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**PLANNING, MONITORING &
REVIEW OF RENEWABLE ENERGY
PROJECTS**

Quarterly Review Wales
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2008

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**PLANNING, MONITORING
& REVIEW OF RENEWABLE
ENERGY PROJECTS:
QUARTERLY REVIEW
WALES**

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Executive Summary

The purpose of this report is to provide a summary of the information collated in the Planning, Monitoring and Review of Renewable Energy projects database, in Wales, for the quarter September 2008 - November 2008.

During the period September 2008 - November 2008, the monitoring programme has identified that one planning application for renewable technologies has been approved, a 24MW Wind Onshore scheme in Conwy. One application for a 24MW Wind Onshore scheme in Rhondda Cynon Taff has been dismissed at appeal. Two Wind Offshore applications account for around 60% of the combined installed capacity of all submitted applications with Wind Onshore making up another 35% of the total installed capacity.

A total of 22 renewable energy projects are recorded as having been granted planning approval but have not yet begun generating electricity. Proposals for Wind Onshore represent half of these applications, equating to 23% of installed capacity. However, just 5 Biomass schemes including Aberthaw Power Station (35MW) and the 350MW Port Talbot Biomass Plant will generate a combined installed capacity of 409MW once constructed, 62% of all approved but not operational installed capacity. The approval of the Rhyl Flats Wind Offshore scheme in 2003 which is currently under construction will provide an estimated 90MW of installed capacity (14% of combined installed capacity).

Scotland has the highest operational renewable energy capacity of the home nations with an installed capacity of 2087MW the majority (80%) of which is from Wind Onshore. England has an operational installed capacity of 1690MW spread more evenly amongst technologies with significant contributions from Landfill Gas (31%), Wind Offshore (20%), Wind Onshore (29%) and Municipal and Industrial Waste (13%). Wales and Northern Ireland have operational installed capacities of 410MW and 219MW respectively. Wind Onshore dominates the operational capacity in both countries, with 75% and 97% of the total installed capacity respectively in Wales and Northern Ireland.

Since 2000 there have been 6-10 planning applications for renewables in Wales each year. However, only 2 applications have been submitted in 2008 up to the end of November. The approval rate has remained relatively constant at a rate of between 3 and 6 a year, with the exception of 2006 and 2008 (to November) when there was only 1 approval. Since 2003 there have been 1-2 refusals each year, all for Wind Onshore projects although none have been refused so far in 2008.

The trends in submissions and approvals suggests that Wales is relatively dependant on a small number of projects (particularly Port Talbot Biomass Plant and Gynt y Mor Wind Offshore scheme) with a large installed capacity being commissioned.

If all projects with approval are built and commissioned the installed capacity of renewable energy in Wales will increase from 410MW to 1069MW.

If half the submitted planning applications are approved, built and commissioned, and all the approved applications are built and commissioned, the installed renewables capacity in Wales would increase to 1767MW.

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1. Introduction

In March 2006, a collaboration of Entec UK Ltd (Entec) and Imass Ltd (Imass) was commissioned by AEA Energy and Environment (AEAE&E), on behalf of the Department of Trade and Industry, to monitor and review the progress of renewable energy projects through the Town and Country Planning system. The aim of the project is to collate and maintain a database of accurate information for every proposed renewable energy development, with a capacity greater than 10kW in the UK, and to provide analysis and interpretation of the data to establish any trends across each country and the UK. The project will identify trends or key planning issues associated with the determination and commissioning of renewable energy projects and will ultimately be used to help assess the UKs progress towards the 2010 renewable generation targets.

The monitoring programme has now been running since 1999, and was previously undertaken by Land Use Consultants. Until the end of December 2002, the research was undertaken by contacting a sample of local authorities and developers that were involved in determining or promoting renewable energy applications in the UK. Since January 2003, the programme was extended so that as far as possible, all local authorities are contacted once every quarter along with a minimum of 50 renewable energy developers.

The results are reported monthly in database updates which are held by AEAE&E. A summary of the results is also incorporated in four quarterly reports covering England, Scotland, Wales and Northern Ireland. This report provides a quarterly progress review based on planning updates of renewable energy projects in Wales for the period September 2008 to November 2008.

The information provided in this report is based solely on the information held in the programme monitoring database. Whilst the project contributors have made every effort to ensure this database is accurate and up to date, they do not accept responsibility for any inaccuracies in the data, which is ultimately derived from third-party sources.

2. Overview of Progress

2.1 Headline figures September 2008 to November 2008

The monitoring programme has identified that no planning applications have been submitted in Wales during the period.

The monitoring programme has identified that 1 planning application in Wales was approved during the period. The details of this scheme is as follows:

Table 2.1 Planning Approvals determined September 2008-November 2008 as captured by the Monitoring Programme

Site Name	Technology	Estimated Installed Capacity (MW)	Location
Derwydd Bach Wind Farm	Wind Onshore	24	Conwy

The monitoring programme has identified that no planning applications in Wales were refused during the period.

The monitoring programme has identified that no planning appeals in Wales were allowed during the period.

The monitoring programme has identified that 1 planning appeal in Wales was dismissed during the period. The details of this scheme is as follows:

Table 2.2 Appeal Dismissals determined September 2008-November 2008 as captured by the Monitoring Programme

Site Name	Technology	Estimated Installed Capacity (MW)	Location
Hirwaun Wind Farm	Wind Onshore	24	Rhondda Cynon Taff

The most significant events during the quarter have been the approval of the 24MW Derwydd Bach Wind Farm scheme and the dismissal at appeal of the Hirwaun Wind Farm proposal (also 24MW) on environmental and visual grounds.

The total installed capacity of these projects is estimated as 410MW.

2.2 Planning

This section provides a breakdown of the number and installed generation capacity of

schemes (by technology type) that are in the planning system, and their current status.

A total of 20 renewable energy projects are currently recorded in the monitoring programme as applications which have been submitted for determination (applications being considered) in Wales. The estimated installed capacity of these projects is approximately 1395MW.

The pie charts below illustrate a breakdown of these applications by technology type. Figure 2.1 provides a breakdown by number of projects, and Figure 2.2 provides a breakdown by installed capacity.

Figure 2.1 Applications under consideration by technology type (number of applications)

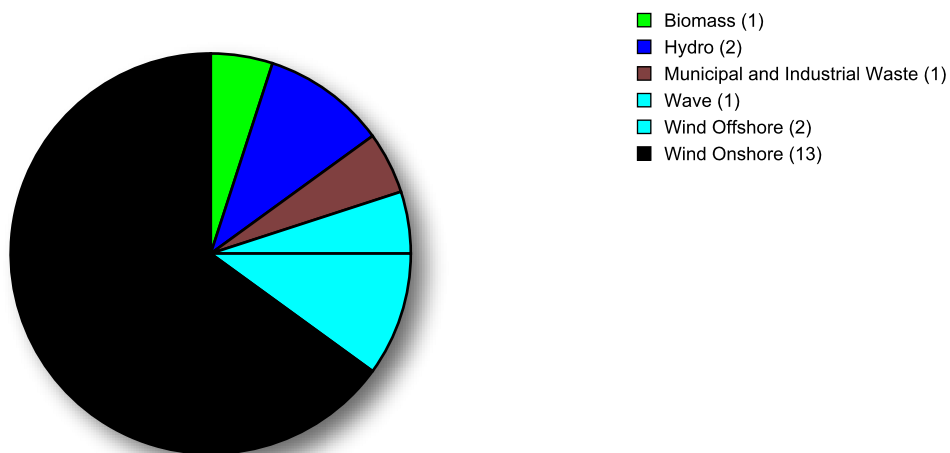
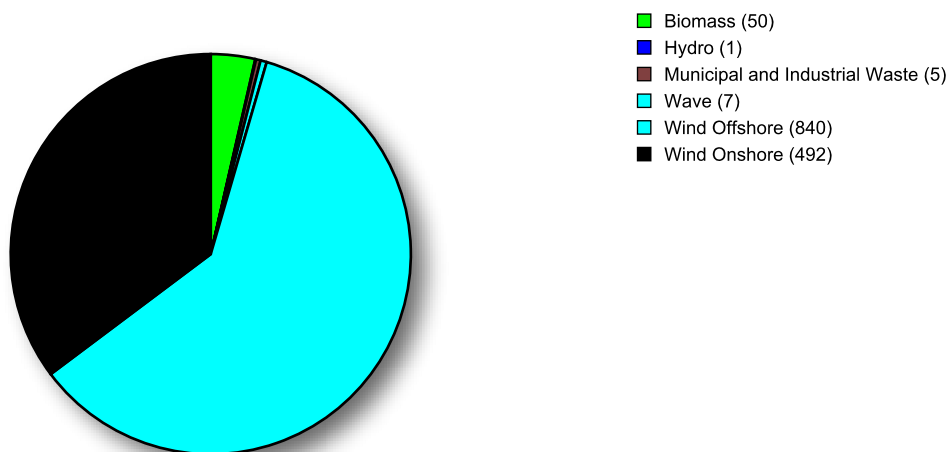


Figure 2.2 Applications under consideration by technology type (installed capacity, MW)



The largest number of applications currently submitted in the planning system is for Wind Onshore projects (13 applications). The greatest potential, in terms of installed capacity, is offered by Wind Offshore (840MW).

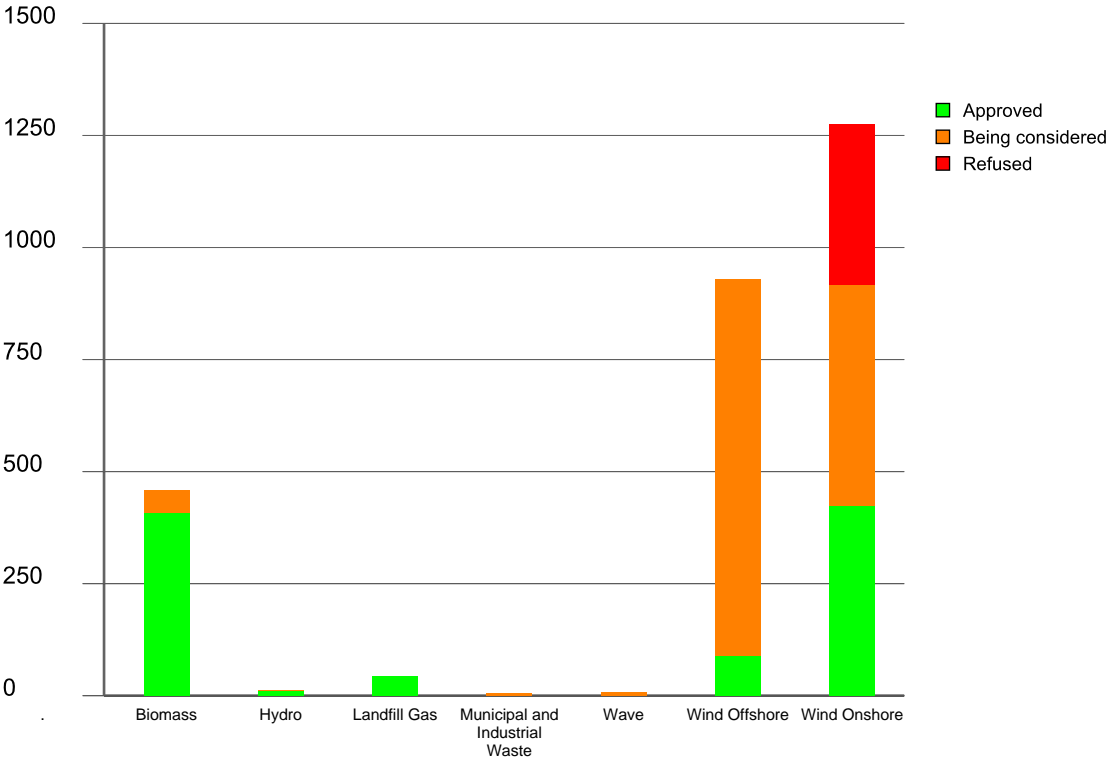
Applications for Wind Onshore account for 65% of all undetermined planning applications

within Wales and 35% of installed capacity. However, just two Wind Offshore application at Scarweather Sands and Gwynt y mor [1] accounts for around 60% of the combined installed capacity of all submitted applications whilst a Biomass application at Kings Dock, Swansea accounts for nearly 4% (50MW).

It should be noted, that installed capacity values should be viewed with some caution, as installed capacity of wind projects, onshore and offshore, would be expected to offer a lower generation output relative to the other technologies presented.

Figure 2.3 provides a breakdown of the status of all planning applications recorded in the monitoring programme by technology type. The bar chart shows combined installed capacities (MW).

Figure 2.3 Status of all planning applications by technology type (installed capacity, MW)



It is evident from Figure 2.3 that Wind Offshore offers the greatest potential in terms of installed capacity assuming that the applications at Gwynt y Mor and Scarweather Sands are approved. However, Wind Onshore also has significant potential for future renewable generation if the 13 applications currently being considered, representing a combined installed capacity of 492MW, are approved. Aside of wind turbine related technologies, Biomass offers some potential to contribute to the growth of renewable energy with around 410MW of approved capacity (related almost entirely to the approval of the 350MW Port Talbot Biomass plant in November 2007) and a potential further 50MW should the application at Kings Dock be approved.

¹ Note that Gwynt-y-mor Wind Offshore project was approved in December 2008. This will be reflected in the next quarter's reports.

2.3 Post Determination

This section provides a breakdown of the number and installed generation capacity of schemes (by technology type) that have been granted planning approval but have not yet become operational.

A total of 22 renewable energy projects in Wales are currently recorded as having been granted planning approval but have not yet begun generating electricity. This equates to an estimated installed capacity of 659MW.

The pie charts below show a breakdown of these projects by technology type. Figure 2.4 provides a breakdown by number of projects, and Figure 2.5 provides a breakdown by installed capacity.

Figure 2.4 Approved but not operational projects by technology type (number of projects)

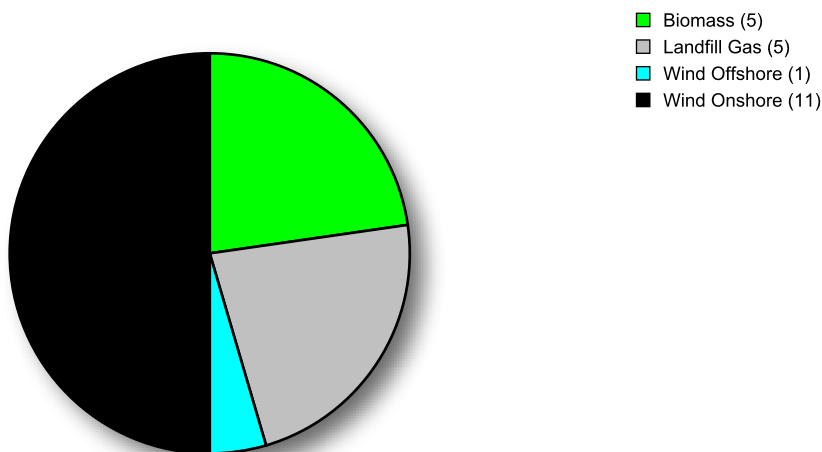
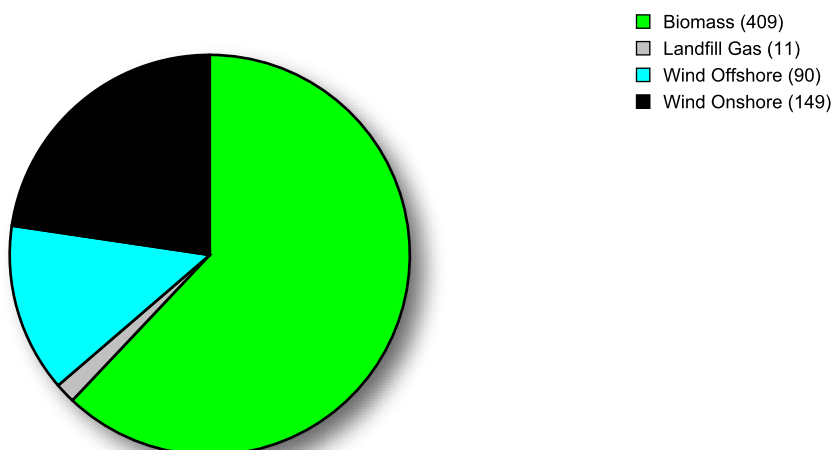


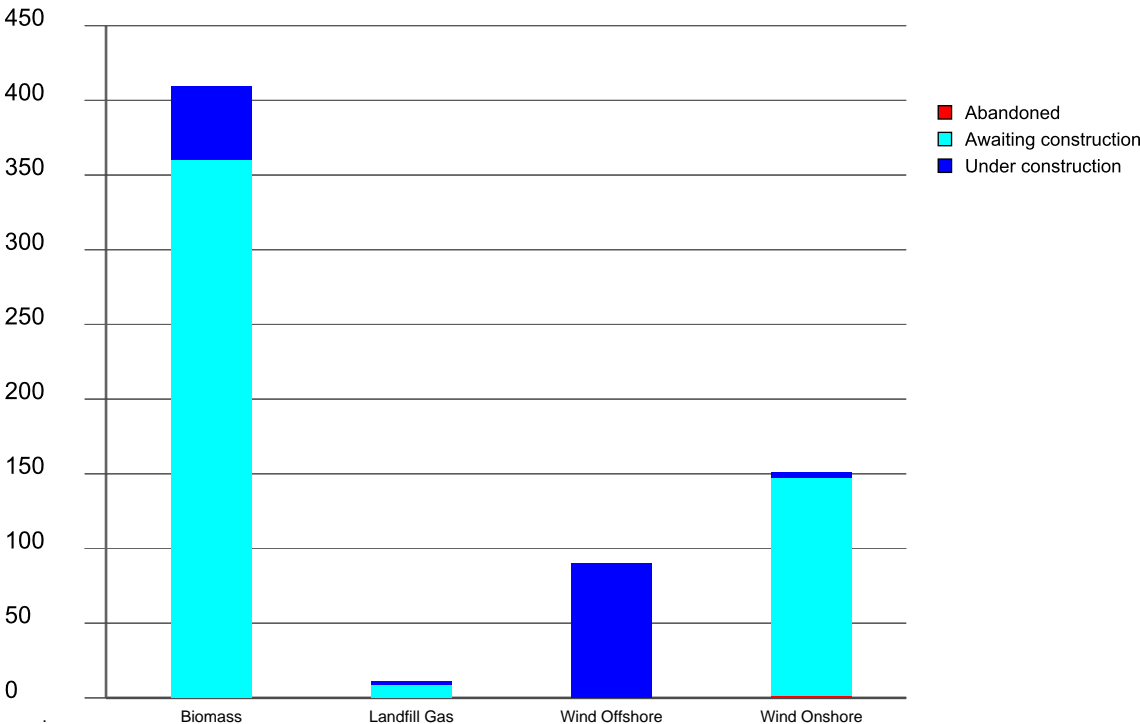
Figure 2.5 Approved but not operational projects by technology type (installed capacity, MW)



Proposals for Wind Onshore represent half of the applications approved but not operational, equating to 23% of installed capacity. However, just 5 Biomass schemes including Aberthaw Power Station (35MW) and the 350MW Port Talbot Biomass Plant will generate a combined installed capacity of 409MW once constructed, 62% of all approved but not operational installed capacity. When constructed the Rhyl Flats Wind Offshore scheme will provide an estimated 90MW of installed capacity (14% of combined installed capacity).

Figure 2.6 below shows a breakdown of the status of approved projects by technology type. The chart shows combined installed capacities (MW).

Figure 2.6 Approved but not operational project status by technology type (installed capacity, MW)



Of the 22 renewable energy projects that have been granted planning permission in Wales but are not yet operational, 6 are under construction and 16 are classified as awaiting construction. The bulk of the installed capacity of those projects awaiting construction can be attributed to the Port Talbot Biomass plant (350MW of 513MW). Wind Onshore accounts for 149MW of approved non-operational capacity and only one scheme, with an installed capacity of 4MW, is currently under construction. The 6 projects under construction have an installed capacity of 145MW, 22% of the total installed capacity of approved projects. The Rhyl Flats Wind Offshore project makes up 90MW of the total 145MW of installed capacity that is currently under construction in Wales.

However this information should be viewed with some caution, as it is often difficult to obtain project information following planning approval but prior to electrical commissioning.

Only one project with planning approval has been recorded as abandoned, the 1.8MW

Cemmaes B Wind Farm in Powys.

Of the projects identified as having approval but not becoming operational, 16 (representing a combined installed capacity of 213MW) have had planning approval for over two years.

The 16 non-operational projects that have had planning approval for over 2 years are made up of 4 Biomass projects, 5 Landfill Gas projects, 1 Wind Offshore project and 6 Wind Onshore projects. However, the Rhyl Flats Wind Offshore project makes up around 42% (90MW) in terms of installed capacity. According to a report commissioned for the DTI in 2005 ^[2] the key causes of delay for offshore wind projects following approval were:

- Lengthy negotiations with banks, suppliers and PPA providers in order to ensure schemes remain profitable, this is driven by marginal economics which are reportedly worsening as suppliers react to technical difficulties experienced during the commissioning of early schemes;
- Lack of construction capacity and turbine availability;
- Technical problems and delays incurred due to the licensing conditions (notably conditions imposed under the Food and Environmental Protection Act, are cited);
- Difficulties negotiating on shore grid connection routes.

According to the DTI report Wind Offshore projects in the UK (based on 4 commissioned projects) took on average 22 months to become operational from approval.

Wind Onshore also represent a significant proportion (25%) of the installed capacity of projects with planning approval for over two years that are not yet operational. According to the DTI report, the key causes of delay for Wind Onshore projects were:

- Negotiation of connection and Wayleave agreements with landowners;
- Delays due to contract negotiations with suppliers (with procurement times for wind turbines in the order of 9-12 months being not uncommon);
- Negotiating planning agreements and discharging planning conditions.

Biomass projects account for 28% of installed capacity of non-operational projects although 3 of the 4 schemes are now under construction.

² Land Use Consultants Barrier to commissioning renewable energy projects report November 2005

2.4 Operational

This section provides a breakdown of the number and installed generation capacity of renewable energy schemes (by technology type) that are operational in Wales.

A total of 53 projects have been identified through the monitoring programme as operational renewable energy projects in Wales. The total installed capacity of these projects is estimated as 410MW.

The pie charts below show a breakdown of these projects by technology type. Figure 2.7 provides a breakdown by number of projects, and Figure 2.8 provides a breakdown by

installed capacity.

Figure 2.7 Operational projects by technology band (number of projects)

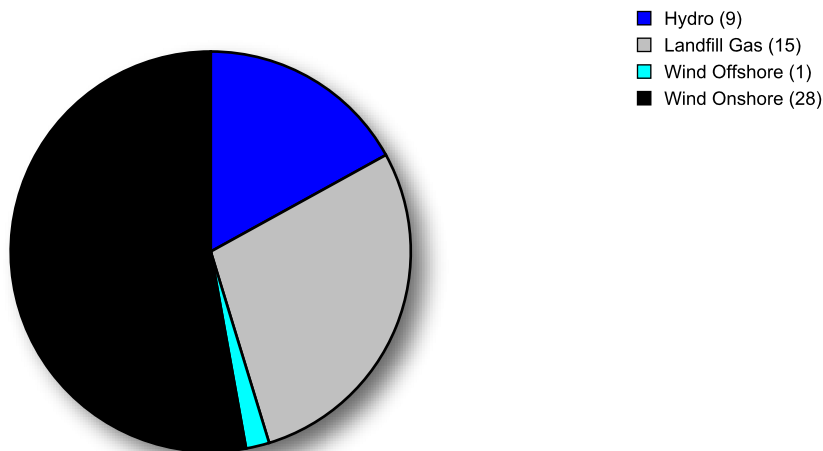
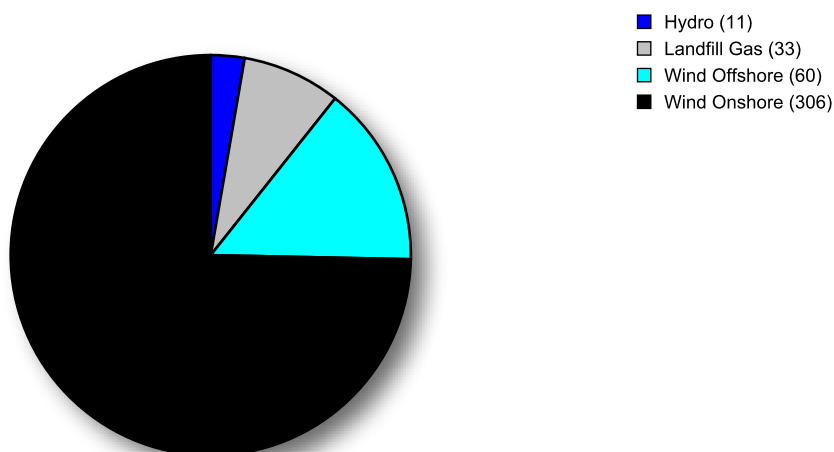


Figure 2.8 Operational projects by technology band (installed capacity, MW)



The technology type that provides the largest contribution to operational renewable energy projects, both in terms of number of projects and installed capacity, is Wind Onshore. 53% of all renewable energy projects operating in Wales are Wind Onshore, contributing 75% of the overall installed capacity. Hydro (3%), Landfill Gas (8%), and Wind Offshore (15%) are the only other technologies to contribute to operational installed capacity.

However, it should be noted (as previously) that installed capacity values should be viewed with caution; if the declared net capacity (DNC) were used, the relative contribution of wind would be reduced compared to the thermal and hydro technologies.

Projects which reach the end of their operational life will be removed from the monitoring database on notification of decommissioning (or re-powering).

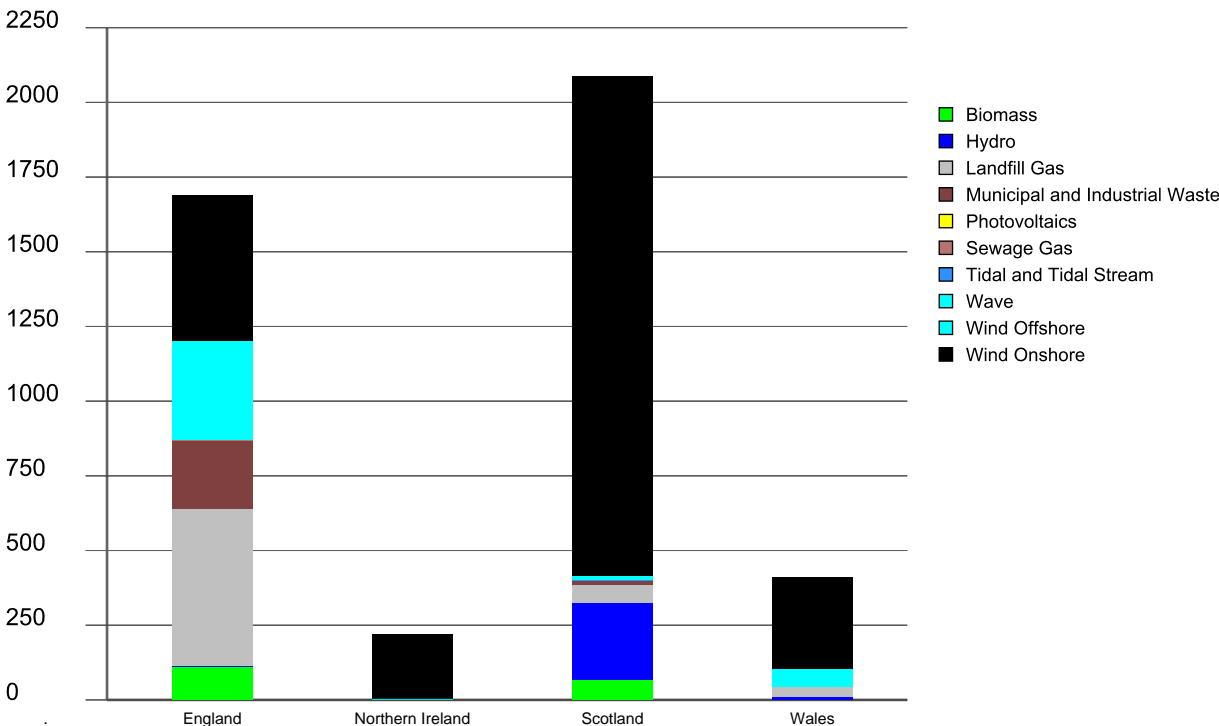
3. The UK Context

3.1 The UK Context

This section provides a brief comparison of the renewable operating capacity across the UK.

Figure 3.1 provides a comparison of the operational renewable energy projects in the UK by technology type and country.

Figure 3.1 Operational projects by technology type and country (installed capacity, MW)



Scotland has the highest operational renewable energy capacity of the home nations with an installed capacity of 2087MW the majority (80%) of which is from Wind Onshore. England has an operational installed capacity of 1690MW spread more evenly amongst technologies with significant contributions from Landfill Gas (31%), Wind Offshore (20%), Wind Onshore (29%) and Municipal and Industrial Waste (13%). Wales and Northern Ireland have operational installed capacities of 410MW and 219MW respectively. Wind Onshore dominates the operational capacity in both countries, with 75% and 97% of the total installed capacity respectively in Wales and Northern Ireland.

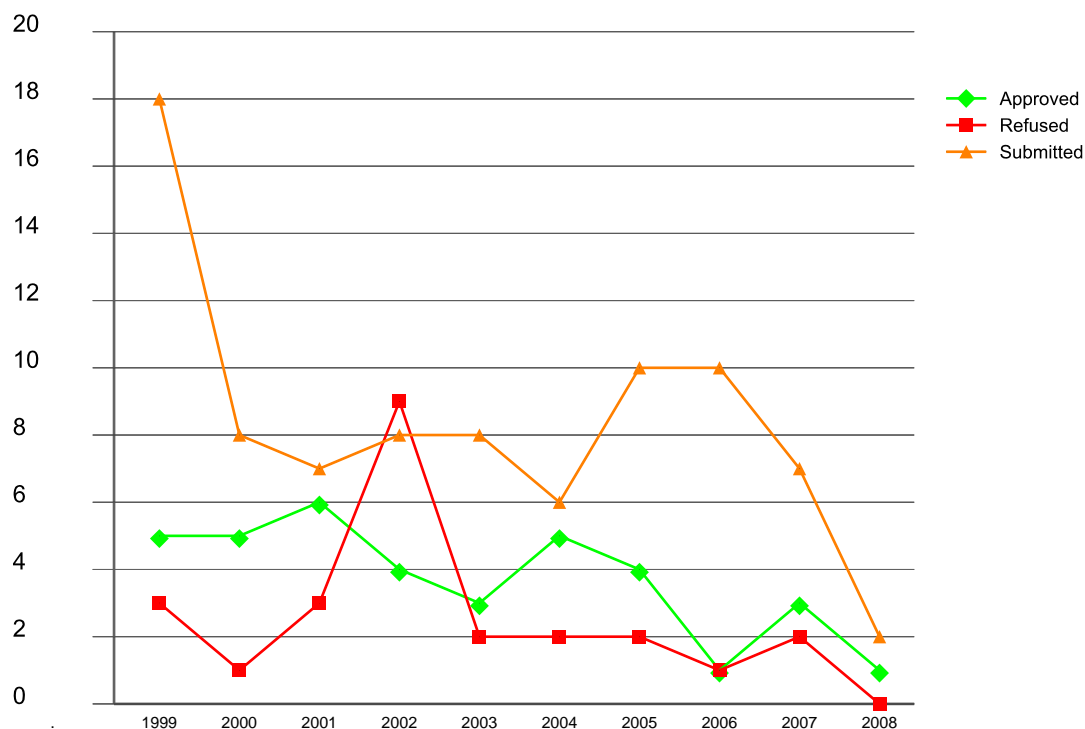
4. Key Issues Review

This section provides a review of the progress of renewable technologies through the planning system. Data is provided for the number of planning applications submitted and determined each year since the programme commenced in 1999. The cumulative installed capacity of all schemes becoming operational in a particular year is also considered.

The information presented has been collected from the commencement of the monitoring programme in 1999. Information provided for the current year includes all data collected to the end of this quarter (end of November 2008).

Figure 4.1 provides a yearly breakdown of the number of planning applications submitted and determined (approved or refused). Note that the date of submission and determination was not recorded for all applications (prior to 2006), therefore some projects could not be included in the figure below.

Figure 4.1 Number of applications submitted, refused and approved since 1999



Since 2000 there have been 6-10 planning applications for renewables in Wales each year. However, only 2 applications have been submitted in 2008 up to the end of November.

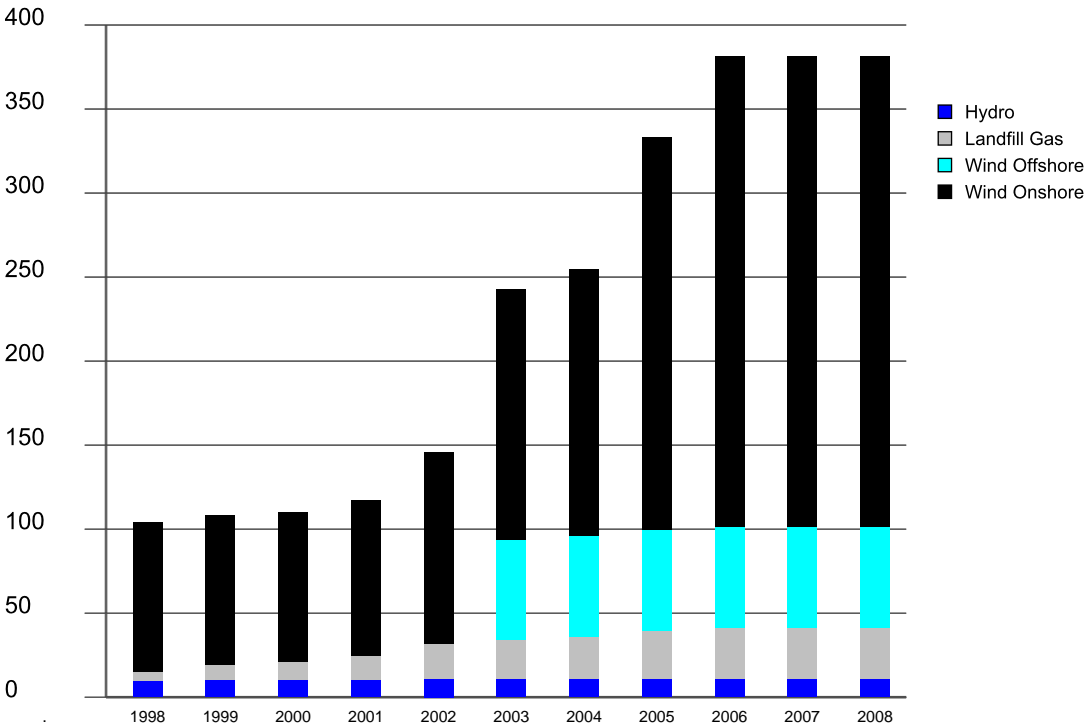
The approval rate has remained relatively constant at a rate of between 3 and 6 a year, with the exception of 2006 and 2008 (to November) when there was only 1 approval. Since 2003

there have been 1-2 refusals each year, all for Wind Onshore projects although none have been refused so far in 2008.

The trends in submissions and approvals suggests that Wales is relatively dependant on a small number of projects (particularly Port Talbot Biomass Plant and Gynt y Mor Wind Offshore scheme) with a large installed capacity being approved and commissioned.

Figure 4.2 is a cumulative histogram illustrating the installed capacity of renewable energy projects becoming operational each year from 1999 - November 2008. The data is broken down into the contribution made by each technology.

Figure 4.2 Cumulative installed capacity (MW) of operational schemes 1998 to November 2008



Note that the discrepancy between the cumulative total to 2008 (381MW) and the actual total of all operational projects in Wales (410MW) exists because the date of first generation is not known for some operational projects. Nevertheless the trend is assumed to remain the same.

There has been no increase in Wales' operational renewable energy capacity since 2006. The main increase between 2000 and 2006 was due to Wind Onshore which has risen from 89MW in 2000 to 280MW. The largest increases in operational capacity took place in 2003 due principally to the commissioning of the 60MW North Hoyle Wind Offshore project and in 2005 due to the commissioning of the 59MW Cefn Croes Wind Onshore project.

4.1 Progress to 2010 targets

The Renewables Obligation replaced the NFFO as the main renewables support mechanism in 2002. The Obligation requires all licensed electricity suppliers in England and Wales to supply a specific proportion of their electricity from renewable energy. The annual obligations were originally specified up to 2010, rising incrementally from 3.4% in 2003 to 10% in 2010. This has recently been extended through to 2015 when a target of 15% will apply. The Scottish equivalent, the Renewables Obligation Scotland (ROS), operates on the same basis but with raised percentage obligations of up to 18% by 2010.

The purpose of this section is to try and establish how effective the RO and ROS mechanisms are in helping to deliver the UK's overall target of providing 10% of electricity supplied from renewable sources by 2010.

Throughout this report, the installed capacity of renewable energy projects and planning applications is considered. However, in order to compare the schemes recorded in the 'Planning, Monitoring and Review of Renewable Energy projects' database with the UK targets, the likely contribution (in terms of actual electricity generated) must be considered.

The electricity generated (or potential electricity generated) has been calculated based on the average UK load factors recorded between 2000 and 2007 for each technology [3]. For Offshore wind, data was only available for 2004 - 2007.

Based on these load factors, the current operational, installed capacity in Wales should equate to approximately 1.07TWh electricity produced per annum.

If all the projects which have been approved are built and commissioned, then the resulting installed capacity would increase to 1,069MW, and should equate to approximately 3.82TWh electricity produced per annum.

Assuming the approval and refusal rates for each technology (by number of projects) continues at the same rates as experienced from Jan 2000 to present, a further 1,145MW renewable energy capacity might be anticipated to be given planning consent. Note that this methodology assumes that a larger project (in terms of installed capacity) is no more or less likely to achieve planning consent than a smaller one. It also assumes all Offshore wind projects will be approved, based on only two Offshore projects in Wales.

Nevertheless assuming all these projects and all the existing approved projects are built and commissioned, the resulting installed renewable energy capacity in Wales would be 2,066MW, and should equate to approximately 6.64TWh electricity produced per annum.

The total UK electricity demand in 2010 has been derived from the DTI's latest projections (UK Energy and CO2 Emissions Projections, July 2006). Assuming growth in electricity demand follows the baseline electricity demand growth model (the 'middle ground' predictions), the UK is anticipated to have a total electricity demand of 29.7Mtoe by 2010. This equates to 352TWh electricity supplied per annum. According to the Renewable Obligation targets, 35.2TWh will need to be generated from renewable energy schemes by 2010.

6.64TWh renewable electricity generation, provided within Wales would represent 18.9% of this overall UK target, potentially a significant contribution. The 350MW biomass plant now

approved for development at Port Talbot will provide one third of the above renewable electricity total for Wales. The proposed Gwynt y Mor offshore windfarm (750MW) will contribute a further third. This development (in planning since November 2005) was approved in early December 2008, thus has been considered as still being in planning in the production of this report, which uses a dataset up to the end of November 2008. It seems unlikely that a development of this scale will be fully commissioned by 2010. A further quarter of the renewable matrix would be derived from Onshore wind projects.

³ Table 7.4 Capacity of, and electricity generated from renewable sources
(www.dtistats.net/energystats/dukes7_4.xls)

5. Conclusion

During the period September 2008 - November 2008, the monitoring programme has identified that one planning application for renewable technologies has been approved, a 24MW Wind Onshore scheme in Conwy. One application for a 24MW Wind Onshore scheme in Rhondda Cynon Taff has been dismissed at appeal. Two Wind Offshore applications account for around 60% of the combined installed capacity of all submitted applications with Wind Onshore making up another 35% of the total installed capacity.

A total of 22 renewable energy projects are recorded as having been granted planning approval but have not yet begun generating electricity. Proposals for Wind Onshore represent half of these applications, equating to 23% of installed capacity. However, just 5 Biomass schemes including Aberthaw Power Station (35MW) and the 350MW Port Talbot Biomass Plant will generate a combined installed capacity of 409MW once constructed, 62% of all approved but not operational installed capacity. The approval of the Rhyl Flats Wind Offshore scheme in 2003 which is currently under construction will provide an estimated 90MW of installed capacity (14% of combined installed capacity).

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The trends in submissions and approvals suggests that Wales is relatively dependant on a small number of projects (particularly Port Talbot Biomass Plant and Gynt y Mor Wind Offshore scheme) with a large installed capacity being commissioned.

If all projects with approval are built and commissioned the installed capacity of renewable energy in Wales will increase from 410MW to 1069MW.

If half the submitted planning applications are approved, built and commissioned, and all the approved applications are built and commissioned, the installed renewables capacity in Wales would increase to 1767MW.