

Consultation on a Bioenergy Action Plan for Wales

Presentation to Welsh Air Quality
Forum 23 September 2009

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Overview

- Drivers for the Bioenergy Action Plan
- Clarification of intention and approach
- Summary of main conclusions
- Comments from respondents
- Next steps and future work

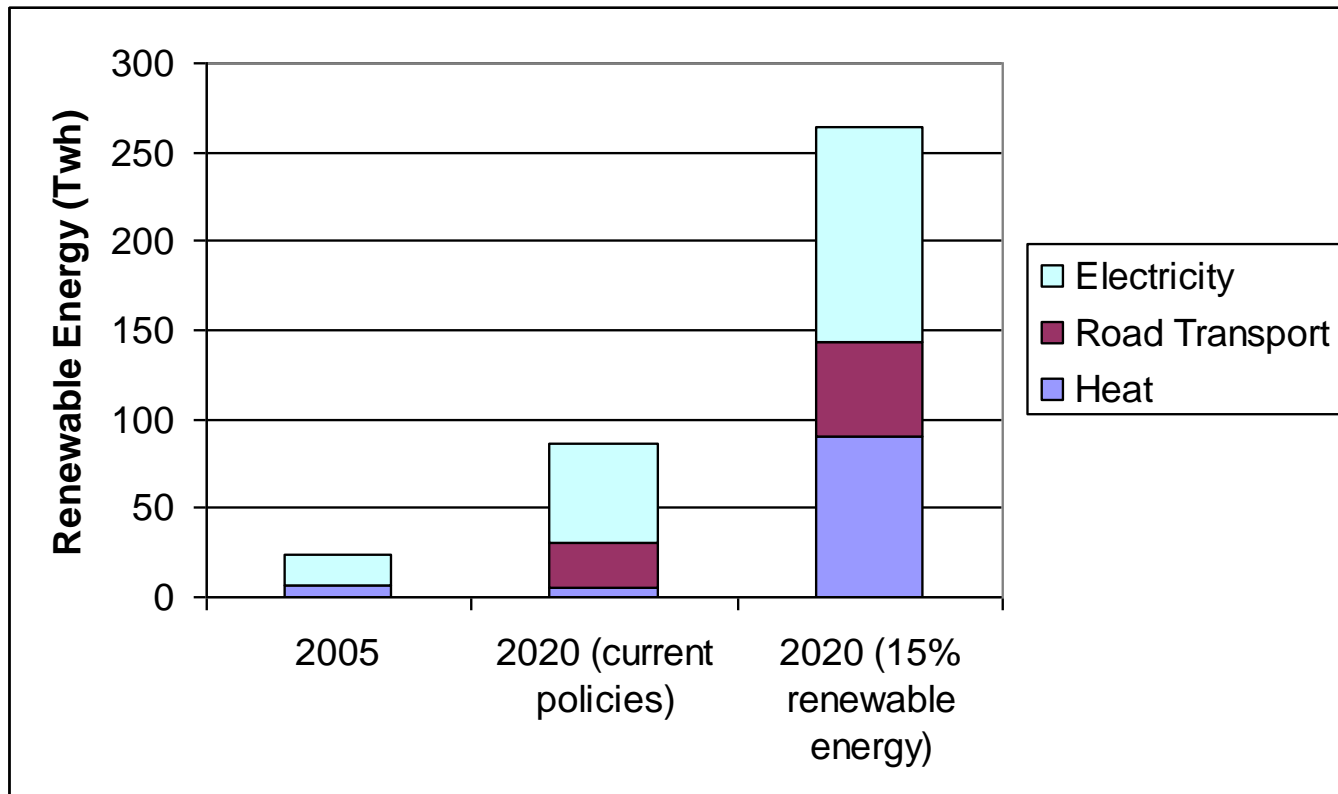


Drivers

- ‘One Wales’, the agenda for Government in Wales, identifies tackling climate change as a key priority. This requires:
 - stopping the waste of energy,
 - investing in energy efficiency, and
 - making the most of our renewable energy resources.
- Also, WAG’s commitment to contribute to UK Government’s efforts to produce 15% of UK energy from renewable resources by 2020



Potential scenario for UK to get 15% renewable energy by 2020 (DECC)



Estimation of contribution of electricity, transport fuel and heat to 15% target

- UK: 34% ; 10%; 14% (RES Consultation Document)
- Scotland: 50%; 10%; >11%
- Northern Ireland: >33%; 10%; 'up to 10%'
- Wales: >100% by 2025; 10%; ?%
- England ? (Regions being asked to come up with 'aspirations')
- Important to know this breakdown (e.g. to determine whether a Severn Tidal Power project is viable)
- DECC and DAs are working together to identify, by June 2010, the contributions from different parts of the UK to the 15% target.



What we're trying to do in the BAP

- To get a reasonable estimate of the total amount of heat and power from sustainable biomass that could be produced in Wales in 2020.
- Huge uncertainties, so let's make assumptions as clear as possible.
- **The BAP is not an attempt to develop a strategy on how to get most benefit from the biomass arising in Wales.**

Basis for scenarios

- Snapshot of current proposals
- Discussions with specialists
- Estimate of impact of ROCs and of WAG initiatives to tackle climate change



Guiding principles for discussion

- Sustainability (including soil carbon considerations)
- Value for money in terms of energy generation and carbon reduction
- Community benefits
- Largest biomass power stations should import their fuel !
- Food vs. energy crops
- Carbon savings from use of biomass for construction and ~~renewable~~ chemicals



Constraints

- Electricity supply in UK is market driven
- WAG does not have powers over energy issues
- Biomass for energy is a global commodity



What we can do

Try to foresee where the market is taking us:

- what are the current plans for energy from biomass?
- how might energy from biomass develop by 2020?
- how much biomass might be needed?
- where is the biomass going to come from?



Where can we intervene?

General categories for supporting demand for bioenergy

- General awareness raising and skills development
- Heat Generation (domestic, district, govt estate, industry/businesses)
- CHP
- Electricity with no CHP
- Energy from waste
- Anaerobic digestion

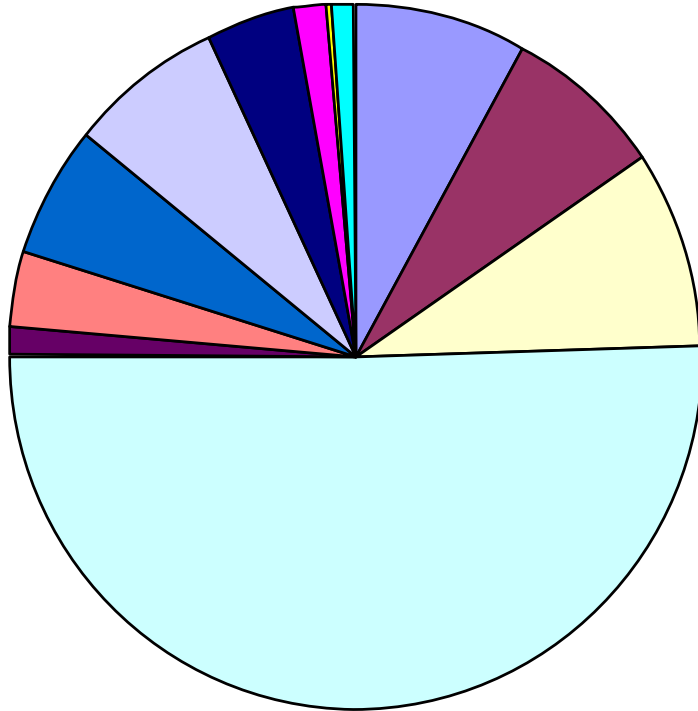


What do we think is feasible bioenergy output by 2020?

Origin of biomass	Bioenergy type	Electricity Generated TWh(e)/yr	Useful heat Energy TWh(th)/yr
UK clean biomass	Heat		0.34
	Combined Heat & Power, UK biomass	0.41	0.86
	Electricity-only, UK biomass	0.39	
	Co-firing UK biomass	0.46	
Imported clean biomass	Electricity, imported biomass	2.61	
	Co-firing, imported biomass	0.08	
UK contaminated biomass	CHP, WID-compliant UK biomass	0.17	0.34
	Electricity-only, WID compliant	0.30	
UK municipal-type waste	Energy from waste, with CHP	0.37	0.85
	Efw, no CHP	0.22	
Farm slurry/ food waste/bio-waste/ sewage	AD of bio-waste	0.07	0.10
	AD farm/food waste	0.01	0.02
	AD sewage	0.06	0.10
TOTALS		5.2	2.6



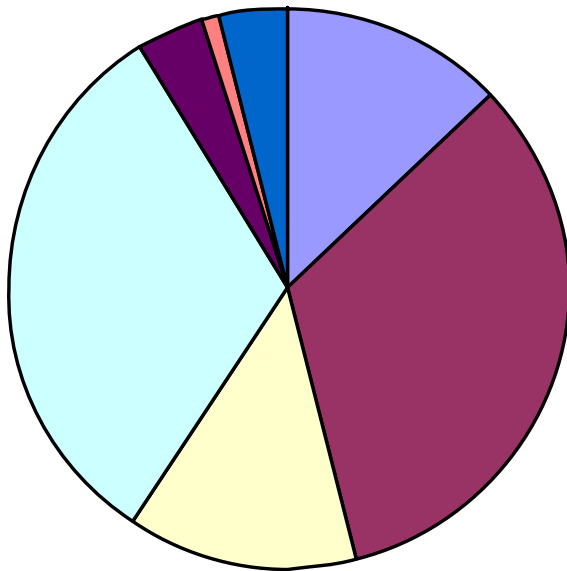
Electricity generated 5TWh/yr



- Combined Heat & Power, UK biomass
- Electricity-only, UK biomass
- Co-firing UK biomass
- Electricity, imported biomass
- Co-firing, imported biomass
- CHP, WID-compliant UK biomass
- Electricity-only, WID compliant
- Energy from waste, with CHP
- Efw, no CHP
- AD of bio-waste
- AD farm/food waste
- AD sewage



Useful heat generated 2.5TWh/yr



- Heat-only systems
- CHP UK clean biomass
- CHP WID-compliant UK biomass
- Efw with CHP
- AD of bio-waste
- AD farm/food waste
- AD sewage



Energy use in Wales and Renewable Energy potential

- Current use
 - Electricity: 24 TWh/yr
 - Heat: 76 TWh(th)/y
- Potential generation from renewable sources by 2025 (from energy Route Map):
 - Electricity: up to 33 TWh/yr
 - Heat: 3TWh/yr
- Potential generation from biomass (from Bioenergy Consultation Document):
 - Electricity: 5 TWh/yr
 - Heat: 2.5 TWh/yr



How much biomass do we think will be needed?

UK biomass resources required annually in oven-dry tonnes

- Forestry woodfuel and non-contaminated waste wood: 692,000
- Possibly contaminated waste wood: 345,000
- Woody energy crops for heat and power: 267,000
- Municipal-type waste: 846,000

Organic matter for anaerobic digestion (not oven-dry)

- Bio-waste 340,000
- Agricultural slurry & food waste 250,000
- Sewage sludge 93,000

Imported biomass resources required for proposed large-scale stations

- Clean wood and other biomass: 1,630,000



How much biomass is currently available in Wales for energy generation?

- Clean wood fuel 183,000 odt
- Non-contaminated waste wood 150,000 odt
- Possibly contaminated waste wood 412,000 odt
- Woody energy crops for heat and power 1,200 odt
- Municipal waste biomass 1,050,000 odt
- Agricultural slurries >1,000,000 t
- Sewage sludge >100,000 t



Can we produce more?

- Wood-fuel
- Woody energy-crop
- Biofuel production
- Waste wood
- Residual waste



Conclusions

- Not enough Welsh biomass to meet needs
 - are power station developers taking an excessive risk?
 - need to take into account impact on non-energy uses of biomass
 - we will almost certainly be importing millions of tonnes – Ministers will want assurances about sustainability and plant health.
- How can WAG help increase supply?
 - better management of current resources
 - more trees
 - energy crops?
- Need for much more renewable heat
 - new funding for WEBS will help
 - increased initiatives on government estate and on developments on WAG-owned land
 - assess how Renewable Heat Incentive might help – then consider further actions.



Comments from consultees (first scan):

Wide range of views expressed

- encouragement for more biomass use
- WAG should do much more to support CHP
- encourage more co-firing
- strategy should be limited to what biomass can be grown in Wales
- biomass is not CO2 neutral – should not get ROC support; ‘toxiological experiment’
- CHP is too inefficient except where guaranteed year-long heat load;
- pressurise DECC to remove ROCs from co-firing;
- don’t try to tell operators where they should get their biomass from – leave it to the market.

Consultees' views (contd):

- WAG should support energy crops
- efw is obvious first choice
- use more AD and generate biogas for grid
- should not differentiate between electrical and heat energy.
- energy crops would displace food crops – don't support;
- efw hugely problematic ('emissions of carcinogens' etc);
- central AD can lead to spread of disease - composting better option;
- “strategy” is wrong – should aim for much more heat than electricity (e.g. make Prenergy CHP with grid network covering 100,000 homes within 16 km, as well as industry).

Some positive suggestions

- Set up research project to work with LAs on arboricultural arisings
- Consider potential for heat storage on a large scale
- Include section on practical aspects of wood use, e.g. seasoning needs
- Conduct UK study on available biomass for energy
- Strategic Environmental Assessment needed on bioenergy in the UK?
- Make actions “SMART”



Offers of help ...

- to establish standards for wood supplies and for boilers/stoves
- to develop plans for community-scale heating/chp
- to identify supply chains and ESCos
- to identify much larger arisings of contaminated wood waste
- to provide more information on the UK wood panel industry (e.g. regarding use of renewable heat)
- to implement the Action Plan.



Things to clarify/modify (so far...)

- WAG's powers on energy issues
- Why we need to cover all aspects of bioenergy – including from imported biomass and AD
- Specify % of biomass in municipal and commercial waste used for efw
- Refer to stoves and boilers, not just boilers
- Include renewable heat used by particle board manufacturers
- Re-consider small AD on farms
- Transpose table in 1.7 correctly



Next steps

- Produce report on responses
- Refine actions in light of comments
- Develop Ministerial Statement on Bioenergy in Wales
- Set up task-and finish groups to implement actions and steering group to oversee and report on progress



and ...

- Produce a route map on renewable heat in Wales?
- Develop Energy Strategy for Wales, incorporating results of consultations on Renewable Energy Route Map and Bioenergy Action Plan
- Work with DECC and other Devolved Administrations to develop and implement UK Renewable Energy Strategy.



If you have any questions or comments on the Bioenergy Action Plan for Wales, please contact:

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(Ideas for securing large increases in the amount of useful heat from renewable sources would be particularly welcome.)



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