Table 1). A further 4 landfill gas installations have received preliminary accreditation from Ofgem for implementation between now and end 2011. The installed capacity at the end of 2010 is likely to be around 195MW. A further **sewage gas** installation came on stream in the region bringing the total to 7 projects (nearly 6MW installed capacity). A healthy programme of preliminary accreditations is in place, mainly by AWS at the region's waste water treatment works, which could bring the end-of- 2010 total to 8 projects (8MW) and the end 2011 figures to 17 projects (20MW). As to biomass and food waste fuelled advanced conversion technology (ACT), Bedfordia biogas in Bedfordshire is the only major operational project in the region using **anaerobic digestion** (AD), though planning permissions have been given (see Annexe 5) for a 1.5MW AD waste to energy plant at Chelveston Airfield on the Cambs/Northants border and a 1.5MW scheme at Fenmarc in March. The Rendlesham scheme is in planning. Several others are at the pre-planning stage. **Other major** projects include the Peterborough EnergyPark, incorporating energy from biomass waste. Following reduction in scale, this progressed through its s36 process. As to larger **biomass power using conventional technology**, the 60MW Tilbury Green waste wood fired Power Station approached decision stage, and the schemes off the A134 north of Thetford and at Mendlesham were at early planning stages. Four municipal waste projects incorporating AD, are coming forward. Electricity generation from used cooking oil/biodiesel is now operational at two sites in Suffolk.

Table 4: Bioenergy Projects known to Renewables East

Technology	Operational		Commissioning		With planning permission		Being planned	
	MW	Stations	MW	Stations	MW	Stations	MW	Stations
Biomass power stations	36.85 41.5 14.32	Elean Thetford Eye			60 66	Tilbury Green Power PREL	40 40	A134 Mendlesham
Landfill gas	191.39	69					4	4
Sewage gas	6	7					14	10
A.D.	.79	1	.15	1	14.25	6	3.8	3
Other	21.28	4	4.4	2				
TOTAL	312.13	84	4.55	3	140.25	8	101.8	19

6. Micro-generation.

The change to planning regulations in April 2008 enabling solar and ground source heat pump installations to be installed on homes without the need for planning permission was intended to remove one of the barriers to deployment of small scale generation. It is the practise of some local authorities only to provide confirmation of "permitted development" by means of a Certificate of Lawfulness (following payment of the appropriate fee). There is a strong case to be made for micro-generation to be exempted from this process since it largely undermines the intention of the regulation change- i.e. to reduce the regulatory burden and encourage the use of renewables. Relaxation of the need for planning permission is awaited for air source heat pumps small wind turbines.

It should be noted that as Table 5 is derived mainly from EST data for the Low Carbon Building Programme, it will not include pre-2006 installations. This is being addressed.

7. Decentralised generation.

The large scale housing schemes comprising part of the 400,000 new homes planned for the region could well have their heat and power requirements met by 100% renewable energy generation locally. The East of England Plan encourages innovation, including the formation of Energy Services Companies (ESCO's), in order to realise ambitious levels of carbon-saving. A number of local authorities with major housing challenges are applying themselves to this issue.

Table 5 : Microgeneration (<50kW)

		Beds	Cambs	Essex	Herts	Norfolk	Suffolk	Total
WIND	Schemes	2	13	27	9	22	18	91
	Installed Cap.kW	10	47	67	18	109	99	350
	Est Output kWhrs/yr	16000	71590	84291	24000	141998	121100	458979
HYDRO*	Schemes	-	1	-	1	2	-	4
	Installed Cap kW		12		15	21		48
SOLAR PV	Schemes	8	26	57	44	9	21	165
	Installed Cap kW*	9	27	39	22	22	26	145
	Est Output kWhrs/yr	9976	47318	80447	77924	16453	35828	267945

Sources: Energy Saving Trust (LCBP projects only) and *OFGEM

8. The East of England Renewables Target.

The region's statutory targets for production of electricity from renewables are set out under Policy ENG2 of the East of England Plan and stated here in Table 6. The target is now part of the statutory Development Plan of every planning authority in the region. It relates to on-shore technologies only.

Table 6. East of England Regional on-shore renewables target- Policy ENG2

	%-age	MW of installed capacity
2010	10	820
2020	17	1620
2020 aspirational	20	

Source: p63 East of England Plan. May 2008. Renewable energy targets are expressed as the percentage contribution of renewables to total electricity consumption in the East of England

The Plan refers to the work which produced these targets and to what must now be regarded as the subsidiary targets which include off-shore wind projects grid-connected within the region. These overall targets for renewable electricity are 14% by 2010 and, provisionally, 44% by 2020.

The East of England Regional Assembly (EERA) plans to develop fuller regional guidance for renewable energy, possibly including sub-regional targets, as part of the review of the East of England Plan. The first stage of this work, commissioned from Arup by the East of England Regional Assembly was completed in February 2008 and is on the EERA web-site. Both the Regional Planning Panel and EEDA have, in their joint East of England Implementation Plan, adopted the study's aspirational targets. These are 16% of electricity demand from renewables by 2015 and 20% by 2020. Aspirational renewable heat targets have also been adopted (343MWth by 2015 and 721MWth by 2020).

Renewables East is currently developing a methodology for monitoring renewable heat developments in the region and readers are requested to assist by completing the questionnaire at Annexe 7.

9. Progress to date against target.

The region's target is expressed in two ways, as a percentage of electricity consumed and as the total MW of installed generating capacity. The latter, an aggregation of the installed capacity in the various technologies, is imperfect due to the very different levels of actual generation per MW of installed capacity for the different technologies. However data on new projects is normally only available in this form and government requires the regional target to be expressed in this form. By this measure the region has delivered 441MW towards its 2010 on-shore target of 820MW. (Including off-shore the figures are 508MW towards a target of 1192MW)

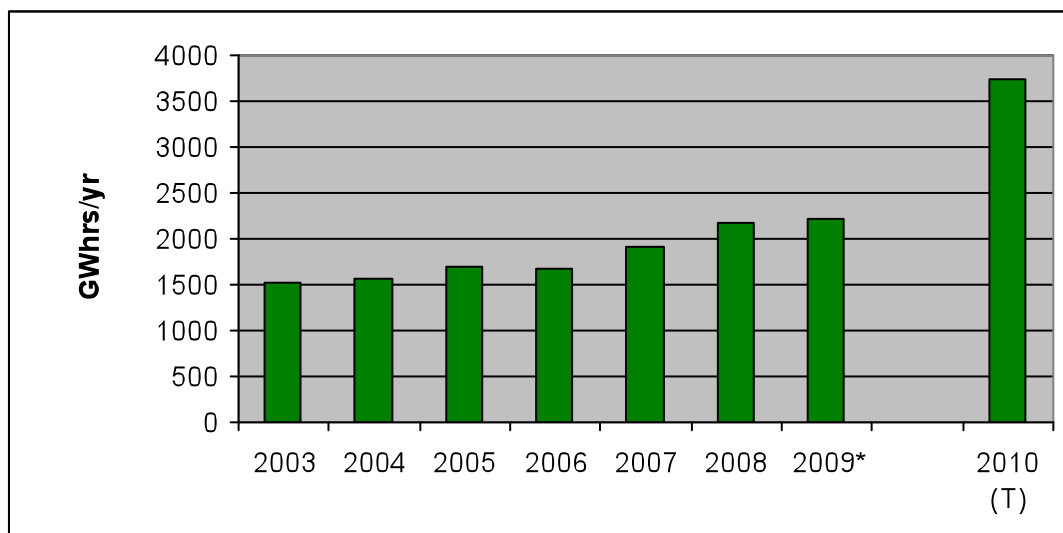
Retrospective data on actual electricity generated in the region comes from the Department of Energy and Climate Change. Their latest generation figures - as at Dec 2008- are in Energy Trends September 2009 as are the figures for installed capacity. The installed capacity figures heavily overstate the region's offshore contribution as stated in Para 4 above. Output has been less distorted. This report has therefore made the correction and estimated the region's June 09 production by utilising the 2007 relationship between installed capacity and actual generation for each technology. Thereby, the installed capacity in June 2009 was expected to produce some 2223 GWhrs/yr of electricity.

As to the region's overall electricity consumption, regional and local figures are available at: <http://www.decc.gov.uk/en/content/cms/statistics/regional/regional.aspx>.

The latest figures, published in December 2008 are for the year 2007 and given as 28,257 GWh. Although the National Grid estimates that annual electricity demand UK-wide is increasing at 1.1% per annum, the East of England consumption figure shows a decline of 1.9% between 2006 and 2007. The current downturn in the economy may mean that energy consumption- especially from commerce and manufacturing – will continue to decline. Assuming a continued rate of decline of 2% p.a. it is likely that consumption in June 2009 was running at about 27,500 GWhrs/yr.

Renewables East concludes that renewables are producing (on plus off-shore) some 8.1% (2223 GWhrs/yr) towards the region's 2010 target of 14% (or 3735GWhrs/yr). Excluding off-shore generation the region is meeting 7.3% of its consumption.

Fig 1: Generation from on-shore and offshore renewables against 2010 14% target



Notes: The data for 2003-2008 is taken from DECC's Sept 2009 Energy Trends.

*Data as at June 2009 by Renewables East.

The 2010 (T) column shows the 2010 regional target of 14% from East of England Plan (May 2008) expressed in GWhrs/yr.

Table 7 Position summary as at June 2009 (MW)

Technology	Commissioned	In construction	Consented	Planned
Offshore wind	67.	980	250	1700
Onshore Wind	128		41	180
Biomass	115		126	80
Landfill gas	191			14
Other	6	5	20	18
Total	508	985	437	1992

Annex 1: Off-shore wind projects.

Project	Location	MW	Developer	Current status.
Scroby Sands	Off Caister/Gt Yarmouth	60	E.ON UK 30 Vestas 2MW turbines	Built June – August 2004. Operational Grid connected at Gt. Yarmouth
Gunfleet Sands 1 & 2	Off Clacton	108 plus 64	Dong Energy Siemens 3.6MW turbines	Round 1 Consented Oct 03. Round 2 Consented Feb 08. Under construction as one project. First two turbines generating. Full commissioning planned 2009/2010
Greater Gabbard	26miles off Orford	500	SSE/n-power. Siemens 3.6MW turbines	Lease option agreement Dec 2003. Consented Feb 07. Turbine reservation agreement with Siemens for 140 x 3.6MW units. Grid connected at Sizewell. Completion target 2012
Sheringham Shoal	11 miles off Sheringham	315	Scira Offshore Energy Ltd (Statoil/Hydro/Statkraft) 88 turbines @3.6MW	Section 36 application May 06. Consented Aug 08. Construction start due 2009. Substation contracts awarded Jan 09. Operational likely 2011. Grid connection to Salle Norfolk.
Dudgeon	Off Cromer	560	Warwick Energy	Public exhibition Feb 09 in Cromer & Sheringham of 560MW scheme. S36 application submitted June 09. Possible operational date 2013
Docking Shoal	9 miles from Wells/ 12 miles from Skegness	500	Centrica	Section 36 Application made Dec 08. Grid connection planned at Walpole (West Norfolk) Planning permission granted for on-shore works. Construction expected post 2013
Race bank	18 miles off Lincs coast	640	Centrica	Section 36 application made January 09 for 640MW. Opposed by Norfolk County Council April 09.
Lincs	5 miles off Lincs coast	250	Centrica	Section 36 application submitted Jan 07. Consented Oct 08. Possible construction start in 2010 or 2011. Commissioning planned 2011/12. Grid connection planned at Walpole (West Norfolk).

Notes:

1. The above projects are likely to connect into the East of England region.
2. Thames Estuary schemes: Kentish Flats (90MW- operational), Thanet (300MW- consented) and London Array (1000MW- consented) are all close to the region, but their electricity either is or will be connected to the grid outside it, are not regarded as East of England projects.
3. Of the Greater Wash schemes, the recently commissioned Lynn and Inner Dowsing projects (194MW) are connected at Skegness, Lincolnshire.

Annex 2: Onshore Wind Projects – Built (at least 50kW)

Project	Capacity	Turbines	Council	Developer	Notes
BEDFORDSHIRE					
NIL					
CAMBRIDGESHIRE					
Wood Green Animal Shelter, Godmanchester	.225 MW	1 Turbine Vestas	Huntingdon DC	Wood Green Enterprises Ltd	Built 1990
St Mary's Road Ramsey	1.8MW	1 Turbine Vestas V90	Huntingdon DC	CLP Wind Projects	Repowered 2008
Long Hill Rd, March.	2MW	1 Turbine RePower	Fenland	Wind Prospect/ Snowmountain Ltd	Built 2004
Glassmoor Near Ponders Br	16MW	8 RePower @ 2MW	Fenland	Wind Prospect/EDF Energies Nouvelles	Built 2006
Coldham Farm, NE of March	16MW	8 Vestas Turbines @2MW	Fenland DC	CWS Coldham Estate, March and Scottish Power	Built 2005
Ransomoor Fm Doddington, March	10MW	3 Gamesa G80 @ 2MW and 2 RePower @ 2MW	Fenland	Fenpower Ltd (JV between local landowner and EcoGen)	Built 2007 Extended 2008
Red Tile Farm 3.5km NE of Warboys	24MW	12 RePower turbines @ 2MW each.	Hunts DC	Wind Prospect	Built 2007
Stags Holt, Nr March	18MW	9 Vestas Turbines @ 2MW	Fenland	Eon Renewables	Built 2007
McCains Foods Whittlesey	9MW	3 Vestas Turbines @ 3 MW	Fenland	McCains	Built 2007
Funthams Lane, Whittlesey	1.8MW	1 Vestas turbine	Fenland	CLP Wind Projects	Built 2008
CAMBS TOTAL	98.825MW	49 Turbines			
ESSEX					
NIL					
HERTFORDSHIRE					
RES HQ, Kings Langley.	.225MW	1 Turbine	Three Rivers DC	Renewable Energy Systems Ltd	Built
NORFOLK					
Blood Hill, Collis Lane, West Somerton	2.25MW	10 Turbines @.225MW (Enercon)	Gt Yarmouth BC	E-ON UK	Built 1992
Ecotech Centre, Swaffham	1.5MW	1 Turbine @1.5 MW (Enercon)	Breckland DC	Ecotricity	Built 1999
Blood Hill, West Somerton	1.5MW	1 Enercon @1.5 MW	Gt Yarmouth	Ecotricity	Built 2000
Sporle Road, Swaffham	1.8MW	1 Turbine @1.8 MW (Enercon)	Breckland DC	Ecotricity	Built 2003

North Pickenham	14.4MW	8 Vestas V90 Turbines @1.8MW	Breckland DC	Enertrag UK	Built 2006
TOTAL	21.45MW	21 Turbines			
SUFFOLK					
Ness Point, Lowestoft	2.75MW	1 Turbine @2.75MW	Waveney	SLP	Built 2004
REGIONAL TOTAL:	123.25MW	71 Turbines			

Annex 3: On-shore Wind Projects – Approved and awaiting construction (> 50kW)

Project	Capacity	Turbines	Council	Developer	Notes
BEDFORDSHIRE					
NIL					
CAMBRIDGESHIRE					
French Fm, French drove, Thorney.	.45MW	2 Turbines @ .225	Peterborough	All Wind UK Ltd	Approved 1993. Renewed 1999. Technical start made on development
Coldham Extension	12-14MW	7 Turbines	Fenland DC	CWS Ltd	Submitted November 07 Approved Nov 08
Rockery Farm Bourn	.225 MW	1 Turbine	South Cambs DC	Nick Ward	Allowed on appeal May 2007
Creek Road STW, March	2MW	1Turbine	Fenland DC	TCI/Anglian Water	Submitted June 07. Refused April 08. Allowed on appeal Feb 09
Stags Holt Extension	2MW	1 turbine	Fenland DC	Wind Prospect/ EON	Approved Oct 2008
CAMBS TOTAL	18.675 MW	12 Turbines			
ESSEX					
Port of Tilbury	8MW	4 Turbines @ 2 MW	Thurrock UDC	SSE and Forth Ports plc	Approved May 2008. Application to amend a planning condition approved May 09
HERTFORDSHIRE					
NIL					
NORFOLK					
NIL					
SUFFOLK					
Parham Airfield, nr Great Glemham, Marlesford & Parham	7.8MW	6 Siemens 1.3MW turbines	Suffolk Coastal	Saxon Windpower Ltd / Your Energy	Approved October 05.
Harrod UK Ltd, South Lowestoft Industrial Estate	.225MW	1 Turbine	Waveney District Council	Harrod UK Ltd/TNEI	Approved August 06
Kessingland	6MW	2 Turbines	Waveney DC	SLP	Application Jan 2007. Allowed on appeal May 08. Judicial review request dismissed April 09
SUFFOLK TOTAL	14.025 MW	9 Turbines			
REGIONAL TOTAL:	40.7 MW	25 Turbines			

Annex 4 On-shore Wind Projects - In Planning (at least 50kW)

Project	Capacity	Turbines	Council	Developer	Notes
BEDFORDSHIRE					
Airfield Farm, Podington	6MW	3 Turbines @ 2MW	Bedford Borough Council	Nuon Renewables	Application for 9 turbines September 05 Refused June 07. New application for 3 turbines Sept 08
Nun Wood , between Bozeat and Lavenden	Up to 13.8 MW	6 Turbines @ 2.3 MW in Bedford BC (part of 12 turbine scheme)	Bedford Borough Council	n-power renewables	Application for 7 turbines September 06 Withdrawn- reduced scheme submitted Dec 08. 16 turbines scheme reduced to 12 – 6 in Bedford. Additional ecological studies ready Oct 09.
Biggleswade (Langford)	32MW	16 turbines @ 2MW	Mid-Beds DC	Co-Operative Property Group	Application made Jan 09
Total Beds	51.8 MW	25 Turbines			
CAMBRIDGESHIRE					
Nutsgrove Farm , nr Thorney	14MW	7 Turbines @ 2MW	Peterboro'	Wind Prospect/Ridgew ind	Application lodged July 06 Appeal against non determination 2008. Joint Inquiry with Wryde Croft. MoD objection Nov 09
Wryde Croft, off French Drove , Thorney	12MW	6 turbines @2MW each	Peterboro'	R E S UK Ltd	Resolution to approve Nov 04. Number of turbines reduced. Application resubmitted Sept 07 Refused Oct 2008. Joint Inquiry with Nutsgrove MoD objection Nov 2009
Wadlow Farm , South Cambs	29.9MW	13 Turbines @2.3MW	South Cambridge- shire	RES	Application lodged May 06 Refused June 07. Appeal Inquiry June 2009
Foundry Way , March	2MW	1 RePower Turbine	Fenland DC	Snowmountain Enterprises Ltd	Application made Dec 07. Withdrawn August 08
French Farm Thorney	4MW	2 Turbines @ 2MW	Peterboro'	CLP Wind Projects	Application March 08 to raise power of approved scheme. Withdrawn. New application Nov 08 Refused July 09 (MoD objection)
Cotton Farm	16-24MW	8 Turbines	Hunts DC	n-power renewables	Application lodged July 08.
Linton	16MW	8 turbines @2MW	S Cambs & Uttlesford	Enertrag	Application lodged Feb 09
N of Burnthouse Farm Turves	10MW	5 turbines @ 2MW	Fenland DC	Fivestone Ltd	Application lodged May 09.
Floods Ferry March	18MW	9turbines at 2MW	Fenland DC	Scottish Power Renewables (UK) Ltd	Application lodged April 09
Total- Cambs	129.9 MW	59 Turbines			
ESSEX					
Earls Hall Farm Clacton	10-11.5 MW	5 Turbines @ 2-2.3MW	Tendring DC	n-power renewables	Application March 2007. Refused Jun 2008. Appeal lodged – Inquiry 29 th July 09
Bradwell on Sea	15-25MW	10 Turbines	Maldon DC	n-power renewables	Application Feb 06 Refused July 06. Allowed on appeal Sept 07. Permission quashed June 08 due to drafting errors in planning conditions. New inquiry 3 Nov 09.
Total- Essex	36.5MW	15 Turbines			
HERTFORDSHIRE					
Benington	6MW	3 Turbines @ 2MW	East Herts DC	R H Bott & Son/Engena	Application made May 08. Refused Jan 09 . Appeal lodged May 09 Inquiry October 09?
Weston Hills	6MW	3 Turbines @	North Herts	Weston Park	Application registered Sept 08. Refused

		2MW	DC	Farms Ltd	April 09
Total – Herts	12MW	6 Turbines			
NORFOLK					
Guestwick nr Reepham	12MW	6 turbines @2MW	Broadland DC	Enertrag UK	Refused March 05 - Inquiry held Jan 06. Appeal dismissed April 06 Judicial review- new Inquiry July 07. Appeal dismissed Dec 07. Judicial review by Enertrag March 09. Unsuccessful
Wood Farm, Shipdham (south west of East Dereham)	4MW	2 Enercon Turbines @ 2MW	Breckland DC	Ecotricity	Refused Dec 04. Appeal allowed June 06 Judicial Review – new Inquiry July 07. Jud. Rev. – new inquiry Dec 08 – dismissed March 09.
Lotus at Hethel	6MW	3 Turbines	South Norfolk DC	Group Lotus/Ecotricity	Refused October 07. Resubmitted March 08 – Approved July 08. Judicial review hearing July 09
Hemsby	10MW	4 Turbines	Gt Yarmouth DC	SLP	Submitted Aug 07. Temporarily withdrawn Dec 07. New application expected Summer 2009
Queen Elizabeth Hospital	.8MW	1 Turbine	Kings Lynn & West Norfolk DC	Ecotricity	Refused June 08. Appeal dismissed Jan 09. New application lodged March 09.
Hempnall	14 MW	7 Turbines @ 2MW	South Norfolk DC	Enertrag UK	Submitted April 08. Refused July 08 (radar/visual impact) Appeal enquiry April 09
Marshland St James	(57MW)	(19 Turbines @ 3MW)	Kings Lynn West Norfolk DC	Marshland Wind Farm Ltd	S36 application to DECC Oct 08. Application withdrawn Feb 09. To be resubmitted in revised form.
Total- Norfolk	46.8 MW	23 Turbines			
SUFFOLK					
Potash Farm, Wyverstone	6.8MW	2 Turbines @ 3.4MW	Mid Suffolk DC	Wind Power Renewables/ Potash Wind Farm Ltd	Application submitted Sept 08. Withdrawn. Resubmitted application June 09
Former Airfield Upper Holton Halesworth	11.5MW	5 turbines @ 2.3MW	Waveney DC	Bernard Matthews/ Climate Change Capital.	Application submitted May 2009
Total – Suffolk	18.3 MW	7 Turbines			
REGIONAL TOTAL	295.3 MW	135 Turbines			

Annex 5 Biomass-using Technologies

Project	Capacity	Nature	Council	Developer	Status
Bedfordshire					
Bedfordia Biogas Milton Parc, Milton Ernest	.786MWe 1.95MWth	Anaerobic digestion (AD) of farm and food wastes.	Bedfordshire County Council	Bedfordia Biogas Ltd	Operational: Commissioned July 2006
Chelveston Airfield (on Beds-Northants border)	1.5MW	Biomass plant (AD) using animal, food and plant waste. 48000 tonnes p.a.	Northants CC (at region boundary)	Chelveston Renewable Energy Ltd	Planning application to Northants CC Jan 08. Permission granted Dec 08
Cambridgeshire					
Elean Business Park, Sutton	36.85MW	Biomass (mainly straw) fired power station	East Cambs District Council	EPR Ely Ltd	Operational: Commissioned Sept 2000
Woodhatch Farm, Brampton	2.5 – 3.0MWe	CHP pyrolysis using waste wood on composting site	Cambridgeshire County Council (Hunts D.C.)	Huntingdon Purepower Ltd	Planning permission June 2007. Currently commissioning.
Energypark, Peterborough	66MW	Energy from waste including biomass and food waste	Peterborough C.C.	Peterborough Renewable Energy Ltd	Section 36 application approved.
Fenmarc Produce, March	1.5MWe	CHP from AD using potato waste and imported food waste.	Cambridgeshire CC	Local Generation Ltd	Application lodged May 09 Planning permission granted
Essex					
Tilbury Power Station	12.767MW estimate	Biomass co-firing in fossil fuel power station	Essex County Council	nPower	Operational: Commissioned August 2002
Rivenhall Airfield Braintree	1.8MW	1. Biogas AD and MBT facility	Essex County Council (Braintree D.C.)	Gent Fairhead & Company Ltd	Planning permission granted March 09
	21MW total	2. MBT, AD and CHP electricity from biogas and combustion of waste.	As above	As above	Application called in. Public Inquiry Sept 09
Stanway Hall Quarry Colchester	Not known	MBT with AD and composting	Essex County Council (Colchester B.C.)	Cory Environmental Ltd	s106 agreement signed and planning permission issued May 09.
Courtauld Road, Basildon	3 engines of 1.46 MW	MRF/MBT facility with AD CHP plant using MSW	Essex County Council/Integra Developments (Basildon D.C.)	Essex County Council	Planning application submitted Feb 2007. Approval July 2008. Section 106 signed. Conditions being discharged. Site prep under way.
Tilbury Green Power Tilbury Docks	60MW	Biomass and energy from waste	Essex CC	Tilbury Green Power	Section 36 application approval August 09
Halstead Renewable Power Project	1MW (est)	AD CHP plant using food waste	Essex CC (Braintree District Council)	Glendale Power	Pre-planning
Hertfordshire					
Maple Lodge STW, Rickmansworth	2.88MW estimate	Co-firing of biomass with fossil fuel	Three Rivers District Council	Thames water Utilities plc	Operational: Commissioned Jan 1989
Norfolk					
Thetford Power Station	41.5MW	Poultry litter fuelled power station	Norfolk County Council (Breckland D.C.)	EPR	Operational: Commissioned January 1998
Costessey Waste recycling centre	4 MWe	MBT of MSW including dry AD process.	Norfolk County Council (South Norfolk D.C.)	Norfolk Environmental Waste Services Ltd	Planning permission November 2007
UEA Norwich	1.4MWe 2MWh	CHP gasifier using virgin forestry	Norwich City Council	UEA	Planning permission June 2007. Installed Feb 09.

		woodchips			Commissioning summer 09
Copys Green Farm ,Wighton	.15MW	AD unit. On-farm feedstock only	North Norfolk DC	JF Temple & Son	Planning permission May 2008. Under construction.
Crows Hall Farm, Nr Attleborough	0.8 MW (est)	AD unit	Breckland DC	SS Agriservices	Planning application lodged March 09. Withdrawn June 09
N. of Thetford off A134	40MWe	Waste wood fuelled power staion	Norfolk County Council	EPR	Pre-application public consultation June 2009
Suffolk					
Eye Power Station, Oaksmere Business Park	14.316MW	Poultry litter fuelled power station	Suffolk County Council (Mid Suffolk D.C.)	EPR Eye Ltd	Operational: Commissioned July 1992
LPL- Hockwold Rattlesden IP30 ORT	.4MW	Biodiesel powered generation.	Mid-Suffolk DC	Living Power Ltd	Operational: Commissioned Jan 07
Building 89 Bentwaters Park IP13 2TW	6MW	Bio-diesel powered generation.	Suffolk Coastal D.C.	Living Power Ltd	Planning permission granted Nov 2007 Operational Apr 08
Eye Airfield, Eye	1.05MW	AD	Mid-Suffolk DC/Suffolk County Council	Suffolk Anaerobic Digestion.	Consented
Denham Estate, Barrow Rd Denham	0.8MW (est)	AD with on-farm and incoming feedstock	St Edmundsbury District Council	The Denham Estate	Planning application submitted Feb 09 Withdrawn May 09.
Adj Building 568 Bentwaters Rendlesham	2MW	Agricultural biomass powered CHP facility- AD technology	Suffolk Coastal D.C.	AgriGen Ltd	Planning application December 08. Agreed in principle by LA . final decision by end 09.
Mendlesham Renewable Energy Plant	40MW	Straw and wood burning power station	Mid Suffolk DC	Eco2 Central Ltd	EIA Scoping opinion issued April 09. Planning application awaited.

CHP – Combined Heat and power

MSW – Municipal solid waste

MRF – Materials recycling facility

MBT – Mechanical and biological treatment

AD -- Anaerobic digestion

Annex 6
Landfill and sewage gas generators accredited for the Renewables Obligation (RO) in the East of England (Source: OFGEM Accredited stations as at 27 August 2009)

Generating stations accredited with a DNC more than 50 kw				
	Generating Station Name	Total Installed Generating Capacity (MW)	Operator Company	Generator Address
Landfill Gas >50 KW				
Cambs				
	Dogsthorpe	1.976	Infinis Ltd	Dogsthorpe Landfill Site, Welland Road, Peterborough, Cambs. PE1 3TD
	Dogsthorpe 2 Generation	3.345	Infinis Ltd	Welland Road, Dogsthorpe PE1 3TD
	Godmanchester	2.166	Viridis Energy (Norgen) Ltd	Cow Lane, Godmanchester, Cambridgeshire
	Grunty Fen	.660	Infinis Ltd	Pools Road, Witchford, Ely, Cambridgeshire
	March Landfill Gas Project	1.003	CLP Envirogas Ltd	March Landfill Site, Hundred Road, Cambridgeshire
	Milton Landfill	2.136	Infinis Ltd	Butt Lane, Milton, Cambridge
	Milton Phase 2 Generation	2.128	Infinis Ltd	Milton Landfill Site, Butts Lane, Milton, Cambridge
	Station Farm Landfill	2.05	Viridis Energy (Norgen) Ltd	Brampton Road, Buckden, Huntingdon, Cambridge
	Warboys Power	1.330	Viridis Energy (Norgen) Ltd	Warboys Landfill Site, Puddock Hill, Station Road, Warboys, Cambridgeshire
	Somersham Power	.335	Ener-g Natural Power Ltd	Somersham Landfill Site off Long Drive, Somersham
	Waterbeach Landfill Gas	.727	Andigestion	Ely Road, Waterbeach
	Total- Cambs	17.856		
Norfolk				
	Attlebridge	1.2	Novera Energy	Attlebridge Landfill Site, Reepham Road, Attlebridge, Norwich
	Beetley Energy RO	1.024	CLP Envirogas Ltd	Beetley Landfill Site, Folly Lane, Beetley, Norfolk
	Blackborough End	2.178	Novera Generation No 3 Ltd	Blackborough End Landfill Site, Mill Drove, Blackborough End, Kings Lynn, Norfolk
	Blackborough End 2	1.048	Novera Generation No 3 Ltd	
	Costessey Landfill Gas Project	.950	Novera Energy No 3 Ltd	Longwater Industrial Estate, Dereham Rd, Norwich
	Costessey 2 Landfill Power Generation	2.2	Novera Energy No 3 Ltd	Longwater Industrial Estate, Dereham Rd, Norwich
	Feltwell (1)	1.003	CLP Envirogas Ltd	The Oakery, Lodge Road, Feltwell, Thetford, Norfolk
	Feltwell (2)	1.050	CLP Envirogas Ltd	The Oakery, Lodge Road, Feltwell, Thetford, Norfolk
	Edgefield Hall Farm	1.990	Buyinfo Ltd	Edgefield, Melton Constable, Norfolk
	Mayton Wood	1.888	Novera Energy No 3 Ltd	Mayton Wood Landfill Site, Little Hautbois, Coltishall, Norwich
	Snetterton Energy RO - A (15/4/5)	1.065	CLP Envirogas Ltd	Harling Road Snetterton Norfolk
	Total- Norfolk	15.596		
Suffolk				
	Aldeby NFFO5	2.130	Infinis Ltd	Aldeby Landfill Site Common Road NR34 0BL
	Bears Pit Landfill Site	.105	Landfill Systems	Acton, Sudbury, Suffolk
	Bramford	.880	Novera Energy Ltd	Bramford Landfill Site, Somersham Road, Bramford, Ipswich
	Bramford Landfill Site	.650	Biffa Waste Services	Papermill Lane, Bramford
	Foxhall	1.2	Novera Energy Ltd	Foxhall Road, Ipswich,
	Kennett Generation	.660	Infinis Ltd	Dane Hill Road, Kennett, Newmarket, Suffolk
	Lackford Landfill	1.333	Gengas Ltd	Bury Road, Lackford, Bury St Edmonds, Suffolk
	Marchington Landfill	1.196	Infinis (Re Gen) Ltd	Moreton Lane, Draycott, Sudbury
	Masons Power Plant	2.22	Viridor Waste Management	Masons Landfill, Great Blakenham, Claydon, Ipswich
	Masons No 2 Power Plant	2.748	Viridor Waste Management	Masons Landfill, Great Blakenham, Claydon, Ipswich

	Wangford Landfill Site	1.006	Novera Energy Ltd	Wangford,Beccles,Suffolk
	Wetherden Landfill Gas Project	.620	CLP Envirogas Ltd	Warren Farm,Wetherden,Stowmarket,Suffolk
	Total- Suffolk	14.748		
Essex				
	Aveley	3.952	Novera Energy Ltd	Sandy Lane,Aveley,Essex,
	Aveley - NFFO 5	2.006	Infinis Ltd	Aveley Landfill Site,Sandy Lane,Aveley,Essex
	Aveley Landfill	3.840	Infinis Ltd	Sandy Lane,Aveley,Essex
	Aveley Phase 2 Generation	2.128	Infinis Ltd	Aveley Landfill Site, Sandy Lane, Aveley
	Barling - (NFFO5)	2.862	EDL (UK) LFG Generation Ltd	Barling Hall Farm, Little Wakering Road, Great Wakering Farm, Essex
	Bellhouse Farm	2.850	CLP Envirogas Ltd	Church Lane,Stanway,Colchester
	Bellhouse South	4.239	EDL Operations (Bellhouse) Limited	Stanway Pit, Warren Lane, Stanway, Colchester, Essex
	Brittons Hall Farm	1.255	Novera Energy Generation No 2 Ltd	Chignal St James. Chelmsford
	Crumps Farm Landfill Gas Generation Project	.720	Edwards Waste Management Ltd	Crumps Farm Landfill site, Little Canfield, Great Dunmow Road, Essex, England
	Mucking 3	4.074	EDL (UK) LFG Generation Ltd	Crown Cottage,Mucking Wharf Road,Stanford le Hope,Essex
	Mucking Gas 2-NFFO	4.074	EDL(UK) LFG Generation Ltd	Mucking Wharf Road,Stanford le Hope,Essex
	Mucking Landfill	5.7	EDL (UK) LFG Generation Ltd	Mucking Wharf Road,Stanford le Hope,Essex
	Mucking Landfill 2	7.789	EDL (UK) LFG Generation Ltd	Mucking Landfill Site,Mucking Wharf Road,Stanford-le-Hope,Essex
	Ockendon "A" Power Plant	5.25	Viridor Waste Management	Medebridge Road,Grays,Essex
	Ockendon "B" Power Plant	4.756	Viridor Waste Management	Medebridge Road,Grays,Essex
	Ongar - NFFO 4	1.920	Infinis Ltd	Mill Lane,High Ongar,Essex
	Ongar - NFFO 5	2.033	Infinis Ltd	Mill Lane,High Ongar,Essex
	Pitsea Methane Conversion Plant	12.139	EDL (UK) LFG Generation Ltd	Pitsea, Essex
	Rainham Landfill	4.074	EDL (UK) LFG Generation Ltd	Ferry Lane,Rainham,Essex
	Rainham Phase II	10.864	EDL Operations (Rainham) Ltd	Wennington Marshes,Rainham,Essex
	Roxwell Landfill Gas Project	1.3	Novera Energy Ltd	Roxwell Quarry,Boyton Cross,Roxwell,Chelmsford
	Total- Essex	87.825		
Hertfordshire				
	Brazier Methane Conversion Plant	1.15	EDL (UK) LFG Generation Ltd	Westmill Road,Ware,Hertfordshire
	North Herts Landfill Generation	1.048	Biffa Waste	Bedford Road, Holwell, Hitchen
	Ugley Gas to Energy	1.559	Biffa Waste Services,	Ugley Landfill site, Cambridge Rd, Bishops Stortfort, Herts
	Westmill Gas to Energy A,C,D	2.398	Biffa Waste	Westmill Landfill Site, Westmill, Ware, Herts
	Total-Herts	6.155		
Bedfordshire				
	Arlesey	1.15	Infinis Ltd	Arlesey High Street,Arlesey, Beds
	Arlesey Phase II	1.15	Infinis Ltd	Arlesey High Street,Arlesey, Beds
	Arlesey Phase III	2.3	Infinis Ltd	Arlesey Landfill, Mill Lane, Arlesey
	Brogborough 3	12.980	Infinis Ltd	Brogborough Landfill Site,Woburn Road,Brogborough,Bedford,Beds
	Brogborough 4	2.3	Infinis Ltd	Brogborough Landfill Site,Woburn Road,Brogborough,Bedford,Beds
	Brogborough Power Station 1 & 2	2.4	Infinis Ltd	Brogborough Landfill Site,Woburn Road,Brogborough,Bedford,Beds
	Brogborough 5	11.0	Infinis Ltd	Brogborough Landfill, MK43 0TN
	Elstow	1.8	Novera Energy Ltd	Elstow Landfill Site,Elstow,Bedford,Bedfordshire
	L'Field Stewartby	12.328	Infinis Ltd	L'Field Landfill Site,Green Lane,Stewartby
	Sundon	1.8	Novera Energy Ltd	Sundon Landfill Site,Common Lane,Upper Sundon,Luton,Bedfordshire
	Total- Beds	49.208		
	Total Landfill Gas	191.388		

Sewage gas > 50kW				
	Dunstable STW Micro CHP Plant	.105	Anglia Water Services Ltd	Thorn Road, Dunstable, Beds
	East Hyde STW	.450	Thames Water Utilities Ltd	Lower Luton Rd, East Hyde, Luton, Beds
	Cambridge STW	.342	Anglian Water Services Limited	Cowley Road, Cambridge, Cambridgeshire, England
	Colchester STW	.342	Anglian Water Services Limited	Haven Road, Colchester Road, Essex, England
	Kings Lynn WWTW	2.136	Anglian Water Services Limited	Clockcase Lane, Clenchwarton, Kings Lynn, PE34 4BZ
	Ryemeads STW	1.48	Thames Water Utilities Ltd	Rye Road, Stanstead Abbots, Herts
	Whitlingham STW CHP Plant	1.00	Anglian Water Services Ltd	Whitlingham STW CHP Plant, Whitlingham STW, Kirby Bedon Road, Trowse, Norwich
	Total Sewage Gas	5.855		

