RESPONSE FROM RENEWABLE ENERGY CONSULTANTS (SCOTLAND) LTD

Renewable Energy Consultants (Scotland) Ltd welcome the opportunity extended to us to respond to the call for evidence to the Economy, Energy and Tourism Committee’s Inquiry into the Scottish Government’s Renewable Energy Targets.

As an SME operating within the renewable energy industry, we are affected by the policies and incentives set out by both Westminster and Holyrood Governments. Our core business is focussed on feasibility works, design, specification and project management of renewable technologies in order to reduce global carbon emissions and the impact of fuel poverty. As such we work in close contact with social housing providers and other agencies that regularly bring us into close contact with the realities of the energy industry to many consumers – fuel poverty, inefficient heating systems, and a lack of knowledge regarding energy usage.

We believe that there is real merit in the Scottish Government’s targets, but only, ultimately, if the stated aims are achieved in order to maximise the benefit to all consumers and stakeholders. Our submission is made in the light of the works that we are involved with, and have carried out, as we believe that all elements of the industry affected should have a voice within such a consultation, and hence the focus on small scale renewables and the issues affecting this sector within this evidence submission.

Targets
The 2020 renewables targets are eminently achievable, under the right conditions and investment regime. However, the structure with which to ensure success is yet to be realised, and it is uncertain as to whether conditions for investment are developed enough to ensure that the targets are met.

The Scottish Government’s 2020 renewable energy targets for electricity are now, having been revised upwards several times in recent years, an equivalent of 100% of Scotland’s gross annual electricity consumption by 2020, with an interim of 31% set for 2011. This is currently calculated to be an eventual total provision in the region of 45TWh. The target for renewable heating is to provide 11% of Scotland’s heat demand through renewable means by 2020, an estimated provision of 6.4TWh. The target for renewable sources of energy within the transport sector is also 11%, estimated to be a provision of 3.4TWh.

Given that the specific generation volumes of electricity from most renewable sources is largely unpredictable under long-term forecasting, Scotland is effectively targeting a market in being able to export electricity at times when production is higher than consumption, and this was an inherent statement of the First Minister’s speech when increasing the target to 100% in May 2011. With wind turbines, solar panels, and wave generation all reliant on specific, differing, weather conditions for the most efficient generation, it is apparent that a reserve of non-renewable energy is needed to ensure this.

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electricity generation must be kept to ensure security of supply. The stated aim is to generate twice Scotland’s energy needs by 2020, with half coming from renewable sources and conventional sources respectively. This approach ensures security of supply, with the potential to increase revenue by the sale of electricity through interconnectors as available. This is a laudable approach, ensuring that the country is protected while encouraging growth within the industry, and reporting of the scheme would appear to indicate that the focus on renewable electricity generation has set Scotland well on track to meet at least this target, with production in 2011, with final figures as yet unpublished, looking likely to be very close to the target of 31% as set.

In 2010, with 411MW of renewable heating installed, 1.7GWh of thermal energy was produced, providing 2.8% of the predicted 2020 demand. This report also analysed the short-term future of the industry, and states that if all projects in construction, and 50% of those in planning, were to begin generating renewable heat, the renewable heat output would be 4.5% of the projected 2020 demand, which is just over 40% of the target required. Significant effort will be required to maintain this pace, however a rollout of renewable heating, specifically heat pumps, in domestic situations, could add a valuable and potentially key capacity to the installed capacity within Scotland. As domestic energy accounts for roughly half of the total heat use within Scotland, it is important to be able to mobilise and affect this area in order to ensure that targets are met, as there will be many ‘low hanging fruits’ that will allow many suitable and efficient conversions to renewable heating. *We would however add that industry uncertainty over the Renewable Heat Incentive (RHI) is causing serious concern to clients and now threatens the supply chain.*

Large numbers of heat pump installations would be beneficial to both the heating and electrical targets, as an appropriate roll out of these systems, most suitable for installation to off-gas areas at present, will result in heating being provided through renewable means, and a reduction in electrical consumption at the properties in question. Through monitoring of electricity consumption at properties that have received heat pump installations, we have seen consumption drop by up to 20%, with levels of comfort increasing, and bills to vulnerable and disadvantaged consumers decreasing. One tenant has reported that where she, as a single mother with young children, was putting £60 a week on her electricity key meter and now, with the installation of an air source heat pump completed, she is now only spending £20 a week on her key meter. This impact is obviously not replicable through all demographics, as she will have benefitted from moving from the high costs seen in daytime electricity on Economy 10 or 7 tariffs, to a standard rate supplying the heat pump with electricity as she requires, rather than at preordained points which did not meet her usage patterns successfully, but does provide an insight into the difference that can be made to real lives alongside meeting renewable heating targets as part of efficient targeting of deployment.

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5 The Scottish Government, *RENEWABLE HEAT ACTION PLAN FOR SCOTLAND: a plan for the promotion of the use of heat from renewable sources, 2009*
Challenges

a) Technology
The encouragement of renewable technology in Scotland has been highly impressive, and must be commended. Solar panels and wind turbines have been shown to be generating efficiently under the physical constraints of the technology, and the deployment of wind turbines both on- and offshore has added significantly to the renewable energy generation capacity of the country, with ~3,500 MW added in the last 4 years.\(^6\)

However, tidal and wave devices are still in their infancy, and while advances within the sector will undoubtedly be made, it is by no means certain that these technologies will advance to the point of mass market rollout, as seen by wind energy in recent years, in time to impact the renewable generation figures significantly by 2020. This is highlighted in the Institute of Mechanical Engineers’ report published in November 2011.\(^7\) The investment seen in the industry has, however, been impressive, and there can be little doubt that the enthusiasm and rewards that the Scottish Government have set out for this sector, such as the Saltire Prize\(^8\), has provoked the concentration of prototype testing and development companies based in Scotland. The Energy and Climate Change Committee recently published a report on the future of marine renewables, indicating that although the potential contained within the industry is high, with a 27GW capacity figure predicted by 2050.\(^9\) However, the report states that much of the deployment of this technology is due to take place after 2020, throwing doubt on the potential of this sector to fulfil a sufficiently large part of the required generation figure by 2020.

b) Supply Chain & Infrastructure
While there are encouraging signs for the supply chain within Scotland’s renewable energy industry, it should be noted that many of the new facilities, such as the developments at Methil Energy Park, including significant investment by Samsung\(^10\) are focussed upon offshore wind which, while of great importance, does not assist with the targets for heating or transport.

Biomass, especially domestic purchases made from established suppliers, under current forestry constraints, is increasing in cost and scarcity, and is likely to reach capacity without changes in land use or growing rates.\(^11\) Local harbours are currently utilised to export Scottish wood abroad.

Plans by Forth Ports to create 4 wood-fuelled CHP plants at Dundee, Grangemouth, Leith and Rosyth (recently dropping the planning application for Leith\(^12\)) have raised issues over the supply capabilities within Scotland for biomass. Forth Ports plan to import the vast majority of the fuel from overseas, namely Scandinavia, the Baltics, and the USA, specifically citing the lack of capacity within Scotland to meet the

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\(^7\) IMechE, Scottish Energy 2020?, November 2011
\(^8\) The Saltire Prize - http://www.sdi.co.uk/sectors/saltire-prize.aspx
\(^10\) http://www.bbc.co.uk/news/uk-scotland-edinburgh-east-fife-16809556
\(^11\) Discussions with Perth-based forestry business
\(^12\) Press release at http://www.forthenergy.co.uk/assets/media-release-20120209.pdf
supply needs of these plants. While it is easy to see why these decisions have been made by the operators of several ports on the eastern coast of Britain, the net environmental benefit (including fuel burnt in import transportation, and other externalities) of these CHP plants is yet to be set forward, and thus the effective use of subsidies to support these plants cannot be fully determined. District heating is a very efficient way to meet heating needs, however there is not the infrastructure in place around these to have a full network supporting local housing, shops, businesses and commercial units, and this will impact the effectiveness of the schemes, as to put in place a pipe network to service buildings that are not adjacent to each other, as seems to be the plans for these proposed generating stations. District heating works best when connected to a very local network, as seen in the Dundee University\textsuperscript{13} and Aberdeen City Council\textsuperscript{14} CHP operations. While these do not all use biomass fuel, they showcase a much better model of keeping district heating networks in tightly packed areas to increase efficiency.

c) Planning & Consents

While we have no experience of large scale planning developments such as those undertaken for wind farm developments, we have considerable experience of the planning process for air source heat pumps, and feel that this is an area that can and should be improved significantly.

We have dealt with planning authorities across Scotland, and have experienced a remarkable range of attitudes and processes when moving the developments towards installation. We have been told explicitly by one council that ‘if you don’t tell us about them [air source heat pumps] then we don’t know about them’, which would seem to reflect that the applications provide too much work for a small impact to the surrounding area, and that the system would, in these areas, rather not have the heat pump applications passing through, creating additional statutory work for the planning authorities.

Contrary to the attitude seen in the previous council, we have recently encountered the other end of the spectrum, with Environmental Health Officers requesting detailed noise impact assessments for the development in question. In between these 2 extremes, we have had applications approved on a minimum of information, others requiring confirmation of the colour and size of the support and dampening blocks utilised under the units before approval was granted, and others, within the same council, requiring a different standard of information to previous applications.

Recently, there has been an updated Permitted Development standard published in England. This allows the installation of heat pumps, under the MCS guidance and a standardised assessment procedure, as permitted development. Having seen the success of the permitted development legislation for Solar PV in streamlining the application and accreditation process, it would seem prudent to allow this legislation to be applied in Scotland also, in order to facilitate a more coherent and progressive system, rather than continuing to enforce a system that, at this point, appears to be a postcode lottery. This becomes even more pressing, albeit under an assumption that the domestic Renewable Heat Incentive will require proof of planning permissions, with the proposed start of the scheme in Autumn 2012. Under the situations outlined,

\textsuperscript{13} \url{http://www.dundee.ac.uk/estates/energy&environment/duusco/}
\textsuperscript{14} \url{http://www.energysavingtrust.org.uk/Publications2/Local-authorities-and-housing-associations/District-heating-and-energy-services/Community-energy-in-Scotland-case-study-Aberdeen-City-Council}
it is very plausible to envisage a situation whereby heat pump installations initialised at the same time would have commissioning dates months apart. This is not a coherent situation, and is one that needs to be addressed, to ensure effective planning can be undertaken by both householders and installation companies, in order that the effective roll-out of such technology can take place unencumbered by unnecessary legislative approaches.

f) Energy Market Reform & Subsidy Regime
The RHI, rewarding renewable heat generation, has been well-heralded, but as yet no information has been provided, even in consultation format, regarding the tariffs. Given the current cost of renewable heating systems compared to conventional systems, it is unlikely that mass take-up will ensue in the private sector without financial return provided by the RHI. While the decision to install a gas boiler is taken without regard or calculation of payback periods, it has become very important for consumers to see the financial reward behind installing technologies that they are unfamiliar with, as this aids uptake and encourages the switch. We believe that efforts should be taken by the Scottish Government to provide suitable feedback and input into the consultation and decision making within DECC regarding the RHI, in order to ensure that the conditions are appropriate to ensure significant take up of renewable heating opportunities from the start of the incentive period.

The recent upheaval within the solar PV sector, and other changes to the Feed in Tariff regime proposed in 2 consultations issued by DECC, in November 2011 and February 2012, have not paved a smooth path to the adoption of electrical renewable technologies at a domestic level. While there was evidence of a run-away payment structure requiring attention, the heavy-handedness and pre-emptive nature of the consultations has put a serious stumbling block in the path of the most accessible form of domestic electrical renewable energy technology. It is acknowledged that a single domestic solar PV installation is a very small part of the total energy requirements of these targets, however the total cumulative installation and generation elements of such installations is a contribution that cannot be ignored, with ~600MW of solar photovoltaics installed since the commencement of the Feed-in Tariff scheme, expected to generate around 500MWh of electricity annually. With the reduced payments as proposed under the FiT revisions, it would be wise for serious consideration to be put towards ensuring that social housing providers are not adversely affected through lack of funding and significant reduction in rates of return, as these installations impact both the targets put forward by the Scottish Government, and impact the lives of people positively, and as such should be supported where appropriate and possible.

The ongoing debate over Scottish independence raises many questions, and as yet we do not believe that the subsidy regime under an independent Scotland has been appropriately addressed. This is an important issue, as the proposed independence referendum date, in 2 years time, is likely to be also a critical juncture for these targets, and regardless of the political position of the reader, it is very important that

17 Ibid
all of the issues surrounding this critical area are set out and the future proposals explained fully.

**Conclusion**

We believe that although there have been significant advances made towards meeting the targets as set, there is still a significant volume of work to traverse before these targets can be realised, and streamlining of policies, specifically within the planning legislation for heat pumps, to take place. Continued investment, and appropriate investment conditions, across all fields of technology contributing to the targets will be required, and identification and appropriate deployment will be of the utmost importance in order to ensure that the most effective, appropriate and suitable transitions to renewable heating, electricity and transport are made.

Heat pumps are almost certainly the key to success in the roll out of renewable heat. In housing applications where they are combined with Solar PV, tenants have seen bills fall by as much as 60%, whilst the Housing Association also gains income from the FiT to pay for the investments. With reductions to the FiTs and the market uncertainty created as a result, the micro-renewables has taken a shock that we believe was entirely avoidable. We would be keen to explore further the possibilities of additional support that the Scottish Government could provide, particularly within the social housing sector (which we see as the key market driver to the roll-out of micro renewables and renewable heating.)

Renewable Energy Consultants (Scotland) Ltd
28 February 2012