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Wind energy in Wales - State of the Industry

Report by BWEA Cymru

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photo credit front cover: Tegni Cymru Cyf Wind farm

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Summary

This report assesses current progress of the development of wind energy in Wales over the life span of the Welsh Assembly Government's 2005 planning guidance. The report looks at milestones recently reached, investigates planning performance and identifies the barriers preventing delivery. By calculating the megawatt (MW) capacity that has been delivered since July 2005 the report shows clearly that Wales will miss its operational targets set for 2010 by a large margin.

Technical Advice Note 8: Planning for Renewables

In July 2005, following years of consultation, the Welsh Assembly Government (WAG) published its planning guidance to renewable energy; Technical Advise Note 8: Planning for Renewables (TAN 8). TAN 8 together with Planning Policy Wales (PPW) and the Ministerial Interim Planning Policy Statement (MIPPS) on renewable energy provides national planning guidance to local authorities determining projects below 50MW, and, as a statement of national policy, is of relevance to schemes above 50MW which are determined by the UK Government under Section 36 of the Electricity Act 1989.

The raison d'être of TAN 8 is to deliver Wales' renewable energy targets, including an additional capacity of 800MW from onshore wind. A fundamental characteristic of TAN 8 policy is that it has been based upon a strategic spatial planning framework. As such, seven broad 'search' areas were identified throughout Wales, deemed to be most appropriate for the location of large onshore wind farms, over 25MW. These areas are called Strategic Search Areas (SSAs).

Targets

At the time that TAN 8 was published the Assembly Government had a renewable energy target to generate 4TWh per annum by 2010 and 7TWh by 2020. In order to meet the 2010 target the Assembly Government concluded that an *additional* 800MW of installed capacity should be delivered by onshore wind sources, while another 200MW would be required from offshore wind and other renewables.

In order to facilitate the delivery of the WAG renewable energy target of 4TWh per annum by 2010, an assessment was carried out to identify indicative wind energy capacity within each SSA. As stated in TAN 8, this assessment suggested that SSAs may be capable of collectively accommodating up to approximately 1120MW of additional onshore wind capacity. This degree of flexibility was considered necessary to ensure that a total of 800MW of wind would come forward by 2010. For the purpose of this report, progress towards these on and offshore targets for installed capacity has been measured from a starting position of July 2005 when TAN 8 was adopted.

Progress 2005 – 2009

To reach the additional 800MW onshore wind energy target by the end of 2010, an average of 12.3MW would be required to come online in Wales every month from July 2005. By tracking the cumulative increase of new operating onshore wind capacity, it is possible to follow progress towards the target in the years since the publication of TAN 8.

Tir Mostyn was the first project to contribute towards the 800MW target with 21.25MW coming online in September 2005. It was followed by Hafoty Uchaf (0.85MW) and Mynydd Clogau (14.5MW) in early 2006 and then by Ffynnon Oêr (32MW) in June of that year.

With a total of 68.6MW having been brought online within 12 months and with another 124.25MW worth of projects in the planning system, there was a case to be fairly optimistic that progress was being made despite being 49% behind the monthly schedule.

However, there followed a long barren period with no delivery for 19 months. It was not until January 2008, that 3.9MW was added from the Braich Ddu wind farm. At this point, with only 72MW of additional capacity having come online since July 2005, it became apparent that the targets were unachievable within the 2010 deadline.

By the time of the second annual BWEA Cymru conference in July 2008, and having seen no movement since January, Wales had achieved a mere 9% of what was needed. If progress had kept up with the required monthly average to meet the target, this figure should have been around 440MW. Therefore as of July 2008 Wales was 84% behind schedule in meeting the target.

Over the last 12 months, there has been some progress. The Moel Malogan 11.7MW project came on line in October followed by the Carno 2 project with 15.6MW bringing the tally close to the century mark. Last month, three new turbines at the Castle Pill brownfield site added another 2.7MW to the total which now stands at 102.5MW – just 13% of what is needed by 2010. If progress had been in line with target delivery, then there should have been somewhere in the region of 580MW installed capacity. As a result, Wales remains 82% behind schedule – only a marginal improvement since last year.

Figure 1. Progress Towards TAN 8 Target - Operational Capacity

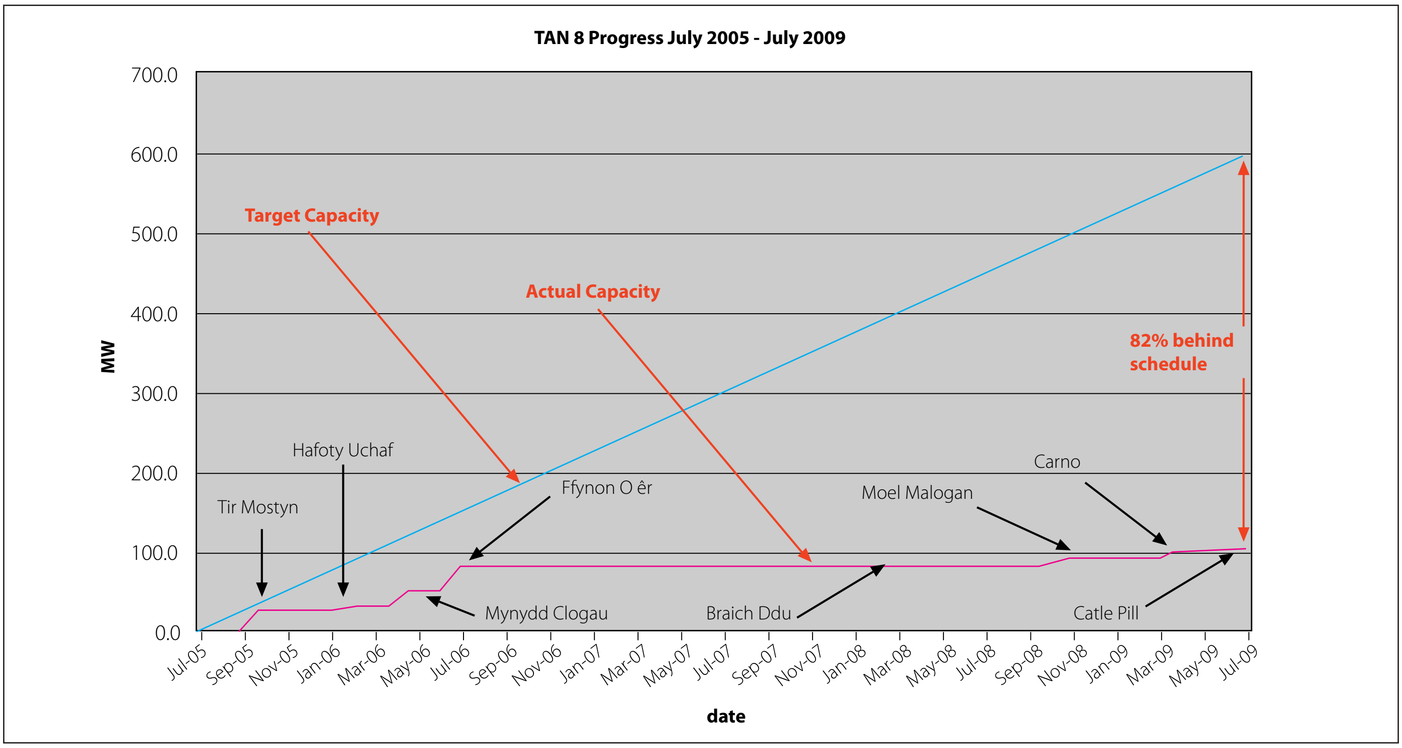


Figure 2.

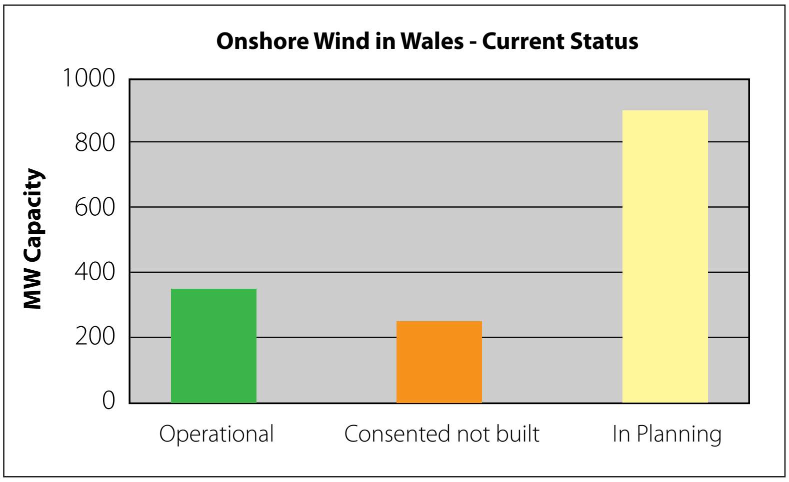
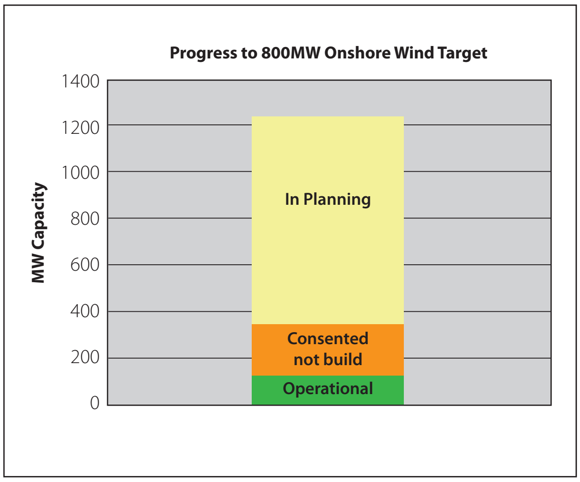


Figure 3.



However, it is clear from figures 2 and 3 above that concentrating solely on the projects that have become operational omits the delivery potential of projects that have been consented to or currently within the planning system awaiting determination. The following sections of the report focuses on the future potential wind energy capacity in Wales, and some of the barriers currently experienced in attempts to realise this potential.

Projects in Planning

When TAN 8 was launched in July 2005, there was only a single project within the planning system – Ffynnon Oêr – the subsequent commissioning of which contributes towards the 2010 target. The lack of projects in the planning system at that time was due to the absence of a renewable energy planning policy to guide development, which in turn had a significant impact on developer confidence.

Since the publication of TAN 8 there has been an increasing stream of planning submissions and approvals. Overall 15 wind farm applications have been approved since July 2005 that will ultimately contribute 229MW to the installed capacity target.

In terms of planning applications, eight projects were put forward in TAN 8's first year, totalling a capacity of 124MW. This had increased to 320MW by July 2007. By July 2008, 18 Welsh projects representing a total 536MW were in the planning system – one of which was above 50MW and therefore to be determined by UK Government.

Rate of Planning Determination

Of major concern to the industry is the length of time it takes for both planning authorities and the Planning Inspectorate to determine wind farm applications, which stagnates and undermines target delivery.

In total, developers of the 24 projects determined in the last four years have had to wait an average of 21 months for their decision. Even factoring in six projects that were taken to appeal, the remaining 18 projects determined at the local authority level took an average of 17 months to decide. This is despite local authorities working to a statutory 16 week target for deciding applications. It is clear that the planning system remains slow, arduous and expensive for developers who are pursuing onshore wind farm projects in Wales.

Of the projects that appear in the 'in planning' data, a number have remained in the planning system, undetermined from one year to the next. Up to four projects have been in planning for over two years since 2005, with one project (an extension to Blaen Bowi Wind Farm) having waited 51 months for final determination by the Planning Inspectorate in June 2009.

Project Approvals

Despite the large number of projects within the planning system, the level of decision making over the last four years has remained low. In the first 12 months following the publication of TAN 8, only one project (Carno 2) was determined successfully. The next 12 months saw an encouraging increase in the number of MW approved, with 84MW being approved in the year 2006-2007. This was followed by an increase again in 2007-08 of a further 101MW. However, the level of capacity approved in the last 12 months has flattened out, with an additional 101MW having been approved. In total during the last four years 15 projects have been approved with a total capacity of 239MW, giving a ratio of 5MW approvals per month, 59% below the 12.3MW monthly capacity required to ensure smooth progression towards the 2010 target. This approval rate needs to dramatically increase if Wales is to achieve the 800MW in the early years of the next decade.

Barriers to Delivery

It is clear from the low level of capacity approved to date that the planning system is currently a significant barrier to the delivery of Wales' onshore renewable energy targets. The issue of planning will be further explored in this section, in addition to a number of other factors, including the grid and transport networks, and public perception, which are also frustrating the delivery of TAN 8. BWEA Cymru is proactively working with the WAG and other stakeholders in trying to remove and find solutions to these problems that contribute to the lack of delivery.

1. Grid Network

In mid-Wales, where three of the seven SSAs are located, there is a need for a new 400kV grid line to be built in order to transport electricity generated from wind farms in the area. The lack of grid in mid-Wales is therefore a major barrier to the delivery of TAN 8's 2010 target.

In working to resolve this problem, BWEA Cymru has been engaging closely with National Grid and the two organisations have co-funded a study that identified high level constraints to grid infrastructure in the area. This study has now been completed and National Grid has begun a consultation process with statutory consultees. From August 2009 further detailed consultations will be conducted by National Grid that will include routing studies and Environmental Impact Assessments. With planning applications both for a substation and a 400kV grid line being prepared by the end of 2012, National Grid expects that construction will be completed by October 2015.

The importance of building additional grid network in mid-Wales cannot be underestimated, as a large proportion of applications that have or are due to be submitted into planning are located in this region. While four projects with a total capacity of 204MW will be able to proceed in mid-Wales before the new grid line is in place, provided that they are granted planning permission, the majority of projects will not be able to generate electricity until the new grid line has been constructed.

The lack of available grid network in mid-Wales until 2015 is therefore a crucial factor to be considered when trying to estimate TAN 8 target delivery. It will be necessary to increase generation in the other four SSAs in order to bridge the gap.

There are also some issues with both the grid networks which serve the north and south of the country, however, there is currently enough capacity on the system to accommodate the target generation from wind farms.

2. Transport Networks

The concurrent construction of a number of wind farm sites located within SSAs has raised concerns over the number and frequency of abnormal load transport movements. This is likely to be the case in all the SSAs but due to the high number of proposed projects is more immediately apparent in mid-Wales. In working to resolve these concerns, BWEA Cymru Transport sub-group has been working closely with WAG, Powys Council, Mid Wales Trunk Road Agency and police authorities to manage these impacts and have commissioned the creation of an assessment tool that will map out all the constraints in order for the authorities to determine the scheduling of transport movements. The sub-group has also been in discussion with the police services and WAG regarding the establishment of a dedicated all-Wales police unit that will be able to strategically manage convoy movements. As these matters progress it is vital that dry runs of likely vehicle movements are licensed, and carried out at the earliest possible stage, in order for the authorities and industry to determine the most appropriate and practical solutions.

3. Planning

As evidenced in this report, the local planning system is struggling to deal effectively with wind farm planning applications. By identifying areas suitable for the development of large scale wind farms, TAN 8 in effect set a planning presumption in favour of development within SSAs. However, even in these areas the planning process remains slow and unpredictable, with examples of applications having been rejected against officer recommendation, or called in by the WAG.

Provisions made within TAN 8 for planning authorities to conduct local refinement exercises within each SSA, as a means to "guide and optimise development within each of the areas" have, in practice, contributed to planning delays, with many applications having to wait years for determination while refinement studies were carried out. With a number of planning authorities yet to finalise their refined SSAs, and current confusion as to the weight to be accorded to such studies, this policy intervention has provided additional frustration.

In addition, and due to the extensive case load that some local planning authorities process, the level of financial and skilled personnel resources available to deal with applications effectively is a major concern to the industry. Planning stakeholders at all levels, continue to be under-resourced. If we are to deliver against targets for all renewable energy types, there is an urgent need for additional education and resources across the board – in councils, statutory consultees and government.

While BWEA Cymru notes and welcomes the recent announcement by WAG of a planning review and of additional financial resources for local planning authorities, we have concerns that other key planning stakeholders will remain underfunded.

4. Public Opinion

Public polls show the majority of people in Wales are in favour of wind farms as a means to tackling climate change. Despite this, numerous organised anti-wind farm groups have spread misinformation and fears which has negatively influenced some communities and politicians. There is a need for greater public awareness of the need for renewable energy to secure energy supply and to reduce our carbon emissions.

Offshore Wind

Despite the fact that TAN 8 identified onshore wind as the most effective and expedient way to achieve Wales' overall renewable energy targets, it is important to remember that TAN 8 relates to the planning of all forms of renewable energy. The policy stated that in addition to the target for an additional 800MW from onshore wind, a further 200MW of installed capacity is required from offshore wind and other forms of renewable energy.

Offshore wind farm applications are nearly always determined by Section 36 of the Electricity Act and therefore, local authority and WAG planning policy has limited influence. In July 2005 Wales already had 60MW of offshore installed with a further 198MW having been approved but awaiting construction. One wind farm is currently being constructed which will give 90MW of installed capacity – 45% of the offshore target for 2010. Other forms of renewable generation since 2005 also contribute.

In December 2008 DECC approved the planning application for the Gwynt-y-Môr project which has a total installed capacity of 750MW.

Forestry Commission Projects

A large proportion of the land identified within TAN 8's seven SSAs is managed on behalf of the WAG by Forestry Commission Wales (FCW). The target installed capacity for the six FCW sites identified within the seven SSAs is currently 641.5MW, and it is estimated that the total capacity may eventually total over 700MW of generation.

The vast majority of applications likely to come forward within FCW sites will have a capacity in excess of 50MW and will therefore be submitted for determination by the Government or the Infrastructure Planning Commission, which is currently in the process of being established ready for full operation late next year. BWEA Cymru hopes that the decisions made and time taken in determining projects within FCW sites will enable this capacity to come forward in an quickly manner.

However, due to the detailed tendering exercise undertaken by FCW, progress towards delivery in these areas has been very slow to date. Five developers have recently signed option agreements with FCW, which permit them to seek planning permission on FCW managed land within the SSAs, but applications have yet to be submitted and developers continue to prepare their projects for planning submission.

Due to the length of time likely to be required in bringing these projects forward, BWEA Cymru believe that these projects should be considered to contribute towards the 2020 target, and should not be seen to contribute to the country's targets for 2010.

Forecast for Target Delivery

Forecasting when the additional 800MW TAN 8 will be delivered is extremely difficult as there are so many variables that must be considered. With three SSAs with an indicative target of 500MW, mid Wales is a crucial region for generation. There are as much as 592MW in the planning system for projects in Powys alone, and more applications are expected.

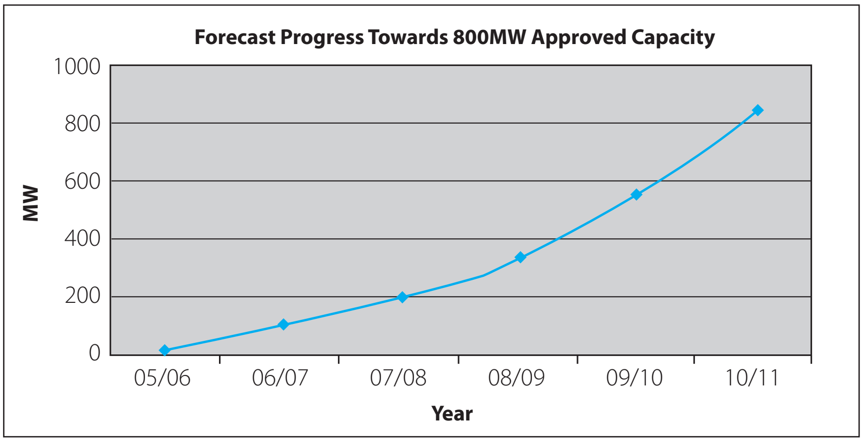
However, as discussed above, mid-Wales is also the region that faces the greatest obstacles in terms of grid and transport. A handful of projects will be able to proceed without grid re-strengthening provided they receive planning permission, but these projects will then have to overcome additional transport barriers.

Placing grid and transport issues to one side and basing the calculation solely on the 21 month average determination time and the 62% approval rating for wind farm applications in Wales, it is possible to estimate when the target of 800MW will be met in terms of approvals.

Assuming that all projects that have been in planning for over 21 months are decided in the next 12 months, and that all remaining projects in planning will be determined in line with the current 21 month average, BWEA believes that the target of 800MW will be met in terms of approvals, by mid 2011.

However, for reasons discussed above it should be noted that much of this capacity will not come on line until post 2015 and Wales will have therefore missed the TAN 8 2010 target of 800MW additional operational capacity by a large margin. By this time Wales will also need to have approved the vast proportion of additional renewables capacity required to go operational by 2020, if we are to meet our longer term 2020 EU targets, and the 2025 targets set out within the Renewable Energy Route Map.

Figure 4.



Conclusions and Recommendations

The data used in this report clearly demonstrates the high level of interest and activity that onshore wind farm developers have in Wales. Between the launch of TAN 8 in July 2005 and today, 36 projects have been submitted to the planning system with a total generating capacity value of 1,188.25MW. The vast majority of these (30 projects with a capacity total of 822MW) were below the 50MW threshold and therefore in the hands of the local planning authorities.

The rate of work shown by developers is not being replicated by the local planning system which approved less than 200MW in same time. Adding the positive determinations made by the Planning Inspectorate brings this value to 239MW, but it remains a fact that the planning system in Wales is not keeping up with the rate of applications or the timetable of key government policy.

BWEA Cymru welcomes the recent announcement by Sustainability Minister Jane Davidson of a review into the local planning system. We strongly recommend that this report specifically look at unblocking the system in relation to wind farm applications. The announcement of an additional £1.75m shared between the local planning authorities in Wales is encouraging. However we urge WAG to allocate greater targeted resources directly to local planning authorities and other key planning stakeholders, who will be involved in the assessment of an increasingly high number of renewable energy applications.

To ensure that targets are achieved, WAG should actively encourage local authorities to deliver against the national planning policies for renewables, which they are obliged to implement.

There are other barriers to delivery namely grid and transport. Progress towards both current and future targets will be hampered until both problems are resolved. Although national grid issues are not devolved it is essential that all stakeholders involved in the process continue to work together to ensure that construction of the line starts no later than in 2015.

Similarly there needs to be a co-ordinated effort to resolve the issue of transport. BWEA Cymru has already shown initiative and leadership by commissioning work that will provide the authorities with the information they will need to make an accurate assessment. BWEA Cymru is also considering a proposal to establish a dedicated all- Wales police transport unit. We welcome the involvement of the other stakeholders and hope that the issue will shortly cease to be regarded as a major problem or inconvenience.

WAG intends to refresh TAN 8 in 2010 increasing renewable energy targets from a range of sources. Good policy relies on targets as a way to measure progress and success. However, targets are only meaningful if there is a sense of ownership and responsibility for their fulfilment. The implementation of TAN 8 during the last four years has provided numerous examples of how a new policy can be much improved.

A recent 2007 review commissioned by WAG, into the potential wind energy capacity within existing SSAs identified the potential for an increase of over 50% on TAN 8's 2005 indicative capacity of 1,120MW. In light of the lessons learned in the last four years, BWEA urges WAG to commit to the delivery of around 2,500MW onshore wind capacity within the existing SSAs, as put forward by Arup.[2]

Finally BWEA Cymru urges the Welsh Government, elected representatives and influential organisations and individuals, to recognise and communicate widely the urgent need for renewable energy to secure energy supply, reducing our contribution to Climate Change, the consequences of which will have a great impact on Wales.