House of Commons

Energy and Climate Change Committee

Local Energy

Sixth Report of Session 2013–14

Volume II

Additional written evidence

Ordered by the House of Commons
to be published 9 May and 16 July 2013

Published on 6 August 2013
by authority of the House of Commons
London: The Stationery Office Limited

The Energy and Climate Change Committee

The Energy and Climate Change Committee is appointed by the House of Commons to examine the expenditure, administration, and policy of the Department of Energy and Climate Change and associated public bodies.

Current membership

Mr Tim Yeo MP (*Conservative, South Suffolk*) (Chair)
Dan Byles MP (*Conservative, North Warwickshire*)
Barry Gardiner MP (*Labour, Brent North*)
Ian Lavery MP (*Labour, Wansbeck*)
Dr Phillip Lee MP (*Conservative, Bracknell*)
Rt Hon Peter Lilley MP (*Conservative, Hitchin & Harpenden*)
Albert Owen MP (*Labour, Ynys Môn*)
Christopher Pincher MP (*Conservative, Tamworth*)
John Robertson MP (*Labour, Glasgow North West*)
Sir Robert Smith MP (*Liberal Democrat, West Aberdeenshire and Kincardine*)
Dr Alan Whitehead MP (*Labour, Southampton Test*)

The following members were also members of the committee during the Parliament:

Gemma Doyle MP (*Labour/Co-operative, West Dunbartonshire*)
Tom Greatrex MP (*Labour, Rutherglen and Hamilton West*)
Laura Sandys MP (*Conservative, South Thanet*)

Powers

The Committee is one of the departmental select committees, the powers of which are set out in House of Commons Standing Orders, principally in SO No 152. These are available via www.parliament.uk.

Publication

The Reports and evidence of the Committee are published by The Stationery Office by Order of the House. All publications of the Committee (including press notices) are on the internet at www.parliament.uk/parliament.uk/ecc.

The Reports of the Committee, the formal minutes relating to that report, oral evidence taken and some or all written evidence are available in a printed volume.

Additional written evidence may be published on the internet only.

Committee staff

The current staff of the Committee are Sarah Hartwell-Naguib (Clerk), Liz Bolton (Second Clerk), Dr Alfred Gathorne-Hardy (Committee Specialist), Tom Leveridge (Committee Specialist), Shane Pathmanathan (Senior Committee Assistant), Jonathan Olivier Wright (Committee Assistant), Joe Strawson (Committee Support Assistant) and Nick Davies (Media Officer).

Contacts

All correspondence should be addressed to the Clerk of the Energy and Climate Change Committee, House of Commons, 7 Millbank, London SW1P 3JA. The telephone number for general enquiries is 020 7219 2569; the Committee's email address is ecc@parliament.uk

List of additional written evidence

(published in Volume II on the Committee's website www.parliament.uk/ecc)

Written evidence

Written evidence submitted by Gill Seyfang and Adrian Smith

UK Community Energy Survey: Key Findings

(i) Community energy is a diverse sector, with a wide variety of different types of organisations involved, from local climate change groups to churches, local authorities and allotment groups.

(ii) The sector is principally instigated by civil society activists and groups: 93% were set up by individuals or pre-existing community groups.

(iii) Two-thirds are formally constituted (necessary for funding and tax purposes), while a third are operating as informal associations.

(iv) Geography matters: nine out of ten describe themselves as "communities of place" rather than "interest".

(v) Three quarters of the UK's projects are in England, and two-thirds are rurally-located.

(vi) Groups have a wide variety of objectives and motivations in addition to sustainability, including community development, tackling fuel poverty, promoting local resilience, or simply improving a community building.

(vii) Two-thirds of groups are working on both supply-side and demand-side measures for sustainable energy.

(viii) The most common energy generation technology is photovoltaic (PV) electricity. The most widely-used energy conservation/efficiency measures were raising awareness through newsletters, public meetings and demonstrations.

(ix) Three-quarters of the groups felt they were successfully achieving their objectives, and the same proportion felt their projects would be successful.

(x) Half the groups planned to go on to try other sustainable energy projects in the future.

(xi) Networking is a significant activity: three-quarters were involved in networking with other community enegry groups, networks or other intermediary organisations.

(xii) Community energy projects give and receive help to other projects, 80% of which are in their own county.

(xiii) Over half (58%) are involved with national networks or intermediary bodies, and benefit from training, resources, information, advice, lobbying and publicity.

(xiv) The key UK-wide networking bodies for community energy are the Transition Network, Community Energy Scotland, Energy Saving Trust, Low Carbon Communities Network and Energyshare.

(xv) Three-quarters of projects had received grant funding.

(xvi) The sector comprises mainly small and voluntarily-run organisations. Three quarters have 10 or fewer core active members; over two-thirds have no paid staff.

(xvii) A third of the projects have grown over the last year, and over half remained stable.

(xviii) The main success factors reported were: a strong organising group with key skills and commitment; good project management; support from other organisations and an enabling policy context.

(xix) The principal obstacles faced were: lack of resources (time, volunteers, technical expertise); technical issues with the project; changes in government policy; planning and other bureaucratic hurdles, and public disinterest in sustainable energy.

Characteristics of the Community Energy Sector

1. Community energy groups are diverse. A wide variety of different types of community groups are involved with community energy, including local civil society groups focusing on climate change, low carbon activities and general sustainability issues, eg Transition Towns; renewable energy cooperatives, community interest companies and partnerships; related non-energy groups eg local conservation or allotment groups; local branches of national campaigns eg 10:10; groups or organisations who own or manage (or build) community buildings, such as church or faith groups, schools and colleges, village halls, social clubs, social housing; Statutory and non-statutory councils below the district level eg parish or town councils; Community Development Trusts and Community Associations; projects set up by local authorities but mainly run by local communities eg Local Agenda 21 groups; and partnerships with public organisations with relatively strong community leadership.

2. The vast majority (89%) identified themselves as communities of place, rather than communities of interest. There was a wide geographical distribution of projects across the UK (Figure 1). Overall, 75% were located in England, with 18% in Scotland, 4% in Wales, and 3% in Northern Ireland. Almost two thirds of our respondents were rurally located, and a quarter in urban areas.

Community Energy Origins

3. The origins of the groups are very strongly rooted in civil society: well over half (59%) were set up by individuals, and a further third (34%) by pre-existing community groups. This indicates that the community energy sector is predominantly citizen-led and community-based *from the outset*, and differentiates the sector from top-down community development initiatives which tend to be instigated by local authorities or community development agencies.

4. The number of UK community energy projects has risen rapidly in the last few years: Figure 3 shows the cumulative total of projects by year, revealing a sharp rise from the mid 2000s—79% of the projects were less than five years old (formed 2007–11). The longest-standing project was instigated in 1996, and the groups' average age is 4.2 years.

5. Indicating the tangible achievements of the sector, and the experiences of our respondents, 61% of our respondents had successfully set up at least one project, and a quarter (25%) were in the middle of setting up their projects, while 10% were at the stage of considering a community energy initiative.

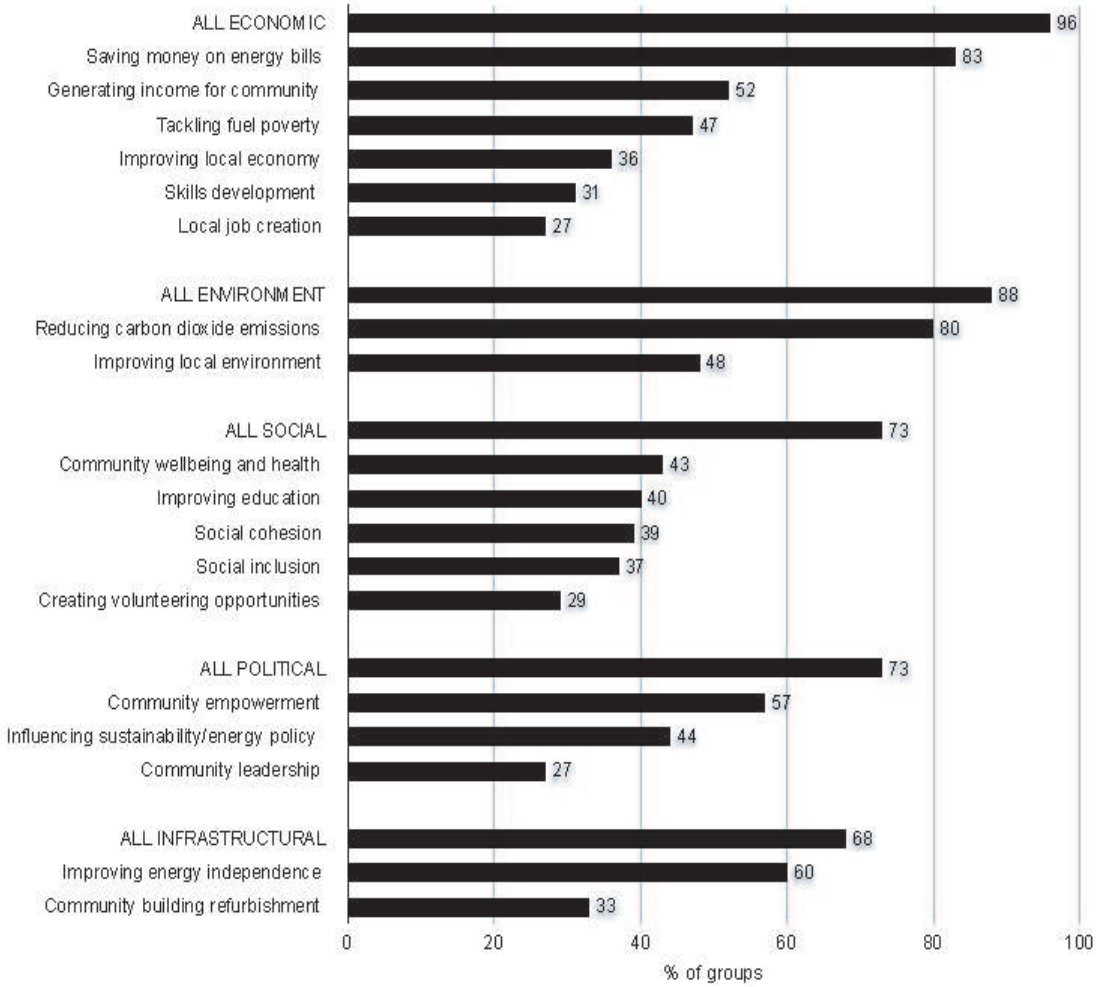
Community Energy Objectives

6. Our survey uncovered a wide range of goals from these community energy projects, and for many, sustainable energy was not the principal goal. From a list of possible options, respondents identified an average of eight objectives per project (see Table 1). The objectives are grouped into broad categories, and overall the main objectives were economic (96% gave these objectives), followed by environmental (88%), social (73%), political (73%) and infrastructural (68%) goals.

7. The most commonly cited single objective was saving money on energy bills (reported by 83% of projects). Other goals given by more than half the respondents were: reducing carbon dioxide emissions (cited by 80%), improving local energy independence (60%), community empowerment (57%).

8. and generating income for the community (52%). Substantial minorities also aimed to improve their local environment, tackle fuel poverty, influence wider sustainability and climate change policies, improve community health and wellbeing, etc.

9.



Community Energy Activities

10. Community energy groups were involved in both supply-side and demand-side activities: 82% reported sustainable energy generation activities, and 86% were working on energy-conservation and efficiency measures. Two thirds (68%) of the groups were engaged in both areas, revealing the holistic and multi-faceted nature of the sector.

11. Turning first to a breakdown of the projects involved in energy generation, we found that projects were using an average of 1.9 renewable technologies each (see Figure 4), and the field was clearly dominated by installations of solar photovoltaic renewable technologies (71%). The next most common types were solar thermal, ground source heat pumps, onshore wind, air source heat pumps, biomass and hydroelectric power. Previous research has highlighted solar thermal as the most common renewable energy technology employed by community energy groups, but it appears that recent policy changes and financial incentives towards solar electricity has shaped the current market for community-based energy initiatives.

12. In contrast, the projects working on energy conservation and efficiency demonstrated a more diverse set of activities, with an average 7.3 measures each (see Figure 5). Among these projects, the two most common initiatives were newsletters (66%) and public meetings (65%), followed by using energy efficient appliances, stalls at events and wall/loft insulation. Many of these activities are concerned with information-provision, adopting an information-deficit approach to behaviour change and energy conservation. Such awareness-raising initiatives are perhaps less tangible and demanding than activities requiring installation of new technologies, or learning new skills, and technological solutions (eg energy monitors, energy auditing, carbon footprinting and thermal imaging) were less popular.

Community Energy Success?

13. Encouragingly, over three quarters of the respondents (75%) felt that they were achieving their objectives quite well or very well, and only 7% felt they were not meeting their aims. Similarly, 77% felt positive that their projects would be successful or very successful, while only 8% felt they would not succeed.

14. Looking forward, of the respondents who had "future plans" in terms of sustainable energy, 52% planned to try out other energy-saving approaches or sustainable energy technologies, and a further 29% planned to expand their existing activities. A fifth (19%) just wanted to focus on consolidating their current activities.

Networking and Partnerships

15. Community energy groups often work in partnership with other organisations, averaging 2.7 partners per project. These partnerships were most prominently with Local Authorities (60%), and other community groups (53%), but also with businesses (36%), schools (29%), NGOs/charities (26%), and national government departments (24%). The majority (88%) of respondent groups were leading their sustainable energy projects within these partnerships, and benefited from the relationship in terms of training, specialist advice, resources and information, funding, etc.

16. Networking is a key activity for the UK's community energy sector: almost three quarters of our survey respondents (73%) were engaged in some form of networking with other community energy groups and/or with organisations and networks.

17. First, interactions with other community initiatives were significant. Overall, 40% of our sample had received help from other community groups (averaging 1.9 sources of help), and 38% had provided help to other community groups (averaging 2.2 recipients). Networking with other community energy groups within their locality (ie villages, towns, cities) and county is more significant than national or UK-wide project-to-project networking. More than 80% of our respondents' networking activities (both giving and receiving help) occurred within their own counties. Three community groups stood out as frequently-mentioned providers of help: OVESCO (Ouse Valley Energy Services Company), Low Carbon Oxford North and Low Carbon West Oxford. The kinds of help exchanged between communities included tangible support such as useful contacts, lease documents, grant application forms, equipment and office space; in addition, communities shared ideas and gained inspiration from each other.

18. Second, links with intermediary organisations and national networks were also important. More than half the respondents (58%) reported active networking with such organisations (averaging 2.9 each) as members and/or partners, or as subjects of case studies written by the organisations and receivers of grants or awards. In addition to receiving technical advice, respondents were involved in lobbying, campaigning, networking and various publicity activities through the organisations. Community Action Groups Oxfordshire and Oxfordshire Climate Xchange were the most commonly-named regional (sub-national) organisations.

19. At country-level and UK-wide, a handful of significant network hubs were evident (see Figure 6). The Transition Network was the most commonly named organisation (named by 12 respondents) followed by Community Energy Scotland (11) and the Energy Saving Trust (10). Other key hubs were the Low Carbon Communities Network, Energyshare, the Development Trusts Association Scotland, the Centre for Sustainable Energy, Co-operatives UK, Carbon

20. Leapfrog, Community Powerdown Scotland and Locality. Whilst six of these organisations specialise in sustainable energy, it is notable that community development organisations (eg Transition Network and Development Trusts Association Scotland, Locality), and business associations (eg Cooperatives UK) also played a key role.

21. Figure 6 also shows that communities in Scotland, Wales and Northern Ireland tend to work with organisations based in their own country, whereas communities in England appeared to be engaged with the UK-wide organisations (which tend to be located in England) as well as organisations operating only in England. The over-reliance on country-specific organisations suggests that there is some isolation of community energy groups in Scotland, Northern Ireland and Wales from organisations whose remit is to support community energy UK-wide. This may reflect greater convenience and better support from local national organisations which are better connected with local policy domains.

Sharing Knowledge and Experience

22. The majority of our respondents (71%) undertook activities to raise their profile and share their experiences, through a variety of channels—the most common activity was gaining publicity through their networks. Face-to-face contact and direct community engagement was also important to community energy projects, and a key element of what they do, indicating that local knowledge and networking is crucial for the success of these projects. However, indirect contacts such as media and websites were more commonly used (79% of those engaged in publicity) than direct person-to-person approaches (28%).

Influencing Policy

23. We explored whether and how the community energy sector was active in trying to influence wider sustainability or climate change policies. Almost half the survey respondents (45%) stated that they were indeed engaging with policy either directly or indirectly. A third of these reported that they did this by being a member of an organisation or network (thereby demonstrating the importance of intermediary organisations for the sector), and a quarter cited involvement in Local Authority planning and development plans, and responding

to government consultations or being involved with a government department. Others were lobbying MPs and MEPs, or attending events or campaign meetings in support of sustainability policies.

Scale and Resources

24. We found that a third of our respondents (35%) were operating as informal groups (comprising 20% working independently and 15% working as part of a large formal initiatives or programmes), and two-thirds had a formal group structure (eg charitable incorporated organisation, limited company with a social purpose, community benefit society, etc.). Some indicated that they were in the process of registration or planning to get registered as a group, for funding or tax purposes. This indicates that institutionalisation may be required to achieve the group's objectives.

25. Two thirds of the community energy groups currently received grant funding (69%), and other significant income sources were from energy generation (34%), and donations (23%). It is noteworthy that many of these income streams are intermittent (eg funding, sales income, sponsorship, prizes) or represent sums that need repaying (eg share offer, loans), and some respondents indicated that they were relying on the generosity of core members and parent organisations. This indicates that groups are demonstrating resilience and adaptability in the face of changing external conditions and opportunity structures.

26. Grant funding is clearly the major source of financial support of these projects, and of the whole sample, 72% had been successful in winning grant funding, while a further 10% had applied but been unsuccessful (this might indicate a bias towards "winners" in our sample, and highlight the need to study more failed projects to understand their struggles). This finding reflects the timing of our survey, and while grant-winners feature heavily in our sample, the future of community energy seems to be moving away from a grant-funded model, towards economically sustainable business models involving revenue-generation (the majority listed income generation as an objective), but success at achieving this source of income is perhaps only starting to be evident.

27. Since these projects are community-based initiatives, we seek to understand their scale in terms of three dimensions of participation: active core members and employees (see Figures 7 and 8). The majority relied on a small number of core active members (73% had ten or fewer committed individuals who spend time, and share their experience, skills and expertise to run their community energy projects), and the sector is mainly run on a voluntary basis (68% had no paid staff). Encouragingly for the sector, a third of the groups (32%) had grown over the last year, and over half (57%) have remained stable.

Community Energy Sector Analysis

28. In order to grasp the range and extent of key factors and issues that have influenced the development of community energy sector, we undertook a SWOT (strengths, weaknesses, opportunities and threats) analysis, asking groups to identify the key internal and external factors, which had both positive and negative impacts on their projects (see Table 2).

29. Community energy's (internal) strengths related mainly to group factors (48% listed these), and in particular, to the qualities of the group such as dedication and commitment, determination, good communication, strong leadership, a good reservoir of skills to draw on, talented individuals and so on. Project-specific strengths tended to relate to the importance of good project management. External success factors (opportunities) were mainly to do with support from other organisations (42% gave this success factor), and a supportive policy context which enabled community energy (30%).

30. Obstacles to be overcome were more straightforward, and were overwhelmingly internal weaknesses of community energy projects: namely, project-related obstacles (reported by 71% of respondents) around a lack of finance, volunteers, expertise, and technical issues. External threats to the community energy projects were reported by 33%, and these covered uncertainties around policy changes, planning and bureaucracy hurdles, but most strikingly, a sense of wider public apathy and lack of interest in community energy (26%).

Table 1

SUCCESS FACTORS AND OBSTACLES FACING COMMUNITY ENERGY GROUPS

	Success Factors		*Obstacles*	
	STRENGTHS		**WEAKNESSES**	
	all group factors	**48%**	**Group management, direction**	**3%**
	qualities of group	*37%*		
	skills among group	17%	**all project obstacles**	**71%**
Internal to the group	group vision	4%	need time/volunteers	18%
			need funding/access to finance	31%
	all project factors	**19%**	*need expertise/tech advice*	*8%*
	project management	10%	specific issues to their project	17%
	specific/technical aspects	7%	need to engage with community	2%
	community engagement	5%		
	OPPORTUNITIES		**THREATS**	
	all local external factors	**4%**	**all external obstacles**	**33%**
	alternative culture/social capital	3%	government policy/changes	14%
	geographical location	2%	planning restrictions/hurdles	10%
			other bureaucracy	8%
	all support factors	**42%**	lack of support from other actors	4%
	parent/linked org support	6%	public apathy/attitudes/ NIMBYs	26%
	community support	9%		
	local organisations' support	9%		
External to the group	local authorities' support	4%		
	network organisations' support	15%		
	consultants' support	6%		
	all policy factors	**30%**		
	funding/grants	*24%*		
	policy support eg FITs/RHI	10%		
	all wider contextual factors	**10%**		
	rising energy prices/recession	8%		
	awareness of CC/energy issues	4%		

Policy Implications

31. Community energy has been supported by successive UK governments aiming to harness its potential to support sustainable energy transitions. Our survey of UK community energy groups aims to provide robust evidence of the scope, scale, character, activities and challenges faced by the sector, to support such policymaking. Our research has revealed several key issues to be addressed when considering the further development of the sector.

32. *Community energy is not reducible to a single entity.* This is a highly diverse sector representing many types of actor and organisational forms, multiple sets of objectives (not all of which relate to energy), and many different practical strategies and technologies to achieve their goals. It is therefore exceedingly difficult to pinpoint specific features of the sector as a whole, or to aggregate these diverse groups and their activities into simple categories.

33. *Although some groups do have ambitions to expand and grow, and others aim to deepen and offer suites of sustainable energy initiatives, others are simply providing local solutions to local needs* as an end in itself, and have no desire to expand in the way that policymakers might hope. Community energy is not necessarily a tool to be wielded by energy ministers aiming for widespread change; some of the sector is content to remain small and self-contained.

34. *Joined-up thinking is needed among government departments*; the community energy sector addresses policy goals covering a number of different government departments, not solely energy and climate change. There is a challenge here for government and the sector to relate to each other more effectively to best achieve the sustainability goals (including but extending beyond energy) of these groups.

35. *Performance measurement and project monitoring must acknowledge multiple objectives*, for example, and avoid using single-dimensional criteria (such as carbon dioxide emissions reduced or kilowatt hours of energy produced) when multi-criteria appraisals would be more appropriate to capture the full range of outcomes.

36. *The civil society basis of the sector is fundamental to its character and to its success at engaging with local communities*, and makes the sector quite distinct from the large energy companies these community groups are aiming to work alongside. This uneven playing field points to vulnerabilities and tensions inherent in this model—the growth potential of voluntary associations is uncertain, and there are hurdles to be overcome in becoming more businesslike and commercial.

37. *There is a limit to how much groups can achieve on their own*. While a good strong group is a major strength, there are project-related weaknesses (lack of time, volunteers, money, material resources) that are difficult to meet internally. External sources of support are required to succeed and this indicates the strong need for consistent policy support, as well as intermediary networks, to ensure community energy projects have the resources they need to progress and achieve their objectives.

38. *Community energy needs to link to other local development agencies and bodies*, including community development workers, but these are services that have experienced cuts in the recent climate. Nevertheless, a serious community energy policy would ensure a deep community development basis.

39. *The policy shift from grant-funded projects to a revenue-generating business model will have serious implications for projects in the sector*, not all of whom will be able to adapt to the new policy regime.

40. To conclude, our research has revealed a wealth of civil society activity in the field of sustainable energy, tackling a wide range of sustainable energy and related issues, and growing as a sector. With appropriate policy support and clear funding streams, and robust intermediary organisations to share learning, we are cautiously optimistic that community energy can continue to grow and achieve its potential as a key player in the transition to a sustainable energy system.

Survey and Sampling Methods

41. An online survey of UK community energy groups was conducted between June and October 2011. We asked open- and closed-ended questions about the community groups themselves, their sustainable energy projects, their networking activities, and their success factors and obstacles. We sampled a wide range of groups and projects. Our criteria for inclusion was that the community group should be involved in a sustainable energy project (at any stage) and also that they should be the main, collective beneficiaries of the project outcomes. We compiled a list of 212 climate change, low carbon or sustainability organisations and agencies which were potentially involved in community energy projects. We also found 234 community groups and organisations involved in community energy. We invited them to complete the survey, or send the survey to their members, and our survey response totalled 190.

April 2013

Written evidence submitted by Kay Bickley

What contribution could medium-sized energy projects (5–50MW) make to the UK's climate change, energy security and energy affordability objectives?

Projects of this size are affordable for individuals and communities who wish to make a contribution to climate change. We all have to do our bit.

What different models of ownership exist for medium-sized energy projects and how prevalent are they in the UK?

Ownership of these projects can range from the commercial enterprise to the community enterprise. Both need to be encouraged as they are valid expressions of interest in this market and feedback revenue into the local economy.

What types of financing model are most suitable for small- and medium-scale projects? Do these differ from the financing models used for larger-scale projects?

Financing for community projects come from the community and encourage ownership of both the problem and the solution.

Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities?

There is clear evidence from the length of time and the level of controversy that surround the larger projects and their impact on the local community that smaller projects are more likely to succeed, but usually only after appeal.

What appetite is there for community-owned medium-scale energy projects in the UK?

There is a good level of appetite for community projects but the road to achieving them is fraught with little help from local government and local politicians who are too easily swayed by the "Not in My Back garden" Brigade.

What appetite is there among UK local authorities to invest in their own medium-scale energy projects?

This has only happened when government money has been evident.

What are the barriers to medium-scale energy projects in the UK?

Unhelpful local politicians, bad planning departments, lack of grid capacity, greedy power companies who are not making investment in the grid and expensive outlay.

How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?

Government policies are encouraging but it is the local implementation of these policies locally that counts. Local authorities should be set targets for installations that they have to keep to and then they will stop finding excuses for not installing renewables. Less carrot and more stick should do it. The waste of the local tax payer's money in having to go to appeal every time a medium sized wind turbine and or solar array is planned is absolutely outrageous.

April 2013

Written evidence submitted by Solway Energy Gateway Limited

TERMS OF REFERENCE

The Committee invites responses addressing some or all of the following questions:

What contribution could medium-sized energy projects (5–50MW) make to the UK's climate change, energy security and energy affordability objectives?

The 5–50MW power stations layer is missing from the current stack of energy provision. Power provision comes from mega stations or from micro generation. Where are the medium sized power projects and why are they underrepresented? Despite the fact that they are more affordable, provide security and are under local control by a company or community who might use that energy. Look back 100 years and almost all of the power generation was locally owned medium sized, for example, there were 18 mills powered by the Rover Ehen (now there are none).

The two main reasons why this layer of energy project is under-represented in energy production is due to—firstly—the inability of those who own embedded generation to sell surplus power for a similar profit as those with mega-power stations, and to—secondly—the lack of risk-appetite for financing medium sized power projects by banks and investors, as such operations would be "non-core" to most businesses.

But these human-scale and community-scale projects could make a very significant contribution. Owned locally, providing power locally, and being accountable locally for selling, pollution, customer service, whilst encouraging entrepreneurs and local skills.

For example, in my borough of Copeland, power is imported not made. Even though Copeland has very substantial woodlands, coal, other hydrocarbons, sun, wind, run of river, high and low head hydro, tides (some of the largest in England) and waves. And yet power and district heating could easily be created here, allowing local entrepreneurs an opportunity to get involved in a market which at present is heavily loaded in favour of established very large MNCs, who, by the way, do not invest locally, and who demand very high rental from the central Government and from households and businesses for energy provision.

District heating schemes are seriously under-represented in the UK, and provides a great opportunity—they are very low carbon and would increase local resilience against major disruption to infrastructure or energy supplies.

Medium sized energy projects would have two main impacts: Firstly—they would help to establish an engineering and skill base in communities which might then utilise their own natural resources more effectively, with less centralise grid costs and with lower environmental damage. Secondly, they could create a real competition for the oligopoly of energy companies, and provide a benchmark for electricity production cost.

What different models of ownership exist for medium-sized energy projects and how prevalent are they in the UK?

1. *Leased.* I have worked in companies that have owned or rented their own medium sized generators, primarily for backup purposes. These were diesel generators or gas CHP. I consider that it would be possible

for local generation to be owned and leased in the same way that for example, locomotives are. That is, that *a combination of manufacturer and banking partner own the generation asset and it is leased to the production company.*

2. *Community owned.* Medium sized generation can be community owned, which is common elsewhere in the world. However, in the UK, operations are not commonly community owned. School, roads, property and enterprises in the UK are owned privately or by the state, and instances of community ownership is rare. It can be done, but it is unfamiliar territory here. Elsewhere, community ownership is more prevalent in other areas, such as ownership of health clinics, transportation hubs, and ownership of common production, such as wineries. In order for community ownership to flourish in the UK, substantial effort will be required to educate, encourage and facilitate.

3. *Privately owned.* The most likely outcome if privately owned, where an entrepreneur, possibly a farmer, invests in operations to harvest the natural resources. The point being that in order to produce power, the natural resource needs to be available and accessible, and for the most part, the resource occurs in land held by existing property owners, or in the case of the energy in a river system, access is controlled by those who own the river banks.

This presents a very significant barrier to community power companies, who have the disadvantage of having to pay a good rental or land price for access to the natural resource.

4. *Municipal/council owned.* This is very common in other parts of the world, for example, Stadtewerke in Germany, and in other Nordic countries. The council in effect acts on behalf of its residents and invests in power generation to take whatever natural competitive advantage exists. In the UK, councils are not however run along business lines and often lack the level of commercial skills required. But if there was a continuing practice of Local Authorities/Local Communities owning a stake in a local energy project (see my comment above) they would quickly become competent enough to be a "knowledgeable customer" to energy project developer-partners.

5. *Combination.* The key thing that will help to reduce the barriers to local energy schemes, be they wind turbines or Energy from Waste, would be that the local community has a significant stake in the performance of the energy project, such as owning at least 10% of any project. Arguably, this could be the quid pro quo for granting planning consent—like Section 106 funding, but instead of wasting this one-off money on which ever project the more voluble local residents gets up the list, the income from the project is used for community investment as directed by the locally elected representatives.

What types of financing model are most suitable for small- and medium- scale projects? Do these differ from the financing models used for larger-scale projects?

The financing of the mega schemes looks seriously flawed at the current time. The incumbent dominant generators in the UK do not appear to have strong enough balance sheets, partly as a result of gearing, and partly as a result of financial pressure in their non UK operations. As a result, they are unable to invest in new power stations, or in gas and power infrastructure and have not done so, even though they are extracting a substantial rental from households and businesses for energy provision. They are seeking guarantees from Government in order to invest—in which case—their returns should be significantly reduced.

Governments seek outcomes which may be policy orientated rather than economically orientated and that can make them difficult financing partners.

Small micro-generation projects can be financed by householders and businesses, and solar and wind and energy efficiency schemes already demonstrate that capital can be found provided that there is consistency of policy. However, the solar tariff was exploited ruthlessly by large capital funds, and this created a series of policy lurches, which did not encourage householders or small businesses to invest. A flood of foreign imports and foreign investment companies with profiting from future tax revenues was the result of a well-intended policy, undefended against exploitation.

Medium sized projects rely on a combination of finance, to support the 1. acquisition of access to the natural resource, 2. The construction and installation of the power generation plant, and 3. the operations to produce and deliver the power and provide customer service etc. Each of these 3 stages has very different financing requirements, and a very different risk profile, and the likely outcome is that three forms of financing will be required for each medium sized power project. There may be an analogy with financing a bus or airline company—the buses tend to be leased from the manufacturer, the stations, airport terminals and permanent installations tend to be owned by separate entities, and the operations owned by an operating company in order for the risks to be parcelled up neatly for financiers.

Why are community-owned energy projects more prevalent in countries like Germany and Denmark than they are in the UK?

I have worked on energy projects in Norway, Germany and Finland. These countries are much more decentralised than the UK, with regional banking and very independent regional government, together with councils and boroughs that contain significant commercial operations. In addition, land ownership is much

more diffuse. A good example is the Kobbelv Dam in Norway, which is owned by the local borough, who retain a "golden" share, even though the operations are managed and optimised by an MNC. In the UK, only the metropolitan authorities now have the capability to finance, build and operate complex commercial operations. Manchester Airport for example.

Compared to nordic countries, ordinary people in the UK do not have financial or political power, and most importantly, do not own the land which has the natural resources or access to them. They are used to state provision of utilities and services, paid for via taxes and rates. Therefore, for community owned schemes to take shape, a great deal of facilitation is required. *Community ownership would require a balanced focus of individual investment with reasonable returns for collective benefit.*

SEGL can speak from experience here, having attempted to encourage a 1MW system to be attached to the new bridges built over the River Derwent following the Cumbrian Floods of 2010. The scheme would provide power and light for social housing, schools and the town centre. But the obstructions would be insurmountable for any normal organisation, only a very wealthy organisation with very long term horizons could be expected to take such a scheme through the planning, environmental and other regulatory challenges. The economics of incorporating a medium sized energy system into a new bridge are very clear, and it is common practise elsewhere, but not in the UK, where attaching energy generation to bridges is novel, contentious and frankly cannot happen unless the policy environment is tuned into medium sized projects.

Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities?

It may be too early to say, however, the situation may be analogous to locally sourced foods and beers which have seen widespread growth. Small breweries for example have been taken up with delight by communities. However, the larger trend has been for communities to abandon locally produced in favour of mass produced, motivated by price and quality. Community energy companies will only work if they can provide power at lower cost, or with less harm to the environment than the present market. They work best when they have a ready and willing clientele for the power—that is—they can sell the power.

Local ownership also increases energy awareness that makes it easier to change energy behaviours.

What appetite is there for community-owned medium-scale energy projects in the UK?

In seeking to promote a local bridge mounted generation system SEGL was delighted to find that there was very strong support from local politicians, business leaders and almost everyone we met with. The idea of a "bridge that could pay for itself" was warmly received. The exceptions were the County Council officers who were under pressure to get the bridge tendered and built without complication, and from some officers of the Environment Agency, who required years of research into the impact on sediments as a preliminary to applying for an abstraction licence for the energy in the water flow. SEGL managed to persuade one contractor to include energy generation as a non-compliant alternative bid, and they could see the potential to incorporate simple run of river energy generation into their bridges.

What appetite is there among private sector organisations in the UK to invest in their own medium-scale energy projects?

The appetite is very strong, as there is a very clear gap in the market—supply is short and getting shorter, and profits are exceptional amongst energy companies. Power appears to be recession proof, and if barriers to entry were reduced by policy changes then capital would be instantly available. The recent example of how easily capital can be mobilised for energy projects is well demonstrate by the recent solar PV boom.

I think a great deal of encouragement is required to encourage entrepreneurs to enter the market and become small energy entrepreneurs. To succeed, they need to be able to market and sell the power or heat generated.

What appetite is there among UK local authorities to invest in their own medium-scale energy projects?

Except for the Metropolitan Authorities, they do not have the competence, or a ready-made customer for the energy produced. A better candidate group may be local housing associations.

What are the barriers to medium-scale energy projects in the UK?

The main barriers are the inability to realise the retail market value of the power. Those companies with embedded generation are unable to sell their power at economic rates. If the policy in this area were altered, then there would be surge of CHP plant in the UK. For example, the owner of a PV or wind system is forced to sell their excess power to one of the big six for around 4.5ppkWh, and the big six sell that power for around 15ppkWh! This is a huge margin inaccessible to small and medium sized generators. What is required is a means to allow them to retail their energy, or at least realise a fair wholesale price for it. The fact is that anyone owning generation equipment will have a mismatched load, with periods where they have excess power, or a power deficit. This may improve with load balancing technologies, but until a technical solution is found, there is considerable economic advantage to the incumbents. CHP was invented in the UK—in Manchester

in fact—however, CHP is very widely used elsewhere in the world, but not here, as it does not fit with the oligopoly.

The second barrier relates to access to natural resources other than gas, where access requires new thinking about the rights of river and landowners and their incentives and responsibilities to ensure that natural energy resources they possess are made available to those who would produce power from them.

The third barrier is regulation. The regulatory burden needs to add value to society, not prevent value form being created. The 18 water mills that used to operate on the River Ehen would be unthinkable in today's regulatory climate, but then local entrepreneurs created weirs and created a habitat now used by important and protected river dwellers. I know several local entrepreneurs struggling to use energy resources in local rivers, and indeed, my own experiences in tidal estuaries, where accessible, plentiful energy exists.

How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?

So far they have been effective in micro generation as shown by the solar PV, which enabled ordinary people to own their own power generation system.

However, for medium generation government needs to seriously consider adopting a long term policy environment which entrepreneurs and financiers can work in. I believe that there have been twenty energy minsters since the post was created, and the *constant changes in direction and lack of long-term planning have created an unstable and uncompetitive environment which has been exploited by the incumbent power companies.* The best antidote to the lack of competition is to encourage new entrants to the market—this should not be through expensive subsidies, but by promotion of free markets and competition.

The first step would be to find ways to assist the CHP market, where the UK can be a global centre of manufacturing, and to mobilise companies to use their capital to invest in local power production. This would increase energy security, and CHP are extremely energy efficient.

The next step would be to try and encourage an MNC with a stronger balance sheet than the incumbents to enter the UK energy market. It may be that policy demands that energy companies provide an infrastructure plan, and commit to a level of capital investment commensurate with secure, reliable energy provision. There are Korean conglomerates that have string balance sheets that could provide additional mega-generation infrastructure, however, they would require long term energy planning form the Department if they were in invest in the UK.

Regional energy planning could be extremely valuable, in creating more local ownership and empowerment, but also, in creating regional energy operations which could enable better regulation through benchmarking. *An obvious example is Scotland, which could be regulated separately and have its own energy policies*, and then process, profitability and customer service could be a benchmark for English and Welsh regions.

Government could provide facilitation for community energy entrepreneurs, through a series of regional programmes.

Housing Associations might be targeted as a kernel for community energy projects, as not only do they have strong competencies, but they have an energy efficiency agenda, and in addition, operating with Housing Associations would have the greatest impact on those who currently get the worst deal from the extant energy market—the socially disadvantaged.

April 2013

Written evidence submitted by Hampshire County Council

Enquiry in Local Energy

Please find Hampshire County Council's response with respect to the questions you have raised in this enquiry. I am pleased to see the Energy and Climate Change Committee taking an interest in this area, as it is an important step in improving energy security for local communities and working towards decarbonisation of the grid in the longer term. If the County Council is able to help further or you require elaboration on particular points made below, please do not hesitate to contact me.

What contribution could medium-sized energy projects (5–50MW) make to the UK's climate change, energy security and energy affordability objectives?

Energy projects of this size have a substantial role to play in meeting the UK's climate change, energy security and energy affordability objectives. They cover a significant number of installations that could be both retrofitted or designed into new development throughout the country. This size range also covers a wide portfolio of energy technologies and delivery methods, each of which can be tailored for specific sites, and therefore able to contribute significantly to the UK's knowledge and implementation of available energy solutions.

What different models of ownership exist for medium-sized energy projects and how prevalent are they in the UK?

From our experience at Hampshire County Council there are a range of ownership model options that exist. The choice of these depends on the level and scope of risk that the project promoter is prepared to take. From a public sector viewpoint, some models are clearly associated with greater levels of risk that an authority may not be prepared; or in a position, to be able to take.

It has been our experience in developing a district energy scheme that a strictly "commercial" development model, encompassing a private sector delivery company is the most widely used and therefore publicised. However, many local authorities are becoming increasingly interested in a more public sector based model, potentially using public funds and maintaining governance over projects and guiding their future development.

Incorporating public sector finance within that sort of model has many complexities, including implications associated with state aid rules. Centralised guidance on what state aid rules do, and do not preclude in relation to projects such as district heating would therefore be very helpful.

A more recent option is for a delivery model that reflects the different risks associated with different elements of the schemes, eg producing heat, using heat and owning the network. These activities consequently have different funding profiles, and in separating these components exposure to risk can be reduced and aid delivery. This is another model where local authorities may be interested.

We are also aware through our own experiences that further options exist for ownership of schemes which include joint ventures between companies or local authorities, and special purpose vehicles, in the form of Energy Services Companies (ESCos) being created to share risk and reward across several partners or investors in the scheme.

What types of financing model are most suitable for small-and medium-scale projects? Do these differ from the financing models used for larger-scale projects?

Financing models to date have been largely dictated by grant funding and the supporting funding from various sources. They have also been influenced by a commercial valuation of a schemes viability. It is our understanding that a significant number of medium to large scale projects have achieved financing through part grant funding to draw in private sector investment. It is clear that the use of grants has enabled schemes to attract further additional finance by effectively improving their financial viability. The concern of authorities such as ourselves is that the opportunity for this sort of model is now being reduced by the availability of those grants. There is therefore a need to examine additional funding options for those schemes where public sector finance is not available.

Why are community-owned energy projects more prevalent in countries like Germany and Denmark than they are in the UK?

No comments.

Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities?

No comments.

What appetite is there for community-owned medium-scale energy projects in the UK?

Our experience is that there is a growing appetite for community-owned medium-scale energy projects in the UK. Community Interest Companies (CICs) are clearly a growing route for developing schemes. One of the main barriers to development is the knowledge of how to deliver them and where to source the finance from for development. This is an area where both central and local government could play an important role, helping to direct local communities to where they can get the advice and finance they require to develop projects.

What appetite is there among private sector organisations in the UK to invest in their own medium-scale energy projects?

No comments.

What appetite is there among UK local authorities to invest in their own medium-scale energy projects?

Our experience is that there is a growing appetite for UK local authorities to invest in their own projects. Local authorities have long been interested in developing such schemes to meet various objectives such as carbon reduction etc, and there is now a growing recognition of the advantages of using local authority financing routes to deliver these types of projects. The main "barriers" to this at the moment appear to be centred around legal and procurement issues surrounding arm's length companies created to deliver such schemes.

Risk is another area that will always be a concern to a local authority in relation to the development of these types of projects. Risk is a determinant of whether a local authority is prepared to make a financial commitment. It is unfortunate that often balancing levels of risk can also lead to the potential benefits being transferred to the private sector, away from the local authority, and the wider community. This can mean schemes do not necessarily meet the objectives for which they were originally perceived. There are also many examples and experiences of local authorities withdrawing commitment at a critical point which has significantly damaged a project being worked up in partnership. To try and avoid this, some sort of risk/reward GVA analysis toolkit for energy projects similar to those used for transport infrastructure projects may be a way of ensuring that the appetite is transferred to commitment and delivery.

What are the barriers to medium-scale energy projects in the UK?

In addition to the requirement for capital funding, it is often the case that lack of funding for scheme development can be a substantial barrier to developing medium-scale energy projects. Wider research suggests that finance for capital investment is easier in some respects to mobilise than finance for project development, which is often more speculative in nature. This is particularly related to feasibility and scoping work and the transition from feasibility via legal, financial and business model development to scheme implementation. We've already commented on risk, but obviously de-risking as much as possible and underwriting investment is important for scheme progression on behalf of all local authorities.

In addition, fragmentation of resources and expertise is another barrier to development of projects, both to local authorities as well as community led projects. There is without doubt a wide range of resources and expertise available, but often accessing it can be a significant barrier. Transparency and sharing, need to be an emphasis for local authorities especially going forward, including sharing on consultancy advice covering financial, legal and technical issues. In our view, such actions would help to reduce development costs and timescales currently associated with the early stages of medium-scale energy projects.

How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?

In many cases, the locally-specific character of these type of projects means that centralised determination of opportunities and standardisation of procedures, whilst potentially helpful, may be limiting the development of schemes. From a local authority viewpoint, building capacity at the local level through cascading skills and opening up opportunities for finance and support is the most appropriate way in which government policies can help.

Investment in a support service approach where required would have advantages. As a local authority we would welcome and approach that would embed skills and capacity within local authorities who would then be able disseminate those skills to their communities. Local authorities have various knowledge limitations, so whilst support would be valuable it needs to be flexible enough to accommodate local variation. Continued efforts to encourage and support local authorities to develop shared resources and support networking among local authority officers should be a priority for central government.

Further policy support in terms of the ability to leverage finance, for example potentially through the Green Investment Bank, would be beneficial to local and medium sized energy projects. Opportunities to gain financial banking at competitive rates from strong sources of funding is important to the viability of many schemes.

Encouragement of local authorities with respect to planning and development control will also be an important factor in ensuring the success of many schemes. Supporting guidance to local planning authorities which ensures a standardised approach to dealing with medium sized energy projects would ensure that schemes are judged on their merits rather than locally variable conditions.

April 2013

Written evidence submitted by Communities for Renewables CIC

Communities for Renewables CIC (CfR) is a social enterprise set up by Regen SW (www.regensw.co.uk) and Green Trust CIC (www.greentrustwind.co.uk) that provides investment, expertise and management capacity to help local energy cooperatives develop renewable electricity and heat generation projects in their locality under business models that enable local ownership, local income generation and where possible local energy supply arrangements. CfR is currently advising six community energy groups across the South West. CfR also provides advisory services to community energy co-operatives, public sector bodies and commercial companies to help them develop and implement community energy strategies. See www.cfrcic.co.uk

CfR believes it is one of the first CIC's to take advantage of the SEIS investment mechanism and has also obtained matched funding from Esmee Fairburn Foundation, a leading social investor.

The directors of CfR have extensive experience of community based renewables: Stephen Frankel (non-exec Director) and Jake Burnyeat (Managing Director) are founders of the WREN co-operative, Jonathan Johns (non-exec Chair) advised the UK's first commercial wind farm and the UK's first community wind farm,

whilst Philip Wolfe is a director of the Westmill Solar Coop which has made a separate submission. Through Climatechangematters limited Jonathan Johns has written a number of reports and articles on the sector including "The Big society and Renewables" published December 2011.[1]

Introduction

CfR welcomes the Energy and Climate Change Committee's enquiry into local energy. The Government has made some positive policy decisions recently that have begun to deliver impacts. These and some suggestions for further improvements are set out in our response below. Jake Burnyeat and Jonathan Johns would be pleased to answer questions in person.

1. Response to Questions Raised by the Committee

A. *What contribution could medium-sized energy projects (5–50MW) make to the UK's climate change, energy security and energy affordability objectives?*

With the exception of the offshore wind pipeline, and large mostly utility-owned onshore wind projects already built or in development, the majority of future renewable energy generation capacity is likely to come from projects of 5–50MW (or less) in scale.

The potential for small and medium scale projects using technologies that are already proven is huge. Every south facing roof has potential for solar PV or thermal. Most rural communities have suitable sites for small to medium scale wind and solar projects (if planning, grid and local opposition barriers are overcome). The UK biomass and A.D. industries are still in their early stages, and well behind countries such as Denmark and Germany. The ability of such schemes to achieve a virtuous circle of using local feedstocks and organic waste to generate power and heat for local use is largely underdeveloped in the UK.

The contribution that small to medium scale projects can make to the UK's climate change, energy security and affordability objectives is not just a question of MWs deployed, it is a question of the business model under which they are deployed. Commercial energy projects do provide sound long-term investments for institutional investors (which is important for the UK economy) and over time will help to stabilise the cost of generation in the UK. However, with some notable exceptions, the renewable energy deployed in the UK to date has not delivered the local economic impact it could have done had been deployed through community based business models.

B. *What different models of ownership exist for medium-sized energy projects and how prevalent are they in the UK?*

In the early years of the development of the UK renewable energy industry it was relatively common for landowners and community groups to have significant ownership stakes in renewable energy generation projects. Early examples included the Baywind co-operatively funded wind projects. However, since the UK industry took off after the introduction of the Renewables Obligation in 2002 ownership has been dominated by utilities, specialist renewable companies and investment funds.

Whilst commercial ownership models have delivered substantial amounts of capacity in the UK, projects can seem remote to the host communities with financial benefits leaving the host community. In Germany and Denmark local ownership is much more common leading to greater acceptance of renewable projects. In some states in Germany nearly 40% of renewable energy generation is owned by individuals and municipalities. In the UK it is less than 1%.

The last few years has seen an emergence of interest in community-based business models and a number of pioneering community energy co-operatives have demonstrated that:

1. Co-operative based funding models can deliver MW-scale generation projects (eg Westmill Wind, Westmill Solar, and Energy4All supported projects);
2. Local energy programmes can provide a local low carbon economic development model that addresses the challenges of the current energy economy (including rising costs, economic drain, fuel poverty and climate change). Notable examples include the WREN and Low Carbon Ladock co-operatives in Cornwall and Bath and West Community Energy.

With appropriate financial and policy support, community-based business models could develop local energy economies at parish, town and city scale. Potential benefits include:

- Ownership by local people, businesses and public sector bodies, retaining the investment returns within the local economy;
- Generation of surplus income to re-invest in the community (eg funding further community energy generation and energy efficiency schemes, addressing fuel poverty and supporting community facilities and services);
- Local energy supply arrangements that help protect against future price rises;

[1] http://renewablematters.biz/resources/Thebigsocietyandrenewables%20published.pdf

— Reduction and localisation of energy spend so that energy becomes a benefit to rather than a drain on the local economy;

— Increased engagement in energy, with resulting knock on behavioural change benefits;

— Local low carbon jobs and industry development.

C. *What types of financing model are most suitable for small- and medium- scale projects? Do these differ from the financing models used for larger-scale projects?*

The projects CfR helps to deliver typically have the following business model, which is applicable for kW-scale to 20MW+ projects, and optimal for maximizing local benefits:

— Each project is set up and run as a community enterprise, typically a Community Benefit Society; a form of co-operative whose primary purpose is benefit the community rather than members;

— Collective ownership through a co-operative share offer that provides a fair rate of return to investors, supplemented by project finance debt or local authority investment;

— Any surplus profit generated once host payments, operating costs and investors have been paid will be transferred to a local community organisation and used to re-invest in further community energy generation locally, and to provide grant funding for local community initiatives;

— Where possible, business models that enable local homes and businesses to purchase the energy generated through local supply arrangements that reduce bills and/or provide protection against future price rises.

Alternative financing models for small to medium scale community energy projects include:

— Partnerships with a commercial developer (eg a co-operative share offer and/or community fund contribution from a commercial project);

— Public sector ownership models, with the income and costs saving benefits supporting public services.

D. *Why are community-owned energy projects more prevalent in countries like Germany and Denmark than they are in the UK?*

Reasons why these types of energy project are less prevalent in the UK include:

— *Stable support mechanisms:* Community projects need a simple and stable support mechanism. The feed in tariffs in Germany provided the necessary stability over a decade or more. By contrast the Renewables Obligation which supported the establishment of the UK renewable energy industry was challenging for MW-scale community projects and did not provide sufficient support for kW-scale projects. The UK FiT has encouraged growth in small to medium scale projects (including community projects) but tariff uncertainty has undermined confidence in the sector and made it difficult for community projects with long development timeframes. The current CfD proposals for large scale FiTs will also make obtaining PPAs difficult.

— *Grid connection:* The EU Renewable Energy Directive requires member states to give renewables "priority access" to the grid. Some Countries have afforded renewable generators priority both in connecting to the grid and in despatching their output, when available, reducing risks for community schemes.

— *Planning:* Germany has limited the adverse time and cost implications of obtaining planning consent in part by resolving certain planning issues at the national level, so that the local consenting process deals only with the genuinely local issues. Local ownership has also facilitated planning success.

E. *Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities?*

Renewable energy projects, like any infrastructure development, will almost always attract some local opposition. Community schemes can substantially increase local support for a renewable energy development compared to a commercial scheme. Involvement of local people from the very early stages in determining the scale, type and location of renewable energy to be developed in their locality can help to reduce the impacts and opposition. This is supported by a number of recent surveys and studies, as well as the success rate of community projects in planning compared to commercial projects.

F. *What appetite is there for community-owned medium-scale energy projects in the UK?*

Whilst three years ago there was very little community energy activity in the UK, there are now local energy co-operatives being set up across the country. CfR is aware of over 50 active community energy groups in the South West alone. Over 200 community energy groups received funding from the DECC LEAF fund, and the applications list will show substantially higher levels of interest.

G. *What appetite is there among private sector organisations in the UK to invest in their own medium-scale energy projects?*

Many small and medium sized businesses would welcome the opportunity to participate in community schemes as hosts, investors or if they could source green power and heat. Local businesses are as much part of a community as households. Initiatives such as the WREN co-operative have had success in involving and benefiting local businesses in community energy schemes.

H. *What appetite is there among UK local authorities to invest in their own medium-scale energy projects?*

CfR is aware of a number of local authorities in the South West that are interested in supporting community energy in their area through policy and investment, and on their own estate. Examples include: Cornwall Council, South Gloucester Council, and Bristol City Council and the Exeter and East Devon low carbon task force which promotes low carbon district heating community heating solutions.

Lancashire County Council Pension Fund's investment in the Westmill Solar Cooperative demonstrates the potential for local authorities to both support and benefit from community energy projects. Cornwall Council has set up a £1 million fund to provide construction stage investments in community energy projects in Cornwall.

I. *What are the barriers to medium-scale energy projects in the UK?*

The key barriers to small to medium-scale community energy projects in the UK are:

- Availability of suitable sites, and competition with commercial developers;
- Grid connection cost, uncertainty and the timeframe taken to provide offers;
- Planning costs, timeframes and uncertainty;
- Access to risk investment;
- Tariff uncertainty;
- Opposition to renewables on the basis of mis-information, which has in some cases been endorsed or not sufficiently addressed by both Government and the media.

Additional challenges faced by community projects (which CfR's business model is designed to counter by taking development risk) include:

- A community will not have the benefit of portfolio risk management that a commercial developer has, and has access to sites only in their area;
- A community is likely only to have funding for a single project (and that may be limited) so needs certainty over planning costs at the outset and may be unable to fund unexpected time delays and increased requirements from planners and consultees;

J. *How effective are current Government policies in encouraging local and medium-sized energy projects?*

The Government has made some positive policy decisions recently that have begun to deliver impacts. Key policies that have been welcomed and should be maintained include:

- Safeguarding Enterprise Investment Scheme (EIS) and Seed Enterprise Investment Scheme (SEIS) eligibility for FiT supported businesses which are social enterprises (co-operatives or community interest companies), which supports community and social investment in genuine community energy projects and companies;
- Enabling projects to register for FiT prior to operation, which provides certainty during the construction finance raising period;
- The DECC LEAF fund released in early 2012, which provided grants to help community energy co-operatives set up and develop their business plans;
- The Defra Rural Community Energy Fund to be released later this year helps address a key barrier for community energy projects of access to risk investment;
- Setting up the community energy contact group.

2. Could Government Policies be Improved in any way? Recommendations

A. *Definition of a community renewable energy generation project*

Should be one owned by a social enterprise (a co-operative, community benefit society or community interest company), as defined in the exemption for EIS relief.

B. *Support mechanism*

The CfD's under the EMR are inherently complex making it difficult for larger community projects to obtain PPAs given their longer timetable. Due to its simplicity, the small scale FIT is inherently better suited to community projects.

Specific recommendations for community schemes include:

- Increasing the upper limit for FiTs above 5MW;
- Slower FiT degressions for community projects;
- Incorporating FiTs, RO, and eventually the CfD's into a simple pre-registration system under which community projects could be accredited for the applicable tariff level at receipt of planning permission, guaranteed if the project takes some time to reach completion;
- Simplifying the accreditation process for FITs, the RO, RHI and CfD for community energy projects;
- Facilitating community schemes to participate in any green power auction mechanism designed to mitigate the adverse consequences of the CfD mechanism;
- Supporting the development of local energy supply arrangements to reduce the dependence of community energy projects on revenue support in the medium to long-term.

C. *Grid connection*

Specific recommendations include:

- Requiring DNOs to publish real time maps showing where there is existing connection capacity for projects without the need for substantial infrastructure upgrades;
- Encouraging DNOs to reduce the 90 day+ timeframe to consider grid connection applications for community projects;
- Ensure conventional and smart grid upgrade programmes incorporate the potential for small to medium scale projects, as well as larger scale projects;
- Encouraging smart grid systems to provide the infrastructure for local energy supply arrangements (eg through storage and generation/demand balancing solutions, remote net metering and reducing transmission costs).
- Allowing remote net metering or community projects.

D. *Planning*

Recommendations include:

- Energy should be a key consideration for local plan development at all levels. An approach to considering energy could include:
  - Establish a baseline picture of the local energy economy (eg cost of and income from energy, fuel poverty, current levels of renewable energy and ownership).
  - Identify local renewable energy resource potential.
  - Assess delivery models and develop policy which supports those which maximise the benefits sought.
- Encourage local authorities to provide priority support for community energy projects, eg through planning performance agreements;
- Consider developing and maintaining national level planning guidance (and/or encouraging local adoption of such guidance) on key technical issues for renewable energy developments.

E. *Funding*

The key areas for support are:

- Grant funding to help local energy co-operatives set up, develop their business plans and cover running costs until they can be self sustaining;
- Risk investment to cover the project development costs (ie obtaining planning and grid permits, and preparing for construction stage financing);
- Underwriting support for co-operative share offers to ensure projects are delivered.

As mentioned above, the Government has begun to address these funding needs through the LEAF and Defra Rural Community Energy revolving loan fund.

Specific recommendations include:

- Regular rounds of LEAF-type grant funding, with realistic timeframes to ensure funding is spent effectively;
- Implementing the Defra Rural Community Energy revolving loan fund with eligibility for urban community energy schemes;
- Encouraging local authorities to place high renewable energy requirements on new developments, hypothecating allowable solutions off-site contributions into supporting local community energy initiatives, supplemented by business rates from renewable energy projects (enabled by an existing policy which has so far not been widely implemented);

— Facilitate the investment of LA pension funds into local community energy projects;

— Selective underwriting of a proportion of community share issues (eg with Green Investment Bank);

— Widening the exemptions for financial promotion legislation and removing other regulatory barriers to facilitate fund raising for CIC and coop schemes: at present CICS seeking funds are effectively limited to seeking monies from high net worth or sophisticated investors;

— Encouraging banks to provide more localised provision of debt finance to community schemes, perhaps by way of support through Green investment Bank guarantees or participation in a revolving fund.

F. *Local energy supply arrangements*

Whilst technical, legislative and market barriers currently make it difficult, the potential exists for renewable energy to be supplied directly to local consumers through arrangements which reduce bills and/or provide protection against future price rises. The potential benefits arise through:

— Most renewable energy technologies generate energy at a largely fixed cost, so it should be possible to pass this through to consumers;

— Small to medium scale renewable electricity projects supply energy mostly into the local distribution network (11kV and 33kV), and so it should be possible to pass savings in transmission charges to local generators and consumers;

— Smart grid technologies could help manage local energy supply and demand, and therefore reduce balancing costs and pass this benefit through to local generators and consumers.

Specific recommendations include:

— Carry out a review of the legislative, technical and market barriers to local energy supply arrangements and consider ways of addressing them;[2]

— Consider ways of supporting smart grid programmes which provide the infrastructure for local energy supply arrangements (the Smart Cornwall Programme managed by Cornwall Council/ Cornwall Development Company is beginning to look at this);

— Consider supporting a number of pilot projects to demonstrate the potential for local energy supply models.

We would be delighted to discuss how an integrated suite of existing policies supplemented by those outlined above could, with the help of organisations such as CfR, deliver local energy economies to the benefit of the wider economy.

April 2013

Written evidence submitted by the Renewable Energy Association

REA Response to the ECC Committee Call for Evidence on Local Energy

The Renewable Energy Association (REA) represents renewable energy producers and promotes the use of all forms of renewable energy in the UK across power, heat, transport and renewable gas. It is the largest renewable trade association in the UK, with over 1,000 members, ranging from major multinationals to sole traders. For more information, see: www.r-e-a.net.

Executive Summary

I. The REA has long campaigned for recognition that renewables can transform not just how we generate energy, but also who generates energy. The current system of Feed-in Tariffs (FiTs) and Renewables Obligation (RO) have worked well at supporting renewables at all scales, yet we have concern that under the Electricity Market Reform (EMR) these projects will not be sufficiently supported and will result in a "squeezed middle".

II. We calculate that of the projects which are currently operational or are under construction in the UK, 37% of the total renewable electricity capacity is within the 5–50MW band. Whilst medium-sized projects have therefore had a significant role to date, the appetite for and potential of such projects is much greater.

III. Therefore there needs to be a greater focus from Government on medium-scale commercial, industrial and community energy projects. Policies need to be streamlined, simplified and provide long-term certainty.

[2] The barriers to the local sale of energy were considered in Climatechangematters ltd's report "The Big Society and Renewables" which recommended simplification of private wires regulations and facilitation of remote net metering to join projects with communities so that the retail cost of own generated power is saved (less transmission costs), thus retaining a greater proportion of the financial benefit of own generation.

Questions

1. *What contribution could medium-sized energy projects (5–50MW) make to the UK's climate change, energy security and energy affordability objectives?*

1.1 Although DECC have not focussed on calculating what the current contribution of projects in this size range is to our energy mix, we estimate that of the projects which are currently operational or are under construction in the UK, 37% of the total renewable electricity capacity is within the 5–50MW band. This figure is based on Restats Planning Database Reports.[3]

1.2 With this proportion in mind, we believe that medium-sized energy projects, which include projects at commercial, industrial and community scales, as well as independent generators, have a significant role to play in meeting our renewable energy targets, mitigating climate change, ensuring we have energy security and fulfilling energy security objectives. Our concern however is that under the EMR, these projects will not be sufficiently supported and these projects will be "squeezed" out.

2. *What different models of ownership exist for medium-sized energy projects and how prevalent are they in the UK?*

2.1 There are a number of different models of ownership for medium-sized energy projects. These include via internal funding through capital budgets, debt financing, community funding, through ESCO financing structures, and via local authorities.

2.2 Internal funding, or balance sheet financing, is generally used for smaller industrial and commercial scale projects where renewable energy is not the core business.

2.3 Debt financing is the method often used by independent generators. However, banks and investors have "made it clear to independent generators that they are not prepared to invest unless the generators have already signed a viable long-term contract (15 years typically) with a large BBB+ credit rated company that will deliver the power into the electricity market on the independent generator's behalf."[4]

2.4 Community projects are currently only a small sector, generating only a small proportion of renewable electricity and an even smaller proportion of renewable electricity in the 5–50MW band. However it is estimated that if they were to receive effective Government support, community projects have the potential of generating around 3.5GW.[5] The community funding model is based on selling shares to local and other interested investors, providing full or partial equity to a group of investors. This may be combined with bank or other sources of debt to create a larger pot of funds. The projects are typically run on a "one member one vote" basis meaning that all shareholders have an equal say in how the project is run. There are currently more than 250 community energy projects built out or in development.

2.5 Energy Service Companies (ESCOs) use innovative financing methods to invest capital into a "whole site" development and in doing so they take responsibility for producing, supplying and managing the local delivery of decentralised energy. Those who benefit from the energy savings pay for the service delivered (eg heat and light etc), and these charges are ultimately lower than if they had purchased from a utility company.

2.6 There are a number of options available to local authorities who wish to finance low carbon projects, for example through generalist funds or low carbon funds.[6] "Local authority low carbon funds have historically been the main source from which local authorities have financed the delivery of low carbon projects and programmes". Once "Allowable Solutions" are implemented for the construction of zero carbon homes, this could become a major source of funds for local authorities.

3. *What types of financing model are most suitable for small- and medium-scale projects? Do these differ from the financing models used for larger-scale projects?*

3.1 Financing models are similar to those listed under question 2 above. However banks tend to only be interested in larger-scale projects, therefore making it more difficult for small-scale projects to obtain funding.

3.2 There is a standard model for financing community projects in the UK, being to raise funds in the form of a share sale. For example, a project with a cost of £100,000 would aim to sell shares at £1 per share (usually with a minimum number of shares which must be bought (five to 250) and a maximum of 20,000). There is currently a de facto limit on these share sales of approximately £4 million, as raising funds above this level requires an almost prohibitive extra amount of due diligence and regulatory clearance. The shares pay a "dividend" to investors based on the project's income and every shareholder automatically becomes a member and is eligible to vote in AGMs. Financing in this model might be supplemented by debt funds, usually from a bank. In the past this funding has been difficult to come by and the current state of the PPA market (see below) has exacerbated this.

[3] https://restats.decc.gov.uk/cms/planning-database-reports

[4] Independent Renewable Energy Generators: Route to Market Q&A

[5] http://www.rtcc.org/uk-community-energy-could-match-drax-output-but-needs-greater-government-support/

[6] http://www.energysavingtrust.org.uk/Organisations/Government-and-local-programmes/Free-resources-for-local-authorities/Local-authority-funding-guide

4. *Why are community-owned energy projects more prevalent in countries like Germany and Denmark than they are in the UK?*

4.1 The key difference between countries like the UK and Germany is the availability of funding for community-owned energy projects. As can be seen in figure 4.1 below, ownership of renewable electricity in Germany is highly diverse. Investment is dominated almost entirely by individuals, farmers, municipal governments and private project developers—€25 billion was invested in renewable power in Germany by these diverse investors in 2011. As quoted in our recent report "Made in Britain",[7] the "REA is concerned that many of these important new investors are being squeezed out of a UK policy framework which is polarising between an old-fashioned utility model and domestic investors."

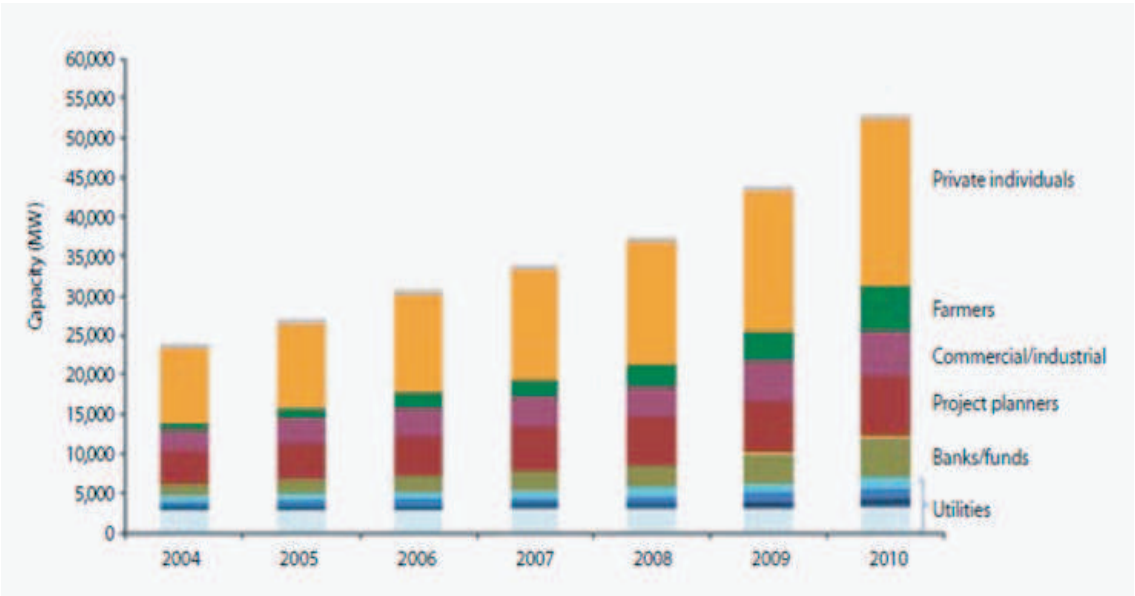
4.2 Planning has also played a major part, for example wind projects in Denmark received favourable planning treatment, and the requirement that any turbine application had to offer local people the opportunity to invest in the project to qualify for planning permission.

4.3 It is worth noting that these projects were based on smaller and less expensive wind turbines, as the technology was still developing. This made it more accessible for farmers and communities and spurred the development of a world leading wind sector in Denmark. The UK could grasp similar economic and supply chain benefits by supporting community uptake of newer technologies, for example in the heat sector where leadership opportunities exist.

4.4 In Germany the KFW government-owned bank provides low cost finance for up to 100% of investment costs for community-owned projects.

Figure 4.1

GRAPH SHOWING HIGHLY DIVERSE OWNERSHIP OF GERMAN RENEWABLE ELECTRICITY GENERATION[7]



5. *Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities?*

5.1 An ICM poll commissioned by The Cooperative[8,9] found that 49% of the 2027 GB adults interviewed would support a wind turbine being erected within two miles of their home, with 22% against. However if the project were 100% community-owned and controlled by the community with all the profits benefiting the community, support rose to 68% and opposition plummeted to 7%.

6. *What appetite is there for community-owned medium-scale energy projects in the UK?*

6.1 With some exceptions, most UK community owned projects have been small-scale in size to date, but there is no reason why projects will not get larger in the future. Some of the largest community-owned projects developed in the UK in the past few years include a Cooperative wind farm in the North West of England,

[7] http://www.r-e-a.net/resources/rea-publications
[8] http://www.icmresearch.com/community-owned-renewable-energy
[9] http://www.uk.coop/sites/storage/public/downloads/renewableenergy_0_0.pdf

Westmill Solar (5MW), Wind (12.5MW) Cooperatives in the south-east and Lochcarnan wind farm in South Uist (7MW).[10]

6.2 The sector is becoming more ambitious and aiming for larger schemes, and as such projects will continue to increase in size. We are worried that with the complexity of CfDs and the new EMR arrangements, some community projects may become stuck at the 5MW size as they avoid the threshold for CfDs and stick to the relatively straight forward FiTs mechanism. This would therefore dampen appetite for medium size locally owned projects. Such issues are further complicated by the uncertainty surrounding the eligibility arrangements for the Enterprise Investment Scheme (EIS). Currently the only technologies eligible for the EIS, whilst being under the FiTs, are Anaerobic Digestion and Hydropower projects. All other projects are excluded from receiving this incentive.

6.3 Community energy has cross party political support and was mentioned in the Coalition Agreement. The concept is very popular "on the ground" with the number of community projects growing several fold in recent years. Academic research[11] suggests that community renewable deployment is preferable to local residents than commercial development, and that living near to a community renewable project increases support for renewables in general. At the same time, those living near a similar project will be more likely to invest in another community project as they do not need to be familiarised and convinced by the concept. Therefore supporting community renewables can act as a virtuous circle, as more projects mean more people become aware of the concept and others become supportive of renewables as a technology, creating a more supportive environment for further projects, see quote below:

> *"The data also indicate that local attitudes could become even more positive if future windfarms were owned by local communities. The fact that the residents of Gigha have affectionately dubbed their turbines 'the Three Dancing Ladies' is indicative of the positive psychological effects of community ownership. These results support the contention that a change of development model towards community ownership could have a positive effect on public attitudes towards windfarm developments in Scotland."*[11]

6.4 In total, Cooperatives UK conservatively estimate that there is the potential for 3.5GW of community owned power in the UK in the next few years.[12] However when one considers the size of the community sector in Denmark and Germany (see above), albeit having developed under different conditions, the potential could be far greater.

7. *What appetite is there among private sector organisations in the UK to invest in their own medium-scale energy projects?*

7.1 A survey of over 400 senior executives working in the UK High Tech manufacturing sector[13] found that almost half of the businesses surveyed have considered generating their own power on site or investing in energy efficient technologies. The report further noted that investing in their own energy is particularly appealing to private sector organisations in order to insulate themselves from rising energy costs.

8. *What appetite is there among UK local authorities to invest in their own medium-scale energy projects?*

8.1 There is widespread evidence that the local authorities are keen to invest in and promote renewable energy when the right conditions are met, as shown by the over 300 English authorities that have signed the Nottingham Declaration.

8.2 A recent report by the Committee on Climate Change[14] states that "there is a crucial role for local authorities in reducing emissions to meet national carbon budgets". Whilst noting the benefits of local authorities investing in their own projects, it is also reported that there is "currently a significant risk that local authorities will not develop and implement sufficiently ambitious low-carbon plans, following the removal of the national indicator framework and given the highly constrained fiscal situation".

9. *What are the barriers to medium-scale energy projects in the UK?*

9.1 The key barrier to medium-scale energy projects in the UK is policy risk. The lack of support for schemes of this size, along with complex existing incentives, adds to uncertainty in the industry and does little to attract investors. This in turn forms an additional barrier in terms of raising finance. More specific examples are outlined below.

9.2 Finance, grid connection costs and planning remain the greatest barriers to most independent generator projects in the UK. For example, any community energy project needs to fund pre-planning and planning development work, without any guarantee of success and without any upfront capital support. Larger companies and utilities can shoulder these costs as they are applying for a number of projects simultaneously and have

[10] http://renews.biz/loch-carnan-community-wind-online/
[11] http://www.embark.com.au/download/attachments/2889510/Warren+-+Does+Community+Ownership+Affect+Public+++++Attitudes.pdf
[12] http://www.rtcc.org/uk-community-energy-could-match-drax-output-but-needs-greater-government-support/
[13] http://www.businessgreen.com/bg/news/2234458/report-manufacturers-concerned-over-impact-of-uk-energy-policy
[14] http://archive.theccc.org.uk/aws/Local%20Authorites/1584_CCC_LA%20Report_bookmarked_1b.pdf

existing bank debt facilities, however smaller groups do not have access to these benefits and must therefore take considerable risks, with uncertain outcomes and no guarantee of recovering expenditure.

9.3 A crucial barrier to independent medium size projects is the current state of the Power Purchase Agreement (PPA) market. As recent DECC research has confirmed, there are a very limited number of suppliers willing to offer contracts and they must be BBB+ credit rated to be acceptable to a bank providing debt funding. In practice this means that an independent project fully or partially dependent on bank funding must attract a PPA offer from a supplier acceptable to the bank, having already faced the uncertainties of the planning system adding an additional layer of risk. Anecdotal reports are effectively that there is only one, perhaps two, suppliers who are currently providing these PPAs.

10. *How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?*

10.1 As discussed in paragraph 1.1, we estimate that of the projects which are currently operational or are under construction in the UK, 37% of the total renewable electricity capacity is within the 5–50MW band. Therefore Government policies have so far encouraged a significant proportion of medium-sized energy projects in the UK. However, as exemplified throughout this document, the potential for these projects could be much greater.

10.2 There needs to be a greater focus from Government on medium-scale commercial, industrial and community energy projects. They need to be properly supported, particularly when considering concern over the forthcoming EMR. Furthermore the policies need to be simplified, streamlined, and remain unchanged to instil confidence in the industry.

10.3 Government could provide access to fully refundable upfront low cost credit to get initial project ideas off the ground and overcome the pre-planning risk phase. Community groups could also benefit from greater access to expertise and knowledge, especially legal, financial and technical. There are a couple of groups providing this for free, but they are very heavily oversubscribed.

10.4 Measures are needed to allow carbon saved from on-site renewable electricity to reduce CRC (carbon reduction commitment) tax. Currently the credit can only be obtained by giving up the FiT or ROC, unlike in the case of the RHI. Therefore a simple solution would be to treat renewable electricity in the same way as renewable heat, ie not adjusting back to the grid mix for the purposes of CRC calculations as it currently is. A further solution would be that where a business seeks to have the full carbon saving reflected in its CRC calculation, it would not pass on the Renewable Energy Guarantee of Origin (REGO) certificate to the electricity supplier under the FiT or ROC power purchase agreement. This would avoid double counting and help incentivise on-site renewable electricity.

April 2013

Written evidence submitted by the Orkney Islands Council

1. *What contribution could medium-sized energy projects (5–50MW) make to the UK's climate change, energy security and energy affordability objectives?*

The aggregate contribution from medium-sized projects is likely to be overshadowed by the contribution made by larger, mainly offshore, wind farms in purely numerical terms. Nevertheless medium-sized projects are by their nature likely to be widely dispersed across the UK, and this is valuable from an energy security viewpoint, for a number of reasons. It is likely to mean a better locational match between supply and demand. Dispersed renewables generation can experience different climatic conditions and thus maintain some production when conditions are unfavourable in one area. And perhaps most importantly the opportunity provided for some local ownership of medium-sized projects spreads the benefits and helps public engagement in carbon reduction.

In respect of affordability, medium-sized projects which are land based offer better value for money to electricity consumers than large-scale offshore wind farms, because of the higher unit cost of offshore farms and the enhanced ROCs which consequently have to be offered to offshore projects.

2. *What different models of ownership exist for medium-sized energy projects and how prevalent are they in the UK?*

Several different ownership models are being employed in Orkney, where planning considerations limit projects to small and medium size, and where there is an appetite for local involvement and local ownership.

Ownership models tend to be project-specific and involve the provison of equity by:

(a) a closed group of local investors;

(b) a new private local company inviting equity participation from experienced local investors;

(c) a single investor, usually but not always the landowner (this model is generally limited to a single large turbine); and

(d) a local community trust established for the purpose, reinvesting surpluses into other community projects.

3. *What types of financing model are most suitable for small- and medium-scale projects? Do these differ from the financing models used for larger-scale projects?*

Given the scale of investment required, larger-scale projects can only be undertaken by large commercial concerns, which anyway are unlikely to be attracted to smaller-scale projects which have higher transaction costs. Large commercial concerns have the advantage of strong balance sheets to support borrowings, achieve greater leverage, and to bear the liability involved in any necessary grid reinforcement.

Local involvement and ownership is more suited to small-scale projects or projects at the lower end of the medium-scale range, perhaps up to about 10 MW in Orkney's experience. These projects tend to be undertaken by new single-project companies with limited financial resources, which may have to provide a higher proportion of funding as equity. Such projects may have disproportionately high connection costs to bear and will also find it harder to support the burden of liability and underwriting for any grid reinforcement which may be required. This is now the situation faced in Orkney, where the grid is at capacity, so that significant new generation projects can only be developed if they underwrite the cost of a new subsea cable to the mainland, and pay the annual TNUoS charges.

4. *Why are community-owned energy projects more prevalent in countries like Germany and Denmark than they are in the UK?*

Whilst the Council has no special insight into this issue, there could be a number of reasons for this, reflecting different institutional arrangements and political priorities. Local organisations—not just local councils but other organisations such as chambers of commerce—may have a stronger statutory basis and better access to funds than in the UK. Stronger government support may also be a factor; the Council is aware of the early designation by the Danish Government of the island of Samsoe as Denmark's "Energy Island" with the aim (now realised) of generating renewable energy equivalent to the island's total energy use. Individual participation was encouraged by making loans available to individuals so they could invest in turbines, to ensure investment was not limited to wealthier members of the community.

Within the Scottish islands the current charging regime imposes charges that are weighted in favour of generation closer to demand. Island-based generators are distant from major demand centres, and require new infrastructure, at least a portion of which needs to be undersea cabling. This combination leads to some very high costs for connection which, at present, are prohibitory. Evidence suggests that the locational charging methodology used within the UK is a disincentive to establish renewable projects on the Scottish islands.

A copy of the relevant report can be obtained from the following link http://www.hi-energy.org.uk/Downloads/General%20Documents/Report%20on%20Fuel%20Poverty%20in%20Relation%20to%20Grid%20Charging%20and%20Renewable%20Generation.pdf

5. *Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities?*

Acceptance is correlated with the degree of local involvement and ownership, which is easier to achieve in small- and medium-scale projects. It is this factor rather than size *per se* which is relevant. Where communities or individuals in a community have an ownership/equity stake in energy project, they are much more ready to accept it.

6. *What appetite is there for community-owned medium-scale energy projects in the UK?*

There has been considerable interest in Orkney in community ownership of turbines, not however of medium scale—all community-owned projects in Orkney are single turbines, all of 900kW capacity. Such projects have now been developed in five of the smaller islands, with communities ranging from around 200 to around 600. The capital cost of these projects, which has risen substantially in recent years, is as much as can be borne by communities of this size.

7. *What appetite is there among private sector organisations in the UK to invest in their own medium-scale energy projects?*

Considerable appetite is evident in Orkney, where a number of small-sized projects have been developed by local residents, often landowners or local developers working with landowners, sometimes backed by groups of local investors. A number of other projects are under consideration, both small- and medium-sized.

8. *What appetite is there among UK local authorities to invest in their own medium-scale energy projects?*

Orkney Islands Council is keen to invest in developing a local resource (wind) for the benefit of the local community. The Council has a substantial shareholding in one local company with a 4.5MW wind turbine project, now in its second year of operation. It is willing to invest in other similar projects.

In the case quoted, the decision to invest was taken after the project had gained planning consent. The potential conflict of interest with its role as a planning authority is a major inhibitor of local authority investment. Discussions on local authority investment in small-and medium-scale projects can only be initiated once a project has received planning consent.

9. *What are the barriers to medium-scale energy projects in the UK?*

Access to funding is an issue for small- and medium-scale projects, particularly when undertaken by a new single-project company with limited resources and no track-record. Bank lending becomes possible once consents are in place, although a higher proportion of equity may be required than for larger-scale projects. And funding to reach the consent stage can present particular difficulties for a single project company, which might not be able to survive failure to win consents.

Grid access remains a substantial barrier. Connection charges may be disproportionately high for small- and medium-scale projects. In the case of Orkney, the existing grid is at capacity and a new subsea cable to the mainland is required. Grid reinforcement is "lumpy" and can only be triggered by a large amount of new generation, such as a large-scale project of hundreds of MWs would provide. Small- and medium-scale projects can only trigger grid investment, and take on the liability and underwriting burdens, by aggregating and co-ordinating projects. Even then a single-project company may find itself stretched to raise the necessary equity and in addition its share of the underwriting of the cost of a new cable. And aggregation with other projects presents considerable difficulties of coordination, it also means an individual project takes on the risk not just of its own failure, but of the impact of failure or delay of any other project in the group.

10. *How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?*

Taken as a whole the system for achieving consent and grid connection, designed originally for large-scale thermal power stations, is not appropriate for small scale renewables projects and those at the lower end of the medium scale range—5MW up to 15–20 MW. Connection costs are high. In Orkney's case, additional transmission capacity is now required and it is difficult for these smaller kinds of projects to trigger new transmission investment because it requires either an "anchor project" or the aggregation of a number of such projects, with substantial liabilities and underwriting to be shared between projects. Annual transmission charges are projected to be high.

This situation is likely to be repeated elsewhere in the country, since the main potential for renewables lies in peripheral areas where the wind resource tends to be best, and with access to wave and tidal resources. The grid in these areas is usually, for historical reasons, limited to supplying the local population, and requires strengthening to export new renewable energy.

What is required is a more strategic approach to development of the grid, providing the necessary infrastructure to areas of high renewables potential, where projects will readily come forward once grid capacity is available. The Department of Energy and Climate Change should exercise a stronger role, through the Electricity Network Strategic Group, in ensuring that a strategic view drives investment.

Ofgem's remit, focused primarily on the protection of consumers, does not provide encouragement to modify grid arrangements to make it easier for small-and medium-size companies to access the grid. Some of these issues are currently subject to examination by an Intergovernmental Group on Scottish Islands Renewables established by the Department of Energy and Climate Change and the Scottish Government. Given Ofgem's key role in the process, Government needs to set a clear policy framework, by providing appropriate Strategic Policy Guidance to Ofgem to ensure that consideration is given to ensuring that small- and medium-size projects can gain access to the grid.

Community projects are now reasonably well supported via Community Energy Scotland, and Lottery funding in some cases, both of which have been instrumental in promoting community owned projects in Orkney. But there is scope for giving greater encouragement to private sector locally-owned projects of this size, making it easier for local residents to invest directly in such projects, thereby increasing acceptability.

April 2013

Written evidence submitted by Renewable Energy Systems

RES is one of the world's leading renewable energy developers working across the globe to develop, construct and operate projects that contribute to our goal of a sustainable future. We have a portfolio of low-carbon energy technologies and a range of services which together can meet demand from the industrial, public and commercial sectors on whatever scale.

RES has been an established presence at the forefront of the wind energy industry for over three decades. Our core activity is the development, design, construction, financing and operation of wind farm projects worldwide. RES has developed or built almost 7GW of wind energy worldwide and we have several thousand megawatts under construction and in development, we continue to play a leading role in what is now the

world's fastest growing energy sector. RES is also involved in the dedicated biomass, solar, offshore wind, wave and tidal sectors.

RES welcomes the opportunity to respond to the Energy and Climate Change Committee call for evidence on local energy. We hope you take our comments into consideration. The key points to note in our response are outlined below:

1. Independent generators and medium-sized local projects promote diversity, innovation, competition and efficiency. Increasing the role of independents and local projects will also support the broader objectives of the Government and are vital to bringing about competition in the wholesale market. We fully support the GPAM proposal to enable independent generators and community developers to find a route to market.
2. Medium-sized energy projects will make a significant contribution meeting the UK's Energy Trilemma: climate change, energy security and energy affordability. Over 88% of the applications currently awaiting planning consent for onshore wind are under 50 MW, totalling 2.7 GW.
3. Government has a clear policy relating to the development of onshore wind as a fundamental part of the UK's energy mix and the renewable energy targets set for 2020. However, both national and local politicians have a key role to play in ensuring that communities understand the need for a mix of energy sources, including onshore wind and other renewable sources, to meet both the UK's future energy supply needs and carbon reduction targets.
4. RES believe it critical for Government to set a 2030 decarbonisation target in the current Energy Bill and for all local authorities across the UK to take a "plan positive" approach to meeting our renewable energy requirements. We encourage a collaborative approach by local authorities to formulating local renewable energy policies.
5. Planning and developing much needed infrastructure such as medium-sized renewable energy projects is a long term process that requires long term Government and investor support.

RES is grateful for the opportunity to comment and look forward to your response. We hope you take our comments on board and welcome any further contact in relation to this response, please contact myself at Sarah.Husband@res-ltd.com or on 01923 299 454.

1. *What contribution could medium-sized energy projects (5–50MW) make to the UK's climate change, energy security and energy affordability objectives?*

1.1 Medium-sized energy projects (550 MW) will make a significant contribution to meeting the UK's Energy Trilemma: climate change, energy security and energy affordability objectives. DECC's Renewable Energy Roadmap (2011) states for onshore wind that "of the applications currently awaiting planning consent over 88%, totalling 2.7 GW, are under 50 MW".[15] The estimated range for onshore wind capacity in 2020 is 10–13 GW,[16] also in the Renewable Energy Roadmap. Therefore, onshore wind developments under 50 MW should represent at least 21–27% of the estimated total capacity. Although it must be noted that not all of these projects will receive planning consent, however, more projects will also enter the development pipeline.

1.2 Renewables Obligation (RO) accredited generation site data extracted and analysed from Ofgem's Renewables and CHP Register[17] shows that there is 3.4 GW of onshore wind capacity of 5–50 MW, compared to a total of 5.7 GW, so medium-sized projects currently represent 61% of the total RO accredited onshore wind capacity. Furthermore, solar deployment within the 5–50 MW capacity band has a total capacity of 6.5 MW.

1.3 The UK Wind Energy Database collated by RenewableUK[18] shows 7 GW of onshore wind capacity either in planning, consent or construction between the 5–50 MW capacity range.

2. *What different models of ownership exist for medium-sized energy projects and how prevalent are they in the UK?*

2.1 Medium-sized energy projects can be owned by utilities, independent power producers like RES, community shares, community bonds or infrastructure funds. Diversity of models and therefore funding is important for the development of projects to meet the UK's Energy Trilemma.

[15] UK Renewable Energy Roadmap, Point 3.12, Page 32, DECC, July 2011, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48128/2167-uk-renewable-energy-roadmap.pdf

[16] UK Renewable Energy Roadmap, Figure 10, Page 31, DECC, July 2011, https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48128/2167-uk-renewable-energy-roadmap.pdf

[17] https://www.renewablesandchp.ofgem.gov.uk/Public/ReportManager.aspx?ReportVisibility=1&ReportCategory=0

[18] UK Wind Energy Database, RenewableUK, http://www.renewableuk.com/en/renewable-energy/wind-energy/uk-wind-energy-database/index.cfm/page/2/status/operational/

3. *What types of financing model are most suitable for small- and medium-scale projects? Do these differ from the financing models used for larger-scale projects?*

3.1 Any project over 10 MW will be looking for project (non-recourse) finance, securing project finance for projects under 10 MW is uncertain. However, smaller projects can be aggregated. Economies of scale will be lost when project financing smaller projects, the overall cost to obtain project finance will be the same regardless of project size (eg contract and due diligence costs). In order to receive project finance, financiers will look at projects as stand-alone companies with a defined set of cash flows where each project must be able to operate as a viable independent business.

4. *Why are community-owned energy projects more prevalent in countries like Germany and Denmark than they are in the UK?*

4.1 In Germany and Denmark unlike the UK, the majority of onshore wind projects are characterised by a "community ownership" model (up to 80% in Denmark). Local communities' pool resources to finance the purchasing, installation and maintenance of projects and individuals are entitled to a share of the annual revenue that is proportional to their initial investment.[19]

4.2 Direct comparison between markets is likely to be misleading but community-owned projects will be more prevalent in markets in which there are routes to market that are straightforward, liquid and have more certainty due to less regulatory risk. For example competition is much more effective in Nordpool, in which Denmark operates, compared to the UK. The Nordpool market is deeper and more liquid and has a much more fragmented market structure than the UK. Furthermore, a less punitive balancing mechanism exists in Nordpool compared to the UK, this reduces the barriers to market entry for renewable generation.

4.3 Germany also has a fixed Feed in Tariff (FiT) support mechanism for renewables. The standard FiT payment model provides more certainty than the UK's RO as the FiT covers the full revenue stream. The FiT is fixed for 20 years once accredited, providing a secure price floor should market prices fall. Furthermore, clear annual degression rates provide future tariff certainty for projects in development.

5. *Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities?*

5.1 RES has seen no evidence of this being the case. As defined in this consultation, medium-sized wind projects would cover a range of schemes, from two to twenty-five turbines; these turbines will likely be of similar heights and capacity as major infrastructure projects (over 50 MW). It is, therefore, unclear why medium-sized projects would be regarded (or accepted) any differently by local communities. An example of this is the recent refusal of the Totnes Community Wind Farm proposal in South Hams, Devon (proposed at 4.6 MW) and the mixed community reaction. This suggests that smaller scale local onshore wind projects are no more likely to be accepted by communities than medium-sized or major infrastructure projects.

5.2 Moreover, every renewable project, whatever its scale, needs to be carefully evaluated and designed and potential impacts must be mitigated effectively. These are the measures of its acceptability in planning terms. The quality of a developer's consultation and their commitment to delivering tangible benefits is equally important for medium-sized projects as for those above 50 MW.

6. *What appetite is there for community-owned medium-scale energy projects in the UK?*

6.1 RES is not able to comment in detail on the appetite within local communities in the UK for community owned projects. However, we have explored in the past whether community ownership, sometimes presented as the "silver bullet" for gaining local acceptance, would be supported as a community benefit. A unique study commissioned by RES in 2010 explored attitudes towards community benefit for wind farms across the UK, and in particular tested support for the option of electricity discounting and the option to purchase share options in wind farms. When explored in-depth focus groups, it was clear that for many people the idea of owning shares in a wind farm was a difficult one for them to grasp and many were put off by the perceived complexity and risk of such a scheme.

7. *What appetite is there among private sector organisations in the UK to invest in their own medium-scale energy projects?*

7.1 The UK's Energy Trilemma requires the development of renewable energy projects beyond the capability of just local communities and non energy specialist businesses. All the medium-scale energy projects developed by utilities and independent developers can also be classed as private sector investment. All the wind projects RES has built in the UK are a result of private sector investment. In the UK and Ireland RES has developed 38 wind projects totalling over 550 MW of wind capacity in medium-scale projects to date.

7.2 RES also provides sustainability consulting to private sector organisations which entails advising on renewable energy procurement and projects. Most private sector organisations and local authorities are looking

[19] The Renewable Energy Review, Box 2.4, Page 106, Committee on Climate Change, May 2011 http://archive.theccc.org.uk/aws/Renewables%20Review/The%20renewable%20energy%20review_Printout.pdf

at technologies at the FiT level (below 5 MW). Private sector organisations seek insulation from rising energy prices through investing in their own medium-scale energy projects. However, any investment by a private sector organisation will be required to meet the hurdle rates that they use to appraise investments in their core business. A significant number of businesses have a payback requirement of between three and five years, therefore renewable energy investments do not typically meet their hurdle rates. As a result, many private sector organisations are looking at alternative investment and ownership models whereby a third party developer might finance and own the installation and sell the power to the private sector organisation.

7.3 There are also practical constraints to the development of certain renewable energy technologies for example a wind turbine would require considerable space and a biomass boiler would require the sourcing of fuel. The ease of implementation will also be a key factor in the development of any medium-scale project by a private sector organisation. In our experience to date, PV has generally been seen as the most attractive technology for private sector organisations to install due to the relatively straightforward (and shorter) planning process and a technology that is perceived to be relatively easy to install and maintain. Our experience suggests that corporations are only likely to invest in PV on the basis of returns between 8 and 10%.

8. *What appetite is there among UK local authorities to invest in their own medium-scale energy projects?*

8.1 Every local authority has different constraints and financial capability so it is difficult to generalise. However, local authorities tend to have tighter cash constraints than private sector organisations and are therefore more likely to go for an energy services company (ESCO) type model. From our experience, local authorities have been very actively looking at PV for schools and social housing. Interest from this sector has levelled off to some extent (as has been the case across the PV sector) due to uncertainty caused by the cuts to FiTs.

9. *What are the barriers to medium-scale energy projects in the UK?*

Policy

9.1 Notwithstanding the consistently high levels of support for renewable energy and onshore wind energy shown in national polling exercises. The concerns and questions raised by residents and businesses located close to proposed wind farms frequently and understandably focus on how the national need and benefits balance with local impacts (and benefits). Both national and local politicians therefore have a key role to play in ensuring that communities understand the need for a mix of energy sources, including onshore wind and other renewable sources, to meet both the UK's future energy supply needs and carbon reduction targets.

9.2 The Government has a clear policy relating to the development of onshore wind as a fundamental part of the UK's energy mix and the renewable energy targets set for 2020. However, statements made by backbench MPs and at Ministerial level have a significant impact on local perceptions of the need for wind energy. RES would therefore call on central and devolved governments, to make clear and unequivocal statements on their long term support for the principle of medium-sized onshore wind as a secure, cost effective and rapidly deployable form of renewable energy. In addition to this, RES believes it critical for Government to set a 2030 decarbonisation target in the current Energy Bill and for all local authorities across the UK to take a "plan positive" approach to meeting our renewable energy requirements. We also encourage a collaborative approach by local authorities to formulating local renewable energy policies.

Planning

9.3 All medium-scale projects need to receive planning permission before they can go ahead and this process can be very lengthy (a typical sub 50MW onshore wind project may take several years to achieve planning permission). Key obstacles to obtaining timely planning permission include delays in receiving responses from "statutory consultees", restrictive policies sought by local authorities and general misinformation regarding health and environmental issues which can provoke public opposition. Once planning permission has been obtained the discharging of planning conditions can be a key project barrier, for example due to the legal wording of the conditions. If planning conditions do need to be varied to correct errors or to change minor details, the current planning process exposes the projects to large delays and risks.

Grid

9.4 A medium-scale project will require a grid connection; this requires an application to be submitted to the Distribution Network Operator (DNO) before any connection can be made. The DNO will complete a network study to ensure that the local grid network can take the extra power, if the local grid network needs extra work before it can accept the connection, this cost will have to be covered by the project. The reserving of grid access requires a deposit to be paid. Grid connection costs vary dependent on location of site and the type of connection agreement entered into.

Market

9.5 The market barriers to medium-scale local energy projects in the UK are the same as those for medium-scale independent market projects: complexity, cost of energy trading, regulatory risk, illiquidity and most importantly a route to market.

9.6 Another barrier is the impending changes to the support mechanism for renewable energy projects above 5 MW from the RO to Feed-in Tariff with Contracts for Difference (FiTs CfD), this is creating uncertainty for all projects. However, this is particularly prevalent for on-site projects as FiTs CfD support will potentially be unavailable to renewable generation consumed on-site in contrast to the RO which provides support to all renewable energy generation.

9.7 The FiT CfD will only cover one element of the income stream, the support or top-up payment. It will not cover the underlying electricity related revenues. This creates a critical difference with a standard FiT payment model (eg Germany) where certainty is created as the FiT covers the full revenue stream. As a result of this difference, the generator is left with the risk of whether or not it can achieve the market reference price and the balancing risk. These risks present a significant barrier to entry and will increase the cost of capital or reduce the attractiveness of the project to financiers.

9.8 As an independent renewable energy developer we are finding it increasing difficult to find a route to market. At present the vertically integrated nature of the market and lack of liquidity means we require Power Purchase Agreements (PPAs) with one of the Big Six suppliers in order to secure project finance for our developments. There is a fundamental deterioration in the current PPA market that is occurring now because the RO is being fixed alongside the introduction of the EMR. With the withdrawal of the obligation on vertically integrated utilities to source a proportion of electricity from renewables there will no longer be an incentive to offer a viable PPA to independent generators under the EMR. Therefore, all developers of community energy schemes above 5MW seeking a route to market will also be placed at a disadvantage under the new arrangements owing to their weak negotiating position in the off-take market.

10. *How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?*

10.1 Planning and developing much needed infrastructure such as medium-sized renewable energy projects is a long term process that requires long term Government and investor support. The Government's commitment to supporting onshore wind is also critical for UK consumers and businesses in terms of providing protection against rising and volatile gas prices. For this reason, RES strongly supports the call for a 2030 decarbonisation target in the UK's current Energy Bill to commit the UK to have a near carbon free power sector by 2030 in line with the recommendations of the Committee on Climate Change.

10.2 Independent generators and medium-sized local projects promote diversity, innovation, competition and efficiency. Increasing the role of independents and local projects will also support the broader objectives of the Government and are vital to bringing about competition in the wholesale market. We fully support the GPAM proposal to enable independent generators and community developers to find a route to market.

10.3 The GPAM proposal builds upon the existing Non-Fossil Purchasing Agency (NFPA) structure, provides a market-led solution, improves liquidity, allows market access for small suppliers and new entrants but most importantly will lower cost to consumers. Under GPAM a low-carbon generator will auction their output every six months to a supplier, in line with the current NFPA power auctions. The supplier will purchase all the output from that generator and manage all the balancing. The cost of balancing will be factored into the auction price and therefore adjusted every six months to take into account actual balancing costs, removing the risk of over estimating long term balancing costs in Power Purchase Agreements (PPAs) and CfD strike prices. Under this proposal the auction clearing price every six months will be used for each generator as their CfD reference price thereby removing CfD reference price risk. GPAM will promote competition and lower the cost of reaching renewable energy targets for consumers.

April 2013

Written evidence submitted by Jasbir Singh Basi

EXECUTIVE SUMMARY

— Medium-scale energy projects offer tremendous potential for the UK energy sector, through the provision of demand-side and supply-side flexibility, increased renewable capacity and potential long-term energy savings. Recent estimates suggest that approximately £6 billion capital investment is required over the next decade in order to meet the potential 3.5 MW capacity from medium-scale energy projects.

— Institutional investors that finance large-scale projects do not possess the sufficient risk appetite or expertise for medium-scale energy projects. In order to meet projected capital investment requirements, alternative financial models need to be considered such as public bank finance, co-operative funds and equity sharing via crowdfunding.

— In the UK, there has been a tradition of large-scale clean energy projects backed by commercial utilities, which have created public acceptability problems. The experience from countries such as Denmark and Germany suggest the success of a community ownership model is a function of three key drivers: establishment of citizen rights to electricity production, community rights over local grid ownership and a stable policy support at the community level.

— Public opinion polls suggest that there is a significant degree of public support for community ownership of clean energy projects. However, there are significant barriers to the growth of medium-scale energy projects in the UK. Community buy-in is essential and will require government communication directly to citizens. The current planning framework does not recognise the national importance of medium-scale energy projects or possess a coherent understanding of the planning issues raised by residents.

— The lack of a community level feed-in tariff framework is a crucial financial barrier preventing the growth in community ownership of energy projects. In addition, an increase in medium-scale projects is likely to aggregate the intermittency challenges posed by high integration of renewable energy sources into the grid, requiring investment in smart grid technology, demand-side management, energy storage and interconnection.

— In order to maximise the benefits and meet the capital investment requirements of medium-scale energy projects, this paper argues government can take several steps to pursue strategic leadership. This includes using the green investment bank to underwrite project grants or a specific proportion of the project risk of medium-scale energy projects, providing a community-level feed-in tariff and energy-saving tariffs to encourage generation and demand reduction. In conjunction with a coherent planning framework, the incorporation of legal rights in the localism bill for citizen ownership over electricity production and community ownership over grid connection are also critical. Furthermore, the government should ask DECC to commission a community energy framework in the community energy strategy published late in Autumn 2013 that encourages a variety of ownership models from co-operatives and partnership models to alternative equity proposals such as crowdfunding.

1.0 *"What contribution could medium-sized energy projects (5–50MW) make to the UK's climate change, energy security and energy affordability objectives?*

1.1 Under the 2008 Climate Change Act, the UK is bound to emission reductions of 80% compared to 1990 levels by 2050. In addition, the CCC (2011)[20] has stated that decarbonisation of the electricity sector is crucial in order to meet these targets. Medium-sized energy projects in the form of distributed generation will be critical for provision of renewable technologies such as wind and solar. Distributed generation accounts for approximately 55% (5 GW) of renewable energy. Renewable capacity is forecasted to increase to 45 GW in 2020, providing approximately 39% of potential capacity.[21]

1.2 Medium-scale energy projects offer potential for demand reduction measures, providing a cost-effective method to achieve to achieve emission reduction targets. DECC projects electricity demand will fall by 18% in meeting to meet costs of 2020 and 2030 decarbonisations projections for the power sector.[22] Whilst, individual generators represent the biggest users of electricity, households and non-domestic buildings account the remaining two-thirds of electricity consumption.[23] Medium-scale projects offer the possibility of demand reduction measures from these areas, offering a realistic prospect of achieving projections forecasted by DECC.

1.3 Medium-scale projects can introduce flexibility into the power sector, providing crucial benefits for security of supply objectives. Evidence has shown that a centralised system reliant on utilities and large-scale generators will continue to push extreme pressure on capacity; with recent forecasts predicting a drop in the electricity capacity margin from 14% to 4% by 2015–16.[24] Distributed generation provides the opportunity for new capacity in the short-term, improving system-level energy efficiency, and avoiding need for costly energy upgrades[25]. Furthermore, medium-scale projects in a balancing mechanism designed with decentralised systems in mind, offer the potential for system balancing. In the US, the 2005 Energy Policy Act has allowed this potential for demand response programs to be realised.[26]

1.4 Despite the significant start-up costs that may be involved in medium-scale energy projects, giving households and businesses responsibility for grid management, energy efficiency and demand management, may provide the potential to provide consumers with savings on energy costs in an environment of rising consumer prices. Demand response trials in the USA have demonstrated the ability for consumers to save approximately 10–20% on energy costs.[27]

[20] The Committee on Climate Change (2011). "The Renewable Energy Review"

[21] Carbon Connect (2012). *Distributed Generation: From Cinderella to Centre Stage*, report.

[22] Green Alliance (October 2011). "*Decarbonisation on the cheap: How an electricity efficiency feed-in tariffs can cut energy costs*", Green Alliance policy insight paper.

[23] UKERC (2012). insight briefing paper, *Feed-in Tariffs: The energy saving option.*

[24] Ofgem (2012). *Electricity Capacity Assessment Report.*

[25] Carbon Connect (2012)

[26] Department of Energy (2005). "Benefits of demand response in electricity markets and recommendations for achieving them", Report to the Congress.

[27] PJM 2014/2015 Base Residual Auction Addendum, at http://www.pjm.com/markets-and-operations/rpm/~/media/markets-ops/rpm-auction-info/2014–2015-rpm-bra-results-report-addendum.ashx

2.0 *"What types of financing model are most suitable for small and medium-scale projects? Do these differ from the financing models used for larger-scale projects?"*

2.1 Small and Medium-sized energy projects up the magnitude of 50 MW will have considerable difficulty attracting finance from conventional institutional investors of large-scale projects, owing to a lack of expertise, risk appetite and high levels uncertainty in these types of project. Recent research by Camco and Baker Tilly has indicated that approximately there is potential for 3.5 GW of community-owned renewable energy generation in the UK, a value equivalent to three or four power stations.[28]

2.2 This study provided an initial indication that around £6 billion of capital investment is required.[29] Various financial vehicles exist that can be tapped into in order to finance small and medium-scale projects.

2.3 Government can be one key actor via a public bank, providing lending for project finance that would be difficult to attract from institutional investors at below market rate of interest for small and medium-sized projects.[30] One useful example is the German Bank KfW bankengrappe: a German development bank that is partly government owned (80%) and state-owned (20%), that can borrow from international capital markets. The government guarantees the bank loans, via provision of grants and exemption from corporation tax. Major investment areas of the bank concern renewable energy and energy efficiency in housing and SMEs and in 2011, commitments in this sector totalled Eur 23 billion.[31]

2.4 Individual investors are a crucial source of finance, through community shares. Crowdfunding of clean energy projects through this internet is one such model. In this format, investors can earn interest from the financing of clean energy projects and potential higher returns than a borrower/lender could receive from an institutional investor. In the UK, this appears to be a rising trend, with the rise of online platforms such as trillion fund and Lancashire county council's finance trial.[32] However, there are risks associated with this financial model that puts it at a disadvantage compared with the power purchase agreement. The absence of no regulated marketplace for buyers and a seller means that significant transaction costs are likely to incur in addition to the risk of no guaranteed price.[33] In a potential situation of overcapacity, Government needs to set minimum product standards for technology components in order to sustain the projected project lifetime of small to medium-scale energy projects.

2.5 A final alternative is that individuals could undertake shares via a co-operative fund. Co-operative schemes possess a financial advantage over conventional models given the greater appetite of equity-based schemes over bank financed schemes to profit from short-term contracts with attractive financial terms. Co-operatives are owned and run by a variety group members, that possess a share and profits can go back to members, the community or are reinvested in another project. In the UK, many are established as industrial and provident societies, providing shares to members. Co-operatives are particularly valuable for projects at the upper end of the scale, as demonstrated by the 50 MW Middelgrunden co-operative in Denmark. A total of 20 offshore wind farms, providing 4% total power for the city of Copenhagen, the project is a joint venture between Copenhagen Energy and the Middelgruden co-operative which own 50% of the project as a registered private partnership under Danish law, with the remaining 50% owned by Dong Energy.[34]

3.0 *"Why are community-owned energy projects more prevalent in countries like Germany and Denmark than they are in the UK"*

3.1 In relation to the different ownership structures, experience of countries such as Denmark, Germany suggest that traditional co-operatives have played a less critical role than individuals and farmers in providing local investment and encouraging the initial "bottom-up" trigger of community ownership of energy projects. In Germany and Denmark, taking these forms of ownership together, local ownership accounts for over 50% of wind power capacity.[35] The growth in community ownership in Denmark and Germany can be understood as a product of three factors.

3.2 The first of this factors concerns rights of consumers to purchase electricity. In Denmark, there has been a historical tradition of local ownership of wind power. The Danish Power law which required that wind energy must be directly owned by electricity consumers, meant that the only partnership that can qualify is the general partnership model ("Interessentskab"); a contractual relationship where multiple individuals, can pool resources in order to run a business. In Germany, citizens have had the legal right to be producers and suppliers of electricity to the grid system since 1990. The dominant model that exists in Germany is a "Limited partnership with a limited liability company as general partner" (Gmbh & Co. KG).Under this, the partnership is exempt from corporation tax, partners are instead taxed at individual level. The developer incorporates his or her

[28] The Potential for the Green Investment Bank to support community renewables, Camco and Baker Tily cited in Co-operatives UK (2012). *Manifesto for Community Energy Revolution*

[29] Co-operatives UK (2012). *Manifesto for Community Energy Revolution*

[30] Vaze, P and Tindale, S (2011). *Repowering Communities: Small-scale solutions for large-scale energy producers*

[31] Kfw (March 2012). "German Approaches in promoting energy efficiency Kfw best practice experience, IEA workshop on energy efficiency".

[32] *Financial Times* (November 2012). "Council turns to web 'crowdfunding'", 12 November.

[33] Toke, D (2007). "Renewable financial support systems and cost-effectiveness", *Journal of Cleaner Production*, 15, 280–287.

[34] Haney, B, A and Pollitt, G, M (2013). "New Models of public ownership in energy", *International Review of Applied Economics*, 27, 2, 174–192.

[35] Toke (2007).

business as a limited liability company, with each project forming a partnership with a limited liability company general partner and individual investors as limited partners.[36]

3.3 Secondly, a stable policy landscape was crucial to the growth of community ownership in Denmark and Germany. In Denmark, the 1979 Renewable Energy program represented a starting point, providing an investment subsidy of 30% of project costs until 1989, when a feed-in tariff framework was implemented.[37]

In Germany, a critical driver of community ownership was the 1991 the electricity feed-in-law, which provided a critical and stable policy landscape through the feed-in tariff framework.

3.4 In cases, grid connection and local grid rights has been a final critical factor in the drive to community ownership of renewable energy sources. The generator pays the cost to connect to the closet point on the grid and the transmission operator is responsible for further operations such as grid reinforcement and interconnection. Since 1993, local utilities in Denmark have had an obligation to purchase wind energy from independent generators at approximately 85% of production and distribution costs.[38] The 2000 Renewable energy Act in Germany required utilities to purchase from independent generators in order to guarantee investors a return on investment.[39]

4.0 *"Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities"*

4.1 NIMBYISM has been a crucial barrier in the planning consent and implementation process, particularly in relation to projects concerning onshore wind backed by commercial utilities. Whilst such measures have not been effective in securing local-buy, this is not to suggest that community ownership would receive a similar negative reaction. From a comparison of costs and benefits in the current model seen in onshore wind, communities bear costs such as visual impact and associated environmental externalities associated with onshore wind turbines, whilst the beneficiaries are electricity consumers and distribution operators. However, a community ownership model would resolve this in theory, with communities bearing the costs but also being beneficiaries of potential projects, addressing this distributional issue.

4.2 Public opinion polls represent a useful barometer to test this assertion. Evidence from public opinion polls suggest that communities adopt a positive attitude to renewable energy with the greatest proportion of interviewed respondents stating a preference for energy from solar power and wind farms (72% and 55%).[40] An ICM (2013)[41] poll commissioned by Co-op found that out the 2027 GB adults interviewed 68% would back local renewable energy projects including wind turbines on the conditions they were 100% community-owned with the community being the beneficiary with 7% opposition to such a barrier.

5.0 *"What are the barriers to medium-scale energy projects in the UK"*

5.1 A lack of a financial procurement mechanism at the community-level for renewable energy projects in the region of 5–50 MW is a crucial barrier. A key attribute driving the successful community ownership models in Germany and Denmark was stable policy support at the community-level through the feed-in tariff framework.

5.2 Conventional institutional investors such as banks and pension funds do not possess the sufficient risk appetite, expertise or experience required to finance the complexity medium-scale projects pose as an asset challenge.

5.3 Community buy-in and consumer engagement with energy management are key barriers to medium-scale projects. In order to encourage energy consumers to think as both producers and consumers, this will involve overcoming significant cognitive challenges involved such as bounded rationality, where energy is not necessarily considered a "front of mind issue". Given the upcoming arrival of energy changing technologies such as smart meters, it is critical communication to consumers come directly from government and not utilities, in order to raise awareness and encourage behaviour change.

5.4 There is lack of a consensual understanding amongst local planning authorities and planning committees surrounding the national importance of community generation, issues of importance and recurring issues raised such as house price, noise and carbon footprints.[42]

5.5 Medium-scale projects could aggregate the problems caused by increased integration of renewable energy technologies into the grid system. This will require significant investment in back-up generation; smart grid

[36] Bolinger, M (2001). *Community Wind power ownership schemes in Europe and their relevance to the United States.*
[37] Bolinger (2001).
[38] Bolinger (2001).
[39] Butler and Neuhoff (2008). "Comparison of feed-in tariff, quota and auction mechanisms to support wind power development", *Renewable Energy*, 33, 1854–1867.
[40] ICM (2012). Commissioned on behalf of Co-operative group cited in Carbon Connect (2012). *Distributed Generation.*
[41] ICM (2013). *Poll: Community-owned Renewable Energy*, interview sample of 2027 GB adults.
[42] Carbon Connect (2012)

technology; interconnection; energy storage and demand-side management in order to address the scale of this balancing challenge.[43]

6.0 *"How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?"*

6.1 Using the Green Investment Bank to underwrite a specific proportion of the project risk for medium-scale energy projects or allocate project loans guaranteed by government.

6.2 Include provision of legal rights for citizen ownership over electricity production and community ownership over grid connection in the Localism Bill.

6.3 Provide a stable financial support mechanism to encourage the supply-side and demand-side flexibility community ownership of projects in the 5–50 MW range offers. In addition to providing a community-level feed-in-tariff to encourage generation, government should provide a financial support mechanism encouraging demand reduction at the community level, which could be via an energy saving feed-in tariff (ESFIT). A recent study undertaken by Eyre (2013) suggests that under the current electricity market reform, ESFITS for demand reduction would provide relatively low transaction costs and be a favourable choice for small-scale consumers.[44] Given that finance for ESFITS would be raised via energy bills, this would address any distributional concerns, with only beneficiaries paying for the measures.

6.4 In accordance with the recommendations made by Carbon Connect (2012), DCLG should provide a framework or coherent template for planning professionals and local authorities in reference to the issues raised in 5.4.[45]

6.5 Ask DECC to publish a community energy framework in its community energy strategy published late in Autumn 2013, encouraging a variety of ownership structures; from co-operatives and partnership models to alternative equity proposals such as crowdfunding.[46]

April 2013

Written evidence submitted by REG Windpower

1. *Introduction*

1.1 REG Windpower is delighted that the Energy and Climate Change Select Committee have chosen to undertake an inquiry into local energy. Whilst REG Windpower welcomes the Government's stated desire to increase the amount of energy generated from renewable sources, we are concerned that its commitment to certain technologies, including onshore wind, is currently seen as uncertain by investors. This is making it difficult to fund small and medium-sized renewable projects and create the green jobs necessary for the country's low carbon future. In particular, there continues to be a lack of clarity around future support for wind power through the Renewables Obligation as well as in regard to the Electricity Market Reform proposals which is currently being taken forward in the Energy Bill, further hindering investment by wind farm developers and preventing the growth of this vital sector.

1.2 With the low carbon goods and services sector employing 939,600 people in 2010–11, and the green economy estimated to be worth £122 billion, around 9.3% of the overall economy last year, the need for a stable regulatory and policy environment for investors in the renewables sector is vital for the UK's economic recovery. REG Windpower and others in the onshore wind sector would like to see the Government set out a firm commitment to support the growth of the sector to help create the green jobs needed for the economic recovery.

1.3 Our submission makes the following policy suggestions that we would like to see the Energy and Climate Change Select Committee consider as it undertakes this inquiry. Our recommendations include:

- To maintain market certainty and investor confidence, there should be no reduction in the 0.9 ROC tariffs set out for onshore wind in the Renewables Obligation Banding Review earlier this year. Any further reduction would make it extremely difficult to developers to raise finance for projects.
- There should be a commitment to maintain the Renewables Obligation concurrently within the EMR until the Contract for a Difference (CfD) Feed-in-Tariffs have demonstrated that they can act as a suitable replacement.
- The Government's Energy Bill should confirm that the 15 year rate of return on CfDs should be extended to at least 20 years to bring the incentive in line with other EU mechanisms and provide the longer-term rate of return that is needed to attract investment in renewable projects.

[43] Strbac *et al* (2012). *Understanding the balancing challenge*, for the Department of Energy and Climate Change, Imperial College and NERA.

[44] Eyre, N (2013). Eyre, N (2013). "Energy Saving in energy market reform- The feed-in tariffs option", *Energy Policy*, 52, 190–198.

[45] Carbon Connect (2012).

[46] DECC (2013). https://www.gov.uk/community-energy.

— Differentiate the cost of capital assumed for onshore wind investment between those investors willing to take development and construction risk, and those investors who will only invest in operating projects.

2. *Background to Onshore Wind*

2.1 Onshore wind is the UK's most proven and cost-effective form of renewable energy generation. Government data has shown that the central levelised cost estimates for onshore wind was one of the lowest, at £90MWh for onshore wind 5MW projects starting in 2011 in comparison to £123MWh for similar offshore wind projects, and the additional cost to the consumer from onshore wind in 2010–11 was only £4.68 on the average bill—approximately 9p per week. Onshore wind has the potential not only to deliver the Government's objectives for a diverse mix and sustainable energy supply, but is helping to create jobs and deliver manufacturing innovation and technological skills training in a highly specialist part of the economy.

3. *Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities?*

3.1 REG would argue that our size helps us build positive relationships with local communities and get them on board for our projects. Unlike, some of the larger organisations we feel close to the local communities and we view community engagement as a core part of any of new development project and are committed to public consultation in acknowledgement of the fact that there can be strong feelings amongst local people about where new developments are located. REG believes it is important to emphasise that there is an extremely rigorous site selection process in place to ensure that wind farms are only placed in the right location and that they respect the local environment, and it is proud of its record in creating jobs and delivering investment in wind farm construction, operation and maintenance, and through the supply chain, to the local economy.

3.2 REG offers an industry-leading £4,000 or more per MW of installed capacity community benefit package for all its projects; some four times greater than the £1,000 per MW advised in the industry protocol for projects in England of greater than 5MW. REG works with the local community to identify the priority projects and initiatives in the area that could most benefit from the fund and this often involves "front-loading" of the community fund payments to bring greater benefits.

3.3 REG believes that local people are best placed to decide who benefits from its community funding packages. This is why we establish community liaison groups in all or our development sites, to enable us to work closely with the local community and identify the priority projects and initiatives in the area that can be supported through our funds. As such, our funds have supported a wide range of projects depending on local need, from improvements to local assets to an increasing focus on providing lasting social benefits through addressing routes into employment for young people in deprived areas.

4. *What are the barriers to medium-scale energy projects in the UK?*

4.1 Despite the success of the Renewables Obligation in promoting an expansion of wind technology over the past few years, we would like to raise concerns that the policy environment has in the last six months become highly uncertain for investors. All investments rely on a "no surprise" regulatory regime. However, recent statements by ministers that the Government is not minded to support any further expansion of wind farms, and speculation that the Treasury was pushing for a reduction in support through the RO despite a robust, evidence based approach having been taken through the Banding Review, have severely damaged confidence in the sector. We were pleased to see the Government's final response to the Renewables Obligation Banding Review confirm the level of ROCs for onshore wind at 0.9 ROCs/MWh as initially proposed by the Department for Energy and Climate Change (DECC) based on reputable economic analysis. However, we are concerned that this level of support has only been guaranteed until 2014 with a further consultation this year on whether support levels should be reduced further.

4.2 Across the industry we are aware that this is discouraging investors from putting up the capital needed to get projects off the ground and means that finance has become more expensive or difficult to obtain, with the result that some schemes have now stalled or are on hold. This is particularly short-sighted at a time when the Government is trying to encourage alternative sources of funding, such as pension investments, into the renewables sector. As the CBI report, *The Colour of Growth: Maximising the Potential of Green Business,* found uncertainty over the level of subsidy for wind projects has been critical to undermining investor confidence as to the long-term feasibility of onshore wind projects.

4.3 The cost of onshore wind for developers is often underestimated and based on our experiences of operating and maintenance costs for onshore wind developments we see absolutely no justification for any proposal to reduce the level of support for wind power to below 0.9 ROCs. Indeed, a reduction to 0.85 or 0.75 ROCs would be disastrous for the industry as it would mean the difference between the long term viability of many schemes, and the ability of developers to raise sufficient capital finance to get projects off the ground. *We would urge the Committee to recommend that the Government urgently confirm future levels of RO support for the industry, and set out its commitment to support the expansion of wind power generation.*

4.4 We would also like to highlight concerns about the lack of certainty around the details of the Electricity Market Reform (EMR) Contract-for-a-Difference (CfD) Feed-in-Tariff, which will replace the RO for new renewables schemes from 2017, as well as emphasise the need for a smooth transition process to ensure investors are not discouraged by the uncertainty surrounding the move to the new mechanism. Whilst REG welcomes proposals for an overlap period between mid-2014, when the new CfD scheme first becomes available, and the end of the RO in March 2017, there is a significant risk of a "cliff-edge" point in 2015 where the CfD will not yet be proven but it will be too late to choose between the mechanisms in time for the 2017 switchover.

CfD Feed-in-Tariffs Uncertainty

4.6 The onshore wind sector is particularly concerned about the continued lack of clarity about how the new CfD FiT mechanisms will work in practice which is again hindering investment and the growth of the industry. The EMR White Paper contained little information about classification, timescales, counterparties for the scheme, and how it is to be rolled out, and the Government's Energy Bill fails to provide much further clarification on these issues.

4.7 Of particular importance is how tariff levels will be set and allocated. While the Energy bill notes that National Grid Electricity Transmission Plc will allocate CfDs in line with agreed objectives, it also states that competitive price setting for CfDs could be adopted in the longer term once "market conditions allow". This lack of clarity around whether and when competitive price setting will be used contributes to the already uncertain investment climate. It also appears that during the transitional period to 2017, there will effectively be competition for CfDs given the proposal for limiting the number of CfDs issued under the cost controls outlined in the Bill—an auction or tender process to set tariff levels would act as a huge barrier to investment, increasing price volatility. This would also place independent developers at a significant disadvantage compared to the major utility companies.

4.8 The CfD proposals are also unappealing to investors due to the short 15 year rate of return, compared to the 20–25 years offered in other countries, meaning that projects beyond 2017 are currently unattractive prospects compared to those in other sectors which offer a similar rate of return. Longer term tariffs would permit lower cost of capital investment in projects, due to the added certainty this would bring, thus allowing projects to be owned and operated by investors at the lowest cost to consumers. For example, in Canada, tariffs for onshore wind are awarded for periods of 25 years, which allows public and private sector pension funds to play a major role in funding these projects.

4.9 *During scrutiny of the Energy Bill, REG would like to see the Government announce that the new CfDs will be set independently on a long term basis with absolute certainty that projects ready to build will be eligible for the CfD. The Government should extend the 15 year rate of return on CfDs to at least 20years to bring the incentive in line with other EU mechanisms and provide the longer-term rate of return that is needed to attract investment in renewable projects.*

Planning

4.10 Finally, the difficulties set out above are further exacerbated by problems developers have in obtaining consent for onshore wind farms, with many local authorities often throwing out applications for reasons which prove undefendable at appeal, and which are then over-ruled by the inspectorate. This not only delays projects from coming on stream and adds to the start-up costs, but ultimately costs the taxpayer more owing to the large number of planning cases overturned at appeal, with the considerable legal costs this entails.

4.11 We welcome the announcement from the Department for Communities and Local Government that it will shortly undertake a wholesale review of planning guidance and would like to see the Government take greater measures to increase transparency and accountability in the planning sector. *As part of this review, we would like to see planning appeals being made more available for public disclosure, with a requirement that information about the costs incurred by local councils as a result of any planning appeal be published alongside the Planning Officer's report*, to enable local residents to see the costs of planning appeals to the tax payer and encourage greater accountability at local authority level.

5. *How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?*

5.1 We believe that the Government's current energy policy is not supporting local and medium-sized energy projects and not fulfilling the great potential in this area. In our sector the policy uncertainty deterring investors and hindering the UK's ability to realise the full potential of wind power which can deliver up to a third of all renewables generation by 2020, as well as the investment in innovation and skills necessary to create the jobs that will be essential in a high-tech and value added green economy.

5.2 We believe the Government needs to allay this uncertainty by stating its commitment to the growth of the sector as part of its wider strategy to deliver economic recovery. In particular, we would like to see the Government confirm the level of ROCs for onshore wind beyond 2014 and set out more detailed plans to provide stability to investors during the transition between the phasing out of the RO and the introduction of

new CfD FiTs. At a time when the UK is in recession, schemes which have been shown to promote investment in wind farms and other renewables must be maintained and clear signals given that the Government will support wind power over the long-term to reassure developers that their investments will not undermined by unexpected changes in the policy environment. Given the long time frames involved in wind farm development, the Government also needs to introduce measures to support longer term investments over a 20–25 year period through the CfD FiT mechanism, to ensure wind power can continue to contribute towards the decarbonisation of the electricity market and create the green jobs necessary for the growth of the low carbon economy.

6. *What types of financing model are most suitable for small and medium-scale projects? Do these differ from the financing models used for larger-scale projects?*

6.1 At present the ability for independent onshore wind developers to raise bank finance is severely constrained, with fewer than five banks' lending to projects <20MW in size, making financing for new projects both more difficult and more expensive. In addition, the absence of any real competition in the power purchase market has resulted in generators being forced to accept large discounts (typically around 15%) to market prices in order to secure bankable offtake agreements. This means the non-utility wind sector has, in effect, already been receiving 0.9 ROCs/MWh for a number of years.

6.2 The cost of onshore wind is often underestimated, which we believe is largely due to a tendency for policymakers to focus only on the cost of building and operating consented wind farms, rather than recognising the significant at-risk expenditure incurred in developing projects from greenfield sites through planning. Whilst turbine prices in Euro terms did reduce slightly following the global recession and credit crunch in 2009, and have remained largely unchanged since then based on actual prices paid, conversely, the cost of other capital items (BOP, grid etc) have increased, resulting in overall Sterling project costs which are largely unchanged in the past five years.

6.3 Our experience of operating and maintenance costs shows that costs increased by some 20–30% (in real terms) over the past five years, owing largely to increased land rents, business rates and community funding costs.

6.4 REG would therefore like to see the cost of capital assumed for onshore wind investment take account of development and construction risk, as well as the operational risks.

7. *About REG Windpower Ltd*

7.1 REG Windpower is a subsidiary of the £60m AIM-listed renewable energy company Renewable Energy Generation. The company has around 30 staff based in Bath, Guildford and Truro and has more than doubled in size over the past two years. The REG team now contains the necessary expertise to develop, build and operate our growing portfolio of sites, which includes 57.5MW of operational capacity, with approximately 900MW in development.

7.2 Through its experience in developing, financing, building and operating wind farms over the past seven years, it has established an in depth knowledge of the true cost of onshore wind across the full project lifecycle, including decommissioning. Our wind farms generate clean, safe, renewable electricity which is used to supply nearby towns and villages through the local distribution network. We use a rigorous site selection process is designed to create the right scheme in the right location—generating much-needed renewable electricity while respecting the local environment that hosts our projects. We are committed to public consultation and always aim to meet local residents to seek their feedback before we submit our proposals.

April 2013

Written evidence submitted by RCUK: Heat and the City project

Executive Summary

District heating infrastructure has potential to enable heat generation across a much greater range of scales than would otherwise be possible. By making use of low carbon and low cost heat sources, and building in future flexibility for large numbers of users, district heating can contribute directly to achieving the core energy policy goals of climate change mitigation, energy security and affordability. In addition, through a variety of complex interactions district heating has potential to lower the costs and carbon emissions of the electricity system.

Current patterns of heat network development focus on niche opportunities and are based around gas fired CHP. Key issues raised by this pattern of development are ensuring that the increasing returns to scale of heat networks are exploited, and that lower carbon sources replace unabated gas CHP in future. The latter issue is less challenging than the former as the design of DH systems (insulated pipes carrying hot water) can accommodate multiple sources of low carbon and residual heat. However, ensuring different systems within a city are developed in a strategically coherent manner is more challenging.

A range of different organisational forms are currently used in the UK to deliver DH systems, balancing risk and control across public and private sector actors in different ways. However, in common with DH

development in other Western European countries, local authorities play crucial strategic and coordinating roles in developing local energy systems. Capacity and financial constraints on local government are therefore key issues affecting the prospects for DH development in the UK. DECC has recently established a modest Heat Networks Delivery Unit to support local government through development phases (and potentially thereby embedding capacity within local authorities).

The Heat Networks Delivery Unity reflects growing commitments to DH within DECC, and these are mirrored in other administrations, particularly the Scottish Government and the Greater London Authority, although policy in relation to DH has had a somewhat stop-start character over the last decade. While the myriad of minor challenges facing DH may be tackled relatively straightforwardly, significant interrelated challenges remain in relation to mobilising finance, interaction with electricity markets, ensuring small networks become parts of larger systems, weakening of English planning guidance in relation to distributed energy, and ongoing uncertainties in English Zero-Carbon Homes policy.

Heat and the City Project

1**.** This response is derived from evidence collected as part of the UK Research Councils' Energy Programme: Heat and the City project, www.heatandthecity.org.uk, a collaboration between the Universities of Edinburgh and Strathclyde. The aim of this multi-disciplinary project is to examine the prospects for development of sustainable, low carbon heating in urban areas in the UK. We would be happy to provide the committee with further information as requested. Please contact dave.hawkey@ed.ac.uk

Heat Generation and Infrastructure

2**.** The Energy and Climate Change Committee's call for evidence relates to energy generating projects in the 5–50MW bracket. Much of the call's text focuses on electricity generation, but it is important to also consider heat generation at scales larger than individual building demand, particularly for space and water heating. This is both because heating is a crucial and relatively neglected aspect of climate, security and affordability goals in energy policy, and because heat generation interacts in various ways with electricity systems (discussed below).

3. In contrast with electricity, the physical infrastructure required to distribute heat from community-scale generation to users does not exist. Accordingly, this response focuses principally on the development of district heating (DH) networks as a means both of enabling new heat generation of this scale, and of exploiting sources of residual heat that would are currently wasted or used only inefficiently.

Contribution to achieving UK's climate change, energy security and energy affordability objectives.

4. In densely populated urban areas, local energy can provide affordable heat (particularly where it replaces electric resistive heating), as well as carbon and primary energy saving. In the right places, they contribute to local economic regeneration and public welfare., For example Göteborg Energi Group heat network operations have a turnover of three billion Swedish Kroner, and 1,100 people are employed by the group in district heating, gas, electricity, renewable energy and energy efficiency measures.

5. Heat networks are "source agnostic," capable of accepting heat from a wide variety of sources, thereby contributing to energy security by enabling diversity and flexibility. Where large heat networks exist, for example in Scandinavian cities, large scale heat generation of various kinds feed in. The existence of heat networks in Sweden and Denmark is a significant factor in the high proportion of energy consumed from renewable resources in those countries.[i]

6. Common praxis in the UK is to develop heat networks on the basis of gas fired CHP to minimise some forms of risk. This creates carbon savings in the short term when compared against grid electricity and gas-based or electric heating. In Aberdeen for example where gas CHP serving 24 multi-storey housing blocks, public buildings and leisure facilities has been developed over the last ten years, the local authority estimates that this has resulted in a 31% reduction in emissions from the council's estate (including public housing). Over the longer term, unabated gas CHP could be replaced with other lower carbon heat sources. For example, the UK Committee on Climate Change estimate that delivering heat from large scale low carbon thermal electricity generation (CCS/nuclear) operating in CHP mode would produce economic *savings* of £110 per tonne CO_2 avoided. Source agnosticism of DH means part of its value lies in future proofing large portions of heat demand against uncertainty in the future scarcity of low carbon energy sources/vectors (low carbon electricity, biomass, hydrogen, etc) and the price and performance of technologies (such as heat pumps).

7. Where electricity is difficult to store, large quantities of heat can be stored for long periods, including inter-seasonally, with scale bringing efficiency benefits. This will become more significant under high penetration of renewables and nuclear, combined with new load from electric vehicles and heat pumps causing increased peak demand. Heat networks with CHP, heat stores and electric boilers can respond to imbalances in supply and demand in the electricity system. This reduces the need for investment in under-used and less efficient "stand-by" plant, avoids wastage of "free" electricity and reduces the balancing costs faced by generators. Embedding CHP generation in the distribution network can defer the need to upgrade electricity networks, and heat demand

served by a heat network rather than electricity reduces the additional capacity required of the electricity system.[ii]

8. Attempts to quantify the scale of contribution heat networks could make to UK energy policy goals inherit many of the uncertainties across other parts of the energy system including the availability, cost and competing uses of different energy resources; the cost and performance of building-scale heating technologies; and the extent of energy demand reduction. DECC's recent (March 2013) policy document on the future of heating[iii] highlights the variability in different estimates of "the potential" scale of heat network deployment, reflecting both these uncertainties and the challenges of incorporating spatial information and the value of flexibility into scenario modelling. Estimates reviewed by DECC range from 14% to 50% of space and hot water demand, considerably greater than the current figure of under 2%.

Ensuring Heat Networks Maximise the Opportunity for Community-scale Heat Generation

9. In common with other energy networks, heat networks often exhibit increasing returns to scale (the economic characteristic which renders a network a natural monopoly).[iv] The early phases of network development, therefore, usually have poorer overall financial performance than later stages. These "first phase" disadvantages are compounded by the concentration of perceived risk in the establishment of a new local energy supply proposition.

10. While the scale efficiencies of heat networks suggest that rapid construction of large networks is financially more attractive than slow, incremental development from a small system, the challenges of coordinating heat users exerts a countervailing pressure towards smaller systems. In the UK where mechanisms to facilitate coordination at a local level are *ad hoc*, and where heat is not specifically regulated, this leads to a focus on certain heat users: public sector heat users often have duties and commitments to decarbonisation which are stronger than other organisations, and the perceived risks of a public sector organisation relocating or ceasing operation over the lifetime of a district heating business model are low; social housing providers are able to coordinate the heat supply for a large number of heat users, and district heating is often the lowest whole-life-cost form of heating in multi-storey buildings where gas supply is precluded for safety reasons; and the carbon performance of new buildings required by building standards (particularly the trajectory towards zero carbon homes in England in 2016) have led to some new developments built with heat networks.

11. The exploitation of such niche opportunities for DH presents challenges in terms of future proofing systems for future expansion and interconnection. Some aspects of future proofing can be addressed by ensuring physical compatibility by local adoption of technical standards (such as the GLA's District Heating Manual for London). Other engineering aspects (particularly sizing systems to accommodate additional future connection) require additional investment in networks. Justification of this additional investment is often challenging within commercial business models as uncertainty in future connections is difficult where influence over coordinated third party decisions is limited.

12. In addition to future proofing the engineering design of heat networks, commercial and organisational challenges also have the potential to impede the development of larger systems from smaller ones. Limited penetration means there is little experience negotiating such arrangements for heat networks in the UK. However, the history of development of electricity networks in the UK (and particularly in London) suggests a patchwork of incompatible ownership and business models can be just as difficult to bring together in more efficient systems as incompatible engineering standards.[v] The organisational challenges and transaction costs associated with a "link up later" approach to isolated developments has received much less attention in the UK than the engineering challenges.

Ownership and Governance

13. Various ownership and governance models for the construction, extension and operation of DH systems coexist in the UK, involving local authorities (often via an arms length energy services company), campus-based systems such as Universities and NHS estate, private sector Energy Services Providers and subscribers in various permutations. In most instances, heat networks are small and ownership is integrated with ownership of the heat generating equipment. The balance between public and private sector in these arrangements typically reflects the appetite for risk and control within the local authority, or other public body, and (increasingly) the availability of finance within the local authority (eg via prudential borrowing) to cover capital costs.

14. The degree to which control over a local heat network is held by the local authority impacts the extent to which that authority is able to direct the development (extension) of the network. Differences between public sector goals and the priorities of commercial owner/operators of networks have, in some instances, led to frustration within local government over how or whether networks have been expanded (both to new heat users and new heat sources).

Financing District Heating

15. Because the output of DH systems can be consistent over many years, financial models are often highly sensitive to how future benefits are valued—ie the rate of return required of investment. In comparison with gas and electricity networks where returns on sunk investment are protected by regulation, DH investments are

perceived to be exposed to greater risks, raising the costs of capital hence reducing viability. In common with other investments, a public-sector led approach can accommodate lower rates of return (and lower borrowing costs), but implies risk is taken on by the public sector.

16. In the UK centralised energy market context, Heat networks face a number of challenges in mobilising finance. The declining willingness of banks to offer long term commercial finance in the wake of the financial crisis is one source of difficulty. The Green Investment Bank targets district heating under its Non-Domestic Energy Efficiency theme. Some practitioners have questioned whether the approach of the GIB (which is to lend on the same terms as commercial lenders to "crowd in" investment) will adequately address the challenges faced by first-stage projects in mobilising finance that is sufficiently long term and low cost.

17. Institutional investors (such as pension funds and sovereign wealth funds) are more suited to district heating investment in terms of time scale and returns. However, the minimum investment these investors will consider is generally much larger than the costs of the niche opportunities which are currently the focus of activity in the UK.

18. Ensuring network subscribers remain connected and require heat over the lifetime of the business model is a crucial dimension of risk perceptions in district heating investments. Often this is mitigated through selection of subscribers perceived to offer low risk (such as public sector organisations). There are differences in opinion as to how significant heat offtake risk actually is to DH business models with some considering it as a "red herring" as subscribers can be replaced.[vi] However, given low levels of experience with DH, lenders are unable to quantify such mitigation options and instead will assess projects on the basis of "bankable" heat supply contracts.

Appetite among UK Local Authorities to Develop District Heating Systems

19. Local authority leadership is key to maximising potential for local heat networks, with capacity for expansion. This is demonstrated in other western European countries, where local authorities have played a crucial strategic and coordinating role in local energy services. Heat networks have either been developed as a municipal enterprise (integrated with other infrastructure and development), a joint public/private venture, or local authorities have governed private sector delivery under city-wide municipal franchise.

20. While community enterprises, housing developers and other public bodies are also developing small scale heat networks, the statutory functions of LAs (as planning authorities and service providers) mean they can give strategic direction. In addition, the heat demands of local authority estates and their capacity to broker relationships among stakeholders place local government in a crucial position. They can provide long-term contracts for heat and power supply, which stabilise business revenues. Their prudential borrowing powers provide access to affordable finance; they can also act as guarantor to reduce costs of long term loan finance; they can ensure that heat tariffs are fair and transparent; and they can assist in developing consumer protections and service standards. DH is inherently local, and needs actors with long-term commitment to the area; this requires local knowledge about opportunities, their timing, and potential for integration with other developments.

21. Important differences exist however between UK local authorities and their Scandinavian counterparts. Under current centralised control by government, and centralised energy markets, local authorities have restricted capacity, expertise, financial resources and motivation to develop medium scale energy projects. Energy services are not core statutory activities and the *ultra vires* restrictions contrast with the more general freedom of local government in countries where DH is established. Development of DH competes with other local authority priorities, and pressures on budgets make a strategic approach uncommon.

22. Increasing numbers of projects are nevertheless being established, with officers and politicians acting resourcefully to find the means to develop successful local energy infrastructure and services. DH projects have for example been developed, by members of the District Energy Vanguards network (http://www.heatandthecity.org.uk/dh_projects). These projects have usually relied on determined, very able, local champions willing to work far beyond their formal remit, and contracted working hours, in order to tackle combined problems of regeneration, poor housing and climate change, through local energy services.

23. The capacity of local authorities to engage with the market for consultancy and design is currently limited by low levels of experience. Difficulties in local government acting as an "informed client" mean that feasibility studies may be under-specified and outputs of consultancy services may not be adequately challenged, opening the potential for low quality work to undercut rigorous evaluation. DECC's recently announced Heat Networks Delivery Unit (HNDU) aims to address this capacity shortfall by supporting local government in its relationships with consultants. The extent to which HNDU builds capacity within local authorities to take on future development unaided, and the extent to which HNDU-supported projects are future proofed will be crucial to the success of this initiative in supporting heat generation in the 5–50MW scale bracket.

Barriers to Deployment of DH Infrastructure

24. A number of barriers to DH development have been discussed above, including challenges identifying and developing projects, first phase disadvantages, local government capacity and difficulties mobilising

finance. Although DH is a well established technology elsewhere, its low penetration in the UK means there are a variety of market and institutional factors, as well as routine practices which are not well suited to DH. For example, business rates levied on the value of assets disadvantage heat networks (high value assets delivering low cost energy) against other systems. Many of these barriers may be small (and in some instances specific to local by-laws and regulations) but nonetheless contribute to the difficulties faced by practitioners which cumulatively can lead to abandonment of projects. This underscores the importance of robust commitments at both national and local government levels to overcoming this myriad of minor difficulties as they arise.

25. However, a significant, and consistent, challenge throughout earlier attempts to establish DH in the UK,[vii] is the interactions between DH, CHP and electricity supply. Market arrangements in the UK are set up around a model of large scale generation[viii] making it difficult for smaller generators (including CHP) to create value from electricity exported to the grid. This general issue is manifest in a variety of ways, including a prohibition of using "private wire" arrangements to ensure long term retail opportunities,[ix] through difficulties engaging with Distribution Network Operators (DNOs) over connection to the public system,[x] limited liquidity in wholesale markets, to high transaction costs and risks associated with small generator engaging with wholesale markets.[xi]

26. Ofgem is responding to these challenges by developing a "License Lite" arrangement under which small generators could access customers via the public system by partnering with an established supplier. A key area of uncertainty in this approach is the response of established suppliers, and whether they perceive sufficient incentives to facilitate small competitors' access to retail markets.

Effectiveness of Government Policy

27. It is an oft-repeated staple of UK energy policy that clear, and long term policy commitments are required to mobilise investment in the UK's energy systems. The current phase of policy interest in DH arguably dates back to the 2003 Energy White Paper and the Community Energy Programme (£50 million, 2002–05). Over this period, policy focus and funding programmes have had a somewhat stop-start character,[xii] making long-term planning and investment difficult, and creating intermittent spikes in demand for DH consultancy and contractors, raising costs and lengthening lead times.

28. Planning policy and building standards in England are identified by local authorities engaged in district heating as an area for improvement.[xiii] Where earlier guidance to planning authorities required them to develop an evidence base for decentralised energy and to adopt supportive planning policies, reform and simplification of planning policy makes the use of planning policy in support of local energy more difficult, and reduces consistency in such planning policies across authorities. The 2016 zero carbon building standards for homes also interact with district heating both as a means of reducing emissions from new buildings and through the "Allowable Solutions" mechanism which will allow offsetting investments in off-site technologies including district heating.[xiv] However, revisions to the definition of "zero carbon" and delays in setting out the parameters for Allowable Solutions contributes further uncertainty to DH investment.

29. As DH projects cut across municipal and energy-system issues, relevant policy is similarly split across organisations including DECC, DCLG, devolved administrations and local government. While this creates challenges for policy coordination it also allows a degree of flexibility to local/regional needs and creates space for innovation. For example, the establishment of the Decentralised Energy Project Delivery Unit (DEPDU) by the GLA stands as a precursor to DECC's new Heat Networks Delivery Unit (HNDU).

30. HNDU's approach will focus on the development stages of network development. While this is an important contribution both to establishing projects and building capacity within local authorities, DECC has not allocated any budget for capital investment in DH. Risks remain, therefore, that first-phase disadvantages and the costs of future-proofing systems, coupled with the potential for patchworks of technically or commercially incompatible systems to emerge without strategic oversight, leads to stunted development of DH in the UK.

References

[i] Ericson, K (2009). *Introduction and development of the Swedish district heating systems: Critical factors and lessons learned* http://www.res-h-policy.eu/downloads/Swedish_district_heating_case-study_(D5)_final.pdf. Euroheat & Power (2011). *District Heating and Cooling: Country by Country 2011 Survey.* Belgium, Euroheat & Power.

[ii] Lehtonen, M & Nye, S (2009). History of electricity network control and distributed generation in the UK and Western Denmark. *Energy Policy*, 37 (6), pp.2338–2345. Rotheray, T (2011). *Onsite generation and demand response—the role of the EMR—presentation to the UK District Energy Vanguards workshop September 2011*. Streckiene, G and Andersen, A (2010). *Analysing the Optimal Size of a CHP Unit and Thermal Store When a German CHP Plant is Selling at the Spot Market,* MASSIG EIE/07/164/S12.467618. Toke, D & Fragaki, A (2008). Do liberalised electricity markets help or hinder CHP and district heating? The case of the UK. *Energy Policy*, 36 (4), pp.1448–1456.

[iii] DECC (2013). *The future of heating: Meeting the challenge.* https://www.gov.uk/government/publications/the-future-of-heating-meeting-the-challenge

[iv] IEA (2005). *A Comparison of distributed CHP/DH with large-scale CHP/DH*. IEA District Heating and Cooling Project. Netherlands, SenterNovem.

[v] Hughes, T P (1983). *Networks of power: Electrification in Western society 1880–1930*. Baltimore, Johns Hopkins University Press.

[vi] BRE (2013). *Research into barriers to deployment of district heating networks*. https://www.gov.uk/government/publications/the-future-of-heating-meeting-the-challenge

[vii] Russell, S (1993). Writing Energy History: Explaining the Neglect of CHP/DH in Britain. *British Journal for the History of Science*, 26 (1), pp.33–54.

[viii] DTI (2003). *Our energy future*. http://webarchive.nationalarchives.gov.uk/+/http://www.berr.gov.uk/files/file10719.pdf. DTI (2007). *Meeting the Energy Challenge: A White Paper on Energy.* http://www.berr.gov.uk/files/file39387.pdf

[ix] European Court of Justice (2008). *Case C-439/06: Energy Management Proceedings Citiworks AG. Summary of the Judgement*. http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:62006J0439:EN:HTML

[x] Ofgem (2011). *High Level Summary of DG Forum Responses*. http://www.ofgem.gov.uk/Networks/ElecDist/Policy/DistGen/Documents1/high%20level%20summary%20of%20DG%20Forum_published.pdf

[xi] Toke, D & Fragaki, A (2008). Do liberalised electricity markets help or hinder CHP and district heating? The case of the UK. *Energy Policy*, 36 (4), pp.1448–1456.

[xii] Earlier policy consultations and papers include DTI (2003). *Our energy future* http://webarchive.nationalarchives.gov.uk/+/http://www.berr.gov.uk/files/file10719.pdf; DTI (2007). *Meeting the Energy Challenge: A White Paper on Energy* http://www.berr.gov.uk/files/file39387.pdf; BERR (2008). *Heat—Call for Evidence* http://www.bis.gov.uk/files/file43609.pdf; DECC and DCLG (2009). *Heat and Energy Saving Strategy* http://hes.decc.gov.uk; DECC (2010). *Warm homes, greener homes: an enabling framework for district heating*. Earlier programmes include the Community Energy Programme (£50 million, 2002–05), Low Carbon Infrastructure Fund (£25 million, 2009).

[xiii] UK Local Authority District Energy Vanguards Network (2013). *District Heating Policy Options in the UK: Workshop report.* http://www.heatandthecity.org.uk/dh_vanguards_network/Vanguards_UKPolicy2013

[xiv] Zero Carbon Hub (2011). *Allowable solutions for tomorrow's new homes: towards a workable framework*. http://www.zerocarbonhub.org/definition.aspx?page=9

April 2013

Written evidence submitted by Energy4All

About Energy4All

Energy4All is a mission led non profit-distributing social enterprise that works with communities to promote and facilitate community owned renewable energy. Founded by Baywind, the UK's first community wind farm co-operative, to date it has raised nearly £20 million in equity (and about £7.5 million in debt) from nearly 10,000 individuals to finance ten community wind projects, with the launch of the 11th co-operative imminent. It has also advised and supported community groups throughout the UK, not only on wind but also on community owned and developed solar, hydro, energy efficiency and renewable heat projects.

What contribution could medium-sized energy projects (5–50MW) make to the UK's climate change, energy security and energy affordability objectives?

We do not know but it is clearly very significant and it is also understated because studies tend to exclude or understate the scope for large scale solar (a recent development) and accept current planning constraints and priorities which permit a very limited role for onshore wind in much of the UK. Within that sector community and co-operative energy can also play a much greater role than generally thought since co-operatives are capable of funding and operating most projects within this sector (for instance our understanding of the research by Camco and Baker Tilly, which estimated there is potential for over 2GW of community-owned renewables in England, is that it limited community ownership in scale to three wind turbines, when communities have already funded larger wind farms than that, and ignored solar farms and solar on housing (such as social housing) all of which are eminently deliverable by community funding).

Community schemes attract investment from new sources, particularly individual private investors. There is scope significantly to increase investment from this source.

Note—extraordinarily high planning costs and risks applicable to medium-sized energy projects in the UK are a major contributor to the cost of onshore renewable energy: the planning system directly and materially

increases the cost of electricity in the UK. This is in addition to the planning system materially restricting—in fact largely preventing—the supply of low carbon renewable energy in the UK.

What different models of ownership exist for medium-sized energy projects and how prevalent are they in the UK?

There is already extraordinary diversity of ownership in the mid sized market (and with smaller projects), which is increasing. This is not found in the large project market which is dominated by integrated utilities. There is genuine competition in the medium sized market. The large integrated utilities are noticeable more by their comparative absence from this market.

At a community level the most common model is the co-operative funded by members by shares supplemented by a bank loan, and, in Scotland, the Community Trust model (frequently supported by grants or property ownership since it is rare for that model to provide much cash investment).

Joint ventures between co-operatives and commercial developers are rare. Falck Renewables is unique amongst major developers in this market in offering partial community ownership of all its wind farms. There is no incentive in the planning system or other regulatory systems to offer whole or partial community ownership.

What types of financing model are most suitable for small—and medium—scale projects? Do these differ from the financing models used for larger-scale projects?

Community funded schemes requiring equity are usually funded through a co-operative structure supplemented by a bank loan. There are currently limited providers of debt finance to wind energy at this scale—primarily Co-operative Bank. There is more scope to fund solar farms with specialist debt finance. Community funded schemes typically have less debt than commercial schemes. Debt usually requires a long term PPA which does not attract the best prices; integrated utilities are at an advantage in funding by having a captive customer base.

The regulatory prohibition on community (or commercial) generators selling electricity retail reduces flexibility. Many community schemes wish to sell to the local community and their members but are prohibited from doing so.

Why are community-owned energy projects more prevalent in countries like Germany and Denmark than they are in the UK?

The principal reason is the different land-use planning system. The UK system is primarily a development prevention system, hostile to development and not remotely proactive. Compliance with it is extremely expensive and the outcome is wholly uncertain. Planning costs for a two or three turbine wind farm are likely to exceed £300,000 with no certainty of outcome (and complete loss of investment if a rejection is received)—and such applications, because of the very high risk of ultimate rejection, tend to be made after extensive and expensive search for sites, and considerable cost being incurred on abortive sites and the necessary planning surveys etc before deciding not to take them forward. Participation in such a high risk high cost system effectively precludes community participation. It also adds materially to the cost of energy in the UK, compared to Germany or Denmark, since these costs need to be recovered.

The planning system does not offer any support, in practice, to community owned or promoted schemes.

There are plenty of community entrepreneurs in the UK who would develop community projects, and also bring wealth and employment to their communities, if the planning system was reformed.

Other difficulties are dwarfed by the obstacles of the planning system. The success of solar pv installation in the UK has come about primarily because of the existence of permitted development rights, taking much of such development outside the planning system—prior to the introduction of pd rights for solar that development was again increasingly being blocked.

A further difficulty is posed by the UK grid system, requiring the applicant to pay the entire costs of joining the grid and, in conjunction with the ad hoc planning system, preventing any co-ordinated approach to developing grid links between developers.

In Denmark there are obligations on developers to offer a community stake in more sizeable projects, but that is a recent development and not a driver of historic community ownership.

Germany in particular has the advantage of funding from KfW bank—funding of medium size projects in the UK is heavily dependent currently on the Co-operative Bank. The absence of funding poses issues in for instance the 250kw size turbine market which the Co-operative Bank does not fund.

In Denmark the requirement to capture and use heat from thermal generation processes has led to development of district heating, which is attractive for municipal or community ownership.

Stability and consistency of regulation and policy, and clear long term policy goals which survive changes of government, has also enable the development of a vibrant community energy market in Germany and

Denmark. The frequent changes in regulation in the UK, and extensive revision of policy between governments, discourage community participation in a sector which has to take a very long term view.

Note—the introduction of FITs, despite the frequency of regulatory change, with the simplicity of a guaranteed price and route to market, has resulted in a major increase in community provision and much more could be done through this framework.

Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities?

The evidence is that there is widespread support for renewable energy and widespread acceptance of it when developed, although in the latter case many operators unfortunately contribute little to the community. However there is highly vocal and organised opposition to energy projects and our experience is that community ownership makes little difference to this.

Community ownership counts for nothing within the planning system—it makes no difference.

What appetite is there for community-owned medium-scale energy projects in the UK?

In our experience there is a very considerable appetite. Energy4All has raised nearly £20 million from about 10,000 investors and has a significantly larger list of prospective investors. More community projects would add considerably to this number. If the returns offered are sufficient communities can provide a very significant amount of capital, at lower cost than commercial equity, as well as significantly broadening the market.

Stability of regulation and policy is important—the market has been harmed by the frequent changes to FIT (and RHI) regulation.

What appetite is there among private sector organisations in the UK to invest in their own medium-scale energy projects?

We have limited experience of this. However we have found large companies willing to enter into a long term power purchase agreement from community wind farms which can facilitate a bank loan and extends the market beyond the traditional PPA with a utility. For instance Glaxo is considering purchasing the power from Baywind should that get planning consent to be repowered (notwithstanding that it is the site of an existing wind farm with large scale popular support, and is a significant contributor to the local economy, the local planning department is hostile to this long established community venture and has opposed its repowering).

Generally in our experience the returns from renewable energy are insufficient to attract equity capital from private sector organisations. The landholding structure in the UK, with a split of interest between freeholder and leaseholding occupant, also poses difficulties (applicable primarily to solar on commercial buildings).

What appetite is there among UK local authorities to invest in their own medium-scale energy projects?

No comment other than leisure centre (gas fired) CHP has proved popular because of its immediate cost savings. Incidentally "appetite" should be distinguished from "delivery". If there is an appetite then delivery is very poor. Local authorities as major landowners, community leaders and developers of planning policy could be major facilitators of renewable energy; but they tend to be blockages.

What are the barriers to medium-scale energy projects in the UK?

The principal barrier is the UK planning system; reform of the planning system is essential to increasing energy generation and reducing costs to the consumer. Within the planning system a materially higher priority needs to be given to energy generation within the balancing exercise that needs to take place on land use. No other barrier is currently material compared to the planning system. Failure to address the planning system will result in failure to deliver any policy objective relating to medium scale energy projects.

How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?

Unless the defects in the planning system are addressed—cost, massive uncertainty, delay, very low priority given to energy within land use and priority given to just about any other form of land use, with extensive (but undefined or known) areas "off limits"—the weaknesses with other policies (which are minor in comparison) are simply irrelevant. Although planning issues arise primarily at a local level there is little support for renewable energy within the Planning Inspectorate. No planning advantage is given to community schemes.

The current uncertainty over regulatory changes to ROCs, and the cap on FITs is also discouraging funding of medium sized schemes—it is a system designed to support an oligarchy of incumbent integrated utilities and large scale projects.

April 2013

Written evidence submitted by Verus Energy Limited

In response to your call for evidence on Local Energy, we would like to make the following points:

1. *What appetite is there among private sector organisations in the UK to invest in their own medium-scale energy projects?*

1.1 In our experience private sector organisations outside of the energy industry have little appetite to invest in energy generation projects, as 1) the required and available returns on their capital exceed those available from energy projects and (2) the skill set in developing, constructing, and operating the asset is different to the core business.

2. *What appetite is there among UK local authorities to invest in their own medium-scale energy projects?*

2.1 In our experience local authorities have little capacity to invest in power generation or energy saving projects.

3. *What are the barriers to medium-scale energy projects in the UK?*

3.1 Developing medium-scale energy projects involves carefully assessing the level of expenditure appropriate to the residual risk in the project. High-cost requirements during the early high-risk phase of a project are significant barriers to projects.

3.2 DNO grid connection offers have a window of validity of between 60 and 90 days, which is too short. In order to gain comfort that the grid capacity is available and to attract external stakeholders to the project, a grid connection offer is required many months or even years before it can be accepted and the capital drawdown made available to pay for the connection. The current DNO grid connection process is not suited for the timescales to develop medium sized projects. A longer validity period of 12–24 months, available at a modest cost, would help projects to secure sufficient visibility of a grid connection offer to reach construction start.

3.3 Removal of the Renewables Obligation will leave developers of small to medium power at a significant disadvantage against the "Big Six" licensed power suppliers when negotiating Power Purchase Agreements. The lack of a multitude of credit worthy potential power purchasers means that the sale price of power from such plants is likely to be significantly discounted, with the purchaser citing transaction and balancing costs as reasons to reject prices closer to the industry standard power price. Among potential solutions to this market failure are maintenance of an obligation for renewable power, a carbon tax for non-renewable power and the creation of a more liquid power purchase market.

4. *How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?*

4.1 Historically the RO scheme has been effective and has encouraged new businesses to prepare a potential fleet of local and medium-sized energy projects. However, the development has been difficult to due uncertainty in the level of support, in particular during the last banding review in 2011–2012. However, as the timescales to develop and build medium scale plants is measured in years rather than months, the lack of visibility on the transition to the EMR has widely discouraged the start of new development stage projects.

4.2 Given the long timescales involved in power plant developments, government incentive schemes should be improved by making the periods for which incentive levels are set longer in duration.

April 2013

Written evidence submitted by the Department of Energy and Climate Change

1. The Government recognises that there is a potential role for communities in maintaining energy security and tackling climate change—not just through generating electricity but also for generating heat and saving energy.

2. Ministers and officials have seen at first hand several good examples of successful community-driven projects, but while there is plenty of anecdotal evidence on community energy, we do not yet have a comprehensive and robust assessment of the evidence on the benefits of and barriers to community energy projects.

3. This is why have already started an evidence gathering exercise, including workshops, formal academic research, and publishing a formal Call for Evidence in May. This will provide us with evidence we need to publish a detailed Community Energy Strategy later in the year.

4. The responses below therefore reflect only a partial picture of the evidence that exists, and we will update the committee later in the year once new evidence has become available.

5. In response to the specific points raised by the committee:

What contribution could medium-sized energy projects (5–50MW) make to the UK's climate change, energy security and energy affordability objectives?

At present, 4.5 GW of renewable electricity generation capacity comes from 306 projects between 5–50MW. There is a further 6.3GW (416 projects) with planning consent, and 4.6 GW (276 projects) in the planning system. Not all projects will receive planning permission, and not all that is consented will be built.[47]

Renewable energy is an important part of a diverse, low carbon and secure energy mix. Alongside gas and low-carbon transport fuels, nuclear power and carbon capture and storage (CCS), renewable energy brings energy security, decarbonisation of our economy and green growth. Indigenous renewable energy generation can also help to insulate our energy supply from global events that we cannot control. The Arab Spring, tensions in Iran, and variations in production from oil and gas producing countries have all resulted in volatility in fuel prices. The roll out of renewables will reduce our dependence on these fuel sources and limit our exposure to such price shocks in the future.

The costs of renewable energy are often overstated and need to be set against the benefits in business growth and job creation of being a world leader in this sector. Between 1 April 2011 and 31 July 2012, DECC has collated information on renewable industry investments totalling around £12.7 billion confirmed and planned investments, with the potential support of around 22,800 jobs. By 2020, it is estimated that renewables could support over 400,000 jobs. The reforms contained within the Energy Bill will create a new energy market that promotes investor confidence, bringing further jobs and growth in the UKs green economy.

Heat networks offer a way to supply heat directly to homes and businesses through a network of pipes, rather than supplying the fuel for people to generate heat on-site. Under some circumstances, heat networks can be the most effective way of supplying low carbon heat to buildings, and can offer greater convenience and reliability to consumers. Heat networks also offer flexibility over time, as a number of different heat sources can supply the same network.

Last month, the Government published *The Future of Heating: Meeting the challenge*[48] on the next steps to ensure that affordable, secure, low carbon heating, plays an important role in the nation's energy mix, now and in the years to come. A chapter on heat networks gives more detail on the potential and role for heat networks in the UK going forward.

What different models of ownership exist for medium-sized energy projects and how prevalent are they in the UK?

There are several different ownership models, including:

- Community Share Schemes (such as that launched by the Co-op and Locality with support from CLG).
- Co-operatives, including Industrial and Provident Societies (IPS) and Beneficial Communities (BenComs).
- Community Interest Companies (CIC).

We hope to get more information on the different ownership models and data on their prevalence through the Community Energy Call for Evidence.

What types of financing model are most suitable for small- and medium- scale projects? Do these differ from the financing models used for larger-scale projects?

Local energy projects will need different types of finance at different stages in their life cycle. Community energy groups have told us one of the main finance barriers they face is at the start of projects (pre-planning approval). Projects are higher risks at this stage because any money invested is unsecured, ie if the project does not go forward all the money is lost. This phase encompasses feasibility studies, planning applications, and environment impact assessments along with any surveys that may be required as a result (for example, surveys to safeguard local wildlife such as bats and birds may take several months). Projects may also need financial support to build their capacity during this phase, for example to fund legal costs, training, pre-feasibility studies, business planning or peer mentoring. It is not clear how this varies with the size of the project.

Once these projects have planning permission and any required environmental permits, along with access to the grid, access to private sector finance becomes easier (post-planning approval). However, community groups tell us the ease of access does depend on the level of finance. In particular, we have been told that finance for smaller projects (of the order of tens of thousands of pounds) and larger projects (larger than around £3 million pounds) is easier to access, while there is a gap in the middle where many community energy projects struggle to get finance.

[47] REPD February 2013

[48] https://www.gov.uk/government/publications/the-future-of-heating-meeting-the-challenge

We hope to gather more evidence about different types of finance model and the barriers to accessing these (at various project stages and for different sizes of project) through the Community Energy Call for Evidence.

Why are community-owned energy projects more prevalent in countries like Germany and Denmark than they are in the UK?

There are varying views on this. One common view is that Denmark moved strategically to system of decentralized energy supply after 1970 Opec Oil crisis, and hence community energy structures have steadily developed over the last 30 years. We have heard that the key to community energy's success in Scandinavia has been partnerships with local government and businesses, and the right policy and regulatory framework (eg Denmark's 1979 Heat Supply Act) that gave incentives and mobilised investment for local heat grids and distributed energy system.

Conversely, the North Sea Oil gas boom in 80s pushed the UK in the opposite direction, towards a more centralised energy system. There are also important cultural and institutional differences between the countries. For example, the co-operative and alternative energy movement in Germany has always been stronger than in the UK.

In 2004 a Co-operatives UK and DTI report identified four key factors for the success of energy co-ops in Denmark and Sweden. These were support to communities from technical advisers and practitioners; commitment of central and local government to community involvement and ownership models; public education and information to promote familiarity with co-operative structures and energy services; and developing a public consensus that prices should not be the only driver of energy policy.[49]

Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities?

We have heard anecdotal evidence that greater community involvement in and/or ownership of energy projects can lead to greater acceptance of energy infrastructure by local people. We hope to get more robust evidence on this through the Community Energy Call for Evidence. We are not aware of any evidence on whether the size of energy projects makes a difference to communities' acceptance of them.

What appetite is there for community-owned medium-scale energy projects in the UK?

It is likely that there is some unmet demand for medium-scale community-owned energy projects. However, it is currently hard to say what level this is, as current policies (such as Feed-in-Tariffs) do not focus on medium-scale (greater than 5MW) generation.

What appetite is there among private sector organisations in the UK to invest in their own medium-scale energy projects?

We do not have any evidence on this, but hope to get more information through the Community Energy Call for Evidence.

What appetite is there among UK local authorities to invest in their own medium-scale energy projects?

This depends on the type of energy project and the local authority concerned.

For renewable electricity projects, the appetite among UK local authorities to invest in their own medium scale (5MW-50MW) projects varies substantially between each authority. A variety of factors affect deployment, including: availability of land, local communities support for renewable installations and access to local renewable energy sources.

Broadly speaking we have noted an appetite for solar PV and onshore wind energy among some UK local authorities that are predominately rural. For example, Peterborough City Council announced in July 2012 its intention to build three Renewable Energy Parks, consisting of solar PV panels (with a combined generating capacity of 83MW) and nine large wind turbines (potentially generating 24MWs), on Council owned farmland in the Morris Fen (Thorney), America Farm and Newborough areas.

In local authorities in urban areas we have seen a greater focus on bioenergy schemes, which in part reflects greater restrictions on the availability of land in urban centres. For example, Stoke-On-Trent City Council and Staffordshire County Council have developed proposals to develop biomass and waste heat opportunities to power local ceramics, metal and polymer industries.

For *heat networks*, local authorities across the UK have shown significant interest in developing heat networks (also known as district heating), including many medium scale projects. This is in addition to at least 50 medium-scale heat networks that are already place across the country, owned and operated by a mix of private companies, local authorities and other public sector organisations.

[49] CONATY, P. A co-operative green economy—New solutions for Energy and sustainable social justice, Co-operatives UK

DECC is working closely with six of the eight core cities in England to support them in developing heat network projects. The local authorities involved see heat network projects as important strategic investments that can help boost inward investment, reduce carbon, reduce costs and alleviate fuel poverty. Later this year the Department will be establishing a Heat Networks Delivery Unit to support more cities with both expert advice and funding for project development costs. Altogether, this involves investment of around £10 million over a two-year period.

The GLA is working with London boroughs to develop strategic heat network projects (also at medium scale) as part of its work on decentralised energy. Scotland has established an Expert Commission on District Heating and is providing £2.5 million of funding to support development of networks in its cities.

What are the barriers to medium-scale energy projects in the UK?

Some of the known barriers for different types of energy generation projects (heat networks, renewable electricity generation and combined heat and power) are outlined below. These are not specific to *medium-scale* energy projects—we do not have evidence on the specific barriers faced by energy projects at this scale.

A key aim of the Community Energy Call for Evidence is to develop a more detailed understanding of the barriers faced by different types of community energy projects (including electricity and heat generation, as well as projects focused on saving energy, collective switching and collective purchasing). Through this, we hope to develop a more detailed picture of the barriers faced by different projects.

Renewable Electricity

There are cross-cutting barriers to deployment of renewable electricity technologies as well as barriers that apply to specific technologies, all of which need to be addressed when considering the deployment of renewable electricity projects in the UK.

The UK Renewables Roadmap 2011 set out how we will tackle the non-financial barriers to renewables deployment, enabling the market to grow in line with our goals for 2020 and beyond. In summary these barriers include:

- Facilitating access to the grid.
- Ensuring long term investment certainty.
- Tackling pre-and post-consent delays.
- Ensuring sustainable bioenergy feedstock supply.
- Facilitating the development of renewables supply chains.
- Encouraging innovation.

Of course, technology costs, innovation breakthroughs and barriers to deployment will change over time. Government will closely monitor deployment and the development of the market. We will update the Roadmap on an annual basis so that we know how we are doing and whether other technologies can make a bigger or cheaper contribution than is assumed here.

Heat Networks

DECC commissioned research to understand the full range of barriers at each stage in the development of a heat network project and the report,‘Research into barriers to deployment of district heating networks’,[50] was published in March 2013 by BRE. This highlighted the most difficult barriers to overcome, and how they differ between schemes commissioned by local authorities and those led by private sector developers. Local authorities and private developers face challenges around the generation and supply of heat, its transmission through networks, and its delivery to final customers.

Commercial considerations are a key barrier identified through this research and stakeholder engagement. Difficulties include being able to secure capital funding and related challenges such as projects’ payback periods and uncertainty of return. All of these are due to uncertainties with the availability and longevity of the heat loads, the prices obtainable for the heat and electricity produced and the cost of the fuel supply. Market novelty and industry uncertainty about regulation in the area also increase investment risk. Development costs such as heat mapping and master planning are also barriers to local authorities, as project pre-feasibility risk profiles are unattractive to private sector developers, who rarely meet these costs.

Other barriers to heat networks include:

- Lack of standardised commercial models.
- Consumer challenges.
- Issues faced by local authorities.
- Issues around the development of the networks—lack of common technical standards.
- Difficulty selling electricity produced by CHP.

[50] Full report available here: https://www.gov.uk/government/publications/the-future-of-heating-meeting-the-challenge

— Lack of statutory access to land.
— Difficulties joining up heat networks.
— Future low carbon heat sources—Difficulties in planning for future requirements.

Combined Heat & Power

Combined Heat & Power schemes cover the range of scales: domestic-scale micro-CHP; schemes of a few hundred kilowatts supplying heat and power to public and commercial buildings; schemes of up to a few tens of megawatts supplying heat networks; and industrial plant ranging from a few megawatts to over a gigawatt.

Strong growth in renewable CHP capacity is projected. Some growth in natural gas fired CHP is also projected, but this is primarily small (<2MW) schemes. The Government's recent publication *The Future of Heating: Meeting the challenge* identified the following barriers to growth in natural gas fired industrial CHP and CHP supplying heat networks:

— Securing finance: CHP has high capital costs compared to installing boilers and importing electricity from the grid. Projects face high hurdle rates in comparison with power-only projects due to high opportunity costs for industrial developers and perceived risk of loss of heat customers for third party developers.
— Access the electricity market wholesale price: For CHP schemes which export a substantial proportion of their power to the grid their ability to realise close to the wholesale value for exported electricity is a significant issue.

DECC is supporting implementation of Ofgem's Licence Lite proposals to enable smaller electricity generators to gain better access to the electricity supply market. The Government has also proposed power in the Energy Bill that would enable the Secretary of State to amend electricity licence conditions to ease participation in the wholesale market if required. *The Future of Heating* publication also indicates that DECC will work on developing a bespoke policy to support new natural gas CHP capacity.

How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?

DECC has a range of past and current policies which provide support for community energy schemes of various kinds and sizes—including those focused on energy generation, as well as on other types of community energy such as energy saving, demand management, collective switching and collective purchasing.

Several successful community energy schemes have already emerged with the support of these policies. However we recognise that there may be the potential to do more in this area. The Community Energy Strategy, due to be published in the autumn, will consider in more detail what support is needed by community energy projects and how Government policies could work more effectively for these projects.

Examples of past and current support are listed below. Note that this list is not specific to medium-sized energy projects or to those focused on energy generation.

Financial Support

— £10 million funding to 236 communities in England and Wales as part of the **Local Energy Assessment Fund (LEAF)**, which ran from December 2011 to January 2012. The funding aimed to help communities assess energy efficiency potential, undertake feasibility studies and in some cases submit planning applications for community renewable electricity projects.
— £10 million in grants to help 22 communities across England, Wales and NI to explore pioneering approaches to becoming a low carbon community, through the **Low Carbon Community Challenge (LCCC)**, which ran from 2009 to 2011.
— 38 communities have been supported to deliver domestic renewable heating systems through the £3.1 million **Renewable Heat Premium Payment (RHPP) Communities Scheme**.
— The £5 million **Cheaper Energy Together fund** in October 2012 aimed to support local authorities and third sector organisations in England, Scotland and Wales to develop collective purchasing and switching schemes.
— In autumn 2011 we announced a **joint Defra/DECC £15 million Rural Communities Renewable Energy Fund (RCREF)** to help communities to raise the upfront cost of developing renewable energy projects. This will be officially launched shortly.

Non-financial Support

— DECC has funded **PlanLocal training events on community energy** for a number of communities, attended by local authorities and community group leaders.
— **Gov.uk** provides advice and guidance to communities interested in setting up energy projects, including links to video training, how to set up legal structures, information about funding and National Heat Map (see www.gov.uk/community-energy).

— DECC's Local Authority Fund included **£10 million to support Green Deal Pioneer Places**. This is supporting 39 projects across England.

— DECC's **Low Carbon Pioneer Cities** programme worked with local authorities to trial early elements of Green Deal across seven major cities in Great Britain

— DECC has funded the Centre for Sustainable Energy to produce an **interactive Green Deal pack for communities** as well as support for its delivery. The pack can be found at: www.planlocal.org.uk/pages/energy-efficiency-and-the-green-deal/identifying-opportunities-in-your-community

April 2013

Written evidence submitted by the Electricity Storage Network

1. The Electricity Storage Network is a trade association whose members are interested in the development of electricity storage technologies and their application to the electrical power system. Members include the transmission system operator, distribution network operators, manufacturers of electricity storage technologies, power industry equipment, engineering companies and consultants, project developers, academic institutions and other researchers. Membership includes those based in the UK and overseas. Through its membership, the Network is able to call on expertise and experience of the use and application of electricity storage. We are responding to this call for evidence to make particular reference to the need for the future electricity market to include the application of electrical energy storage, at all scales. We would be pleased to submit further explanation of our evidence if required.

2. Electrical energy storage is available now, and can be embodied in a number of different technologies and in many alternative configurations of energy and power. Medium sized projects, such as in the range 5–50 MW would be well suited to applications dispersed on the distribution network, and associated with community energy projects, or mid-size generation or demand customers. This inquiry is therefore very relevant to the role of mid-size electrical energy storage.

3. While it is accepted knowledge that storage can improve the overall operating efficiency of the electrical system, by lowering overall system costs, enhancing security of supply and reducing emissions, deployment has not been significant because of a number of barriers which tend to favour other technologies.

4. The main reason for under—deployment of mid-size projects in energy storage is financial. A 5 MW battery energy storage project might be expected to cost £10–20 million, when all project costs, such as planning, permitting, connection and commissioning have been taken into account. However, against an expected lifetime of 15–20 years, the future income predictions are so uncertain that most financiers are unlikely to invest as they are more certain of a stable income elsewhere. While a shared ownership model may be attractive in principle, it still presents a high initial cost, in comparison to other projects with lower initial costs but higher operating costs.

5. Mid-range projects are attractive—operational costs and transactions are lower, and additionally some income streams are more readily accessible to larger projects—such as selling ancillary services to the system operator. However the cost barriers are significant, as these larger projects are more capital intensive. Our members include developers of mid-range storage projects, who are facing these issues constantly in their work.

6. We see local energy storage as being a vital enabler of the embodiment of the smart grid. Local storage enables energy to be used locally, reducing transmission and distribution losses, as well as allowing the network operator to overcome local constraints. The role of storage in balancing variable renewable generation is self-evident, but other benefits include the provision of voltage support (enhancing secruioty of supply), improvements to power quality and the ability to provide a recovery strategy with the formation of local self-healing microgrids.

7. Any consideration of the opportunities to develop local energy resources should include consideration of the role of local energy storage.

April 2013

Written evidence submitted by Geoffrey Wood

A. Executive Summary

Renewable electricity technologies represent a distinctly heterogeneous category of technologies and fuels with very different attributes that can be deployed at a wide range of scales (from the micro to the large, industrialised scale). One scale that has been relatively ignored until recently is the medium or meso-scale (5–50MW installed capacity). This can be seen by the lack of clarity regarding both the use of the terms and the definitions of what medium-sized or meso-scale developments actually are: is it simply a matter of scale? What level of community and local involvement should there be in the project decision-making process? What type of ownership model (partial/full/community and/or locally-owned only or third party (commercial, multinational) involvement?

Despite this, there is a growing body of research showing the benefits of development at this particular scale despite the evidence that it is more costly than larger-scale projects. Of particular importance to the on-going debate around meso-scale development, research has shown the positive influence of community and locally-owned energy projects at this scale. Although further research is required, particularly with regard to the different development models applicable to the meso-scale, this has a number of implications for the UK's renewable and climate change objectives. In addition, there are lessons to be considered regarding the current financial-focused approach to renewable deployment.

B. About the Author and Submission

A final year PhD student based at the Centre for Energy Petroleum and Mineral Law and Policy (CEPMLP) within the University of Dundee, my research seeks to evaluate the barriers to meso and large-scale renewable electricity technology deployment in the UK from a systemic approach perspective. Although this submission is focused primarily on onshore wind within the context of local energy, the issues discussed are both relevant and applicable for a number of renewable electricity technologies including hydro, anaerobic digestion and solar PV at the meso-scale.

C. Inquiry Questions (only questions 1, 5, 9, 10 have been answered)

What contribution could medium-sized energy projects (5–50MW) make to the UK's climate change, energy security and energy affordability objectives?

1 Renewable electricity technologies represent a distinctly heterogeneous category of technologies and fuels with very different attributes that can be deployed at a wide range of scales (from the pico or micro to the large, industrialised scale). In addition, lifecycle emission studies generally show that renewable electricity technologies emit less greenhouse gas emissions than non-renewable sources of power generation. One key exception is biomass.[51] Therefore, all scales of renewable deployment can contribute towards the successful achievement of the UK's renewable energy targets that is one of the key pillars in any attempt to meet both legally-binding domestic and international climate change targets. The deployment of new technologies with different attributes also increases both the diversity and security of energy supply, primarily by reducing dependency on fewer technologies particularly for electricity supply. Energy affordability objectives is a more contentious issue: although recent research has shown that increases in energy bills is driven largely by gas prices, as renewable deployment increases the cost-burden element of supporting these technologies will increase. This is particularly the case for smaller-scale projects that are typically more expensive (in part due to the inability to realise the benefits of economies of size) and when the cost of transmission and distribution and environmental mitigation is included. There are, however, other contributions to be gained from meso-scale deployment beyond purely financial considerations (see below).

2 This question rightly focuses on medium-sized energy projects (also called "*meso-scale*") projects defined as between that of the end user (typically at the building level) and centralised provision (typically a larger-scale development above 50 MW of installed capacity). In contrast to sub-5 MW projects which can benefit from both the small-scale Feed-in Tariff and Renewables Obligation financial support (subsidy) mechanisms, the meso-scale category falls purely within the remit of the RO which is primarily a mechanism for large-scale installations and of particular technology types (see below).

3 However, it is important to attempt to clarify the terms and their definitions (if any) used in this debate. Medium-sized energy projects or meso-scale projects is clearly defined as consisting of developments with an installed capacity of between 5–50MW (although it should be pointed out that this is somewhat arbitrary: there is a significant difference in scale between 5MW and 50MW; also, what are the differences between a 45MW and 55–60MW onshore wind farm?). The term "*local energy*" can imply a number of meanings: energy generation occurs locally (but is the output used locally or fed into the national electricity grid?); developments at this scale can be termed '*local*' with regard to the impacts particularly on the surrounding landscape and communities; that establishing a deployment locally results in social and economic benefits accruing to that community or communities. There is also the question of ownership. The majority of 5–50MW projects are owned and/or operated by non-local commercial companies and organisations (often multinationals). This is in contrast to community or locally-owned projects, including communities, co-operatives and smaller firms and organisations including charities, local authorities, housing associations and farmers (and smaller (energy) companies as opposed to multinationals and former utilities). This is a critical distinction.

4 However, there is currently no consensus in the extant literature on the definition of community renewables. Even the term community or locally-owned energy projects is difficult to clarify with certainty: such a project can be wholly or partially-owned with non-local companies and organisations out-with the community, including multinationals and utilities. This leads to the issue of community involvement (and to what extent local communities are involved in the project in question and in terms of public engagement and participation in the decision-making process (for example, where the development will be located; number of turbines; community benefits). Any discussion on this subject, therefore, needs to clarify and define what type of project is actually being examined.

[51] There are well-documented concerns that certain biomass technologies and fuels emit significantly high levels of greenhouse gas emissions in comparison to other renewable and low carbon technologies (eg nuclear).

5 The contribution of meso-scale renewable energy can be looked at in two main ways: (i) in terms of installed capacity; and (ii) additional deployment benefits.

(i) In terms of installed capacity:

Focusing on onshore wind, as of November 2012 over 11 GW have received planning consent across the UK overall, of which 57% (6,201MW) are 50MW installed capacity or below. Projects with planning consent can be disaggregated further with regard to the percentage <50MW: 57% of UK operational projects; 52% of UK projects under construction; 44% of UK projects awaiting construction; 58% of UK projects in the planning pipeline (awaiting a planning decision). At the sub-national level, England accounts for 22% (964MW) of UK operational capacity of which 80% are <50MW. Scotland accounts for 63% (2,720MW) of UK operational capacity of which approximately 50% are <50MW.[52]

5–50MW scale energy projects account for just over half of UK onshore wind deployment (current, anticipated and potential). However, the distinction between all 5–50MW projects on the one hand and community and locally-owned projects on the other hand needs to be kept in mind. Currently an up-to-date database of community and locally-owned energy projects in the UK does not exist.[53] In Scotland, where such a database does exist, 5–50MW projects are combined with <5MW projects that fall under the small-scale Feed-in Tariff regime.

At the end of June 2012, community and locally-owned renewable energy capacity (electricity and thermal (heat) capacity) in Scotland accounted for 204MW, of which 88MW (or 233GWh output) was electrical capacity and 117MW (256 GWh output) thermal capacity. This is a 39% increase on June 2011. In addition, there are 647MW at different stages of development (under construction (68MW), awaiting construction (with planning consent) (266MW), application submitted but not determined (172MW) and in scoping (126MW). It is unclear how much of this falls within the <5MW and 5–50MW capacity thresholds. There is no similar database to this author's knowledge for England or the UK.

Therefore, although <50MW currently and will continue to contribute significantly to onshore wind deployment in the UK, the proportion that is community or locally-owned is statistically insignificant in comparison. For example, the UK renewable electricity target will require around 40,000MW of renewable installed capacity whilst in Scotland the 100% equivalent target will require around 16,000MW. In terms of generation output, the UK requires 114 TWh (or 114,000 GWh) of generation from renewable electricity sources (RES-E) if the 2020 sectoral target is to be achieved.

(ii) Additional deployment benefits:

Additional deployment benefits of medium-scale energy projects that are community and locally-owned include: improving public participation and engagement can be used to more actively involve the public in the process and through their input not only potentially reduce conflict in decision making but also facilitate the appropriate siting of a renewable development. Local people may be '*local*' experts, and this allows access to a detailed and contextualised knowledge of the local area and local resources into the planning and decision-making process that would otherwise likely be inaccessible to developers and planning authorities. Increasingly acknowledged and accepted, such advantages include other reduced environmental impacts (locally-sourced supplies, reduced transportation), development of local skills, the alleviation of fuel poverty, building supply chains, employment and industrial growth at the local level particularly in rural areas and grid issues with emphasis on off-grid applications again in rural or non-grid areas. The potential for reduction in conflicts is also advantageous for developers in terms of both time and costs.[54] Members of the public also inherently deserve the right to actively participate in the planning system in order to improve accountability, transparency and local democracy. Community and locally-owned energy projects can increase local engagement, promote behavioural change (with regard to energy use, conservation and reduction), local communities benefiting from the location of a meso-scale energy project in their area (also by gaining direct access to the subsidised revenue streams on offer rather than through the significantly reduce financial revenue via "*community benefits*", local leadership, greater accountability and/or control and increased ownership. These benefits can only improve issues of local democracy.

It is currently unclear if and to what level 5–50MW non-community and locally-owned projects provide such additional benefits (except with regard to the high-level objectives highlighted in the question) (see also below). It is clear that not all of these advantages can be allocated to >50MW (or larger industrialised projects): Typically, a high proportion of the equipment and expertise comes from these companies which are generally based abroad. This can impact on local supply chain growth and wider economic benefits and has implications particularly for onshore wind development in rural areas where economic development outcomes surrounding such deployment to date have been questionable.

[52] The statistics provided here are taken from an analysis of the Renewable Energy Planning Database (REPB) found on the Department of Energy and Climate Change website (https://restats.decc.gov.uk/app/reporting/decc/monthlyextract).

[53] The only accessible data is for the FIT (<5 MW) mechanism: out of a total installed capacity of 1,487 MW (September 2012), only 3% or 14.87 MW is categorised as community owned. The vast majority was domestic (90%), followed by non-domestic commercial (26%) and non-domestic industrial (3%).

[54] It is important to stress that whilst these benefits exist, this is not always realised in reality.

Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities?

6 As paragraph 3 sets out, the term medium-scale energy project is loaded with ambiguity, and can be confused with other terms and development models. Looking at medium-scale energy projects as purely comprising developments of 5–50MW installed capacity, analysing the REPD database provides interesting results on approval rates (in terms of installed capacity) for <50MW projects: during the period 2007–12, there is a decreasing trend overall during the period 2007 to 2012 at the UK level and for Scotland and England. Although Scotland shows a decline from 74% in 2007 to 52% in 2012, approval rates in England exhibit a more substantial decline from 72% to 29% over the same time period. At the UK level, approval rates dropped from 74% to 48%. In contrast, approval rates over the same period were higher for >50MW projects at the UK, England and Scotland level. Without looking at the individual planning applications, it is difficult to determine the reasons for the decline in approval rates over this period, although issues of community will feature strongly in the decisions made given that <50MW developments are determined at the local planning authority and not central government.[55]

7 No such analysis is possible when the term medium-sized energy project is broken down further into community and locally-owned renewable projects, or by different models of ownership (partial/full community or locally-owned projects; different partners). There is, however, limited research examining the influences of different development models on attitudes to wind farms, namely community based contra developer-based developments. Warren and McFadyen (2010: 209) showed that the promotion of a "more locally embedded approach to wind farms" (community-owned) can help reduce the incidence of damaging conflicts which affects onshore wind deployment in the UK and help facilitate the achievement of renewable energy targets:

> *"… community ownership is indeed associated with positive attitudes to wind farms, but support for wind power is not low in Kintyre [the developer based project in comparison to the community-based project at Gigha]… Arguably the most significant finding concerns the positive influence of ownership on the attitudes of communities towards wind energy projects, a finding which supports the long-held supposition that a change of development model could increase public support for windfarms in Scotland and other parts of the UK*."

8 This does leave a key question unanswered: to what extent does an increasing proportion of community or locally-owned energy projects increase the acceptance of non-community or locally-owned projects amongst the public in general? Perhaps an additional question to be considered here is the potential impact of such projects on planning decision-making. In other words, do such projects increase the chance of a project gaining planning consent? It would also be relevant to examine whether local acceptance equates to obtaining planning consent.

What are the barriers to medium-scale energy projects in the UK?

9 Despite operating a delivery programme for renewable electricity technologies since 1990 in the UK, deployment rates have consistently underperformed against set targets and policy objectives have not been achieved. Critically, there are a number of barriers or failures that act as constraints to renewable deployment in the UK. These include barriers due to the design of the financial (subsidy) mechanism used to promote renewable deployment. This includes the type of promotional mechanism and how it operates, for example, what impact does the mechanism have on financial/investment risk. Other variables included in this category are volume risk, mechanism operational lifetime (subsidy programme and/or subsidy duration) and mechanism complexity. In addition, there are those barriers out-with the direct control of the mechanism, including planning, electricity grid network, electricity market design, supply chain, access to investment, public participation/engagement and policy and regulatory risk.

10 The barriers to large-scale renewable deployment are well-documented. Typically, any evaluation of the impact of these barriers has focused on a gross and somewhat simplified categorisation by scale where the distinction is determined by the support mechanism: either <5MW projects (under the small-scale FIT mechanism) and >5MW projects (under the RO mechanism). Although the same categories of barriers listed above remain mostly relevant to all scales of deployment, differences on their relative impacts are sufficient to warrant separate research and evaluation (for example, subsidy level, economies of scale, planning, grid connection, access to finance and public participation and engagement). Meso-scale energy projects provide a more fine-grained resolution to any evaluation. It is also likely that there will be a sliding scale regarding the barriers to meso-scale energy projects in the UK due to the capacity differences involved: there is a significant difference in scale between 5MW and 50MW. This is an area that will require careful consideration.

11 Two of the major barriers to medium-scale energy projects in the UK are the Renewables Obligation (the financial (subsidy) support mechanism) and planning. One of the critical failures of the current subsidy mechanism is that by its design the Renewables Obligation has led to increased financial risk for RES-E generators. This is important because risk can be accorded a price. Under the RO, generators have two main sources of revenue: the sale of electricity and Renewable Obligation Certificates (ROCs), the latter capturing

[55] There are of course differences between England and Scotland due in large part to the divergence in planning system increasing over time since devolution in 1997. The Scottish Executive has also been arguably more vociferous and consistently supportive of renewable and onshore wind deployment in particular than in England.

the 'renewable' (or environmental) value of the electricity.[56] A central problem is the considerable uncertainty surrounding the value of these revenue streams as they are traded on the market and thus are dependent on supply and demand.[57] The RO, then

> "*… (by design) passes regulatory risk to the private sector, which the private sector accordingly prices at a premium. This leads to leakage of the subsidy away from developers, as suppliers take a margin to deal with this risk and funding from financiers is therefore available on less favourable terms that it would otherwise be." (L.E.K. Consulting and the Carbon Trust, 2006: 2).*

12 The added cost of the risk premium is not inconsequential: it could increase capital costs by up to 30%. This is particularly significant given the currently expensive nature of renewable electricity and the high level of upfront capital costs required. ROC values are also volatile due to regulatory risk. This has been aggravated by the introduction of technology banding as the government can and has, albeit under specified circumstances changed the subsidy level offered to renewable electricity technologies and even resulted in subsidy mechanism replacement (the Non-Fossil Fuel Obligation/RO transition in 2002 and the proposed RO/Contracts for Difference Feed-in Tariff transition in 2017). By increasing the cost of finance through the addition of a risk premium on capital, the RO effectively militates against smaller (meso-scale), independent and community-based projects in favour of larger, typically multi-national energy utilities. The latter companies can reduce the risk through their ability to obtain cheaper finance due to their balance sheets or by managing the risks in-house (if they own both generating assets and supply companies).

13 Again, looking at onshore wind in particular, although the recent 10% reduction in subsidy for onshore wind is evidence-based (to reflect long term cost movements), the Government has set this band (0.9 ROCs/MWh) for only one year, until 2014, pending the outcome of yet another review into the technology. This will have a number of repercussions not just for the technology but for the sector in general: the uncertainty could increase the financial risk on developers and lead to increases in the cost of capital (the risk premium) in addition to investors/developers waiting on the outcome of the new consultation. The political risk from the uncertainty over banding changes for the technology will also disproportionately impact on projects brought forward by small-scale developers. This is because the subsidy reduction is based on the economics of larger-scale developments that are typically brought forward by larger companies such as the energy utilities in contrast to community or similar sized developers and the RO does not distinguish between the size of onshore wind projects with an installed capacity of 5 MW and above.[58] This ignores the evidence that there are differences between meso and larger-scale onshore wind farm costs, with the former more expensive on average.[59] There are also likely to be the costs of community-scale participation (including lack of familiarity with the technology, policy, regulation and legislation). Indeed, the UK Renewables Roadmap states that the wide range of costs for onshore wind reflect, in part, the issue of scale.

14 For smaller projects, in particular meso-scale or community-based (or of a similar size) the reduction in revenue in conjunction with increased regulatory risks including revenue uncertainty will make it more difficult and expensive to secure finance. In other words, subsidy reduction will fall disproportionately on community-based and meso-scale projects. A result of this is that a number of projects are likely to become unviable. This is despite the benefits that can accrue from this scale of deployment.

15 "*Community schemes typically take longer to complete because securing the necessary funding and planning permission can take time. Many are run by volunteers and so they can take longer to organise.*" (Energy and Climate Change and Environmental Audit Committee, 2011: 14). Community-scale projects also require a sufficient financial return in addition to transparency and stability in subsidy levels in order to borrow capital at rates not prohibitive to development. Yet community-scale projects will typically find it harder to access capital as cheaply as larger companies would.

16 The principle of public participation and engagement is widely recognised but members of the public face significant disadvantages when trying to engage with the planning system. Critically, as with the subsidy system (the RO), the planning system does not take into account meso-scale deployment: the capacity thresholds (whether set under the Planning Act 2008 in England and Wales or the Electricity Act 1989 in Scotland) are either below 50 MW or above 50 MW. There is no in-between, despite the difficulties inherent at this stage (see below). The planning system also does not take into account the difference between public consultation and public participation: the former is generally where members of the public are asked their opinion on carefully chosen questions in contrast to public participation, where members of the public are actively empowered to make decisions. A consequence of this disregard is the limited devolution of control to the public which in turn constrains the building of trust between developers and people. There is also an intrinsic imbalance between developers and the public in terms of expertise, time, awareness of the process,

[56] The other revenues streams for a renewable generator are primarily the Climate Change Levy (CCL), a tax on the use of energy derived from fossil fuels introduced in April 2001 (with the exception of large-scale hydro power and some energy from waste plants) and the Recycled Buy-out Premium from the RO.

[57] Both electricity prices and ROC values are volatile for a number of reasons (see below).

[58] The DECC-commissioned research "*Review of the generation costs and deployment potential of renewable electricity technologies in the U"* provided the data on the current and expected cost trajectory of onshore wind (and all other RETs) underpinning the changes to bands in the Banding Review. However, rather than examine the economics of onshore wind farms at different scales (5–50 MW and +50 MW projects) to take into account differences between meso and larger-scale deployments, ARUP consolidated the data into one scale (+5 MW).

[59] Central costs for large and small unit wind farms are £1,350/kW and £1,450/kW, respectively (Mott MacDonald, 2011: 37).

costs, transparency and access to information and lack of recognition of the value from public participation. Placing significant limitations on the ability of the public to participate properly in the planning system, such an imbalance will also disproportionately impact on poorer communities with the result of further feelings of disenfranchisement.

17 Additionally, this will be aggravated by the move towards pre-application consultation or front-loading of the planning process. It is correct to involve all the participants, particularly local communities, as early as possible. However, this will add further pressure on time, expertise, costs and access to information (including an awareness of events). There is also valid concern regarding the incorporation of pre-consultation as a key element in front-loading the system: it is the developers that will be the sole provider of a one way source of information provision concerning the proposed development to the public. Again this results in respondents being forced to reply to existing proposals and as such does not reflect true participation and engagement where communities actively become involved in decisions such as location, type of technology and number of turbines. In other words, there is no consensus-building. This approach also runs the risk of, introducing a strong element of bias with regard to the type and presentation of information; such pre-application consultation is unlikely to build trust between developers and the public and will also normally involve abstract discussions of future developments that are by no means certain to go ahead in reality. This raises the question of why communities should really get involved at that stage and whether they have the resources, given the intrinsic limitations mentioned above.

How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?

18 Outside of academia, the issue of meso-scale renewables has largely been ignored until recently at the government level. Attention has focused on small-scale (sub-5MW) and large-scale (>5MW and above). Over the last year or so, however, consideration and action regarding medium-sized energy projects has progressed substantially particularly at the UK overall level. Importantly, devolution has resulted in the divergence of a number of approaches between the various UK administrations (England, Scotland, Wales and Northern Ireland) with regard to energy and renewable policy and this is true with respect to attempts in encouraging local and medium-sized energy projects.

19 The Scottish Executive has led the way with a number of initiatives: establishing in June 2011 a non-legally binding target of 500 MW of community and locally-owned renewable energy by 2020; the Community and Renewable Energy Loan Scheme (CARES) to support projects before they reach the planning stage (those projects considered too high risk for commercial loans). Individual projects can receive loans of up to £150,000 and free legal advice and support. CARES is open to community organisations, rural businesses and joint ventures between the two. The new consultation on Scottish Planning Policy (April 2013) is also seeking responses on whether the SPP can do more to secure community benefits from renewable energy developments than is currently the case (see below).

20 At the UK overall level, the Department of Energy and Climate Change (DECC) set out a consultation to explore the issue of community engagement and benefits for onshore wind in September 2012. In autumn 2012 the Chancellor announced a £15 million fund (the Rural Communities Renewable Energy Fund, run jointly by DECC and DEFRA) to meet the upfront cost of developing renewable projects. These funds are in addition to various documents and toolkits provided by various governments to support community renewable developments. In addition, DECC is currently preparing a Community Energy Strategy for publication in late autumn 2013.

21 Although commendable, when examined alongside the overall legally-binding UK target which requires around 40,000MW of renewable electricity capacity to meet the renewable electricity sectoral target of 30–35% of generation from renewable sources, the 500MW target is insignificant.[60] This is also the case when the relatively smaller Scottish targets are examined. Financial and information support initiatives such as CARES and the RCREF will likely prove invaluable to encouraging the uptake of meso-scale projects in a similar way to the initiatives developed to encourage the immature wave and tidal stream projects (such as the Marine Renewables Proving Fund (MRPF) and WATES (Wave and Tidal Energy Support Scheme). The important lessons to be learned from these experiences is that such support needs to be streamlined, joined up, take into account the different characteristics and project capacity scales of the various renewable technologies and the plethora of different development models (ie who actually owns the project? Is it partially or fully owned?).

22 Two possible areas in particular where the current Government approach in encouraging local and medium-sized energy projects could be improved is the introduction of a new subsidy category in both the RO (and the successor mechanism, the so-called Contracts for Difference Feed-in Tariff, or CfD FIT) and to the current capacity thresholds (<50MW and >50MW of installed capacity) within the planning legislation for the various devolved administrations. Regarding the proposed changes to the RO and CfD FIT, higher support could be made available for meso-scale energy projects to counter the typically higher costs of this scale of renewable energy developments and the costs associated with the RO mechanism. Such support could also be further differentiated between the various development models or allocated to a particular model (eg for

[60] Although the benefits of community and locally-owned (renewable) energy projects could arguably outweigh installed capacity, for example through increasing public participation and engagement in energy and renewables in particular, the diffusion of knowledge and awareness of the technologies to the public in general.

community or locally-owned projects). Northern Ireland already offers higher support for small-scale onshore wind under the Northern Ireland Renewables Obligation.

23 The proposed changes to planning are perhaps more difficult to realise in practice. There is always the danger that reducing the requirements of the planning regime for particular projects, in this case meso-scale energy projects (even if for only community or locally-owned projects rather than all medium-sized energy projects) could result in the inappropriate siting of such projects and/or damage to the environment/landscape disturbance and so on. What is clear, however, is that the more or less "one size fits all" for <50MW projects (and possibly for >50MW projects, when looking at a 55MW onshore wind farm contra a 150 or 200MW wind farm, for example) results in potentially unbearable costs to communities, farmers, local authorities, housing associations, etc in attempting to deliver the deployment of meso-scale projects through the planning system. There is also the issue of limited experience, expertise, awareness and understanding of the policy, legislative and regulatory requirements that can increase the costs of these types of project delivery. If Government is serious in its support of meso-scale deployment then these issues will have to be addressed at least to some extent, perhaps through the setting up of a body to provide the necessary expertise at a suitable cost to community and locally-owned energy projects).

Bibliography

Energy and Climate Change and Environmental Audit Committee, 2011. Solar Power Feed-in Tariffs: Ninth Report of Session 2010–12 of the Energy and Climate Change Committee and Tenth Report of Session 2012–12 of the Environmental Audit Committee: Volume I: Report, together with formal minutes, oral and written evidence—14 December 2011 [online] Available from http://www.publications.parliament.uk/pa/cm201012/cmselect/cmenvaud/1605/160502.htm

L.E.K. Consulting and the Carbon Trust, 2006. Policy Frameworks for renewables: Analysis on policy frameworks to drive future investment in near and long-term renewable power in the UK [online] Available from http://www.carbontrust.com/media/84920/ctc610-policy-frameworks-for-renewables.pdf

Mott MacDonald, 2011. Costs of low carbon generation technologies—May 2011: Final Report for the Committee on Climate Change [online] Available from http://hmccc.s3.amazonaws.com/Renewables%20Review/MML%20final%20report%20for%20CCC%209%20may%202011.pdf

Warren, C. and McFadyen, M. 2008. Does community ownership affect public attitudes to wind energy? A case study from south-west Scotland—ESRC/ISW Seminar: 4 November 2008 Queen's University, Belfast [online] Available from http://iws.rgu.ac.uk/abs/research/page.cfm?pge=75708
May 2013

Written evidence submitted by Alan Simpson

1. Introduction

1.1 It is hard to believe that one of the few visionary commitments, set in stone in the Coalition Agreement, could have been reduced to near emptiness before this parliament was half-way through. The undertaking could not have been clearer. The Coalition government pledged it would—

> "*encourage community-owned renewable energy schemes where local people benefit from the power produced*".

1.2 Instead, almost the opposite has happened. Britain currently has just over 40 community cooperatives. Germany has over 600. Theirs is a thriving and expanding community energy sector. Ours struggles to survive. During a recent talk in the House of Commons, Rainer Baacke, former permanent secretary in the German Environment Ministry, commented that Britain's slow progress into the era of renewable energy had more to do with the lack of a clear vision than anything else. This is why DECC has struggled to come up with a meaningful framework for promoting community energy.

1.3 This submission tries to outline the framework that would deliver a dynamic and vibrant community energy sector in the UK, along with the obstacles that need to be removed in doing so. What the Select Committee needs to grasp is that none of this can be done without disrupting the cosy relationship between DECC and the big energy companies; a relationship that has reduced DECC to little more than a pizza delivery service of enduring public subsidies to a closed energy cartel.

1.4 Community-owned, renewable energy initiatives have the power to turn today's energy oligarchy into an energy democracy, with a diminishing reliance on public funding and a stronger a focus on consuming less rather than producing more. The following Executive Summary sets out the framework of UK thinking that is now needed. The rest of the submission elaborates on these elements.

2. Executive Summary.

There are seven key elements required to promote a dynamic, community energy sector—

1. **Certainty of finance** (**a fixed FIT**) with an ambitious upper threshold (**50MW-100mw**), or no upper threshold at all.
2. **Priority access to the Grid**, guaranteed by law, for all renewably generated energy.
3. A **"community right of first use",** at wholesale rather than retail prices, of all the energy they generate.
4. A **planning framework, able to specify local community ownership** as a precondition of development.
5. A **local area/local authority duty to meet its share of national renewable energy/carbon reduction targets.**
6. **A right to own the local distribution network** and sell non-consumption (demand reduction) measures alongside demand management and renewable energy.
7. **De-risking:** a strategic approach that delivers soft loans to the community energy sector.

3. The Current Obstacles

3.1 Comparisons between the UK and either Germany, Denmark or parts of the USA, reveal a fundamentally different set of priorities that define the legal, regulatory and social contexts in which community energy is being developed. In Denmark and Germany, community energy is central to their transformation of the energy market and to the wider public engagement with energy security and climate change issues. Such engagement also brings in some €30bn of annual household/community investment in German renewable energy schemes.

3.2 **Planning processes.** In Denmark, the Netherlands and Germany, applications for community renewable energy generation are often processed within a three month period. The reasons behind this are that the ground rules are clearer, (varying) levels of community ownership are built in as preconditions, and direct community benefits (lower energy costs) come as part of the total package. In Germany, local authorities also gain from a slice of the tax revenues from businesses setting up in their areas.

3.3 In Denmark, local authorities have to identify suitable sites from which they will be able to meet their share of nationally defined, renewable energy/carbon reduction targets. Community ownership of land-based wind turbines has been a strong element in their successful deployment. Recent opposition to larger turbines, with lower degrees of community ownership, only emphasises the extent to which "community ownership" is the key to the acceptability (or not) of such proposals.

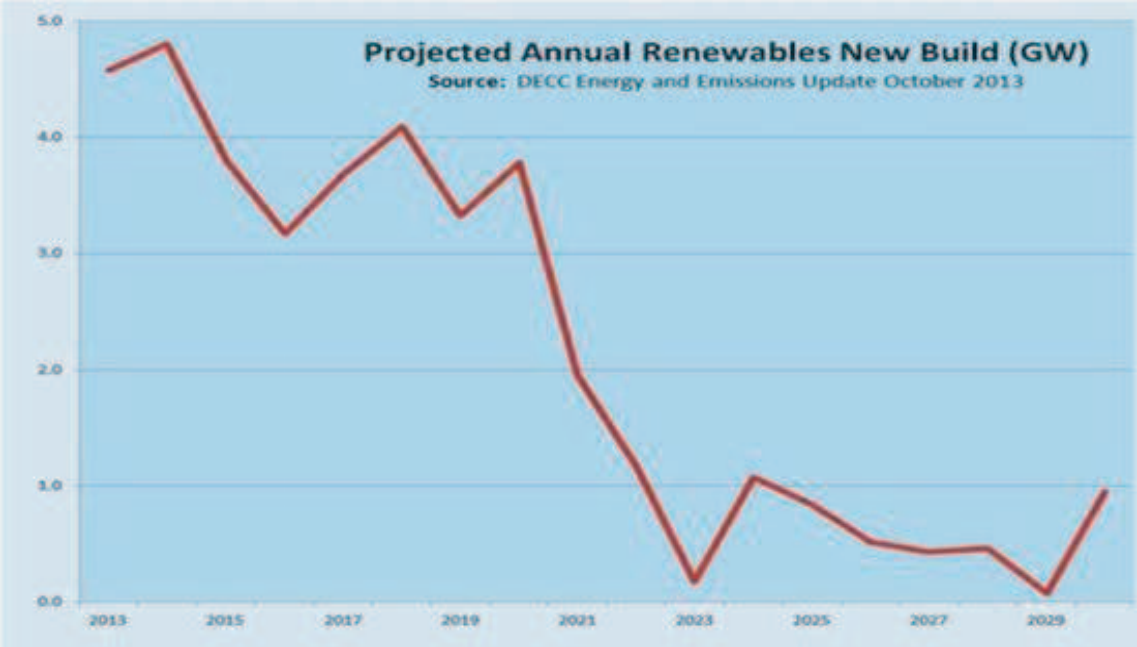
3.4 In the UK, land-based wind turbine proposals have become costly, protracted and contentious. To a large extent, this is down to a weakened planning framework that easily polarises the debate between "predators" and "NIMBYs". It is a debate guaranteed to produce a logjam. Without the right to own the scheme, or have first use of the energy they generate, communities invariably get drawn into fending off "land grabs" rather than becoming providers of their own energy security. "At a stroke", the debate changes as soon as community ownership becomes a precondition of development.

4. Ambition and Finance

4.1 Only 13% of Germany's 60GW of renewable energy is owned by energy companies. The rest is owned by households, communities, development trusts and farmers. This comes directly out of their use of Feed-in-Tariffs (FITs) as the way of financing the process. Energy companies challenged this as a breach of State Aid rules, but the European Court ruled the challenge invalid. Their FITs mechanism does not count against public expenditure levels.

4.2 The use of this approach has allowed deployment at scale, rapidly falling technology costs (particularly for solar, whose unit electricity costs have fallen by 50% in two years) and delivered huge boosts to innovation, employment and growth.

4.3 The UK has turned its scheme into a fixed-budget, low-ambition programme that will deliver very little. DECC's own projections make this clear—



4.4 The degression rates of tariffs currently paid to renewable energy sources, are determined largely on the basis of remaining within a Treasury fixed-budget. Such an approach is not taken to the way the government meets the costs of nuclear waste disposal, the proposed Capacity Mechanism, or the control of "new investment instruments" set out in the Energy Bill. Nor is it consistent with deployment at a scale that drives down peak demand (and peak prices) within the energy sector. It is an arrangement that accrues all the costs, and few of the benefits, enjoyed elsewhere in Europe.

4.5 The effect of this approach, along with the additional reduction in tariff rates in "aggregated" schemes, has been to pull the rug from under the growth of UK community energy cooperatives. The major banks that are committed to promoting community-owned renewable energy—the Co-op and Triodos—have put most of their new schemes on hold. This is because the finances no longer stack up. Every existing community co-op is now struggling to make ends meet.

4.6 DECC's projections (above) make no allowance for any contribution that community-owned renewable energy might make in tomorrow's energy market. But if the "falling off a cliff" deployment curve is held to, then community renewable energy generation will have to displace household deployment rather than add to it. It is the Treasury mindset that makes this a zero-sum game. Robbing Peter to pay Paul is an embarrassment not a strategy. **The FITs framework for community-owned renewable energy generation needs to be a self-financing mechanism within the energy sector accounts, not a fixed budget scheme controlled by the Treasury.**

4.7 Moreover, **there is no UK equivalent of the role assigned to the KfW bank in Germany, which regularly buys up half of the "risk" element in community energy schemes, and lends them money at 2% interest rates. This is a role that could be assigned to the Green Investment Bank, but hasn't been.**

4.8 The UK lacks any central financial unit to underwrite community-owned renewable energy schemes and any co-ordinated approach to an integrated delivery mechanisms. By regulation and by legislation, Germany and Denmark have ensured that their energy market is open to a larger number of players, and where "community ownership" brings a tangible advantage rather than a set of headaches. The UK is without any such integrated strategy.

5. The Question of Scale.

5.1 When FITs were introduced, in the Energy Act 2008, the initial 5MW threshold was a compromise between an ambitious Secretary of State and a reluctant Department. It was not budget constrained, and was only ever seen as a starting point. At the time, all the Opposition parties denounced its lack of ambition, and wanted at least 10MW as the starting threshold.

5.2 The current tariff structure is designed largely to deter larger scale thinking, and to confine installations (particularly solar) to within the 50kW ceiling that the major power companies had originally lobbied for. DECC has also constructed its own mythology that community energy schemes do not exceed 5MW, so any lifting of the threshold is unnecessary.

5.3 Such claims do not bear close scrutiny, even in the UK. Uist now has a 6.9MW wind turbine scheme in Scotland; the Westmill Solar Cooperative, in Oxfordshire, will produce enough electricity from its 5MW scheme to power 1,400 homes; and Wymeswold (Leics) has just completed a 34MW installation of 130,000

panels. Local authorities in the UK—including Stoke on Trent, Peterborough, Sheffield, Nottingham, Bristol, the Isle of Wight, and a number of London boroughs have all been looking at ways of extending their local (renewable) energy generation, at levels way beyond the current 5MW threshold. **This is the norm in other parts of Europe, and should be so in the UK**.

5.4 As a point of comparison, the Committee may wish to note that the Middelgrunden co-operative in Denmark operates 50MW of renewable energy generation. In Germany, cities such as Munich, Frankfurt and Berlin aim to obtain 100% of their electricity from renewable sources by 2025. This follows on from similar initiatives in smaller scale towns and villages such as Freiburg, Schonau and Feldheim.

5.6 **The point that Europe seems to grasp, and the UK doesn't, is that community ownership (and community first use of the energy generated) are central to a culture change, in which communities take increasing responsibility for their own energy security and carbon emissions.** This is the way in which the UK can most easily change the debate about the deployment of different renewable energy technologies and open up a genuine growth sector in tomorrow's (sustainable) economics.

6. Community Benefit and the Right to First Use.

6.1 In the UK, the notion of "community benefit" has rarely got beyond the "bag of sweets" mentality. This has seen power companies (and developers) offering token payments to a local area as part of a planning/building agreement. It struggles to get beyond the sense of buying planning permission. What it does not do is change the nature of the energy market, turn communities into providers as well as consumers, or deliver direct benefits to people in the energy costs they face.

6.2 An easy point of comparison is with the village of Feldheim, just outside Berlin. Villagers have the right to buy the electricity from the wind turbines at the edge of the village, and at wholesale rather than retail prices. Electricity prices in Feldheim are €0.13 cents/kWh. In Berlin, just 20km away, electricity prices are €0.23 cents/kWh.

6.3 The UK is currently considering a similar proposal from the Mayor of London, for a "London Lite" scheme in which energy generated within the Capital can be sold to London residents, at discounted prices. This is the first move to bring the UK into line with decentralised generation provisions that are already commonplace in the USA as well as in Europe.

7. "It's the Network, Stupid."

7.1 The London-Lite proposals take the community energy debate into the space that tomorrow's energy systems will revolve around. Telecommunications companies, rather than power station providers, are becoming the partners of choice in the development of smarter, more interactive, energy management systems. Communities are becoming centre-stage in this discourse.

7.2 Having the right of first use to locally generated energy is just the first step in a much more exciting direction. Such communities then move easily into discussions about energy management and demand reduction. What begins as a right to supply yourselves with lower cost energy, easily moves into measures that reduce or avoid overall consumption.

7.3 Some 40% of rural energy cooperatives in the USA have demand management agreements, allowing for reduction in voltage in defined circumstances. Other areas are exploring the inclusion of energy efficiency measures as (cheaper) alternatives to new generation. This may have obvious attractions to households and communities interested in reducing their energy bills, but it is anathema to energy companies dependant on selling increased consumption to support expansion/dividend strategies.

7.4 In the debate about cost avoidance, the Committee might want to consider the question of **grid access charges** and community renewable energy. DECC is currently considering the question of apportionment of grid balancing charges and renewable/community energy. It is the sort of stupid discussion that could only take place in the UK. Elsewhere in Europe, countries have applied the EU's Renewable Energy Directive to guarantee **priority grid access to renewables**. As such, the entirety of balancing responsibilities become the responsibility of non-renewable energy sources. The UK should do the same.

7.5 There is, however, a question of **initial grid access and connection charges**. Existing power stations benefit from the "dowry" of the national grid, which was constructed largely on the basis of public taxation (and as a strategic asset in the UK energy system). Unlike commercial developments, community-owned renewable energy is a resource designed to strengthen local resilience far more than enhanced profit/dividend levels. **Parliament should give a lead in defining the grid access and distribution charges that community-owned renewable energy schemes should be exempt from, if this is to become a strategic part of Britain's energy future.**

7.6 The UK may not be able to immediately go down the path of decentralised ownership of distribution networks. European towns and cities currently doing so already have a right to buy back the local grid and/or regulate the terms on which it operates. Tying local generation into local distribution has maximised the benefits of community energy generation.

7.7 As a first step, **the UK should introduce the legal right of localities to set performance standards (including demand reduction, carbon reduction and renewable generation) on existing DNOs.** These should include measures to give priority access to community generated renewable energy. If the "London-Lite" model offers an easy access route into this, it should be extended to all localities across the UK.

7.8 Community first-use may also provide the "benefits" bridge that links the different models of community ownership (outlined below) that form legitimate parts of the UK community energy debate.

8. The Meaning of "Community Ownership".

8.1 The Committee may not want to spend time on precise definitions of "community" in its current deliberations. It may be helpful, however, to acknowledge that there are at least three variations that currently have an active place in the UK "community energy" debate—

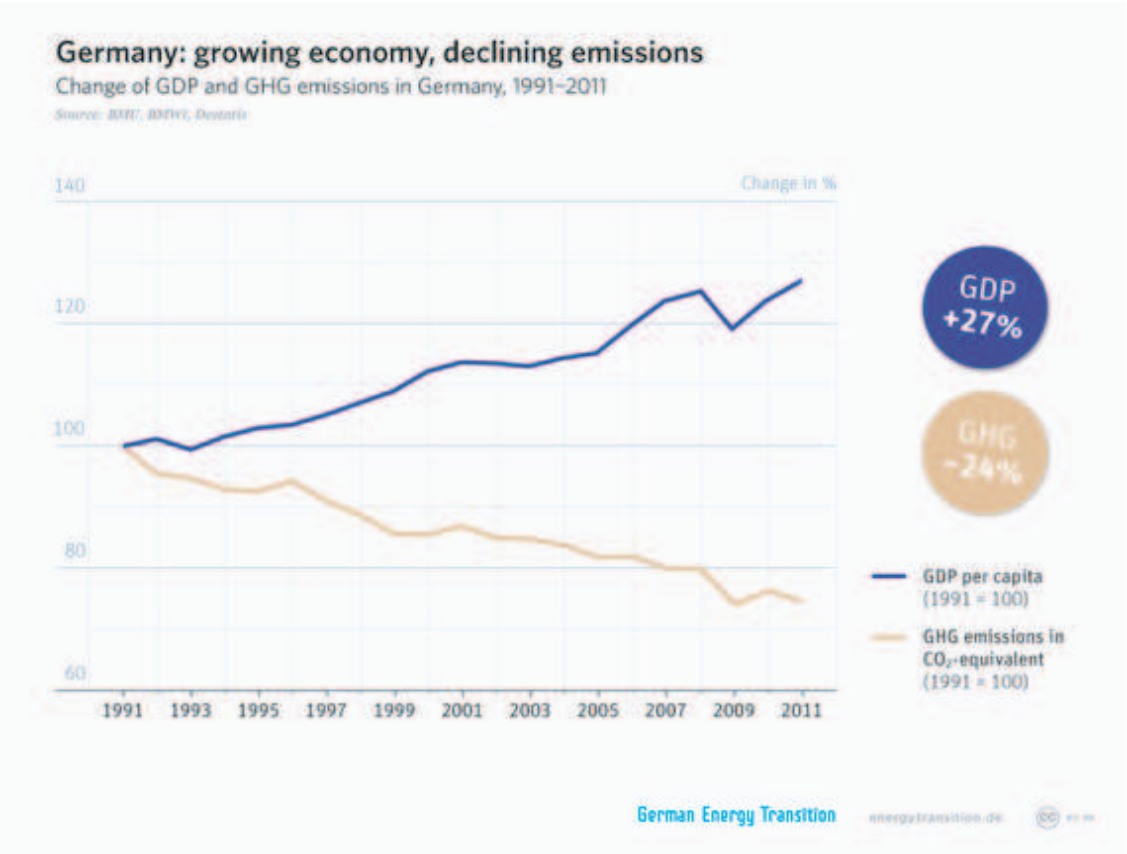
- "share issue" based co-ops (especially where there is an upper -10%- limit on shareholding, to prevent predatory takeovers),
- "community interest" co-ops, such as the National Trust, where benefits are shared between members, and
- "locality based" co-ops, where ownership is restricted to those living within a specific geographical boundary.

8.2 The one unifying interest that would link all 3 groups is the right of community first use. At an international level, the ability to connect community renewable energy generation to a direct reduction in household energy costs is the biggest game-changing element in their respective energy debates.

9. Costs and Benefits

9.1 One argument regularly thrown into the UK debate is the notion that renewable energy (let alone community-owned renewable energy) is unaffordable in the current crisis. Exactly the opposite is true.

9.2 The Committee might like to give some thought to the following graph—



9.3 There are defects in the way Germany has apportioned the costs and benefits of its Energy Transformation programme. They are in the process of correcting these, and Britain could easily avoid making the same mistakes. It does appear foolish, though, to hear DECC Ministers taking an opening position that blandly proclaims "we don't want to go down the German path". It is as useful as proclaiming "we don't want to believe in climate change".

9.4 More useful points of reflection would include—

- In February this year, Benchmark (year-ahead) wholesale power prices were "51 percent higher in Britain than Germany. German baseload 2014 prices were 42.5 euros ($56.8) per megawatt hour ... and British equivalent prices 55.65 pounds ($85.9)". (Reuters, 20 Feb 2013).
- German wholesale electricity prices have dropped by over 20% in the four years to 2012.
- In less than three years, the German "Energy Transformation" programme has turned an energy market with only four main power suppliers, into one with almost two million suppliers today. An increasing proportion of these are in the burgeoning (600+) community-energy/co-operative sector.

10. A FOOTNOTE.

In the various visits and discussions I have had with communities across Germany about their perspectives on energy transformation, the most powerful and lasting impression is about the nature of the debate. Every community I have visited sees themselves as active participants in tomorrow's energy solutions. They are direct beneficiaries of the solutions, as well as owners of the current problems. There are active debates about the best/most relevant local combination of solutions, but NIMBYism is largely absent from the debate.

Community ownership of renewable energy generation is central to this empowerment of citizens. It was specifically spelt out as a cornerstone of the Coalition Agreement. Delivering on the promise would be genuinely transformational.

Perhaps this is why so little has been done.

April 2013

Written evidence submitted by the Isle of Wight Council

1. EXECUTIVE SUMMARY

As well being home to some of the strongest tidal currents and longest hours of sunshine in the UK, the Isle of Wight has significant manufacturing and engineering capabilities which provides a unique opportunity to become a world leading hub for renewable energy. This submission seeks to outline the benefits of medium-sized energy projects as well as the challenges and barriers that the council, community groups and businesses have encountered in developing, constructing and operating such projects on the Island including the Perpetuus Tidal Energy Centre (PTEC), a proposed 20MW grid connected test and demonstration facility. In doing so, it will provide recommendations regarding access to financial support, consenting requirements and grid connections which the government and other relevant bodies could address to better aide and assist the development of medium-sized energy projects across the UK.

2. BACKGROUND

The Isle of Wight Council, due to the Island's natural environment and resources, is well positioned to help drive economic growth and build sustainable communities for its 140,000 residents and thousands of local businesses. In recognition of this, the Island Strategic Partnership (ISP) representing the council, community, and business organisations in 2008 launched the 'Eco Island' vision—the sustainable community strategy for the Isle of Wight from 2008 to 2020. At the centre of this ambitious strategy is for the Island to be self-sufficient in renewable electricity by 2020.

Having such a strong strategic statement for the Island has attracted significant green investment. For example, Waitrose has established the first UK supermarket to receive most of its heating, cooling and power from sustainably-sourced local woodchip and Vestas has built its research and development centre for offshore wind blades on the Island.

3. LOCAL ENERGY ON THE ISLE OF WIGHT

The Isle of Wight, through its Eco Island vision, is a recognised leader in the local ownership and self sufficiency of energy in the UK. Due to the large number of installations of Solar Photovoltaic on the Island we are already a net energy exporter an average of four times a week. This move towards locally produced and owned energy reflects a growing desire by residents and businesses to build greater resilience and sustainability into our local energy mix in light of growing concerns about the sufficiency of the UK's electricity generation. Achieving this requires a diversity of generation technologies to even out peaks and troughs of production. Community groups are also playing their part with the Chale Community Project, for example, having halved the carbon footprint and daily energy expenses of up to 100 households through the utilisation of a range of renewable energy sources. This groundbreaking scheme was part funded through DECC's Low Carbon Communities Programme.

Medium-sized energy projects will be critical to achieving our energy ambitions as outlined in our Island Plan. Some of the most recent proposed projects of the size on the Island include:

— Consented and proposed PV schemes (capacity of between 5–10MW).

— Proposed onshore wind schemes (capacity ranging up to 13MW).

— Proposed biomass schemes (capacity set to be 49MW).

— PTEC which is currently seeking licenses and consents (capacity set to be 20MW).

4. Appetite of the Public and Private Sector to Invest in Medium-sized Energy Projects on the Isle of Wight

The Isle of Wight Council is an example of how local authorities can use their newly-bestowed powers under the Localism Act such as the General Power of Competence, coupled with their ambitions to boost local economies through their participation in the Local Enterprise Partnerships, to deliver projects outside of their traditional remit, such as tidal energy generation.

Conceived in 2005 in response to the growing demand for testing facilities for marine current energy converters (MCECs), PTEC is the first medium-sized energy project which the council has financially invested in and sought to develop.

In November 2012, the council secured the vital Agreement for Lease from The Crown Estate for the centre, the first local authority in England to do so. Furthermore, the council has committed £1 million of its own, increasingly limited budgets to the project and we recently reached Heads of Terms with a private sector partner to create a new joint venture company to take the project forward. As such, we are now investing in obtaining licences and consents that we require to be able to begin construction to ensure it is operational in 2016.

The decision by the council to invest both time and capital into a tidal energy project, a technology which is considered high risk is the result of not only our desire to meet our ambitious renewable energy targets but also realising the significant economic and environmental benefits that the project can deliver for our community. It is estimated that PTEC will create or safeguard more than 600 direct and indirect jobs with an estimated project value of approximately £1.25 billion over the project's lifetime while reducing greenhouse gases by as much as 28,000 tonnes per year. The council has also made the decision that it will reinvest any return it receives from the project into subsidising wider business opportunities on the Isle of Wight, encouraging entrepreneurial activity and supporting youth engagement activity.

The joint venture will constantly be looking to provide educational and job opportunities, particularly through the creation of vocational courses with the Isle of Wight College and after college/university, employment with the joint venture company for first two years.

For a project such as PTEC which will allow use for multiple device developers, a significant portion of the risk is tied up in the initial development with private developers only wishing to invest once such risk has been overcome. Similar projects such as the European Marine Energy Centre (EMEC), Wave Hub and the National Renewable Energy Centre (Narec) were also established with public funding.

With regard to the private sector's appetite for such projects, the council has received a number of applications for the development of medium-sized energy projects on the Island over the past year. Such applications have covered a range of technologies including PV, onshore wind and waste-to-energy and there are further applications in the pipeline including geothermal energy. These projects will not only contribute to our renewable energy ambitions but also drive economic growth through job creation and a reduction in operating costs for local businesses on the Island.

5. *What are the current barriers to medium-sized energy projects and how can they be overcome?*

Finance

— While in part understandable given the high risk involved, the council found it difficult to secure public seed funding for the initial development of PTEC. The council submitted three bids (Rounds 1, 2 and 3) to the Regional Growth Fund of varying amounts but were unsuccessful while the public funding dedicated to tidal energy development including the Marine Energy Array Demonstrator scheme (MEAD) remains relatively small compared to the amounts offered to other forms of energy production. This lack of seed funding may result in a number of tidal projects of a similar size not proceeding. This is of particular concern for projects in England as the Scottish Government has shown a greater level of financial support for the sector.

— Given the key role that medium-sized renewable energy projects can play in tackling the economic, environmental and energy challenges facing the UK, in particular decentralising the energy sector, the Green Investment Bank (GIB) should seek to provide and attract capital funding to such projects as a priority. The GIB already gives priority to offshore wind, waste recycling and energy from waste, non-domestic energy efficiency and supporting the government's Green Deal.

— The government should be commended for increasing its support for the tidal energy sector in the form of five ROCs/MWh which we expect PTEC to benefit from. There is, however still great uncertainty as to how Contracts for Difference (CfDs) will operate post-2017 under the Electricity Market Reform for future projects.

— The Local Government Finance Act 2012, together with the Localism Act 2011 not only allows local authorities (in England and Wales) to retain business rates from specified renewable energy projects but to provide discretionary discounts for such projects to attract investment. The drawback is that local authorities are required to fund such discounts with ever decreasing resources. The government should look to work with local authorities to better explore how these opportunities could be implemented taking into account the significant financial pressures that local authorities are currently faced with. This should include how this system compares both operationally and financially to Scotland's 'Renewable Energy Generation Relief Scheme' which is seemingly successful in providing a strong incentive framework and how it could specifically assist medium-sized renewable energy projects.

Consenting

— The current requirements placed upon projects such as PTEC can be unduly onerous and costly. Not only does it punish first movers in the industry but the lengthy delays often mean that the private sector is unwilling to be exposed to the risk prior to the consents being awarded as mentioned earlier in the submission. This puts even greater emphasis on the need for a more comprehensive public support scheme to help fund the initial development costs.

— The government must seek to strike the right balance when consulting on and implementing environmental codes such as the Marine Conservation Zone to ensure they don't act as an unnecessary constraint which could impact negatively on our economy with little to no benefit to offset that impact.

Grid

— Grid costs for tidal energy projects such as PTEC are considerably high, in some instances up to ten times the cost per MWh for onshore wind sites and these again need to be reflected in the government's public support schemes.

— Locally, there is insufficient grid capacity for all the medium-sized projects required on the Island to meet our Eco Island ambitions. The Distribution Network Operator (DNO) can only offer "constrained connections" which is deterring private sector investment and grid reinforcement costs can be disproportionate given the size of the projects.

These issues are a showstopper for such projects and we strongly believe that local authorities should be more involved in identifying reinforcement requirements and that these costs are shared more proportionately over time and not simply penalising first movers.

6. *What different models of ownership exist for medium-sized energy projects and how prevalent are they in the UK?*

With a growing awareness of the benefits of locally owned decentralised energy generation such as its role in helping to protect the consumer from wholesale price volatility, a number of different models of ownership have developed. With respect to PTEC, the council has established a joint venture company with private firms who have matched the council's financial contribution of £1 million in the project to take it forward.

This was possible after securing an Agreement for Lease from the Crown Estate and as part of the new limited company the council will be guaranteed a minimum of one seat on the Board and its membership will not be greater than 20% so that the company is never considered a local authority controlled organisation.

PTEC has also secured £680,000 from the EU's Interreg NWE Programme for Phase 1 of the project. Total estimated capital expenditure for the project is between £26.5 million and £31.9 million of which direct public investment represents only 5%.

The council has also used its role as a landowner to promote the private sector development of renewable energy as was the case with the sale of Pan Meadows in Newport. As part of the sale, the council insisted on high sustainability criteria which led its developer, Barratt Homes, to construct a biomass districting heating system. This system will be managed and operated by a locally owned management company (The Pan Management Company) made up of local community groups and is a model that could be replicated elsewhere.

Furthermore, the Island is also home to a number of Community Interest Companies (CICs) including the EcoIsland Partnership CIC which itself is engaged in a number of joint venture partnerships to deliver renewable energy projects. The EcoIsland Partnership's central aim is to make the Isle of Wight the first sustainable region in Britain.

7. Conclusion

The Isle of Wight is a clear example of how a decentralised approach to energy generation can enable local authorities, community groups and businesses to harness more effectively the natural resources in their area. Medium-sized renewable energy projects and moves to decentralise the UK's energy system represents our best chance to significantly reduce carbon emissions, deliver enhanced energy security, save consumers money and encourage the local ownership of our energy production.

However, if medium-sized renewable energy projects are to play a greater role in the UK's energy generation, then central government and associated bodies must address the following:

- Redesign the public support schemes available for emerging renewable energy technologies such as tidal energy to better reflect the significant initial capital requirements. The current incentives the government has implemented through the Renewables Obligation are adequate and functioning effectively but the real challenges at present are access to seed funding. Greater seed funding will provide longer term dividends as mentioned above.
- Given the benefits of medium-sized renewable energy projects, the Green Investment Bank should seek to provide and attract capital funding to such projects as a priority.
- The government should in tandem with local authorities better explore how business rate discounts for renewable energy projects can be best utilised taking into account the significant financial pressures that local authorities are currently under.
- All efforts must be made across the board to restructure and simplify the consenting requirements which are currently overly burdensome and onerous.
- Grid costs, capacity and access are critical issues which must be addressed. Local authorities should be involved in identifying problems and solutions together with their DNO given their planning responsibilities and growing involvement in developing renewable energy.

April 2013

Written evidence submitted by Friends of the Earth

Summary

In summary Friends of the Earth consider that the following key changes need to be made to secure improvements in the development of local energy:

- National and local political commitment to the development of renewable energy, in particular onshore wind, and community ownership.
- The scale of the Feed-In Tariff must be raised from its current 5MW to at least 20MW, to ensure independent generators and community developers are able to benefit from generating clean electricity. As the Committee have discussed in previous inquiries, the Contracts for Difference model proposed in the Energy Bill will squeeze out small-scale generators, and pose insurmountable hurdles to their participation in the electricity market.
- Funding made available for feasibility studies for communities interested in developing their own schemes.
- Loans made available to be repayable within reasonable timeframes once the project is connected.
- Community right of first access.
- Prioritisation of renewable energy to grid.
- The encouragement of 100% renewable energy targets in "leader" local authority areas.
- Legislative measures to ensure that all local authorities have a duty to act on climate change and for local authorities to have access to better borrowing to invest instruments.
- Legislative measures to ensure a mandatory proportion of community ownership to be brought forward as soon as possible following consultation.
- Technical advice and planning guidance on public participation and climate change to be published alongside the National Planning Policy Framework.

Introduction

1. This Government needs to be consistent in its support of the development of renewable energy, and to properly and effectively meet its commitment to encourage community-owned renewable energy schemes.[61]

2. It is important to recognise at the outset that there is a high net social benefit from the development of renewable energy at all scales. Rapid decarbonisation of the electricity system is essential if we are to meet our legally binding climate change commitments. The Committee on Climate Change consider that "any path

[61] Coalition Programme for Government, 20 May 2010

to an 80% reduction by 2050 requires that electricity generation is almost entirely decarbonised by 2030"—The Committee on Climate Change, *Building a Low-carbon Economy* (2008).

3. Onshore wind is the most mature and cost-effective technology available for deployment at scale to meet this need, whilst other renewable energy technologies are rapidly reducing in cost: solar power has halved its cost in the past two years and offshore wind is anticipated to reach £100/MWh by 2020. It is also important to recognise, however, that currently the benefits and costs of installing renewable energy are not evenly distributed, and Friends of the Earth entirely supports the principle that areas which host (for example) large scale wind power developments should be developed with the community and local benefit derived. Renewables, and wind energy in particular, provides a feasible model for community enterprises to own all or part of an installation. Camco and Baker Tilly estimate conservatively that there is potential for 3.5GW of clean power from community and cooperatively owned energy by 2020, suggesting the potential contribution community energy can make to our energy needs is very great indeed.[62]

4. However, the development of onshore wind, particularly, has been hampered in the UK by the dominance of large energy companies. In the context of privatisation, public and community interests must also be protected. In countries where acceptance and approval of wind energy is highest such as Germany and Denmark, there is far greater community ownership and tangible benefits in the form of jobs. In Germany only 11% of onshore wind is owned by utilities companies. In Denmark, there is some resentment against the more recent developments of larger wind farms with less community ownership and less local benefits, particularly in terms of jobs, demonstrating that this is a key factor in public support for development.

5. Onshore wind in the UK suffers from a lack of transparency and consistency over community engagement and benefit, but is also delayed by lack of community consensus about the need for and the planning required around developments. In addition, the Planning Inspectorate are currently not promoting the Section 19 duty contained within the Planning and Compulsory Purchase Act 2004 (amended by Planning Act 2008) that requires that all local development documents contribute to mitigation and adaptation to climate change—pointing up the need to legislate to ensure that local authorities are focussed on tackling climate change. The Committee on Climate Change also recommended a duty for local authorities to tackle climate change. Every local authority should have a target to deliver their share of renewable energy in the way that best suits their locality.

6. It is also the case that development of onshore wind in the UK has become highly politically polarised to an extent that is not seen in other countries. It is important that national legislators and the Planning Inspectorate maintain the principles of evidence based policy making and decisions. It is also important that politicians recognise the scale of the challenge, and the tangible benefits of energy security and safeguarding against increasing energy costs of renewable, local energy infrastructure.

Financing

7. In the Energy Bill currently before Parliament, the Government has set its face against expanding the Fixed Feed in Tariff system that has been used widely in other countries to great effect in deploying renewable energy and diversifying the market, instead preferring the highly complex Contracts for Difference (CfDs) model. Previously, the Energy and Climate Change committee has found that smaller and independent generators would be "squeezed out" under contracts for difference.[63] There are three key reasons for this:

- CfDs end the existing guarantee that renewable energy will be bought. Both Renewables Obligation and Feed-in Tariffs require energy companies to buy the electricity produced.
- CfDs create near insurmountable hurdles to small investors and independent generators, such as a need to post collateral of many tens of millions of pounds, pay imbalance fees and fees for trading services and to set up a trading arm involving extra specialist staff.
- CfDs introduce huge trading uncertainties for renewable energy generators, creating an even greater level of uncertainty over what price they will receive for the electricity than under the Renewable Obligation, increasing the cost of financing.

8. In order to at least go some way towards remedying these problems, the scale of the Feed-In Tariff must be raised from its current 5MW to at least 20MW, to ensure independent generators and community developers are able to benefit from generating clean electricity.

9. Additionally, in order to kick-start community ownership of renewables, the Government must do more to support schemes through the crucial first phase of development. The Government must provide: a) Feasibility study money to communities, and b) Loans which only need payback once scheme is up and running.

10. Feasibility study funding examples can be found in Wales where the Welsh Government launched the "Ynni Fro" scheme in 2012: "*The Welsh Assembly Government initiative is backed with over £7 million from the EU's European Regional Development Fund and will generate an investment of £15 million in community*

[62] *The potential for the Green Investment Bank to support community renewables*, Camco and Baker Tilly for The Co-operative Group, December 2011 pp 3–4.

[63] Energy and Climate Change Committee, 'Draft Energy Bill: Pre-Legislative Scrutiny', July 2012 http://www.parliament.uk/business/committees/committees-a-z/commons-select/energy-and-climate-changecommittee/news/energy-bill-report-published/

energy projects in Wales and will also provide a seamless service guiding communities in Wales through the process of developing renewable energy projects."[64]

11. Local authorities should be a much bigger player in the development of community energy—it would be feasible for every single local authority to have a stake in helping to develop (through accessing public land—particularly eg contaminated land/brownfield), providing investment and certainty, and reaping the benefits to cross-fund eg retrofit for those most in need (social justice).

12. Local banks, such as the Sparkasse and Volksbank in Germany, or the GLS (based in Bochum, Germany) which specifically provides loans for projects with environmental and social benefits, could be another part of the equation which should be considered to provide the investment needed to get a radical transformation of the delivery of community renewables, in particular for those most in need (suffering from inability to lower their demand for energy given their poor quality housing, and subject to volatile price rises in energy bills from fossil fuels particularly gas).

13. In Germany there is also a community right of first access to the energy they generate. One example is of a village outside Berlin that had its own wind turbines and was able to buy back the electricity they generated at the same (wholesale) price they supplied it. They were buying electricity at €0.13cents/kWh when Berlin prices were €0.23cents/kWh. The prospect of cutting over 30% off an electricity bill profoundly changes the local debate about whether something is desirable or not.

14. The UK also needs to simply get on with a roll out of two way meters. The importance of this is summarised by Alan Simpson (2012)[65] as follows: "*Since 1990, German citizens have had a legal right to be producers and suppliers of electricity to their grid system. Two-way meters are a given, not an experiment. German households expect to know how much energy they produce as well as how much they consume. While Britain still plods through a tortuous debate about 'trials 'of two-way meters, the Germans have been using them to transform energy politics. The right to generate became the power to transform. It also provided the platform for constructing a more open, democratic and sustainable energy market*." Options for introducing this in the UK should be urgently considered.

Community Engagement

15. The new National Planning Policy Framework fails to mention public participation, which is not consistent with the Aarhus Convention on public participation in environmental decision-making.[66] It is essential in order to build public trust and legitimacy that a clear process of engagement is adhered to across the board so that communities know what to expect and are involved at the earliest possible stage (in all planning decisions) which includes wind farm developments.

16. Developers often stigmatise the planning system as a problem—but the solution is actually to understand and support what the planning system offers in terms of a legitimate, accountable and impartial process. Community engagement should be secured at the earliest stages of the process, rather than after the planning application is submitted. Political commitment to tackling climate change has to come from the highest levels of Government—and through the local plan process.

17. The local plan offers an opportunity to understand the energy needs of the area, and to then identify ways in which those energy supplies will be secured in a way that is participative. Mapping for renewable energy is now part of national planning guidance (paragraph 97) but can be largely ignored by local authorities as there is no further guidance on what this might mean in practical application, or what the Government is expecting all local authorities to do with their communities in order to build a sense of opportunity and ownership.

18. A local plan that goes through consultation and good participative processes will create better community understanding of the wider needs of the community, and to understand potential sources of supply such as wind, and following that to understand where these developments could possibly go. Local knowledge of opportunities and constraints is crucial to making better and more consensual decisions. Unfortunately there is insufficient planning guidance on this topic from the Department for Communities and Local Government.

19. For instance previously planning policy (PPS1)[67] contained the following guidance (paragraph 43):

> "*Community involvement in planning should not be a reactive, tick-box, process. It should enable the local community to say what sort of place they want to live in at a stage when this can make a difference. Effective community involvement requires an approach which*:
>
> — *tells communities about emerging policies and proposals in good time;*
>
> — *enables communities to put forward ideas and suggestions and participate in developing proposals and options. It is not sufficient to invite them to simply comment once these have been worked-up;*

[64] http://wales.gov.uk/about/cabinet/cabinetstatements/2010/100121energy/?lang=en

[65] ECC Committee inquiry into Electricity Market Reform, http://www.foe.co.uk/resource/briefings/britains_energy_future_los.pdf

[66] http://www.unece.org/fileadmin/DAM/env/pp/documents/cep43e.pdf

[67] http://webarchive.nationalarchives.gov.uk/20120919132719/www.communities.gov.uk/documents/planningandbuilding/pdf/planningpolicystatement1.pdf

— *consults on formal proposals;*

— *ensures that consultation takes place in locations that are widely accessible; and*

— *provides and seeks feedback*."

20. Article 6 (4) of the Aarhus Convention states that: "Each Party shall provide for early public participation, when all options are open and effective public participation can take place." The ODPM's "Community Involvement in Planning"[68] is also a useful, although now archived, resource.

Barriers to community engagement

21. The common barriers to community engagement in wind development are:

— lack of ownership over the project;

— failure to engage at an early enough stage to influence the outcome, the "what colour do you want the gates" problem;

— lack of agreement on the solution, for instance that the development is needed or appropriate

— lack of understanding of the scale of renewable energy development required, what this would mean in practice, and the impacts it would have ;

— lack of trust in developers, particularly larger companies who may for instance also be charging very high energy bills (feels exploitative);

— lack of local and national political commitment to tackling climate change through developing renewable resources such as wind;

— the time needed to engage properly is often considered too "costly"; and

— developers are inhibited from engaging by a sense that hostility will be stirred up against a proposal by organised objectors regardless of its merits.

22. A number of different approaches can be used through the planning system in order to address these barriers—early engagement, meaningful involvement in the development of the project, and a real recognition of the benefits of the pathway to securing reliable, renewable and local sources of energy.

Community engagement in Germany

23. Germany has benefited from a different approach which has seen a much more successful and secure planning system functioning, and beneficial rights, duties and ownership. The legal powers given to localities play a big part in this, and it plays a big part in the German approach to all renewables, not just wind.

24. It is much easier to make the step to taking individual or community control of energy in Germany because of the ways in which the system has been transformed. Community engagement by contrast in the UK results in more or less community benefit fund, but none of the real devolution of power available in Germany. Planning processes and outcomes are much more certain in Germany because the system is functioning much more effectively—it is much more devolved, but also much stronger and clearer.

25. Cities such as Berlin, Munich and Frankfurt aim to have 100% of their electricity from renewable sources by 2025. This ambition is an important part of the community engagement and interaction with leadership.

Community engagement in Denmark

26. Grassroots development of wind energy in Denmark is the main factor behind public support for the widespread use of this technology. In addition the Danish local authorities map their renewable energy resources (and have been doing this for last 30 years) resulting in the entire country being mapped with respect to wind intensity and landscape. Each local authority in Denmark has to find areas for development in line with national planning rules which help the country meet its national target. Local planning engages the public in the development of areas and policies. Public communication of the production of wind electricity is done through a website where the information is provided on an up to date basis. This has been beneficial in building confidence in the technology as workable and effective. A strong community of researchers has also been beneficial in providing independent evidence and conclusions on wind energy, helping to build trust. The initiative of the island of Samsø—in developing itself as a model of energy self-sufficiency—helped change the view of the national Danish Government in demonstrating the potential of renewable energy development through what they achieved. Further references are included at the end of this evidence on Danish experiences.

Community Benefit and Ownership

27. Community benefit suffers from inconsistency in the UK. Communities are not clear about what they can expect, what is 'affordable' for the project, and who to trust. Friends of the Earth agrees that there needs to be clear legal agreements about the community benefit fund—separate to the Section 106 agreement the developer may have with the local authority, and negotiated through separate channels to avoid an impression

[68] http://webarchive.nationalarchives.gov.uk/20120919132719/http://www.communities.gov.uk/documents/planningandbuilding/pdf/147588.pdf

that planning consent is being "bought". There should be more guidance on thinking over the lifespan of the project (25 yrs + funding stream), identifying the type of benefit sought at the outset, such as: community resilience to rising energy prices and climate change; empowering communities to harness local resources; landscape scale biodiversity and ecosystem services gains. This can be problematic given that the legal ownership of a scheme will typically change more than once during its full lifespan from concept through consenting, construction, operation, re-powering and decommissioning. Unfortunately working out the price per MW that is fair for the community often depends on financial calculations that are opaque and depend on the productivity of the wind farm when up and running.

28. The Joseph Rowntree Foundation in their report, *Wind energy and justice for disadvantaged communities*,[69] sets out the key issues for community benefit in the UK:

> "*Two observations are key here. Firstly, the long-standing industry "benchmark" for community benefits of 1000 per megawatt (MW) of installed capacity per annum (RenewableUK, 2011) seems very low. It falls below the sums that some recent projects have offered, of 5000 per MW, discussed below. It also falls below the equivalent revenue that a community might expect if they had some ownership stake in the facility. For example, the Stirlingshire village of Fintry negotiated community benefits that took the form of community ownership of a 2.5MW turbine within a wider, commercial wind farm. This stake will generate c50,000 per annum while loans are being paid off, then 400,000 per annum thereafter. Secondly, the balance of power between the parties in community benefits negotiations is very important; an issue which ties together distributive justice and procedural justice. Research suggests that, until very recently, wind energy developers had the greatest freedom to determine how much community benefit to provide, based on their assessment of what is affordable and appropriate for a given project (Cowell et al., 2007). This deference to developers is reinforced by the conventions of British planning which, as noted above, mean that the provision of community benefits cannot legitimately be considered when making consent decisions unless they mitigate a specific, acknowledged impact (Ennis et al., 1993). Any influence exerted by "host communities" extends only to the form of community benefits, not the level. It matters a great deal who decides "how much community benefit is enough?" One might reasonably be anxious that small, disadvantaged communities lack the capacity to negotiate a "good deal" with major, international developers (see van der Horst and Toke, 2010). Giving potentially affected communities a more effective voice in decision-making processes may enable higher levels of community benefit to be delivered. It will also enable better appreciation of how the different communities affected by a wind farm project value their environment, and thus a more comprehensive assessment of benefits and harms*."

29. As JRF recommends, better public participation in the local plan stage as well as at the pre-application stage is crucial, but a mandatory proportion to be given into community ownership would also provide a level playing field for developers and communities, alongside much greater financial support and certainty for wholly community-owned schemes.

30. Friends of the Earth is convinced that there should be a mandatory community ownership offer from the development of all onshore wind as a percentage of the scheme. This could then be factored into business models for exploring, financing and building the projects. The Government should also consider funding feasibility studies or providing wind resource mapping on a GIS facility so that the best areas for development can be transparently identified with communities, and areas that are suitable for smaller community developments can be identified with communities.

31. Problems that are encountered in traditional ownership models are the difficulties in raising money if approval is not certain, the fact that wealthier individuals or communities will benefit more easily than those most in need, and that there is little understanding and confidence in many communities about taking on such a project.

32. There are options for co-ops as follows: a) General "share issue" based coops (where it should be specified that no one can own more than 10% of the shares so as to avoid speculators/power companies dominating). b) Community of Interest coops, where (eg) the National Trust were to offer shares to their members for renewable energy projects on National Trust lands; and c) Locality based coops, where the ownership was restricted to those within the defined boundaries of the community.

Examples from Germany

33. Community ownership and the proliferation of decentralised energy schemes has transformed the grid in Germany. If the UK wants to see a similar transformation to decentralised energy, it needs to drive community ownership and focus on the contribution that small to medium sized projects make to the grid rather than focussing on macro solutions. The drive in Germany is now for community ownership of the grid as Alan Simpson points out in his paper (2012):[70] *"German citizens not only own renewable power installations individually. There are also a huge number of localised distribution initiatives that socialise energy supply. This includes the current initiative in Berlin to buy the power distribution network from the utility Vattenfall. There has been a rapid expansion of their community energy systems."*

[69] http://www.jrf.org.uk/publications/wind-energy-disadvantaged-communities
[70] German Lessons, Alan Simpson, 2012

34. Decentralising energy to communities, means decentralising ownership and systems. Planning is a means to deliver that decentralised system, but it requires financial support and legislative change. Simpson (2012) also points out the further benefits of the German transformation. *"Advanced, low-cost, renewable energy is, much like the internet, highly distributed. It requires 'uploading' of energy on a decentralized and intermittent basis. Uploading this new energy is forcing new (and different) investment in the grid. The German grid is the most reliable in Europe, with the average consumer experiencing only 19 minutes of downtime in 2009. This was despite the fact that the German grid now copes with the stresses and strains of its 20% of renewable energy capacity (RWE, 2011). A combination of intelligent simulation tools, good control systems, solid engineering and innovative power electronics has allowed the German grid to achieve this stability and strength."*

Examples from Denmark

35. Community ownership in Denmark is set out in law that when a project with a certain height is being set up, a minimum of 20% is offered to the community[71]. The creation of local jobs and the employment figures in the wind industry in Denmark have definitely been a factor in getting community support for the development of wind energy. Local maintenance and aftercare (eg landscaping) jobs have also been consistently offered locally so that there is a tangible link between jobs and the development.

Conclusion

36. Friends of the Earth hopes that the Committee will consider the feasibility of making community ownership mandatory as a proportion of the overall project over a given size.

37. The Coalition Agreement talks specifically about promoting 'community owned, renewable energy generation', but this is not explicitly promoted in the National Planning Policy Framework. Communities can then feel confident that any development will deliver a benefit to their community, in a way that is fair.

38. Alongside community ownership there must be clear local and national political commitment. As the Climate Change Committee recently recommended there should be a legislative duty on local authorities to tackle climate change mitigation and adaptation—this would be a factor in driving forward local plans that address the challenge of the Climate Change Act seriously and responsibly.

39. Financing measures must be properly considered—ranging from feasibility to loans, to local authority borrowing.

40. The Committee could also consider the matter of additional planning guidance is provided to local authorities (note the Taylor Review on planning guidance due to conclude with additional practice guidance to be issued—without consultation—in July 2013) to ensure that issues like the new viability policy introduced in March 2012 in the changed framework for England do not jeopardise the delivery of community energy infrastructure.

Further References

The Danish island of Samso—a model of energy self-sufficiency | Journal Reporter

http://www.youtube.com/watch?v=4UE5Pl4p2nY&feature=related

Island in Denmark produces more energy than it consumes

http://www.youtube.com/watch?v=FmJxUsXWajo&feature=related

Danish Government on green economy

http://www.ens.dk/Documents/Netboghandel%20-%20publikationer/Pjecer%20uden%20isbn/Our_green_economy.pdf

DONG Energy CEO—Interview about energy savings

http://www.euractiv.com/energy-efficiency/dong-energy-exec-energy-savings-interview-512570?utm_source=EurActiv%20Newsletter&utm_campaign=111cf57af5-newsletter_energy&utm_medium=email

Danish Energy Outlook 2011

http://www.ens.dk/en-US/Info/FactsAndFigures/scenarios/scenarios/Documents/Danish%20Energy%20Outlook%202011.pdf

Maps from the Danish Energy site

http://193.88.185.146/website/energidataKort/viewer.htm?starttema1=vindkraft

Map of wind resources—Danish Example

http://www.emd.dk/files/windres/images/RES_DK99_25pct.gif

[71] Danish wind energy policy http://www.ens.dk/en-US/supply/Renewable-energy/WindPower/Documents/Vindturbines%20in%20DK%20eng.pdf

Two maps showing the change over 24 years from 1985 to 2009 in Danish development of wind energy

Map of power production 1985

http://www.ens.dk/da-DK/Info/TalOgKort/Energikort/Download_faerdige_kort/PublishingImages/Kort_1985_veksel_j%C3%A6vn.png

Map of power production 2009

http://www.ens.dk/da-DK/Info/TalOgKort/Energikort/Download_faerdige_kort/PublishingImages/Kort_2009_veksel_j%C3%A6vn.png

CASE STUDY: E W ENERGY LTD

This company is a joint venture between Community Energy in Pembrokeshire (CEP) Ltd and Seren Energy (SE) Ltd. CEP is a social enterprise engaged in promoting renewable energy in Pembrokeshire and SE is a developer of sites for community scale wind turbines. Its plan is to own a 500kw wind turbine in Pembrokeshire.

For many community groups, the raising of risk capital to develop a scheme is difficult if, not impossible—typically submitting a planning application for a 500kw wind turbine will cost around £50k and there is no guarantee of success.

CEP was in this situation and by teaming up with Seren this hurdle was overcome—as SE agreed to submit the application for a minimum fee. CEP have access to some grant funding and the amount raised by the group will determine the % of ownership of the project by the group.

Once consented the costs of the project, around £1million, will need to be secured. The main lenders in this market sector, Co-operative and Triodos Bank recently stopped lending to projects of this scale making funding difficult. It is anticipated that the project will be funded through a combination of grants, equity sale and venture capital. Fortunately, the Welsh Government has a fund which should provide some of this.

Several sites were identified by an initial feasibility study and the best prospect was agreed by both parties in Autumn 2011.

Several months were then spent on the legal details of such an arrangement, including creating the company, shareholders agreement and option to lease agreement with the landowner.

The technical work on the application is ongoing, with CEP liaising with the community and councils and SE carrying out the studies and reports necessary for such a scheme.

It is hoped that a planning application will be submitted in early 2013.

April 2013

Written evidence submitted by the Sola Trade Association

The Solar Trade Association is the leading voice for the solar industry in the UK, and the only trade body representing both solar thermal and PV. With our diverse membership we reflect the whole solar supply chain with manufacturers, developers, distributers and installers through to consultancy firms and training bodies. Established in 1978 as a not-for-profit organisation, the STA's primary objective is to ensure the sustainable growth of the share of solar energy in the UK energy mix.

The STA has recently set up a Large Scale PV Group (LSPVG) which represents the greater majority of the 400–600MW of large scale solar PV that has been deployed under 2 ROC's over the last year. Virtually all this deployment is by independent generators, many of whom own their own electricity production assets and therefore we are able to give an accurate commentary on this call for evidence.

EXECUTIVE SUMMARY:

1. PV is by far the largest growing technology in the UK with approximately 2.5GW deployed at the end of March 2013. Approximately 600MW of this is from projects sized between 1MW up to 40MW, with the typical size being 5MW or 25 acres. Although much of this is for solar farms where electricity is fed in to the local high voltage electricity distribution network, at the smaller scale (up to 2.5MW say) there is an increasing amount of 'own usage' deployment for direct use in local farms and on commercial and industrial roof tops.

2. Solar farms, or solar parks, are the large scale application of PV to generate electricity. Approximately 25 acres of land is required for every 5MW peak generation capacity of installation, enough to power 1,515 homes[1] for a year and save 2,150 tonnes of CO_2 in the southern part of the UK.

3. They represent time-limited, reversible land use and provide an increased, diversified and stable source of income for landowners as part of their farming mix. They have dual purpose usage with sheep or other animals grazing between rows, and can help to support biodiversity by allowing small animals access to otherwise fenced-off land, with bird and insect fodder plants and wildflowers sown around the modules.

4. Solar farms have lower visual and environmental impacts than other forms of power generation. If 10GW of solar was installed on the ground, it would only use 0.1% of UK land area, while producing electricity equivalent to 1000 large wind turbines or 5 medium-sized gas-fired power stations.

5. The current system of Feed-in Tariffs (FiTs) initially worked well at supporting larger scale Solar PV and Renewables Obligation (RO) have provided a bankable method of support since Q1 2012, yet we have concern that under the Electricity Market Reform (EMR) these projects will not be sufficiently supported and will result in a "squeezed middle".

6. Recent concerns surrounding the EC anti-dumping investigations on Chinese solar panels are already risking decimating the UK solar market, with the loss of 80–90% of solar farm projects (depending on size of duties). This would completely derail Government's ambition to deploy up to 20GW of solar power by 2020 and could jeopardise the 15% EU renewable energy targets.

QUESTIONS:

1. *What contribution could medium-sized energy projects (5–50MW) make to the UK's climate change, energy security and energy affordability objectives?*

1.1 From a solar perspective, this contribution could be very significant. Projects within this 5–50MW range are nearly all ground mounted systems otherwise known as solar farms or solar parks. Within the last nine months alone, the STA estimates that between 400 and 600MW was installed. Considering the appalling weather conditions this winter, this is an incredible achievement.

1.2 Solar is the fastest growing global energy technology in the World. Notwithstanding the current issues around anti-dumping duties, solar installation prices have halved in the last 18 months. Solar farms are now cheaper to install at 1.6ROCs than offshore wind at 2ROCs. Global PV deployment to the end of March was approximately 110GW, of which the UK was 2.5GW.

1.3 Considering the ability for solar to be rapidly deployed, plus the lower pricing, we believe that medium-sized energy projects, which include projects at commercial, industrial and community scales, as well as independent generators, have a significant role to play in meeting our renewable energy targets, mitigating climate change, ensuring we have energy security and fulfilling energy security objectives. Our concern however is that under the EMR, these projects will not be sufficiently supported and these projects will be "squeezed" out.

2. *What different models of ownership exist for medium-sized energy projects and how prevalent are they in the UK?*

2.1 Debt financing is the method often used by medium scale Solar PV developers. Banks providing debt and investors providing equity do not invest unless the generators have signed a viable long-term power purchase agreement (PPA) with a large BBB+ credit rated company. UK FITs are characterised by three monthly reviews (typically a medium scale solar project takes 12 to 24 months to deliver) plus with inherent political risk and are no longer an easily 'bankable' support mechanism for medium scale projects.

2.2 Solar projects outside of FIT's are eligible to receive EIS and VCT funding.

2.3 Community solar projects currently represent only a small proportion, one notable site being Westmill Solar Farm (5MWp) using cooperative community funding. The community funding model is based on selling shares to local and other interested investors, providing full or partial equity to a group of investors. This may be leveraged by bank or other debt to create a larger pot of funds. The projects are typically run on a 'one member one vote' basis meaning that all shareholders have an equal say in how the project is managed.

2.4 There are a number of options available to local authorities who wish to finance low carbon projects, for example through generalist funds or low carbon funds.

3. *What types of financing model are most suitable for small- and medium- scale projects? Do these differ from the financing models used for larger-scale projects?*

3.1 Typically internal funding, or balance sheet financing, is used for smaller industrial and commercial scale projects where renewable energy is not the core business. Many smaller solar farms are self-financed and the ownership is kept in-house after the projects are completed.

3.2 There is a commonly used model for financing community projects in the UK, being to raise funds in the form of a cooperative share sale. For example, a project with a cost of £100,000 would aim to sell shares at £1 per share (usually with a minimum number of shares which must be bought (5 to 250) and a maximum of 20,000). There is currently a de facto limit on these share sales of approximately £4 million, as raising funds above this level requires an almost prohibitive extra amount of due diligence and regulatory clearance. The shares pay a 'dividend' to investors based on the project's income and every shareholder automatically becomes a member and is eligible to vote in AGMs. Financing in this model might be supplemented by debt funds, usually from a bank. In the past this funding has been difficult to come by and the current state of the PPA market (see below) has exacerbated this.

4. *Why are community-owned energy projects more prevalent in countries like Germany and Denmark than they are in the UK?*

4.1 The main point to explain the greater uptake of community renewable energy projects in continental Europe, especially Germany is the 'municipal' power generation tier, which is not present in the UK. In Germany, many towns and cities have their own municipal power plants ("Stadtwerke") and local distribution grids, with power mainly being generated and consumed in the local area, and are less reliant on transmitting power long distances on a national grid infrastructure. Because of this "municipal" tier, there are many small local utilities who naturally have strong ownership by and responsibility to community stakeholders. This may be in a number of forms, eg employment, energy security, and providing lower-cost and higher renewable content local power. In Germany, renewable energy project developers often work with these local utilities and community groups to deliver solar PV, wind and biomass generation schemes, sometimes combining several technologies.

4.2 There is also the issue of public perception and energy politics. Especially in Germany, Denmark, and Holland, the general public is sensitive to and interested in the topic of renewables, nuclear etc, and more willing to participate actively in this energy debate. In the UK, the focus has mainly been on the cost that renewables is perceived to add to already high domestic electricity bills, and renewables are seen as an expensive necessity. In continental Europe, there are a number of ways that members of the general public can get involved in the energy debate and there is a high degree of social acceptability for this involvement. The ultimate expression of active support is to invest in a local renewable energy scheme and claim part-ownership of the solution to the energy problem facing us.

4.3 Planning has also played a major part, for example wind projects in Denmark received favourable planning treatment, and the requirement that any turbine application had to offer local people the opportunity to invest in the project to qualify for planning permission.

4.4 In Germany the KFW (German government backed funding) provides very low cost financing—around 2%—for up to 100% of investment costs for community-owned projects. The UK has now comparable scheme. Indeed the Governments green deal financing is approximately 7.5% and that is considered subsidised.

5. *Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities?*

5.1 The Cooperative Bank found that 49% of the 2027 adults interviewed would support a wind turbine being erected two miles of their home, with 22% against. However if the project were 100% community-owned and controlled by the community with all the profits benefiting the community, support rose to 68% and opposition plummeted to 7%. We would expect a similar reaction with solar farms, but as yet there is no evidence.

6. *What appetite is there for community-owned medium-scale energy projects in the UK?*

6.1 Community owned projects tend to be smaller scale in nature. But some of the "largest" community-owned projects developed in the UK in the past few years include a Cooperative wind farm in the North West of England, Westmill Solar (5MW), Wind (12.5MW) Cooperatives in the south-east and Lochcarnan wind farm in South Uist (7MW).

6.2 The sector is becoming more ambitious and aiming for larger schemes which would be eligible under the more complex RO, CfDs and the new EMR arrangements. Although FIT's might be more straightforward, most developers use the RO for a number of reasons. The lower size limit of 5MW used to differentiate between FIT's and CfD's would dampen appetite for solar projects if forced to use one OR the other. A choice is imperative to allow entrepreneurial development of all types of locally owned projects. Such issues are further complicated by the uncertainty surrounding the eligibility arrangements for EIS and VCT funding.

6.3 Companies such as Good Energy have launched their local tariff for electricity consumers located near to wind farms. However a generator by itself is unable to sell electricity to consumers as it is not a licensed supplier. The STA feels the key to unlocking community ownership and the wholesale acceptance of renewable energy would be to allow generators to sell direct to the community. Give people the choice!

6.4 We would recommend you look at the helpful website www.energy4all.co.uk

7. *What appetite is there among private sector organisations in the UK to invest in their own medium-scale energy projects?*

7.1 Significant. We have a number of owner/developers who self finance their own projects and who do NOT re-sell the projects in the secondary markets. Key is stability of funding & legislative regime. For medium scale solar projects, UK FITs have lost their low risk "bankability", hence ROCs are preferred. It will be essential that CfDs are characterised by longer term political & legislative stability to permit medium scale project investment.

7.2 Through EIS and VCT funding many individuals are able to invest in solar projects so long as the EIS/VCT tax advantages remain in place and stable (even if slim) returns are available.

7.3 Being exposed to the price of electricity is an "investable" asset—there are several good examples of industrial customers in the UK who have taken the step of installing their own renewable power generation equipment or allowing others to install it on their premises in order to better fix their OPEX costs and shield themselves from future energy price rises.

7.4 Prior to developing medium scale solar farms, one of our members was Head of Energy of the UK's largest retailer. He was charged with both reducing energy consumption/sq ft of retail space whilst also investing over £100M annually in self generation (either as a backup or as renewable replacement of brown electricity). Many of the UK's largest retailers have similar programmes.

8. *What appetite is there among UK local authorities to invest in their own medium-scale energy projects?*

8.1 Similar to private companies, there is widespread evidence that the local authorities are keen to invest in and promote renewable energy when the right conditions are met, as shown by the over 300 English authorities that have signed the Nottingham Declaration.

8.2 A recent report by the CCC states that "there is a crucial role for local authorities in reducing emissions to meet national carbon budgets". Whilst noting the benefits of local authorities investing in their own projects, it is also reported that there is "currently a significant risk that local authorities will not develop and implement sufficiently ambitious low-carbon plans, following the removal of the national indicator framework and given the highly constrained fiscal situation".

9. *What are the barriers to medium-scale energy projects in the UK?*

9.1 The key barriers to medium-scale solar projects in the UK are financial incentives, route to market, grid generation capacity constraints (in that the grid is centrally designed to distribute electricity from central power stations to end users whilst generators placed within the distribution network face constraints of inadequate thermal capacity of switchgear, transformers, cabling etc), planning requirements, changing policy landscape, public perception and external events such as the EC anti-dumping investigation.

9.2 For financial barriers please see Q10.

9.3 Another key barrier is the rapidity with which the ROCs banding changes for Solar PV projects (annually) versus the typical development timeline of 12 to 24 months. Given the upcoming 1.4ROCs/MWh support level, only the sunniest locations in the UK can at this point (April 2013) be taken on for development.

9.4 A lack of liquidity and competition in the Power Purchase Agreement (PPA) market has also unnerved the market. As recent DECC research has confirmed, there are a very limited number of suppliers willing to offer contracts and they must be BBB+ credit rated to be acceptable to a bank providing debt funding. In practice this means that an independent project fully or partially dependent on bank funding must attract a PPA offer from a supplier acceptable to the bank.

9.5 Grid connection is an increasing constraint. The usual DNO's connection delivery quotation for a medium scale project connecting at 33kV is 12 to 24 months connection timeline. Given that construction finance (to fund the grid connection construction) is not available until planning is awarded and financial due diligence completed, this frequently leaves just six months to construct and energise the connection, a timeline DNOs are very uncomfortable with. Grid capacity to accept generation within the distribution network (11kV, 33kV, 66kV and some 132kV), particularly in the South West of England has already reached maximum capacity extensive distribution network upgrades are be required to realise the stated distributed generation ambitions. However, DNOs are not permitted to fundamentally upgrade their distribution network speculatively (increasing their distribution charges as a result) to accept more generation. Solar PV developers cannot economically afford to upgrade anything other than just their own local connection; hence there is a fundamental disjoint in expansion of grid capacity to suit DG.

9.6 The financial risk of not meeting planning consent requirements often including extremely demanding visual impact requirements (solar farms have to effectively be invisible to receive planning in many counties) and statutory consultations from bodies adverse to development of renewables remain one of the greatest barriers for solar. For example, community energy projects need to fund pre-planning and planning development work, without any guarantee of success and without any upfront capital support. Larger companies and utilities allocate part of their profits to make high risk money available for the planning, legal & grid application phase, whereas smaller or community groups may find it ruinous to not be awarded positive planning on their project.

10. *How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?*

10.1 Although FIT's in general is a good incentive mechanism for the domestic and small scale commercial market, there is virtually no deployment between the 250kW and 5MW sector. This so called "squeezed" middle with projects that require 6–18 months of development lead time, require higher tariffs than are currently offered, need certainty of price for an investor (vs. UK FiT degression every three months), can't use VCT's or EIS funding, and are generally regarded as high risk & unprofitable by developers. This is a missed

opportunity for DECC as there are many smaller brownfield sites or large industrial roof tops with up to 80% self-consumption of electricity generated which are more economic to install under the RO.

10.2 The RO is a well understood incentive for large scale developers with a ready market to sell ROCs into. Projects larger than 50kW are eligible to use the RO, but in reality, large scale roof tops from about 1MW tend to be the smallest projects, with 5MW being the average size. The STA has concerns over this 5MW threshold limit as once the market transitions to CfDs, projects less than 5MW will ONLY be eligible for FIT's. This will likely leave many viable projects without an appropriate financial incentive. It would recommend that FITs is restricted to projects below 1MWp with ROCs/CFDs above that level.

10.3 With reference to the PPA market, solar farms are nearly all independent generators who are dwarfed by the size of the "Big 6". Route-to-market for these independent generators is of paramount importance. Current proposals within the Energy Bill do not go far enough to ensure financial security of electricity export, and we support the proposals of the Green Power Auction Market (GPAM) as an amendment within the bill to allow a better route to market.

10.4 Measures are needed to allow carbon saved from on-site renewable electricity to reduce CRC (carbon reduction commitment) tax. Currently the credit can only be obtained by giving up the FiT or ROC, unlike in the case of the RHI. Therefore the STA supports the suggestion of the REA to treat renewable electricity in the same way as renewable heat, ie not adjusting back to the grid mix for the purposes of CRC calculations as it currently is. A further solution would be that where a business seeks to have the full carbon saving reflected in its CRC calculation, it would not pass on the Renewable Energy Guarantee of Origin (REGO) certificate to the electricity supplier under the FiT or ROC power purchase agreement. This would avoid double counting and help incentivise on-site renewable electricity.

April 2013

Written evidence submitted by Air Products

Introduction

Air Products, a leading global provider of industrial gases and equipment, energy and environmental systems and an inward investor in the UK, welcomes the opportunity to provide input to the Energy and Climate Change Select Committee's Inquiry into Local Energy.

Air Products gained planning permission to build a 49MW advanced gasification energy from waste plant on a brownfield site on Teesside in August 2012. Construction is now well under way and the facility is due to come on-stream in 2014. It will create 700 construction jobs and 50 permanent jobs, divert up to 350,000 tonnes of waste from landfill per year and produce enough predictable, controllable, clean electricity to power up to 50,000 homes. A second project on an adjacent site and of a similar size is currently awaiting planning and board approval. As part of the Government's Energy for Growth initiative, the Cabinet Office recently signed a deal with Air Products to buy the electricity from the plant, subject to the approvals outlined above.

If these two projects are successful, three further projects of a similar size are possible in the UK with a total potential capacity of roughly 250MW of renewable electricity, representing £1 billion of investment.

Air Products believes that projects up to 50MW in size could play a significant role in meeting UK's climate change objectives, improving energy security and controlling future energy prices. This is particularly true of those which provide *baseload* renewable electricity.

However, over the past 12 months we have seen delays and uncertainty in energy policy which have caused a concern amongst our US-based investment management team. The perception is that UK policy is becoming more uncertain and less predictable for companies investing in energy projects such as ours.

The following submission focuses on answering the questions on barriers to developing our "medium-scale" energy projects in the UK and the effectiveness of Government policies in encouraging such projects to come forward.

What are the barriers to medium-scale energy projects in the UK?

1 *Barriers existing in the current market*

1.1 Development costs are proportionately higher than for larger projects

Although medium scale energy projects of less than 50 MW may not have such extensive planning or environmental reporting requirements as larger ones, they are still subject to significant development costs which of course have to be spread over much smaller anticipated *pro rata* project revenue.

1.2 The electricity market is principally designed to accommodate wholesale trading of power and delivery to customers through a small number of large vertically integrated suppliers

Market power of the large vertically integrated players means that independent generators with smaller projects are in a weak negotiating position.

1.3 *Finance has become harder to obtain and terms have deteriorated*

To date, the route to market for medium scale energy projects has been to contract with suppliers, who will typically offer 12- to 15-year power purchase agreements (PPAs). For project-financed projects, the offtaker will also agree to provide a route to market for all of the ROCs, LECs and REGOs although they are purchased at a discount, typically around 90% of full value. In order to be financed, a medium-scale energy project will require some form of base-price certainty over the tenor of the debt by means of a floor price in the PPA. Even though many banks are only willing to offer debt with a shorter (eg seven year) tenor on a so-called hard or soft "mini perm" basis (meaning that the debt must be repaid in full after seven years or there is a strong financial incentive to do so through an increase in the margin/interest rate), they are still requiring developers to have a 12–15 year PPA to ensure there is a clear basis on which to refinance after seven years.

1.4 *PPA terms have deteriorated recently*

There is clear evidence that, in the last few years, suppliers have become less willing to offer PPAs to independent generators and when they do, the terms have deteriorated. Specifically, PPA offers have deteriorated in the following areas:

(a) *Imbalance risk*: Suppliers have historically been willing to take the risk of differences between forecast and actual output which, because of their large portfolios, they are better able to manage. Increasingly we are seeing PPA offers which shift some of this risk back to the generator eg by electricity price re-openers if imbalance costs increase. To some extent this is understandable: there has been a steady stream of consultations about balancing reforms and "sharpening" of cash-out prices, without any certainty over the 12–15 year term of a PPA. Suppliers naturally will build in terms (or in their pricing) to address this uncertainty, which adds to the costs of developing renewable projects.

(b) *Change-in-law risk*: suppliers have historically been willing to take the risk of changes in law affecting the electricity market (including changes in industry documents such as the BSC, CUSC and Grid Code). Increasingly we are seeing PPA offers which shift some of this risk back to the generator eg by changes to the electricity price floor or by specific circumstances (eg new market zones created by the European Target Model or the impact of capacity payments on the wholesale price) not being covered. Again, this is a natural consequence of the significant uncertainty about the future structure of the market created by regulatory change.

(c) *Commercial terms*: We have seen:

  (i) increases in the discounts required by suppliers for the purchase of electricity, ROCs and LECs and the sharing of embedded benefits;

  (ii) offers with no floor price or with floors which are of limited duration, without indexation or which can be re-opened in certain circumstances (see change in law above)—this makes project finance very difficult; and

  (iii) a general change in the market index forming the basis of the electricity price from a month-ahead index to a day-ahead index, which places more risk on the generator.

In our view, the key reasons for this deterioration in PPA terms are:

— a preference among the supply businesses of the large vertically integrated utilities to prefer their own sister companies in contracting for renewable power;

— uncertainty about numerous aspects of the market (including the volume of ROCs required, the impact of CfDs on the market price for power, imbalance costs, future changes in law, impact of the capacity market, etc) which makes entering into a 12–15 year PPA a very risky prospect.

2 Barriers created by Electricity Market Reform

2.1 *The structure of CfDs discourages long-term fixed price offtake contracts*

More recently it has been possible to negotiate a long-term fixed price 'sleeved' contract with a credit-worthy retail customer (such as a supermarket chain, fast-food outlet, etc.), which spans the project lifetime. A licensed supplier registers the meters and performs certain services for a fee. The fixed price is attractive as it provides certainty for both the generator and the customer. However, in contrast to the ROC system under which the generator receives a reasonably fixed level of price support, the difference of payments under a CfD (using a market index as the reference price) will decrease price certainty. CfDs are designed to provide a "top up" from the reference price to the agreed strike price and only work if the generator is selling its power on the same basis as the reference price is calculated (effectively "spot").

Air Products' first Tees Valley advanced gasification waste-to energy-project, currently under construction, is financially underpinned by such a long-term fixed price contract with a retail customer. Our second Tees Valley project has recently been awarded a long-term fixed price contract by the Government Procurement Service (the Cabinet Office contract mentioned in the introduction). The Government intends to secure other such fixed priced contracts with other energy generators in the next five years through the Energy for Growth scheme. Under the CfD regime, we see no economic incentive on the part of the energy customer to enter into a long term PPA and take on future price risk, which the variability of the CfD is intended to mitigate. As a

result, we fear that PPAs will become rarer as the route to market is curtailed, thus undermining not only future projects like Air Products' but also the success of the Government's own Energy for Growth programme. To avoid this from happening, the Government must reconcile the variable reference price with the need for long term power price contracts.

2.2 *The removal of ROCs takes away an important incentive on suppliers to contract for renewable power from independent generators*

The appetite of suppliers to purchase renewable energy from independent generators is strengthened by the suppliers' obligation to purchase an increasing percentage of energy from such sources. Although suppliers have a buy-out option, in practice there are reputational as well as financial incentives on suppliers to buy ROCs (which are invariably priced under long-term PPAs at a discount to the buy-out price and recycle payment). Independent generator have a genuine and real concern that, without ROCs, suppliers will be much less willing to buy their power.

2.3 *Embedded benefits are threatened by the EMR proposals*

Projects connected to the electricity distribution system (as opposed to the transmission system) can achieve "embedded generation" benefits, as suppliers can offset the contracted output against their registered demand. These benefits include avoidance of National Grid's transmission network use-of-system (so-called triad) charges, avoidance of transmission losses, avoidance of balancing services use of system charges, avoidance of distribution losses and avoidance of some distribution charges. Although the embedded benefits are initially received by the supplier, the overwhelming majority of current PPAs share the financial value of these benefit, with the generator receiving the bulk (usually around 90%) of the value.

The supplier's ability to achieve most of these embedded benefits depends on the supplier registering the generator's output meters in the same Balancing Mechanism (BM) Unit under the Balancing Settlement Code as its customers' demand in the same region (the relevant base Consumption BM Unit)..

Paragraph 159 of the CfD Operational Framework proposes that embedded generators will be required to register—via their suppliers—an additional BM Unit, and that the "loss adjusted" metered energy would then be used for settlement purposes. This proposed arrangement would destroy any embedded generation benefits that medium-scale projects currently receive. We can see no logical reason for removal of the embedded benefits currently enjoyed by medium sized projects. There does not appear to have been any impact assessment made of this change and it appears to be driven by the administrative convenience of calculating difference payments under CfDs.

If the current (*supplier counterparty*) arrangements cannot be replicated, and medium-scale generators are required to be treated in the same way as larger, licensed generation their costs will increase as they will no longer be able to anticipate embedded generation benefits. They will also be exposed to transmission charges, even though they will be connected at distribution voltage levels (and are not eligible for constraint payments). This potential increase in costs, and elimination of benefits may mean revisiting the CfD submissions already made by such generators, so that some form of extra uplift is provided to compensate for the loss of the benefits and increased charges.

April 2013

Written evidence submitted by The ResPublica and The Sustainable Community Energy Network

INTRODUCTION

(1) The Sustainable Community Energy Network (SCENE), an Edinburgh-based social enterprise that specialises in global community energy research, consultancy and investment; and

(2) The ResPublica Trust, an independent, non-partisan think tank.

Where the scope of the question was unclear to us, we have added terms in ***bold italics*** in order to refine it. For further information on our research into community- and local energy generation in the UK, we point you to our forthcoming ResPublica Green Paper entitled, *The Community Renewables Economy: Starting up, scaling up and spinning out*, which is due to be published in early July 2013.

1 *What contribution could medium-sized energy projects (5–50MW) make to the UK's climate change, energy security and energy affordability objectives?*

1.1. For most renewable generation technologies, the "medium"-scale band offers better economies of scale than smaller (< 5 MW) projects; meanwhile, many larger-scale (> 50 MW) opportunities, with the notable exception of combined heat and power (CHP), have already been developed.

1.2. Assuming certain conditions are met, onshore projects in the "medium"-scale band could make the most important contribution to the UK's climate change, energy security and energy affordability objectives, compared to other capacity classes.

1.3. At present, this represents merely a theoretical opportunity that does not take account of key market- and planning considerations.

1.4. To exploit the potential that medium-scale projects offer would require broadening market access to this capacity class, in particular by facilitating joint-ventures between developers and local stakeholders, including communities and local authorities.

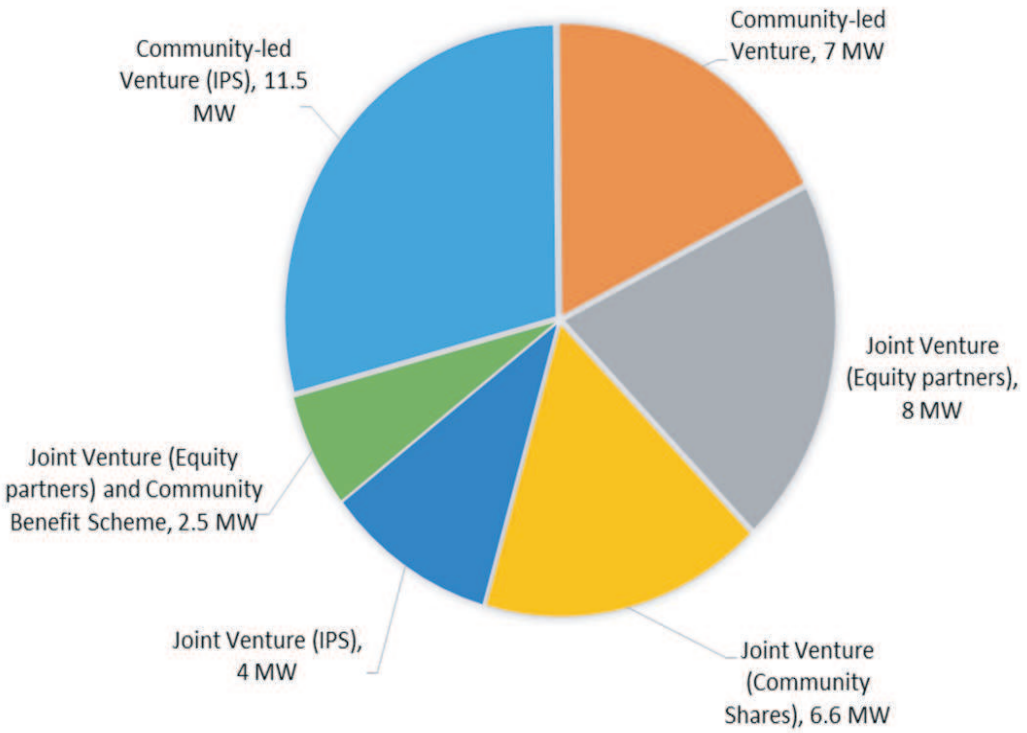
1.5. If market access remains restricted as it is now, mounting opposition to medium-scale projects will likely prevent, in large part, both the potential and benefits from being realised.

1.6. At the current rate of growth of community energy, we estimate that this sector could grow to 550 MW of capacity by 2020.

2 *What different models of community- and local ownership exist for medium-sized energy projects and how prevalent are they in the UK?*

2.1. The current upper capacity limit at which projects are eligible for Feed-in-Tariffs (5 MW) largely determines which models of community- and local ownership currently exist for medium-sized energy projects.

COMMUNITY-OWNED CAPACITY IN UK RENEWABLE GENERATION, CATEGORISED BY BUSINESS MODEL



Source: SCENE.

2.2. In part because of the relative complexity of current support mechanisms for medium-sized projects, community- and local ownership in this capacity class exists largely through joint venture arrangements.

2.3. There are currently only three medium-scale energy projects that are wholly community-owned: the Lochcarnan Community Windfarm on South Uist (6.9 MW); and the Westmill Solar and Wind Co-operatives in Oxfordshire (5 and 6.5 MW respectively).

2.4. By way of comparison, members in Danish co-operatives such as the Middelgrunden wind farm outside of Copenhagen jointly own equity equivalent to 20 MW of generation capacity.

2.5. In the UK, the total community and local equity in medium-sized projects is split between joint ventures with developers (53%) and wholly-owned (47%).

2.6. As is the case for community-led projects, equity in joint ventures is also held through two basic models: development trusts (DT's) in Scotland, and co-operatives elsewhere in the UK. Different sub-types exist for both development trusts and cooperatives, and a variety of legal structures are used for the joint ventures themselves.

3 *What types of financing model are most suitable for small- and medium- scale projects?*

3.1. The structure of the UK planning system directly determines the suitability of different models to finance small- and medium- scale projects. The risks to small investors of wholly-owned community-led projects are so great, that we feel in the present system a great deal of willing community capital is going to waste. One way to counter this is to bolster opportunities for communities to engage in joint ventures with developers. Developers are better equipped to deal with the risk and complexity, but the community should be given the opportunity to take an ownership stake in pre-planning and project investment.

3.2. For small-scale projects, the major difficulty lies in securing finance in the risky pre-planning phase of development. There are two possible ways to finance this phase:

3.2.1 Rely on grant-funding or low-risk loans. Experience in Scotland and elsewhere has shown that this approach must be integrated with basic financial and technical processes to prevent mis-allocation.

3.2.2 Diversify risk by bundling early-stage projects.

3.3. Both these pre-planning finance models can be integrated, and co-ordinated in partnership with willing local authority treasury and planning departments, and be partly supported through community benefit arrangements and business rates.

4 *Why are community-owned energy projects more prevalent in countries like Germany and Denmark than they are in the UK?*

4.1. In collaboration with Radboud University in The Netherlands, SCENE is conducting a detailed study of community-owned renewable energy in both Germany and Denmark, and are formally partnered with the German Federal Renewable Energies Agency.

4.2. Local ownership accounts for 50% and 86% of German and Danish onshore renewable generation, respectively.[72]

4.3. This is largely explained by the fact that Germany and Denmark:

4.3.1 Have enjoyed simple, stable and sustained support mechanisms; and

4.3.2 Have planning systems that encourage rather than obstruct partnerships and collaboration between local authorities and other local stakeholders, including businesses, farmers and communities.

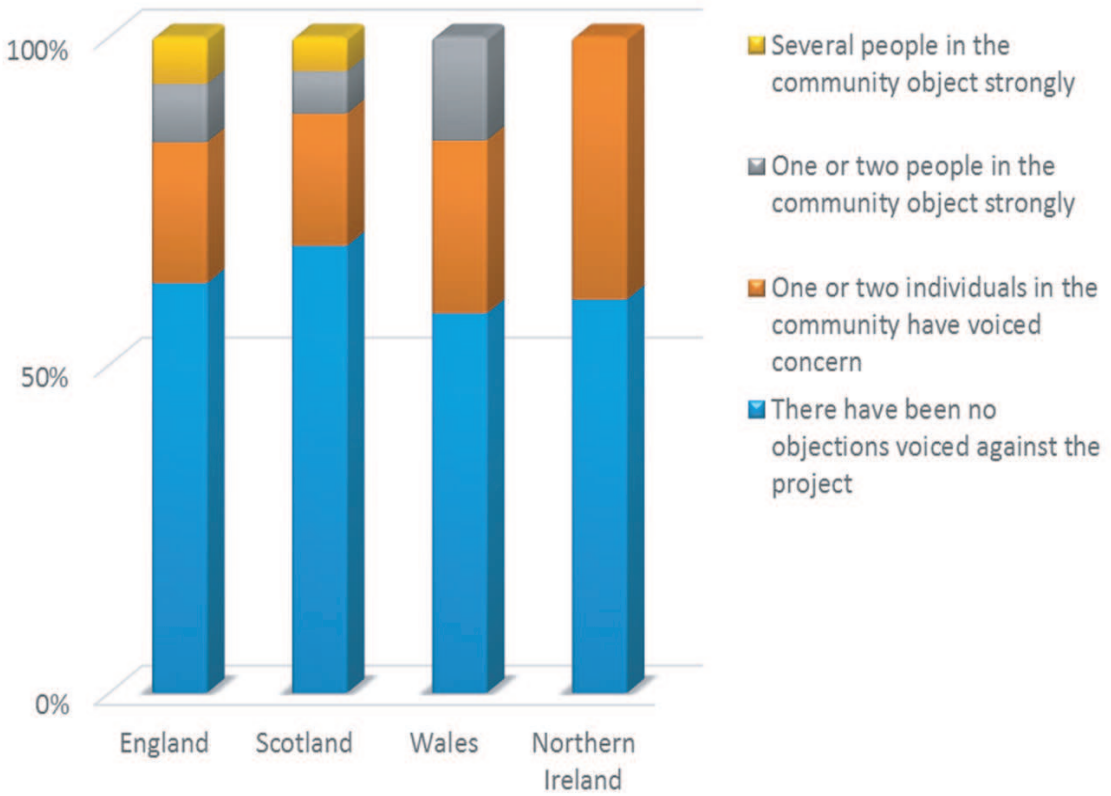
4.4. Danish abandonment of FiTs in favour of more complex mechanisms between 2000 and 2009 went hand-in-hand with a marked decrease in decentralised ownership and generation of renewable energy.

5 *Is there any evidence that medium-scale energy projects are more likely to be accepted by local communities?*

5.1. We have looked into this question in detail, by surveying for and analysing local opposition to both community-led and joint venture projects across the UK. Across the UK, 87% of projects experienced no direct opposition at all. 8% reported that one or two members of the community raised objections, and 5% reported that more than two members raised objections.

[72] Anna Harnmeijer, Jelte Harnmeijer, Nicola McEwen, Vijay Bhopal (2012), 'A Report on Community Renewable Energy in Scotland', UKERC/ECCI/SCENE, Edinburgh.

OPPOSITION TO PROJECTS IN WHICH COMMUNITIES HAD A STAKE



Source: SCENE.

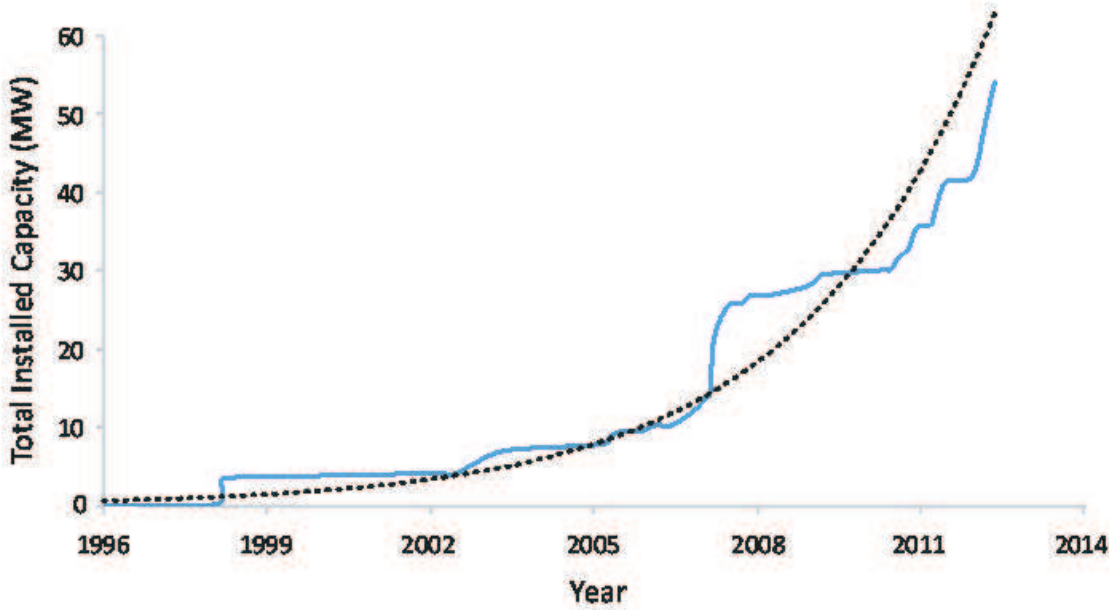
5.2. Our findings corroborate studies showing that opposition to renewable energy projects dissolves where co-ownership is offered.[73]

6 *What appetite is there for community-owned medium-scale energy projects in the UK?*

6.1. Amongst communities themselves, there is a rapidly growing appetite for a community-ownership component in medium-scale projects. The relative immaturity of suitable support mechanisms, and barriers to market entry, together largely account for the fact that total UK community renewables capacity is still small.

[73] ICM (2012), 'ICM poll for the Co-operative Group', The Co-operative Group.

TOTAL OPERATIONAL UK COMMUNITY RENEWABLE CAPACITY, 1996–2013



Source: SCENE.

6.2. We calculate that, if certain reforms are introduced as part of the Electricity Market Reform Bill, community ownership could account for 550 MW and 8900 MW of the UK's renewable capacity by 2020 and 2030, respectively. Our findings also suggest that, under this scenario:

6.2.1 A gradually growing culture of acceptance would appreciably decrease current barriers to renewables development in general;

6.2.2 £637 million and £11.5 billion would be invested into the renewables sector by communities themselves by 2020 and 2030 respectively;

6.2.3 123,000 construction jobs between now and 2030, and between 9000 and 36,000 permanent jobs.

7 *What appetite is there among private sector organisations in the UK to invest in their own medium-scale energy projects?*

7.1. There is a large and growing appetite amongst private sector organisations to invest in medium-scale energy projects.

7.2. Three main factors constrain private-sector demand for investment in renewable generation:

7.2.1 The planning process is widely regarded as risky, slow, politicised and non-transparent;

7.2.2 Governmental support for renewable energy is seen as volatile;

7.2.3 Developers currently have little or no incentive to partner in joint-ventures with other potential stakeholders, such as local authorities, communities, businesses and housing associations.

8 What *appetite is there among UK local authorities to invest in their own medium-scale energy projects?*

8.1. The appetite amongst UK local authorities to invest in medium-scale energy is highly variable.

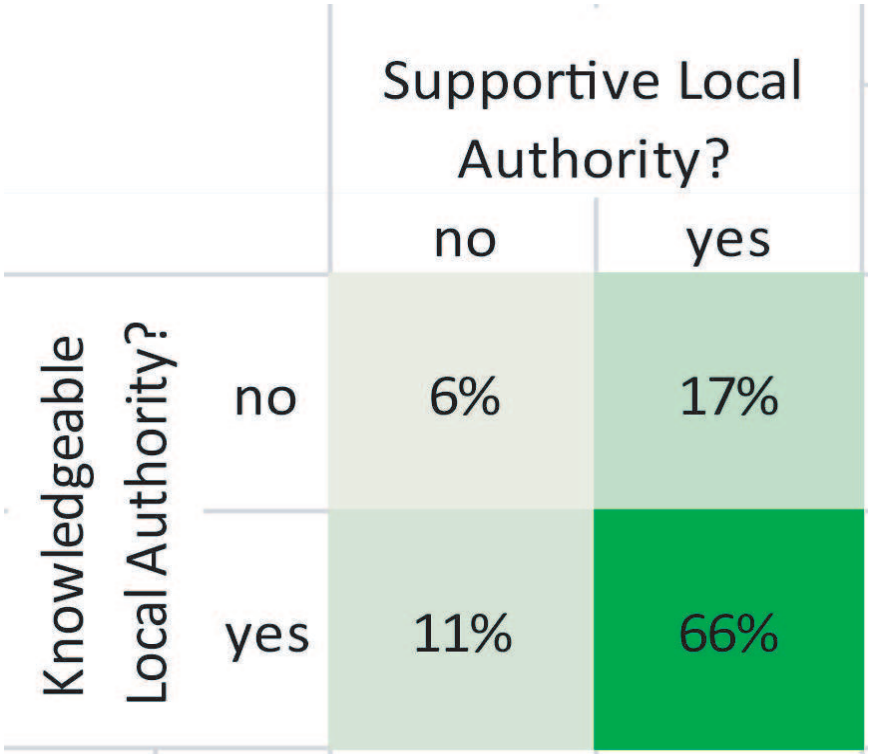
8.2. Many successful projects (eg Cornwall, Isle of Wight, Orkney) stand testimony to the important role that local authorities stand to play in meeting the UK's energy and climate-change objectives.

8.3. Current planning regulations often prevent willing local authorities from partnering in projects with communities and/or developers.

8.4. Many local authorities are in a good position to act as partners in small- and medium- scale projects by providing low-cost debt finance after planning permission has been awarded.

8.5. From our own survey work, we found that—of the community projects that were successful in obtaining planning permission—far more reported that their local authorities was knowledgeable and supportive. Furthermore, if a local authority was perceived as being knowledgeable, it was twice as likely to be supportive. This data strongly suggests that the organisational style, expertise and stance of a local authority has a crucial bearing on the success rate of community projects.

HOW SUCCESSFUL COMMUNITY PROJECTS PERCEIVED THE STANCE OF THEIR LOCAL AUTHORITY



Source: SCENE.

9 *What are the barriers to medium-scale energy projects in the UK?*

9.1. Many of the barriers facing renewable energy projects are now relatively well identified and described.

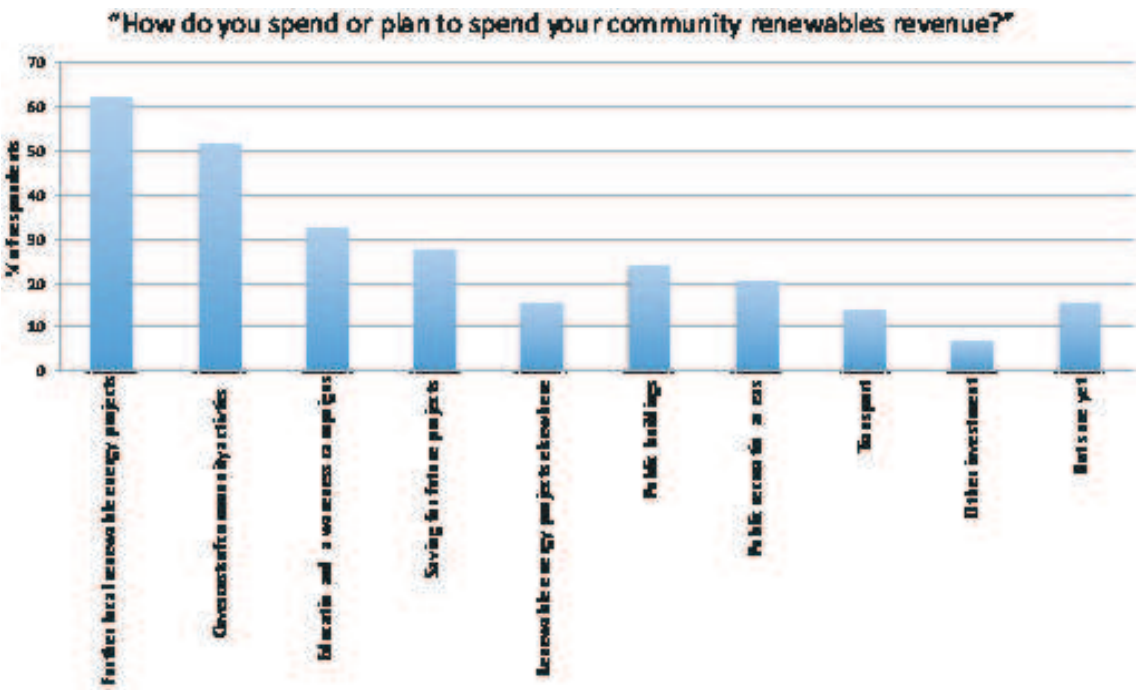
9.2. These barriers include continued uncertainty around support mechanisms, problems accessing the grid, pre-and post-consent delays, and opposition to developments resulting from a perceived lack of engagement and investment opportunities.

9.3. In this context, effective engagement between developers and communities plays a vital role in the long-term outlook for UK renewables, for two reasons:

9.3.1 Experience in Germany and Denmark has clearly established that effective engagement, coupled with access to investment opportunities where desired, plays a key in fostering a positive culture towards renewable energy;

9.3.2 Careful analysis of how revenues from community-owned renewable energy generation are spent highlights the important role that successful engagement, and co-ownership in particular, stands to play in driving the renewable energy sector at large.

HOW UK COMMUNITY RENEWABLES REVENUE IS SPENT



Source: SCENE.

10 *How effective are current Government policies in encouraging local and medium-sized energy projects? Could they be improved in any way?*

10.1. The single-most important way in which local medium-sized energy projects can be encouraged is by facilitating market access for willing local authorities, businesses, communities and other potential stakeholders.

10.2. Experience in other European countries shows clearly that securing and safeguarding the opportunity to invest in renewable energy generation for these potential stakeholders is a crucial policy component, and a prerequisite to establishing a functional renewable economy.

10.3. Independent registries, such as http://connect.scenetwork.co.uk, should be supported to facilitate the exchange of engagement- and development best-practice.

10.4. Future support mechanisms for medium-scale renewable energy generation should be simple, stable and sustained.

10.5. The concept of renewable energy 'sleeving' should be introduced and promoted by local authorities, in order to match local community user-groups and energy intensive business with renewable generators.

10.6. Developers and generation companies should embrace more tangible and direct forms of community benefit, exemplified by the local discount tariffs being made available by companies such as RES and Good Energy.

10.7. Community projects should be supported at the planning and consenting stage through a combination of pooled financial support and bundled planning.

10.8. Community projects should be supported at the pre-planning stage through provision of access to wind and solar resource maps, geotechnical, planning and other environmental mapping resources.

10.9. For grant awards to renewable energy projects (of all scales), an effective system of due diligence checking should be implemented.

10.10. Government and local authorities should explore how neighbourhood planning and the role of neighbourhood forums could:

10.10.1 Establish partnerships between communities, local authorities, developers and businesses to enable communities to take a lead in liaising with and establishing relationships with the role of local energy production and supply in their area;

10.10.2 Help leverage in funding for their own projects, particularly in the pre-planning stages; and

10.10.3 Ensure that "social value" and long-term sustainable revenue for the community is a primary outcome of a more decentralised system.

10.11. Further and more detailed recommendations will be published in ResPublica's forthcoming Green Paper, *The Community Renewables Economy: Starting up, scaling up and spinning out.*

June 2013

The Stationery Office Limited
08/2013 031979 19585