

# LCNF Full Submission

## Supplementary Answer Form

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| <b>DNO Name:</b>       | Electricity North West Limited | <b>Question Number:</b> | ENWL018              |
| <b>Question Date:</b>  | 15 Sept 2010                   | <b>Answer Date:</b>     | 12pm<br>20 Sept 2010 |
| <b>Question Topic:</b> |                                | Box 15                  |                      |

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| <b>Original Question No:</b> |  | <b>Original Answer Date:</b> |  |
| <b>Original Question:</b>    |  |                              |  |
| <b>Original Answer:</b>      |  |                              |  |
| <b>Question:</b>             | Can you provide rationale behind the identification of 9 urban centres for biomass projects? Also explain why 10 (rather than 9) cities are included in dissemination etc? |                              |  |

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| <b>Answer:</b> | <p><i>Rationale for identifying the number of urban centres for replicating large-scale biomass projects</i></p> <p>This is an area of considerable uncertainty, and we therefore investigated a number of information sources in order to frame realistic scenarios. Specifically, we consulted biomass policy documents, national generation forecasts and statistics in order to understand the potential for replication of large biomass projects connecting to urban city-centre distribution networks.</p> <p>Based on the Low Carbon Transition Plan and other sources mentioned below, our conclusions were that:</p> <ol style="list-style-type: none"> <li>a) There is significant potential demand for large-scale biomass as a controllable form of generation to contribute to national targets for carbon reduction and use of renewables. The UK's '<i>practicable potential</i>' of <i>all</i> biomass may be of the order of 5000MW (source 5), and the Renewable Energy Strategy lead scenario suggests just under 2000MW of biomass capacity adding between 2008 and 2020 (source 6). Modelling of amendments to the Renewables Obligation</li> </ol> |
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suggests little of this capacity adding before 2015, with growth beyond this date, although '*biomass build is constrained by the availability of fuel supply*' (source 7).

- b) However, there is little information on which to disaggregate the *overall* biomass potential, scenarios and forecasts into biomass projects of different sizes and locations, specifically to identify the proportion consisting of 5-30MW biomass generators in urban areas, where learning could be directly applied from the Northern Gateway Project. There are public plans for various +100MW biomass plants, for co-firing, and various other projects involving significant capacity of landfill, sewage or anaerobic digestion of wastes. Large urban biomass of a scale similar to the Northern Gateway is likely to be a fraction of overall capacity, perhaps 5% or 250MW of potential.
- c) Furthermore, there is little experience of large-scale urban biomass projects in the UK (sources 1-4); technical and commercial issues with the generators, network integration and fuel supply chains have not yet been fully investigated and resolved. These will be partially addressed by the Northern Gateway Project – this could help unlock GB's potential for large-scale urban biomass projects; however, issues such as the fuel-supply chain and urban planning are much wider than the LCNF project, so the success of the Northern Gateway project does not ensure replication in all the UK's urban centres.
- d) We assume that large-scale urban biomass projects will only be implemented in sites with significant city-centre development projects *and* viable transport routes for fuel supplies. Thus of the 66 cities in GB, we considered it reasonable that only a fraction would find large-biomass feasible in their urban environments.

On this basis, we consider that there is considerable uncertainty in the potential take-up of large-scale biomass projects connecting to city-centre distribution networks in GB. As a result, we chose an overall scale of deployment of 10 projects across GB spread over the 40 years to 2050 (original + 9 replications = ~170MW). We judged this to be a conservative but sensible order

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|  | <p>of magnitude. It is well below the potential maximum, and acknowledges the constraints on deployment.</p> <p>As a comparison of scale, our current distributed generation forecasts for our network area estimate around 100MW over the ten years 2010-2020 for <i>all biomass types</i> above 1MW. This is a very broad estimate, and subject to review, and has been influenced by 20MW and 30MW connection enquiries in rural areas.</p> <p><u>Sources considered</u></p> <ol style="list-style-type: none"> <li>1. Royal Commission on Environmental Pollution (2004) The Use of Biomass for Heat and Power Production.</li> <li>2. Biomass Task Force (2005) Report to Government.</li> <li>3. DTI and DEFRA (2006) The Government's Response to the Biomass Task Force Report.</li> <li>4. DECC (2010) Digest of UK Energy Statistics Table 7.4.</li> <li>5. Cabinet Office Performance and Innovation Unit (2001) Renewable Electricity Entry Scenarios</li> <li>6. DECC (2009) The UK Renewable Energy Strategy Chart 2.4.</li> <li>7. Trilemma and Redpoint, for DECC (2009) Implementation of the EU 2020 Renewables Target in the UK Electricity Sector: RO Reform Figure 12.</li> </ol> <p><i>Initial project + Dissemination etc to 9 cities (10 cities)</i></p> <p>The costs and benefits are calculated based on the initial project plus replication and dissemination to 9 cities. This is the approach taken in the 'Net Benefits' worksheet and summarised in Appendix E. The worksheet provided with our answer to supplementary question ENWL002 demonstrates that the calculations are based on the original project plus 9 cities. We apologise that Box 15 did not make this clear.</p> |
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| <b>Attachments:</b> | None |
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