The Scottish Parliament

ENTERPRISE AND CULTURE COMMITTEE

9th Meeting, 2004 (Session 2)

Tuesday, 16 March 2004

The Committee will meet at 2 pm in the Debating Chamber, Assembly Hall, the Mound, Edinburgh

1. **Broadband in Scotland:** the Committee will take evidence from:

   Panel 1

   Andrew Bruce-Wootton, Executive Committee Member; Scottish Estates Business Group

   Angus Armstrong, Managing Director; ADAC (Engineering Services) Ltd

   Dave Newman, Director; Plexus Media Ltd

   Panel 2

   Paul Cassidy, ICT Co-ordinator, Castlemilk Economic Development Agency

   Mark Cullens, Associate Principal, Glenrothes College

   on its inquiry on Broadband in Scotland.

2. **Renewable Energy in Scotland**: the Committee will take evidence from:

   Panel 1

   Charles Davies, Director of Commercial Policy; National Grid Transco

   Dr Lewis Dale, Regulatory Strategy Manager; National Grid Transco

   Panel 2

   Angela Duignan, Project Development Manager; Baywind Renewable Energy Co-operative

   David Gordon, Chief Executive; Windsave Ltd

   on its inquiry on Renewable Energy in Scotland.

3. **Investigation into Scottish football:** the Committee will consider a paper on the appointment of a Committee Reporter to conduct an investigation into Scottish football.

Judith Evans
Clerk to the Committee (Acting)
Room 2.7, Committee Chambers
Ext. 0131 348 5214

The following meeting papers are enclosed:

Agenda Item 1

Submission from Scottish Estates Business Group	EC/S2/04/09/1
Submission from ADAC (Engineering Services) Ltd	EC/S2/04/09/2
Submission from Plexus Media Ltd	EC/S2/04/09/3
Submission from Castlemilk Economic Development Agency	EC/S2/04/09/4
Submission from Mark Cullens, Glenrothes College	EC/S2/04/09/5

Agenda Item 2

Submission from National Grid Transco	EC/S2/04/09/6
Submission from Baywind Renewable Energy Co-operative	EC/S2/04/09/7
Submission from Windsave Ltd	EC/S2/04/09/8

Agenda Item 3

Paper on appointment of Reporter	EC/S2/04/09/9

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Enterprise and Culture Committee

Inquiry into the roll-out of broadband services in Scotland

EVIDENCE - SCOTTISH ESTATES BUSINESS GROUP.

Tuesday 16th March 2004.

1: The Scottish Estates Business Group (SEBG) represents progressive rural estates throughout Scotland and is committed to stimulating, developing and sustaining business in rural Scotland. Well-run estates play a constructive role in rural development and SEBG is also committed to developing links with the wider business community to ensure the rural agenda is reflected in mainstream business activity.

2: We believe the provision of broadband will become increasingly central to rural business and community development. Rural IT demand has been quite marginal, geographically spread and specialized - not an attractive market . However, awareness of the importance of contemporary connectivity for both home and work life is increasing dramatically and it could be argued this pace of change together with a lack of competition has been a cause of the market failure we see today.

3. Scottish Enterprise (SE) have been working hard to raise awareness but have also encouraged a pragmatic and measured argument which matches IT options to customer requirements. They have cautioned that ASDL is not the most cost effective connection solution for all internet users and it will not, in itself, improve business performance. The SEBG would encourage that this be kept in mind when strategy and national targets are being discussed.

4: SEBG held a conference on the benefits of broadband for rural businesses in Edinburgh last week in partnership with SE and as a group we are in discussions with the relevant Enterprise Agencies with a view of developing projects that may aid the roll-out of broadband in rural areas.

5. From the information presented at this seminar it is clear there are a number of viable options for extending or introducing ASDL beyond BT enabled exchanges and an increasingly competitive market of service providers to price for this work.

6: Estates, in partnership with their local communities, are well positioned to act as ‘local champions’ for smaller local businesses or homes which are unable to commit to the technology on their own but may be able to ‘sub-let’ from larger businesses. A number of SEBG members are actively developing options to extend ASDL by wireless network beyond BT service within their regions and these models can be

rolled out in other areas. This is directly as a result of assistance and encouragement through SE.

7. It is perhaps clear that the technology and now increasingly the competitive market is developing to resolve the ASDL rural barrier for domestic and small business use. Well publicized regional seminars through SE / HIE of a practical nature, providing workshops and proven case studies, aimed at estates, rural business and community representatives, would demystify the issue. Links with contractors and local SE support can be established at these seminars to build confidence and apply the best solution to the local circumstances.

8. Although this, to some extent, responds to the needs of existing domestic and normal demand small business to obtain ASDL connection, SEBG is concerned that a more strategic approach is required at national and regional level both to facilitate the rapid development of the technology post ASDL for the existing rural market and to assess the connectivity requirements of new businesses which may be attracted to relocate out with urban centers. Dramatic changes in the farming and forestry industries will inevitably see further declines in rural economic activity and employment and the possibility of digital superhighways being available to regions traditionally disadvantaged from our physical transport systems provides significant potential for much needed economic regeneration. Expanding on these points :

- As solutions for rural ASDL become technically and financially available we are already aware of the next generation of data transfer (SSDL) being introduced to urban centers. Some of the rural solutions may be capable of upgrading quite easily but others may be less suitable. To date, the SEBG have been unable to establish from the industry how effectively SSDL can be introduced through the various ASDL options. It would certainly be regrettable for rural connectivity to be left behind again so soon due to a lack of foresight in this way.
- As rural property providers and developers, SEBG members are aware that connectivity opens up the potential to attract new business to the countryside but we are concerned at the lack of information available to rural developers about the future requirements of IT dependant business. We believe there is a need for research among the existing urban business sector who could potentially be attracted to expand or relocate to the countryside to obtain a definition of their aspirations for connectivity and other support services.

9. SEBG believes that the development of rural connectivity should be given equal prominence to other core infrastructure in regional Structure and Local Plans. Data transfer demand capacity varies according to the existing and targeted land use in the same way as road, water, power and sewerage systems must be considered in the Structure Plan if regional development objectives are going to be achieved. Investment in infrastructure such as fiber optic cable to some regions may be required to realize full potential and there could be an argument for some public funding in order to gap fund projects which are going to release long term economic revitalization. However, until a strategic planning and development approach is introduced, co-ordinated nationally but devolved to Regional Government to develop

in partnership with Enterprise Companies and the private sector, the rural economy will continue to be subject to inefficient, outdated and overpriced connectivity options which will do little to attract the inward investment and new business which is so desperately needed.

ABW 11/03/04.

SUBMISSION FROM ADAC (ENGINEERING SERVICES) LTD

(CASE STUDY MATERIAL FROM THE SCOTTISH ENTERPRISE BROADBAND WEBSITE)

Quote:
"Broadband Internet access, made available at reasonable rates, helps rural businesses to compete on level terms with their urban counterparts. It complements my business to the direct benefit of my clients and gives opportunities to expand that were previously unavailable." - Angus Armstrong, Managing Director

In Brief:
ADAC (Engineering Services) is among the first of a number of small businesses in the Perthshire town of Crieff to benefit from Power Line Communications (PLC) trials, providing high-speed broadband access through existing power sockets. ADAC is now able to send complex structural engineering drawings within seconds to contractors and suppliers throughout the UK and Ireland.

Background:
In June 2002, a pilot scheme to offer high-speed, always-on Internet access for rural communities in the north of Scotland was launched in Crieff. Along with a similar initiative in Campbeltown, these innovative projects are the first in Scotland to use electricity power networks to deliver broadband communications. In Crieff, the trial is being carried out by SSE Telecom (the telecoms arm of Scottish & Southern Energy plc) on behalf of Scottish Hydro-Electric in partnership with Perth & Kinross Council with support from Scottish Enterprise Tayside, while in Campbeltown the company is partnering with Highlands & Islands Enterprise. The two pilot networks form part of the Scottish Executive's Action Plan to implement the 'Scottish Enterprise Broadband for Business Programme', promoting, among other things, innovative methods of extending broadband coverage in rural areas. The pilot projects will provide much faster access speeds in Crieff and Campbeltown, opening up a huge range of educational, business and entertainment opportunities via the Internet. ADAC (Engineering Services) Ltd is among a number of small businesses in Crieff that have taken up the opportunity to trial the service. If this and further trials by SSE prove successful, and subject to the technology meeting developing regulatory guidelines, the PLC service may ultimately be made available commercially.

e-business strategy:
Although ADAC does not claim to have a specific "e-strategy", the company has had, since its inception, a principle of investment in IT and of paying careful attention to its interface with the outside world. All investments are carefully targeted, not least in IT, which could absorb near endless resources. The company believes that investment in IT must improve productivity, yield direct return or notably improve presentation.

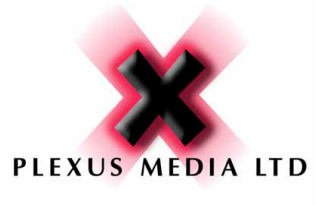
e-business solution:
In addition to the normal raft of office applications and specialist engineering software, ADAC has had access to the Internet for most of its existence. However, its use has been largely confined to e-mail, which, in itself, has not proved an entirely effective tool. Options to improve on Internet access were investigated, none of which met with the company's investment strategies. Basically, no options were available to ADAC's

rural setting that yielded significant advantage at an economic level. That was until SSE advertised its new Power Line trial venture. Recognising this as potentially offering considerable advances over existing options at an economic price, ADAC requested the system immediately. SSE Telecom's introduction of the broadband trials in Crieff is based on demonstrating that PLC can be used to deliver broadband services to real customers, and that a market can be developed for this service. PLC offers an opportunity to establish broadband communications using the most widespread, pre-existing infrastructure - the electricity network, delivering the service through house and office wiring to any standard power sockets. Basically, the technology differs from more "conventional" broadband services in its use of existing electrical wires instead of telephone lines or cable. The economics of extending cable or fibre telecommunications networks is widely acknowledged as a major hurdle to broadband expansion beyond urban areas. Electricity distribution networks, however, with virtually 100% coverage of the UK population, offer enormous untapped potential for provision of broadband to all areas, and with lower investment costs. In technology terms, a PLC network has been built in Crieff to provide broadband Internet Service Provider (ISP) and direct connections. Broadband is being delivered initially to 13 sub-stations via conventional Symetrical Digital Subscriber Line (SDSL) technology. From these sub-stations, PLC technology is used for the "last mile" to the SME or domestic user's premises. A PLC access box is fitted inside the customer's premises, connected to the incoming power supply by a 13-amp plug and to the network device or PC by a standard RJ45 connector. In other words, the Internet is brought right to the customer through a normal power socket without the need to tie up an existing phone line or install a new one.

Benefits of the solution:
ADAC's MD, Angus Armstrong, comments enthusiastically: "It can truly be said that, even in a comparatively short time, the anticipated benefits have been far exceeded. The speed and accessibility of the system are unparalleled compared with the old modem system. Previously it would take time to dial a connection, send and receive mail, tying up both equipment and phone line. Now I can have all three machines (more if I had them!) online simultaneously and use the phone. The 'always on' aspect of broadband e-mail makes keeping in touch and ensuring every one in the design team is kept informed so much more efficient. In addition, the ease with which computer-aided design (CAD) based drawing information can be exchanged provides significant benefits." In a nutshell, the benefits for ADAC are: · Speed and ease of transfer of bulk information · The 'always on' aspect, in particular related to e-mail usage · Multi-user access with no penalties or additional cost · The freeing up of telephone lines · No telecoms costs in terms of rental or call charges · Due to increased speed, the freeing up of manpower and computer time · Use of the Internet as a practical tool for the purchase of equipment and services · Use of the Internet as a practical tool for research · Reduced boundaries of work · And, last but not least, an aid to the company's image and credibility.

Results achieved and future expectations:
At the time of writing, the possibilities of the new system are only just being appreciated by ADAC, with the expectation that there are many other uses and business opportunities yet to be discovered. It is hoped that the system will lead to increased speed and efficiency in the design, development and issue of information. This will require the other professionals and contractors involved also to embrace the advantages available to them through this technology. In summing up, Angus

comments: "To truly see the benefits across the country, broadband must become widely available. Alexander Graham Bell would have been a lonely soul if there had only ever been one telephone!"



Enterprise and Culture Committee
Inquiry into the roll-out of broadband in Scotland

Background Summary

Plexus Media Ltd is a small Scottish company working in the field of digital media. Over the last six years, the company has grown from being a part-time business run from the Directors homes, to one that now operates from its own premises with five staff members. The company also regularly works very closely with other collaborative partners on a wide range of projects.

The company's main area of work is now based almost entirely around the Internet, and over the last three years we have seen enormous growth in requests for our services. Initially, this was just for the building and maintenance of web sites however this has now changed considerably and we now spend a good deal of our time creating our very own software packages.

Our clients range from small Bed & Breakfast establishments to large groups of companies. Taken all together, visits to our clients' websites probably add up to several million per year which in turn, I have no doubt, offer a healthy contribution to the Scottish economy. As an example, one of our clients, a successful group of property centres now receive in excess of five million visits per year via their web sites. This is just one example where for a client, the web has completely changed the way in which they conduct their business.

We have also created the websites for two European Union Programmes based in different parts of Denmark which have a combined budget of over 70 Million Euro. This is something that a small rural company like ours would have found almost impossible to do only a few years ago.

Communication Infrastructure

Since the company began in 1997, we have struggled with our communication infrastructure. Although in our first year of operation we were happy to use standard modems, it quickly became apparent that we would need faster access to the Internet. After a long and difficult period during which we became part of a very public debate with BT regarding their reluctance to upgrade the towns ageing UXD5 exchange (which would allow individuals and businesses access to a far broader range of digital services and keep us on a level playing field with our competitors). Although BT had stated categorically that this upgrade was not technically possible, we had been advised independently by experts that it was. Eventually BT accepted this and the exchange was subsequently upgraded to provide ISDN services.

Around three years ago, the company began creating and selling its own software systems. We also started creating bespoke websites for much larger organisations. By the beginning of 2002 it was quite evident that our ISDN connection was not going to be sufficient to cater for our ever-increasing workload. We made initial investigations into the possibility of getting the new ADSL Broadband connectivity but were told by BT that there was very little chance of us ever getting it because of our rural location. We then started looking at alternative solutions. The first and only alternative appeared to be a satellite system. However, on further investigation, we found that, due to latency problems, this would not be appropriate for the kind of work that we do.

Early in 2003, Highlands and Islands Enterprise announced that they were going to trial a number of alternative Broadband technologies. Subsequently, our town became the first in the Highlands to use a 'Wireless' Broadband connection. Lewis Macdonald, the deputy minister for Enterprise and Lifelong Learning officially opened the service from our premises on March 27th and we became the first business in the Highlands to operate with a new 'Wireless' Broadband connection.

A few months ago, BT seemed to change their minds and announced their intention of offering ADSL services to additional rural areas throughout Scotland. Cromarty was given a registration target for those interested in Broadband and this was very quickly reached and exceeded. BT is now committed to making ADSL available by mid June of this year. Obviously, we are now delighted to be

Communication Infrastructure (Continued)

scheduled for a permanent connection via the existing exchange and are very grateful to the Enterprise Network for providing an excellent service in the meantime.

Working Methods

Over the last year, Broadband has dramatically changed the way in which we work as a company. Principally, this technology has removed the bottlenecks that previously existed within our work processes. Whereas previously work was conducted in a manner which required tight scheduling of access to Internet resources, we now work in a much more organic fashion which greatly enhances the modular way in which we work together as a team.

CASTLEMILK CONNECTIONS – BROADBAND ENQUIRY REPORT TO SCOTTISH PARLIAMENT

Background

Castlemilk is a designated priority area in the south side of Glasgow , demonstrating the typical characteristics of urban exclusion and disadvantage in its rates of high benefits dependency, low economic activity and poor educational and vocational achievement.

Population

At the 2001 census there were a recorded 6515 households in the two local authority wards recognised as the Castlemilk community. Of this, the following population trends were evident

Population			
Age	Male	Female	Total
0-15	1722	1637	3359
16-65	4190	5015	9205
65+	740	1181	1921
Total	6652	7833	14485

2001 Census

Local Labour Market

Using a definition of working age population as that between 16-65, the following table summarises the main trends in economic activity for the community

All People 16-65	
Employed	4278
Unemployed	600
Full Time Students	229
Economically Inactive	4098
Total	9205

2001 Census

From this it is apparent that a significant proportion of the working age population is considered as economically inactive (45%). When the unemployed cohort are included within this definition, the rate of economic inactivity for the working age population for the area increases to 51%. This compares to a city of Glasgow rate of 33%, a Scottish rate of 19% and a UK rate of 15%.
Over half of the adult population are not in employment, training or further education.

From this it also becomes apparent that unemployment as a measure of local economic performance significantly misrepresents the profile of the area – where almost 7 times as many non JSA claimant individuals are not categorised as unemployed but are neither economically active.

Economic inactivity is a persistent feature of the areas economic and social profile with an estimated two thirds of the working age population considered as economically inactive.

These key indicators of social and economic exclusion portray a community experiencing of fundamental difficulties in re-engaging in the social and economic mainstream.

Social Economy & SME Client Base

There is a small but growing business base with just over 100 local businesses (excluding retail) mostly in the service sector but with small pockets of construction, manufacturing and engineering. The majority of these businesses employ less than 10 people each and are often only 2 or 3 person enterprises.

Castlemilk Economic Development Agency (CEDA) is the main economic regeneration agency supporting the physical, social and economic development of the area. It provides key services in employment, vocational

training, community economic development and business support. CEDA places around 450 people per year into employment and over 500 into vocational training.

Through its property company it is the largest local commercial landlord providing high quality, secure property which has encouraged both local residents to enter self-employment as well as attracting small growing businesses from across the city to relocate, increasing employment opportunities for local people. It is estimated that CEDAs activities in commercial property support over 300 local jobs.

The Third Sector or Social Economy organisations are a major part of the local economy providing services to local resident's including childcare, healthcare and support for a range of disadvantaged residents. They employ 142 full-time, 69 part-time and 120 sessional workers, supported by in excess of 300 volunteers. The majority of these organisations are well established and often forward thinking.

Digital Inclusion

CEDAs Digital Inclusion project 'Castlemilk Connections', has supported an estimated 36 community organisations & 22 businesses since the second phase of the project commenced in April 2002.

During this time a wide range of services have been provided in order to stimulate interest and encourage the use of Information & Communication Technologies (ICTs). Such services include: website development, network installations, data-base development, computer based laptop training and developing the local ICT infrastructure through the provision of learning centres & public Internet access points. One of the primary areas of development relates to the increased usage of e-mail & Internet access, which has enabled many of these organisations to enhance service provision. Many of these services are supported by the use of broadband technology.

Broadband in Castlemilk

CEDA's experience has shown that usage of broadband varies between community organisations and SMEs, as outlined below.

Community Organisations

Broadband appears to be having a major impact on Castlemilk's community with

58% of local organisations using this. These organisations vary from small projects with 2-3 staff up to larger projects with 80 staff including p/t workers & volunteers.

Following extensive awareness raising by Castlemilk Connections, increased broadband investment throughout many of Castlemilk's voluntary sector has resulted in cost savings and enhanced service delivery. For example, 10 websites have been developed, and 13 networks installed over the past 2 years.

Furthermore, there has also been an increase in the development of Public Internet Access Points using broadband in order to provide free Internet access for customers and residents throughout the community. This has resulted in 5 public internet access points being developed over the last 2 years, which has enabled many users to become more in touch and informed using on-line services provided locally i.e. www.castlemilk.co.uk, regionally and nationally. The innovative use of broadband has enabled CEDA to form partnerships with local providers including Langside College and voluntary sector organisations, which has resulted in a wireless broadband network being implemented by CEDA & Langside College. This is currently being used to promote the use of ICTs and encourage community access to lifelong learning opportunities, primarily using Learndirect and local college providers to support distance learning.

Feedback from many of the social economy organisations suggests that moving from dial-up & ISDN to broadband has enabled them to manage their

cash-flow more effectively (due to flat fee payments) in comparison to dial-up/ISDN monthly random payment fluctuations.

Although many local organisations in Castlemilk have adopted the use of broadband, there still remains a great deal of work to be done in order to raise awareness and encourage the usage of such technologies. Many smaller organisations do not realise the benefits of using broadband and cannot afford the combined cost of purchasing new hardware and installing broadband Internet access. Furthermore, others using dial up Internet access cannot afford both costs to network existing hardware (including those for public Internet access) and install broadband.

In light of the Scottish Executives broadband strategy, more support should be made available to the voluntary sector. This may be in the form of a technical support incentive budget to cover such costs including:

- broadband installations,
- short-term running costs,
- the purchase of hardware or new technologies to demonstrate the innovative use of broadband.

Additional support could also be made available throughout the community in the form of training to upskill local residents/volunteers. Awareness raising & outreach support sessions could be provided within learning centres, public internet access points, community organisations & SMEs. The main objective of this would be to share best practice and identify further problems or barriers that may be preventing the use of broadband.

Small Business

In contrast to community organisations, SME's have been much more cautious in their approach to embracing broadband. Whilst several have committed to broadband they have invariably been those organisation who receive maximum benefit i.e. trading on-line. The recent Broadband incentive scheme has encouraged a further 3 SME's to switch, which has resulted in a total of 8 of the 22 SMEs assisted now using broadband. However, the majority still continue to use dial-up for a number of reasons including:

- lack of IT knowledge,
- increase in spam e-mail & viruses putting people off using Internet & e-mail,
- limited funds to convert from narrowband to broadband.

It is therefore evident that further support should be made available to SMEs in order to encourage the use of broadband by way of an incentive scheme. Although CEDA currently works with UK On-line & Scottish Enterprise Glasgow to promote broadband, it is felt that such services should be tailor made, bespoke to the needs of each SME and be delivered locally for convenience. Incentive schemes could be introduced to support SMEs making the transition from narrowband to broadband where funding may assist costs for piloting innovative usage of broadband technology, installation/short-term running costs, and providing outreach awareness raising sessions & training in order to stimulate interest.

Conclusion

CEDA is clearly committed to supporting the Scottish Executives Broadband & Digital Inclusion Strategy, having already assisted a number of SMEs/Community implement the use of broadband technologies. However, further assistance is required at local level in order to support the bespoke needs of both client groups.

Having worked with many SMEs/local organisation in Castlemilk, it is the view of Castlemilk Connections that new targets may require to be set by the Scottish Executive to educate and support such organisations making the transition from narrowband to broadband.

Summary of suggested action points

- Due to weak levels of commercial activity and high levels of economic inactivity, regeneration priority areas may require additional support in the promotion of a Broadband strategy. Central support services are limited in their responsiveness to local issues. Local projects are better placed to assist and develop key strategies , in this case Broadband.

- Broadband is seen as a positive complement to organisational efficiency. Additional awareness raising and practical support should translate more of this interest into practical action.

- The provision of a small dedicated broadband development budget will help to improve rates of conversion by easing the cost of upgrade.

- The provision of ongoing support and assistance will improve conversion rates and maximise the best use of broadband at the community organisation and local business level.

- The local development company is best placed to provide this.

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Scottish Parliament's Inquiry into the Rollout of Broadband In Scotland
Mark Cullens

My experience on the subject of the Inquiry falls into two areas;

1. As General Manager of BRAG Enterprises Limited, Lochgelly Fife. A Community based training provider and small to medium enterprise.

2. Associate Principal at Glenrothes College, Fife.

BRAG Enterprises Limited

BRAG Enterprises (Benarty Regeneration Action Group) is an outstanding example of community economic development and community centred regeneration. Located in Central Fife (see red circle on the map below) its an area that illustrates being close to centres of wealth and population but does not mean that the prosperity reaches neighbouring communities.

BRAG was developed as a result of the immense impact to the local economy of the pit closures after the miners strikes of the mid-80's. In the 1980s the Benarty area, located in Central Fife, had one of the highest rates of unemployment in Fife and Scotland. The area had relied upon the coal industry and although many local pits had closed in the sixties many men still travelled to work in the larger deep mines under the River Forth as well as to the Rosyth dockyard.

Shortly before BRAG was established Fife Regional Council built a new Primary School leaving the Crosshill Primary School a redundant building. BRAG leased the old primary school building and focused on providing training for local people coming out of the mining industry. Incrementally the school was moved from being a primary school to a community based training facility. The classrooms where converted to offices and workshops and with the help of ERDF four light industrial units were built for new businesses.

In this way BRAG has established the Crosshill Business and Learning Centre as a place to locate and develop business as well as a venue for community based learning venue. The Scottish Executive and European Structural Funds support the development of courses in furniture restoration, office administration and landscaping. BRAG works in close partnership with Glenrothes College with the College providing tutoring staff and other learning resources.

Main Areas of Work

Training/Learning Centre:

BRAG offers a range of IT courses as well as jointly managing the Voluntary Sector option for the New Deal in Fife in partnership with CVS Fife. In addition, an Internet Café has been opened in the Crosshill Centre that currently has over 800 members, half of whom are under 18. BRAG also runs the Fife School for Social Entrepreneurs with 12 places for local people. The programme has been adapted from the national model and is the second such programme run in Scotland.

Business Centre:

As well as operating from the Crosshill Business Centre, BRAG has also secured further premises in Lochgelly. Over ten private businesses rent space within these premises providing a stream of income that allows BRAG to re-invest into the local community. As well as acting as a landlord, BRAG also provides an admin/accounting support service to these businesses. Amongst the local businesses operating from the Centres are a Mortgage Consultant, a private Nursery, a Tanning Studio, a Masseuse, a Building Company as well as being the headquarters for a stuntman who performs at shows throughout Europe!

Community Enterprises:

One of BRAG`s most significant achievements has been the development and support to community and social enterprise in the area. BRAG has been instrumental in setting up these businesses, providing training and advice, giving assistance in securing start-up funding and offering an ongoing admin/accounting service. The businesses include a landscaping business, a self-build/construction project, a community transport initiative.

The Impact of Broadband

The future of communities like the Central Fife Coalfields area are to a great extent mapped out by global and national trends. These trends such as a decreasing manufacturing sector and increasing service sector, the aging population are challenges to communities and the organisations formed to serve them.

Information and knowledge is increasingly being used as a source for competitive advantage. This can be seen in a range of commercial and community settings. Access to this knowledge might be open at source but unless the channels to access to it are open and free flowing then exclusion is very real.

Practical Examples
The services that BRAG seeks to provide are all very much reliant on the quality of Internet access such as;

- Learning
- Business Premises
- Internet Café

In the case of broadband it is easier to describe the benefits by identifying what its like not to have it. Providing training to learners in an environment that cannot provide a reliable Internet connection is very difficult. For example:

1. The wealth of online material available through the Colleges Virtual Learning Environments is not available to students.
2. An online assessment for ECDL that regularly fails due to the connection dropping out undermines learner confidence and effects learner performance.
3. Restricting online content (e.g as streaming media) in order to conserve bandwidth very much narrows the user experience.
4. Websites grow in sophistication because of the bandwidth available leaving those without access even further behind
5. Increasingly material is available for download but large files cannot be drawn down, increasing costs in print.

The Internet Café at BRAG has over 800 members. Having to regularly close the café or have customers leave frustrated by the speed of the PC's, was a very real almost a daily occurrence.

Progress To Date
In November 2002 as a response to these difficulties BRAG Enterprises purchased (with Scottish Enterprise support) a broadband satellite system. In reality this did not solve our difficulties. In many ways it was exacerbated because the satellite would perform well at random points giving an indication of what is possible, only to slow down at other times. This was caused by a number of factors including contention ratio (numbers sharing the connection) environmental factors and the delay caused by information travelling to and from the satellite.

In May 2003 BRAG Launched a website to gauge community interest in BRAG becoming an Internet Service Provider of broadband using wireless technology. The website involved people pre-registering for a service. This was backed-up with a local media campaign. By the June of 2003 over 60 households in the area had pre-registered for the service. BRAG purchased some equipment for testing the technology.

In July 2003 BT selected the Ballingry exchange and a second exchange in Wales to pilot its own wireless programme. BRAG subsequently withdrew its offering choosing not to attempt to compete.

In November 2003 the decision was taken that we could no longer afford to provide sub-standard services. A leased was installed at the cost of £3500 and annual rental of £12k. This solved the connectivity problem resulting in;

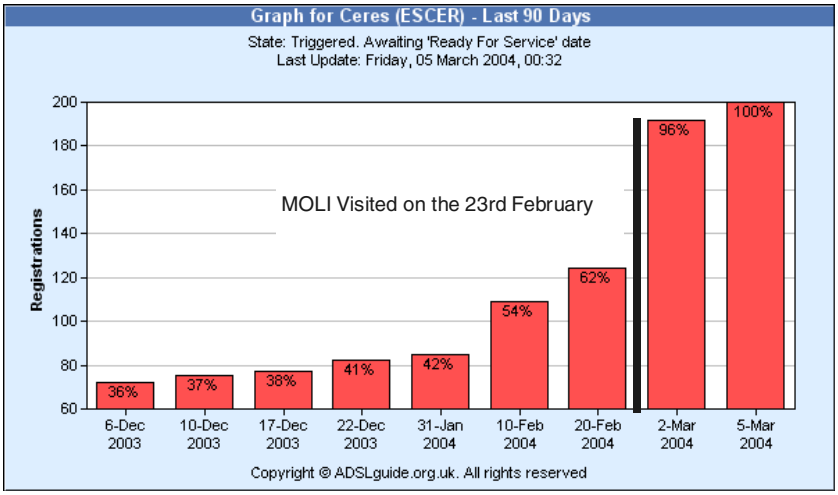
1. A secured, quality service.
2. Internet content is no longer restricted to save bandwidth.
3. Downloading large files is now possible for software up-grades (previously would need to be ordered on CD-Rom taking days)
4. The assessment is now stable.
5. Tenants of the business centre access the connection.
6. Greater access to Learn Direct resources such as courses and online reporting.

Glenrothes College established the £500,000 mobile learning initiative, MOLI(www.mdlu.co.uk) just over a year ago. The initiative involved the college leasing a modern 'coach-type' vehicle equipped with state-of the-art IT equipment and teaching facilities, all linked by satellite to broadband. The project has been undertaken in partnership with the business community and the Enterprise Network throughout Scotland. The primary focus of this has been on the rollout of broadband and supporting business in the use of e-commerce.

'MOLI' has travelled the length and breadth of Scotland raising awareness of the business benefits of E-business and E-learning brought about by a broadband infrastructure. To date over **2000 beneficiaries** have attended seminars and workshops. MOLI's mobility has made her especially suitable for use in rural locations

One particular aspect of MOLI has been support for Local Enterprise Companies in their work to hit trigger levels set for broadband in local exchanges. MOLI has visited over 110 locations specifically to raise awareness and educate business in broadband. At a further 25 locations, the focus has been on delivering general e-commerce training.

MOLI has played a major part in many rural areas in hitting 'trigger levels'. For example in Fife, the region in which MOLI has been most active, there are now only two exchanges left to trigger for broadband. This is a significant achievement and an example of the results possible when a College and Local Enterprise Company work closely together. The table below sets out the impact on registrations of a seminar held in the town of Ceres on MOLI.



Also, the evidence of follow through resulting from this work is impressive. In areas where the exchange has been enabled the level of uptake has been very high indeed and two areas in Fife are in the top 3 for the whole of the UK - the other area being in London.

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SCOTTISH PARLIAMENT ENTERPRISE AND CULTURE COMMITTEE: RENEWABLE ENERGY INQUIRY

Evidence by National Grid Transco

Introduction

1. National Grid Transco (NGT), via our licensed subsidiary National Grid Company plc, owns and operates the high voltage (400kV and 275kV) electricity transmission system in England & Wales. We also own and operate the majority of the gas transmission and distribution networks in Great Britain via our licensed subsidiary Transco plc. The electricity distribution networks in England & Wales and the transmission and distribution networks in Scotland are owned and operated by other companies.

2. Following the proposals to introduce new British Electricity Transmission and Trading Arrangements (BETTA), the then Minister for Energy and Construction said that he was minded to appoint National Grid Company to the role of Great Britain System Operator (GBSO) when enabling legislation (the Energy Bill) receives Royal Assent.

3. To ensure NGT's independence in the electricity market, our electricity transmission licence prohibits us from owning generation or supplying electricity. We are required to *develop and maintain an efficient, co-ordinated and economical transmission system* and *facilitate competition in generation and supply*. Our ability to trade electricity is strictly limited to our system operator role of balancing the electricity market, buying energy and other services to match generation and demand second by second.

4. We are pleased to have this opportunity to provide our comments to this Inquiry into Renewable Energy which is being conducted by the Enterprise and Culture Committee. Given our role, this submission concentrates on electricity network and system operational matters.

Content of Evidence

5. Our evidence is structured as follows:

   a. A discussion of the transmission network reinforcements that would be needed to accommodate renewable energy sources, focusing particularly on those reinforcements that may be needed to accommodate the 2010 renewables targets.

   b. The logistical, financial and regulatory issues associated with establishing the required network reinforcements, both onshore and offshore.

   c. The nature of proposed GB transmission access and charging arrangements under BETTA and how they might affect renewable generators.

   d. Our assessment of the feasibility and costs of managing the intermittent output of a large wind portfolio in both Scotland and across Great Britain.

Potential Transmission Network Reinforcements to Accommodate Renewables

6. In order to understand the network implications of both large-scale onshore renewable developments in Scotland, and offshore developments elsewhere in Great Britain, we have undertaken studies of our electricity network and participated in joint studies with the Scottish transmission licensees to assess the potential transmission requirements across

Great Britain. A report describing the result of these studies has been published by the DTI's Transmission Issues Working Group and is available on its website.[1]

7. By way of summary, the studies examined two wind development scenarios (given that wind is the front-runner technology for new renewable generation):-

1) A scenario in which the majority of wind turbines are constructed onshore and the major proportion is located in Scotland

8. In this scenario it is assumed that the major portion of wind generation is constructed onshore in Scotland. Significant network development is required in order to:

   a. Connect and aggregate a large number of wind farms at both distribution and transmission voltages within Scotland by the Scottish transmission and distribution licensees.

   b. Reinforce the Scottish transmission networks in order to transmit the output of wind turbines in part to Scottish load centres but also south to England and Wales.

   c. Reinforce the capacity of the electricity interconnector circuits between Scotland and England.

   d. Reinforce the England and Wales transmission network, particularly within the North West and North East of England, so that additional exports from Scotland can be transported south.

9. The scenario examines a background in which most of the existing generating capacity in Scotland remains in operation (i.e. only Cockenzie and Chapel Cross are assumed to cease operation). The network investments needed to accommodate up to 6,000MW of wind turbines in Scotland are likely to have a total capital cost in the order of £1.6 billion, dividing roughly equally between the three transmission licensees. This represents a network investment cost of the order of £250 per kW of wind generation capacity in Scotland.

10. To undertake the first phase of these reinforcements (upgrading the interconnector circuits and reinforcing the northern part of England) is likely to take approximately 4-5 years, assuming the relevant consents are readily obtained.

2) A scenario in which the majority of wind capacity is constructed offshore

11. In this scenario we assumed that up to 6,000MW of offshore wind generation would be developed predominantly in the strategic Renewable Energy Zones designated by the Government for Round 2 leases off the England and Wales coast, together with 2,000MW developed onshore in Scotland. The Round 2 offshore wind farms are typically several hundred MW and we therefore expect that much of it would connect to the transmission system at connection points near the Thames Estuary, The Greater Wash and the North West of England.

12. The potential for more southerly locations for offshore wind generation developments means that generally less reinforcement would be required to the onshore networks than that identified for the onshore wind scenario described above. Nevertheless, large offshore developments between Wales and Cumbria, together with the need to accommodate onshore wind in Scotland, may mean that significant upgrading of the system in the North West of England could be required.

[1] Final Report, the Transmission Issues Working Group, June 2003, See http://www.dti.gov.org.uk/energy/renewables/tiwgreport.pdf

13. The total onshore network reinforcement costs for this scenario (covering network developments in Scotland, the onshore connections to offshore wind farms, but not the offshore cables) are estimated to lie between £805m and £1125m depending on the particular location of the offshore wind developments. This represents a network investment cost of around between £50/kW and £100/kW to accommodate offshore wind generation, the higher end of the range being associated with offshore development in the North West leading to transmission reinforcements in the Cumbria area.

Scenarios of renewables development beyond 2010

14. To meet the levels of renewables identified in the Energy White Paper beyond 2010 using primarily wind power it is likely that extensive development of both onshore and offshore resources will be necessary.

15. A study of the System Cost of Additional Renewables[2] examined a wide range of renewable development scenarios resulting in 20% or 30% of electricity being produced by renewable generation by 2020. This study identified the sensitivity of network development costs to both the location of new renewables and the closure and/or replanting of conventional generation. For example, closure of existing generating stations in Scotland and the North of England would release some network capacity for renewable developments and so reduce the reinforcements that would otherwise be required. However, if security of supply is not to be compromised, a significant amount of conventional generation will need to remain available in order to provide continuity of supply when weather conditions are such that wind power is not being generated. This suggests that the need for north-south network reinforcements would only be reduced if existing conventional capacity in Scotland and the North of England were replaced by plant located in the South of England. However, such siting could then require other reinforcements to support south to north transfers when renewables are not generating.

16. In summary, the scenarios outlined above identify:

    a. **The need for significant network reinforcement to accommodate large-scale development of wind power in Scotland and, depending on the future operation of existing generating capacity in Scotland, a need to reinforce the transmission networks to transport this power south across Scotland and into England.**

    b. **The potential for a different and potentially smaller set of reinforcements if wind power is primarily developed offshore from England & Wales.**

    c. **The potential need to accommodate both onshore and offshore developments in the longer-term, but other generation and demand changes may alter the amount and type of reinforcements that may be required.**

17. These scenarios imply some uncertainty in the amount and location of network reinforcement we need to undertake as a result of (i) the locations chosen by new renewable generators; and (ii) the future operation of existing generation.

18. The Scottish transmission licensees have indicated that they are already responding to significant developer interest in connecting new wind projects in Scotland. In order that the National Grid Transmission network does not impose a barrier to the development of

[2] ILEX Energy Consulting and Goran Strbac, UMIST *Quantifying the System Costs of Additional Renewables in 2020.* . DTI, 2002. Available on the DTI website at http://www2.dti.gov.uk/energy/developep/support.shtml

renewables to meet the renewable targets, we are seeking to progress reinforcements to our network in parallel to those that the Scottish transmission companies plan to develop. The next section of our evidence looks at the logistical, financial and regulatory issues associated with initiating reinforcement at this time.

Establishing the Required Network Capacity

19. Since privatisation National Grid has made significant investments (over £4bn in today's prices) in order to fulfil our duties under the Electricity Act to develop and maintain an efficient, co-ordinated and economical transmission system and facilitate competition in generation and supply. We have been able to undertake this investment because the regulatory framework gives sufficient certainty of appropriate future revenues to finance our investment. In particular, the regulatory authority has a duty to ensure that licensees can finance their authorised activities including efficiently incurred capital investments. It is the specific challenge of demonstrating that investments to accommodate renewables are economic and efficient that poses a barrier to initiating large transmission investments to accommodate power transfers arising from renewable generation at this time.

20. Normally investments to establish additional network reinforcements can be shown to be economic and efficient by demonstrating that one or more network customers are willing to make an appropriate financial commitment to the investment. For example, the developer of a new large power station will enter an agreement with us to pay cost-reflective use of system charges from when the station enters operation and, in addition, to provide financial guarantees to cover the network investment in the period prior to power station commissioning and the network charges becoming payable. In this manner, as the location and connection arrangements for a new power station will have been chosen by the developer in the knowledge of the associated network costs (via cost-reflective charges), both the location of the power station and associated network developments can be deemed economic and efficient.

21. This approach is difficult to apply to transmission investment arising from new onshore renewable generation at the present time for the following reasons:-

a) The embedded nature of much of the expected renewable generation

22. Many of the individually small renewable developments will find it most economic to connect to Distribution networks. They may not be required to enter Use of System Agreements with the transmission licensees and so would avoid transmission network charges. Consequently, it may not be possible to demonstrate that the generators whose developments require the reinforcements have committed to pay a cost-reflective charge for them.

b) The imminent introduction of new British Electricity Trading Arrangements (BETTA) removes incentives on Scottish Generators to enter new interconnector agreements.

23. Prior to BETTA, generators entering or already operating in the Scottish market can signal the need for, and demonstrate their commitment to, new reinforcements by entering new agreements for interconnector capacity (which include financial commitments related to the associated downstream reinforcements in England & Wales). However, the imminent introduction of BETTA means that such agreements will no longer be required but will be replaced by new GB wide transmission access arrangements, the definition of which is currently still subject to finalisation.

24. Thus, despite indications that there is significant activity associated with developing wind generation in Scotland, no party has yet applied for additional interconnection capacity. Moreover, given the imminent arrival of BETTA and termination of the interconnector agreements, we do not expect any such applications to be made.

c) The nature of transmission charges under BETTA

25. To the extent that renewable generators do enter transmission agreements with the GBSO following BETTA (i.e. those that are not fully embedded), such agreements may provide evidence that reinforcements are efficiently incurred. However, there are a number of issues that may affect how cost-reflective transmission charges under BETTA will be:

    a. DTI proposals for reduced transmission charges to renewable developments in areas of low population density[3].

    b. Ofgem proposals to reduce transmission charges to small 132kV connected generators in Scotland.[4]

    c. DTI proposals for transmission licensees to levy charges on GB suppliers and make payments to distribution companies with higher than average costs.[5] (A mechanism that may be used to protect customers in the Scottish Hydro Electric area from costs arising when Scottish Hydro Electric Generation Ltd no longer needs to pay the "hydro-benefit" for network costs arising from their generators).

26. While each of these modifications address important policy issues, they also affect the extent to which transmission charges will be cost-reflective and therefore the extent that the choice of location of new generators and the continued operation of existing generation can be used to demonstrate the efficiency of network reinforcements.

d) The licensing and regulatory framework for offshore developments

27. The Energy Bill contains the requirement for offshore networks to be licensed and provides Ofgem with the powers to select offshore transmission operators. The criteria by which such licences will be awarded and the regulatory arrangements under which price controls will be determined have yet to be announced. Whereas we have undertaken initial planning assessments of the works that may be required onshore in England & Wales to accommodate potential offshore developments, the absence of applications and commitments from specific customers make it difficult to progress onshore reinforcements at this stage.

28. In summary, a number of highly interactive regulatory and policy matters need resolution before we can progress the network reinforcements needed in England & Wales to accommodate renewable generation. While BETTA may improve our ability to demonstrate that reinforcements are efficient (or clarify whether existing capacity will become available as a result of other generation in Scotland withdrawing from the market), there are a number of as yet unresolved issues concerning the nature of GB transmission charges and access arrangements.

29. Nevertheless, NGT is keen to make whatever progress is possible to facilitate the development of renewables, be they in Scotland or England & Wales, onshore or offshore, transmission or distribution connected. We welcomed Ofgem's consultation[6] on

[3] "Transmission charging and the GB Wholesale Electricity Market", Ofgem & DTI Consultation Document, August 2003. http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/4330_betta_transcharging1.pdf

[4] "Smaller generator issues under BETTA - An Ofgem/DTI consultation document", Ofgem & DTI Consultation, November 2003. http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/5125_Small_Generators_issues_20nov03.pdf

[5] Clause 157, Energy Bill [HL] as amended in Grand Committee.

[6] "Transmission investment and renewable generation", Ofgem, October 2003. http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/4926_Trans_investment_renew_generation_27oct03.pdf

the regulatory framework that would be appropriate for dealing with these investment decisions. Of the approaches identified, NGT believes that doing nothing until the next full price control starts for NGC and the Scottish licensees in 2006/7, given that the reinforcements may take 4 years or more to complete, would severely risk the transmission network becoming a significant barrier to meeting the 2010 renewables targets.

30. For these reasons, we believe that the most appropriate approach would be for Ofgem to agree the need for an initial co-ordinated set of reinforcement works in Scotland and England & Wales so that future funding of the associated investment costs can be assured. The mini-review associated with extending NGC's and the Scottish Licensees price controls until April 2007 would be a suitable opportunity to decide these regulatory arrangements. In the meantime, we are progressing with analysis that will enable us to identify in more detail the reinforcements required in a number of the scenarios.

Effects of GB Transmission Charges Under BETTA on the Development of Renewables

31. On GB transmission charging[7], Ofgem & DTI concluded that the GBSO should be the party responsible for setting transmission charges across Great Britain, that the GBSO would be responsible for developing and maintaining the charging methodologies, and that the regulatory basis of these arrangements should be NGC's existing Standard Licence Conditions in England and Wales. We have started on the consultation process for the charging methodology issues and illustrated the charges that might result as a consequence of applying the existing England and Wales methodology to the whole of Great Britain[8].

32. The application of this charging methodology produces zonal charges for generators and suppliers, such that the difference in charge between any two zones reflects the annual cost (or benefit) of establishing (or delaying) the necessary transmission network capacity should generation or demand be moved from one zone to the other. The absolute level of charges to generators and/or demands depends on the total revenue that will need to be recovered under the price controls of the three GB transmission licenses and also on the ratio of total charges to be paid by the generation and demand sides (currently set at 27:73). The initial charges that arise from applying the existing England and Wales methodology to the whole of Great Britain results in:

    a. Demand charges in the Scottish Hydro Electric area would be zero and in the Scottish Power area of circa £2.5/kW per year. This represents a considerable reduction in charges paid by Scottish consumers compared to current transmission charges (E.g. For comparison, demand customers in Scottish Hydro Electric's area currently pay Transmission Use of System charges of circa £10/kW/yr plus demand connection charges of circa £7/kW/yr. Similarly, in Scottish Power's area Use of System charges are circa £6/kW/yr and demand connection charges are circa £12/kW/yr).

    b. Demand charges in England & Wales would increase (by circa £2/kW/yr) with the highest charges payable in the South West of England at circa £19/kW/yr.

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[7] " Transmission charging and the GB Wholesale Electricity Market Ofgem/DTI conclusions on Part 1: Changes to transmission licences to implement GB transmission charging under BETTA", Ofgem & DTI, December 2003.
http://www.ofgem.gov.uk/temp/ofgem/cache/cmsattach/5274_Trans_charging_GBwholesale_elecmarket_2dec03.pdf

[8] "GB Transmission Charging initial thoughts : consultation", NGC, December 2003, http://www.nationalgridinfo.co.uk/betta/pdfs/NG_GB_Charging_Initial_Thoughts.pdf

c. Generation charges in the SHE area would be set at circa £20/kW/yr and in the SP area at circa £11/kW/yr. Although it is difficult to make direct comparison with existing generation charges in Scotland due to the treatment of the interconnector, Scottish Generators have stated that these would represent a significant increase.

d. Generation charges in England & Wales would reduce (by circa £1.5/kW/yr) with the highest charge payable (in the North East of England) at circa £8/kW/yr.

33. These illustrative charges do not include any adjustment that may result from any of the issues identified in paragraph 25 above. They do illustrate how generation charges in Scotland and in England & Wales vary to reflect the cost of financing network capacity, broadly in proportion to the investment requirements identified in paragraphs 9 and 13. The publication of these illustrative charges is part of the first stage of the process of establishing a GB charging methodology. Our consultation paper raised a number of issues of a technical nature on which we sought views. Further issues have been raised in responses and we expect to produce a further consultation document in the next few weeks. The programme leads onto the submission of our final proposals in the autumn to Ofgem whose agreement will be required before any charging proposals can be implemented.

Standby Capacity and Intermittent Production of Wind Generation

34. We have conducted a number of studies into the statistical characteristics of wind and the potential performance of a large national wind portfolio physically aggregated by the transmission system has led us to the following conclusions:

Short-term balancing requirements

35. In the period immediately prior to real-time, when as system operator we are responsible for residual energy balancing and system balancing, the persistence effect of wind and the expected significant diversity between regional variations in wind output means that, while the balancing task will become more onerous, it should remain manageable.

36. We have estimated that for the case with 8,000 MW of wind needed to meet the 10% renewables target in 2010, balancing costs are expected to increase by around £2 per MWh of wind production, representing an additional £40 million per annum, just over 10% of existing annual balancing costs.

37. With sufficient wind to meet 20% of energy sales (in-line with the Government's aspiration for 2020) we estimate balancing costs might reach an additional £3 per MWh of wind produced and so increase balancing costs by around £200 million per annum (in today's money). This would represent an increase in balancing costs of around 60%. However, provided the necessary flexible generation and other balancing service providers remained available, we see no immediate technical reason why this amount of wind could not be managed in balancing timescales. We believe that, if there is a limit to the amount of wind that can be accommodated, that limit is likely to be determined by economic/market considerations.

38. One important caveat to our short-term balancing conclusions is our assumption that regional variations will remain uncorrelated. We are aware that certain generation technologies used in wind turbines are very sensitive to voltage depressions, even if they last for very short periods of time, such as the 140 milliseconds that protective equipment on the transmission system typically takes to remove a line fault caused by lightning. As such faults can result in a voltage depression over an extensive area of the country, there is a potential that a large number of wind turbines could trip simultaneously as the result of a common cause. (This is known as a 'common mode' failure.)

39. In Germany, where there is currently around 12,000MW of wind generation, we understand that transmission voltage depressions have, on occasion, resulted in the simultaneous tripping of large proportions of their wind portfolio. On an island system such as Great Britain, a large simultaneous tripping of generation is much more difficult to manage than within the interconnected continental system. Acceptable technical solutions will be needed to ensure that this effect does not seriously limit the number of wind turbines that can be accommodated. Following our discussions with manufacturers and developers, we are confident that such solutions can be found and implemented.

40. As a result of such issues we are aware that a number of transmission system operators are revising their Grid Codes to identify revised minimum technical characteristics for such generation technologies. In Great Britain, the Scottish transmission licensees have submitted proposed changes to the Scottish Grid Code to Ofgem for approval. Following consultations with wind developers and manufacturers, we have also brought forward our proposed modifications to the England & Wales Grid Code for Ofgem approval. At present we are working with Ofgem and the Scottish transmission licensees to derive a fully consistent and common set of technical requirements for use across GB.

41. We are mindful that such proposals could impose additional costs on wind turbine developers. We are seeking to ensure that our proposals minimise these and other system costs while ensuring that system security is maintained and the large developments of wind expected to connect in the near future can be accommodated and can function satisfactorily and thereby deliver the environmental benefits sought.

Standby generation requirements

42. Although we have not attempted to forecast how the electricity market will respond to an increased proportion of variable and unpredictable generation, we have identified the amount of conventional generation that will need to be retained in the electricity market if current levels of supply security are to be maintained. This analysis is described in more detail in a published paper[9].

43. For the first 8,000MW of wind capacity, we calculate that around 3,000 MW of conventional capacity (equivalent to around 35% of the wind capacity) can be retired without any increased probability that load reductions would be required due to generation shortages on cold days. However, as the amount of wind increases, the proportion of conventional capacity that can be displaced without affecting security reduces. For example, with 25,000MW of wind only 5,000MW of conventional capacity (20%) could be retired.

44. This analysis suggests that, for larger wind penetrations, the wind capacity that can be taken to be firm is not proportional to the expected wind energy production. The electricity market will therefore need to incentivise the operation of a larger proportion of conventional generation with reduced load factors (the so-called standby plant).

Conclusions

45. The extent and cost of onshore transmission reinforcements needed to accommodate wind turbines, whether transmission or distribution connected, depends on their location and the future operating regime of existing generation. Generally, the transmission network reinforcements required are more extensive if wind turbines are located at more northerly sites.

46. Two scenarios have been studied, representing the potential development of 8,000MW of wind in order to meet renewables targets for 2010. These scenarios show that

[9] "A shift to wind is not unfeasible", Dale, Milborrow, Slark & Strbac, PowerUK Issue 109, March 2003

transmission investment costs to accommodate wind turbines onshore in Scotland would be circa £250/kW whereas the reinforcements required to accommodate offshore turbines would cost between £50/kW and £100/kW (not including offshore cable costs). However, onshore turbines would be cheaper to construct than offshore turbines and wind conditions onshore in Scotland are among the most favourable in Great Britain.

47. While delays in obtaining planning consents for transmission reinforcements could be important in determining how quickly the required network infrastructure to accommodate wind could be established, there are also currently regulatory issues that need to be resolved before network reinforcements can be initiated. Specifically, given uncertainties in the location and volume of wind developments, and the difficulties associated with obtaining financial commitments to reinforcements by wind developers, there is a requirement for deciding the basis on which network investments are considered to have been efficiently incurred and so receive future remuneration.

48. Subject to ensuring that the generation technology used in wind turbines does not give rise to a risk of widespread simultaneous tripping as a result of a common mode event, we believe that the short-term variability of wind can be managed, albeit at some additional cost (e.g. circa an additional £40m per annum for 8,000MW of wind turbines). In the longer-term, we do not think it is likely that there will be a technical limit on the amount of wind that may be accommodated as a result of short-term balancing issues but economic and market factors will become increasingly important.

49. Our assessment has sought to quantify the amount of conventional generation that will need to be retained in service in order to maintain current levels of security of supply (despite a reduced requirement for energy production from such units). Measures that will improve the incentives in the electricity market to maintain security of supply, however, are likely to increase the imbalance costs faced by intermittent generators.

10 March 2004.

SUBMISSION FROM BAYWIND ENERGY CO-OPERATIVE LTD

Baywind Energy Co-operative Ltd is the UK's first and largest community-owned renewable energy project. Energy4All was established in 2002 to replicate the Baywind model of participation to maximise the social, environmental, and economic benefits of renewable projects within the local community. In our submission we have answered all the questions posed by the enquiry but Question six is our main area of expertise that we would like to draw your attention to on community benefits.

1. Will the Executive targets be met, under current circumstances, and are they appropriate? - How were they arrived at by the Executive? What is the relationship with UK targets?

Baywind fully supports and encourages the Executive target of 18% of electricity generated in Scotland from renewable sources by 2010, and an 'aspirational' target of 40% by 2020. Scotland has one of the best potentials for exploiting renewable energy resources in Europe. As such a target of 18%, which is higher than the UK average, is not only appropriate but also achievable and advantageous to the nation as a whole. The advantages of such a target include wealth creation, employment generation, social cohesion, rural diversification, regeneration, education and training, environmental protection and eco-tourism as well as reduced dependence on overseas supplies. Renewable resources are key to guaranteeing long term security of supply, fulfilling rural diversification opportunities and reducing greenhouse gas emissions.

To put this in context the UK with 1% of the world's population produces 2.3% of the world's carbon dioxide. Of this, power stations contribute 29% of total CO_2 emissions in 2001. To stabilise greenhouse emissions today would require an immediate reduction of emissions of 60%[1]. However in the period from 1990 to 2001, there was an increase of around 17% in the amount of electricity generated, a 7% increase in road transport emissions, a 13% increase in residential emissions and a staggering 87% increase in air traffic emissions[2]. Therefore climate change objectives can only be achieved through an integrated low-carbon energy system of which renewables plays a key part.

For comparison purposes the South East has set one of the lowest targets in the UK. A 6.6% target, equivalent to 660 MW of new capacity, to be met primarily from offshore wind and waste to energy schemes by 2010. This reflects the low wind speeds (5 to 7 m/s) and the high population density[3]. However their target represents an 88% increase from the current amount of RE while Scotland's target from 13% to 18% of total would represent a 38% increase. Given the resources and opportunities available to Scotland,

[1] Climate Change Observations and Predictions. Recent research on Climate Change Science from the Hadley Centre Dec 2003

[2] UK Greenhouse Gas Inventory, 1990 to 2001:Annual Report for submission under the Framework Convention on Climate Change Baggott, SL, Davidson, I, Dore, C, Goodwin, J, Milne, R, Murrells, TP, Rose, M, Watterson, JD, Underwood, 2003

[3] Development of a Renewable Assessment and Targets for the South East
Government Office for the South East Keith Richards (TV Energy), Ian McCubbin (AEAT) & Karl Cradick (Terence O'Rourke) January 2001

Baywind believes the target of 18% for electricity generation from renewable energy is not only appropriate and achievable but also a considerable highly beneficial opportunity.

2. Have assumptions been made about the contributions of different sectors?

The majority of recently installed renewable capacity in Scotland is from wind energy. This reflects technology suitability, resource available and the economic viability of projects. However, Scotland has considerable potential in all the other technologies including biomass, solar, and run-of-river hydro schemes that are virtually unexploited. The real advantages of using a wide spread of renewables is that they complement each other as between wind, sun and rain hybrid solutions can harness daily weather conditions while biomass fuel is the only storable renewable resource that can be used on demand. Whilst targets apply to electricity generation, heat is the main demand for energy in our homes and certain industries. Biomass and solar technologies are most appropriate for this purpose and so it makes sense that the heat and electricity markets are considered in parallel with the commercially viable technology spread available.

Similarly whilst smaller scale developments are more palatable to local communities and certain conservation agencies these alone will not produce the required additional output of green generation to a) replace the older nuclear and coal power stations due to shut down by 2020 and b) keep up with increased electricity demand. However small schemes can greatly assist in overcoming planning, familiarity and public acceptance barriers so a true spread is required of technologies, geographical locations and size of schemes.

3. What are the opportunities and implications for the economy in achieving the targets?

Much of the benefits to the economy are tangible and well documented in job creation, rents, rates, services and the production of affordable electricity; an essential component of any economy. In addition to this is the knock on effect of money generated from the industry remaining within the Scottish economy. The levels of funds staying within the economy are significantly increased if the schemes are owned or part owned by Scottish people themselves. Asset-based community economic regeneration as a means to sustainable wealth creation is the desired outcome from the renewable revolution particularly in remote rural areas. Through community involvement schemes are less contentious and indeed beneficial as ownership not only provides a steady stream of income but also allows people to be members of a co-operative committed to maximising social, economic and environmental benefits to the locality and providing a vehicle for decision making etc. This concept is discussed further in response to Question 6, which explains the Baywind Energy Co-operative model, which is 100% community owned as an example of improved community benefits.

O the technology spread, biomass offers the most tangible socio-economic benefits of any of the renewable resources due to the considerable job creating opportunities involved.[4] Employment occurs during growth, harvesting, collecting, handling, transportation and processing of fuels plus the combustion process. The biomass industry is applicable to both rural and urban environments due to the diverse number of fuel sources and applications. These include offering additional income to the faltering forestry sector from residues, reducing landfill due to the recovery of timber off-cuts and where appropriate improved diversification in the agricultural sector when short rotation coppice, such as willow, is grown and utilised. The harsh conditions, tied to remoteness from main markets, makes viable and profitable farming difficult but local biomass markets offer a viable, alternative source of income, particularly in a country where nearly four fifths of the total land area is used for some form of agriculture. Another example of biomass application is biodiesel produced from waste vegetable oil. This has the potential to be cheaper than petro-diesel due to the reduced rate of duty (25.87p/litre compared to 45.87p/litre for petro-diesel)[5] and prevents pollution of rivers.

The other less well-known benefit is the preventative cost of pollution. Last year was the third warmest year worldwide since records began in 1861 and all of the 10 warmest years have occurred since 1990[6], yet an astounding 85 percent of the UK population believes they will not witness the effects of climate change for decades.[7] The UK bill for flood damage was a staggering £700 million last year. One heat wave killed 20,000 people in Europe alone[8], and natural disasters cost the world more than US$60 billion[9] in 2003. Global warming is a reality and the impacts and cost of this will increase year on year[10]. The public as energy consumers will ultimately pay for the additional cost of climate change in the future. Therefore immediate priorities of energy policy to reduce carbon emissions are most cost effectively served by promoting energy efficiency and expanding the role of renewables[11] For example for every tonne of carbon saved through energy efficiency measures the economy typically benefits by £150.

4. What are the implications if the executive's targets are not met?

Energy generation schemes due to the infrastructure involved have long-lead times for new build therefore forward planning to ensure future energy supply is critical to 'keep the lights on'. Most of us take for granted electricity that is available at a flick of a switch however last year alone saw blackouts occur in London, Italy and the East Coast of North America highlighting the vulnerability of modern power systems. Most nuclear power stations are due to close by 2020. The North Sea oil and gas supplies are depleting and

[4] Socio-economic drivers in implementing bioenergy projects Task 29 IEA Bioenergy 2003
[5] http://www.goldenfuels.co.uk/biodiesel/ January 2004
[6] Figures compiled by the Met Office and the University of East Anglia for the World Meteorological Organization
[7] Climate Change: A 21st Century Ark EST 2003
[8] World Health Organisation
[9] Thomas Loster, head of weather and climate risks research at Munich Re
[10] Climate change: Scottish implications scooping study http://www.scotland.gov.uk/cru/kd01/ccsi-09.htm January 2004

[11] Energy Policy – Key issues for consultation Performance and Innovation Unit 2002

therefore replacement generation is required to meet future demand both in the short and long term. Without a secure, reliable energy supply our lifestyles and economies cannot continue. Without renewables the cost of generation will continue to increase as the cost and availability of traditional fuel sources increase.

Without community ownership, public support and understanding is considerably removed from the issues at hand As George Marshall wrote in the New Statesman on 1 December 2003 "…as threats become less certain, or causally complex, it becomes harder to find the urgency to tackle them. The complex causality of climate change also plays particularly strongly to the natural human tendency to diffuse responsibility… the "passive bystander effect"… "

Not only does community ownership provide the mechanism through which to support climate change mitigation measures, it also maximises the economic benefits to local areas and provides a conduit for promoting energy efficiency measures and an educational forum to promote changing current consumption habits.

5. What are the current barriers, and what action needs to be taken to ensure that the targets are met?

A recent submission by the British Wind Energy Association for the House of Lords sub-committee into the practicalities of developing renewable energy listed finance as the key obstacle to future growth of the industry followed by grid and planning issues. 'The private sector does not appear to be rushing to invest a further £10 billion in building 10,000 MW of renewable generation plant by 2010.' The reasons given for this was the high level of government intervention in the energy sector and poor performance in the 1990s of British Energy and CCGT investments.

The concept of community involvement rather than private finance is common practice across Europe, the largest example being the 40MW offshore wind farm, Middlegrunden in Denmark that has over 8000 members! In Denmark 2465 MW, or 14% of electricity consumption, is from wind power. Of this 58% is owned by individuals or farmers, 26% by co-operatives and 15% by power utilities. Similarly in 2001 Germany had one third of the worlds installed wind power capacity or 8754 MW. Of this 90% is owned by private citizens and more than 200, 000 people are involved in co-operative programs. Wind turbine co-operatives facilitate local ownership and involvement, contributed to broad public support for projects and reduced the NIMBY effect. When offered, community ownership is not only desirable but opens a huge source for project finance.

Another barrier to renewables over the past decade has been local opposition to developments. In the last 5 years Scotland's approval rate for wind farms is commendable with a 94% consent rate[12]. However as these developments

[12] BWEA Briefing sheet PPS 22 5th Nov 2003

continue it is critical to engage people in the process so they feel involved, consulted and supportive of the transition away from centralised fossil fuel and nuclear power stations. Whilst the reasons for supporting renewables are widely acknowledged amongst decision makers, industry and environmentalists the general public is not always as aware of these benefits, as often highlighted in local media when a project is proposed in their locality. If the benefits to individuals and communities are real and tangible this will increase the chance of industry success.

Greater co-ordination of energy policy between government organisations is required preferably through the formation of a sustainable energy agency to concentrate resources, co-ordinate policies and prevent duplication. For energy efficiency, renewable energy and cleaner transport many of the delivery mechanisms are local[13]. The key barrier to energy efficiency is related to individuals' knowledge, motivation and ability to optimise their energy use. This also applies in the battle to reduce the volume of car journeys and increase support for renewables. Therefore a co-ordinated public awareness raising campaign on climate change and sustainable energy is not only essential but is common sense.

Wind farm development involves a clear process of site identification, planning permission and raising finance. The financial returns and scale of the projects attract big industry players. However other technologies are both too small and dispersed such as solar hot water heaters or are too complex such as arranging fuel supply and heat networks for biomass plants. Photovoltaics are applied at the micro level and are rarely cost effective except for remote applications. Run-of-river hydro schemes face considerable hurdles to development, particularly in regard to fisheries, and finally biomass is often perceived as complex, unproven and dirty. None of these assumptions is correct but several high profile project failures such as the Arbre project have done little to sway public and private confidence. In light of these difficulties more assistance is required to reduce these barriers and level the playing field Previous government supported schemes failed as they concentrated on large complex schemes, such as the Arbre gasification plant in Yorkshire. However a heat target would provide suitable stimulus for the biomass industry and the growth of small to medium sized combustion and combined heat and power (CHP) plants.

6. What opportunities are there/should there be for local community involvement in, and economic benefit from, renewable energy schemes?

The onus of renewables is the local supply of resources for local needs and this is where the co-operative structure is so valuable. Smaller, distributed renewable energy systems owned and operated by local communities can deliver sustainable energy services to individuals and business providing affordable heat and power. This is particularly true for remote areas where gas is not available and electricity supply lines are weak or cost prohibitive.

[13] Putting Climate Change at the heart of energy policy. EST September 2002

Baywind Energy Co-operative Ltd was formed in 1996 to offer community ownership of a wind farm project in Cumbria based on renewable energy models successfully pioneered and widely practised throughout Scandinavia.

A Swedish company developed the Harlock Hill site in the mid 1990's and offered ownership to the local community via the newly created Baywind Co-op. Baywind has 1,300 shareholders who own six wind turbines on two sites. The co-op has a minimum shareholding of £300 and a maximum of £20,000 to allow the widest possible ownership and works on the principal of one member one vote. The seven elected shareholders make-up the board.

Two share offers raised nearly £2 million, 50% of which was from Cumbria and North Lancashire. In 2001 Baywind purchased the remaining three wind turbines at Harlock Hill and has run the site ever since. All profits derived from electricity generation are distributed to the shareholders after the co-op has met its operating costs. Since 1996 members have received a very competitive return on their investment; between 5.6% and 6.6% gross or between 7% and 8.2% under the government's Enterprise Investment Scheme and receive their capital back at the end of the project lifetime.

A percentage of the co-op's income is diverted to an energy conservation and educational trust for the locality. The trust has worked with the local community for seven years to provide energy efficiency advice and grants to homeowners and community organisations in conjunction with the Carlisle Energy Efficiency and Advice Centre. In addition, schools and colleges receive grant assistance and support, representatives from Baywind advice other community groups and hundreds of people from the UK and overseas have visited our site at Harlock Hill.

Baywind Energy Co-operative recently established a management arm, Energy4All Ltd, whose primary aim is to enable local communities to invest in and develop their own renewable energy developments or partake in larger developments in their region. Energy4All provides the experience, expertise and administrative systems to create new co-ops and enable them to own and manage their own projects. The process involved to 'hand over' a turbine for community ownership is legally and financially complex and involves considerable negotiations with larger wind farm developers. Energy4All offers the only proven experience of combining business efficiency with ethics to provide financially viable community ownership schemes.

The demand in the UK for public involvement in renewable energy developments is considerable; despite the absence of any formal advertising or promotion Energy4All has over 2500 potential investors registered through our website. In establishing new co-ops, preference is given to local investors, so that the neighbouring community can maximise the economic benefits of the scheme. Energy4All is also working to develop a scheme to offer the green power produced by the wind farm to local homes and businesses.

Baywind has proved over the last 7 years that the community ownership structure can be commercially successful and can bring major benefits to the local community:-

- The co-op members receive attractive annual dividends on their investments.
- The Energy Conservation Trust promotes energy conservation in the local community
- The co-op uses local contractors for site development, maintenance, and support.
- The wind farm is visited by hundreds of school children and adults on educational visits and Baywind provides environmental books for local schools.
- Members receive a regular newsletter and support service on sustainable
- The farmer receives land rental and the local council receives business rates
- Direct local involvement increases awareness of environmental issues at the grass roots level.

Community ownership through co-operatives such will enable local people and the general public to participate in the growth in renewable energy, benefiting both the environment and the economic and social welfare of the local area. The Baywind structure is a well-proven model that has worked for over 7 years in Cumbria and we would like to extend this success to other communities and individuals throughout Scotland.

To date industry has offered a standard rate of around £1,000 per megawatt per year for local communities. A recent proposal for a wind farm on Beinn Tarsuinn in Sutherland included a community benefit level of around £2,500 per megawatt. However the Highland Council has set a rate of £5,000 per megawatt while some councillors are pushing for £10,000 per megawatt. On the scale of some of the proposed wind farms some community organisations will be receiving over £1 million a year in income. Such significant cash injections into areas could lead to questions of equity from neighbouring communities therefore some method of distributing these funds in the most effective manner is required to prevent distortions of income that could potentially divide neighbouring communities and, albeit unintentionally, disrupt the planning process.

Alternatively developing community renewable schemes independent of outside developers are possible and, especially for small schemes, preferable. Community led schemes are also likely to increase projects in areas that developers would not consider due to scale, profitability or complexities however such projects are prone to take a long time to develop and are unlikely to return the same profit margins as the larger schemes. Considerable effort is required to match commitment with resources and renewable expertise but the key-limiting factor at the moment is risk capital (approx £100k per scheme up to planning process but sometimes significantly more). If grants offered by government could be match funded by private equity through co-ops many more schemes would be available for

development. However, for the short to medium term Energy4All is promoting part community ownership of developer sites as the most practical method for sharing renewable project benefits.

Part or full ownership of wind farms by the community is the most effective way to raise capital, maintain profits in the local economy and provide a sense of involvement to communities and thus increase the grass route level of support for renewable energy and additional climate change mitigation measures. Community ownership of part of the scheme ensures them a share in the profits so the revenue does not" ends up in shareholders' pockets elsewhere in the UK, with only a tiny percentage left behind in the communities"[14] Revenue is distributed locally and is then available for reinvestment elsewhere rather than servicing loans from city banks and firms very often located overseas.

Energy4All already has such agreement in place with Falck and RDC for a share in their future wind developments. Under the scheme individuals and groups will have the chance to join a co-op that will buy and own turbines across their portfolio. We are also talking to other developers about similar arrangements with their projects in Scotland and we hope in the near future that all renewable schemes will offer the local community the opportunity to invest in and be part of the solution.

In conclusion renewable energy offers a great opportunity for Scotland. Community ownership of these projects will maximise these opportunities and renewable energy is only one part in a much bigger picture for a sustainable, peaceful future.

For further information on co-operative futures for green energy production contact Angela Duignan, Project Development Manager, on 07967 591328 or email angela@energy4all.co.uk

[14] Calum MacDonald, the MP for the Western Isles, Wind farm cash not to be missed, warns isles MP ***JOHN ROSS The Scotsman 8 Jan 2004***

EC/S2/04/09/8

Enterprise and Culture Committee

Evidence Received for Renewable Energy in Scotland inquiry

SUBMISSION FROM WINDSAVE LTD.

Introduction

Windsave welcomes the opportunity to give evidence to this inquiry. Our submission focuses mainly on the contribution of micro-wind technology and in particular our unique micro-wind system to renewable energy in Scotland.

Windsave has developed a commercial and domestic micro-power generator system using low wind speeds to create electricity. The system is roof-mounted and feeds electricity directly into the property on the consumer side of the meter, thereby reducing the consumers' consumption and cost of electricity from the grid. A unique electronic control system (Plug 'n' Save™) allows the system to be connected into the property by way of a standard 13 Amp plug which in essence makes every home and business a power station with the means to generate their own low-cost sustainable electricity.

1. The Contribution of Micro-Wind

- Micro generation is a relative newcomer to the renewables field and is generally perceived as expensive and problematic. The beneficiary of micro-generation technology is the consumer and The Micropower Council has been set up by Lord Ezra to increase awareness of, and support for, micro generation technologies in the domestic market. Micro generation technology interests encompass photovoltaics, micro-hydro, fuel cells, organic rankine cycle engines, Stirling engines and gas engines and micro wind. Windsave represents the micro-wind sector on the Council.

- Micro wind offers an affordable alternative to the large wind farms and can significantly contribute to the Scottish Executive's targets of producing 18% of Scotland's electricity from renewable energy by 2010 and 40% by the year 2020.

- Micro wind will contribute to the Government's goals for energy policy which aims to reduce the UK's CO_2 emissions by 60% by 2050, as set forth in the DTI's Energy White Paper published on 24 February 2003. Each Windsave system will save approximately one half tonne of CO_2 emissions per annum.

- Micro wind generators do not engender the kind of objections; from the public, from Local Planning Departments, from Scottish Natural

Heritage and from the MOD which obstruct large projects and will effectively engage the public in the generation of renewable energy.

- The Windsave micro-wind system delivers the electricity created, without the use of batteries, directly to the property on the consumer side of the meter. This offers two major advantages: the avoidance of having to connect to the distribution system which, at present, is a costly and bureaucratic process and reduction of strain on the grid.

- The proximity of the point of generation to consumption results in very little loss of power which coupled with the commencement at low wind speeds allows the consumer to benefit from lower electricity bills.

2. The Consumer

- The success of the Government's renewable energy policies will depend, to a great extent, on the support of the general public. The DTI's recently published research showing that more than nine out of ten people support the expansion of renewable energy is very encouraging. However, following the publication of the Government's Energy White Paper 2003, Powergen commissioned the University of East Anglia to undertake research into consumers' attitudes towards energy and energy efficiency and the results of this research showed that as "citizens" people are concerned about the environment but not as "consumers" where cost is the primary concern. The research also discovered that any measure taken to improve home energy efficiency is driven more by increased comfort than concern for the environment. It would appear that immediate action is needed to bring about a behavioural change if targets are to be met, and asking "citizens" to pay a higher price for electricity is perhaps not the best way to motivate them to become "consumers". The conclusion stated that increased emphasis is required on the participation of government, industry, energy companies and consumers working together towards a shared, sustainable vision.

- The concept of generation in the home has, until recently, been completely alien to most homeowners. However, the response to the launch of our system at the end of last year has been very encouraging in this respect. Enquiries have come from: private homeowners, architects, local government bodies, utilities, small commercial enterprises, large Plc's – all interested in renewable energy at an affordable price plus the added bonus of saving money on electricity bills.

- The Scottish Community and Householder Renewables Initiative (SCHRI) and Clear Skies provide an incentive for communities and

householders to participate in small-scale renewable schemes by providing both funding and advice. The levels of funding must be constantly reviewed to ensure that they are commensurate with the increasing numbers of householders and communities seeking funding for small-scale renewable energy projects throughout the UK.

- It would appear, however, that very little funding, if any, is available to encourage SME's (the heavy consumers) to participate in renewable projects. The cumulative power of twenty or thirty micro-wind generators on a factory or commercial building would be significant (see table below) and contribute towards the Executive's targets.

- The following table, based on the average Scottish wind speed for an installation at an average height of ten metres, illustrates the annual savings that can be achieved from our 1 Kilowatt system:

Location	Scotland
Windsave Units	1
Maximum Generator Output (kilowatts/unit)	1
Average Site Height (metres)	10
Average Wind speed (metres/second)	6.45
Average Output per Unit (kilowatt)	0.156
Annual Output per site (kilowatt hours)	1,367
Potential Annual Savings on Site (£)	**81.99**
Annual CO_2 Emissions Savings (Tonnes)	0.59
Climate Change Levy reduction (£)	59
Potential ROCs (£)	**61.50**

3. The Renewables Obligation (Scotland) and Renewables Obligation

- In their submission to this inquiry, British Energy stated that based on the current cost of the renewables obligation to suppliers (£45/ROC), supplying renewable generation costs, at present, three times more than current electricity prices (£20/MWh).

- The average consumer may not yet be familiar with ROCs or SROCs, the main policy measures of the Government to encourage the development of renewable forms of energy, but with the installation of a Windsave system they will immediately qualify as generators of renewable electricity and will be able to participate in this scheme by way of the Windsave Green Dividend™ cheque.

- The DTI recently announced a number of amendments to the Renewables Obligation Order 2002, one of which is to allow smaller wind generators to be awarded certificates based on their yearly output. The Windsave system will be eligible for ROCs. An inbuilt meter will allow remote monitoring of the power generated, from which the value of the ROCs will be calculated. Apart from a small

fee to cover administration costs, the value of the ROCs will be redistributed back to the householder or into the community in the form of a “Green Dividend™”.

- In the first year of operation the recycle value of the SROC and the ROC was not equal. Windsave endorses Ofgem's view that one single UK recycle fund be established and strongly urges the Executive and the DTI to maintain or increase the level of support through ROCs.

4. Planning and Local Authorities

- Planning issues to date have mostly centred on large wind farms and the Scottish Executive has implemented several measures, including the National Planning Policy Guidance No6, to provide advice and guidance for local authorities and developers in this respect. The Executive should also encourage Local Authorities to support and promote micro-wind projects with proactive and sympathetic planning policies. Perhaps a General Permitted Development Order could be considered in this regard. Micro wind installations on public sector buildings would send a strong “renewables” message to the wider community, would help reduce fuel poverty which affects 17% of households in Scotland and help meet the government’s targets.

5. Meeting Targets

- The attached table illustrates Windsave's projected contribution of **0.73%** to the Executive's 2010 targets with a resultant reduction in carbon dioxide emissions rising to **95,000** metric tones per annum.

6. Distribution

- Windsave is part of the Microgeneration Solutions Workstream of the Technical Steering Group reporting to the Distributed Generation Co-ordinating Group and welcomes the Executive’s undertaking to work with the industry to optimise the potential for small-scale distributed generation.

- The Windsave system is designed to allow consumers to participate in the green revolution today. By feeding electricity directly into the property on the consumer side of the meter the consumer can immediately begin to save money on their electricity bills and to make a real difference to energy supply patterns throughout Scotland and beyond.

7. Conclusion

Ofgem noted in their submission that the level of renewable resource which is developed will depend primarily on the extent to which renewables is economic and the extent of the subsidy received **from** consumers.

It is our intention to offer consumers the means to generate their own free renewable electricity, allowing them to save money on their requirement from the grid and to receive a rebate of approximately £60 per household per annum on the quantity generated. We strongly urge the Executive to support micro-wind, both in terms of legislation and funding, to allow consumers easy access to this renewable energy source which will, in turn, help achieve their targets.

On a final positive note, our product is manufactured in Scotland, sustaining at least 50 jobs. With the interest from overseas, and the huge world wide potential, this number is likely to increase exponentially.

David Gordon
Chief Executive
Windsave Ltd.

EC/S2/04/09/8

Powergen Energy Monitor 2003

http://www.pgen.com/about/policy_regulation/pdfs/Energy%20Monitor%20Report.pdf

Attitudes and Knowledge of Renewable Energy amongst the General Public
Report of Findings
Prepared for Central Office of Information on behalf of:

Department of Trade and Industry
Scottish Executive
National Assembly for Wales
Department of Enterprise, Trade and Investment

JN9419 and JN9385
http://www.dti.gov.uk/energy/renewables/policy/nationalreport.pdf

Appendix

Year	Scottish Consumption (GWhr)	Annual % growth	Windsave units installed	Windsave Scottish contribution %
1999*	32,037		0	
2000	33,807	5.52	0	
2001	33,820	0.04	0	0
2002	33,989	0.50	0	0
2003	34,159	0.50	0	0
2004	34,330	0.50	2,000	0.01
2005	34,501	0.50	10,000	0.04
2006	34,674	0.50	35,000	0.14
2007	34,847	0.50	65,000	0.25
2008	35,022	0.50	100,000	0.39
2009	35,197	0.50	140,000	0.54
2010	35,373	0.50	190,000	**0.73**

Red Data: Projected Estimate	Green Data: Projected Contribution

***Source:** **Scotland's Renewable Resource 2001 – Volume II**
(www.scotland.gov.uk/library5/environment/srs2001vol2.pdf)

Unit output [KWhr]	0.156
Hours per year	8760
Annual output per unit [MWhr]	1.36656
Annual output per unit [GWhr]	0.001367
Total No. of Units installed to 2010	190,000
Total Generated [GWhr]	**259.646**

Enterprise and Culture Committee

Meeting 16 March 2004

Committee Reporter: Scottish Football

Summary

This paper seeks Committee agreement on:
- the appointment of a reporter(s) on Scottish Football
- a draft remit for a reporters' investigation of Scottish Football
- arrangements for expenses for a reporter on Scottish Football

Introduction

Three Scottish Premier League (SPL) football clubs (Dundee FC, Livingston FC and Motherwell FC) are currently in administration, and the total debt of clubs in the SPL is estimated to be currently in the region of £200 million[1]. This has resulted in considerable debate and concern being expressed about the current structure and viability of Scottish football not only in terms of professional football but also in terms of the structure of support for football at a grassroots level (including women's football). The concern regarding current developments is reflected by the Scottish Executive initiatives such as the Executive jointly commissioning a report with Sportscotland and the Scottish Football Association (SFA) reviewing youth football. In addition, support for facilities is being provided via the National and Regional Facilities Strategy and the Football Academy Programme. There have also been significant developments towards providing football supporters a 'voice' in the clubs they support. The Executive has provided financial support to 'Supporters' Direct' to encourage this trend. Twenty-three supporters' trusts have been established in Scotland.

Remit and structure

The proposed remit for the investigation would intend to reflect the above trends in Scottish football and would be as follows:

To report to the Committee on the current situation with regard to Scottish football, with specific reference to:

- the financial advice available to football clubs and supporters organisations;
- supporters' involvement in decision-making;
- the Executive's actions to date to support the development of Scottish football.

Meetings would be held with, among others, representatives of football clubs, football authorities, supporters organisations/football trusts; financial institutions; community groups; and Executive officials. The intention is that the report would be completed by the start of the Summer Recess.

[1] Scotsman, 5/2/04, 'Bank of Scotland: We won't pull plug on Scottish football'

It is intended that SPICe will provide a briefing covering the areas of the remit outlined above and also considering the structure of football and club ownership (such as mutualisation) in other European countries as well as the type of support provided by public authorities.

Reporter

Given the Committee's current work programme, it is proposed that a reporter(s) be appointed to undertake an investigation and to report back to the Committee.

Expenses

It is proposed that expenses for this investigation would not exceed the *de minimas* limit of £100 and would therefore be paid out of the Committee's budget. It is recommended that the Committee authorise the Convener to deal with any expenses which arise as a result of the investigation.

Recommendation

Members are invited:

1) to agree to appoint a reporter(s) on Scottish Football;

2) to agree a remit for a reporter's investigation into Scottish Football;

3) to agree to authorise the Convener to deal with any expenses which arise as a result of the investigation.

Alasdair Morgan
Convener