Renewable Energy Options Study for the Cairngorms National Park

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Key Findings

- SAC Consulting’s Environment and Design Group worked with the Cairngorms National Park Authority (CNPA) throughout 2011 on a project to assess the potential for increased renewable energy deployment in the Cairngorms National Park (CNP). The study identified the types and scales of renewable energy developments which are technically robust, supported by available energy resources and supply chains, and which could be developed without having significant impacts on the special qualities of the Park.

- Levels of installed renewable electricity capacity in the CNP at the start of 2011 were low, with an estimated capacity of approximately 500 kW. Renewable heat capacity is greater, with an estimated 2.7 MWth of installed energy systems capacity, predominantly from woodfuel boiler systems.

- Recognising the outstanding natural heritage and the special qualities of the CNP, there is scope for an increase in the number of smaller scale wind and run-of-river hydro development in less environmentally sensitive areas which are within reach of an economic electricity grid connection.

- Solar energy installations (PV and thermal) and heat pumps (air and ground source) are becoming more prevalent on properties within the CNP and it is expected that they will continue to grow in popularity, albeit their overall contribution to renewable energy generation is modest.

- There are several constraints on the deployment of anaerobic digestion in the CNP which are likely to limit the growth in farm or community-based installations.

- Renewable heat is the principal renewable energy opportunity for the CNP, particularly through woodfuel installations in homes, farms, businesses and district heating systems.

- Analysis in the project indicates that the CNP could match the current Scottish target of 11% of heat to be generated from renewable sources by 2020. This will require concerted action to enable a five fold growth in existing renewable heat capacity through actions such as capacity building, training/skills development, community schemes and other measures to stimulate the woodfuel supply and installation sectors.

- It is not realistic to expect renewable electricity generation capacity in the Cairngorms to match the equivalent national target of 100% of electricity demand equivalent as renewable energy by 2020. Nevertheless, the report indicates that growth in installed capacity can match national levels to 2020 with a 150% increase in capacity considered to be achievable through sensitive wind and hydro development together with a contribution from micro renewable installations.

- The introduction (in 2010) of Government backed incentives for renewable energy in the form of the Feed-in Tariff (FIT) and Renewable Heat Incentive (RHI) is undoubtedly increasing the deployment and investment in renewable energy systems. Nevertheless, co-ordinating action will be required in the CNP if the significant levels of growth outlined above are to be realised in the medium to longer term.

- If the projected scenarios for renewable energy development in the Park are realised, annual CO2 equivalent emissions could be reduced by around 10,000 tonnes per annum by 2020.

- The report highlights best practice in design and mitigation of environmental impacts from each type of technology and concludes that cumulative environmental impacts from the projected potential growth in renewable energy are unlikely. Nevertheless it will be important to ensure that energy systems are designed and installed sympathetically with the

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2 The full SAC report is available from CNPA by contacting Alison Lax on 01479 870563 or alisonlax@cairngorms.co.uk.
landscape. The CNP’s developing policies on landscape character and sensitivity can be used to help steer development to appropriate locations.

- There are significant direct and indirect socio-economic benefits to realise from stimulation of the renewable energy sector in the Park for communities, land managers and businesses. Investment in renewable heat in particular represents a significant opportunity for rural sustainable development in the Cairngorms area not least due to the extensive wood fuel resource in the Park. Economic, community and environmental benefits can accrue from the expansion of the whole woodfuel supply chain from forestry and processing through to energy systems management, together with the income generation opportunities that the RHI and possible heat sales represent for investors such as Energy Supply Companies, businesses, public and third sector and community groups.

- The proximity of biomass fuel sources to demand, and the low carbon nature of woodfuel energy systems also mean that growth in this sector is genuinely contributing to the low carbon economy. Renewable heat therefore represents an important economic, environmental and energy resilience opportunity for the Park. It can also help to address or prevent issues of fuel poverty as the price of fossil fuels continues to rise.

- Realising this opportunity however will require significant co-ordination, guidance and investment by the agencies operating in the Park in order to make the step change necessary to match the 2020 Scottish renewable heat targets. Supplementary planning guidance on renewable energy will provide an important and consistent reference to ensure energy is developed in a sustainable manner contributing to local communities whilst protecting the natural heritage and respecting the landscape. However the CNPA has the ability through its enabling powers to help bring about the step change in renewable energy (particularly heat) which a low carbon future demands, and in helping communities and businesses to realise the sustainable development benefits which a co-ordinated low carbon energy sector can offer.

Methods

- A systematic approach was undertaken to the appraisal of the potential for each different type of renewable energy technology (including wind, hydro, solar, woodfuel, heat pumps and anaerobic digestion), taking account of the current state of practice for each. The approach considered the available energy resources in the CNP, the key physical, technical and environmental constraints to technology deployment, the potential for further development of the technology and, where appropriate, its supply chains in the CNP.

- Based on the appraisal of each technology, an assessment was made of the combined potential for renewable energy in the CNP to 2020. The potential for renewable electricity and heat was considered separately to take account of the differing nature of the generation potential for each and to allow for discussion of the findings in relation to Scottish Government targets for renewable energy. The wider socio-economic benefits for communities and businesses in the area were also assessed.

Recommendations

- Further planning work will be needed by the CNPA and other agencies to determine the appropriate level of involvement, taking account of resources, priorities and statutory functions.

- The report recommends a range of actions to guide, support and develop the capacity of communities and other developers to take forward new renewable electricity generation projects (primarily appropriately scaled wind and hydro developments). The economic benefits of such projects are highlighted with reference to examples from other parts of rural Scotland. Options are also presented for more direct involvement through technical support and establishment of funding sources.

- The renewable heat sector in the Cairngorms is currently subject to a number of constraints which could be directly addressed through co-ordinated enabling activity building on existing good progress with initiatives such as the Woodfuel Action Plan and low carbon Cairngorms web portal. Development of guidance, training, technical skills, business advice, promotion of woodfuel and support in establishment of woodfuel co-operatives have been recommended as the priority actions for woodfuel supply in the Park.

- Similarly barriers exist to the installation of woodfuel/biomass heating systems, ranging from awareness and perception through to finance, procurement and support with installation and operation. The report recommends that enabling activity for woodfuel heating should be targeted at increasing the number of medium and large scale district heating systems in new developments and in the principal challenge of progressively installing renewable heat to existing settlements and larger buildings. The clearest need for co-ordination and support is therefore in the domestic and municipal retro fitting of heat infrastructure needed to make meaningful gains in installed renewable heat capacity. Here substantial organisational influence, support and capacity building will be needed to bring about the necessary changes in attitude, planning support/funding, community consultation, capital investment, technical expertise and project management. This support is most likely to be delivered through partnership working across the agencies and communities in the Park with investors, energy companies and the energy supply chain.

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