

# Renewable Energy Route Map for Wales

*Consultation Report*



December 2008

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# 1. Introduction

## Purpose of Consultation

- 1.1 The Renewable Energy Route Map (RERM) set out proposals for moving Wales towards self-sufficiency in renewable electricity in a generation whilst at the same time driving very forcefully towards much more energy efficiency and much more of our extensive heating requirements being supplied from renewable sources.
- 1.2 The consultation formed part of a series of proposals that will lead to the production of comprehensive climate change and energy strategies for Wales and assist in the development of the programme to deliver our commitment to achieve annual 3% reductions in greenhouse gas emissions from 2011 onwards: the delivery of which will be undertaken through joint working across all parts of the Assembly Government.
- 1.3 Energy efficiency and low carbon energy generation are only part of a wider picture. Resource efficiency more generally is also key to a successful and rapid transition to a low carbon economy. We will be taking this forward through a National energy efficiency savings plan and as part of our “Green Jobs” strategy.
- 1.4 This consultation forms part of work to develop the evidence and analytical base to ensure that we work in a joined-up way to help deliver maximum social, economic and environmental benefit from reducing climate change.

## Consultation Report

- 1.5 This Consultation Report summarises the main comments made to the Welsh Assembly Government as a consequence of its consultation exercise on the Renewable Energy Route Map. The consultation period ended on 13 May 2008 and received 124 responses.
- 1.6 Table 1 shows the number of responses received by group and the general tone of the response. The largest number of responses came from energy companies.

<b>Table 1</b>	<b>Positive</b>	<b>Negative</b>	<b>Neutral</b>	<b>Total</b>
Campaign Group	5	8	2	<b>14</b>
Developers/ Companies	19	5	8	<b>33</b>
Conservation/Environmental Organisation	4	1	2	<b>7</b>
Economic/Community Partnership	1	1	1	<b>3</b>
Individual	4	13	4	<b>20</b>
Local Authority	2	4	4	<b>10</b>
National Park	2	0	1	<b>3</b>
Political Party	0	0	1	<b>1</b>
Public or Advisory body	5	0	5	<b>10</b>
Research Group	1	1	0	<b>2</b>
Sector Skills Council	2	1	0	<b>3</b>
Trade Association	3	1	2	<b>6</b>
Trade Union/Professional Association	6	1	0	<b>7</b>
Other	2	1	0	<b>3</b>
<b>Totals:</b>	<b>57</b>	<b>37</b>	<b>30</b>	<b>124</b>
	<b>46%</b>	<b>30%</b>	<b>24%</b>	

- 1.7 Table 2 shows the number of responses which made specific comment against the sections of the Route Map or the technology it represents. The largest number of responses made specific comment against Section 7 of the Route Map.

<b>Table 2</b>	<b>Number</b>	<b>Percentage</b>
Section 3: Biomass	39	31%
Section 4: Marine	42	33%
Section 5: Hydro	24	19%
Section 6: Waste	24	19%
Section 7: Wind	58	46%
Section 8: Energy Efficiency & Micro-generation	47	37%
Section 9: Large Scale distribution Generation	12	9%
Section 10: Consenting Regimes	18	14%
Section 11: Grid Infrastructure Development	30	24%
Section 12: Research & Development	16	12%

### Summary Table of Consultation Responses

1.8 Section 2 of this report gives an overview of the comments received. The summary table of comments has been split into the Sections as they appear in the Route Map.

### Overall Response to Individual Commitments

1.9 Section 3 of the report gives the overall response to the individual commitments, summarised in Part 5 of the Route Map. Broad support was given to the vast majority of the commitments.

### Next Steps – The Overarching Wales Energy Strategy

1.10 The Route Map consultation was an important step towards an overarching Wales Energy Strategy. All of the responses will be taken into consideration in the formulation and development of the Strategy, which is due to be published in 2009.

### Request for Sight of Responses

1.11 The Assembly Government has copied and scanned the individual responses to the consultation. A CD ROM of the responses can be made available on request from;

Renewable Energy Route Map Consultation  
 Welsh Assembly Government  
 Sustainable Energy Wales  
 Cardiff  
 CF10 3NQ

[energywales@wales.gsi.gov.uk](mailto:energywales@wales.gsi.gov.uk)

Sustainable Energy & Industry  
 15 December 2008

## 2. Sector Summary – Overview of comments received

<b>BIOMASS COMMENTS</b>	
<b>Combined Heat &amp; Power</b>	<ul style="list-style-type: none"> <li>• Support for combined Heat and Power (CHP) schemes, agreeing that they can make a major contribution to energy saving. Evidence suggests that carbon benefits are greatest when biomass is used for heat and/or combined heat and power.</li> <li>• Support for community CHP.</li> <li>• Urge the Welsh Assembly Government to refocus a greater element of the Route Map on combined heat and power.</li> </ul>
<b>District Heating Schemes</b>	<ul style="list-style-type: none"> <li>• Biomass district heating schemes present an opportunity for affordable, green and secure heat supply and should be supported by WAG</li> </ul>
<b>Grants</b>	<ul style="list-style-type: none"> <li>• Suggest that grants should be available to facilitate local biomass heat and CHP schemes.</li> <li>• Grant schemes are often too complicated and therefore discourage candidates.</li> <li>• Questions the public funding of a grant scheme to encourage expansion of energy crops.</li> </ul>
<b>Land Displacement/ Food production/ Food Prices</b>	<ul style="list-style-type: none"> <li>• Route Map should mention the possible adverse consequences of displacing food production with biomass production both in Wales and from a global perspective.</li> <li>• Although the EU encourages biofuels the impact from the development of crops for this purpose will curtail the amount of land available for food crops in some of the world's poorest countries, which may result in the rise of food prices globally.</li> <li>• Question the impact on current use of our land by increase in bioenergy</li> </ul>
<b>Carbon Neutral</b>	<ul style="list-style-type: none"> <li>• Carbon Life-cycle accounting applies equality to all forms of renewable energy.</li> <li>• Does not consider biomass to be carbon neutral.</li> </ul>
<b>Timber Production/ Sustainability</b>	<ul style="list-style-type: none"> <li>• Wood demand in Wales has outstripped supply.</li> <li>• Wherever possible, higher value uses should be found for wood timber.</li> <li>• Important that the finite supply of biomass is used efficiently.</li> <li>• All biomass should come from a certified sustainable source.</li> <li>• The sector needs to develop sustainably. Essential that the issues of availability, sustainability and cost are resolved before deployment plans for biomass plants are finalised.</li> </ul>
<b>Standards</b>	<ul style="list-style-type: none"> <li>• Appropriate safeguards need to be in place to ensure the sustainability of biofuels and bio-derived platform chemicals. WAG are urged to work with the UK Government in developing these standards.</li> </ul>
<b>Hierarchy</b>	<ul style="list-style-type: none"> <li>• Broad support for a hierarchy approach.</li> </ul>

<b>ROCs</b>	<ul style="list-style-type: none"> <li>• No ROC scheme to assist the heat market.</li> <li>• While the ROC allocation to co-fired biomass is so low, and energy crops are so expensive and hard to secure, there is no incentive to make investments.</li> </ul>
<b>Local &amp; Imported Biomass</b>	<ul style="list-style-type: none"> <li>• Concerned about the intention to import biomass energy fuel stocks, in relation to cost and carbon emissions.</li> <li>• Biomass projects based on imported stocks are not sustainable.</li> <li>• Believe that biomass energy fuel stocks should be sourced as close as possible to the point of use.</li> <li>• Concerned that imported biomass, even from certified sustainable woodland sources, leads to carbon emissions from the marine transportation involved.</li> <li>• Route Map does not assess the impact of importation.</li> </ul>
<b>Markets</b>	<ul style="list-style-type: none"> <li>• Concerned that the emerging biomass market is not developing coherently with a need to better integrate the markets for boiler technology and fuel supply.</li> </ul>
<b>Sustainable Heat Strategy</b>	<ul style="list-style-type: none"> <li>• Believe Wales would benefit from a sustainable heat strategy to drive increased efficiency and press for a renewable heat incentive.</li> </ul>
<b>Diversification</b>	<ul style="list-style-type: none"> <li>• Energy crops are undervalued in the route map although they present an opportunity for farm diversification, rural regeneration and secure fuel supply.</li> </ul>
<b>Biodiversity</b>	<ul style="list-style-type: none"> <li>• Recognise the potential biodiversity benefits.</li> </ul>
<b>Transport Fuel</b>	<ul style="list-style-type: none"> <li>• Little mention is made of the energy required for transport which is very significant.</li> <li>• 2<sup>nd</sup> generation road transport biofuels are potentially more efficient and more sustainable, but are not mentioned</li> </ul>
<b>Biomass vs Biofuels</b>	<ul style="list-style-type: none"> <li>• Feel that Route Map creates confusion between biomass and bio-fuel crops in respect of their potential environmental impact.</li> </ul>
<b>Large-Scale Biomass</b>	<ul style="list-style-type: none"> <li>• Large scale sustainable biomass is supported</li> <li>• Question the support for large scale biomass projects as these are not the most efficient use of biofuels.</li> </ul>
<b>Biomass Strategy/ Action Plan</b>	<ul style="list-style-type: none"> <li>• Strategy and Action plan supported – this can be built on 2002 Biomass Action Plan.</li> <li>• Should concentrate on smaller plants and avoid areas with poor air quality.</li> <li>• Biomass figures in Annex A are seen as premature.</li> </ul>
<b>Arable Crops</b>	<ul style="list-style-type: none"> <li>• Agreement that arable biofuel crops are not appropriate to Wales.</li> </ul>
<b>Supply Chain</b>	<ul style="list-style-type: none"> <li>• Right policies needed to establish supply chains, engagement with farming communities is vital</li> <li>• Much commercial interest in Wales. Constrained by lack of policy direction and economic climate.</li> </ul>

<b>MARINE: TIDES &amp; WAVES COMMENTS</b>	
<b>Marine Potential</b>	<ul style="list-style-type: none"> <li>• Support the view that Wales has considerable potential for marine, wave &amp; tidal technologies and the opportunity to provide predictable energy supply.</li> </ul>
<b>Tidal Lagoons</b>	<ul style="list-style-type: none"> <li>• Welcome proposal for tidal lagoon competition.</li> <li>• Consideration should be given to former sites.</li> <li>• Suggestion that there is already a well developed and assessed plan for a tidal lagoon in Swansea Bay.</li> <li>• Question why there is no mention of Swansea Bay proposal.</li> <li>• Welcome Rhyl proposal.</li> </ul>
<b>Severn Barrage</b>	<ul style="list-style-type: none"> <li>• Support the current work to undertake the feasibility study for a Severn tidal power project,</li> <li>• Welcome WAG commitment to ensure that the environmental impacts of the proposed Severn Barrage and similar proposals “will be fully tested”.</li> <li>• Does not expect that the Severn Barrage could be delivered by 2020.</li> <li>• Not commercially viable, without a massive public subsidy.</li> <li>• Concern over the amount of fossil fuel energy to construct</li> <li>• Concerned over heavy reliance on a prospective Severn Barrage towards achieving the RERM marine target and 33twh target.</li> <li>• Costly and unsustainable choice of technology for the estuary.</li> <li>• Direct impact on the Severn Estuary Special Protection Area and proposed Special Area of Conservation, and the rivers Wye and Usk sacs.</li> <li>• Concerns over the poor load factor and the ability to generate electricity at an acceptably low cost.</li> <li>• Fears that wider support to the renewables industry will be negated if the estimated £15bn Severn Estuary Tidal Barrage is developed.</li> <li>• Believes that the Route Map inflates the carbon savings from a Severn barrage.</li> <li>• RERM fails to discuss separately in sufficient details the potential power generation from marine sources absent from a Severn Barrage.</li> <li>• Development of a Severn Barrage would bring about the need for significant reinforcement of the transmission system both in south Wales and England.</li> </ul>
<b>Strategic Environmental Assessment (SEA)</b>	<ul style="list-style-type: none"> <li>• Suggest strategic environmental assessment (SEA) should be undertaken.</li> </ul>
<b>Marine Action Plan</b>	<ul style="list-style-type: none"> <li>• Strong support for a Marine Action Plan</li> <li>• Plan to include general and specific measures and focus on all marine technologies.</li> <li>• Plan to provide a strategic overview of the technologies potential.</li> <li>• WAG will need to demonstrate equality of support in order to avoid unduly distorting the market.</li> </ul>

<p><b>Marine Research</b></p>	<ul style="list-style-type: none"> <li>• Supportive of the further research that has been conducted by the Welsh Assembly Government to better understand how tidal stream and wave technologies could be further developed with minimal impact on marine ecosystems.</li> <li>• Support WAG decision to commission a comprehensive study to collate all relevant environmental data for the seas of Wales.</li> </ul>
<p><b>Marine Bill/ Marine Planning</b></p>	<ul style="list-style-type: none"> <li>• Marine Bill should improve the legislative and regulatory framework.</li> <li>• Future framework for marine planning must include marine renewables.</li> <li>• Further work needed relating to renewable energy that transcend administrative and land boundaries.</li> <li>• Marine Spatial Planning must be underpinned by a Strategic Environmental assessment (SEA)</li> </ul>
<p><b>Marine Feasibility Studies</b></p>	<ul style="list-style-type: none"> <li>• Welcomes WAG’s commitment to undertake studies.</li> <li>• Environmental, Economic and social impacts should be examined with great care.</li> <li>• Full consultation should be undertaken with stakeholders and preservation bodies.</li> <li>• Important not to create too many 'no go' areas during this process.</li> </ul>
<p><b>Marine Targets</b></p>	<ul style="list-style-type: none"> <li>• Energy generation targets for wave and tidal alone appear to be very high. Majority of projects being planned on tidal and wave are around 10MW so a target for Wales of 1000 – 2000 mws looks very high.</li> <li>• Marine technology, with the exception of a tidal barrage, is a long way away from making a large contribution to renewable generation before 2025 - disproportionate focus on marine technologies would be ill advised.</li> <li>• WAG must give continued support in terms of facilities, planning and economics to the emerging sector if tidal stream is to generate 1GW of renewable electricity by 2025. Document fails to argue justification for leaving the development of gigawatt scale tidal stream until after 2020.</li> </ul>
<p><b>Marine Energy Output Table</b></p>	<ul style="list-style-type: none"> <li>• Table appears to be over optimistic.</li> <li>• Disappointment that tidal stream and tidal lagoon are not expected to contribute to the energy mix.</li> </ul>

<b>HYDRO POWER COMMENTS</b>	
<b>Pumped Storage</b>	<ul style="list-style-type: none"> <li>• Support recognition that pumped storage can be considered renewable if the energy used to pump comes from renewables.</li> <li>• Does not agree that pumped storage could be considered renewable.</li> <li>• For clarity it should be emphasised that pump storage plants are not the same as electricity generating stations.</li> <li>• Document does not identify current proportionate use of pumped storage facilities.</li> </ul>
<b>In-River-Hydro</b>	<ul style="list-style-type: none"> <li>• Welcome the commitment to explore the scope of more in-river hydro with EAW.</li> <li>• Support for local in-river schemes.</li> <li>• Gives options for farmers to diversify.</li> <li>• Consents process needs to be streamlined and barriers to development need to be removed.</li> <li>• EA charges and fees are prohibitive.</li> <li>• Unlike water abstracted for agricultural use – water can frequently be returned to the watercourse down stream.</li> </ul>
<b>Small-Scale &amp; Community Hydro</b>	<ul style="list-style-type: none"> <li>• Welcome the support of small scale hydro.</li> <li>• Potential exists for small scale hydro.</li> <li>• Useful for RERM to explain how community hydro will work in practice.</li> <li>• Ideal energy source for farmers.</li> <li>• Advantage over community wind – no visual impact and more environmentally friendly.</li> <li>• Grid connection and development costs make it unlikely that small scale will be economic.</li> </ul>
<b>Large Scale Hydro</b>	<ul style="list-style-type: none"> <li>• Suggests Wales is capable of producing sites with a 300kw yield, but the economics are marginal even with ROCs.</li> </ul>
<b>Hydro Feasibility Study</b>	<ul style="list-style-type: none"> <li>• Welcome joint study with Whitehall.</li> <li>• Suggest adequate studies have already been conducted.</li> <li>• Suggest WAG fund a full survey of all potential sites.</li> <li>• Suggest LAs and EA work in partnership to investigate any potential hydro schemes.</li> <li>• Feasibility to focus on small scale schemes.</li> </ul>
<b>Hydro Potential Output Table</b>	<ul style="list-style-type: none"> <li>• Consider that a more ambitious potential could have been identified.</li> </ul>
<b>Map</b>	<ul style="list-style-type: none"> <li>• Map illustrating the HEP schemes in Wales is out of date. More schemes are on line than those identified on map.</li> </ul>

<b>ENERGY FROM WASTE COMMENTS</b>	
<b>Anaerobic Digestion</b>	<ul style="list-style-type: none"> <li>• Significant support for the proposals for recovering waste using anaerobic digestion.</li> </ul>
<b>Waste Reduction</b>	<ul style="list-style-type: none"> <li>• The RERM has ambitions for waste to be an energy source but the Assembly's Waste Strategy requires that the production of waste be minimised - caution is required to avoid giving a reason for not reducing waste because it could be burnt as a renewable fuel.</li> </ul>
<b>Farm Waste</b>	<ul style="list-style-type: none"> <li>• Welcome recognition of the potential for farm waste to generate energy.</li> <li>• Use of biodigestors on farm or in rural communities has the additional benefit of aiding farm waste management and pollution control.</li> <li>• Need for Government to help make it more accessible through grant schemes and R&amp;D.</li> </ul>
<b>Zero- Waste/ Minimising Waste</b>	<ul style="list-style-type: none"> <li>• WAG should be working towards the goal of achieving a zero-waste Wales.</li> <li>• Priorities should be minimising waste and encouraging more recycling of resources.</li> </ul>
<b>Incineration</b>	<ul style="list-style-type: none"> <li>• Opposition to the generation of energy from waste where this is achieved by the incineration of municipal, commercial or public sector waste.</li> <li>• Concerns that incinerators do not produce renewable energy.</li> <li>• Incineration discourages recycling.</li> <li>• Incineration is not energy efficient.</li> </ul>
<b>Annex F - Sources of Waste</b>	<ul style="list-style-type: none"> <li>• The material on Anaerobic digestion could be referenced better in the main body of the report.</li> <li>• Support for the 30% cap.</li> <li>• 30% cap will limit the facility's ability to divert waste from landfill.</li> <li>• Concern that 70% for recycling and composting is unachievable.</li> </ul>
<b>Environmental Benefit</b>	<ul style="list-style-type: none"> <li>• Agree the selective use of energy from waste facilities for residual waste disposal can offer a number of environmental benefits.</li> </ul>
<b>Operating Standards</b>	<ul style="list-style-type: none"> <li>• Support the identification that EfW plants need to meet stringent operating standards.</li> </ul>
<b>Community Engagement</b>	<ul style="list-style-type: none"> <li>• Welcome the support for community engagement.</li> </ul>

<b>Energy Waste Tool Kit</b>	<ul style="list-style-type: none"><li>• Support for the tool kit for use by LAs.</li></ul>
<b>Best Practice Guide</b>	<ul style="list-style-type: none"><li>• Welcome the commitment to produce a best practice guide.</li><li>• Suggest a best practice design guide.</li><li>• Should highlight the advantages of siting EfW plant so that heat can be productively utilised.</li></ul>
<b>Wales Waste Strategy</b>	<ul style="list-style-type: none"><li>• EfW capacity as an economic activity and should not be used to undermine the growing success of the Wales Waste Strategy.</li><li>• Development of energy from waste infrastructure is needed to support WAG waste policy, this should be addressed in the Strategy.</li></ul>

<b>WIND: ONSHORE &amp; OFFSHORE COMMENTS</b>	
<b>Support for Wind/ Education</b>	<ul style="list-style-type: none"> <li>• Welcome the recognition that wind energy is the most readily available commercial technology and that Wales has good wind and land resource to make use of it.</li> <li>• Local Planning Authorities, stakeholders and general public need to be made aware that onshore wind offers the greatest potential for increasing the generation of low cost electricity from renewable energy in the short to medium term.</li> </ul>
<b>Targets/ Interim targets</b>	<ul style="list-style-type: none"> <li>• There is concern with the poor progress against TAN 8 targets.</li> <li>• Would like to see clear, realistic interim milestones towards achieving the TAN 8 targets.</li> <li>• Given the UK Government's commitment to dramatically increase offshore wind developments, and the potential contribution from offshore wind, the capacity for off shore wind seems to be low.</li> <li>• The offshore wind target for 2025 seems to be set at a level below that already built and/ or consented.</li> <li>• Meeting targets will depend upon the availability of suitable sites, both within the existing SSAs and possibly within new areas that might become available.</li> <li>• Targets depend on strengthening grid connections in the three distinct supply regions of North, Central and South Wales via England.</li> <li>• Recommend Government undertake an urgent assessment. Following this assessment, the figures for installed generation capacity for each technology may need to be revised downwards to give a more realistic picture.</li> <li>• The existing targets for renewables need a significant upward revision and the strategies, policies and processes to support these revised targets will also need critical examination.</li> <li>• Welcome further information on the figures for onshore and offshore wind, and how these were calculated.</li> <li>• Lack of progress can be contributed to the refinement of the Strategic Search Areas identified by WAG, by the LAs. Some refinements to SSAs by LAs are not in line with TAN8 Annex D guidance.</li> <li>• Significant percentage of the 2010 target could be met, if action is taken to ensure that the planning system delivers renewable energy projects.</li> <li>• If TAN 8 with enhanced targets is to be effective then those involved in the planning system must be made aware of the urgent need to deliver projects.</li> </ul>
<b>SSAs</b>	<ul style="list-style-type: none"> <li>• If targets are to be achieved the SSAs will require expansion projects and go through the planning process quicker.</li> <li>• The map of the report 'November 2007' is misleading as the SSAs have been reduced due to the refinement exercise.</li> </ul>
<b>TAN 8</b>	<ul style="list-style-type: none"> <li>• Welcome WAG's commitment to continue to pursue the proposals in TAN 8.</li> </ul>

	<ul style="list-style-type: none"> <li>• Urge the Assembly Government to abandon TAN 8 and the present policy on on-shore wind and concentrate on promoting and aiding the development of other forms of clean energy.</li> <li>• TAN 8 guidance is confusing in some parts.</li> <li>• TAN 8 promotion of wind turbines in small rural communities is divisive, difficult to manage and counter productive.</li> <li>• TAN 8, has resulted in undermining democracy.</li> <li>• Call for a moratorium on the development of wind farms.</li> </ul>
<b>Review of TAN 8</b>	<ul style="list-style-type: none"> <li>• Concern is expressed to the revising of targets upwards.</li> <li>• More research and monitoring of impacts needed before a review of TAN 8.</li> <li>• While the review of TAN 8 will revise upwards the old targets for renewable energy it is difficult to see how this can be realistically achieved if those areas are shrinking through Local Planning Authority refinement.</li> <li>• Support for the proposed revision of TAN 8 and welcome the intention to increase targets and review TAN8.</li> <li>• Suggest targets are revised now without delay.</li> <li>• Recognise the role that TAN8 has played in supporting further development of onshore wind projects across Wales.</li> <li>• A review of TAN8 should be subject to Strategic Environmental Assessment.</li> </ul>
<b>Annex E</b>	<ul style="list-style-type: none"> <li>• Concerns that Annex E of the Route Map, which the report claims to outline the scale of potential for commercial wind-farms, provides an overoptimistic picture.</li> <li>• Welcome further information on the figures for onshore and offshore wind and how these were calculated.</li> <li>• Table at Annex E is misleading in that a proportion of the schemes are mutually exclusive, technically unfeasible or unlikely to come to fruition for other reasons.</li> </ul>
<b>Efficiency/ Intermittency</b>	<ul style="list-style-type: none"> <li>• Wind is intermittent, this means that to ensure security of supplies the network must carry conventional plant, ready to run when the wind resource is not available. Does not appear to be a very sustainable energy policy.</li> <li>• Unpredictable power sources make it essential that the level of spinning reserve from predictable, mainly conventional, sources is maintained. This reality challenges the whole ethos of wind being a CO2 free energy source. Providing spinning reserve is not only costly but inefficient and heavily polluting.</li> <li>• Wind has an exceedingly low load factor and does serious damage to the environment. It is misleading to quote from the experience of mainland Europe. Britain is an island nation and lacks the flexibility of transmission that these countries enjoy.</li> <li>• Given the very common misconception that a 30% load (or capacity) factor means that the turbine is only working for 30% of the time. More explanation needed.</li> <li>• The Grid requires a constant supply. Because wind is inconsistent, most wind generated energy is wasted.</li> </ul>
<b>Network Capacity/ Transmission</b>	<ul style="list-style-type: none"> <li>• Investment is needed in the transmission system if targets are to be met for wind.</li> <li>• No network capacity in Mid Wales.</li> <li>• Concerns over the lack of network capacity (Transmission or</li> </ul>

	<p>Distribution of sufficient capacity) in Mid Wales. Further significant investment in, and the development of, the transmission system is needed.</p>
<b>Definitions</b>	<ul style="list-style-type: none"> <li>• Para 7.3 refers to off-shore wind farm of 100MW as ‘moderate size’. Useful to make a more explicit distinction of size definitions between onshore and offshore wind, to resist confusion. Suggests addition of a glossary to emphasise the distinction in language according to on-shore or off-shore developments.</li> <li>• Useful if WAG could comment on “intermittency” and “spinning reserve” in this section, so as to help dispel anti-wind myths.</li> <li>• The definition of Community Schemes needs to be addressed by WAG and not by local planning authorities as suggested</li> </ul>
<b>Forestry Land in SSA Areas</b>	<ul style="list-style-type: none"> <li>• Does not agree with the loss of carbon absorption through tree felling to accommodate wind farms.</li> <li>• Support “keyholing”, however, this could lead to turbines being exposed above the top of the trees. Increasing the SSAs is preferable to seeking new sites.</li> <li>• There are significant technical and commercial issues still to overcome to “key-hole” turbines into forestry.</li> <li>• Forestry Commission tender process has contributed to the lack of progress in achieving current targets.</li> </ul>
<b>Offshore Wind</b>	<ul style="list-style-type: none"> <li>• A UK-wide SEA for offshore wind will make development proposals and strategic planning easier and more straight forward – reducing uncertainty and smoothing the planning process.</li> <li>• Off-shore projects should be prioritised, as wind speeds are more regular than on-shore.</li> <li>• Wind farms in huge concentrations offshore which are sufficiently far from the coast for them not to be seen is the way forward.</li> <li>• Suggests the technology is available to put floating windmills far out at sea, lessening objections and visual impact.</li> </ul>
<b>SSAs and National Parks</b>	<ul style="list-style-type: none"> <li>• Welcome the decision to exclude National Parks from Strategic Search Areas.</li> <li>• Whilst National Parks and Areas of Outstanding Natural Beauty are not included in TAN 8 Strategic Search Areas, it should be acknowledged that some degree of visual impact is unavoidable and therefore acceptable.</li> </ul>
<b>Impact on Landscape/ Environment</b>	<ul style="list-style-type: none"> <li>• Wind farms can make a substantial impact on landscape with many people finding them visually objectionable.</li> <li>• Dispute the implication in paragraph 7.7 of the route map that onshore wind developments leave little permanent legacy. It is not necessarily straight forward to reverse soil and habitat losses and some infrastructure may remain even once turbines are removed.</li> <li>• Strongly disagree with tan 8 and the damage on-shore wind farms are causing to the communities and landscape of wales.</li> <li>• The damage to the landscape and countryside is too great a sacrifice to pay for the miniscule benefits from the technology.</li> <li>• The people who live in wind farm areas should have a stronger</li> </ul>

	<p>say in their local landscape.</p> <ul style="list-style-type: none"> <li>• It is accepted that most on-shore wind farms will make significant changes to the landscape in which they are situated.</li> </ul>
<p><b>Strategic Search Areas (SSAs)</b></p>	<ul style="list-style-type: none"> <li>• We support the use of SSAs to guide development of onshore wind power development.</li> <li>• Any amendment to SSAs should respect environmental limits and should not extend the areas further than is absolutely necessary.</li> <li>• The principle of SSAs, established under TAN8, can support the achievement of Assembly Government renewable energy aspirations.</li> <li>• Support the use of SSAs to guide development of onshore wind power development.</li> <li>• Any review of the SSAs should consider the location of carbon rich soils and refine the areas as necessary to safeguard soil carbon.</li> </ul>
<p><b>Community Benefits</b></p>	<ul style="list-style-type: none"> <li>• Support the fact that wind developers should give a package for community benefits, administered by not-for-profit bodies. Guidance should be issued to planning authorities to ensure that substantial contributions are made.</li> <li>• Dividends with communities need to be robust and appropriate to avoid feelings of exploitation.</li> <li>• TAN 8 makes reference to community benefit funds being utilised to fund additional carbon reduction measures. Reference should be made in this document to such.</li> <li>• Community benefits derived from wind farm developers should not be a mandatory requirement.</li> <li>• Community benefits have been used to split the community.</li> </ul>
<p><b>Community Owned</b></p>	<ul style="list-style-type: none"> <li>• The limit set on community-owned wind farm schemes discourages larger community-owned schemes and community-owned schemes within strategic sites.</li> <li>• Community schemes should not be restricted to 3 turbines and should not be restricted by MW capacity or blade tip height.</li> <li>• It appears that it has already been decided that communities can only 'own' a very small number of community owned wind projects, which goes against the entire concept of sustainable development.</li> <li>• Would welcome additional support for community-owned ventures such as making publicly owned land more readily available.</li> <li>• No practical reason why even large-scale developments cannot be conceived, developed and led by community-owned organisations.</li> <li>• The main emphasis should be to enable and promote widespread use of small community-based schemes, and individual micro-generation schemes from wind power.</li> <li>• Small developments are unlikely to be cost effective and have proved unreliable. Plus the connection to the National Grid will be very costly for remote developments.</li> <li>• Screening decisions by local planning authorities, requiring even one or two turbine developments to carry out a full EIA, require a prohibitive amount of risk capital for most communities.</li> </ul>

	<ul style="list-style-type: none"> <li>• Suggest that the definition of 'community schemes' should include an enhanced contribution to the local community along with the option for local residents to be able to invest in the scheme.</li> </ul>
<b>Use of Convergence Funds</b>	<ul style="list-style-type: none"> <li>• The proposal to develop a strategic convergence fund to deliver a series of community scale wind farms is extremely welcome.</li> <li>• Preference that convergence fund support for community based wind renewable developments should not be technology specific.</li> </ul>
<b>Carbon Cost</b>	<ul style="list-style-type: none"> <li>• Concerns about the carbon cost of the manufacture, transport and construction of wind farms.</li> <li>• Concerns over the release of carbon from turbines built on peat lands.</li> <li>• Concerns that the carbon equation is being ignored.</li> <li>• House of Lords Inquiry has been set up to look at the financial cost of renewables. This needs to be extended to the carbon cost of subsidy.</li> </ul>
<b>Tourism</b>	<ul style="list-style-type: none"> <li>• Concerned that no studies of the cumulative effects of wind farms on welsh tourism.</li> <li>• Promotion of turbine development s will impact on tourism.</li> </ul>
<b>Research</b>	<ul style="list-style-type: none"> <li>• Believe the scientific background to wind power policies have not been established before embarking on policy, and the wider issues have not been carefully considered.</li> <li>• Believe WAG has promoted a technology without subjecting it to objective research. Serious questions are being raised by numerous reputable bodies challenging the ability of wind to deliver a secure, affordable and predictable energy supply.</li> <li>• Suggest all renewable action plans, including research studies are drawn together before anymore wind farms are developed.</li> </ul>
<b>Map</b>	<ul style="list-style-type: none"> <li>• Question accuracy of wind farm location map. No mention of existing wind farms in Bridgend and Port Talbot.</li> <li>• Map should include the boundaries of the National Parks.</li> <li>• Map is misleading as it continues to show the original Strategic Search Areas as they appeared in the TAN 8 document, rather than the lpas refined areas.</li> <li>• The reductions in strategic areas mean that many sites shown on the map as 'Preapplication Wind Farms' and 'Application Wind Farms' are no longer within the ssas (refined areas) and are therefore likely to be refused.</li> </ul>
<b>Planning</b>	<ul style="list-style-type: none"> <li>• The planning process needs to be revised to help speed up the process by which developers can apply and implement wind farms.</li> <li>• Concerns over the degree to which Local Authorities have been able to refine the strategic search areas.</li> <li>• Concerned with negative attitudes and practices of some local planning authorities towards wind farm projects.</li> <li>• Local Planning Authorities need to be firmly aligned with the objectives and policies of the Assembly, in order to facilitate progress. Failure to encourage appropriate wind farm</li> </ul>

	<p>developments of all sizes in wider areas than the SSAs heightens the significant risk of missing both current and future targets.</p> <ul style="list-style-type: none"> <li>• Local authorities planning departments should be resourced so that applications are dealt with within normal planning deadlines.</li> <li>• The Route Map should include proposals for dealing with planning delays.</li> <li>• Planning consent for electricity grid connections should be considered at the same time as the planning application to erect the turbine.</li> <li>• Does not agree with the piecemeal approach to planning applications, process should be streamlined. Points like transport to site or power being transferred to the National Grid considered earlier in the process or part of the same application.</li> <li>• WAG must provide additional resource in terms of training (on technical issues for Officers and more general training for Councillors) and additional Planning Officers to deal with the planning applications more speedily.</li> </ul>
<p><b>ROCs</b></p>	<ul style="list-style-type: none"> <li>• There is no mention of the additional costs relating to ROCs in monetary terms. Public have a right to be informed of these.</li> </ul>

<b>ENERGY EFFICIENCY &amp; MICROGENERATION COMMENTS</b>	
<b>Solar</b>	<ul style="list-style-type: none"> <li>• Photovoltaic is the least effective of all technologies in the UK as well as the most expensive.</li> <li>• Recommend permitted development of Roof mounted solar heat and solar (photo-voltaic) electric panels on all properties excluding listed.</li> <li>• Surprise is expressed at the little consideration of solar energy.</li> <li>• It is suggested that while the technology is still too expensive in many applications.</li> <li>• It is thought that photo voltaic panels as listed in Appendix D are very expensive.</li> <li>• Suggests more investment in solar power.</li> <li>• The main aim for domestic micro-generation should be solar water heating, rather than solar electricity generation – it gives the quickest payback in energy terms, causes less pollution, and there are no problems linking back into the grid/local supply.</li> <li>• Solar water heating could do with greater prominence in this section given that it is by far the most cost/resource effective of the currently available technologies and is compatible with all other measures</li> </ul>
<b>Microgen Potential</b>	<ul style="list-style-type: none"> <li>• It is thought that renewable energy at the community level has far greater potential for affordability.</li> <li>• The benefits of microgeneration to the average member of the public are questioned due to their costs and technical difficulties.</li> <li>• It is thought that microgeneration will be a key factor in meeting energy demands, particularly in domestic buildings. It is therefore suggested that it form a large part of Wales' carbon reduction targets.</li> <li>• Agree with RERM position on tackling energy inefficiency and welcomes the Route Map's encouragement of microgeneration. Potential for microgeneration in Wales is severely underestimated by the authors of the Route Map.</li> </ul>
<b>Barriers</b>	<ul style="list-style-type: none"> <li>• Document fails to identify the barriers for PV generation by 2020.</li> <li>• No reference to overcoming the barriers that exist.</li> <li>• Affordability and accessibility are identified as the main barriers to reaching this potential.</li> <li>• Action is taken to make it easier for domestic producers to connect to the grid.</li> <li>• Payback times are still too long to make microgeneration seem like a sensible investment for most consumers.</li> </ul>
<b>Sector Skills</b>	<ul style="list-style-type: none"> <li>• Already an effective micro-generation equipment supply and fitting sector.</li> <li>• Collaboration with the Sector Skills Council to ensure a sufficient skills base exists for an effective supply industry is supported.</li> <li>• Building skills in the renewable energy sector is vital.</li> <li>• Training courses already exist for installing solar collectors on</li> </ul>

	<p>roofs.</p> <ul style="list-style-type: none"> <li>• The skills needed within the Sector Skills Councils, to ensure an effective micro-generation equipment supply and fitting sector is noted.</li> <li>• Question if this should be replicated within all the sections relating directly to the different energy generating sources?</li> </ul>
<p><b>Feed-in- Tariff Fair Prices</b></p>	<ul style="list-style-type: none"> <li>• Suggest WAG look at the Spanish, French and German model to encourage utilities to pay a fair price for the ‘export’ of locally produced electricity on to the grid.</li> <li>• Support for exploring how a fair feed in tariff could operate in Wales.</li> <li>• Welcome WAG’s interest in encouraging an attractive price for electricity fed back to the grid for home owners in Wales.</li> <li>• Welcome the suggestion that feed-in tariffs in Wales could maximise the potential of microgeneration for energy generation.</li> <li>• Fair price for the export of locally produced electricity will help to make such projects financially viable.</li> <li>• Feeding electricity back into the Grid is a laudable ambition but fraught with difficulties not least because the Grid was not designed to accept input from the ‘end user’.</li> </ul>
<p><b>Ground, Water &amp; Air Source power</b></p>	<ul style="list-style-type: none"> <li>• Recommend that no planning permission required for ground, water and air source powered heat pumps only archaeological survey.</li> <li>• Ground, water and air source heat pumps are also only mentioned briefly in the discussion on microgeneration. It is also thought that ground, water and air source heat pumps are becoming more impressive and could meet all the heating and hot water needs of a property, particularly in off-gas areas. It is suggested that energy used to run the pumps could be offset by wind or solar power on the grid.</li> <li>• Yet to be convinced that air-source heat pumps have any significant part to play in reducing carbon.</li> </ul>
<p><b>Planning guidance</b></p>	<ul style="list-style-type: none"> <li>• Support proposed planning guidance to make micro generation easier to install.</li> <li>• Suggests that planning guidance should also include advice on community micro-hydropower and Farm-scale anaerobic digestion.</li> </ul>
<p><b>Energy conservation/ Reduction in Demand</b></p>	<ul style="list-style-type: none"> <li>• Sustainable Development Commission argues that 30% efficiency savings are achievable now.</li> <li>• Wales must be planning for a down turn in demand by 2025. Energy efficiency policies to date, while welcome, are insufficiently ambitious.</li> <li>• Rising energy demand and wasteful consumption must be addressed urgently. Measures to reduce wasteful energy consumption have been proven to be the most cost-effective way of reducing CO2 emissions.</li> <li>• Energy efficiency and the drive for self sufficiency should not constrain economic growth.</li> <li>• WAG should be pushing for a significant reduction in consumption and a significant increase in energy savings.</li> <li>• Reducing energy consumption effectively means that less</li> </ul>

	<p>energy needs to be generated, and investment and support in this sector should therefore be prioritised over low carbon energy production.</p> <ul style="list-style-type: none"> <li>• Investment in energy efficiency and energy conservation is welcome.</li> <li>• The statement that per capita energy use in Wales is lower than the UK average is questioned and should be revised.</li> <li>• Increasing awareness of personal energy consumption should lead to a better understanding of the benefits of an integrated approach to energy conservation and micro-generation.</li> <li>• First priority is to achieve further improvements to the fabric efficiency of new homes. Believe that it may be possible to achieve a standard of fabric efficiency that equates to that required for carbon emissions of somewhere between Levels 3 and 4 of the Code for Sustainable Homes.</li> <li>• Greater use needs to be made of building regulations and incentives to encourage domestic and industrial users to use energy more wisely.</li> </ul>
<p><b>Grant Assistance</b></p>	<ul style="list-style-type: none"> <li>• Wales suffers from the lack of a dedicated Welsh grant scheme for microgeneration.</li> <li>• Demand for the Low Carbon Buildings Programme grants outstrips availability massively.</li> <li>• Recommends that WAG investigates how well Wales accesses the Low Carbon Buildings Programme and considers whether a Welsh promoted and run scheme would be better.</li> <li>• WAG must explore how to introduce innovative financing mechanisms that support the refurbishment of existing buildings.</li> <li>• It is suggested that there be financial support to provide incentives for micro-generation and renewables in general.</li> <li>• A procedure should also be developed of how to best integrate available financial resources and grants so that that their full potential is obtained.</li> <li>• More financial support and easier access to grants are required for domestic properties to make renewable energy a viable option.</li> <li>• Without increased financial support, we do not see even the current modest targets for micro-generation in Wales being achieved.</li> <li>• Schemes such as the Low Carbon Buildings Programme, which provide grants for micro-generation, tend to benefit large organisations that have the administrative capacity to apply and obtain them. A much more equitable approach is a reduction in VAT on microgeneration.</li> </ul>
<p><b>Targets</b></p>	<ul style="list-style-type: none"> <li>• It is thought that microgeneration should be an important ambition of the Route Map, and surprise is expressed towards the small contribution from this technology to the projected outputs by 2025.</li> <li>• Micro-generation should be the cornerstone of a renewable energy policy. The target for energy produced by micro-generation should be much higher.</li> <li>• Would like to see a more ambitious programme for micro-generation installation across Wales.</li> <li>• A higher penetration of microgeneration initiatives will result in</li> </ul>

	higher capital and operational costs.
<b>Microgeneration Action Plan</b>	<ul style="list-style-type: none"> <li>• Route Map provides an opportunity to revisit the Microgeneration Action Plan ambition of 300,000 microgeneration technology installations in Wales by 2020.</li> <li>• Welcome the Microgeneration Action Plan and regards it as a strong policy document but, in the context of the Route Map, is concerned that the projected outputs by 2025 represent such a tiny proportion of the planned renewables contribution.</li> <li>• Concerned about the delivery of even the limited planned outputs, and would welcome an update on progress with the Action Plan.</li> <li>• Financial obstacles must be minimised if the Assembly Government’s Micro-generation Action Plan targets are to be met.</li> <li>• A more fundamental shift is required towards a decentralised energy system.</li> <li>• WAG should promote installation of micro-renewables for any premises.</li> <li>• Micro generation is yet to be proven as an economical alternative to home users.</li> <li>• It is not obvious that the mechanism for exporting excess electricity into the distribution network in a controlled way is in place.</li> </ul>
<b>Fuel Poverty</b>	<ul style="list-style-type: none"> <li>• Welcome moves to see expertise and advice provision made available to all households in Wales.</li> <li>• Need for advice services targeted at low-income and other vulnerable domestic consumers.</li> <li>• Vital that the policy instruments designed to meet the renewables targets also protect customers, especially the most vulnerable, from facing excessive or inefficient costs.</li> <li>• The issue of ‘hard to heat’ homes is identified as remaining a difficult problem which has yet to be adequately addressed.</li> <li>• The Wales Energy Strategy needs to tackle fuel poverty through increased energy efficiency.</li> <li>• It is thought that the ethos of CERT will provide particular help to low-income consumers, who spend a larger proportion of their income on energy, alleviating fuel poverty.</li> </ul>
<b>Planning</b>	<ul style="list-style-type: none"> <li>• Planning authorities need to compel developers to include renewable energy features within developments.</li> <li>• Welcome plans to issue Guidance to make microgeneration easier to install.</li> <li>• All proposals for wind turbines in National Park boundaries should be subjected to the normal planning consent process.</li> <li>• Need for Local Planning Authorities to take a lead on promoting and monitoring the uptake of microgeneration, sharing best practice and encouraging a basis of confidence in the new technologies.</li> <li>• The development of microgeneration technology is supported subject to proper planning regulation.</li> </ul>
<b>Smart Metre</b>	<ul style="list-style-type: none"> <li>• RERM should also seek to identify options (including the use of convergence funding) to facilitate the installation of smart meters within SMEs in Wales.</li> </ul>

	<ul style="list-style-type: none"> <li>• Support and agree with the effectiveness of smart meter installation in smes as highlighted by the results of the Carbon Trust Advanced Metering trial.</li> <li>• Supports the rollout of smart metering across Wales and the rest of the UK.</li> <li>• It is also thought that too much is being expected from smart meters.</li> <li>• Clear that smart meters could bring significant benefits.</li> <li>• The roll-out of smart meters should not divert resources from programmes tackling energy inefficient housing.</li> <li>• Smart meters should offer a range of services for vulnerable households, including specialised functions on displays which could send warnings to carers or suppliers should consumption patterns drastically change, or cease.</li> <li>• Customers on Pre-payment systems, who are often some of the poorest households, pay more each year for their energy than those using online direct debit. Smart meters compatible with all forms of payment should address this issue.</li> <li>• Suggest minimum standards for smart meters and consumer protection are set with the fuel poor in mind.</li> <li>• Smart meter installations merits revision and replacement with Feed In Tariff Meters.</li> </ul>
<p><b>Green tariffs</b></p>	<ul style="list-style-type: none"> <li>• Green tariff electricity is not immediately available to everyone so the move to low or non carbon energy sources should be planned to be achieved over a period of time.</li> <li>• Welcome WAG support for work on green energy tariffs.</li> <li>• Consider green energy tariffs to be a red herring if all power is supplied through the National Grid.</li> <li>• Publicity is misleading and green tariffs are not necessarily the best buys.</li> </ul>
<p><b>CERT</b></p>	<ul style="list-style-type: none"> <li>• Urge the Assembly Government to work with energy suppliers to ensure Welsh households receive a fair proportion of the funding available under CERT, and that this is specifically targeted at those with the greatest need.</li> <li>• The commitment should be accompanied by an outline of how this might be achieved, and how CERT spending on microgeneration could be encouraged in Wales.</li> <li>• It is thought that initiatives such as HEES Wales and CERT should be streamlined and used together as complimentary schemes in order to provide more comprehensive support for the range heat and electricity installations available.</li> </ul>
<p><b>Zero Carbon Buildings/ Building Regs.</b></p>	<ul style="list-style-type: none"> <li>• WAG should be planning a major programme to retro-fit energy efficiency into existing homes and building refurbishment projects.</li> <li>• Suggest a programme of overhaul and refurbishment of life-expired and inefficient housing that is already standing.</li> <li>• Welcome reform and simplification of the building Regulations.</li> <li>• Concern over the short time frame to achieve zero carbon buildings in Wales should building regulations become devolved and the higher costs associated with zero carbon buildings will leave the industry at a competitive disadvantage until 2016.</li> <li>• Uncertainty in the business community over the level and rate</li> </ul>

	<p>of change that would follow the planned devolution of building regulations and the impact on the economy of the future compatibility of separate and different Welsh and English building regulations systems.</p> <ul style="list-style-type: none"> <li>• Welcome early engagement with the government during early policy development stages to address concerns.</li> <li>• Would welcome early clarification from WAG on the implications for businesses (such as house builders and surveyors) of the devolution of building regulations.</li> <li>• The prospect of two distinct building regulation systems is not conducive to efficient business planning.</li> <li>• Business in Wales would like to see Wales and England having one target.</li> <li>• Zero carbon aim is challenging and will be resources constrained unless major initiatives are put in place.</li> <li>• We will not be making the needed impact unless and until we get the building regulations we need to ensure all new build (and renovations) are zero carbon.</li> <li>• Zero carbon buildings would be difficult to achieve - aim should be low carbon buildings.</li> <li>• Maintaining the building’s performance after completion will be an issue.</li> <li>• Need to consider community renewables solutions and potentially more remote forms of supply in order to meet the objective of zero carbon homes.</li> <li>• The RAB has established that not all residential developments could achieve a “zero carbon” standard on-site.</li> <li>• Support the recognition of the role of land use planning in moving to a zero carbon economy</li> <li>• Far greater impact could be achieved by targeting and incentivising greater energy efficiency within existing buildings.</li> <li>• Aim is likely to be unachievable in rural areas due to the high cost of materials.</li> <li>• Aim is hard to achieve and expensive, and will not help address the problem of existing building stock.</li> <li>• In order to move rapidly toward the zero carbon target by 2011, the Code for Sustainable Homes should be introduced as soon as possible.</li> <li>• Assembly Government needs to clearly show how Zero carbon can be delivered, and how devolved Building Regulations can help.</li> <li>• Implementation of zero carbon through the devolution of the Building Regulations, is supported.</li> <li>• Urgent need to put more detailed guidance in place on the design standards developers should be expected to provide.</li> <li>• Care be taken so that standards are not imposed on the Welsh house building industry which make development unfeasible.</li> <li>• Wales should adopt the England Code for Sustainable Homes and transition timetable.</li> </ul>
<p><b>NEESP</b></p>	<ul style="list-style-type: none"> <li>• Welcomes WAG’s commitment to produce a National Energy Efficiency and Savings Plan.</li> <li>• National Energy Efficiency and Savings Plan to be published as soon as possible.</li> <li>• Strong recommendation that a strong target for energy demand reduction be introduced as part of this Plan.</li> </ul>

<p><b>SEN</b></p>	<ul style="list-style-type: none"> <li>• The establishment of the SEN as a ‘one-stop-shop’ for consumer advice is welcomed.</li> <li>• The Sustainable Energy Network should be adequately resourced to deliver effective support to the “wider audience”, not simply to “offer a greater scope of guidance”.</li> <li>• It is commendable that the Sustainable Energy Network is building on the work of the Energy Saving Trust and many other organisations.</li> <li>• It is hoped that the establishment of the Sustainable Energy Network service for Wales will help to ensure people have access to clear and accurate advice.</li> </ul>
<p><b>Farming Connect Service</b></p>	<ul style="list-style-type: none"> <li>• Support for farmers via the new Farming Connect service is useful.</li> <li>• Good opportunity for farmers and land-owners to generate diversified income.</li> <li>• It is also suggested that that farmers contacting the Farming Connect service could be signposted to the Energy Saving Trust advice centre Wales for further advice on household energy efficiency, microgeneration and low carbon transport.</li> <li>• Microgeneration may offer opportunities which might lessen the dependence of farmhouses on oil generators.</li> <li>• Welcome the advice for farming families through the new farming connect service.</li> </ul>
<p><b>Public awareness/ Clear information on Microgeneration</b></p>	<ul style="list-style-type: none"> <li>• Public awareness of renewable technologies needs to increase.</li> <li>• Better guidance on micro-generation options for the public would be a good step forward.</li> <li>• Many home-owners are unaware of the options available.</li> <li>• Stakeholders need to produce for information in the public domain and have good examples of what can be done, including demonstration projects to ‘fire public interest’.</li> <li>• Clearer definitions and the use of simple messages is needed. It is thought that many of the definitions and terminology surrounding carbon emissions and climate change can be confusing for consumers. It is suggested that language and terms used should be clearly defined and universally agreed.</li> <li>• More is needed to improve consumer knowledge and awareness.</li> <li>• Better targeted information campaigns.</li> <li>• Showcase homes featuring a range of renewable technologies and efficiency measures should be created, either by the Assembly Government or through funding to Local Authorities.</li> </ul>

<b>LARGE SCALE DISTRIBUTION (OFF GRID) COMMENTS</b>	
<b>De-centralised Systems</b>	<ul style="list-style-type: none"> <li>• Support is given to position outlined on large scale distribution</li> <li>• Concept of a shift towards decentralised and smaller scale energy systems is supported. It is urged that the Route Map set out a clear policy to avoid prolonging reliance on a centralised energy system.</li> </ul>
<b>Devolution of Consenting Powers</b>	<ul style="list-style-type: none"> <li>• Support the devolution of consenting powers for larger energy schemes to Welsh Ministers.</li> </ul>
<b>Support for Community sized Micro-renewables</b>	<ul style="list-style-type: none"> <li>• Welcome the proposal as timely and deliverable in that they can provide useful amounts of energy, reduce demand for energy produced elsewhere.</li> <li>• Community based windfarms have been noticeably unsuccessful with their planning applications, therefore planning guidance needs to be modified to enable more community based wind power.</li> <li>• WAG should use all measures available to them to promote installation of micro-renewables.</li> </ul>
<b>Guide Businesses</b>	<ul style="list-style-type: none"> <li>• The principle of guiding business interested in generating their own renewable energy is fully supported.</li> </ul>
<b>Cathays Park Scheme</b>	<ul style="list-style-type: none"> <li>• Support the commitment to explore the scope for a CHP for Cathays Park.</li> <li>• The Cathays Park area is one where tri-generation may well be worthwhile exploring as there must be significant demand for summer cooling.</li> </ul>
<b>Developing ESCOs</b>	<ul style="list-style-type: none"> <li>• Welsh Assembly Government should be looking to do all that it can to support the effective and efficient roll out of ESCOs And breaking down the barriers that may slow their uptake.</li> <li>• Role of producer groups and ESCOs should not be ignored.</li> <li>• Wales should build up specialist expertise as to how ESCOs can work in practice and share best practice.</li> </ul>
<b>Connection to the grid</b>	<ul style="list-style-type: none"> <li>• Large Scale off-grid distribution still requires ‘a connection to the national grid to ensure power is available should local generation fail’. This issue does not appear to be addressed.</li> </ul>

<b>CONSENTING REGIME COMMENTS</b>	
<b>Consenting powers</b>	<ul style="list-style-type: none"> <li>• Suggest WAG request that consent decisions for installations of over 50MW be transferred to the WAG to determine.</li> <li>• Support is expressed for the Assembly Government to have full consenting power for major infrastructure projects.</li> </ul>
<b>Planning Policy MIPPS, TAN8 &amp; SSAs</b>	<ul style="list-style-type: none"> <li>• The unpopularity of TAN 8 will be exacerbated by the extension to Strategic Search Areas.</li> <li>• Consideration of the designation of future SSAs as part of the existing or amended TAN 8 policy is strongly objected to.</li> <li>• WAG urged to adopt a proactive approach to ensure developers and operators take a strategic approach with the aim of achieving as few lines serving the SSAs as possible.</li> <li>• Suggested that further feasibility studies should be undertaken to assess the contribution of such sites to future energy generation in Wales.</li> </ul>
<b>SSA local refinement/ LDPs</b>	<ul style="list-style-type: none"> <li>• The weight WAG places on TAN8 challenges the democratic process.</li> <li>• An objection is made to the possibility of further definition of SSAs, based on the Ministry of Defence relaxing concerns in areas used for tactical training.</li> <li>• Requirement to include details of locally refined SSA boundaries. Suggests that this seems to be a much stronger statement than any contained in the MIPPS or in TAN 8 - clarification as to which paragraphs in planning policy documents support this statement?</li> <li>• It will be necessary to identify additional SSA to deliver the target.</li> <li>• Concern is expressed about the negative attitudes and practices of some LPAs.</li> <li>• It is thought that some LPAs have been allowed to exceed the scope of 'minor alterations' stipulated by TAN 8. Consequently it is noted that some proposed wind farm developments originally within SSA boundaries have now found themselves outside of them, and facing planning delays and refusals.</li> </ul>
<b>Planning Fees/ WAG Support</b>	<ul style="list-style-type: none"> <li>• Welcomes the prospect of WAG financial support to LPAs with wind farm Strategic Search Areas.</li> <li>• Scale and nature of the support should be agreed with Local Authorities beforehand.</li> <li>• Support should also include a premium to cover the cost of Appeals and Public Enquires.</li> </ul>
<b>Wind Farms in urban/ brownfield sites</b>	<ul style="list-style-type: none"> <li>• Suggested that an additional category of SSA should be established which would allow such sites close to urban areas to be identified and safeguarded for renewable energy purposes.</li> <li>• Support for the exploration of opportunities for wind development up to 25 megawatts in urban / brown field site areas.</li> </ul>
<b>Consultation/ Advertising/</b>	<ul style="list-style-type: none"> <li>• A need is identified for wider public awareness and better</li> </ul>

<p><b>Public Awareness</b></p>	<p>publicised consultation on any wind farm development, as it is thought that the ramifications are not appreciated by the public at large.</p> <ul style="list-style-type: none"> <li>• Welcome greater involvement from the public in the planning process.</li> <li>• Route Map needs to be reinforced at the local decision making level.</li> </ul>
<p><b>Planning Bill/ Infrastructure Planning Commission</b></p>	<ul style="list-style-type: none"> <li>• Considers the proposed Infrastructure Planning Commission will override normal planning procedures. The public must be allowed a greater say in the protection of their environment.</li> <li>• Strong opposition is expressed to the role of the proposed IPC in Wales, and it is not thought that it should be responsible for energy infrastructure decisions above 50 MW in Wales.</li> <li>• Proposals do not address the need for better public debate and participation in the development of national policy statements.</li> <li>• Concerned that the role for the IPC in consents for energy developments in Wales could damage public confidence in the planning system and support for renewable energy.</li> <li>• Does not believe that changes to the planning system for major infrastructure projects proposed in the Planning White Paper are justified and would rather the role of the IPC be carried out by a strengthened Planning Inspectorate.</li> <li>• Support the UK Government’s Planning Reform Bill and believe that the Bill’s proposed approach is a potentially significant step in the right direction. While the Roadmap sends out the right intentions, the current planning system will not deliver on these laudable aims.</li> <li>• Habitats Regulations Assessments and Strategic Environmental Assessment will apply to decisions made by any Infrastructure Planning Commission, as well as to any National Policy Statements on which it relies to make its decisions.</li> <li>• Concern over the proposal for an Infrastructure Planning Commission (IPC). Worried that the lack of public accountability in the new system could jeopardise public support for renewable energy developments and confidence in the planning system.</li> <li>• The Route Map does not reference regarding the approval procedure for grid infrastructure or the function of the IPC with regard to overhead line consents.</li> </ul>
<p><b>Marine Bill/ Marine Planning</b></p>	<ul style="list-style-type: none"> <li>• It is hoped that the Marine Bill will truly safeguard wildlife and protect habitats, and will not develop into an easy licensing department intent on industrialising our seas.</li> </ul>
<p><b>Planning System</b></p>	<ul style="list-style-type: none"> <li>• Comment that the role of the EAW as a competent authority is understated.</li> <li>• Simplification of the current system will save time and money as well as helping to bring about the switch to renewable sources of energy.</li> <li>• The planning system needs to be used much more effectively with a dramatic increase in the rate of approval, at the local level.</li> <li>• The planning system needs to be an enabler rather than an inhibitor, both of private sector investment and for public infrastructure development.</li> </ul>

	<ul style="list-style-type: none"><li>• Local Planning Authorities should be required to decide applications within the statutory period.</li><li>• The delay in delivering the Target of providing 10% of Wales' electricity needs from renewables can be attributed to the town planning system.</li></ul>
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<b>GRID INFRASTRUCTURE DEVELOPMENT COMMENTS</b>	
<b>Mid Wales Grid</b>	<ul style="list-style-type: none"> <li>• Agreement that Mid Wales grid infrastructure needs to be addressed.</li> <li>• Well known gaps in Mid Wales need correcting but North Wales substations also need upgrading to enable new RES generating projects to make their contribution to both national and local energy supplies.</li> <li>• The RERM should make the general public, statutory consultees, Planning officers and elected Members aware of the need for grid upgrades as an integral part of utilising the benefits of renewable energy.</li> <li>• Paragraph 11.1 wrongly assumes that because SSAs have been identified, that grid connections from these areas will be acceptable.</li> <li>• Co-operation must be extended to planners, consultees and communities to secure what will be very challenging consents. With regard to the 400kv grid link for mid Wales, the 132kv lines that will connect wind farms to it should be highlighted.</li> </ul>
<b>Transmission Access Review</b>	<ul style="list-style-type: none"> <li>• Welcome the comments in the RERM concerning Transmission Access.</li> <li>• Currently a significant queue to get transmission capacity to connect new plant.</li> <li>• Concerned that the Transmission Access Review is looking at ways to allocate scarce capacity, including the removal of the firm rights on which generators made investment decisions.</li> <li>• National Grid is committed to implementing new Transmission Access arrangements.</li> <li>• Essential that the current Transmission Access Review is brought to a speedy conclusion and results in access being granted to renewable and conventional energy schemes.</li> <li>• Planning Reform Bill will be a key enabler in the delivery of the transmission system developments.</li> </ul>
<b>Connection preference to low carbon projects</b>	<ul style="list-style-type: none"> <li>• Supports preferential connection to the National Grid for renewable sources of electricity over fossil fuel plants not fitted with carbon capture and storage.</li> <li>• Support consideration of how cost effective grid connections to sparser community developments can best be enabled.</li> <li>• Concern over possible unintended consequences. Priority should only be given where economic and environmental benefits justify it, for example, the cost and emissions associated with network extension or strengthening and back-up fossil fuel plant should be taken into consideration.</li> </ul>
<b>Impacts</b>	<ul style="list-style-type: none"> <li>• It is urged that transmission should always be considered as an integral part of the consent procedure for any wind scheme, as the impacts of transmission can be as damaging as those of the scheme itself.</li> <li>• Potential negative environmental impacts of developing grid infrastructure such as power lines in remote areas.</li> </ul>

	<ul style="list-style-type: none"> <li>• Scrutiny should be given to connections damaging the landscapes through which they pass.</li> <li>• Connections will involve further damaging intrusion into the environment.</li> <li>• Impact of overhead cables should be factored in when the environmental impact of an energy generation plant is being considered. Similarly, the impact of grid construction on land based carbon stores should be minimised.</li> <li>• Concerned that the existing regime results in too great an emphasis being placed on cost with insufficient regard to environmental, health and visual amenity issues.</li> <li>• Wales’ geography and topography militates against any significant expansion of the national grid; the environmental costs are too high.</li> </ul>
<b>Decentralised System</b>	<ul style="list-style-type: none"> <li>• Welcome a study for greater decentralisation in Wales, particularly given the limitations to grid access in some parts of rural Wales.</li> <li>• Better use of microgeneration and decentralised energy provision could reduce the need for new grid infrastructure, and minimise disruption.</li> <li>• Expanding and developing grid infrastructure has the risk of perpetuating reliance on an inefficient, centralised system.</li> <li>• Priority should be to move towards a decentralised energy system.</li> <li>• Local energy networks, held and run by local franchises and social enterprises are the future for Wales. Benefits include a more efficient grid and to the local economy.</li> </ul>
<b>Overhead lines</b>	<ul style="list-style-type: none"> <li>• Opposed to the creation of major new overhead lines within National Park boundaries.</li> <li>• Programme exists for underground low voltage lines e would wish to see a similar programme introduced for high voltage lines.</li> <li>• Consider WAG has not made clear to the public that renewable energy developments must then be provided with the infrastructure to link such development into the grid requiring pylons and cabling straddling the whole of Wales.</li> <li>• New lines need to be built in order to help connect more renewables, and better use needs to be made of existing lines.</li> </ul>
<b>Security of Energy Supply</b>	<ul style="list-style-type: none"> <li>• No mention at all is made of any infrastructure development needed to ensure security of supply given the transitory nature of most off the renewable energy sources discussed.</li> <li>• The Grid system base load generation plant receives hardly a mention in the Route Map despite the fact that the plant margin is getting closer to crisis point.</li> <li>• To secure the economic future of the Country, and meet the needs of large industrial operators, a secure energy supply is required.</li> <li>• The Grid infrastructure development section of the Route Map focuses on meeting the needs of renewable developers rather than include the demand side from industry and business.</li> <li>• Need to ensure that energy supply to industry and business</li> </ul>

	<p>is predictable and reliable.</p> <ul style="list-style-type: none"> <li>• Transmission and Distribution of electricity will be key to enabling the increased levels of renewable and back-up generation required.</li> </ul>
<b>Offshore Connections</b>	<ul style="list-style-type: none"> <li>• Concerns surrounding the connection of offshore wind farms, to the electricity transmission grid networks.</li> <li>• Route Map does not make mention of connections from off-shore developments to the electricity transmission grid networks. A similar approach is required with offshore developments, rather than proceeding piecemeal, as currently happens.</li> <li>• Measures should also be taken to reduce the high costs currently faced by offshore renewable developers and local electricity suppliers to connect to the grid, if it exists near to the renewables resource.</li> <li>• Reference to the need for better collaboration in agreeing 'best' connection methods for offshore wind farms to the energy network is required, with the emphasis shifting to offer greater protection to our beautiful countryside.</li> </ul>
<b>Capacity</b>	<ul style="list-style-type: none"> <li>• Transmission network does not currently have enough capacity or appropriate access rules to meet the renewables target.</li> <li>• The nature of the 275kv system, with its lower capacity, means that there is now very little spare transmission capacity available at this voltage level in south Wales, without significant reinforcement.</li> <li>• North Wales transmission network retains some spare capacity, although it is unlikely that significant further generation projects can be accommodated, without significant investment and transmission system reinforcement.</li> <li>• The expected closure of Wylfa Power Station in 2011 may free up additional capacity.</li> <li>• Government and the regulator need to focus on ways to get National Grid, as the transmission owner, to build capacity that generators are willing to pay for.</li> <li>• NG must be allowed to progress significant investment in new capacity under its price control.</li> <li>• Urge WAG to push BERR and Ofgem to focus on increasing the generation capacity connection rate as quickly as possible.</li> </ul>
<b>Grid connections</b>	<ul style="list-style-type: none"> <li>• Support the consideration as to how cost effective grid connections to sparser community development developments can best be enabled.</li> <li>• Grid Infrastructure Development it is difficult to justify the huge expense of connection to remote areas for wind turbines which have a 25 year lifespan.</li> <li>• The approach being taken in Mid Wales, requiring developers to accept connection offers along with substantial financial commitments, advance of obtaining planning consent, may not result in the infrastructure necessary to export of the renewable energy target levels from within these electrically remote regions of Wales.</li> </ul>

	<ul style="list-style-type: none"> <li>Projects developers with projects situated within SSAs should be encouraged to discuss their project connection needs as soon as possible with rather than proceeding piecemeal.</li> </ul>
<b>North Wales</b>	<ul style="list-style-type: none"> <li>Concern that National Grid believe that if the Wylfa B development does not proceed, new investment in the grid will be unnecessary.</li> <li>Depending on a Wylfa B, this could in itself drive significant transmission system investment and development.</li> <li>This issue is of considerable relevance to North Wales (and beyond) because of the current uncertainty surrounding future new large scale energy generating developments on the Island.</li> </ul>
<b>England &amp; Wales</b>	<ul style="list-style-type: none"> <li>Welsh system should not be considered separately from the English region. The two are totally integrated and operated by National Grid.</li> <li>Further work is needed on issues relating to renewable energy that transcend administrative and land boundaries.</li> </ul>
<b>No change Necessary</b>	<ul style="list-style-type: none"> <li>Does not believe that a fundamental change to Ofgem’s remit is required.</li> <li>Believes that we do not need to plan for, or invest in, any major increase in the National Grid network across Wales as a whole.</li> </ul>
<b>General</b>	<ul style="list-style-type: none"> <li>New routes for the extension of the Grid and Network is needed to support development in the TAN 8 SSAs, are quickly identified, and consulted upon to secure an enduring solution for grid access reform.</li> <li>WAG engage with Ofgem to ensure that charging methodologies and distribution network enhancements promote rather than deter, distributed renewable generation.</li> <li>Case for strategic infrastructure investment, ahead of individual project consent, where there is an overall commitment to strategic targets.</li> <li>Expanding the national grid, as well as relying on an expansion in large scale energy installations is a highly inefficient means of distributing energy.</li> <li>Energy suppliers and distributors should be held by the same public responsibilities as all other public sectors.</li> <li>Significant power loss is not mentioned nor quantified.</li> </ul>

<b>RESEARCH &amp; DEVELOPMENT COMMENTS</b>	
<b>Economic opportunities</b>	<ul style="list-style-type: none"> <li>• Believe the response to climate change presents huge economic opportunities. Wales was one of the first places on earth to industrialise and we should be at the forefront of the transition to a low-carbon economy.</li> </ul>
<b>International opportunities for Wales in marine energy</b>	<ul style="list-style-type: none"> <li>• Proposal to include IBW in exploring opportunities in marine energy is very welcome, but should not be limited to marine energy.</li> <li>• Wave &amp; tidal research and development must be supported with key infrastructure, or other support that makes developing early projects easier. Without a clear path to market, marine device developers will struggle to turn innovation into sustainable businesses.</li> <li>• WAG need to create the market conditions for marine devices to attract investment in Research and Development.</li> <li>• Involve universities on all levels, for example Bangor School of Ocean Sciences in tidal/wave energy technologies.</li> </ul>
<b>Company Wealth Generation</b>	<ul style="list-style-type: none"> <li>• Proposal is very vague and should be made specific, measurable, achievable, realistic and timely in agreement with stakeholders.</li> <li>• Proposal is supported.</li> <li>• WAG's support for the skills agenda should ensure as much as possible of R&amp;D is translated into Welsh jobs.</li> </ul>
<b>Financial support</b>	<ul style="list-style-type: none"> <li>• Suggested that various opportunities for funding this research be pursued, particularly through European Structural Funds.</li> <li>• Welcome support for energy innovations through EU structural Funds.</li> <li>• Welcome substantial financial support for Welsh R&amp;D on sustainable technologies.</li> <li>• Support is also necessary to develop and trial new techniques, processes, materials and equipment.</li> <li>• Support must be broadly available rather than closely targeted to avoid distortion of the market.</li> <li>• R&amp;D development should be directed at feasible, commercial projects.</li> <li>• Not believed to achieve "world class" status on a grant of £5million.</li> <li>• R&amp;D need to come from within business as well as academia - funding support should reflect both sources of expenditure and expertise.</li> <li>• Support should be provided individuals and companies that have or are developing research capabilities and skills within themselves, not just academia.</li> <li>• Support needed for the research and development of new technologies surrounding energy from waste</li> </ul>

<p><b>Other Areas of R&amp;D not mentioned</b></p>	<ul style="list-style-type: none"> <li>• Support the projects listed in the R&amp;D section but the Route Map appears to be missing analysis of the issue of maintaining power supplies at all times. This topic will need research.</li> <li>• Recommend that WAG backs projects to build tidal lagoons in the Severn Estuary as part of its R&amp;D strategy.</li> <li>• Suggested that hydrogen energy is an area of pressing need for research and development, and that this could play a significant role in reducing green house gas emissions, improving air quality and reducing dependency on imported energy supplies.</li> <li>• Hydrogen fuel cells and vehicle fuel not mentioned.</li> <li>• Requirement for more research and therefore more research funding in low carbon transport, including the use of renewable hydrogen.</li> <li>• More research into Carbon capture technologies</li> <li>• Research that should be specifically mentioned is research into industrial scale systems of storing electrical energy.</li> <li>• Practical applications of the lessons learned from research are often ignored.</li> <li>• Section should have included details of how WAG will promote, implement and monitor energy generation projects in Wales, particularly the small-scale and micro-generation projects.</li> <li>• It is noted that activities to mitigate climate change are needed beyond the short term, and a need is identified for sustained research and development now on technology that will have an impact in 5, 10, 20 years and beyond.</li> <li>• Suggested that more funded work be done on the longer term use of fuel pellets in boilers.</li> </ul>
<p><b>General</b></p>	<ul style="list-style-type: none"> <li>• Greater clarification is needed to improve understanding within the section.</li> <li>• Urged to consider the need for an advanced technologies biomass champion to aid the efforts WERC and LCRI.</li> <li>• Cohesive Renewable Energy Planning Strategy is required.</li> <li>• A forum is needed for energy companies to help steer research to those areas that are likely to deliver greatest rewards.</li> <li>• Brecon would be suitable for an energy Technium and eco-park, which would bring additional benefits and inward investment to the area.</li> </ul>

<b>GENERAL COMMENT ON THE RERM &amp; RENEWABLES POLICY</b>	
<b>Renewable energy not renewable electricity</b>	<ul style="list-style-type: none"> <li>• Concern that the Energy Route Map is more akin to a “Renewable Electricity Route Map for Wales”.</li> <li>• More focus needed on renewable energy and not just renewable electricity.</li> </ul>
<b>Targets</b>	<ul style="list-style-type: none"> <li>• Overwhelming support of the Welsh Assembly Government’s aspiration of becoming self sufficient in renewable electricity within 20 years, but urgent progress is required if the 2025 target is to be met.</li> <li>• Route Map should make clear that energy generation targets will be refined in line with the targets in the National Energy Efficiency Savings Plan and the climate change target to be defined by the Climate Change Commission Wales.</li> </ul>
<b>Development /Working document</b>	<ul style="list-style-type: none"> <li>• Route Map should be seen as a working document.</li> </ul>
<b>Obstacles/ Barriers</b>	<ul style="list-style-type: none"> <li>• Route Map fails to address some of the more important issues such as the barriers that will prevent Wales from achieving renewable energy self-sufficiency. In order to meet targets a number of significant barriers are to be overcome including grid access, planning and supply chain constraints. Important that WAG provides a credible and robust framework that enables renewable potential to be explored and utilised within Wales.</li> </ul>
<b>Calculations</b>	<ul style="list-style-type: none"> <li>• Unclear how some of the figures for capacity and output have been calculated. Particularly in relation to the Severn Barrage.</li> </ul>
<b>Back-up Generation</b>	<ul style="list-style-type: none"> <li>• Recognition should be given to the continuing requirement for fossil fuel plants to back up intermittent generation. Priority should be given to those technologies that either do not need back-up– or only require easily managed replacement energy such as tidal and wave power. Reliance on those technologies with uncertain output, such as wind, should be minimised unless it is used on a small scale such as Microgeneration.</li> </ul>
<b>Action Plans/ Reaching Targets</b>	<ul style="list-style-type: none"> <li>• Concerns that the Route Map does not set any clear measures, or describe the process, in which to reach the stated targets of 33TWhr of renewable energy generation by the 2025. Clear, realistic interim targets, with independent monitoring, are needed if these long term objectives are to be met.</li> </ul>
<b>Planning</b>	<ul style="list-style-type: none"> <li>• Little confidence in the planning system. Urgent, robust action is required if ensure the planning system can deliver these targets. Local authorities to play a part in meeting these targets. The low planning approval rates mean that Wales’ 2010 renewable energy target rates will be missed and put even more pressure on the ambitious targets mentioned in this Energy Route Map. Suggests the need for investment in the skills and knowledge of planners to deal with planning applications which are submitted.</li> </ul>

<b>Need to pursue all technologies</b>	<ul style="list-style-type: none"><li>• Welcome WAG’s acknowledgement of the need to pursue every available option if we are to be effective in renewable energy generation.</li></ul>
<b>Need to include all forms of Non-renewables</b>	<ul style="list-style-type: none"><li>• WAG should not underestimate the role that non renewable low carbon generation can play in reducing emissions, whether through more efficient use of fossil fuels, nuclear new build, or carbon capture and storage. All low carbon generation will have to be considered as part of the energy mix. Route Map should include all forms of non renewable low/zero carbon technology.</li></ul>
<b>Carbon Capture</b>	<ul style="list-style-type: none"><li>• Recognition that clean coal and carbon capture are essential for the future and this technology must be developed as soon as possible.</li></ul>

### 3. Overall response to individual commitments

<b>2. Setting the Scene</b>		
1.	be developing a strong 'green jobs' strategy, building on previous skills and economic development initiatives, such as the 'green energy cluster' work and the recommendations of various high level bodies including the Webb review and the economic and skills Ministerial Advisory Groups	<i>Supported</i>
2.	working with our colleges, the relevant sector skills councils and the private sector to ensure Wales has the necessary skills base to enable the rapid transition to a low carbon economy	<i>General Support</i>
3.	ensure maximum use is made of available resources, whether at the UK level as with the Low Carbon Buildings programme, the Carbon Trust, Nesta and much of the Environmental Transformation Fund and, more locally, through the application of EU Structural Funds	<i>General Support</i>
<b>3. BIOMASS</b>		
4.	test the viability of additional local biomass energy in developing axis 2 agricultural proposals	<i>General Support</i>
5.	support larger scale biomass projects where the fuel source is demonstrably sustainable	<i>General Support</i>
6.	support the development of community heat and power units under a new wood energy business scheme- which could be funded through EU Structural Fund programmes	<i>General Support</i>
7.	ask designers and contractors to consider biomass energy schemes in the development of residential and commercial properties on Assembly Government-owned land	<i>General Support</i>
8.	provide advice through the newly formed Sustainable Energy Network on opportunities for community heat and power schemes across Wales;	<i>General Support</i>
9.	encourage all other public sector bodies to support biomass energy developments, where possible through long term feedstock purchase contracts which give growers the confidence to make the necessary investments;	<i>General Support</i>
10.	consider the scope for requiring biomass combined heat and power for larger-scale developments;	<i>General Support</i>
11.	publish for consultation a biomass energy strategy/action plan which fully explores these complexities in the Welsh context. This will also cover the important issue of how to ensure that biomass energy fuel stocks used in Wales, including imports, come from certified sustainable sources;	<i>Supported</i>
12.	explore how the new Better Woodlands for Wales grant scheme could be more closely targeted or arrangements made to encourage cooperative action on the part of groups of farmers to identify and source biomass material for specific initiatives;	<i>General Support</i>
13.	consider the opportunity costs of increased biomass in our Axis 2 review;	<i>General Support</i>
14.	welcome interest from intermediaries who might be able to establish	<i>General</i>

	secure supply chains on which customers could rely;	<i>Support</i>
<b>4. MARINE</b>		
15.	ensure that the future framework for marine planning enables consideration of the role of marine renewables	<i>Supported</i>
16.	ensure that the environmental impacts of the Severn Barrage and other proposals are fully tested	<i>Not Supported</i>
17.	support opportunities for and encourage marine feasibility studies and research	<i>Support</i>
18.	examine whether EU Convergence Funds could be used to run a competition to identify the best tidal lagoon site in Wales and support the preparatory phases of constructing perhaps the world's first tidal-energy lagoon	<i>General Support</i>
19.	develop a Wales marine energy action plan to take forward all the marine proposals. The action plan will also look at the economic and international opportunities for Wales from being at the forefront of marine energy developments over the next 0 years including the important construction skills aspects	<i>Supported</i>
<b>5. HYDRO</b>		
20.	explore with the Environment Agency Wales the scope for enabling more in-river local hydropower schemes;	<i>General Support</i>
21.	assist the development of community hydro power proposals using new Convergence funds;	<i>Supported</i>
22.	undertake a study, jointly with Whitehall, to identify the potential for new hydropower schemes in Wales and England. The results should provide clear information on the most appropriate locations for developing new hydro-electric power plants;	<i>General Support</i>
<b>6. ENERGY FROM WASTE</b>		
23.	support community engagement through an energy from waste toolkit for use by local authorities when considering applications for developments;	<i>Supported</i>
24.	consider the energy potential for utilising food and other non-hazardous waste from relevant public sector operations such as hospitals;	<i>Supported</i>
25.	produce a 'best-practice' design guide for new waste management facilities with exemplar facilities illustrating to developers and local authorities what can be achieved;	<i>Supported</i>
<b>7. WIND: ON-SHORE &amp; OFF-SHORE</b>		
26.	continue to pursue the proposals in Tan 8 and monitor the uptake of wind farm sites before undertaking a further review in the light of this and related consultations;	<i>Generally un-supported</i>
27.	develop, with partners, a strategic bid for a Convergence Fund project aimed at delivering a series of community scale wind energy generation projects across the eligible area;	<i>Supported</i>
28.	review TAN 8, revising upwards the old targets for renewables- drawn	<i>Generally</i>

	from a range of sources- following the publication of the Assembly Government's energy strategy later in 2008;	<i>un-supported</i>
29.	support UK work on a strategic environmental assessment (SEA) for offshore wind generation in English and Welsh territorial waters.	<i>Supported</i>
<b>8. ENERGY EFFICIENCY AND MICROGENERATION</b>		
30.	We will take forward The Sustainable Energy Network (SEN) - The Energy Saving Trust has just launched its initial Sustainable Energy Network service for Wales, which the Assembly Government has helped fund. The SEN in Wales will expand the current service to offer advice to a wider audience of householders, communities and micro-businesses on energy efficiency. The Sustainable Energy Network of Wales' wide advice centres will also offer a greater scope of guidance, including on green homes programmes, micro-generation and transport issues.	<i>Supported</i>
31.	We will take forward The Carbon Emissions Reduction Target (CERT) - The UK Government will be increasing the overall saving targets on energy suppliers, and extending the range of incentives suppliers can offer to their domestic customers through the Carbon Emissions Reduction Target (CERT) from April 2008, which will replace the Energy Efficiency Commitment (EEC). Carbon savings from micro-generation measures (both electricity and heat) can then be counted towards the reduction targets, as can behavioural measures which reduce consumption of energy.	<i>Generally Supported</i>
32.	We will take forward Smart Meter Installations - Energy suppliers are now starting trials of smart meters with households in England, Wales & Scotland. We are working with the Department for Business, Enterprise and Regulatory Reform and the energy regulator, OFGEM who are setting up and monitoring these trials. A number of households and one community in Wales, St Athan, will be part of the trials by Scottish and Southern Energy. Smart meters are sophisticated devices, capable of giving householders and energy suppliers detailed information on the pattern of energy consumption and enabling suppliers to offer more bespoke tariffs and tariff packages. They can be invaluable tools in helping consumers reduce the cost of energy consumption.	<i>Generally Supported</i>
33.	We will take forward in our National Energy Efficiency and Saving Plan in consultation with a wide range of partners, including the private sector, we will look at overcoming barriers in more detail, including better use of existing powers.	<i>Supported</i>
34.	We will take forward the grading of green energy tariffs - We very much support the work of OFGEM in promoting the proper grading of 'green energy electricity tariffs' so that consumers know precisely what green energy measures are supported by each tariff	<i>Not Supported</i>
35.	We will take forward the devolution of the Building Regulations: Assembly Government control of the Building Regulations, in addition to our existing Town and Country Planning powers, should enable us to ensure all new buildings in Wales are built to the highest possible lowcarbon standards, both in respect of energy efficiency and the use of renewable energy. Higher standards through devolved Building Regulations would be aimed at delivering the aspiration for all new buildings to be zero carbon by 2011. Over the next years the Assembly Government will be looking to demonstrate a path to zero carbon buildings through construction work it funds.	<i>Generally Supported</i>

36.	We will: issue planning guidance to make micro generation easier to install; in particular for: - Roof mounted solar heat and solar (photo-voltaic) electric panels. - Ground, water and air source powered heat pumps - Building mounted micro-wind electricity turbines or stand alone small wind turbines - Biomass electricity or heat generating units, especially for larger properties or community projects.	<i>Generally Supported</i>
37.	encourage a fair price from utilities for the 'export' of locally produced electricity on to the grid.	<i>Supported</i>
38.	examine skills needs with the Sector Skills Councils, to ensure an effective microgeneration equipment supply and fitting sector.	<i>Supported</i>
39.	increasingly build micro-generation into our locally funded programmes, as part of our commitment to zero carbon buildings;	<i>Supported</i>
40.	under our green jobs strategy, building on Wales already substantial solar photovoltaic industry to be an effective champion for this highly promising technology.	<i>Generally Supported</i>
41.	provide information through the new Farming Connect service to include guidance and advice for farming families on energy efficiency and micro-generation	<i>Supported</i>
42.	increase the role of renewable/alternative energy solutions under our Home Energy Efficiency Service.	<i>Supported</i>
43.	work with stakeholders to ensure the public has clear information on the benefits of micro-generation.	<i>Supported</i>
<b>9. LARGE SCALE DISTRIBUTED GENERATION (OFF-GRID)</b>		
44.	support community-sized wind, biomass and hydroelectric schemes through the provision of grants through the climate change framework of the EU Convergence Funds programme	<i>Supported</i>
45.	guide businesses interested in generating their own renewable energy.	<i>Supported</i>
46.	explore the scope for a CHP scheme for the Cathays Park area of Cardiff where the main Assembly Government office is located.	<i>Supported</i>
47.	explore the scope for developing energy supply companies (ESCo) in Wales that could support off-grid developments and innovative energy efficiency packages.	<i>Supported</i>
<b>10. CONSENTING REGIME</b>		
48.	strongly encourage the exploration of opportunities for wind developments of up to 25MW in urban/brown field site areas.	<i>Supported</i>
<b>11. GRID INFRASTRUCTURE DEVELOPMENT</b>		
49.	work with Ofgem to ensure connection of new renewables plants are given precedence over connections to new fossil fuel plants not fitted with carbon capture and storage systems	<i>Supported</i>

50.	consider how cost effective grid connections to sparser developments can best be enabled.	<i>Generally Supported</i>
<b>12. RESEARCH &amp; DEVELOPMENT</b>		
51.	ensure exploitable energy innovations are eligible for new EU Structural Funds support	<i>Supported</i>
52.	consider the economic opportunities associated with the massive technological transition to a global low carbon economy	<i>Generally Supported</i>
53.	explore the exceptional international opportunities for Wales in marine energy in conjunction with International Business Wales.	<i>Generally Supported</i>
54.	develop the skills agenda to ensure as much as possible of R&D and other activity is translated into company wealth generation.	<i>Supported</i>

## Glossary

BERR	Business, Enterprise and Regulatory Reform
CERT	Carbon Emission Reduction Target
CHP	Combine Heat & Power
EA	Environment Agency
EA	Environment Agency
EAW	Environment Agency Wales
EEC	Energy Efficiency Commitment
EfW	Energy for Waste
EIA	Environmental Impact Assessment
ESCo	Energy Supply Companies
EU	European Union
FCW	Forestry Commission Wales
HEP	Hydro Eclectic Power
HEES Wales	Home Energy Efficiency Scheme Wales
IBW	International Business Wales
IPC	Infrastructure Planning Commission
KW	Kilowatt
LA	Local Authority
LPA	Local Planning Authority
LCRI	Low Carbon Research Institute
MW	Megawatt
NEESP	National Energy Efficiency Savings Plan
PV	Photo-voltaic (Electricity from Solar)
RES	Renewable Energy Systems
ROC	Renewable Obligation Certificates
R&D	Research & Development
RERM	Renewable Energy Route Map for Wales
SME	Small Medium Enterprise
SEN	Sustainable Energy Network
SSAs	Strategic Search Areas
SAC	Special Area of Conservation
SEA	Strategic Environmental Assessment
TAN	Technical Advice Note
WAG	Welsh Assembly Government (also referred to as ‘the Assembly’)
WERC	Wales Energy Research Centre